WAGNER

Operating manual

3-in-1 Electrostatic, AirCoat & Airless System

Edition 02/2024

Inclusive of F230 diaphragm, VM500 Power Pack & GM5000 EAC electrostatic gun

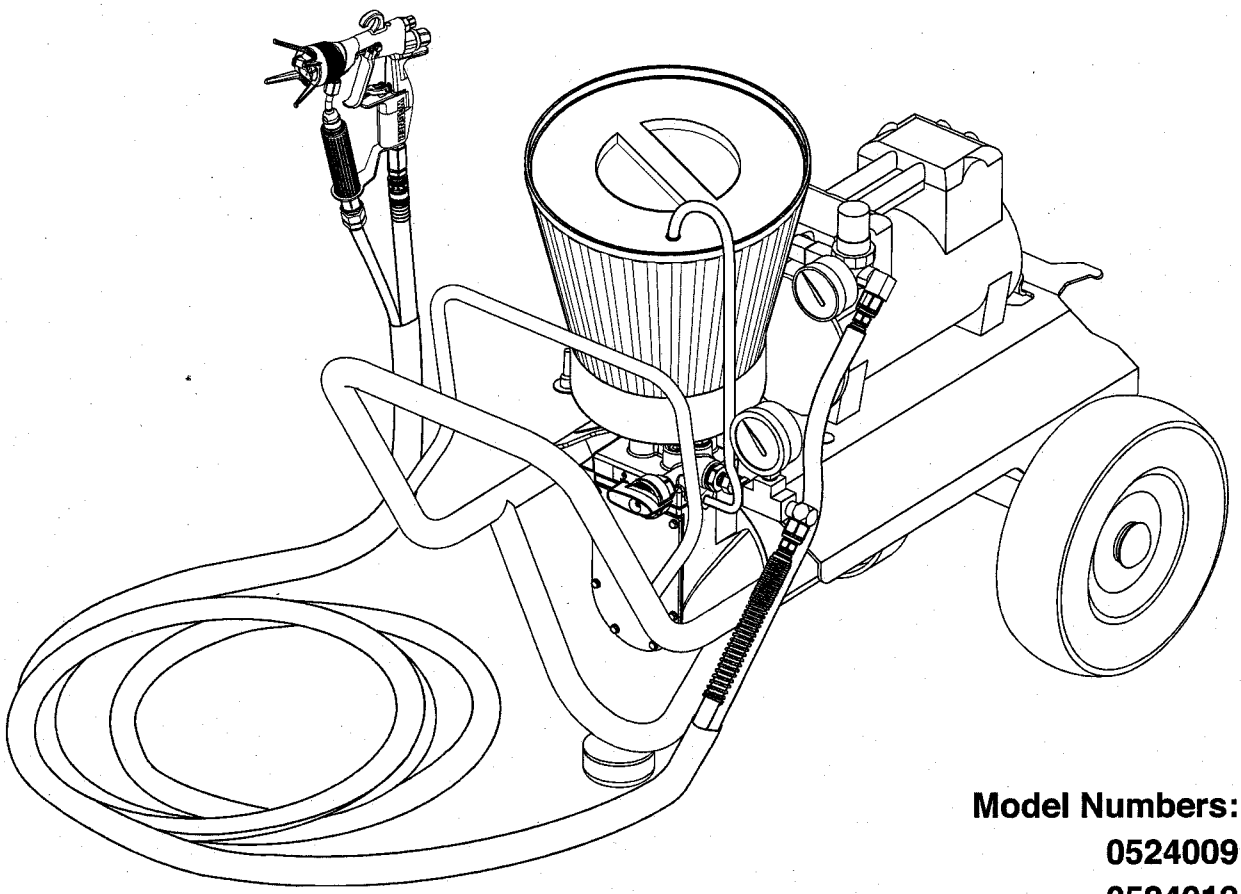
GB

Operating manual

WAGNER

Finish 230 AC Compact

Spray System



Model Numbers:
0524009
0524019

Finish 230 AC Compact

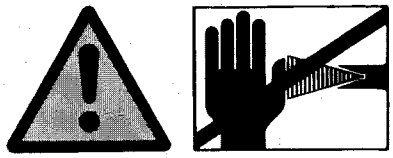
Edition 2 / 2009

Form No. 0524831A

(GB)

Warning!

Attention: Danger of injury by injection!
Airless units develop extremely high spraying pressures.



Danger

1

Never put your fingers, hands or any other parts of the body into the spray jet!
Never point the spray gun at yourself, other persons or animals.
Never use the spray gun without safety guard.

Do not treat a spraying injury as a harmless cut. In case of injury to the skin through coating materials or solvents, consult a doctor immediately for quick and expert treatment. Inform the doctor about the coating material or solvent used.

2

The operating instructions state that the following points must always be observed before starting up:

1. **Faulty units must not be used.**
2. **Secure WAGNER spray gun using the safety catch on the trigger.**
3. **Ensure that the unit is properly earthed. The connection must take place through a correctly earthed two-pole and earth socket outlet.**
4. **Check allowable operating pressure of high-pressure hose and spray gun.**
5. **Check all connections for leaks.**

3

The instructions regarding regular cleaning and maintenance of the unit must be strictly observed.
Before any work is done on the unit or for every break in work the following rules must be observed:

1. **Release the pressure from spray gun and hose.**
2. **Secure the WAGNER spray gun using the safety catch on the trigger.**
3. **Switch off unit.**

Be safety-conscious!

GB

Contents

1. Safety regulations for AirCoat spraying

This manual contains information that must be read and understood before using the equipment. When you come to an area that has one of the following symbols, pay particular attention and make certain to heed the safeguard.

This symbol indicates a potential hazard that may cause serious injury or loss of life. Important safety information will follow.

Attention

This symbol indicates a potential hazard to you or to the equipment. Important information that tells how to prevent damage to the equipment or how to avoid causes of minor injuries will follow.

Notes give important information which should be given special attention.

Attention

This unit is provided with a thermally protected automatic reset. If an overload occurs the thermally protected automatic reset disconnects the motor from the power supply.

- The motor will restart without warning when the protector automatically resets.
- Always disconnect the motor from the power supply before working on the equipment.
- When the thermally protected automatic reset disconnects the motor from the power supply, relieve pressure by turning the priming valve to PRIME.
- Turn the ON/OFF switch to OFF.

HAZARD: INJECTION INJURY - A high pressure stream produced by this equipment can pierce the skin and underlying tissues, leading to serious injury and possible amputation.

DO NOT TREAT AN INJECTION INJURY AS A SIMPLE CUT! Injection can lead to amputation. See a physician immediately.

The maximum operating range of the unit is 193 bar (19.3 MPa, 2800 PSI) fluid pressure.

PREVENTION:

- NEVER aim the gun at any part of the body.
- NEVER allow any part of the body to touch the fluid stream. DO NOT allow body to touch a leak in the fluid hose.
- NEVER put your hand in front of the gun. Gloves will not provide protection against an injection injury.
- ALWAYS lock the gun trigger, shut the fluid pump off and release all pressure before servicing, cleaning the tip guard, changing tips, or leaving unattended. Pressure will not be released by turning off the engine. The PRIME/SPRAY valve or pressure bleed valve must be turned to their appropriate positions to relieve system pressure. Refer to the PRESSURE RELIEF PROCEDURE described in this manual.
- ALWAYS keep tip guard in place while spraying. The tip guard provides some protection but is mainly a warning device.
- ALWAYS remove the spray tip before flushing or cleaning the system.
- The paint hose can develop leaks from wear, kinking and abuse. A leak can inject material into the skin. Inspect the hose before each use.
- NEVER use a spray gun without a working trigger lock and trigger guard in place.
- All accessories must be rated at or above the maximum operating pressure range of the sprayer. This includes spray tips, guns, extensions, and hose.

NOTE TO PHYSICIAN:
Injection into the skin is a traumatic injury. It is important to treat the injury as soon as possible. DO NOT delay treatment to research toxicity. Toxicity is a concern with some coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.

HAZARD: EXPLOSION OR FIRE - Solvent and paint fumes can explode or ignite. Severe injury and/or property damage can occur.

PREVENTION:

- Provide extensive exhaust and fresh air introduction to keep the air within the spray area free from accumulation of flammable vapors.
- Avoid all ignition sources such as static electricity sparks, electrical appliances, flames, pilot lights, hot objects, and sparks from connecting and disconnecting power cords or working light switches.
- Do not smoke in spray area.
- Fire extinguisher must be present and in good working order.
- Place sprayer at least 6.1 m (20 feet) from the spray object in a well ventilated area (add more hose if necessary). Flammable vapors are often heavier than air. Floor area must be extremely well ventilated. The pump contains arcing parts that emit sparks and can ignite vapors.
- The equipment and objects in and around the spray area must be properly grounded to prevent static sparks.
- Use only conductive or earthed high pressure fluid hose. Gun must be earthed through hose connections.
- Power cord must be connected to a grounded circuit (electric units only).
- Always flush unit into separate metal container, at low pump pressure, with spray tip removed. Hold gun firmly against side of container to ground container and prevent static sparks.
- Follow material and solvent manufacturer's warnings and instructions. Be familiar with the coating material's MSDS sheet and technical information to ensure safe use.
- The unit must be connected to an earthed object. Use the green earthing wire to connect the unit to a water pipe, steel beam, or other electrically earthed surface.
- Do not use materials with a flashpoint below 21° C (70° F). Flashpoint is the temperature at which a fluid can produce enough vapors to ignite.
- Plastic can cause static sparks. Never hang plastic to enclose spray area. Do not use plastic drop cloths when spraying flammable materials.
- Use lowest possible pressure to flush equipment.

GAS ENGINE (WHERE APPLICABLE)
Always place sprayer outside of structure in fresh air. Keep all solvents away from engine exhaust. Never fill fuel tank with a running or hot engine. Hot surface can ignite spilled fuel. Always attach ground wire from pump to a grounded object. Refer to engine owner's manual for complete safety information.

HAZARD: EXPLOSION HAZARD DUE TO INCOMPATIBLE MATERIALS - Will cause severe injury or property damage.

PREVENTION:
- Do not use materials containing bleach or chlorine.
- Do not use halogenated hydrocarbon solvents such as methylene chloride and 1,1,1 - trichloroethane. They are not compatible with aluminum and may cause an explosion. If you are unsure of a material's compatibility with aluminum, contact your coating's supplier.

HAZARD: HAZARDOUS VAPORS - Paints, solvents, insecticides, and other materials can be harmful if inhaled or come in contact with body. Vapors can cause severe nausea, fainting, or poisoning.

PREVENTION:
- Use a respirator or mask if vapors can be inhaled. Read all instructions supplied with the mask to be sure it will provide the necessary protection.
- Wear protective eyewear.
- Wear protective clothing as required by coating manufacturer.

HAZARD: GENERAL - This product can cause severe injury or property damage.

PREVENTION:
- Read all instructions and safety precautions before operating equipment.
- Follow all appropriate local, state, and national codes governing ventilation, fire prevention, and operation.
- Pulling the trigger causes a recoil force to the hand that is holding the spray gun. The recoil force of the spray gun is particularly powerful when the tip has been removed and a high pressure has been set on the airless pump. When cleaning without a spray tip, set the pressure control knob to the lowest pressure.
- Use only manufacturer authorized parts. User assumes all risks and liabilities when using parts that do not meet the minimum specifications and safety devices of the pump manufacturer.
- Before each use, check all hoses for cuts, leaks, abrasion or bulging of cover. Check for damage or movement of couplings. Immediately replace the hose if any of these conditions exist. Never repair a paint hose. Replace it with another earthed high-pressure hose.
- Make sure power cord, air hose and spray hoses are routed in such a manner to minimize slip, trip and fall hazard
- ALWAYS follow the material manufacturer's instructions for safe handling of paint and solvents.
- Do not use this unit in workshops that are covered under the explosion prevention regulations.
- Clean up all material and solvent spills immediately to prevent slip hazard.
- Always unplug cord from outlet before working on equipment (electric units only).
- Always keep the power cord plug in sight during usage to prevent any accidental shutdown or startup.
- Wear ear protection. This unit can produce noise levels above 85 dB(A).
- Never leave this equipment unattended. Keep away from children or anyone not familiar with the operation of airless equipment.
- Do not move unit while hopper is filled or while unit is running.
- Do not spray on windy days.

1.1 Earthing Instructions

Electric models must be earthed. In the event of an electrical short circuit, earthing reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having an earthing wire with an appropriate earthing plug. The plug must be plugged into an outlet that is properly installed and earthed in accordance with all local codes and ordinances.

DANGER — Improper installation of the earthing plug can result in a risk of electric shock. If repair or replacement of the cord or plug is necessary, do not connect the green earthing wire to either blade terminal. The wire with insulation having a green outer surface with or without yellow stripes is the earthing wire and must be connected to the earthing pin.

Check with a qualified electrician or serviceman if the earthing instructions are not completely understood, or if you are in doubt as to whether the product is properly earthed. Do not modify the plug provided. If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician.

1.2 Technical Data

Weight ..... 40.6 kg (89.5 lbs.)

Capacity..... Up to 1.69 liters (0.45 gallon) per minute

Power requirement

Model 0524009 ..... 10 amp minimum circuit on 230-240 VAC, 50 Hz current, 1 PH

Model 0524019 ..... 10 amp minimum circuit on 230 VAC, 50 Hz current, 1 PH

Power consumption..... 1000W

Short circuit current (SCC)..... 8 amp

Max. fluid pressure ..... Up to 193 bar (19 MPa, 2800 PSI)

Max. air pressure..... Up to 2.1 bar (0.21 MPa, 30 psi)

Dimensions..... 81.3 cm x 53.3 cm x 55.9 cm (32" L x 21" W x 22" H)

Noise level..... less than 70dB (A).

Vibration levels:

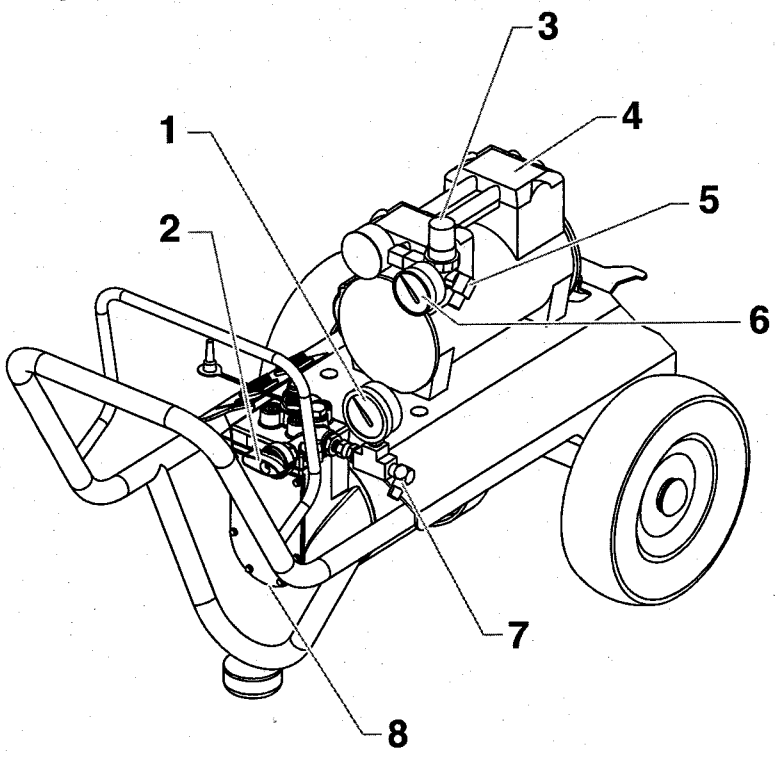
Spray gun ..... $< 2.5 m/s^2$

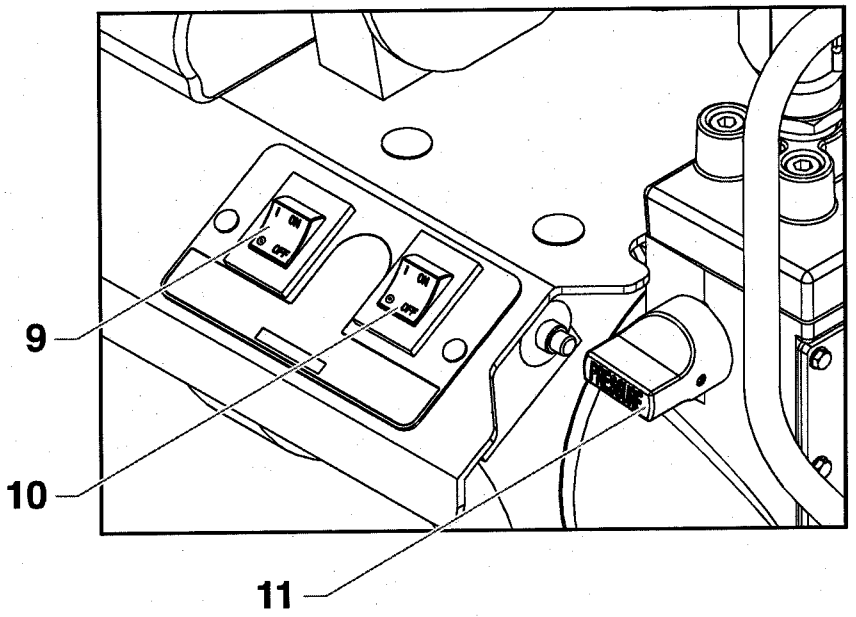
Cart handle..... $6.5 m/s^2$ when unit is operating

2. General Description

This fine finish spray system is versatile enough to use for low pressure fine finish work as well as high pressure airless spraying. The system includes a diaphragm paint pump and an air compressor that work together to provide this versatility.

2.1 System Diagram





1 Material pressure gauge
2 PRIME/SPRAY valve
3 Air pressure regulator
4 Air compressor
5 Air outlet fitting
6 Air pressure gauge
7 Material outlet fitting
8 Diaphragm pump
9 Compressor ON/OFF switch
10 Diaphragm pump ON/OFF switch
11 Pressure control knob

3. Setup

Use this procedure to set up the spray system.

1. Make sure the diaphragm pump ON/OFF switch and the compressor ON/OFF switch are in the OFF position.
2. Make sure the pressure control knob is turned fully counterclockwise to its lowest pressure setting.
3. Using a wrench, attach a minimum of 7.5 m of 6 mm nylon airless spray hose to the material outlet fitting on the pump. Tighten securely.
4. Attach the air hose to the air outlet fitting on the compressor. Tighten securely.
5. Lock the gun by flipping the trigger lock into lock position (see spray gun manual).

Make sure to read the spray gun's instruction manual in order to be familiar with all of its functions and corresponding safety information.

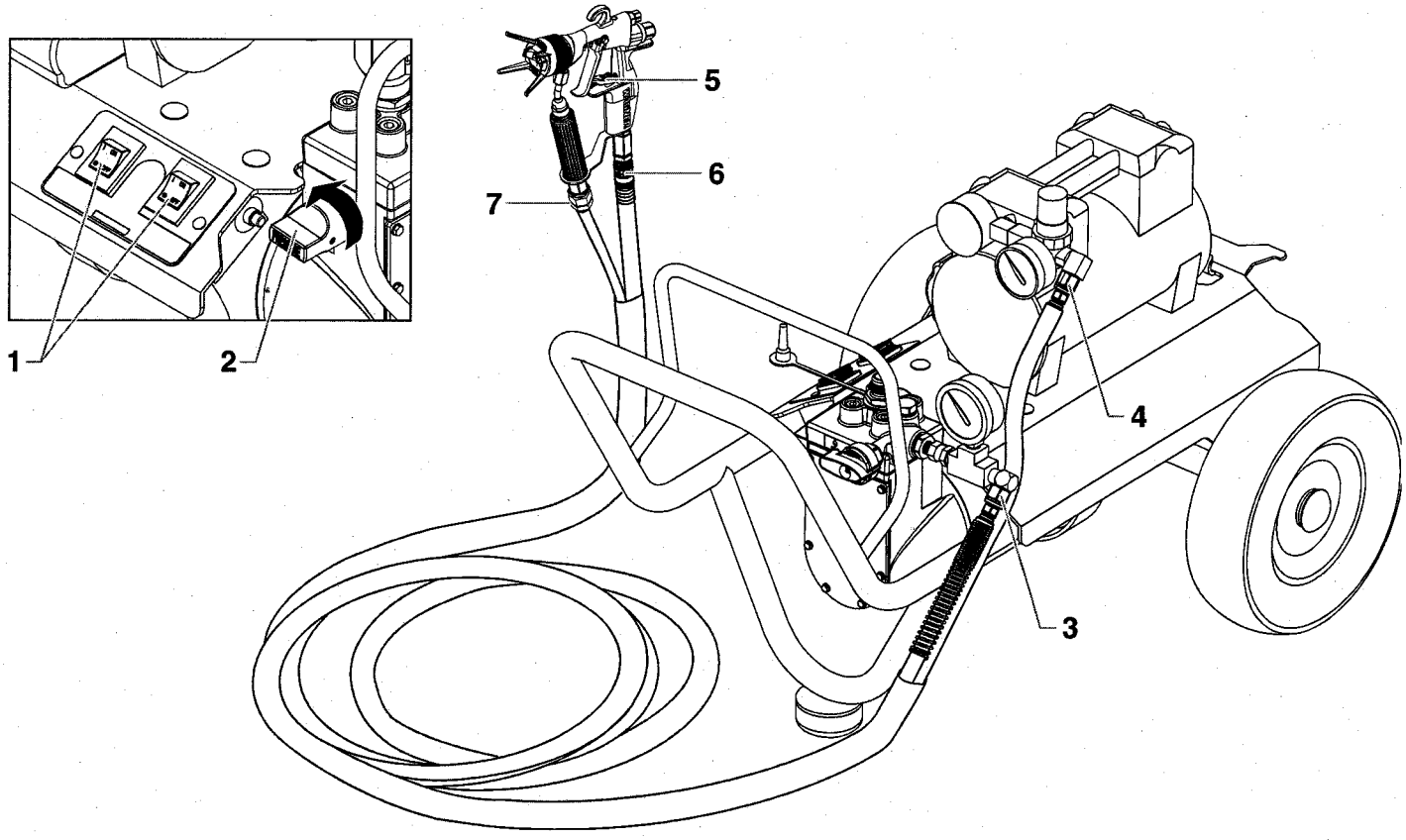
6. Attach the spray hose to the material inlet fitting on the spray gun. Using two wrenches (one on the gun and one on the hose), tighten securely.

Make sure all airless hoses and spray guns are electrically grounded and rated for at least 193 bar (19 MPa, 2800 PSI) fluid pressure.

7. Attach the air hose coupling to the air inlet fitting on the spray gun. Attach the air hose to the coupling. Tighten securely.

Reversing the hose connections could result in serious injury. Make sure the airless spray hose is connected from the diaphragm pump to the material inlet fitting on the gun and the air hose is connected from the compressor to the air inlet fitting on the gun.

8. Make sure the electrical service is 10 amp minimum.
9. Plug the power cord into a properly grounded outlet at least 7.5 m from the spray area.

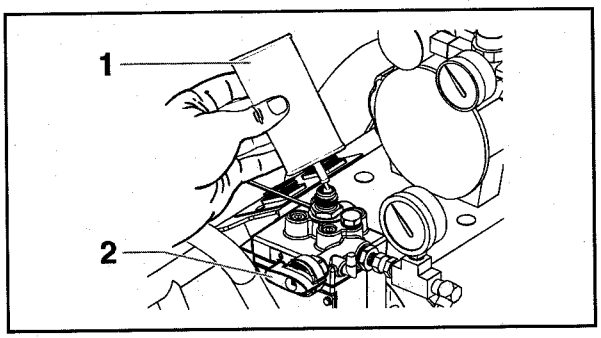


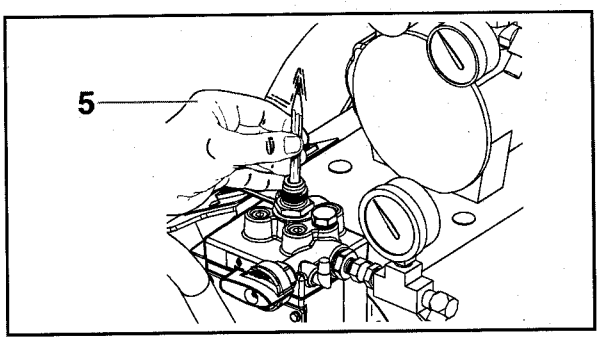
4. Operation

Use the following procedures to operate the spray system.

4.1 Preparing to Prime

1. Fill the inlet valve with water or with a light household oil.
2. Make sure that the PRIME/SPRAY valve is set to PRIME and that the pressure control knob is turned counterclockwise to its lowest pressure setting.
3. Turn on the pump by moving the pump ON/OFF switch to the ON position.
4. Increase the pressure by turning the pressure control knob clockwise 1/2 turn.
5. Force the inlet valve to open and close by pushing on it with a screwdriver or the eraser end of a pencil. It should move up and down about 1.5 mm. Continue until water or oil is sucked into the pump. This will wet the moving parts and break loose any old paint residue.
6. Put the palm of your hand over the inlet. Turn the pressure control knob clockwise to its maximum setting. You should feel suction coming from the inlet valve. If you do not, refer to the "Removing and Cleaning the Outlet Valve" procedure in the Maintenance section.
7. Turn the pressure control knob counterclockwise to the minimum pressure setting.
8. Turn the pump ON/OFF switch to OFF.





4.2 Priming with Hopper Assembly

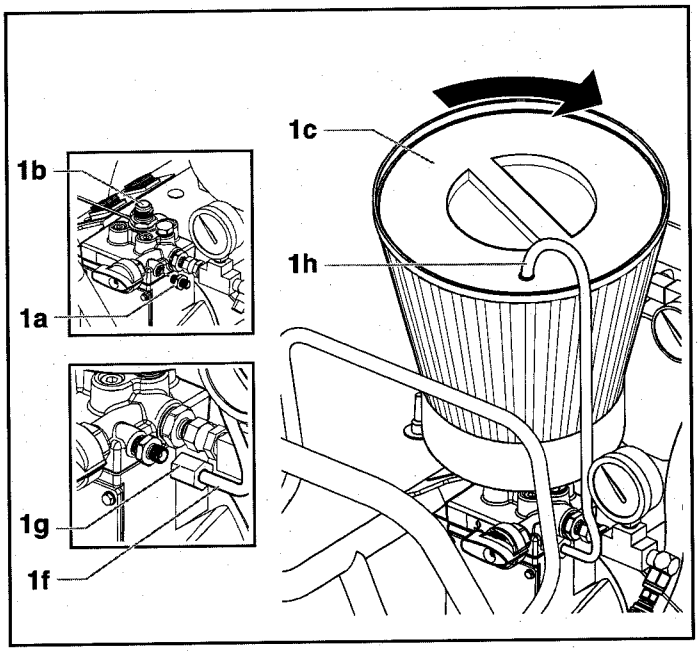
1. Attach the hopper assembly to the pump.
   a. Screw the return tube fitting into the return tube port on the side of the pump.

Do not over-tighten. Hand tighten only. Some threads will be visible even when fully tightened.

   b. Thread the return hose onto the return hose fitting on the pump.
   c. Turn the paint hopper clockwise to thread it onto the inlet valve. Continue to turn the paint hopper until it is secure on the inlet valve.

Make sure the threads are straight and the hopper turns freely on the inlet valve. Do not cross-thread.

   d. Place the filter screen into the bottom of the paint hopper and snap it in position.
   e. Make sure that the motor ON/OFF switch is turned to OFF.
   f. Place the straight end of the return tube into the return tube fitting.
   g. Thread the nut on the return tube fitting and tighten until the return tube is secure.
   h. Place the hook end of the return tube into the hole in the paint hopper cover.
2. Turn the pressure control knob counterclockwise to its lowest pressure setting.
3. Remove the paint hopper cover and fill the paint hopper with material or place the suction set into a bucket of material.
4. Turn the PRIME/SPRAY valve to PRIME.
5. Move the motor ON/OFF switch to ON.
6. Turn the pressure control knob clockwise to between half and full pressure. Let the unit prime 1 to 2 minutes after material begins to flow through the return tube.



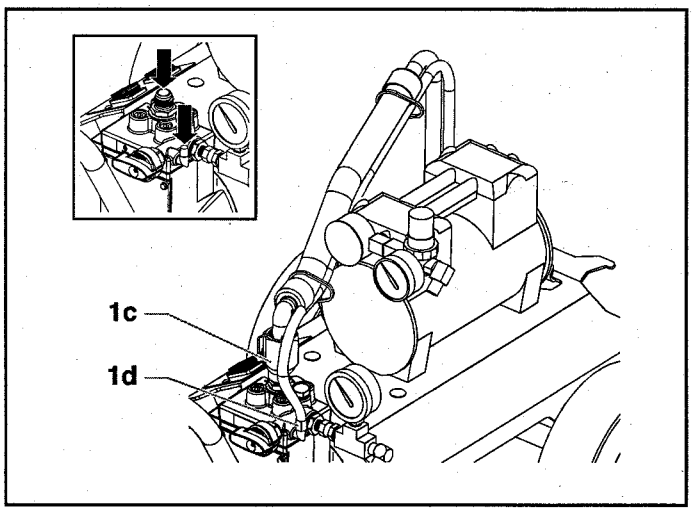
Attention

Always reduce the pressure to zero by triggering the spray gun before changing the position of the PRIME/SPRAY valve. Failure to do so may cause damage to the paint pump diaphragm.

Attention

If the pressure control knob is reduced to zero and the PRIME/SPRAY valve is still on SPRAY while the pump is operating, there will be high pressure in the hose and spray gun until the PRIME/SPRAY valve is turned to PRIME or until the spray gun is triggered to relieve the pressure.

4.3 Priming with Optional Suction Set



1. Attach the suction set to the pump.
   a. Remove the hopper return tube fitting. Screw the suction set return tube fitting into the return tube port on the side of the pump.

Do not over-tighten. Hand tighten only. Some threads will be visible even when fully tightened.

   b. Align the nut on the suction set with the threaded inlet valve on the pump block.
   c. Thread the suction hose onto the inlet valve on the pump.

Make sure the threads are straight and the hopper turns freely on the inlet valve. Do not cross-thread.

   d. Thread the return tube onto the return tube fitting on the pump.
2. Place the suction set into a container of paint.
3. Turn the pressure control knob counterclockwise to the minimum pressure setting.

Attention

Always reduce the pressure to zero by triggering the spray gun before changing the position of the PRIME/SPRAY valve. Failure to do so may cause damage to the paint pump diaphragm.

4. Turn the PRIME/SPRAY valve to PRIME.
5. Move the pump ON/OFF switch to the ON position.
6. Turn the pressure control knob clockwise to between half and full pressure. Let the unit prime 1 to 2 minutes after paint begins to flow through the return hose until no bubbles are present.
7. Turn the pressure control knob counterclockwise to the minimum pressure setting.
8. Move the pump ON/OFF switch to the OFF position.

Attention

If the pressure control knob is reduced to zero and the PRIME/SPRAY valve is still on SPRAY while the pump is operating, there will be high pressure in the hose and spray gun until the PRIME/SPRAY valve is turned to PRIME or until the spray gun is triggered to relieve the pressure.

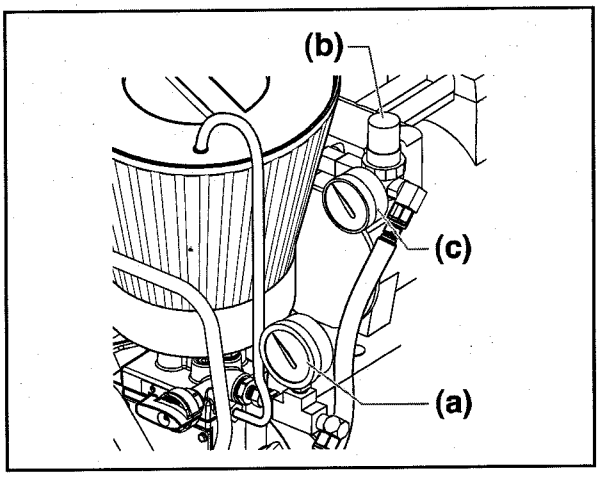
5. Spraying

The AirCoat spray system has two different painting modes. The AirCoat mode is used for fine finish work with low to medium viscosity materials (oil, stains, lacquers, etc...). The airless mode is used for general painting with high viscosity materials (latex).

5.1 Spraying in AirCoat mode

Use the AirCoat mode for low-pressure fine finish work (recommended pump pressure up to 69 bar (6.9 MPa, 1000 PSI).

1. Make sure that the airless spray hose is free of kinks and clear of objects with sharp cutting edges.
2. Turn the pressure control knob counterclockwise to its lowest setting.
3. Turn the compressor air pressure regulator (b) counterclockwise to its lowest setting.
4. Move the compressor ON/OFF switch to the ON position.
5. Move the pump ON/OFF switch to the ON position.
6. Turn the PRIME/SPRAY valve to SPRAY.
7. Turn the pressure control knob clockwise until the material pressure gauge (a) reads 27.5 bar (2.7 MPa, 400 PSI). The paint hose should stiffen as paint begins to flow through it.
8. Turn the air pressure regulator (b) clockwise until the air pressure gauge (c) reads 1.3 bar (0.13 MPa, 20 PSI).



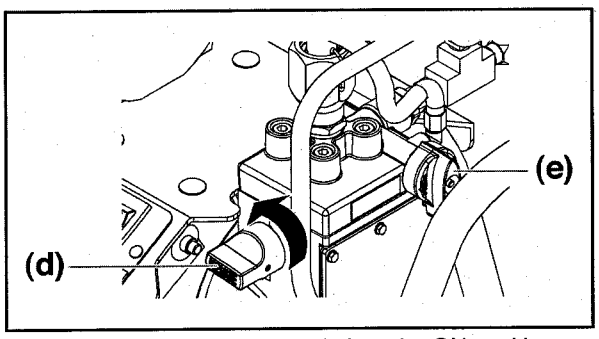
9. Unlock the spray gun gun.
10. Trigger the spray gun to bleed air out of the material hose.
11. When material reaches the spray tip, spray a test area to check the spray pattern.
12. Adjust the spray pattern to the desired size and atomization.
    - Use the pressure control knob to control the flow of paint to the gun.
    - Use the air pressure regulator to control the amount of atomization air available to the gun.
    - Use the pattern adjustment knob on the gun to fine tune the spray pattern.

Refer to the spray gun Owner's Manual for information on the operation of the gun.

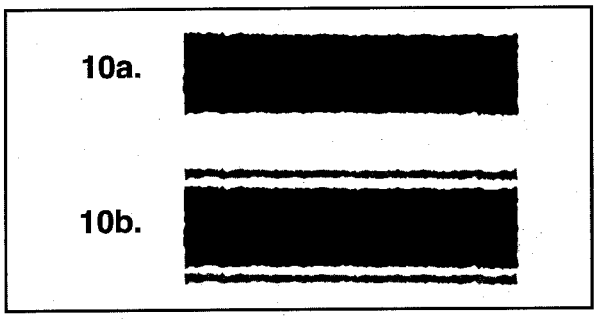
5.2 Spraying in Airless Mode

Use the airless mode for general high-pressure spraying (pump pressure from 34.4 bar (3.4 MPa, 500 psi) to 193 bar (19.3 MPa, 2800 PSI).

1. Make sure that the airless spray hose is free of kinks and clear of objects with sharp cutting edges.
2. Turn the pressure control knob (d) counterclockwise to its lowest setting.
3. Turn the PRIME/SPRAY valve (e) to SPRAY.



4. Move the pump ON/OFF switch to the ON position.
5. Make sure the compressor ON/OFF switch is in the OFF position.
6. Turn the pressure control knob clockwise to its highest setting. The paint hose should stiffen as paint begins to flow through it.
7. Unlock the gun by turning the gun lock nut counter-clockwise (when looking from the back of the gun) three full turns. This opens the material valve in the gun.
8. Trigger the spray gun to bleed air out of the material hose.
9. When material reaches the spray tip, spray a test area to check the spray pattern.
10. Use the lowest pressure setting necessary to get a good spray pattern.
    a. If the pressure is set too high, the spray pattern will be too light.
    b. If the pressure is set too low, tailing will appear or the paint will spatter out in "gobs" rather than in a fine spray.



5.3 Pressure Relief Procedure

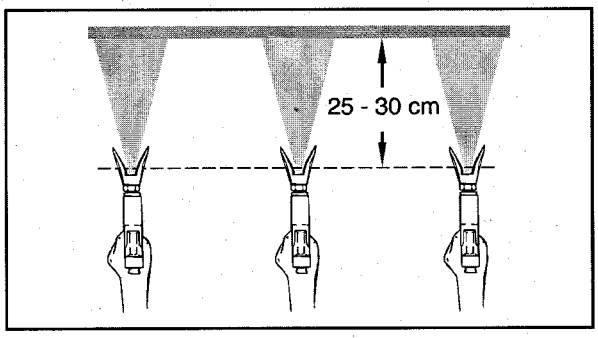
Be sure to follow the pressure relief procedure when shutting the unit down for any purpose, including servicing or adjusting any part of the spray system, changing or cleaning spray tips, or preparing for cleanup.

1. Turn the pressure control knob counterclockwise to its lowest setting.
2. Turn the PRIME/SPRAY valve to the PRIME position.
3. Trigger the gun to remove any pressure that still may be in the hose.
4. Lock the gun by turning the gun lock nut clockwise (when looking from the back of the gun) until it stops. This closes the material valve in the gun.

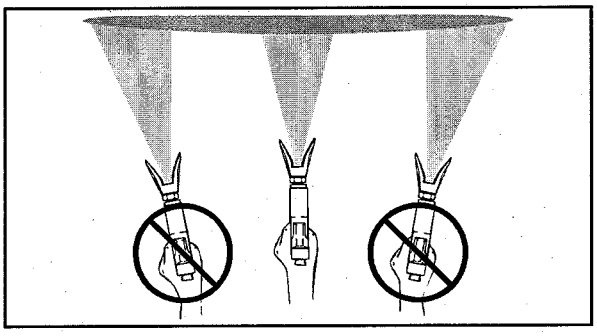
Injection hazard. Do not spray without the tip guard in place. NEVER trigger the gun unless the tip is completely turned to either the spray or the unclog position. ALWAYS engage the gun trigger lock before removing, replacing or cleaning tip.

6. Spraying Technique

The key to a good paint job is an even coating over the entire surface. Keep your arm moving at a constant speed and keep the spray gun at a constant distance from the surface. The best spraying distance is 25 to 30 cm between the spray tip and the surface.

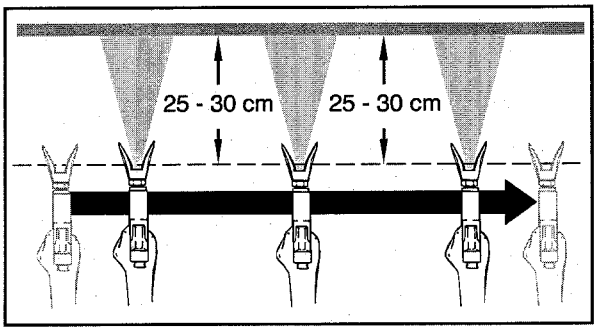


Keep the spray gun at right angles to the surface. This means moving your entire arm back and forth rather than just flexing your wrist.



Keep the spray gun perpendicular to the surface, otherwise one end of the pattern will be thicker than the other.

Trigger gun after starting the stroke. Release the trigger before ending the stroke. The spray gun should be moving when the trigger is pulled and released. Overlap each stroke by about 30%. This will ensure an even coating.



When finished spraying, perform Pressure Relief Procedure.

If you expect to be away from your spray project for more than 1 hour, follow the Overnight Storage procedure described in the Cleanup section of this manual.

7. Cleanup

7.1 Overnight Storage

Shutdown

1. Turn the pressure control knob counterclockwise to the minimum setting.
2. Turn the PRIME/SPRAY valve to PRIME.
3. Move the pump ON/OFF switch to the OFF position.
4. Move the compressor ON/OFF switch to the OFF position.
5. Wait a couple seconds, then trigger the gun into the material container to release built up fluid pressure from the pump and air pressure from the compressor.
6. Lock the gun by flipping the trigger lock into lock position (see spray gun manual).
7. Unplug the unit.
8. For latex materials only, pour 100 ml water slowly on the top of the paint to prevent the paint from drying. For other materials, seal the material container keeping the return hose in the paint.
9. Wrap the spray gun assembly in a damp cloth and place it in a plastic bag. Seal the bag shut.
10. Place the unit in a safe place out of the sun for short-term storage.

Startup

1. Remove the gun from the plastic bag.
2. Stir the water into the paint for latex materials. Remove the cover from the material container and stir the paint for all other materials.
3. Perform the appropriate procedure in the "Painting" section of this manual for the type of spraying that will be performed.

7.2 Long-Term Storage

Do not allow paint to build up on the motor or the motor will overheat. Do not allow flammable solvents to come in contact with the motor or they could ignite.

If spraying with latex paint, use warm soapy water for cleaning. If using oil or alkyd-based paints, use mineral spirits or paint thinner.

Attention

Do not use mineral spirits or paint thinner on latex paint, or the mixture will turn into a jelly-like substance which is difficult to remove.

7.3 Clearing the Paint Hopper

1. Lock the gun by flipping the trigger lock into lock position (see spray gun manual).
2. Turn the pressure control knob counterclockwise to the minimum setting.
3. Turn the PRIME/SPRAY valve to PRIME.
4. Move the motor ON/OFF switch to OFF.
5. Direct the return tube into the original material container.
6. Move the motor ON/OFF switch to ON.
7. Turn the pressure control knob to 1/2 maximum pressure. This will draw the remaining material in the paint hopper through the pump, up the return tube, and into the material container.
8. Turn the pressure control knob counterclockwise to the minimum pressure setting.
9. Trigger the gun to relieve pressure and lock the gun.
10. Remove the spray tip and guard and place them into a container of water or appropriate solvent for the type of material with which you are painting.
11. Fill the paint hopper with water or an appropriate solvent for the type of material with which you are painting.
12. Direct the return tube into a waste bucket.
13. Increase the pressure to 1/2 the maximum pressure. Let the water or solvent circulate for 2-3 minutes to flush material out of the pump, the paint hopper, and the return tube.

7.4 Clearing the Optional Suction Set

1. Turn the pressure control knob counterclockwise to the minimum setting.
2. Turn the PRIME/SPRAY valve to PRIME.
3. Move the pump ON/OFF switch to the OFF position.
4. Move the compressor ON/OFF switch to the OFF position.
5. Wait a couple seconds, then trigger the gun into the material container to release built up fluid pressure from the pump and air pressure from the compressor.
6. Lock the gun by flipping the trigger lock into lock position (see spray gun manual).
7. Remove the suction hose from the material and hold it above a bucket of water or solvent. Leave the return hose in the material bucket.

Attention

Do not use mineral spirits or paint thinner on latex paint, the mixture will turn into a jelly-like substance that is difficult to remove.

8. Move the pump ON/OFF switch to the ON position.
9. Turn the pressure control knob to 1/2 maximum pressure. This will draw the remaining material in the suction hose through the pump, down the return hose and into the material bucket.
10. Turn the pressure control knob counterclockwise to the minimum setting.
11. Remove the spray tip and guard and place them into a container of the appropriate solvent.
12. Place the attached suction hose and return hose into the container of water or appropriate solvent.
13. Increase the pressure to 1/2 the maximum pressure. Let the water or solvent circulate for 2-3 minutes to flush paint out of the pump, the suction hose and the return hose.

7.5 Clearing the Spray Hose

1. Turn the pressure control knob counterclockwise to the minimum pressure setting.
2. Turn the PRIME/SPRAY valve to SPRAY.
3. Unlock the spray gun trigger.
4. Carefully trigger the gun with the spray tip removed against the inside of the material container.
5. Turn the pressure control knob slowly clockwise until material starts to flow into the container. As soon as the water or solvent starts to emerge from the spray gun, release the trigger.
6. Change to clean water or solvent and continue circulating for another 5 minutes to thoroughly clean the hose, pump and spray gun.
7. Turn the pressure control knob counterclockwise to its lowest setting.
8. Turn the PRIME/SPRAY valve to PRIME.
9. Trigger the gun into the water or solvent container to release built up fluid pressure from the pump.
10. Lock the gun by flipping the trigger lock into lock position (see spray gun manual).
11. Move the pump ON/OFF switch to the OFF position.

7.6 Final Cleanup

1. Remove the hopper assembly or suction set from the inlet valve.
2. Clean the threads of the inlet valve with a damp cloth.
3. Fill the inlet valve with water or with a light household oil.
4. Make sure that the PRIME/SPRAY valve is set to PRIME and that the pressure control knob is turned counterclockwise to its lowest pressure setting.
5. Turn on the pump by moving the pump ON/OFF switch to the ON position.
6. Increase the pressure by turning the pressure control knob clockwise 1/2 turn.
7. Turn the PRIME/SPRAY valve to SPRAY to distribute the oil.

Proper cleaning and oiling of the pump after use are the most important steps to perform to insure proper operation after storage.

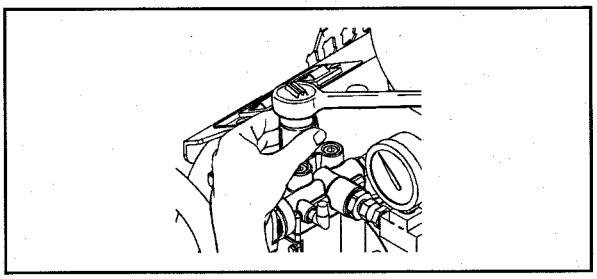
8. Turn the pressure control knob counterclockwise to its lowest setting.
9. Turn the PRIME/SPRAY valve to PRIME.
10. Unlock and trigger the gun to remove any pressure that may still be in the hose.
11. Lock the gun by flipping the trigger lock into lock position (see spray gun manual).
12. Turn off the pump by moving the pump ON/OFF switch to the OFF position
13. Remove the material hose and air hose from the spray gun using two adjustable wrenches. Refer to the spray gun Owner's Manual for gun cleaning instructions.
14. Wipe the entire unit, hose, and gun with a damp cloth to remove accumulated paint.

8. Maintenance

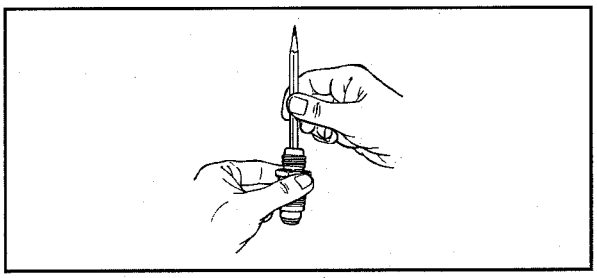
Follow these procedures when encountering problems indicated in the troubleshooting section.

8.1 Removing and Cleaning the Inlet Valve

1. Perform the Pressure Relief Procedure, turn off and unplug the unit.
2. Remove the inlet valve assembly using a 27 millimeter socket or box end wrench.



3. Test movement of the valve by pushing on it from the open end of the valve housing with a screwdriver or the eraser end of a pencil. It should move about 1.5 mm. If it does not move, it should be cleaned or replaced.



The inlet valve must be oiled after every job. This will reduce or eliminate priming problems the next time the unit is used as well as extend the life of the valve.

4. Thoroughly clean the valve assembly with water or the appropriate solvent. Use a small brush.
5. If the valve has been properly cleaned and water drips out of the bottom, the valve is worn and needs to be replaced. A properly seated valve filled with water and held vertically will not drip.
6. Install a new or cleaned valve in the pump block and then fill the valve with light oil or solvent.

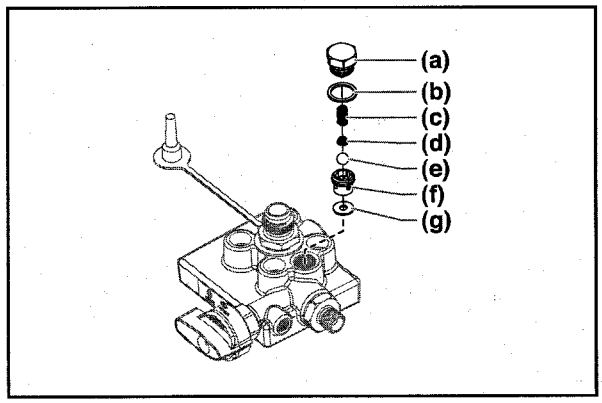
8.2 Removing and Cleaning the Outlet Valve

It may be necessary to remove and clean the outlet valve or to replace parts inside the valve worn out through normal use.

1. Remove the outlet valve nut (a) with a wrench.
2. Remove and clean the ball stop (d) and small spring (c) inside the valve using a wire hook or tweezers. Replace the spring if it is broken or worn.

This spring is manufactured to a very specific tension. Do not stretch the spring. Do not put in an unauthorized substitute. See the paint pump assembly parts diagram for the proper replacement part number.

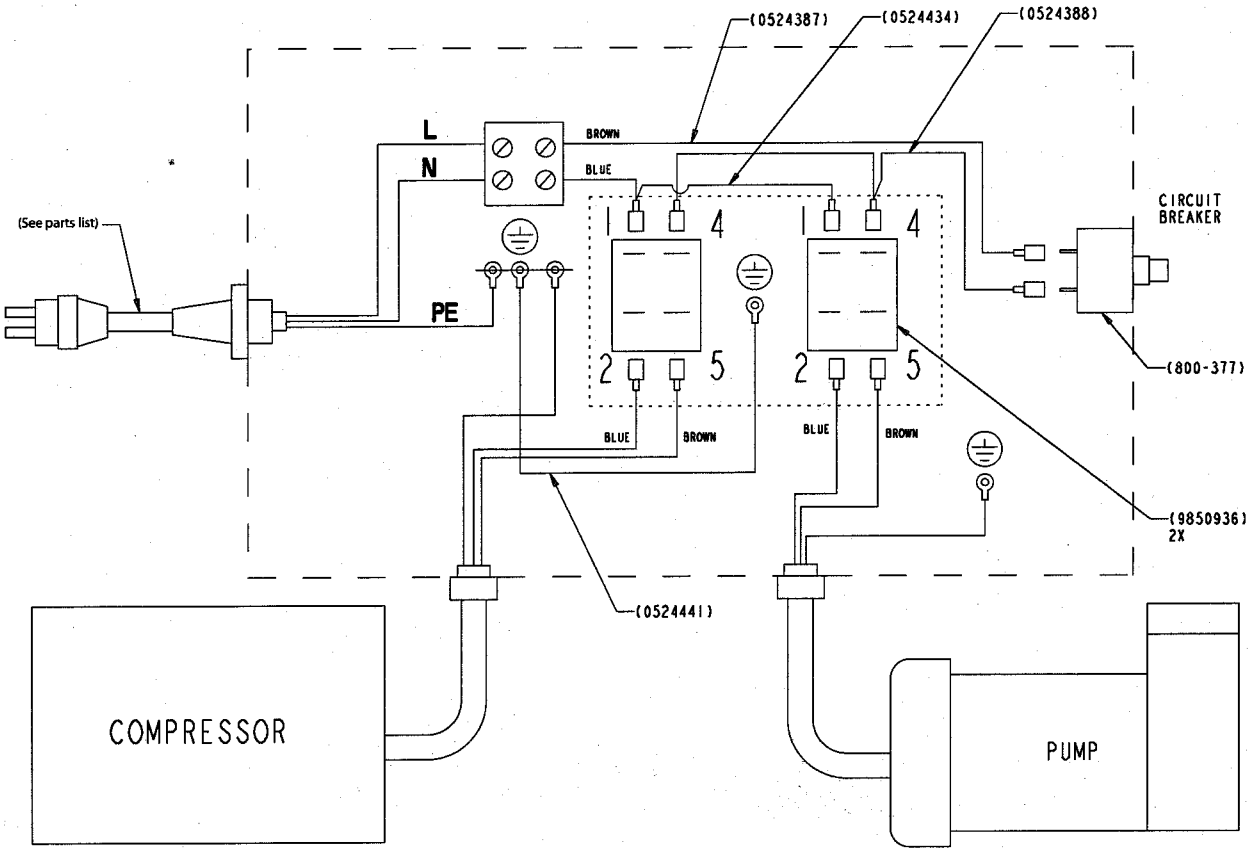
3. Remove the seat (f) and ball (e) assembly.
4. Clean all parts thoroughly. If the ball or seat show any sign of wear or damage, replace them with new parts. This carbide ball must seal tightly against its seat for the valve to function properly.
5. Cover all parts with a thin coat of light oil before reassembling.
6. Drop in the valve ball (e).
7. Insert the protector (f) and spring and replace the valve body. Be sure that the O-ring (b) is positioned properly and that the tongue on the cap fits inside the spring.
8. Tighten the valve body securely with an adjustable wrench. Do not over-tighten.



Wear on the ball is almost impossible to detect visually. To test for a worn outlet valve assembly, turn the pressure control knob clockwise to its highest setting and run water only through the pump for 10 to 15 minutes without triggering the gun.

If the valve is defective, the end cap will get very hot to the touch. If it is functioning properly, it will stay approximately the same temperature as the water running through it.

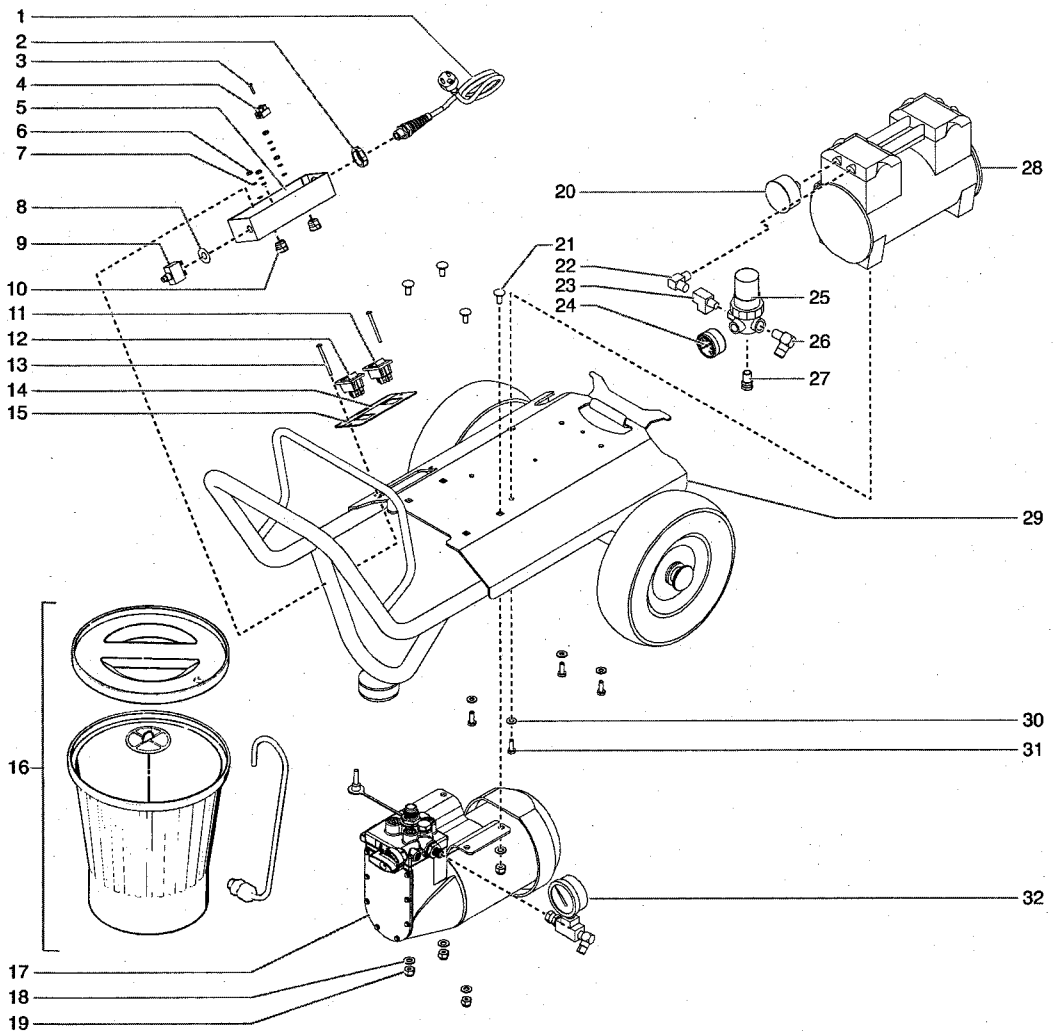
9. Electrical Schematic



10. Troubleshooting

Problem	Cause	Solution
A. The unit does not start up.	1. The unit is not plugged in.	1. Plug the unit in.
	2. The ON/OFF switch is set to OFF.	2. Turn the ON/OFF switch to ON.
	3. A fuse is blown in the unit.	3. Replace the blown fuse with the proper replacement.
	4. Low or no voltage is coming from the wall plug.	4. Properly test the power supply voltage.
	5. The unit was turned off while still under pressure.	5. Turn the PRIME/SPRAY knob to PRIME.
	6. The extension cord is damaged or has too low a capacity.	6. Replace the extension cord.
	7. The thermal overload on the unit is tripped.	7. Allow the motor to cool and move the unit to a cooler spot.
	8. There is a problem with the motor.	8. Take the unit to a SprayTECH Authorized Service Center.
B. The pump starts up but does not draw in paint when the PRIME/SPRAY valve is set to PRIME.	1. The pump will not prime properly or has lost prime.	1. Try to prime the pump again.
	2. The paint bucket is empty or the suction hose is not totally immersed in the paint.	2. Immerse the suction hose in paint.
	3. The suction filter is clogged.	3. Clean the suction set filter.
	4. The suction hose is loose at the inlet valve.	4. Clean the tube connection and tighten it securely.
	5. The inlet valve is stuck.	5. Clean the inlet valve.
	6. The outlet valve is stuck.	6. Clean the outlet valve and replace any worn parts.
	7. The PRIME/SPRAY valve is plugged.	7. Take the unit to a SprayTECH Authorized Service Center.
	8. The inlet valve is worn or damage.	8. Replace the inlet valve.
	9. There is a problem with the diaphragm.	9. Take the unit to a SprayTECH Authorized Service Center.
	10. The hydraulic oil level is low or empty.	10. Take the unit to a SprayTECH Authorized Service Center.
C. The pump draws up paint but the pressure drops when the gun is triggered.	1. The spray tip is worn.	1. Replace the spray tip with a new tip.
	2. The suction set filter is clogged.	2. Clean the suction set filter.
	3. The gun or spray tip filter is plugged.	3. Clean or replace the proper filter. Always keep extra filters on hand.
	4. The paint is too heavy or coarse.	4. Thin or strain the paint.
	5. The outlet valve assembly is dirty or worn.	5. Clean or replace the outlet valve assembly.
	6. The inlet valve assembly is damaged or worn.	6. Replace the inlet valve.
D. The paint pattern is tailing.	1. The fluid pressure is set too low.	1. Increase the fluid pressure.
	2. The air pressure is set too low.	2. Increase the air regulator setting.
	3. The gun, the tip, or the suction filter is plugged.	3. Clean the filters.
	4. The suction hose is loose at the inlet valve.	4. Tighten the suction hose fitting.
	5. The tip is worn.	5. Replace the spray tip.
	6. The paint is too thick.	6. Thin the paint.
E. The thermal overload tripped and shut off the pump.	1. The motor overheated.	1. Allow to cool for 30 minutes.
	2. The extension cord is too long or is too small a gauge.	2. Allow to cool for 30 minutes and replace the extension cord with a shorter extension or a thicker gauge cord.
	3. Paint has built up on the motor.	3. Clean the paint from the motor.
	4. The motor was started while the unit was under pressure.	4. Restart the unit in the PRIME mode.
	5. The unit was sitting in the hot sun.	5. Move the unit out of the sun.
F. Compressor does not start.	1. The compressor ON/OFF switch is in the OFF position.	1. Move the compressor ON/OFF switch to the ON position.
	2. Compressor ON/OFF switch is faulty.	2. Take the unit to a SprayTECH Authorized Service Center.
	3. Compressor is faulty.	3. Take the unit to a SprayTECH Authorized Service Center.
	4. Relief hole under air regulator is blocked.	4. Clean out the relief hole.
G. Compressor starts but not enough air.	1. Air regulator setting is too low.	1. Increase the air regulator setting.
	2. Paint is too thick.	2. Thin the paint.
	3. Closed air valve on gun.	3. Open the gun air valve. Refer to gun Owner's Manual.
	4. Faulty pressure relief valve.	4. Install a new pressure relief valve.

Spare part diagram • Main assembly

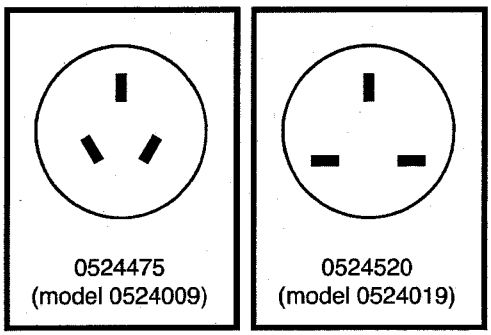


Item	Part #	Description	Quantity
1	0524475	Power cord (model 0524009)	1
	0524019	Power cord (model 0524019)	1
2	0551980	Lock nut	1
3	0551495	Screw	1
4	9850577	Terminal block	1
5	0524447	Electrical housing	1
6	9810103	Nut	4
7	9822106	Lock washer	8
8	0507854	Label, "Press to Reset"	1
9	0508655	Circuit breaker, 8A	1
10	0276363	Strain relief	2
11	9850936	Compressor ON/OFF switch	1
12	9850936	Pump ON/OFF switch	1
13	0551378	Screw	2
14	0550016	Electrical cover	1
15	0524733	ON/OFF switch label	1
16	0288144	Hopper assembly	1
17	0550007	Diaphragm pump	1
18	0088372	Flat washer	4
19	0295615	Lock nut	4
20	0551376	Compressor filter	1
21	0551354	Carriage screw	4
22	3252440	Elbow, 90°	1
23	0524381	Tee, street	1
24	0261342	Gauge, air	1

Item	Part #	Description	Quantity
25	0551360	Regulator, air	1
26	0524423	Elbow, 90°	1
27	0551361	Relief valve	1
28	0524247	Air compressor 230-240V, model 0524009 (includes item 20)	1
	0550009	Air compressor 230V, model 0524019 (includes item 20)	1
29	0508190	Cart assembly	1
30	0295693	Flat washer	4
31	0295695	Hex screw	4
32	0524221	Pressure gauge assembly	1

Not pictured

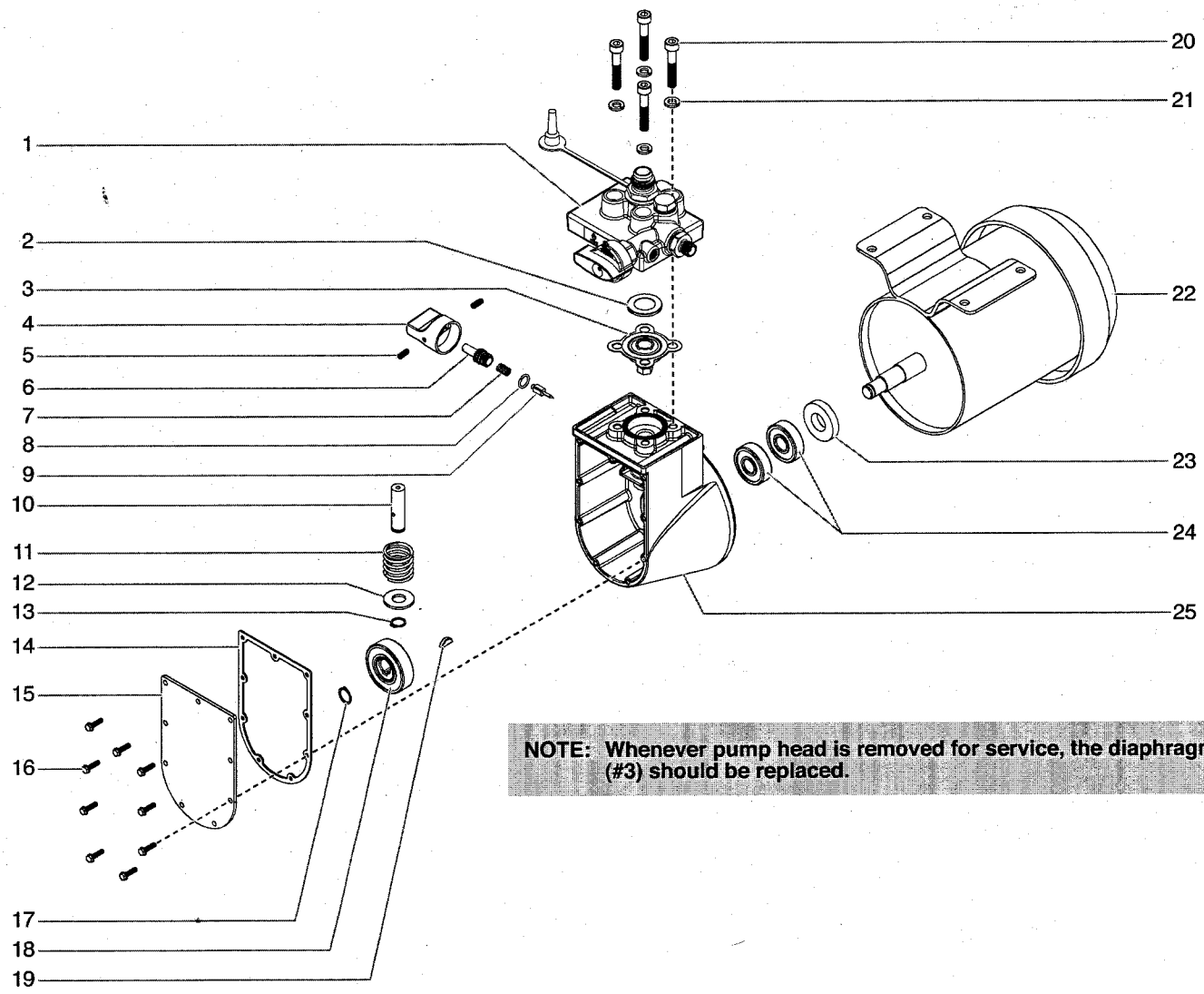
9984595	Hose, AC, DN3/DN6, 7.5m	
0394152	Gun, AC 4600 Pro	



0524475
(model 0524009)

0524520
(model 0524019)

Spare part diagram • Diaphragm pump (P/N 0550007)

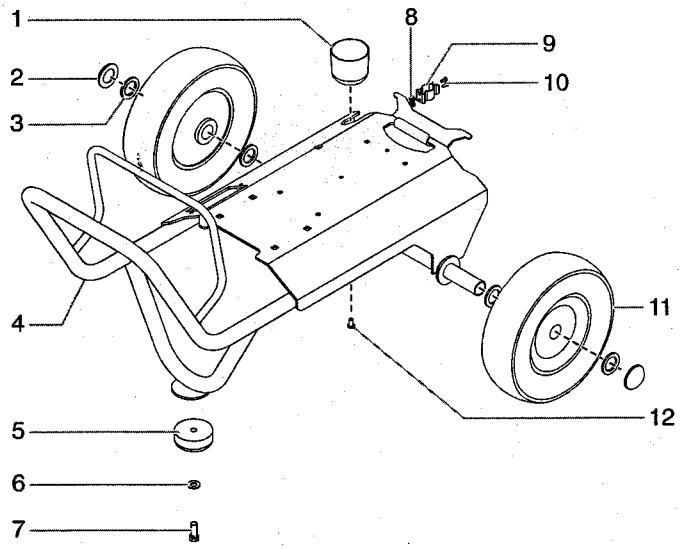


NOTE: Whenever pump head is removed for service, the diaphragm (#3) should be replaced.

Item	Part #	Description	Quantity
1	0524227	Pump head (includes items #2-3)	1
2	0270494	Diaphragm ring	1
3	0270201	Diaphragm	1
4	0288775	Pressure control knob	1
5	9801109	Set screw	2
6	0270529	Valve stem	1
7	0047373	Pressure regulating spring	1
8	0089518	O-ring	1
9	0089475	Pressure valve needle	1
10	0278345	Hydraulic piston	1
11	0005311	Piston spring	1
12	0270550	Piston washer	1
13	0089456	Retainer	1
14	0278359	Gasket	1

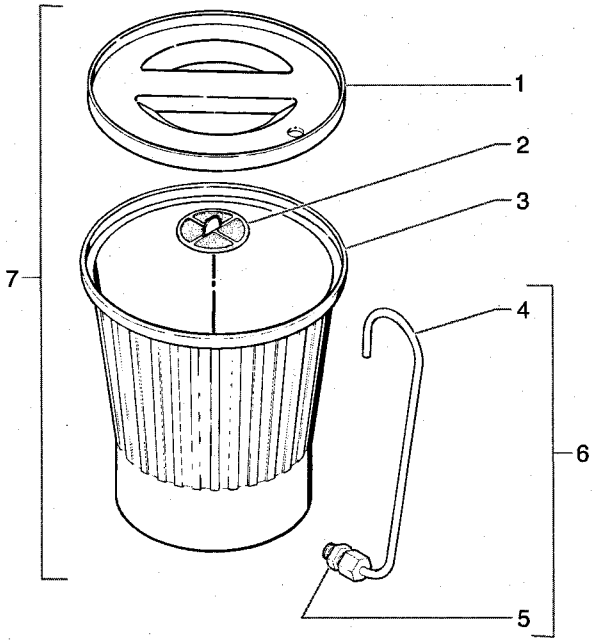
Item	Part #	Description	Quantity
15	0278341	Hydraulic cover	1
16	9800049	Screw	9
17	0047393	Retaining ring	1
18	0090031	Eccentric sleeve and bearing assembly	1
19	0089829	Shaft key	1
20	9900355	Socket screw	4
21	9921601	Lock washer	4
22	0524224	Motor, 1/3HP (includes items 26 and 27)	1
23	0270524	Seal	1
24	0270490	Ball bearing	2
25	0278238	Hydraulic housing assembly (includes items 23 and 24)	1
26	0270462	Fan (not shown)	1
27	0270612	Fan cover (not shown)	1

Spare part diagram •
Cart assembly (P/N 0508190)



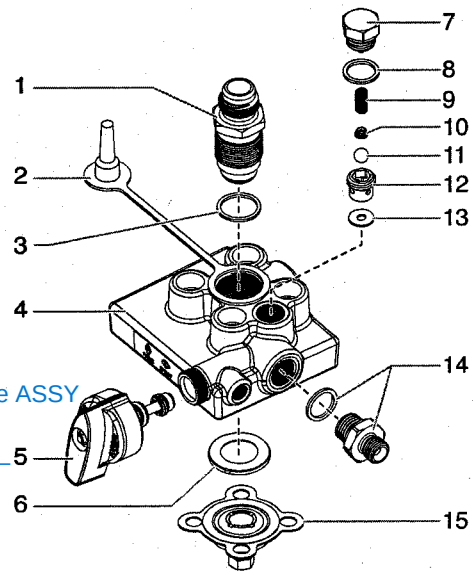
Item	Part #	Description	Quantity
1	0508381	Paint cup	1
2	9890104	Cap	2
3	0294534	Wheel spacer	10
4	0508517	Cart weldment	1
5	0090005	Pad	1
6	9820305	Washer, flat	1
7	0090026	Screw, hex head	1
8	0551986	Nut with washer	1
9	0507937	Hose clip	1
10	9804916	Screw	1
11	0278373	Wheel	2
12	9805230	Screw	1

Spare part diagram •
Hopper assembly (P/N 0524242)



Item	Part #	Description	Quantity
1	0279591	Cover, hopper	1
2	0089917	Filter screen, fine (shown)	1
	0088871	Filter screen, coarse	
3	0524443	Hopper	1
4	0093865	Return tube	1
5	0090617	Fitting	1
6	0090560	Return tube assembly (includes items 4-5)	1
7	0524242	Hopper complete (includes items 1-6)	1

Spare part diagram •
Pump head assembly (P/N 0524227)



Prime/Spray Valve ASSY

0555901

Item	Part #	Description	Quantity
1	0278242	Inlet valve assembly	1
2	0278655	Inlet cap	1
3	0089482	Sealing washer, nylon	1
4	0270460	Paint pump	1
5	[redacted]	PRIME/SPRAY valve assembly	1
6	0270494	Ring diaphragm	1
7	0270487	End cap	1
8	9970103	Seal	1
9	0270499	Spring	1
10	0270497	Support, spring	1
11	0270491	Ball	1
12	0270197	Ball seat	1
13	0089494	Outlet seal	1
14	0288379	Fitting, outlet	1
15	0270201	Diaphragm	1

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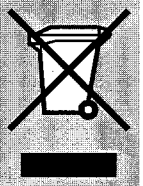
Sverige	Wagner Spraytech Scandinavia A/S • Helgeshøj Allé 28 • DK2605 Taastrup • Denmark Tel. 0046/42/150020 • Fax: 0046/42/150020 • mailbox@wagner.se

Note on disposal:

In observance of the European Directive 2002/96/EC on waste electrical and electronic equipment and implementation in accordance with national law, this product is not to be disposed of together with household waste material but must be recycled in an environmentally friendly way!



Wagner or one of our dealers will take back your used Wagner waste electrical or electronic equipment and will dispose of it for you in an environmentally friendly way. Please ask your local Wagner service centre or dealer for details or contact us direct.

CE Declaration of conformity

Herewith we declare that the supplied version of

WAGNER Finish 230 AC Compact

Complies with the following provisons applying to it:

73/23 EWG, 89/336 EWG, 92/31 EWG, 93/68 EWG, 98/37 EWG

Applied harmonized standards, in particular:

EN ISO 1200, EN 1953, EN 55014, EN 60204-1:1997, EN 61000-3

Applied national technical standards and specifications, in particular:

Date: 7.7.2008

Executive Officer Signature Head of Development

Important notes on product liability

As a result of an EC regulation being effective as from January 1, 1990, the manufacturer shall only be liable for his product if all parts come from him or are released by him, and if the devices are properly mounted and operated.

If the user applies outside accessories and spare parts, the manufacturer´s liability can fully or partially be inapplicable; in extreme cases usage of the entire device can be prohibited by the competent authorities (employer´s liability insurance association and factory inspectorate division).

Only the usage of original WAGNER accessories and spare parts guarantees that all safety regulations are observed.

3+2 years guarantee for professional finishing

Wagner professional guarantee
(Status 01.02.2009)

1. Scope of guarantee

All Wagner professional colour application devices (hereafter referred to as products) are carefully inspected, tested and are subject to strict checks under Wagner quality assurance. Wagner exclusively issues extended guarantees to commercial or professional users (hereafter referred to as "customer") who have purchased the product in an authorised specialist shop, and which relate to the products listed for that customer on the Internet under www.wagner-group.com/profi-guarantee.

The buyer's claim for liability for defects from the purchase agreement with the seller as well as statutory rights are not impaired by this guarantee.

We provide a guarantee in that we decide whether to replace or repair the product or individual parts, or take the device back and reimburse the purchase price. The costs for materials and working hours are our responsibility. Replaced products or parts become our property.

2. Guarantee period and registration

The guarantee period amounts to 36 months. For industrial use or equal wear, such as shift operations in particular, or in the event of rentals it amounts to 12 months.

Systems driven by petrol or air are also guaranteed for a 12 month period.

The guarantee period begins with the day of delivery by the authorised specialist shop. The date on the original purchase document is authoritative.

For all products bought in authorised specialist shops from 01.02.2009 the guarantee period is extended to 24 months providing the buyer of these devices registers in accordance with the following conditions within 4 weeks of the day of delivery by the authorised specialist shop.

Registration can be completed on the Internet under www.wagner-group.com/profi-guarantee. The guarantee certificate is valid as confirmation, as is the original purchase document that carries the date of the purchase. Registration is only possible if the buyer is in agreement with having the data being stored that is entered during registration.

When services are carried out under guarantee the guarantee period for the product is neither extended nor renewed.

Once the guarantee period has expired, claims made against the guarantee or from the guarantee can no longer be enforced.

3. Handling

If defects can be seen in the materials, processing or performance of the device during the guarantee period, guarantee claims must be made immediately, or at the latest within a period of 2 weeks.

The authorised specialist shop that delivered the device is entitled to accept guarantee claims. Guarantee claims may also be made to the service centres named in our operating instructions. The product has to be sent without charge or presented together with the original purchase document that includes details of the purchase date and the name of the product. In order to claim for an extension to the guarantee, the guarantee certificate must be included.

The costs as well as the risk of loss or damage to the product in transit or by the centre that accepts the guarantee claims or who delivers the repaired product, are the responsibility of the customer.

4. Exclusion of guarantee

Guarantee claims cannot be considered

- for parts that are subject to wear and tear due to use or other natural wear and tear, as well as defects in the product that are a result of natural wear and tear, or wear and tear due to use. This includes in particular cables, valves, packaging, jets, cylinders, pistons, means-carrying housing components, filters, pipes, seals, rotors, stators, etc. Damage due to wear and tear that is caused in particular by sanded coating materials, such as dispersions, plaster, putty, adhesives, glazes, quartz foundation.
- in the event of errors in devices that are due to non-compliance with the operating instructions, unsuitable or unprofessional use, incorrect assembly and/or commissioning by the buyer or by a third party, or utilisation other than is intended, abnormal ambient conditions, unsuitable coating materials, unsuitable operating conditions, operation with the incorrect mains voltage supply/ frequency, over-operation or defective servicing or care and/or cleaning.
- for errors in the device that have been caused by using accessory parts, additional components or spare parts that are not original Wagner parts.
- for products to which modifications or additions have been carried out.
- for products where the serial number has been removed or is illegible
- for products to which attempts at repairs have been carried out by unauthorised persons.
- for products with slight deviations from the target properties, which are negligible with regard to the value and usability of the device.
- for products that have been partially or fully taken apart.

5. Additional regulations.

The above guarantees apply exclusively to products that have been bought by authorised specialist shops in the EU, CIS, Australia and are used within the reference country.

If the check shows that the case is not a guarantee case, repairs are carried out at the expense of the buyer.

The above regulations manage the legal relationship to us concludingly. Additional claims, in particular for damages and losses of any type, which occur as a result of the product or its use, are excluded from the product liability act except with regard to the area of application.

Claims for liability for defects to the specialist trader remain unaffected.

German law applies to this guarantee. The contractual language is German. In the event that the meaning of the German and a foreign text of this guarantee deviate from one another, the meaning of the German text has priority.

J. Wagner GmbH
Division Professional Finishing
Otto Lilienthal Strasse 18
88677 Markdorf
Federal Republic of Germany

WAGNER

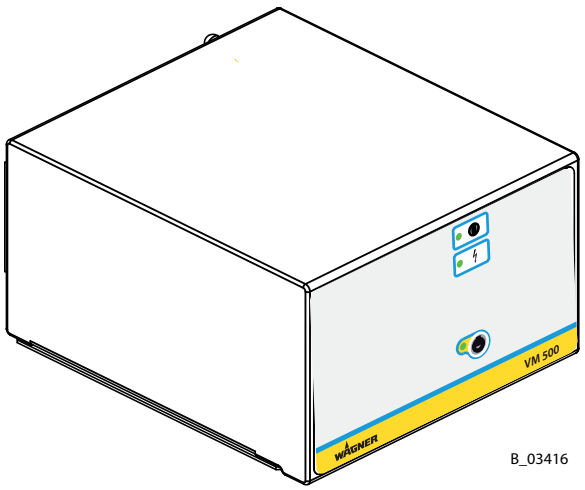
Translation of the original Operating manual

VM 500

Edition 03/2012

Electrostatic control unit

for electrostatic hand spray guns



B_03416

CE Ex II 3 G

FM c us APPROVED (in submission)

Contents

Contents

1 ABOUT THESE INSTRUCTIONS

This operating manual contains information about the operation, repair and maintenance of the unit.
→ Always follow these instructions when operating the unit.
This equipment can be dangerous if it is not operated in accordance with this manual.
Electrostatic spray guns may be operated only by trained personnel.
Compliance with these instructions constitutes an integral component of the guarantee agreement.

1.1 LANGUAGES

This operating manual is available in the following languages:

Language:	Part No.	Language:	Part No.
German	2310485	English	2318724
French	2318725	Dutch	---
Italian	2318726	Spanish	2318728

1.2 WARNINGS, NOTES AND SYMBOLS IN THESE INSTRUCTIONS

Warning instructions in this manual point out particular dangers to users and equipment and state measures for avoiding the hazard.
These warning instructions fall into the following categories:

Danger - imminent danger. Non-observance will result in death, serious injury and serious material damage.


SIHI_0100_GB

⚠ DANGER

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Warning - possible danger. Non-observance can result in death, serious injury and serious material damage.


SIHI_0103_GB

⚠ WARNING

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Caution - a possibly hazardous situation. Non-observance can result in minor injury.


SIHI_0101_GB

⚠ CAUTION

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Caution - a possibly hazardous situation. Non-observance can cause material damage.

SIHI_0102_GB **CAUTION**

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Note - provide information on particular characteristics and how to proceed.

2 GENERAL SAFETY INSTRUCTIONS

2.1 SAFETY INSTRUCTIONS FOR THE OPERATOR

→ Keep these operating instructions to hand near the unit at all times.
→ Always follow local regulations concerning occupational safety and accident prevention.

2.1.1 ELECTRICAL EQUIPMENT

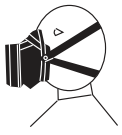
Electrical plant and unit
→ To be provided in accordance with the local safety requirements with regard to the operating mode and ambient influences.
→ May only be maintained by skilled electricians or under their supervision.
→ Must be operated in accordance with the safety regulations and electrotechnical regulations.
→ Must be repaired immediately in the event of problems.
→ Must be put out of operation if they pose a hazard.
→ Must be de-energized before work is commenced on active parts. Inform staff about planned work, observe electrical safety regulations.

Control units
→ Place the control unit outside the spray booth/zone.
→ Place the control unit, if possible, outside the explosion zone (positioning in explosion zone 2 is enables).
→ Protect the control unit from extreme temperature and moisture changes.
→ Protect the control unit against dirt.
→ Lay and fix the connecting cable correctly.
→ Guarantee that local mains voltage and tension of the equipment agree.

2.1.2 PERSONNEL QUALIFICATIONS

→ Ensure that the unit is operated and repaired only by trained persons.

2.1.3 A SAFE WORK ENVIRONMENT



→ Make sure that the floor in the area where you are working is anti-static in accordance with EN 61340-4-1 (the resistance value may not exceed 100 MOhm).
→ Ensure that all persons within the working area wear antistatic shoes. Footwear must comply with EN 20344. The measured insulation resistance may not exceed 100 MOhm.
→ Ensure that during spraying, persons wear anti-static gloves so that they are earthed via the handle of the spray gun.
→ If protective clothing is worn, including gloves, it has to comply with EN 1149-5. The measured insulation resistance may not exceed 100 MOhm.
→ Paint mist extraction systems must be fitted on site according to the local regulations.
→ Ensure that the following components of a safe working environment are available:
  – Material/air hoses adapted to the working pressure.
  – Personal safety equipment (breathing and skin protection).
→ Ensure that there are no ignition sources such as naked flame, glowing wires or hot surfaces in the vicinity. Do not smoke.

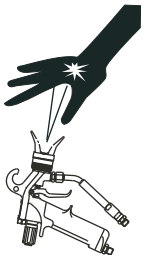
2.2 SAFETY INSTRUCTIONS FOR STAFF

→ Always follow the information in these instructions, particularly the general safety instructions and the warning instructions.
→ Always follow local regulations concerning occupational safety and accident prevention.

Control units

→ When putting into operation and for all work, read and follow the operating instructions and safety regulations for the additionally required system components.
→ Do not open the control unit.

2.2.1 SAFE HANDLING OF WAGNER SPRAY UNITS



The spray jet is under pressure and can cause dangerous injuries.
Avoid injection of paint or cleaning agents:
→ Never point the spray gun at people.
→ Never reach into the spray jet.
→ Before all work on the unit, in the event of work interruptions and functional faults:
– Switch off the energy/compressed air supply.
– Secure the spray gun against actuation.
– Relieve the pressure from the spray gun and unit.
– By functional faults: Identify and correct the problem, proceed as described in chapter „Trouble shooting".

In the event of skin injuries caused by paint or cleaning agents:
→ Note down the paint or cleaning agent that you have been using.
→ Consult a doctor immediately.

Avoid danger of injury through recoil forces:
→ Ensure that you have a firm footing when operating the spray gun.
→ Only hold the spray gun briefly in any one position.

2.2.2 EARTH THE UNIT

Depending on the high-voltage of the spray electrode and the flow rate at spray pressures can produce an electrostatic charge in the equipment. These can cause sparks and flames upon discharge.
→ Ensure that the unit is always earthed.
→ Earth the work pieces to be coated.
→ Ensure that all persons inside the working area are earthed, e.g. that they are wearing derivable shoes.
→ When spraying, wear derivable gloves to earth yourself via the spray gun handle.

2.2.3 MATERIAL HOSES

→ Ensure that the hose material is chemically resistant to the sprayed materials.
→ Ensure that the material hose is suitable for the pressure generated in the unit.
→ Ensure that the following information is visible on the high pressure hose:
– Manufacturer
– Permissible operating overpressure
– Date of manufacture.
→ The electrical resistance of the complete high pressure hose must be less than 1 MOhm.

2.2.4 CLEANING

→ De-energize the unit electrically.
→ Disconnect the pneumatic supply line.
→ Relieve the pressure from the unit.
→ Ensure that the flash point of the cleaning agent is at least 15K above the ambient temperature. Otherwise, the cleaning works shall be carried out at forced ventilated cleaning place.
→ To clean, use only solvent-soaked cloths and brushes. The cleaning process mustn´t damage parts of the spray gun, it mustn´t be an abrasive procedure.

→ Parts of spray gun mustn´t submerged or soaked into solvent.
→ Non-ignitable cleaning liquids shall be preferred.
→ A suitable solvent for cleaning the spray gun depends on the part of the gun and on the material that needs to be removed. It´s recommended to use only non-polar solvents to prevent a conductive residue on critical components. If it´s necessary to use polar solvents to clean the spray gun components, all residue must be removed by using a nonconductive non-polar solvent.
→ All electrical components cannot be cleaned or soaked in any solvents.

An explosive gas/air mixture forms in closed containers.
→ When cleaning units with solvents, never spray into a closed container.
→ For cleaning liquids only electrically leading containers may be used.
→ The containers must be earthed.

2.2.5 HANDLING HAZARDOUS LIQUIDS, VARNISHES AND PAINTS

→ When preparing or working with paint and when cleaning the unit, follow the working instructions of the manufacturer of the paints, solvents and cleaning agents being used.

→ Take the specified protective measures, in particular wear safety goggles, protective clothing and gloves, as well as hand protection cream if necessary.
→ Use a mask or breathing apparatus if necessary.
→ For sufficient health and environmental safety: Operate the unit in a spray booth or on a spraying wall with the ventilation (extraction) switched on.
→ Wear suitable protective clothing when working with hot materials.

2.2.6 TOUCHING HOT SURFACES

→ Touch hot surfaces only if you are wearing protective gloves.
→ When operating the unit with a coating material with a temperature of > 43 °C; 109.4 °F:
- Identify the unit with a warning label that says „Warning - hot surface“.

Order No.
9998910 Information label
9998911 Safety label

2.3 CORRECT USE

WAGNER accepts no liability for any damage arising from incorrect use.
→ Use the unit only to work with the materials recommended by WAGNER.
→ Operate the unit only as an entire unit.
→ Do not deactivate safety equipment.
→ Use only WAGNER original spare parts and accessories.

2.4 SAFETY-RELEVANT INFORMATION ABOUT DISCHARGES

The plastic parts of the spray gun are charged electrostatically by the high-voltage field of the spray pistol. Harmless discharges (brush discharges) are possible after contact with plastic parts. They are completely harmless for people.
The corona discharge at the electrode end is visible during darkness at a distance of be between 4 and 10 mm; 0.15 and 0.4 inches, between the spray gun and spray object.

Surface spraying of the control unit
→ Do not spray unit parts with electrostatic (e.g. electrostatic spray gun).

Cleaning of the control unit
If there are deposits on the surfaces, the unit may form electrostatic charges. Flames or sparks can form if there is a discharge.
→ Remove deposits from the surfaces to maintain conductivity.
→ Use only a damp cloth to clean the unit.

2.5 USE IN AN EXPLOSION HAZARD AREA

2.5.1 CORRECT USE

The VM 500 control unit may only be used in combination with the GM 5000EA or GM 5000EAC hand spray guns. If the control unit is operated in combination with devices other than the above-mentioned spray guns, the SIRA and FM authorizations (type approvals) cease to apply. These electrostatic hand spray guns are suitable for spraying liquid materials, in particular coating materials that follow AirCoat or Airspray techniques. Coating materials that contain solvents from the II A explosion group may be used.

2.5.2 EXPLOSION PROTECTION ACCORDING TO CE

The control unit is designed together with the spray gun in accordance with the 94/9/EC (ATEX 95) directive. The spray gun is suitable for use in potentially explosive areas zone 1 and the control unit in the area of zone 2.

Authorization (type approval) by SIRA for zone 1 (spray gun)
CE 0102 Ex II (2) G
SIRA 11 ATEX 5374X

CE	Communautés Européennes
0102	Notified inspection body: PTB
Ex	Symbol for explosion protection
II	Unit class II
(2)	Category 2 (Zone 1)
G	Ex-atmosphere gas
SIRA 11 ATEX 5374X	Number of type approval certificate

Authorization for zone 2 (control unit)

CE Ex II 3 G Ex nR IIA T4 Gc

CE	Communautés Européennes
Ex	Symbol for explosion protection
II	Unit class II
3	Category 3 (Zone 2)
G	Ex-atmosphere gas
Ex nR	Ignite protection class „Restricted breathing“
IIA	Equipment group IIA
T4	Temperature class T4
Gc	Equipment protection type Gc

The „Gas-proof“ type of explosion protection is only guaranteed if all sealed elements in the control unit are available and undamaged. During operation, all electric connections in the control unit and relevant plug connectors or shut-off devices have to be tightly sealed.

2.5.3 EXPLOSION PROTECTION ACCORDING TO FM

Authorization (type approval) by FM for class 1, div. 1 (spray gun)

FM C US APPROVED

For Electrostatic Finishing Applications
using Class I, Group D, Spray Material

In accordance with 2316160 (the device is in submission)

This device has been manufactured and tested according to the FM (Factory Mutual) standard „Class Number 7260“ (Approval Standard for Electrostatic Finishing Equipment) by FM. All tested combinations of devices including accessories are given in the FM Control Document with part number 2316160.

2.6 GERMAN REGULATIONS AND GUIDELINES

a) BGV A3 Electrical units and equipment
b) BGR 500 Part 2, Chap. 2.36 Working with liquid ejection devices
c) BGR 500 Part 2, Chap. 2.29 Using coating materials
d) BGR 104 Explosion protection rules
e) TRBS 2153 Avoiding ignition risks
f) BGR 180 Setting up for cleaning with solvents for cleaning workpieces with solvents
g) ZH 1/406 Guidelines for liquid ejection devices
h) BGI 740 Painting rooms and equipment
j) BGI 764 Electrostatic coating
j) Betr.Sich.V. Plant Safety Ordinance

Note: All titles can be ordered from Heymanns Publishing House in Cologne, or they are to be found in the Internet.

3 GUARANTEE AND CONFORMITY DECLARATIONS

3.1 IMPORTANT NOTES ON PRODUCT LIABILITY

As a result of an EC regulation, effective as from January 1, 1990, the manufacturer shall only be liable for his product if all parts come from him or are approved by him, and if the devices are properly fitted , operated and maintained.
If other makes of accessory and spare parts are used, the manufacturer's liability could be fully or partially null and void.
The usage of original WAGNER accessories and spare parts guarantees that all safety regulations are observed.

3.2 GUARANTEE CLAIM

Full guarantee is provided for this device:
We will at our discretion repair or replace free of charge all parts which within 24 months in single-shift, 12 months in 2-shift or 6 months in 3-shift operation from date of receipt by the Purchaser are found to be wholly or substantially unusable due to causes prior to the sale, in particular faulty design, defective materials or poor workmanship.
The type of guarantee provided is such that the device or individual components of the device are either replaced or repaired as we think fit. The resulting costs, in particular shipping charges, road tolls, labour and material costs will be borne by us except where these costs are increased due to the subsequent shipment of the unit to a location other than the address of the purchaser.

We do not provide guarantee for damage that has been caused or contributed to for the following reasons:
Unsuitable or improper use, faulty installation or commissioning by the purchaser or a third party, normal wear, negligent handling, defective maintenance, unsuitable coating products, substitute materials and the action of chemical, electro chemical or electrical agents, except when the damage is attributable to us.
Abrasive coating products such as red lead, emulsions, glazes, liquid abrasives, zinc dust paints and similar reduce the service life of valves, packings, spray guns, tips, cylinders, pistons etc. Signs of wear and tear due to such causes are not covered by this guarantee.

Components that have not been manufactured by WAGNER are subject to the original guarantee of the manufacturer.
Replacement of a component does not extend the period of guarantee of the device.
The unit should be inspected immediately upon receipt. To avoid losing the guarantee, we or the supplier company are to be informed in writing about obvious faults within 14 days upon receipt of the device.

We reserve the right to have the guarantee compliance met by a contracting company.
The services provided by this guarantee depend on evidence being provided in the form of an invoice or delivery note. If an examination discovers that no guarantee claim exists, the costs of repairs are charged to the purchaser.

It is clearly stipulated that this guarantee claim does not represent any constraint to statutory regulations or regulations agreed contractually in our general terms and conditions.

J. Wagner AG

3.3 CE-CONFORMITY

EC declaration of conformity as defined by Atex-directive 94/9/EC.
Herewith we declare that the supplied version of:

Electrostatic hand spraying system			
VM 500	VM 5000	GM 5000EA	GM5000EAC

CE

Complies with the following guidelines:

94/9/EG	2004/108/EG	2002/96/EG
2006/42/EG	2002/95/EG	

Applied standards, in particular:

DIN EN 50050:2007	DIN EN 61000-6-2:2006	DIN EN ISO 12100:2011
DIN EN 1953:2010	DIN EN 61000-6-4:2011	DIN EN 60079-0: 2010
DIN EN 60079-15: 2011	DIN EN 60204-1: 2007	

Applied national technical standards and specifications, in particular:

BGI 764

EC type approval certificate:

SIRA 11 ATEX 5374X issued by SIRA Certification, CH4 9JN, Chester, England, notified body no. 0518

Identification:

Control unit: CE 0102 Ex II (2) G
SIRA 11 ATEX 5374X

CE Ex II 3 G Ex nR IIA T4 Gc

Spray gun: CE 0102 Ex II 2 G EEx 0.24mJ
SIRA 11 ATEX 5374X

CE Certificate of Conformity
The certificate is enclosed with this product. The certificate of conformity can be reordered from your WAGNER representative, quoting the product and serial number.

Part number:
2310487

4 DESCRIPTION

4.1 FIELDS OF APPLICATION, USING IN ACCORDANCE WITH THE INSTRUCTIONS

WAGNER's electrostatic control unit VM 500 controls the high voltage supply to the spray guns used to apply liquid coating media GM 5000EAC and GM 5000EA.
The VM 500 may only be operated together with the above-mentioned hand spray guns.
If the control unit is operated in combination with devices other than the above-mentioned spray guns, the SIRA and FM authorizations (type approvals) cease to apply.
As a result of the „gas-proof" type of explosion protection, the control unit is suitable for use in ex-zone 2. This is guaranteed providing all sealed elements in the control unit are available and undamaged. During operation, all electric connections in the control unit and relevant plug connectors or shut-off devices have to be tightly sealed.

4.2 SCOPE OF DELIVERY

Quantity	Part No.	Description
1	2310478	VM 500 control unit

The standard equipment includes:

Quantity	Part No.	Description
1	241270	Mains cable with Stak200; 3 m; 9.8 ft
1	130215	Earthing cable 10 m; 32.8 ft
2	9951117	Delay-action fuses 1.0 AT
1	2310487	ES 5000 Hand Declaration of conformity
1	2310485	VM 500 Operating manual German
1	see 1.1	Operating manual in the local language

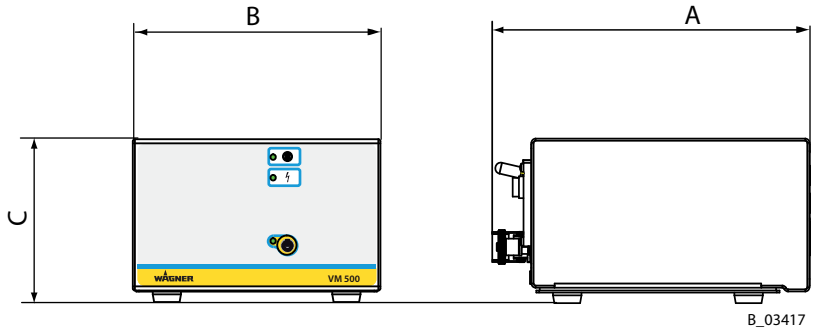
The delivery note shows the exact scope of delivery.

4.3 TECHNICAL DATA

Input voltage	115 VAC - 230 VAC, 50 Hz / 60 Hz
Input power	max. 40 W
Input current	max. 0.5 A
Output voltage	max. 20 Vpp
Output current	max. 1.0 A AC
High-voltage limit	80 kV DC
Spraying current limit	100 µA DC
Polarity	for negative high-voltage generator
Protection class	IP 54 *
Weight (without cables)	2.3 kg; 5.07 lb
Working temperature range	0-40 °C; 32-104 °F

* Splash-proof protection is only guaranteed when the gun cable socket is screwed to the device plug and the mains cable plug is fixed to the control unit plug with the safety clip.

Measurements:



VM 500		
	mm	inches
A	230	9.06
B	180	7.09
C	120	4.72

4.4 FUNCTIONAL DESCRIPTION

The VM 500 control unit together with the suitable GM 5000EA or GM 5000EAC spray gun and other components form an electro-static hand spray system. The VM 500 supplies the control voltage for the spray gun, in which high-voltage is subsequently produced. The high-voltage supply is switched on and off with the trigger of the spray gun.
The special linear characteristic for high-voltage ensures that if the spray gun is brought too close to the workpiece (or to earth) the high-voltage is reduced automatically to prevent an accidental spark discharge.
The VM 500 also offers a fault display.

4.5 OPERATING ELEMENTS AND CONNECTIONS

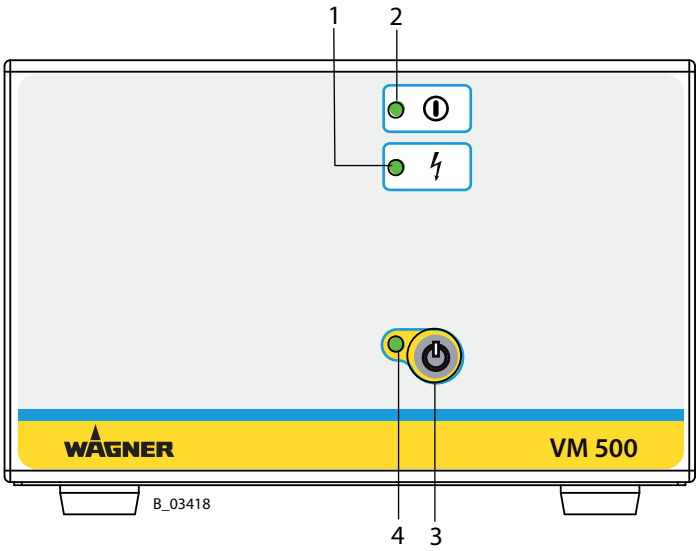
4.5.1 OPERATING ELEMENTS FRONT SIDE

1 Illuminated display: High-voltage

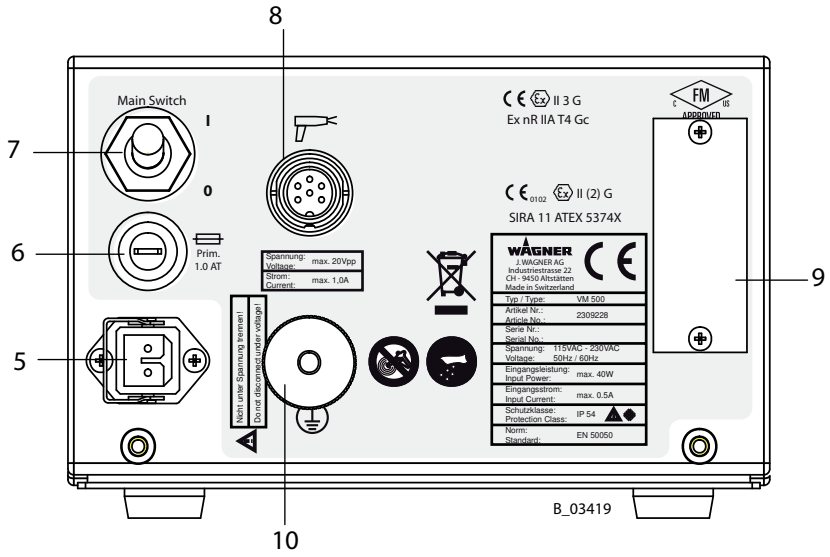
2 Illuminated display: Operating signal

3 Push button: Standby mode

4 Illuminated display: Standby



4.5.2 CONNECTIONS ON THE REAR SIDE



5 Mains power input
Connection for mains cable with securing clip.
Warning - Do not disconnect under voltage.

6 Primary fuse
1.0 Ampere slow-acting.

7 Mains switch
0 = The control unit is deactivated.
I = The control unit is activated.

8 Gun connection
To connect a GM 5000EA or GM 5000EAC gun.
Warning - Do not disconnect under voltage.

9 Cover of the service connections
For Wagner service personnel only!

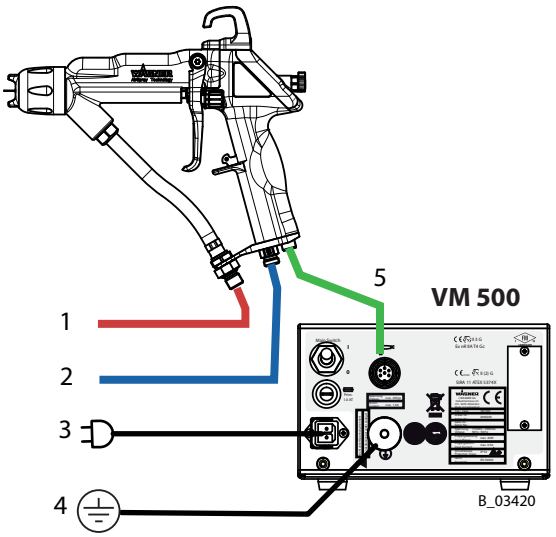
10 Knurled nut earthing
Earthing cable connection to the system earth.

5 PREPARATION BEFORE STARTING WORK

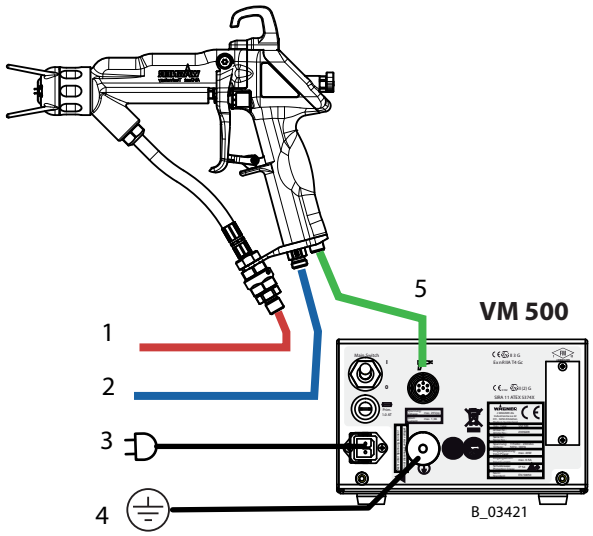
5.1 ADDITIONAL COMPONENTS

This control unit can be used to complete an electro-static hand spraying system. If this is the objective, only a suitable spray gun and the relevant components for the selected spray technique are required (see WAGNER accessories).
Spray guns that are compatible with the VM 500:

Air-Spray GM 5000EAR or GM 5000EAF



AirCoat-Spray GM 5000EACR or GM 5000EACF



1	for the material supply system	3	Mains cable	5	Spray gun cable
2	for the compressed air supply	4	Earthing cable to system earth		

⚠ WARNING

Incorrect installation/operation!
Risk of injury and damage to equipment

→ When putting into operation and for all work, read and follow the operating instructions and safety regulations for the additionally required system components.

SIHI_0050_GB

CAUTION

Impurities in the spraying system!
Spray gun blockage, materials harden in the spraying system

→ Flush the spray gun and paint supply with a suitable cleaning agent.

SIHI_0001_GB

5.2 POSITIONING OF THE UNIT

⚠ DANGER

Incorrect installation of the unit!
Risk of explosion and equipment damage

→ Place the unit outside the spray booth/zone.
→ Place the unit, if possible, outside the explosion zone (Positioning in explosion zone 2 is enables).
→ Protect the unit from extreme temperature and moisture changes.
→ Protect the unit against dirt.
→ Lay and fix the connecting cable correctly.

SIHI_0143_GB

All sealed elements in the control device must be available and undamaged. During operation, all electric connections in the control unit and relevant plug connectors or shut-off devices have to be tightly sealed. When under voltage, neither plug connectors nor any shut-off devices may be separated or opened.

⚠ WARNING

Sparking by separation and joining of live construction units!
Danger of explosion by electrical sparks

→ Disconnect connectors not under tension.
→ Fuse holders under tension do not open.
→ Remove the service plug cover not under tension.

SIHI_0144_GB

5.3 EARTHING

Perfect earthing of all system components (work pieces, conveyor, paint supply system, control unit, spray booth or spraying stand, see illustration) is a prerequisite for optimum coating efficiency and safety.

⚠ WARNING

Discharge of electrostatically charged components in atmospheres containing solvents!
Explosion hazard from electrostatic sparks or flames

→ Earth all unit components.
→ Earth the workpieces being painted.

SIHI_0027_GB

⚠ WARNING

Heavy paint mist if earthing is insufficient!
Risk of poisoning
Insufficient paint application quality

→ Earth all unit components.
→ Earth the workpieces being painted.

SIHI_0003_GB

The imperfect earthing of a work piece will result in:

- Very poor wrap-around.
- Uneven coating thickness.
- Back spraying to the spray gun (contamination) and coater.

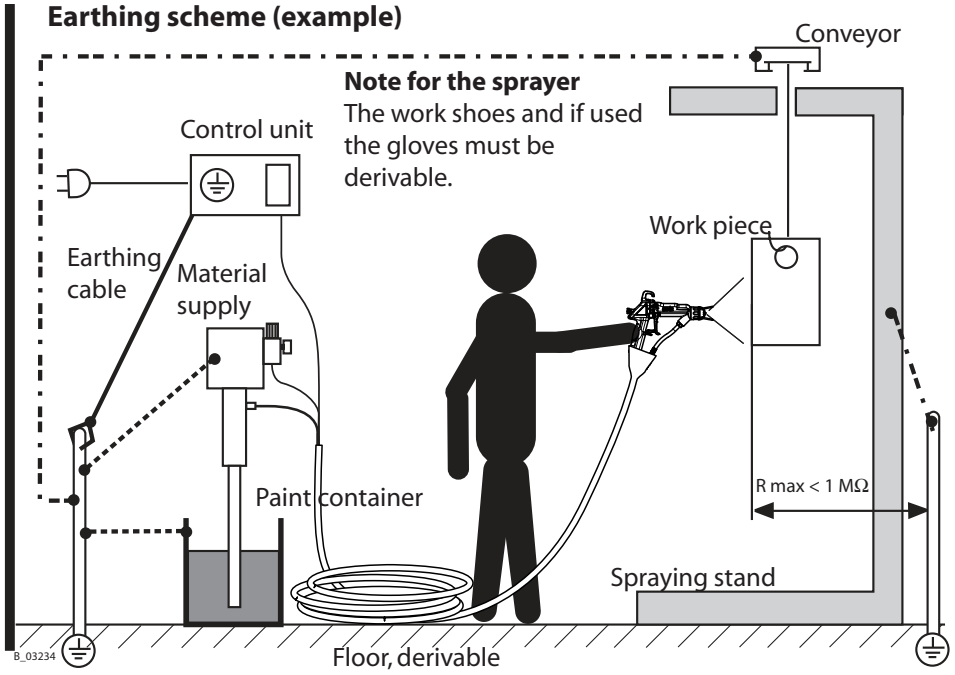
The prerequisites for perfect earthing and coating are:

- Clean work piece suspension.
- Earthing of spray booth, conveyor system and suspension on the building side in accordance with the operating instruction or the manufacturer's information.
- Earthing of all conductive parts within the working area.
- The earthing resistance of the work piece may not exceed 1 MΩ (Mega Ohm). Note:

Resistance to earth measured with 500 V or 1000 V.

- Connect the control unit to the mains system earth.

Earthing scheme (example)

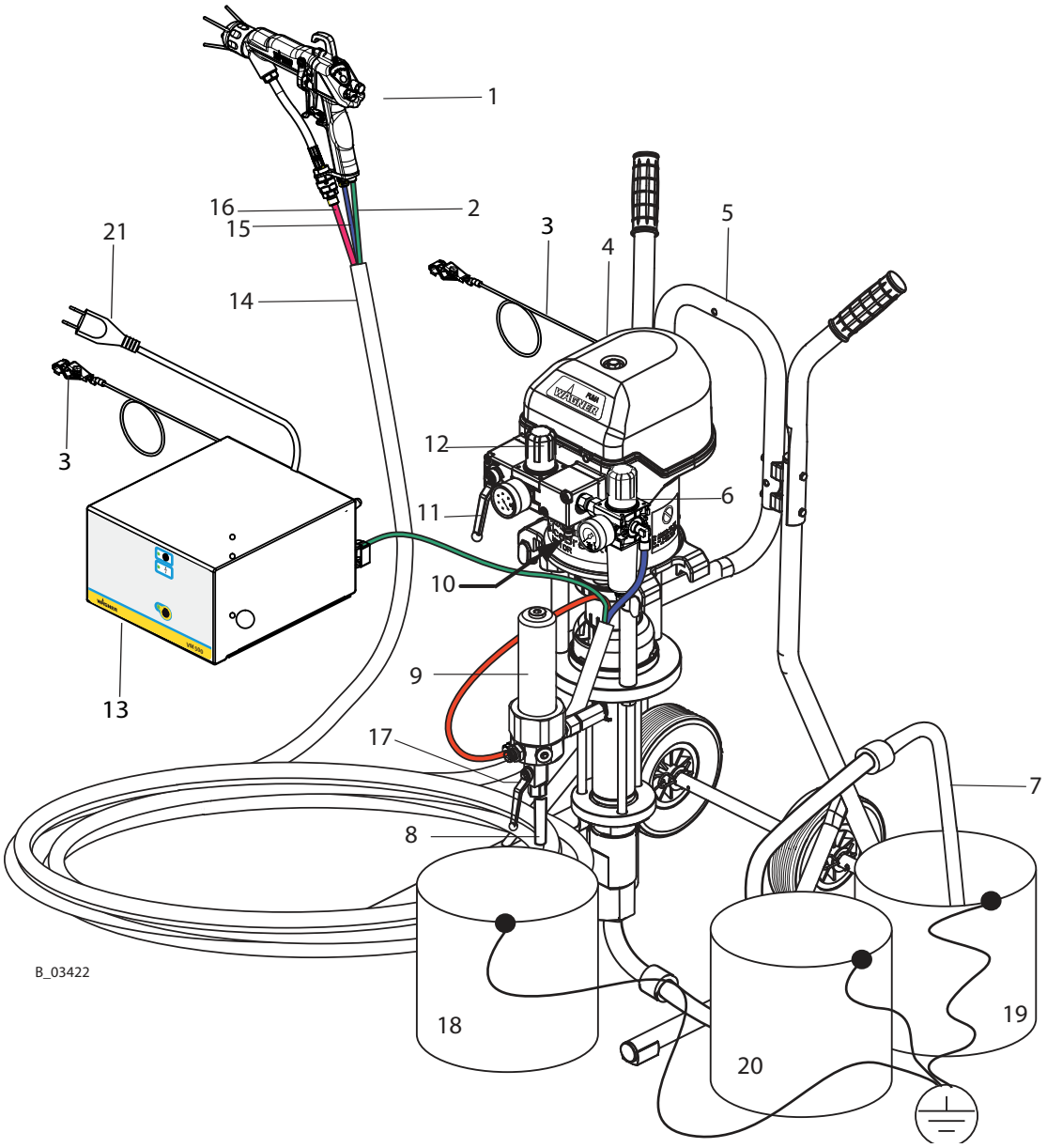


Minimum cable cross-section

Control unit	4 mm² (AWG 12)
Material supply	4 mm² (AWG 12)
Paint container	4 mm² (AWG 12)

Conveyor	16 mm² (AWG 6)
Booth	16 mm² (AWG 6)
Spraying stand	16 mm² (AWG 6)

5.4 EXAMPLE FOR AIRCOAT SPRAYING SYSTEM



Item	Description
1	GM 5000EACF spray gun
2	Gun cable
3	Earthing cable
4	Pneumatic pump
5	Carriage
6	Pressure regulator + air filter
7	Material suction system

Item	Description
8	Return hose
9	High pressure filter
10	Compressed air connection
11	Stop valve
12	Air pressure regulator
13	VM 500 control unit
14	Protective hose

Item	Description
15	Air hose
16	Material hose
17	Return valve
18	Container for return flow
19	Paint container
20	Container, cleaning agent
21	Mains cable

The following points should be noted before commissioning:

→ Lay earthing cable from the earthing screw on the device to the signal ground and ensure that all other conductive parts within the area of work are earthed.

→ Connect the VM 500 electrostatic control unit via the mains cable to the socket interlocked with the extraction system.

→ Connect the gun cable to the connector socket and screw into place.

→ Connect the gun to the adjustable, clean air supply.
Compressed air quality class 3.5.2 according to ISO 8573.1.

→ Connect the GM 5000EA or GM 5000EAC to the paint supply as described in the relevant operating manual.

→ Check that all material-conveying connections are correctly connected.

→ Check that all air supply connections are connected properly.

→ Visually check the permissible pressures for all the system components.

→ Check the level of the separating agent in the pump and add more in necessary.

→ Prepare a material container, a container for the cleaning agent and an empty container for the return flow.

→ The interface input on the back of the control unit has to be protected by the cover.

→ Connect the system to the air supply.

→ When starting the unit for the first time -> clean the system in accordance with the operating manuals for the other components.

6 START-UP AND OPERATION

→ Observe safety instructions in chapter 2.

⚠ DANGER

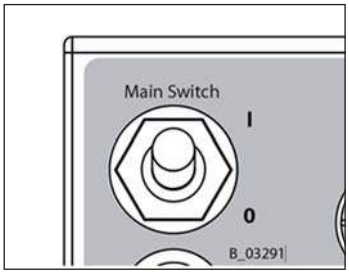
High voltage field!
Danger to life from malfunctioning heart pacemakers

Ensure that persons with heart pacemakers:
→ Do not work with the electrostatic spray gun.
→ Remain outside the area of the electrostatic spray gun/work-piece.

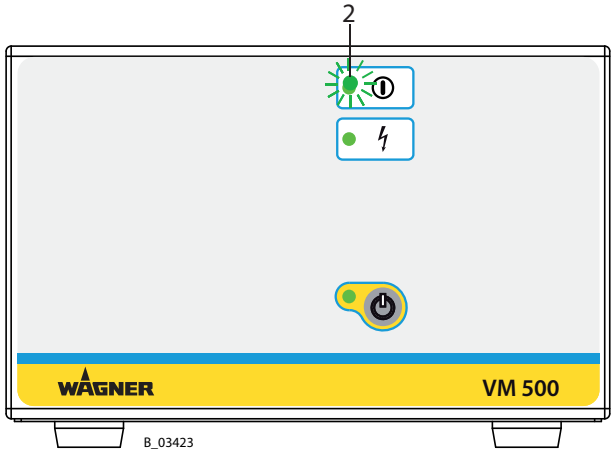
SIHI_0049_GB

6.1 STARTING UP AND SPRAYING

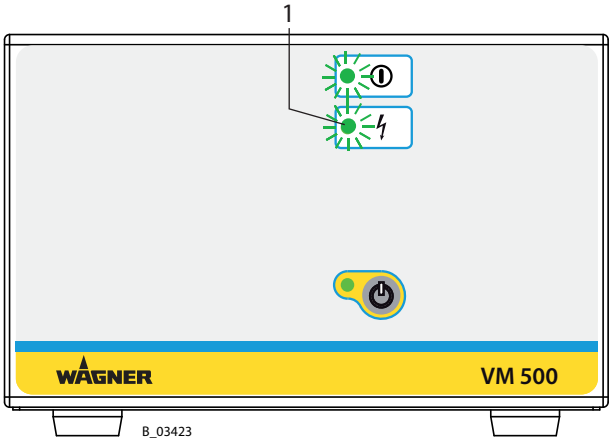
1. Set main power switch to position I.
   For approx. 1 second all LED's light up
   -> Display test.



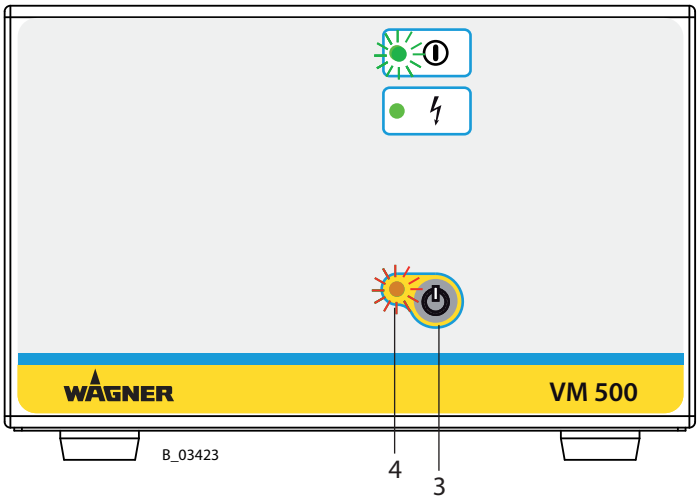
2. If the operating signal light (2) is green, the control unit is ready to be operated.



3. When the spray gun trigger is pulled, high-voltage is switched on. This is indicated by the high-voltage LED (1).



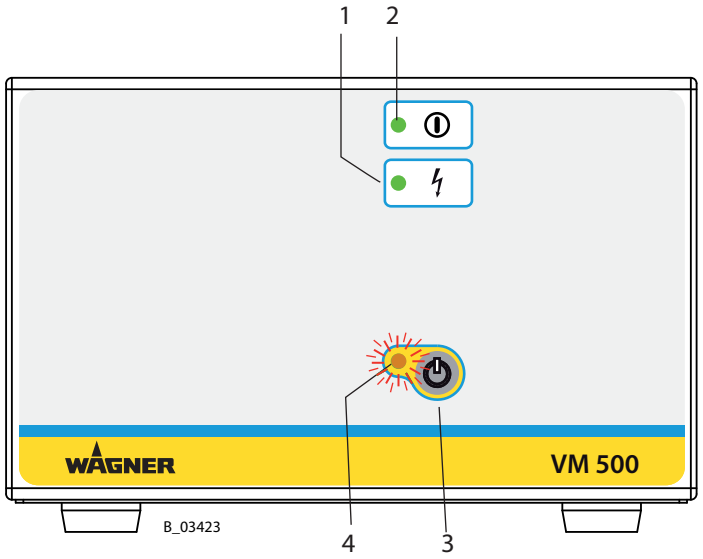
6.2 STANDBY MODE



If you want to spray without high-voltage, select standby mode.
Press push button (3) briefly and the standby (4) LED display lights up.
Note:
This function can be activated and used from the gun.

7 TROUBLE SHOOTING AND SOLUTION

Functional fault	Cause	Remedy
Green illuminated display (2) does not light up No illuminated display lights up	• Mains not switched on. • Fuses defective.	• Switch on mains power supply. • Replace fuse. • WAGNER Service.
Green illuminated display (1) does not light up, no high-voltage	• Spray gun cable not connected or defective. • Spray gun not connected or defective.	• Connect spray gun cable. • WAGNER Service.
Green illuminated display (1) always lights up	• Spray gun or control unit defective.	• WAGNER Service.
Green illuminated display (1) lights up, no high-voltage	• Excessive conductivity of the paint.	• See spray gun operating manual.



8 MAINTENANCE AND REPAIR

8.1 MAINTENANCE

The functionality and completeness of the control unit have to be checked regularly. All sealed elements in the control device must be available and undamaged. During operation, all electric connections in the control unit and relevant plug connectors or shut-off devices have to be tightly sealed.

The leak tightness of the unit has to be checked every 3 years at least. The „Gas-proof" requirements according to DIN EN 60079-15:2011 have to be fulfilled. This inspection may only be carried out by an authorized person or by trained Wagner Service personnel. The mains input terminal shall serve as the test port in the leak-tightness check.

8.2 REPAIR

Repairs to the control unit may only be carried out by trained Wagner Service personnel. This also includes opening the control unit.
After a successful repair, the seal tightness of the control unit has to be checked. The „Gas-proof" requirements according to DIN EN 60079-15:2011 have to be fulfilled. The mains input terminal shall serve as the test port in the leak-tightness check.

⚠WARNING

Sparking by separation and joining of live construction units!
Danger of explosion by electrical sparks

→ Disconnect connectors not under tension.
→ Fuse holders under tension do not open.
→ Remove the service plug cover not under tension.

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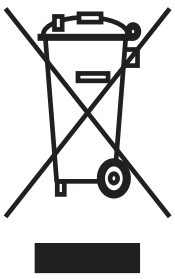
9 PRODUCT DISPOSAL

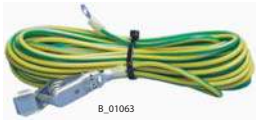
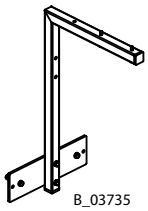


Note

Do not dispose of waste electrical equipment with the household refuse!
In accordance with European Directive 2002/96/EC on the disposal of waste electrical equipment and its implementation in national law, this product may not be disposed of with the household refuse, but must rather be recycled in an environmentally correct manner. Your waste Wagner electrical device will be taken back by us or our representatives and disposed of environmentally correctly. Please contact one of our service points or one of our representatives or us directly to this purpose.

SIHI_0127_GB

10 ACCESSORIES

Part No.	Description	
241270 2330628	Mains cable Europe 3 m; 9.8 ft Mains cable Europe 10 m; 32.8 ft	 B_01065
241271	Mains cable Switzerland 3 m; 9.8 ft	
264626	Mains cable USA 2 m; 6.6 ft	
264625	Mains cable Japan 3 m; 9.8 ft	
130215	Earthing cable 10 m; 32.8 ft	 B_01063
264332	Earthing cable connection 0.75 m; 2.5 ft	 B_01064
2327509	Mounting control unit compl.	 B_03735

Note:
Hose sets and spray gun cable -> see operating manuals for spray guns.

11 SPARE PARTS

11.1 HOW TO ORDER SPARE PARTS?

Always supply the following information to ensure delivery of the right spare part:

Part Number, description and quantity

The quantity need not be the same as the number given in the „Quantity“ column. This number merely indicates how many of the respective parts are used in each sub assembly.

The following information is also required to ensure smooth processing of your order:

- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery required (air freight or mail, sea route or overland route, etc.)

Marks in spare parts lists

Note to column „K“ in the following spare parts lists.

◆ = Wearing parts
Note: No liability is assumed for wearing parts

● = Not part of standard equipment, available, however, as additional extra.

⚠WARNING

Incorrect maintenance/repair!
Risk of injury and damage to the equipment

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the unit and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Relieve the pressure from the spray gun and unit.
- Secure the spray gun against actuation.
→ Observe the operating instructions when carrying out all work.

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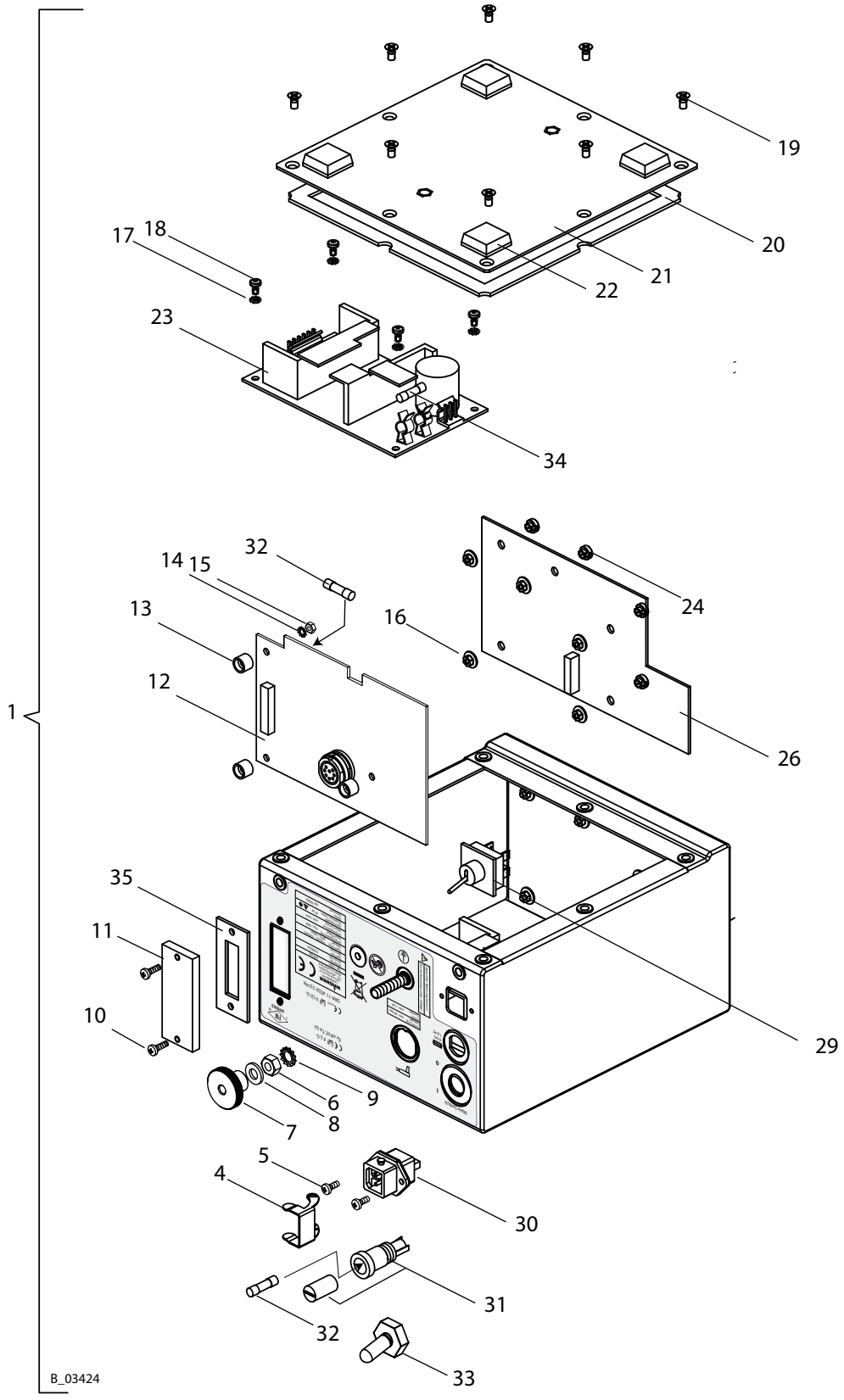
11.2 VM 500 SPARE PARTS LIST



Item	Qty	Part No.	Description
1	1	2310478	VM 500 control unit
4	1	9950330	Safety catch for connector sockets
5	2	9903306	Oval head screw, phillips screwdriver, form H
6	1	9910102	Hexagon nut
7	1	9910522	High knurled nut
8	1	9920118	Washer
9	1	9922017	Lock washer outside toothed
10	2	9903311	Oval head screw, phillips screwdriver, form H
11	1	241323	Cover, white
12	1	2317597	Print compl. VM 500 control
13	3	263400	Distance bush
14	3	9922011	Lock washer outside toothed
15	3	9910103	Hexagon nut
16	5	2312348	Hexagon lock nut
17	4	9922011	Lock washer outside toothed
18	4	9903312	Oval head screw, phillips screwdriver, form H
19	8	2306405	Countersunk screw, phillips screwdriver, form Z
20	1	2307315	Seal
21	1	2307309	Cover
22	4	9990839	Buffer
23	1	9955176	Power pack
24	5	2309112	Spacer
26	1	2317598	Print compl. VM 500 display
29	1	9953536	2-pin rocker switch
30	1	9952587	Equipment plug
31	1	9955021	Fuse holder
32	2	9951117	Delay-action fuse 1.0 AT
33	1	9971519	Rubber seal
34	1	9955601	Speedily fuse 2.5 A
35	1	2325264	Seal

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WAGNER

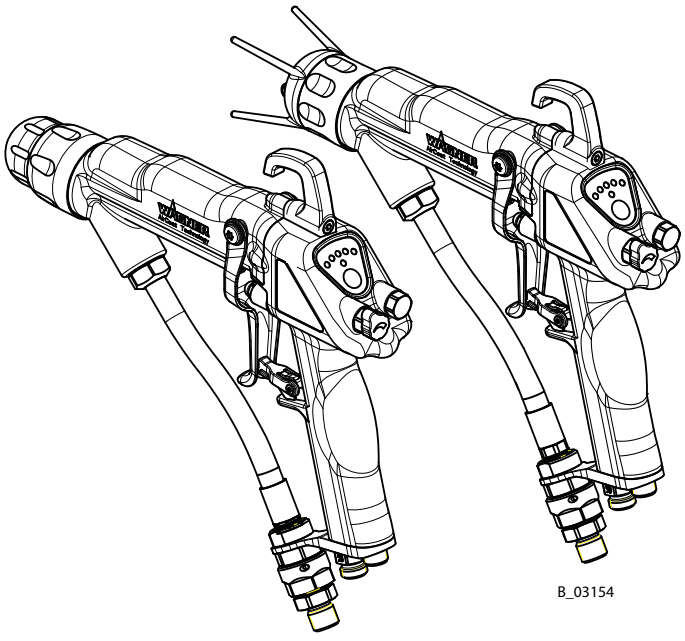
Translation of the original
Operating manual

GM 5000EAC

Electrostatic AirCoat Spray gun

for manual operation with
flat or round jet nozzles

Edition 03/2012



B_03154

CE 0102 Ex II 2 G EEx 0.24 mJ

FM c us APPROVED (in submission)

Contents

Contents

Contents

1 ABOUT THESE INSTRUCTIONS

This operating manual contains information about the operation, repair and maintenance of the unit.
→ Always follow these instructions when operating the unit.
This equipment can be dangerous if it is not operated in accordance with this manual.
Electrostatic spray guns may be operated only by trained personnel.
Compliance with these instructions constitutes an integral component of the guarantee agreement.

1.1 LANGUAGES

This operating manual is available in the following languages:

Language:	Part No.	Language:	Part No.
German	2310481	English	2319150
French	2320152	Dutch	-
Italian	2320153	Spanish	2320154

1.2 WARNINGS, NOTES AND SYMBOLS IN THESE INSTRUCTIONS

Warning instructions in this manual point out particular dangers to users and equipment and state measures for avoiding the hazard.
These warning instructions fall into the following categories:

Danger - imminent danger. Non-observance will result in death, serious injury and serious material damage.


SIHI_0100_GB

⚠ DANGER

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Warning - possible danger. Non-observance can result in death, serious injury and serious material damage.


SIHI_0103_GB

⚠ WARNING

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Caution - a possibly hazardous situation. Non-observance can result in minor injury.


SIHI_0101_GB

⚠ CAUTION

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Caution - a possibly hazardous situation. Non-observance can cause material damage.

SIHI_0102_GB **CAUTION**

This line warns of the hazard!
Possible consequences of failing to observe the warning instructions. The signal word points out the hazard level.

→ The measures for preventing the hazard and its consequences.

Note - provide information on particular characteristics and how to proceed.

2 GENERAL SAFETY INSTRUCTIONS

2.1 SAFETY INSTRUCTIONS FOR THE OPERATOR

→ Keep these operating instructions to hand near the unit at all times.
→ Always follow local regulations concerning occupational safety and accident prevention.

2.1.1 ELECTRICAL EQUIPMENT

Electrical plant and unit
→ To be provided in accordance with the local safety requirements with regard to the operating mode and ambient influences.
→ May only be maintained by skilled electricians or under their supervision.
→ Must be operated in accordance with the safety regulations and electrotechnical regulations.
→ Must be repaired immediately in the event of problems.
→ Must be put out of operation if they pose a hazard.
→ Must be de-energized before work is commenced on active parts. Inform staff about planned work, observe electrical safety regulations.

2.1.2 PERSONNEL QUALIFICATIONS

→ Ensure that the unit is operated and repaired only by trained persons.

2.1.3 A SAFE WORK ENVIRONMENT

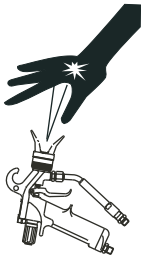
→ Make sure that the floor in the area where you are working is anti-static in accordance with EN 61340-4-1 (the resistance value may not exceed 100 MOhm).
→ Ensure that all persons within the working area wear antistatic shoes. Footwear must comply with EN 20344. The measured insulation resistance may not exceed 100 MOhm.
→ Ensure that during spraying, persons wear anti-static gloves so that they are earthed via the handle of the spray gun.
→ If protective clothing is worn, including gloves, it has to comply with EN 1149-5. The measured insulation resistance may not exceed 100 MOhm.

→ Paint mist extraction systems must be fitted on site according to the local regulations.
→ Ensure that the following components of a safe working environment are available:
  – Material/air hoses adapted to the working pressure.
  – Personal safety equipment (breathing and skin protection).
→ Ensure that there are no ignition sources such as naked flame, glowing wires or hot surfaces in the vicinity. Do not smoke.

2.2 SAFETY INSTRUCTIONS FOR STAFF

→ Always follow the information in these instructions, particularly the general safety instructions and the warning instructions.
→ Always follow local regulations concerning occupational safety and accident prevention.

2.2.1 SAFE HANDLING OF WAGNER SPRAY UNITS



The spray jet is under pressure and can cause dangerous injuries.
Avoid injection of paint or cleaning agents:
- → Never point the spray gun at people.
- → Never reach into the spray jet.
- → Before all work on the unit, in the event of work interruptions and functional faults:
  - – Switch off the energy/compressed air supply.
  - – Secure the spray gun against actuation.
  - – Relieve the pressure from the spray gun and unit.
  - – By functional faults: Identify and correct the problem, proceed as described in chapter „Trouble shooting".

In the event of skin injuries caused by paint or cleaning agents:
- → Note down the paint or cleaning agent that you have been using.
- → Consult a doctor immediately.

Avoid danger of injury through recoil forces:
- → Ensure that you have a firm footing when operating the spray gun.
- → Only hold the spray gun briefly in any one position.

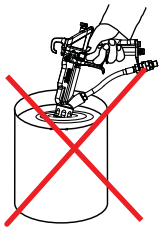
2.2.2 EARTH THE UNIT

Depending on the high-voltage of the spray electrode and the flow rate at spray pressures can produce an electrostatic charge in the equipment. These can cause sparks and flames upon discharge.
- → Ensure that the unit is always earthed.
- → Earth the work pieces to be coated.
- → Ensure that all persons inside the working area are earthed, e.g. that they are wearing derivable shoes.
- → When spraying, wear derivable gloves to earth yourself via the spray gun handle.

2.2.3 MATERIAL HOSES

- → Ensure that the hose material is chemically resistant to the sprayed materials.
- → Ensure that the material hose is suitable for the pressure generated in the unit.
- → Ensure that the following information is visible on the high pressure hose:
  - – Manufacturer
  - – Permissible operating overpressure
  - – Date of manufacture.
- → The electrical resistance of the complete high pressure hose must be less than 1 MOhm.

2.2.4 CLEANING



- → De-energize the unit electrically.
- → Disconnect the pneumatic supply line.
- → Relieve the pressure from the unit.
- → Ensure that the flash point of the cleaning agent is at least 15K above the ambient temperature. Otherwise, the cleaning works shall be carried out at forced ventilated cleaning place.
- → To clean, use only solvent-soaked cloths and brushes. The cleaning process mustn´t damage parts of the spray gun, it mustn´t be an abrasive procedure.
- → Parts of spray gun mustn´t submerged or soaked into solvent.
- → Non-ignitable cleaning liquids shall be preferred.
- → A suitable solvent for cleaning the spray gun depends on the part of the gun and on the material that needs to be removed. It´s recommended to use only non-polar solvents to prevent a conductive residue on critical components. If it´s necessary to use polar solvents to clean the spray gun components, all residue must be removed by using a nonconductive non-polar solvent.
- → All electrical components cannot be cleaned or soaked in any solvents.

An explosive gas/air mixture forms in closed containers.

- → When cleaning units with solvents, never spray into a closed container.
- → For cleaning liquids only electrically leading containers may be used.
- → The containers must be earthed.

2.2.5 HANDLING HAZARDOUS LIQUIDS, VARNISHES AND PAINTS

- → When preparing or working with paint and when cleaning the unit, follow the working instructions of the manufacturer of the paints, solvents and cleaning agents being used.
- → Take the specified protective measures, in particular wear safety goggles, protective clothing and gloves, as well as hand protection cream if necessary.
- → Use a mask or breathing apparatus if necessary.
- → For sufficient health and environmental safety: Operate the unit in a spray booth or on a spraying wall with the ventilation (extraction) switched on.
- → Wear suitable protective clothing when working with hot materials.

2.2.6 TOUCHING HOT SURFACES

→ Touch hot surfaces only if you are wearing protective gloves.
→ When operating the unit with a coating material with a temperature of > 43 °C; 109.4 °F:
- Identify the unit with a warning label that says „Warning - hot surface“.

Order No.
9998910 Information label
9998911 Safety label

2.3 CORRECT USE

WAGNER accepts no liability for any damage arising from incorrect use.
→ Use the unit only to work with the materials recommended by WAGNER.
→ Operate the unit only as an entire unit.
→ Do not deactivate safety equipment.
→ Use only WAGNER original spare parts and accessories.

2.4 SAFETY-RELEVANT INFORMATION ABOUT DISCHARGES

The plastic parts of the spray gun are charged electrostatically by the high-voltage field of the spray pistol. Harmless discharges (brush discharges) are possible after contact with plastic parts. They are completely harmless for people.
The corona discharge at the electrode end is visible during darkness at a distance of be between 4 and 10 mm; 0.15 and 0.4 inches, between the spray gun and spray object.

2.5 USE IN AN EXPLOSION HAZARD AREA

2.5.1 CORRECT USE

The electrostatic hand spray gun GM 5000EAC is suitable for spraying liquid materials, particularly coating materials, using the AirCoat method. Coating materials containing solvents of Explosion Class II A may be used. The spray gun may only be used in combination with the control unit VM 500 and VM 5000.

2.5.2 EXPLOSION PROTECTION IDENTIFICATION CE

As defined in the Directive 94/9/EC (ATEX), the unit is suitable for use in areas where there is an explosion hazard.

CE 0102 Ex II 2 G EEx 0.24mJ
SIRA 11 ATEX 5374X

CE	Communautés Européennes
0102	Notified body: PTB
Ex	Symbol for explosion protection
II	Unit class II
2	Category 2 (zone 1)

G	Ex-atmosphere gas
E	European Standard
Ex	Explosion protected
0.24mJ	Max. firing power
SIRA 11 ATEX 5374X	Number of the type examination certificate

2.5.2.1 IDENTIFICATION „X“

Maximum surface temperature

- Maximum surface temperature: 85 °C; 185 °F
- Maxi. Permissible material temperature: 50 °C; 122 °F
- Permissible ambient temperature: +0 to +40 °C; +32 to +104 °F

Safety instructions

Safe handling of WAGNER spray units
Mechanical sparks can form if the unit comes into contact with metal.
In an explosive atmosphere:
→ Do not knock or push the unit against steel or rusty iron.
→ Do not drop the gun.
→ Use only tools that are made of a permitted material.

Ignition temperature of the coating material
→ Ensure that the ignition temperature of the coating material is above the maximum surface temperature.

Surface spraying, electrostatic
→ Do not spray unit parts with electrostatic (e.g. electrostatic spray gun).

Medium supporting atomizing
→ To atomize the material, use only weakly oxidizing gases, e.g. air.

Cleaning
If there are deposits on the surfaces, the unit may form electrostatic charges. Flames or sparks can form if there is a discharge.
→ Remove deposits from the surfaces to maintain conductivity.
→ Use only a damp cloth to clean the unit.

2.5.3 EXPLOSION PROTECTION IDENTIFICATION FM

FM C US APPROVED

For Electrostatic Finishing Applications
using Class I, Group D, Spray Material

In accordance with 2316160 (the device is in submission)

This device has been manufactured and tested according to the FM (Factory Mutual) standard „Class Number 7260" (Approval Standard for Electrostatic Finishing Equipment) by FM. All tested combinations of devices including accessories are given in the FM Control Document with part number 2316160.

2.6 GERMAN REGULATIONS AND GUIDELINES

a)	BGV A3	Electrical units and equipment
b)	BGR 500	Part 2, Chap. 2.36 Working with liquid ejection devices
c)	BGR 500	Part 2, Chap. 2.29 Using coating materials
d)	BGR 104	Explosion protection rules
e)	TRBS 2153	Avoiding ignition risks
f)	BGR 180	Setting up for cleaning with solvents for cleaning workpieces with solvents
g)	ZH 1/406	Guidelines for liquid ejection devices
h)	BGI 740	Painting rooms and equipment
j)	BGI 764	Electrostatic coating
j)	Betr.Sich.V.	Plant Safety Ordinance

Note: All titles can be ordered from Heymanns Publishing House in Cologne, or they are to be found in the Internet.

3 GUARANTEE AND CONFORMITY DECLARATIONS

3.1 IMPORTANT NOTES ON PRODUCT LIABILITY

As a result of an EC regulation, effective as from January 1, 1990, the manufacturer shall only be liable for his product if all parts come from him or are approved by him, and if the devices are properly fitted , operated and maintained.
If other makes of accessory and spare parts are used, the manufacturer's liability could be fully or partially null and void.
The usage of original WAGNER accessories and spare parts guarantees that all safety regulations are observed.

3.2 GUARANTEE CLAIM

Full guarantee is provided for this device:
We will at our discretion repair or replace free of charge all parts which within 24 months in single-shift, 12 months in 2-shift or 6 months in 3-shift operation from date of receipt by the Purchaser are found to be wholly or substantially unusable due to causes prior to the sale, in particular faulty design, defective materials or poor workmanship.
The type of guarantee provided is such that the device or individual components of the device are either replaced or repaired as we think fit. The resulting costs, in particular shipping charges, road tolls, labour and material costs will be borne by us except where these costs are increased due to the subsequent shipment of the unit to a location other than the address of the purchaser.

We do not provide guarantee for damage that has been caused or contributed to for the following reasons:
Unsuitable or improper use, faulty installation or commissioning by the purchaser or a third party, normal wear, negligent handling, defective maintenance, unsuitable coating products, substitute materials and the action of chemical, electro chemical or electrical agents, except when the damage is attributable to us.
Abrasive coating products such as red lead, emulsions, glazes, liquid abrasives, zinc dust paints and similar reduce the service life of valves, packings, spray guns, tips, cylinders, pistons etc. Signs of wear and tear due to such causes are not covered by this guarantee.

Components that have not been manufactured by WAGNER are subject to the original guarantee of the manufacturer.
Replacement of a component does not extend the period of guarantee of the device.
The unit should be inspected immediately upon receipt. To avoid losing the guarantee, we or the supplier company are to be informed in writing about obvious faults within 14 days upon receipt of the device.

We reserve the right to have the guarantee compliance met by a contracting company.
The services provided by this guarantee depend on evidence being provided in the form of an invoice or delivery note. If an examination discovers that no guarantee claim exists, the costs of repairs are charged to the purchaser.

It is clearly stipulated that this guarantee claim does not represent any constraint to statutory regulations or regulations agreed contractually in our general terms and conditions.

J. Wagner AG

3.3 CE-CONFORMITY

EC declaration of conformity as defined by Atex-directive 94/9/EC
Herewith we declare that the supplied version of

Electrostatic hand spraying system			
VM 500	VM 5000	GM 5000EA	GM5000EAC

Complies with the following guidelines:

94/9/EG	2004/108/EG	2002/96/EG
2006/42/EG	2002/95/EG	

Applied standards, in particular:

DIN EN 50050:2007	DIN EN 61000-6-2:2006	DIN EN ISO 12100:2011
DIN EN 1953:2010	DIN EN 61000-6-4:2011	DIN EN 60079-0: 2010
DIN EN 60079-15: 2011	DIN EN 60204-1: 2007	

Applied national technical standards and specifications, in particular:

BGI 764

EC type examination certificate:

SIRA 11 ATEX 5374X issued by SIRA Certification, CH4 9JN, Chester, England, notified body no. 0518

Identification:

Control unit: CE 0102 Ex II (2) G
SIRA 11 ATEX 5374X

CE Ex II 3 G Ex nR IIC T4 Gc

Spray gun: CE 0102 Ex II 2 G EEx 0.24mJ
SIRA 11 ATEX 5374X

CE Certificate of Conformity
The certificate is enclosed with this product. The certificate of conformity can be reordered from your WAGNER representative, quoting the product and serial number.

Part number:

2310487

4 DESCRIPTION

4.1 FIELDS OF APPLICATION, USING IN ACCORDANCE WITH THE INSTRUCTIONS

The electrostatic spray gun can only be used with the VM 5000 or VM 500 control units.

4.1.1 PROCESSABLE MATERIALS

- → With the GM 5000EAC gun, paints can be applied which contain solvent of explosion class II A.
- → The spray gun basic version is suitable for processing of sprayed substances with an electrical resistance of > 150 kΩ (according to the WAGNER scale). Equipped with a special material hose for low impedance sprayed substances (available as accessory) you can also sprayed substances with an electrical conductivity > 50 kΩ (according to the WAGNER scale) process successfully.
- → The application effectiveness is always dependant on the composition of the paint being used, e.g. pigments or resin.

Conversion of the resistance of paint
There are paint resistance measuring devices on the market that do not measure directly the specific resistance of paint. Multiplying the result of measurement with the device-specific cell constant (K), we obtain the resistivity value of the material.

Example:
The Wagner paint resistance measuring device is the cell constant K =123.
Measured value according to the WAGNER scale R = 500 kΩ
Specific resistance (R_S) $R_S = R \times K = 500\ k\Omega \times 123 = 61.5\ M\Omega.cm$

Note
With sprayed substances and those with too low electrical resistance the electrostatic effect will not have any effect, i.e., there will be no „wrap around" noticeable at the spray object. The relationship between the values of the high-voltage (kV) and the current (µA), shown on the VM 5000 control unit and/or on the spray gun, denotes the charging capacity of a spray material.
High kV value, low µA value = ok
Low kV-value, high µA-value = Excessive conductivity of the paint -> no wrap-around

In the event of application problems, contact your WAGNER branch and the paint manufacturer.

4.2 SCOPE OF DELIVERY

Quantity	Part No.	Description
1	**2309871**	**GM 5000EAC spray gun** Without control unit, material and air hose, electrical cable, air cap and nozzle.

Each gun includes as standard equipment:

	Part No.	Description
1	2309368	Assembly tool valve needle
1	2325263	Assembly tool clamping screw
1	2319653	Glove against ink mist precipitation
1	2310487	CE-Conformity
-	2310481	Operating manual German
1	see 1.1	Operating manual in the local language

The spray gun basic version can be set according to requirement and the desired accessories with the help of the spray gun configuration.

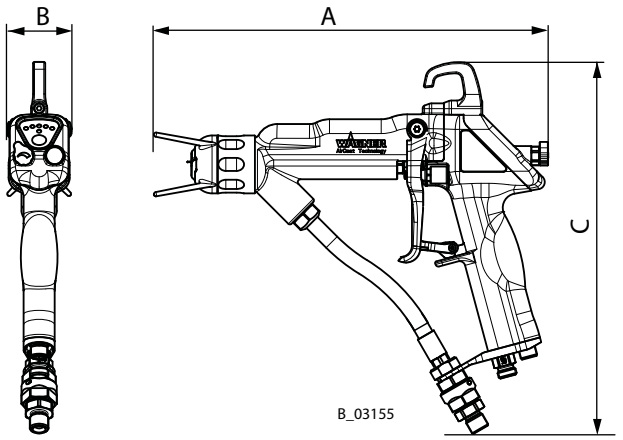
The delivery note shows the exact scope of delivery.

4.3 TECHNICAL DATA

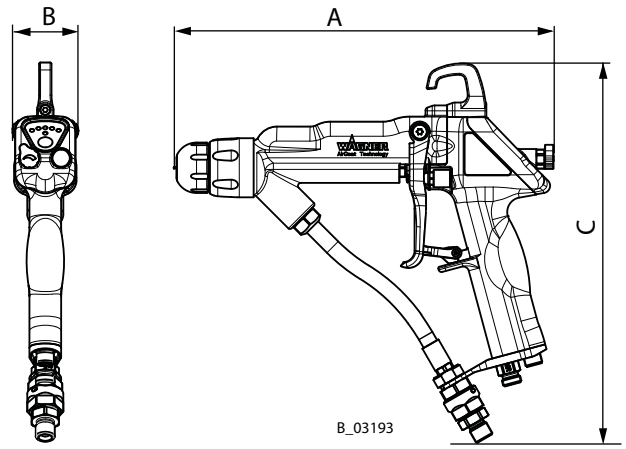
Max. air pressure	0.8 MPa; 8 bar; 116 psi
Max. material pressure	25 MPa; 250 bar; 3626 psi
Material connection	NPSM 1/4“-18
Air connection	G 1/4“ A
Input voltage	max. 20 Vpp
Input current	max. 1.0 A AC
Output voltage	max. 80 kV DC
Output current	max. 100 µA DC
Polarity	negative
Weight (without hose set)	710 g (incl. union nut, nozzle, air cap and edge filter)
Working temperature range	0 °C to 40 °C; 32 °F to 104 °F
Max. material temperature	50 °C; 122 °F
Sound level at 0.3 MPa; 3 bar; 43.5 psi air pressure and 0.3 MPa; 3 bar; 43.5 psi material pressure	73 dB(A) *

* A rated sound pressure level measured at 1 m distance according to DIN EN 14462: 2005.

Measurements



GM 5000EAC F with flat jet nozzle		
	mm	inches
A	280	11.02
B	46	1.81
C	264	10.39

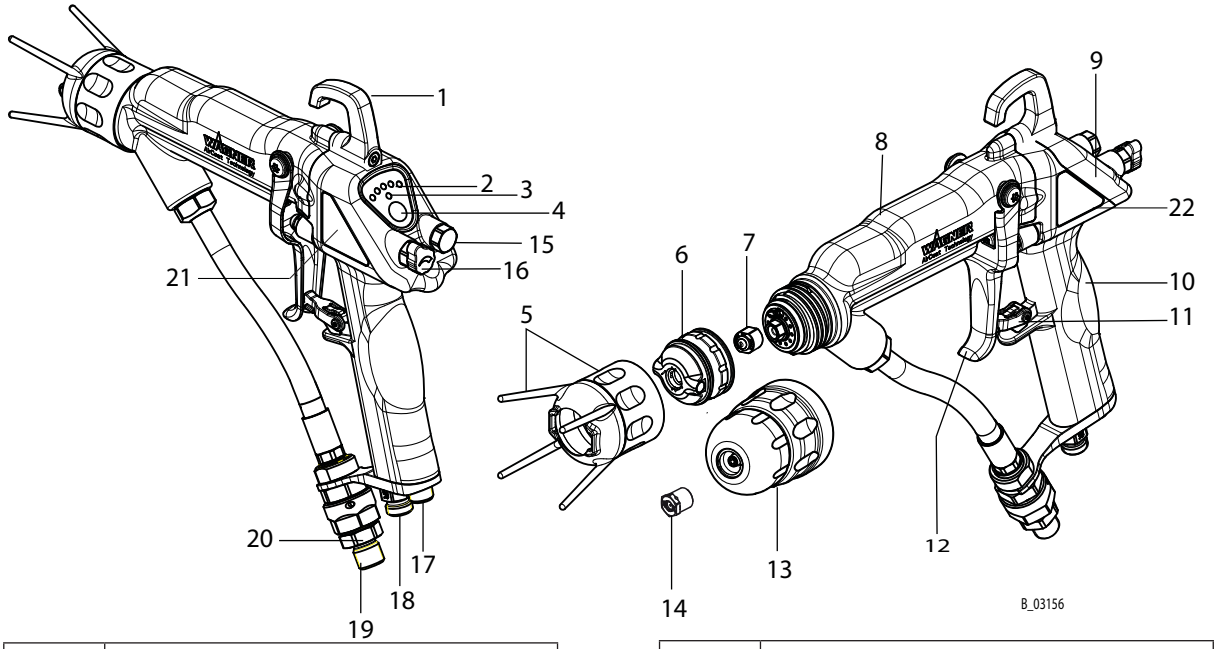


GM 5000EAC R with round jet nozzle		
	mm	inches
A	264	10.39
B	46	1.81
C	264	10.39

4.4 FUNCTIONAL DESCRIPTION

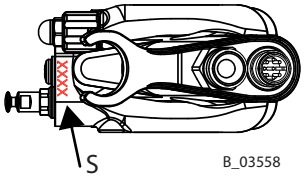
4.4.1 DESIGN OF SPRAY GUN (STANDARD VARIANT)

Note:
The nozzle parts (item 6; 7; 13 and 14) do not belong to the basic equipment of the spray gun. The different versions can be found in Chapter 9 „Accessories“.



Item	Description
1	Hook
2	Display (spray current and recipe)
3	Display standby
4	Operating button (standby and recipe change)
5	Protection against contact with union nut
6	Air cap for flat jet nozzle (see Accessories chapter 9)
7	ACF 5000 flat jet nozzle (see Accessories chapter 9)
8	End piece
9	Cover
10	Handle

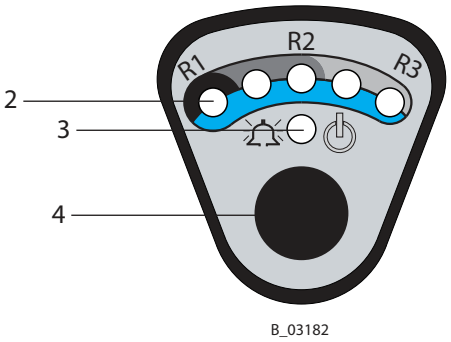
Item	Description
11	Trigger lock
12	Trigger
13	Round jet nozzle cap (see Accessories chapter 9)
14	Round jet nozzle insert (see Accessories chapter 9)
15	Lock plug
16	Air adjustment
17	Electrical cable connection
18	Atomizing air connection
19	Material connection
20	Filter housing with filter
21	Type plate left
22	Type plate right



Note:
The gun type (T) on the type plate (21) and the serial number (S) on the underside of the handle.

4.4.2 FUNCTIONS OF THE SPRAY GUN

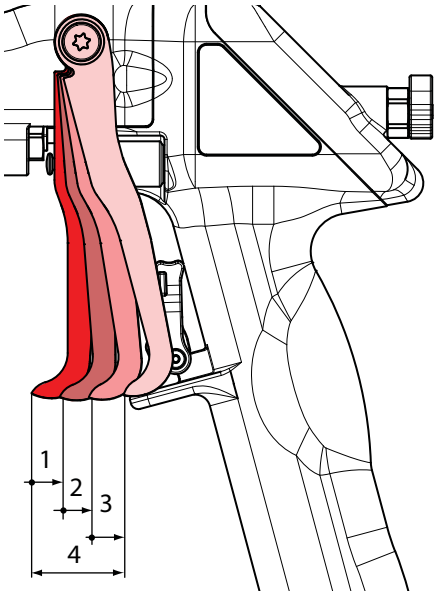
When the spray gun is connected to the control unit and the control unit is switched on, the pre-defined recipe (R1, R2 or R3) is shown on the gun display (2) as follows.
Recipe 1 -> ●○○○○ R1
Recipe 2 -> ●●●○○ R2
Recipe 3 -> ●●●●● R3



B_03182

Recipe change R1 -> R2 -> R3 -> R1
Press the operating button (4) and hold the button pressed of at least 2 seconds, then it is advanced by 1 recipe.

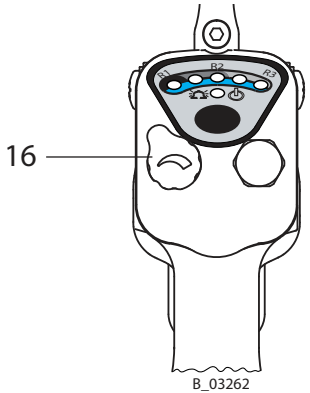
Display (2) -> ●●○○○ = recipe values changed temporarily:
The stored recipe values of the previously selected recipe number are re-loaded from memory by pressing the operating button (4) for 2 seconds.



The trigger can be used to activate, one after the other, the various functions of the spray gun.

Distance	Description
1	AirCoat air opens.
2	AirCoat air opened and electrostatic (HV) activated. -> Display (2) for „spray current“ on the spray gun ●○○○○ to ●●●●● activated.
3	AirCoat air opened and electrostatic (HV) activated and material valve opened.
4	Max way of trigger.

- An increase in the tension needed to pull the trigger back will be felt at the position where the material valve opens.
- For spraying without high-voltage, the high-voltage can be switched off using the operating button (4). Press the operating button (4) briefly: High-voltage is switched off. The standby display (3) illuminates.
- In the event of a malfunction the spray gun switches to „standby“ operating mode and the display (3) illuminates.
- The width of the spray jet can be adjusted using the air adjustment (16) (only for flat-jet method).

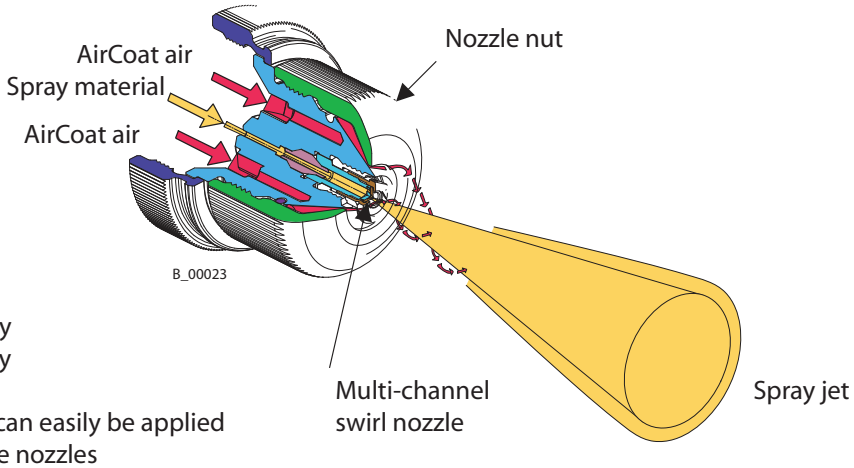


B_03262

4.5 SPRAYING PROCESS

4.5.1 AIRCOAT ROUND JET SPRAY PROCESS

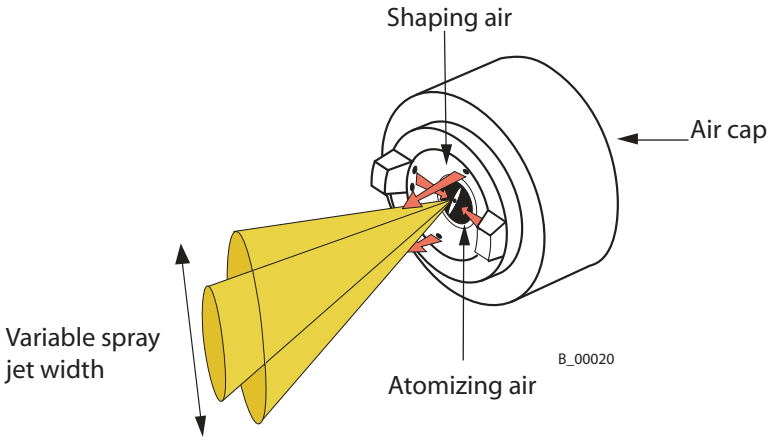
In the AirCoat process, high pressure of 3-15 MPa; 30-150 bar; 435-2176 psi is used to atomize the material. The air at 0-0.25 MPa; 0-2.5 bar; 0-36 psi produces a soft jet. The size of the spray jet can be adjusted by turning the nozzle nut.



Advantages
- High painting capacity
- Low fogging tendency
- Good finish
- High viscosity paints can easily be applied
- High endurance of the nozzles
- Change in width the jet

4.5.2. AIRCOAT ATOMIZING FLAT JET SPRAY PROCESS

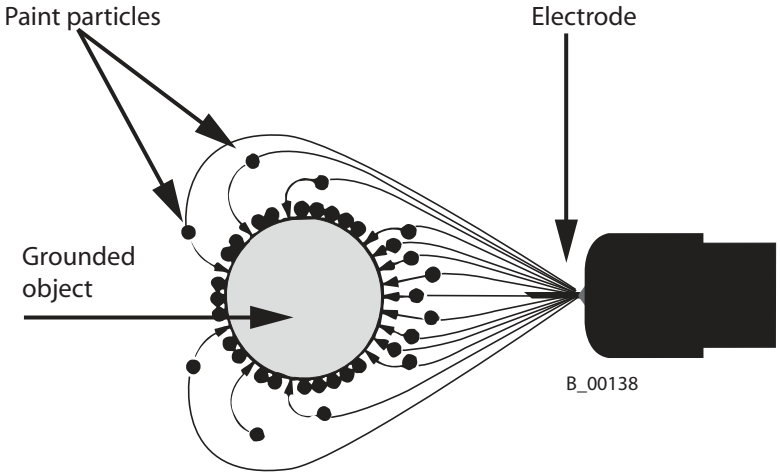
In the AirCoat process, high pressure of 3-15 MPa; 30-150 bar; 435-2176 psi is used to atomize the material. The AirCoat air at 0-0.25 MPa; 0-2.5 bar; 0-36 psi produces a soft jet, which largely eliminates the problem of overlapping boundaries. There´s a possibility to reduce the jet by form air.



Advantages
- High painting capacity
- Low fogging tendency
- Good finish
- High viscosity paints can easily be applied
- High endurance of the AC-nozzles
- Change in width the jet

4.5.3 ELECTRICAL RESISTANCE

The spray gun produces an electrostatic field by means of the high-voltage electrode. As a result, the particles of paint, which have been atomized by the spray gun, are carried to the earthed object by kinetic and electrostatic energy where they adhere, finely distributed, to the object being sprayed.

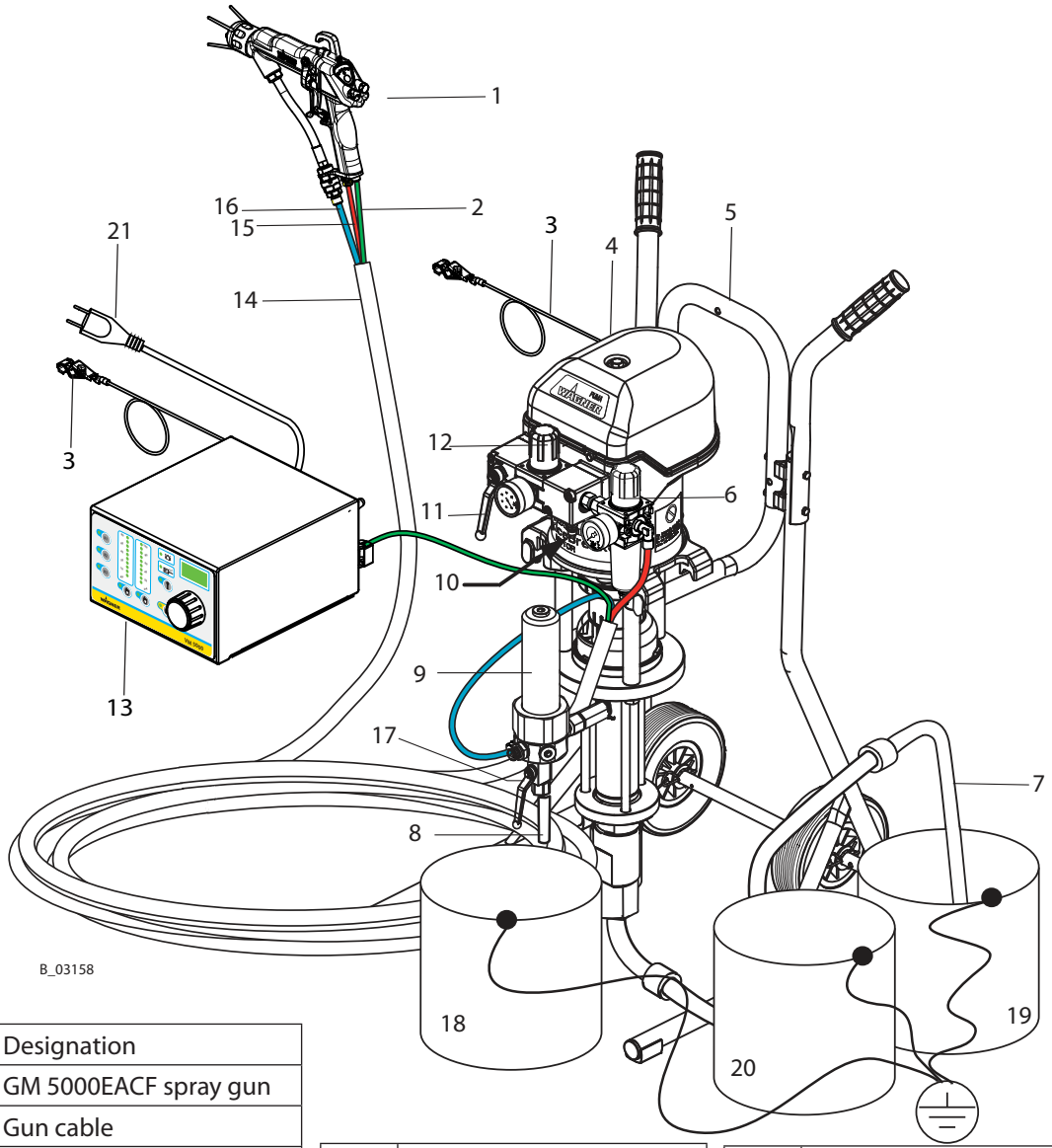


Advantages
- Very high application effectiveness
- Little over spray
- Coating of entire circumferences due to an electrostatic field
- Less working time

5 START-UP AND OPERATION

5.1 INSTALLATION AND CONNECTION

5.1.1 TYPICAL ELECTROSTATIC SPRAYING SYSTEM



Item	Designation
1	GM 5000EACF spray gun
2	Gun cable
3	Grounding cable
4	Pneumatic pumps
5	Carriage
6	Pressure regulator + air filter
7	Material suction system
8	Return hose
9	High pressure filter

Item	Designation
10	Compressed air connection
11	Stop valve
12	Air pressure regulator
13	VM 5000 control unit
14	Protective hose
15	Air hose

Item	Designation
16	Material hose
17	Return valve
18	Container for the return flow
19	Colour container
20	Container, cleaning agent
21	Mains cable

The GM 5000EAC spray gun must be used a part of an electrostatic spraying system (Spraypack). The spraying system shown in the figure B_03158 is only one example of an electrostatic spraying system. Contact your Wagner distributor for assistance in designing a system to meet your needs. The operating instructions and the safety regulations for the additional system components used must be read before starting-up.

⚠WARNING

Incorrect installation/operation!
Risk of injury and damage to equipment

→ When putting into operation and for all work, read and follow the operating instructions and safety regulations for the additionally required system components.

SIHI_0050_GB

5.1.2 VENTILATION OF THE SPRAY BOOTH

⚠WARNING

Toxic and/or flammable vapor mixtures!
Risk of poisoning and burns

→ Operate the unit in a spraying booth approved for the working materials.
-or-
→ Operate the unit on an appropriate spraying wall with the ventilation (extraction) switched on.
→ Observe national and local regulations for the outgoing air speed.

SIHI_0028_GB

5.1.3 AIR SUPPLIES

The use of an air filter with the air pressure regulator (6) ensures that only dry, clean atomizing air gets into the spray gun. Dirt and moisture in the atomizing air reduce the spraying quality and the appearance of the finished piece.

5.1.4 PAINT SUPPLIES

CAUTION

Impurities in the spraying system!
Spray gun blockage, materials harden in the spraying system

→ Flush the spray gun and paint supply with a suitable cleaning agent.

SIHI_0001_GB

⚠ DANGER

Bursting hose, bursting threaded joints!
Danger to life from injection of material

→ Ensure that the hose material is chemically resistant.
→ Ensure that the spray gun, threaded joints and material hose between the unit and the spray gun is suitable for the pressure generated in the unit.
→ Ensure that the following information can be seen on the high pressure hose:
- Manufacturer
- Permissible operating pressure
- Date of manufacture.

SIHI_0029_GB

5.1.5 EARTHING

Perfect earthing of all conductive parts such as floors, walls, roofs, is important for optimum coating and safety. Barriers, work pieces, transport devices, coating material container, automatic movement system or construction parts in the spray area must be connected to the earthing system, with exception of the high-voltage parts during normal operation.
Parts of the booth must be grounded in accordance with EN 12215.

⚠WARNING

Discharge of electrostatically charged components in atmospheres containing solvents!
Explosion hazard from electrostatic sparks or flames

→ Earth all unit components.
→ Earth the workpieces being painted.

SIHI_0027_GB

⚠WARNING

Heavy paint mist if earthing is insufficient!
Risk of poisoning
Insufficient paint application quality

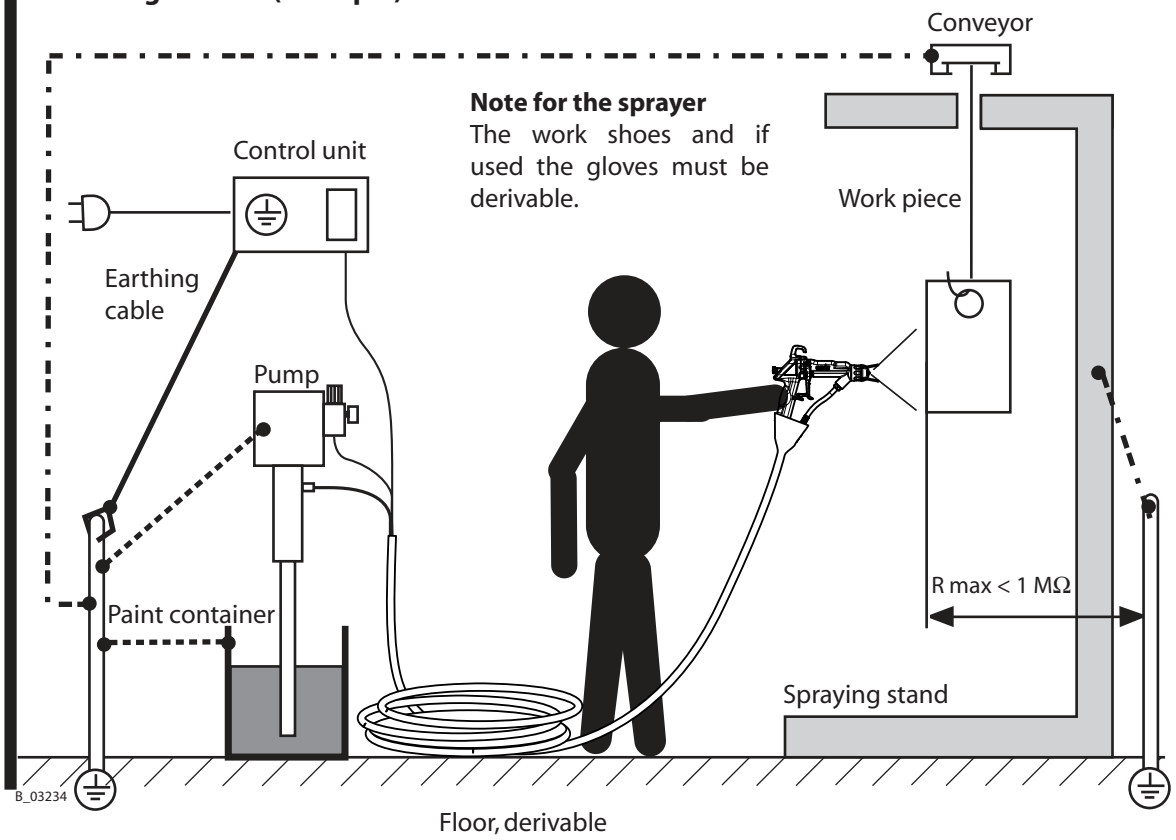
→ Earth all unit components.
→ Earth the workpieces being painted.

SIHI_0003_GB

The imperfect earthing of a work piece will result in:
- Very poor wrap-around.
- Uneven coating thickness.
- Back spraying to the spray gun, i.e. contamination.

The prerequisites for perfect earthing and coating are:
- Clean work piece suspension.
- Earthing of spray booth, conveyor system and suspension on the building side in accordance with the operating instruction or the manufacturer's information.
- Earthing of all conductive parts within the working area.
- The earthing resistance of the work piece may not exceed 1 MΩ (Mega Ohm).
  Note:
  Resistance to earth measured at 500 V or 1000 V.
- Connect the control unit to the mains system earth.

Earthing schema (example)



Minimum cable cross-section

Control unit	4 mm² (AWG 12)
Pump	4 mm² (AWG 12)
Paint container	4 mm² (AWG 12)
Conveyor	16 mm² (AWG 6)
Booth	16 mm² (AWG 6)
Spraying stand	16 mm² (AWG 6)

5.2 PREPARATION OF PAINTS

The viscosity of the paints is of great importance. The best spraying results are obtained with values between 25 and 40 DIN-s (measured in immersion flow cup DIN 4 mm; 0.16 inches). Processing of up to 60 DIN-s is generally possible without problem, if high coating thicknesses are required.

The Wagner AirCoat flat jet spraying process determined optimally the different viscosity of the paint by two air cap types. These can be found in the Accessories.

In the case of application problems contact the paint producer.

5.2.1 VISCOSITY CONVERSION TABLE

milli Pascal x Sec mPas	Centipoise	Poise	DIN Cup 4 mm ; 0.16 inch	Ford Cup 4	Zahn 2
10	10	0.1		5	16
15	15	0.15		8	17
20	20	0.2		10	18
25	25	0.25	14	12	19
30	30	0.3	15	14	20
40	40	0.4	17	18	22
50	50	0.5	19	22	24
60	60	0.6	21	26	27
70	70	0.7	23	28	30
80	80	0.8	25	31	34
90	90	0.9	28	32	37
100	100	1	30	34	41
120	120	1.2	33	41	49
140	140	1.4	37	45	58
160	160	1.6	43	50	66
180	180	1.8	46	54	74
200	200	2	49	58	82
220	220	2.2	52	62	
240	240	2.4	56	65	
260	260	2.6	62	68	
280	280	2.8	65	70	
300	300	3	70	74	
320	320	3.2			
340	340	3.4			
360	360	3.6	80		
380	380	3.8			
400	400	4	90		

5.3 START-UP

5.3.1 GENERAL RULES FOR MAKING ADJUSTMENTS TO THE SPRAY GUN

→ Observe **safety instructions** in Chapter 2.

⚠ DANGER

High voltage field!
Danger to life from malfunctioning heart pacemakers

Ensure that persons with heart pacemakers:
→ Do not work with the electrostatic spray gun.
→ Remain outside the area of the electrostatic spray gun/work-piece.

SIHI_0049_GB

⚠ WARNING

Unintentional putting into operation!
Risk of injury

Before all work on the unit, in the event of work interruptions and functional faults:
→ Switch off the energy/compressed air supply.
→ Relieve the pressure from the spray gun and unit.
→ Secure the spray gun against actuation.
→ By functional faults: Identify and correct the problem, proceed as described in chap„Trouble shooting“.

SIHI_0065_GB

5.3.2 PREPARATION FOR STARTING UP

The following points should be noted before commissioning:

→ For earthing see paragraph 5.1.5; make sure that all other conductive parts within the work area are earthed.
→ Connect the material hose to spray gun and material pump..
→ Check that all material-conveying connections are correctly connected.
→ Connect air hose to spray gun and to oil-free, dry air, approx. 0.25 MPa; 2.5 bar; 36 psi. Compressed air quality class 3.5.2 according to ISO 8573.1.
→ Check that all air supply connections are connected properly.
→ Connect the electric cable to the spray gun and to the VM 5000 or VM 500 control unit.
→ Visually check the permissible pressures for all the system components.

→ Check the level of the release agent in the Wagner pneumatic pump and if necessary fill the release agent up.
→ Provide material container, containers for detergent and an empty container for return.
→ Connect the system with a safe gun to the air and power supply.
→ A basic flushing of system must be carried out for initial start up. Make sure, that no nozzle is inserted into the gun.

⚠WARNING

Sparks form when the plug is removed!
Explosion hazard

When using the spray gun in explosion hazard areas:
→ The cable connection may neither be separated nor put together in this area. Cover sleeve plus warning sign have to be secured over the screw on the connector.

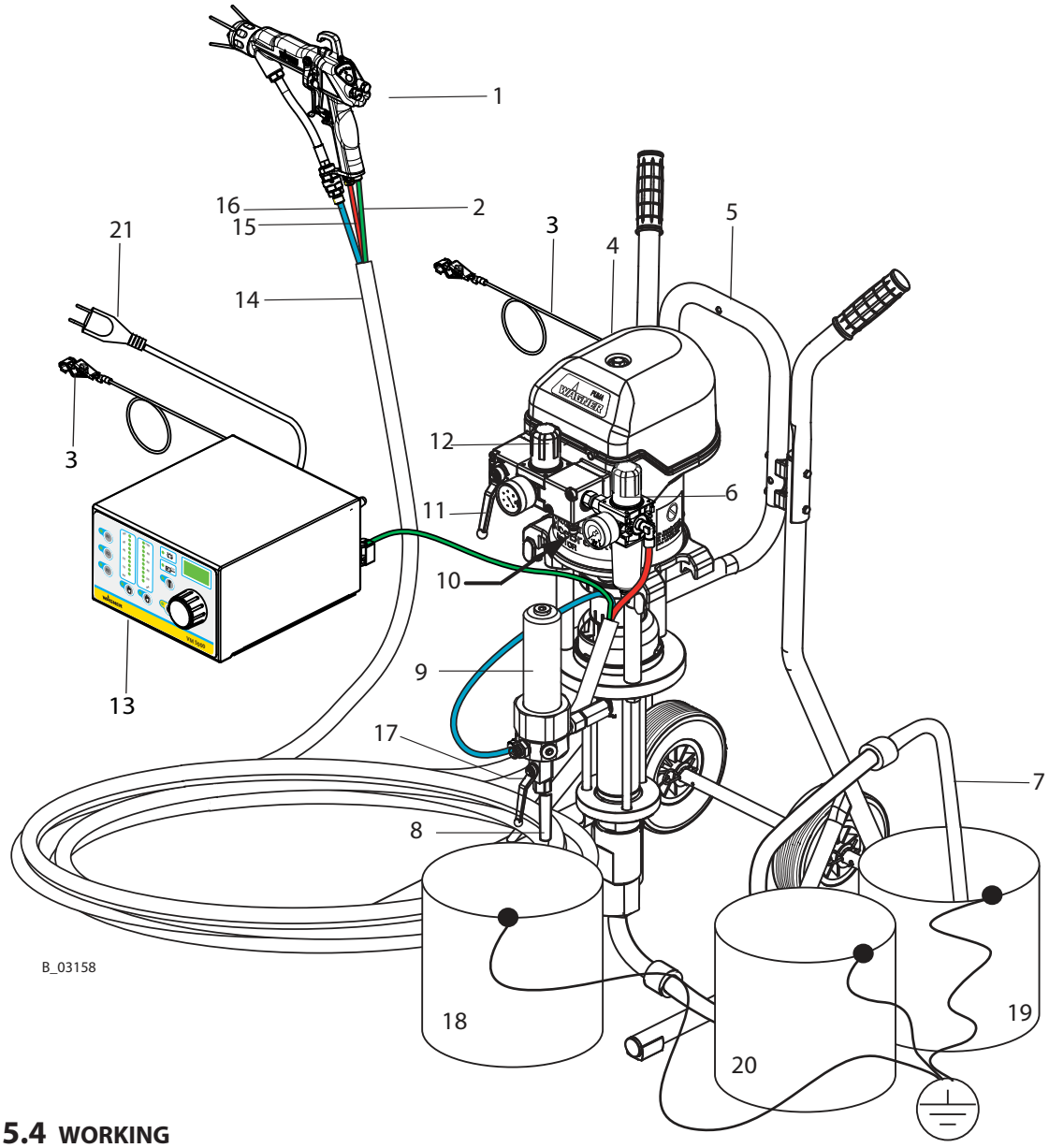
SIHI_0139_ENG

Attention: gun cable to control unit
Cover sleeve with warning sign have to be secured over the screw (84) on the connector.

B_03691

Attention: guns with electrical extension cable
Cover sleeves with warning signs have to be secured over the screws (84) on the connectors.

B_03690



5.4 WORKING

5.4.1 FILLING WITH WORKING MATERIAL

1. Provide an empty container for return (18). See image B_03158.
2. Place suction hose (7) in the container with working material (19).
   Note:
   If the pump is equipped with a rigid suction system, it should only be diped in into the working material in maximum to the middle of the inlet housing!
3. Adjust approx. 0.05 MPa; 0.5 bar; 7.25 psi on the pressure regulator (12).
4. Open return valve (17).
5. Slowly open the ball valve (11).
6. Adjust the air pressure on the pressure regulator (12) so that the pump runs regularly.
7. Close ball valve (11) as soon as pure working material starts coming from the return tube (8).

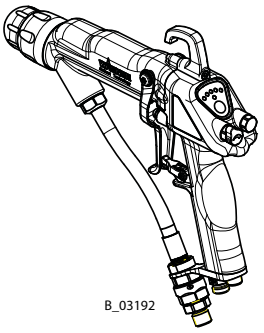
8. Close return valve (17).
9. Point the gun, without nozzle, into container (18) and open it.
10. Slowly open the ball valve (11).
11. Close ball valve (11) as soon as pure working material without any air inclusions starts coming from the gun.
12. When there is no pressure remaining in the system close gun.
13. Secure gun.
14. Dispose of the contents of the container (18) according to the local regulations.

5.4.2 START-UP FOR SPRAYING AIRCOAT

1. Secure gun and place the desired nozzle.
2. Set pump (4) to about 8 Mpa; 80 bar; 1160 psi operating pressure and switch on control unit (13).
3. Spray (press the trigger).
4. Adjust the spray pressure at the paint pump according to the nozzle and object being sprayed.
5. Now open AirCoat air (6), approx. 0.01-0.25 MPa; 1-2.5 bar; 14,5-36 psi, and adjust for the optimal atomization.

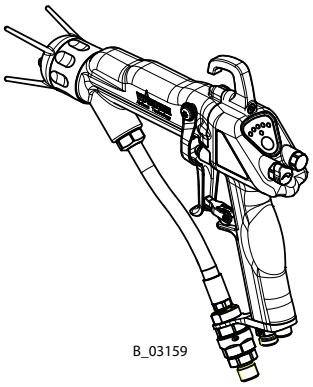
For round-jet method:

6. By turning the nozzle nut, the atomizing air jet can additionally be adjusted.
   Notes
   Do not turn the nozzle nut until it is flush with the nozzle body. There must be play for the atomizing air between the nozzle nut and the nozzle body.
   The air adjustment at the back of the gun does not affect the spray pattern in this process.


B_03192

For flat-jet method:

7. Change the width of the spray jet by turning the air adjustment back to the spray gun or by appropriate selection of the nozzle.


B_03159

5.4.3 CLEANING OF CLOGGED ROUND JET NOZZLES

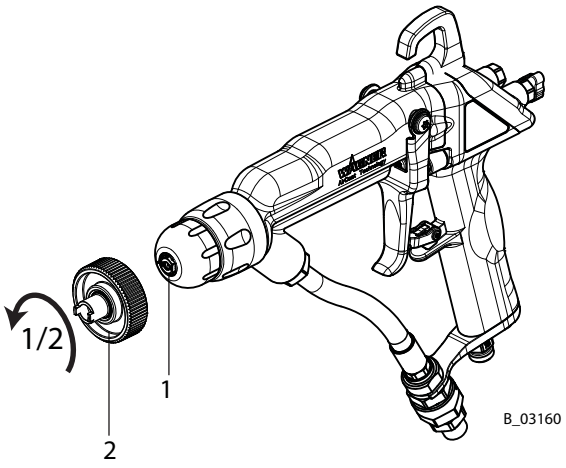
⚠ DANGER

Exploding gas/ air mixture!
Danger to life from flying parts and burns

→ Never spray into a closed container.
→ Earth the container.

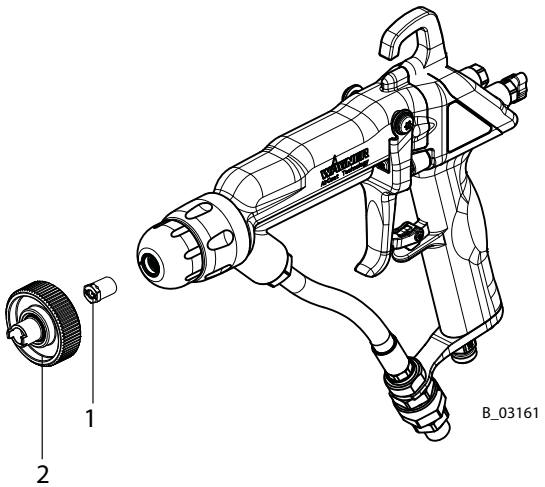
SIHI_0008_GB

1. By means of nozzle spanner (2), loosen nozzle insert (1) by a half turn.
2. Remove the nozzle spanner and briefly actuate trigger guard.
3. After cleaning the nozzle, re-tighten the nozzle insert.



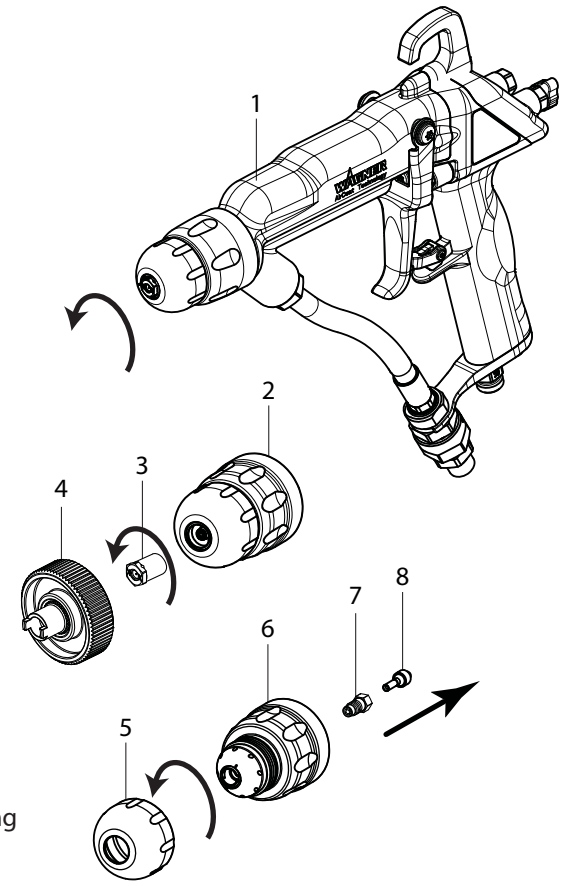
5.4.4 EXCHANGE OF ROUND JET NOZZLE INSERT

1. Remove nozzle insert (1) using nozzle spanner (2).
2. Fit the new nozzle insert.

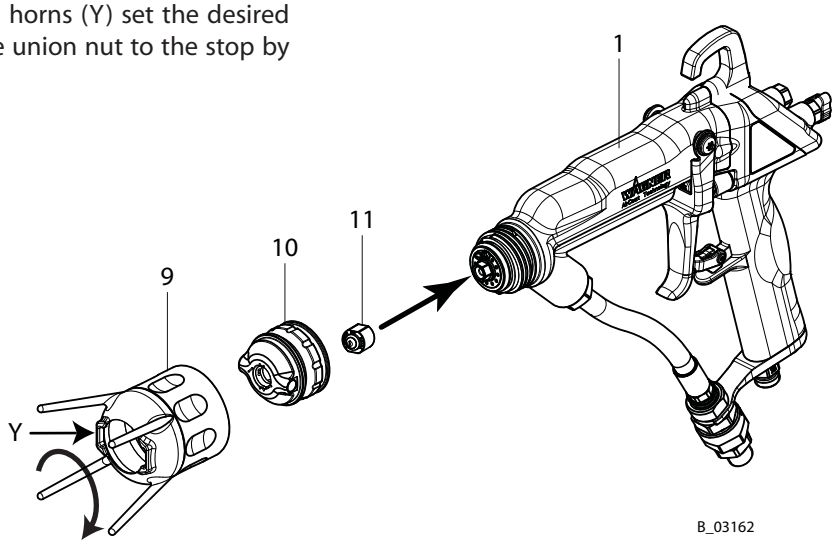


5.4.5 CHANGING FROM AIRCOAT ROUND JET TO AIRCOAT FLAT JET

1. Flush the spray gun (1) out thoroughly with cleaning agent.
2. Relieve the pressure of gun and unit.
3. Save the spray gun (1) using the trigger lock.
4. Unscrew round jet nozzle cap (2) incl. nozzle insert (3).
5. Unscrew nozzle insert (3) using nozzle spanner (4).
6. Unscrew nozzle nut (5) and remove nozzle screw connection (7) and sealing nipple (8) out off the nozzle body (6) and clean all parts thoroughly.
7. Insert desired ACF 5000 nozzle (11) into the valve housing.



8. Put the air cap (10) on the nozzle (11) and paying attention to the position of the guide surfaces.
9. Screw union nut with attached nozzle guard (9) to the gun body and make sure that the air cap horns lie in the designated recess (Y).
10. Before tightening the air cap horns (Y) set the desired jet level and then tighten the union nut to the stop by hand.



5.4.6 REPLACING AIRCOAT FLAT JET NOZZLES

1. Switch off control unit.
2. Relieve the pressure of gun (1) and unit!
3. Save the spray gun (1) using the trigger lock.
4. Unscrew union nut (12) and remove air cap (10).
5. Remove ACF 5000 AirCoat nozzle (11) and brush cleaning solvent until all traces of paint are dissolved.

CAUTION

Defective AirCoat nozzle!
Insufficient paint application quality

→ Do not use sharp-edged objects to treat hard metal on the AirCoat nozzle.

SIHI_0020_GB

6. Insert new ACF 5000 nozzle (11) into the valve housing.
7. Put the air cap (10) on the nozzle (11) and pay attention to the position of the guide surfaces.
8. Screw union nut with attached nozzle guard (9) to the gun body and make sure that the air cap horns lie in the designated recess (Y).
9. Before tightening the air cap horns (Y) set the desired jet level and then tighten the union nut to the stop by hand.

5.4.7 CLEANING OF THE NOZZLES

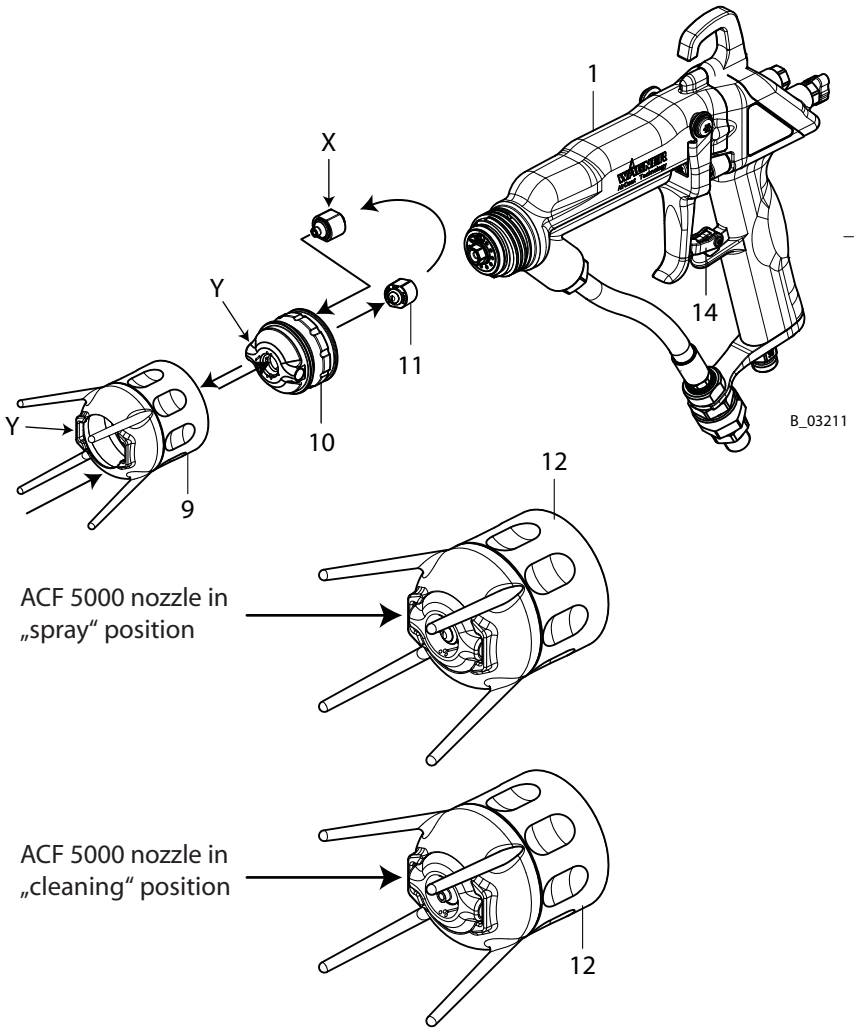
The AirCoat ACF 5000 nozzles (11), the nozzle inserts (3) and the nozzle screw connection (7) can be placed in a cleaning solvent recommended by the paint manufacturer.

All other nozzle parts may **not be put into cleaning solvent**.
Clean these parts with cleaning solvent recommended by the manufacturer and dry with a cloth or a air-jet gun.

5.4.8 ELIMINATE NOZZLE CLOGGING

1. Switch off control unit.
2. Relieve the pressure of gun and unit.
2. Save the spray gun (1) using the trigger lock (14).
3. Unscrew union nut (12) complete with air cap (10) and ACF 5000 nozzle (11).
4. Remove air cap (10).
5. Pull out the ACF 5000 nozzle (11) from the air cap (10) by hand, reverse it and put it towards the rear into the air cap (10). Pay attention to the position of the guide surfaces (X).

6. Insert air cap (10) with integrated ACF 5000 nozzle (11) into the union nut (9). Make sure that the air cap horns (Y) lie in the recess of the nozzle guard.
7. Screw preassembled union nut (12) to gun (1) and tighten by hand.
8. Switch the material pressure back on.
9. Turn the trigger lock (14) to the spraying position and briefly pull trigger.
10. When the blockage has been flushed out secure the gun with trigger lock.
11. Relieve the pressure of gun and unit.
12. Unscrew union nut (12).
13. Remove air cap (10) and put ACF 5000 nozzle (11) out off air cap by hand. Clean ACF 5000 nozzle and insert it in spraying position into the valve housing.
14. Put the air cap (10) on the nozzle (11) and pay attention to the position of the guide surfaces (X).
15. Screw union nut with attached nozzle guard (9) to the gun body and make sure that the air cap horns lie in the designated recess (Y).
16. Before tightening the air cap horns (Y) set the desired jet level and then tighten the union nut to the stop by hand.
17. Switch the material pressure and the air pressure back on.
18. Switch on the control unit.



6 MAINTENANCE

→ Observe **safety instructions** in chapter 2.

6.1 PERIODICALLY CHECKS

For the safe operation of electrostatic manual coating systems for flammable liquid spraying materials are intervals for periodically inspections defined as follows:

Inspection point	Inspection interval	Remarks
Gun cleaning, flushing	daily	Chapter 2.2.4; chapter 6.1
Earthing measures	weekly	Chapter 2.2.2; chapter 5.1.5
Inspection for damage	weekly	Chapter 6.2; 6.3; 6.4 and 6.5
Locking of the technical ventilation with the electrostatic manual coating system	yearly	Chapter 5.1.2

The above recommended intervals are maximum values and may be modified from operator depending on the local and operational conditions and contamination.

Damaged devices must be taken out of service immediately and repaired.

6.2 CLEANING AND DECOMMISSIONING

The spray gun and the unit must be cleaned every day. Only use the cleaning solvent recommended by the paint manufacturer.

CAUTION

Cleaning agent in the air duct!
Functional faults caused by swollen seals

→ Never immerse the spray gun in cleaning agent.

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⚠WARNING

Incorrect maintenance/repair!
Risk of injury and damage to the equipment

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the unit and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Relieve the pressure from the spray gun and unit.
- Secure the spray gun against actuation.
→ Observe the operating instructions when carrying out all work.

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⚠ DANGER

Exploding gas/ air mixture!
Danger to life from flying parts and burns

→ Never spray into a closed container.
→ Earth the container.

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1. Switch off control unit.
2. Ensure that the material pressure is relieved and shut off the air supply to the gun.
3. Connect up the supply of cleaning solvent.
   With round jet nozzle fitted:
4. By means of nozzle spanner, loosen nozzle insert by a half turn.
5. Actuate the trigger guard. Flush the gun through thoroughly.
6. Relieve the material pressure on the spray gun and the devise!
7. Tighten nozzle insert.
8. Clean the spray gun body with a cleaning agent recommended by the manufacturer and dry with a cloth or blow gun.
   With flat jet nozzle fitted:
4. Remove AirCoat nozzle and clean separately (see paragraph 5.4.7).
5. Actuate the trigger guard. Flush the gun through thoroughly.
6. Relieve the material pressure on the spray gun and the devise!
7. Clean gun body with a cleaning agent recommended by the manufacturer and dry with a cloth or blow gun.

CAUTION

Cleaning agent in the air duct!
Functional faults caused by swollen seals
Discharge current to ground -> no high voltage

→ Always point the spray gun down when cleaning.
→ Ensure that neither paint nor cleaning agent enters the air duct.
→ When taking a break from work or when stored for a longer period, the spray gun has to be positioned correctly with the attachment pointing downwards.

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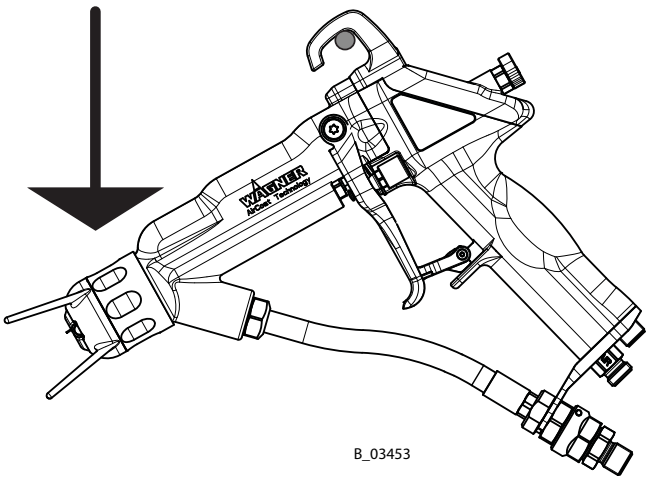

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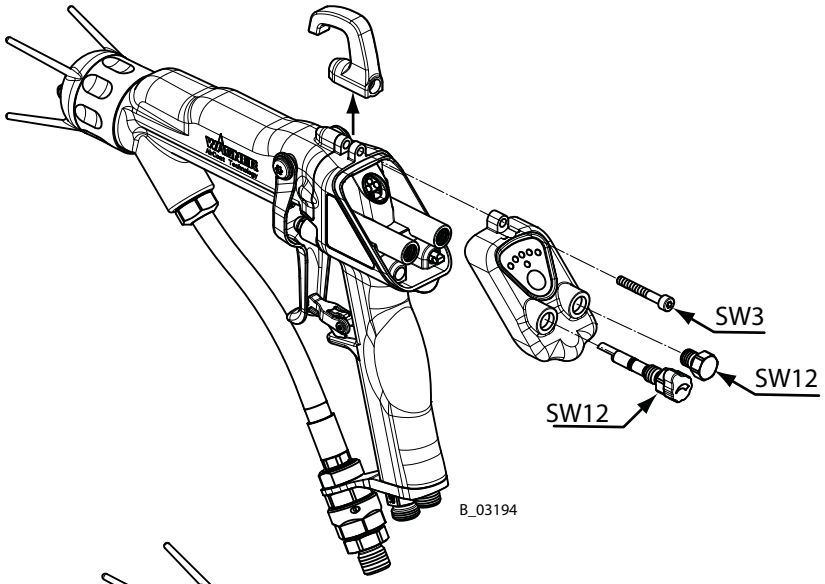
6.3 DISMANTLING OF THE SPRAY GUN

1



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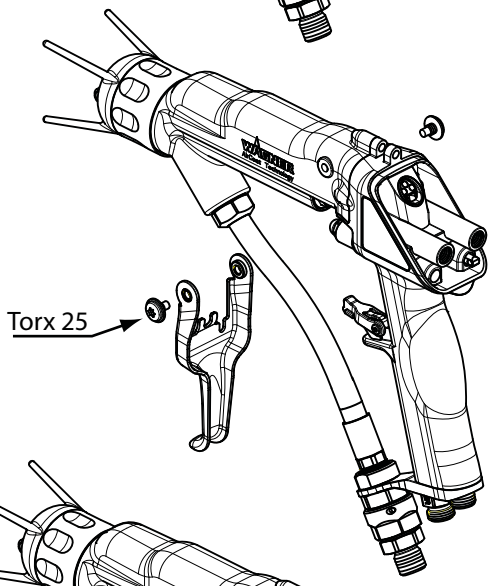

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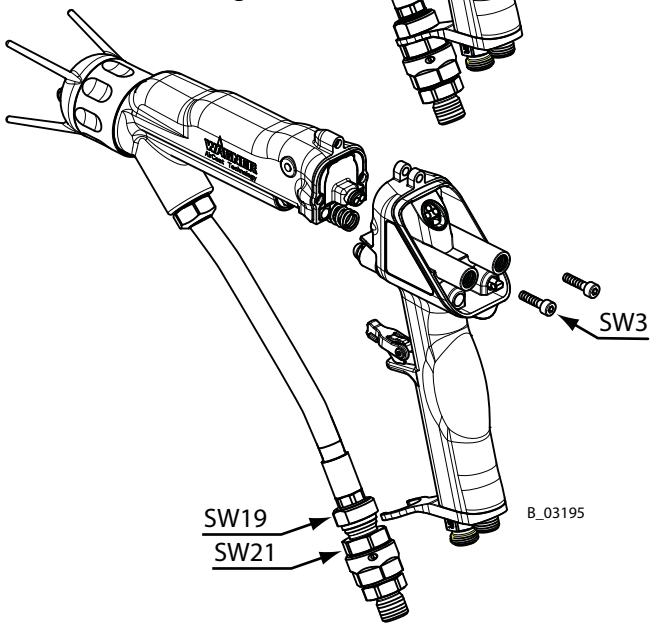

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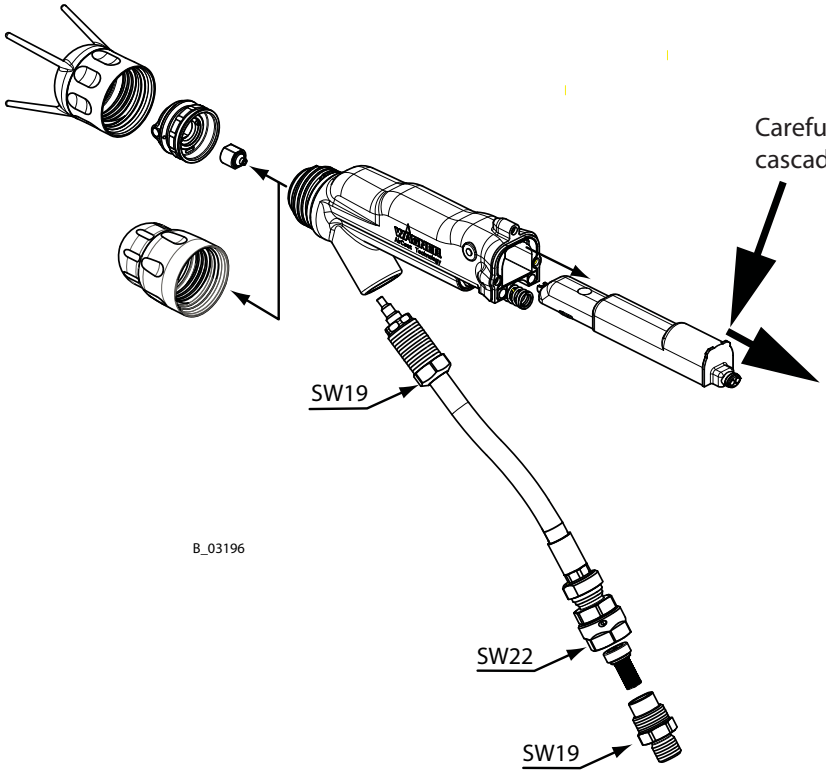
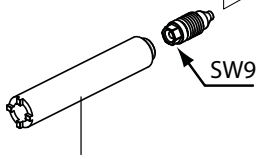


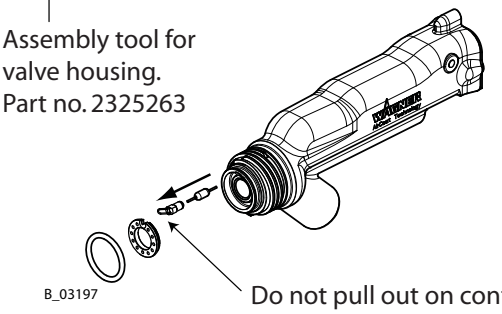
5

Note:
Loosen AC valve tip by hand using an assembly tool.



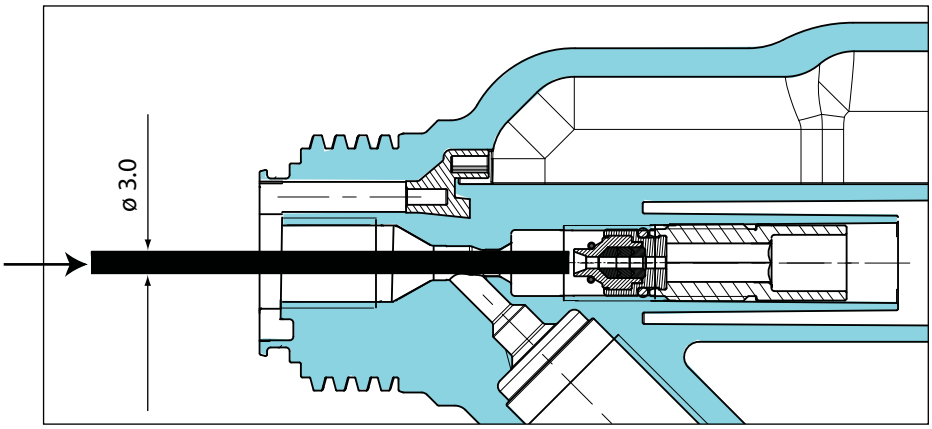
Use assembly tool, socket or ring spanner (no wrench).

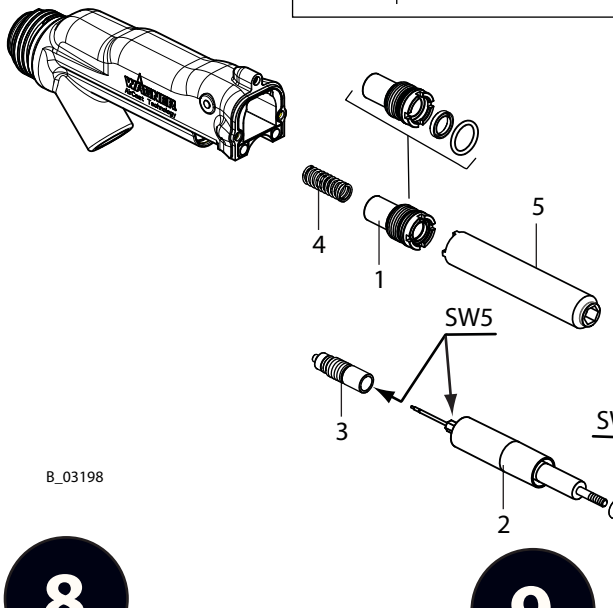
6



Do not pull out on contact wire.

7

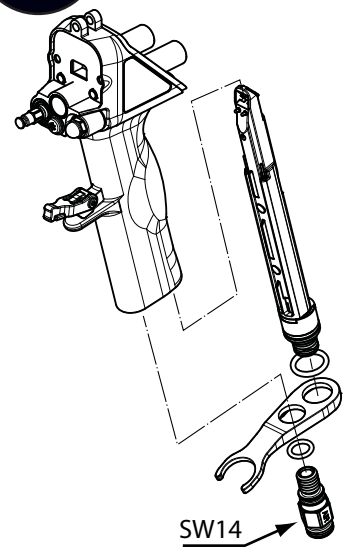




B_03198

1. Remove pressure spring (4).
2. Loosen clamping screw (1) completely with assembly tool (5).
3. Unscrew the complete package (3) via the complete valve rod unit (2, 6 and 7) or pull out the valve rod unit and unscrew it using an Allen key SW5.
4. If the loosened package (3) in the hole jammed, emit from the front (see upper image).

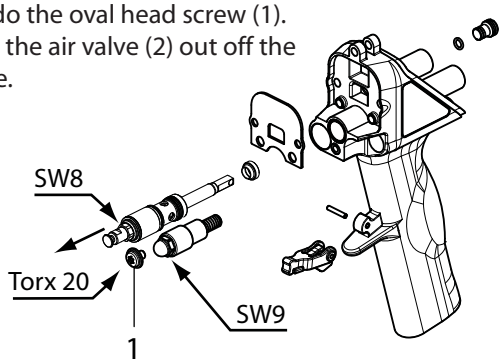
8



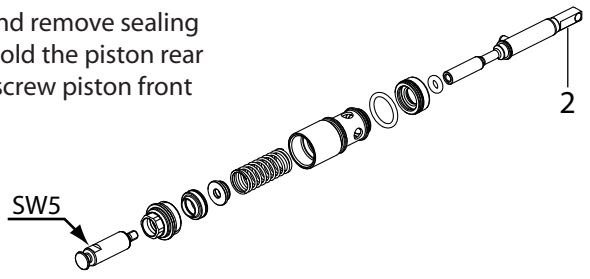
B_03199

9

1. Undo the oval head screw (1).
2. Pull the air valve (2) out off the hole.



Removing air valve:
Unscrew and remove sealing nut SW8. Hold the piston rear (2) and unscrew piston front SW5.



6.4 CLEANING THE PARTS AFTER DISASSEMBLY

ATTENTION

Please note:

- → All reusable parts (except for the parts that conduct the high-voltage such as cascade, end piece, plug compl. etc.) should be cleaned thoroughly using a suitable cleaning agent.
- → The end piece, plug compl. and the handle inside must be clean and dry after cleaning. Care should be taken that these parts remain free of solvents, grease or sweat from the hands (salt water).
- → Only spare parts are used which have undergone an EC type examination and are subject to a quality assessment (production monitoring) according to Directive 94/9/EC.
- → Spare parts may have safety-relevant properties.
- → Defective parts, O-rings and seal sets must always be re-placed.

⚠WARNING

Incompatibility of cleaning agent and working medium!
Risk of explosion and danger of poisoning by toxic gasses

→ Check the compatibility of cleaning agent and working medium in accordance with safety data sheets.

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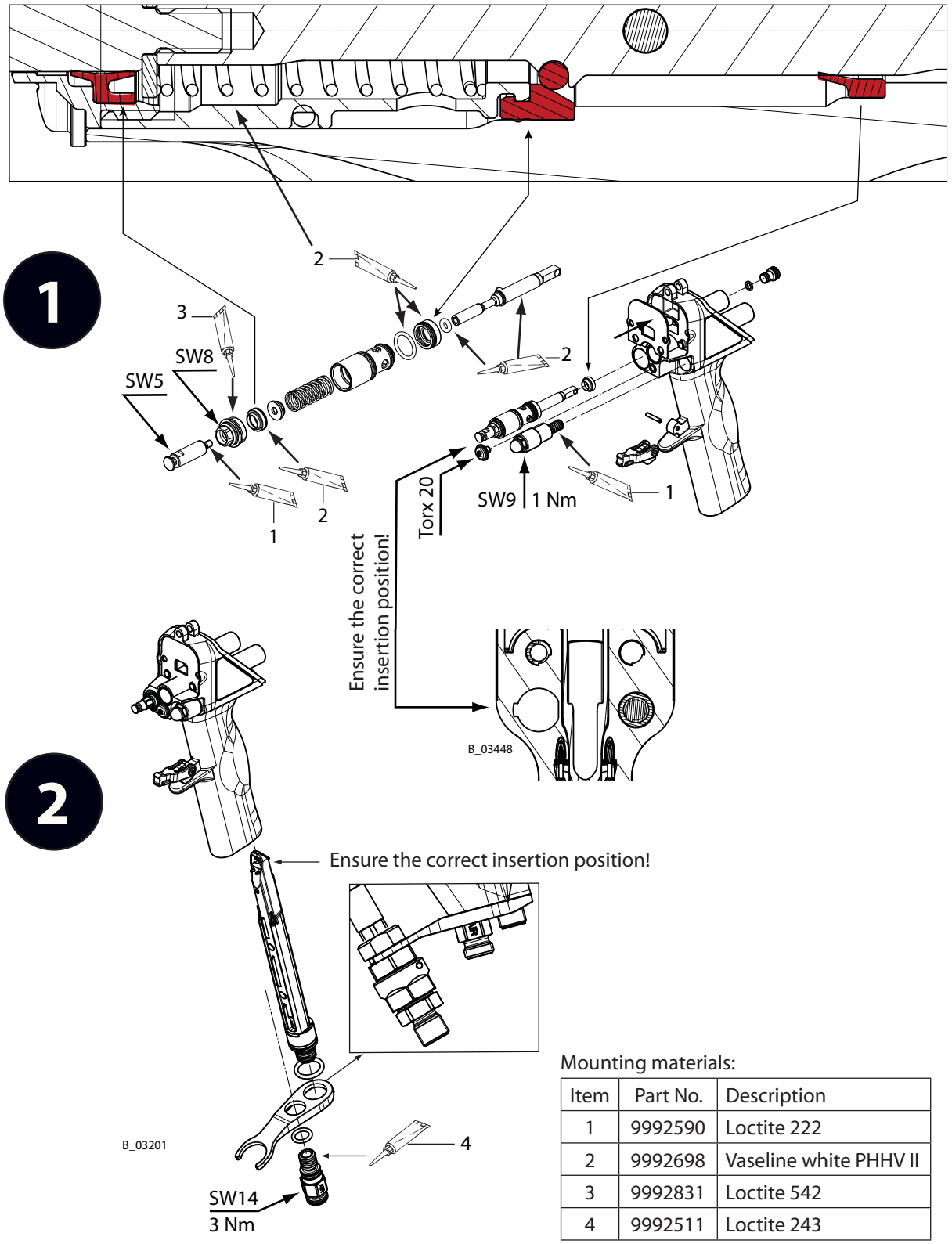
In chapter 10 can be found part numbers for gun spare parts as well as for wearing parts such as seals.

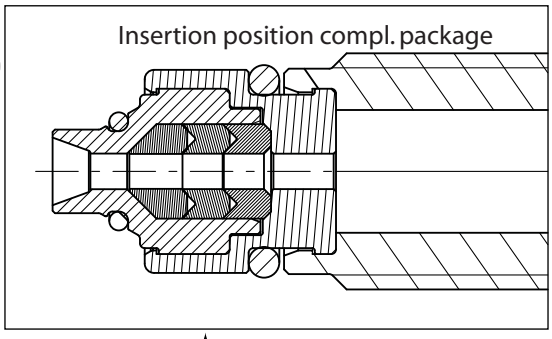
6.5 ASSEMBLING THE SPRAY GUN

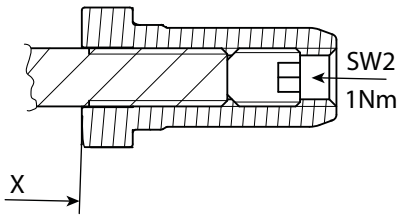


Mounting materials:

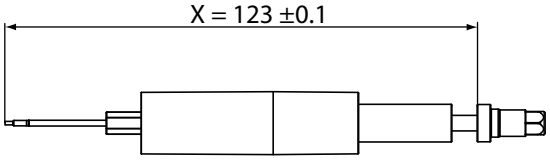
Item	Part No.	Description
1	9992590	Loctite 222
2	9992698	Vaseline white PHHV II
3	9992831	Loctite 542
4	9992511	Loctite 243

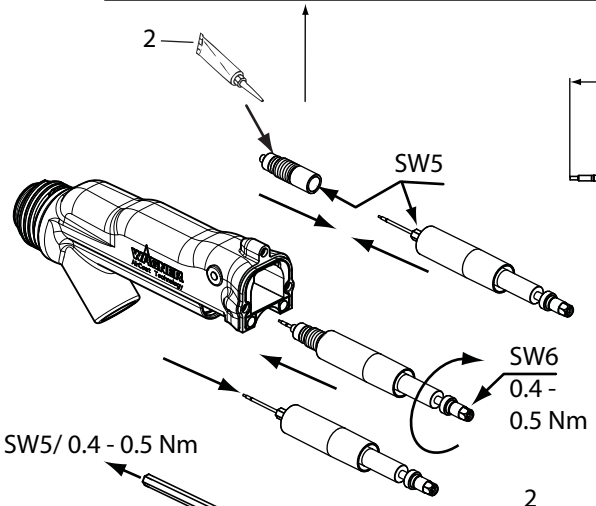
3





Set measure X with withdrawal nut and then fasten it with the threaded pin (SW2).



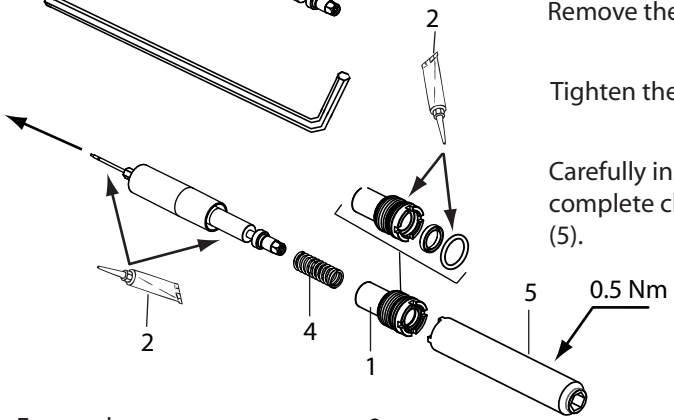


Push together the valve rod unit and the compl. package.

Screw in together the valve rod unit and the compl. package.

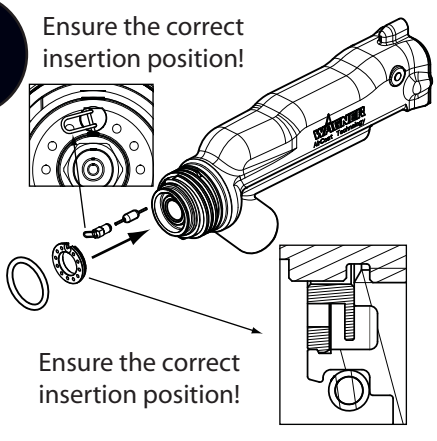
Remove the valve rod unit.

Tighten the compl. package.



Carefully insert the valve rod unit and mount the complete clamping screw (1) with assembly tool (5).

4



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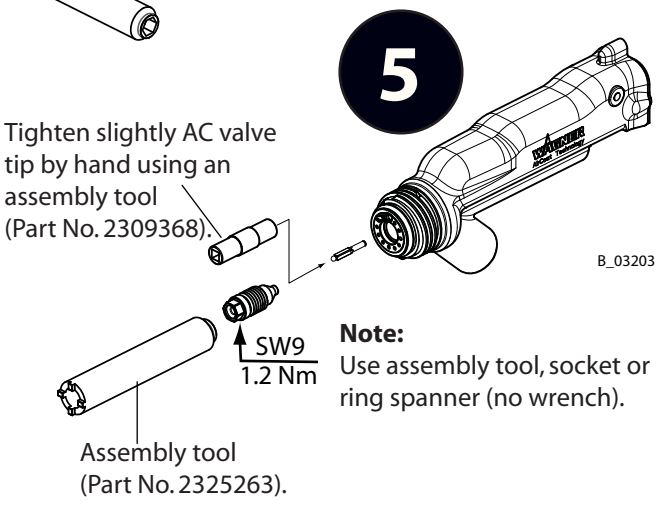
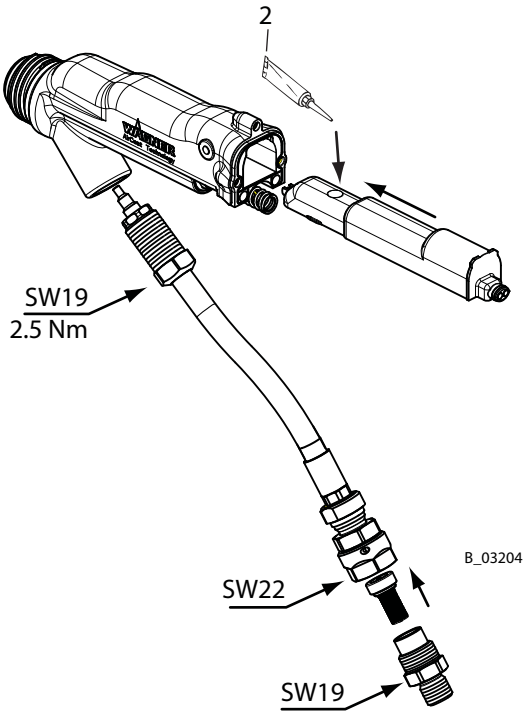


Note:
Use assembly tool, socket or ring spanner (no wrench).

6

Clean and degrease the inside of the end piece and the cascade, then grease the cascade surface with Vaseline.



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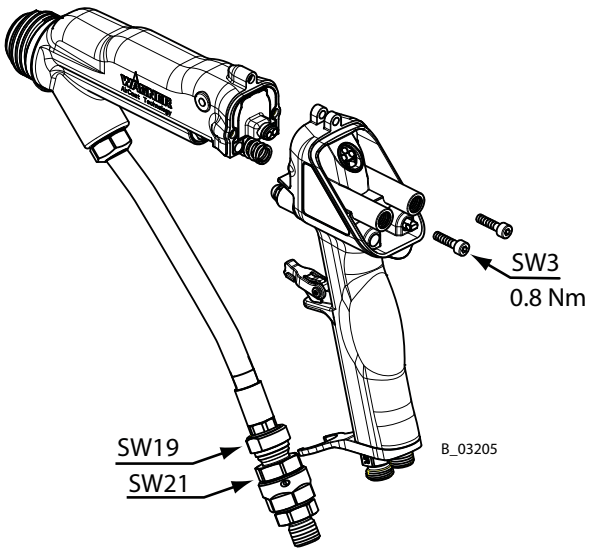
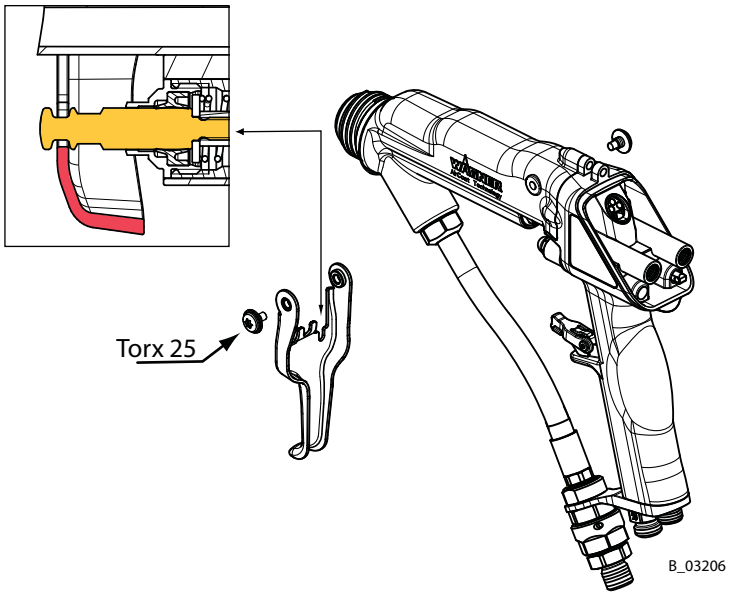


8

Push the trigger upward into the air valve piston.



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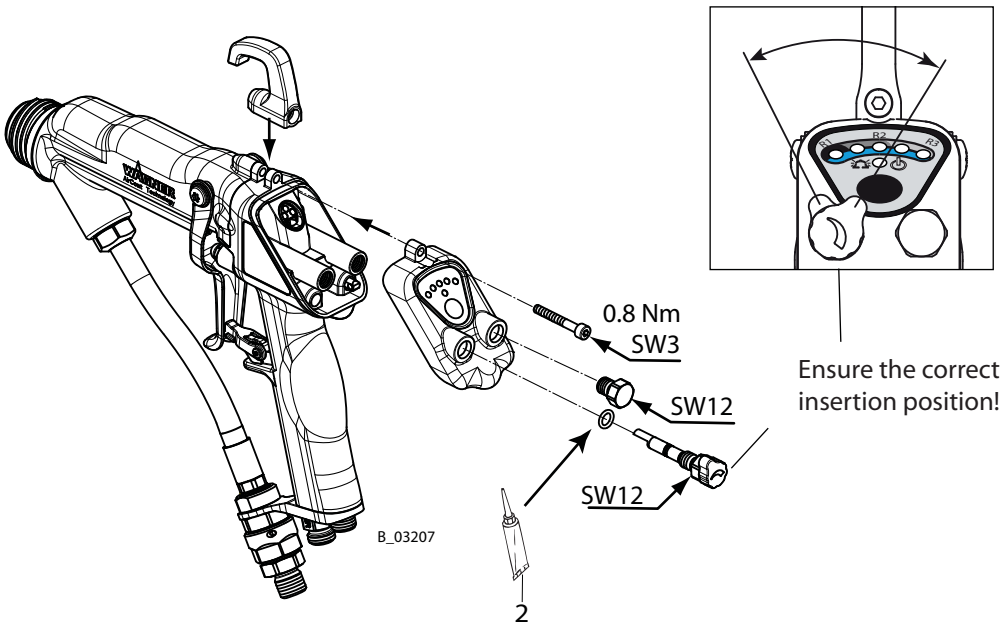
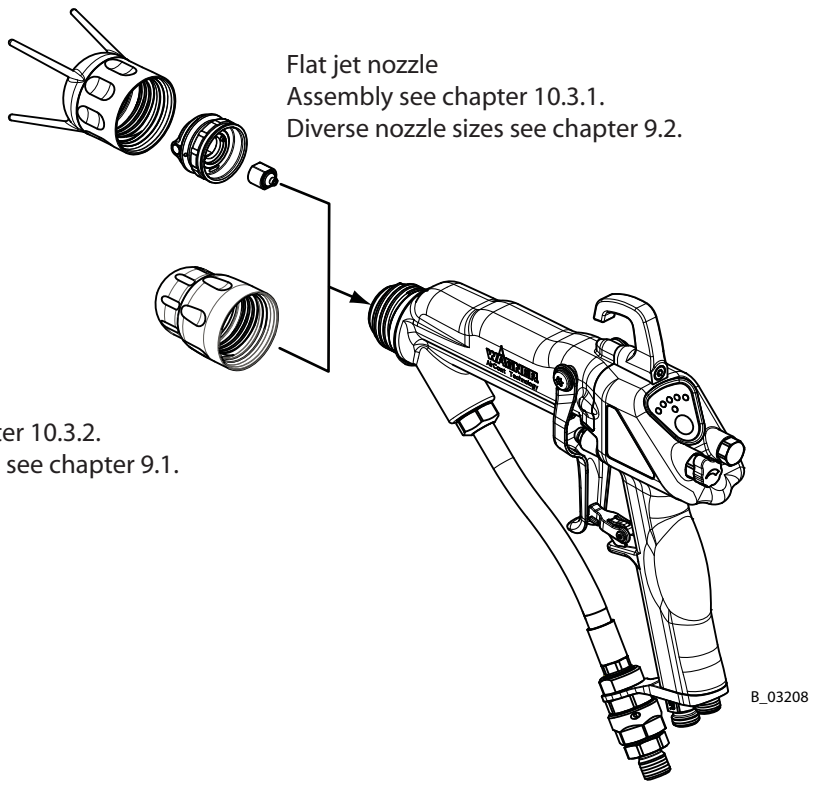


10



Flat jet nozzle
Assembly see chapter 10.3.1.
Diverse nozzle sizes see chapter 9.2.

Round jet nozzle
Assembly see chapter 10.3.2.
Diverse nozzle sizes see chapter 9.1.

6.6 FUNCTION TEST AFTER ASSEMBLY OF THE GUN

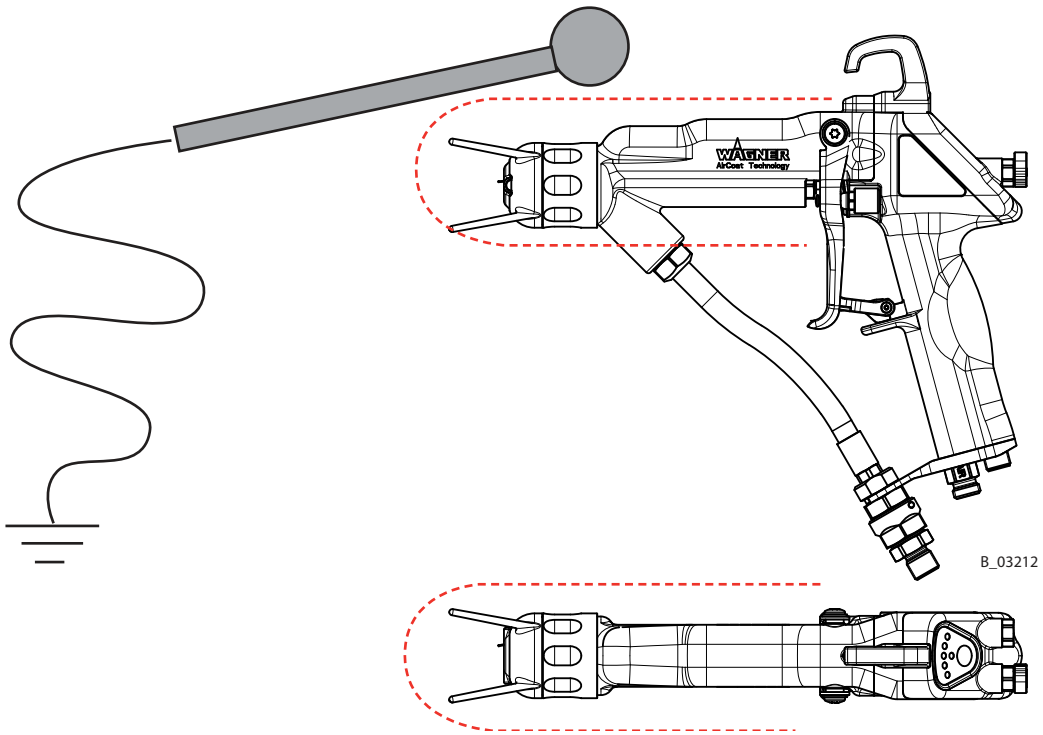
6.6.1 CHECKING THE HIGH-VOLTAGE

Necessary test equipment:
VM 500 or VM 5000 control unit and HV200 high-voltage tester.

High-voltage measurements on spraying gun.
Connect gun cable to control unit. Take the spray gun in your hand and hold into open space. Switch on control unit and actuate trigger guard.
The high-voltage should be 60 to 65 kV with dry ambient air. The value can be checked with the display on the control unit (VM 5000).
Note
The gun must be clean and dry and must not have any colour or cleaning agent residues.
BIn the case of ambient air with a high air humidity, the measured value reduces to 50 to 55 kV.

High-voltage measurement with high-voltage tester
Place the ball of the high-voltage tester on the gun electrode and switch on the high-voltage. The measured value should be 70 to 80 kV.
Note
- When measuring the high-voltage the gun and the measuring device should be held at arms length as far away from the body as possible.
- There should be no chargeable objects with in a radius of 1 m; 3.28 ft of the place where the measurements are taken.
- The placing of the measuring ball of the high-voltage measuring device reduces the spraying of the high-voltage electrode. As a result the high-voltage value increases compared to the spraying in the free space.

Disruptive discharge test
Check the gun against earth with the earthing rod. No sparks should be formed.
Note: In the vicinity of the electrode can occur harmless corona discharges.

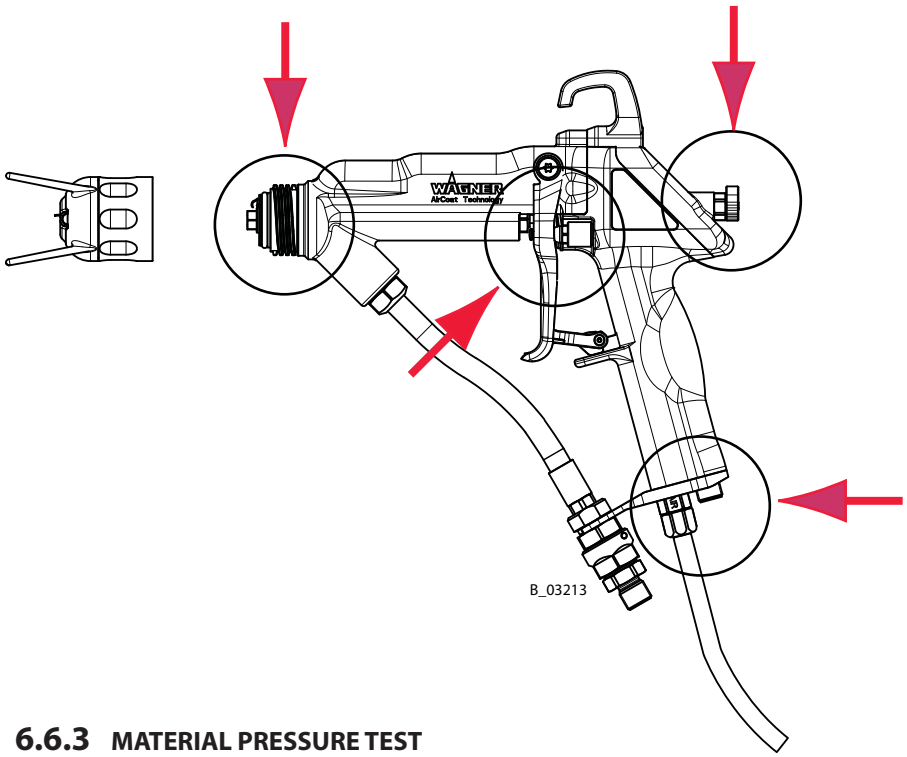


6.6.2 AIR TESTS

Connect test or air hose to the spray gun and switch on mains pressure 0.8 MPa; 8 bar; 116 psi max.

Checking the air valve
The air valve must switch on and off cleanly.
Test up to approx. 0.8 MPa; 8 bar; 116 psi.

Air tightness
With the trigger guard unactuated, test for air tightness at the points marked in the illustration:



6.6.3 MATERIAL PRESSURE TEST

Connect high pressure hose to the spray gun.
Test the spray gun for tightness with solvent or spray oil (e.g. Macrol 52) and a max. pressure of 25 MPa; 250 bar; 3626 psi.
Observe the following gun components:
Material connection, nozzle body, material valve (no after-spraying).

⚠ DANGER

Exploding gas/ air mixture!
Danger to life from flying parts and burns

→ Never spray into a closed container.
→ Earth the container.

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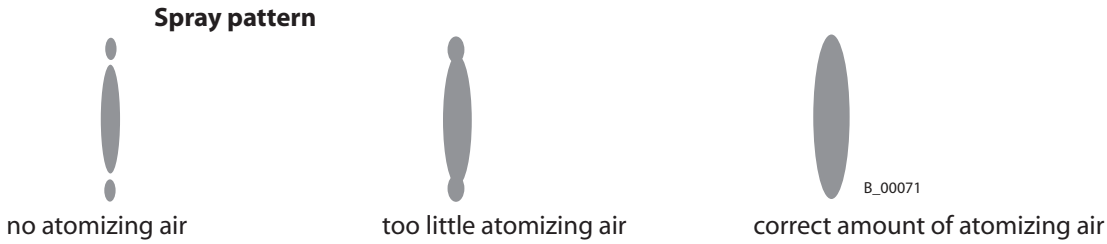
6.6.4 CHECK SPRAY PATTERN

Start AirCoat spraying (without electrostatics)

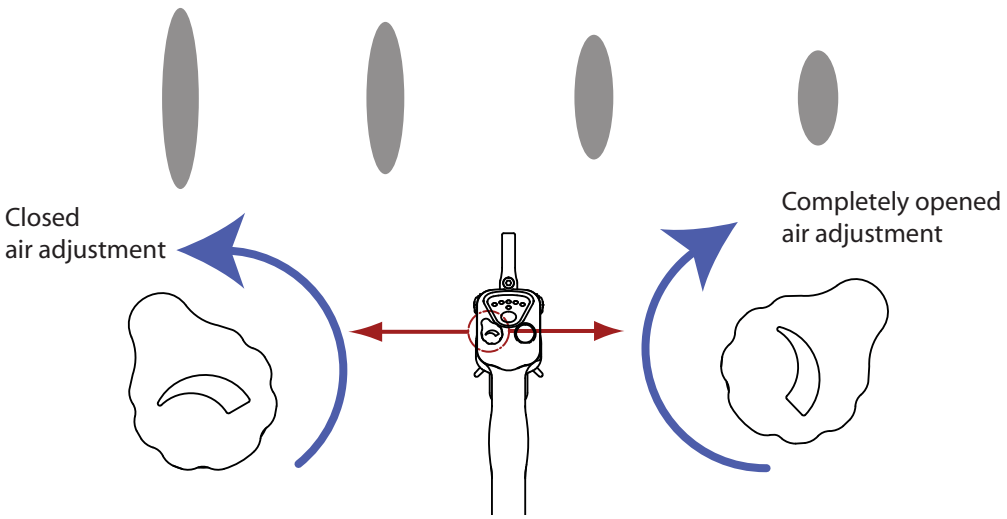
1. Start up with material supply set to approx. 8 MPa; 80 bar; 1160 psi operating pressure.
2. Spray (release trigger safety catch and pull trigger) and check the atomisation.
3. Set the fluid pressure on the material supply to the point where a further increase in fluid pressure would significantly improve fluid atomization.
4. Open air pressure regulator for the atomizer air and adjust so as to achieve optimal atomization. The interrelation between spray pattern and atomizer air is shown in the figure below.
5. With the air adjustment on the gun, the ratio form adjustment to atomization until the optimum spray pattern is achieved.

Note:
Repeat point 4 and 5 until the optimum spray pattern is reached (process iterative).



Note:
The paint output volume can be changed by:
- Changing the material pressure or
- using a different flat jet nozzle (see chapter 9).

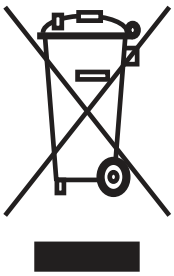
Influence of the air adjustment on the spray pattern shape
The spray pattern can be adjusted to suit the object being sprayed using the air adjustment. The illustration below shows the influence of the shaping air regulator on the spraying pattern.
Other nozzle sizes can be used to obtain larger or smaller spraying patterns.



7 TROUBLE SHOOTING AND SOLUTION

Functional fault	Cause	Remedy
Insufficient material output	• Nozzle too small.	• Select larger nozzle (see Accessories chapter 9).
	• Material pressure too low.	• Increase material pressure.
	• Filter of gun or high pressure filter at pump clogged.	• Clean or replace filter.
	• Nozzle is clogged.	• Nozzle cleaning (see paragraph 5.4.3 / 5.4.8).
Poor spray pattern	• Wrongly adjusted atomizing air.	• Readjust the atomizing air.
	• Nozzle too large.	• Select smaller nozzle (see nozzle table).
	• Material pressure too low.	• Increase pressure at pump.
	• Material viscosity too high.	• Thin material in accordance with the manufacturer's instructions.
Valve rod leaks	• Seals at the valve rod are damaged	• Replace the seals (see chapter 6).
	• Loose package.	• Tighten.
Poor wrap-around	• Inadequate earthing.	• Check earthing.
	• Inadequate electrical resistance of the paint.	• Check resistance of paint in accordance with paragraph 4.1.1.
	• Spraying pressure too high.	• Readjust spraying pressure.
Back spraying	• No earthing.	• Check earthing.
	• Distance between spray gun and object too large.	• Reduce distance between spray gun and object
	• Nozzle nut placed too far forward.	• Screw back nozzle nut (decrease air distributor ring gap).
No wrap-around	• High-voltage switch is in the off position.	• Switch on high-voltage.
	• No electrostatics.	• Repair malfunction as laid down in the control unit operating instructions.

8 PRODUCT DISPOSAL



Note

Do not dispose of waste electrical equipment with the household refuse!
In accordance with European Directive 2002/96/EC on the disposal of waste electrical equipment and its implementation in national law, this product may not be disposed of with the household refuse, but must rather be recycled in an environmentally correct manner. Your waste Wagner electrical device will be taken back by us or our representatives and disposed of environmentally correctly. Please contact one of our service points or one of our representatives or us directly to this purpose.

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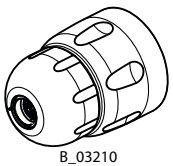
9 ACCESSORIES

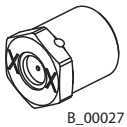
9.1 ACR 5000 ROUND JET NOZZLE CAP


B_03210

Part No.	Description
2309883	ACR 5000 round jet nozzle cap (with nozzle spanner, without AC round jet nozzle insert)

9.1.1 AIRCOAT ROUND JET NOZZLE INSERTS

The round jet nozzles are especially suited to spray pipes, profiles and complex work pieces.


B_00027

Part No.	Marking	Jet width mm; inches	Recommended gun filter
132720	11	approx. 250; 10	Edge filter (200 mesh)
132721	12	approx. 250; 10	
132722	13	approx. 250; 10	
132723	14	approx. 250; 10	
132724 *	15	approx. 250; 10	
132725	16	approx. 250; 10	Edge filter (100 mesh)
132726	17	approx. 250; 10	
132727	18	approx. 250; 10	
132728	19	approx. 250; 10	
132729	20	approx. 250; 10	Edge filter (50 mesh)
132730	21	approx. 250; 10	
132731	22	approx. 250; 10	

* Standard version
Jet width in mm; inches at a distance of 30 cm; 11.8 inches from the object and at a pressure of 10 MPa; 100 bar; 1450 psi.

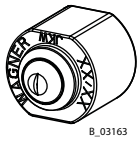
9.2 ACF 5000 AIR CAPS (FLAT JET)

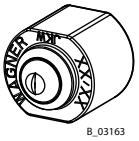

B_03454


B_03209

Part No.	Description
2309882	ACF 5000 - LV air cap, suitable for low viscosity materials (marked red)
2314203	ACF 5000 - HV air cap, suitable for high viscosity materials (marked blue)

9.2.2 ACF 5000 AIRCOAT FLAT JET NOZZLES

Part No.	Marking	Diameter of bore mm; inch	Spray angle	Application  B_03163
395107 395207 395407	07/10 07/20 07/40	0.18; 0.007	10° 20° 40°	Natural paint
395109 395209 395309 395409 395509 395609	09/10 09/20 09/30 09/40 09/50 09/60	0.23; 0.009	10° 20° 30° 40° 50° 60°	Transparent lacquer Oil
395111 395211 395311 395411 395511 395611 395811	11/10 11/20 11/30 11/40 11/50 11/60 11/80	0.28; 0.011	10° 20° 30° 40° 50° 60° 80°	Synthetic resin paint PVC paint
395113 395213 395313 395413 395513 395613 395813	13/10 13/20 13/30 13/40 13/50 13/60 13/80	0.33; 0.013	10° 20° 30° 40° 50° 60° 80°	Paint, undercoat Priming paint Filler
395115 395215 395315 395415 395515 395615 395815	15/10 15/20 15/30 15/40 15/50 15/60 15/80	0.38; 0.015	10° 20° 30° 40° 50° 60° 80°	Filler Rust proofing paint
395217 395317 395417 395517 395617 395817	17/20 17/30 17/40 17/50 17/60 17/80	0.43; 0.017	20° 30° 40° 50° 60° 80°	Rust proofing paint Latex paint

Part No.	Marking	Diameter of bore mm; inch	Spray angle	Application  B_03163
395219	19/20	0.48; 0.019	20°	Rust proofing paint Latex paint
395319	19/30		30°	
395419	19/40		40°	
395519	19/50		50°	
395619	19/60		60°	
395819	19/80		80°	
395221	21/20	0.53; 0.021	20°	Mica paint Zinc dust coating Rust proofing paint Glue paints
395421	21/40		40°	
395521	21/50		50°	
395621	21/60		60°	
395821	21/80		80°	
395423	23/40	0.58; 0.023	40°	
395623	23/60		60°	
395823	23/80		80°	
395425	25/40	0.64; 0.025	40°	
395625	25/60		60°	
395825	25/80		80°	
395427	27/40	0.69; 0.027	40°	
395627	27/60		60°	
395827	27/80		80°	
395429	29/40	0.75; 0.029	40°	
395629	29/60		60°	
395829	29/80		80°	
395431	31/40	0.79; 0.031	40°	
395631	31/60		60°	
395831	31/80		80°	
395435	35/40	0.90; 0.035	40°	
395635	35/60		60°	
395835	35/80		80°	

9.3 FILTERS

Part No.	Description
3204604	Edge filter 60 mesh (white)
3204605	Edge filter 100 mesh (black)
9999002	Edge filter 200 mesh (yellow)


B_00019

9.4 REDUCTION FITTINGS FOR HIGH-PRESSURE HOSES

The classification of WAGNER fittings is consistent with the following classification, each separated by high-pressure and low pressure fittings.

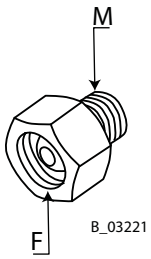
DF	Double fitting - Male / Male thread
RF	Reduction fitting - Female / Male thread
SF	Adjustable screw - Female / Male thread: allows precise angle adjustment (Swivel)
EF	90° elbow - Adjustable or Male / Male thread (Elbow-Fitting)
BF	Bulkhead fastener - Male / Male thread with pressure resistant execution
PF	Stopper - Male thread to be closed (Plug-Fitting)
HF	Hose fitting with union nut and sealing cone (Hose-Fitting)

The short description of the fittings are as follows:

DF-	MM-	G3/4“-	1/4“NPS-	PN270-	SSt
					Materials, SSt = Stainless steel
				Nominal pressure (in bar)	
			1. Thread, e.g. G1/4“, 1/4“NPS		
		2. Thread, e.g. G1/4“, 1/4“NPS, M16x1.5			
	M: Male (external thread) F: Female (internal thread)				
Short description see list above, e.g. RF = Reduction Fitting					

Part #

Part No.	Description
384555	Reduction fitting-RF-FM-M16x1,5-1/4“NPS-PN530-SSt
384559	Reduction fitting-RF-FM-M16x1,5-G1/4“-PN530-SSt
384556	Reduction fitting-RF-FM-M16x1,5-3/8“NPSM-PN530-SSt
34041	Reduction fitting-RF-FM-1/4“NPS-M16x1,5--PN270-SSt
179732	Reduction fitting-RF-FM-1/4“NPS-3/8“NPS--PN270-SSt
179247	Reduction fitting-RF-FM-1/4“NPS-G1/4“--PN270-SSt



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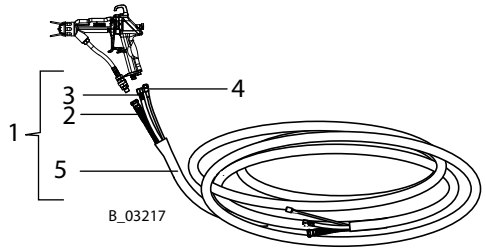
In the large Wagner Accessories Catalogue for wet coating can also be found other material screw connections.

9.5 HOSES AND ELECTRICAL CABLES

9.5.1 STANDARD HOSE SETS AND COMPONENTS



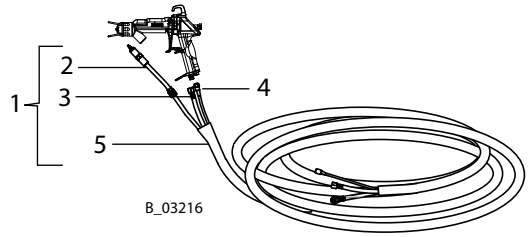
Item	Qty	Part No.	Description
1	1	2309857	GM 5000EAC hose set (7.5 m)
Consisting of:			
2	1	9984573	High pressure hose-DN4-PN270-¼"NPS-7.5 m-PA
3	1	2312060	Air hose compl. (8.0 m)
4	1	2307293	GM 5000E gun cable (10.0 m)
5	7 m	3676437	Protective hose mesh PP30 (7.0 m)

Item	Qty	Part No.	Description
1	1	2309858	GM 5000EAC hose set (10.0 m)
Consisting of:			
2	1	9984573-10	High pressure hose-DN4-PN270-¼"NPS-10.0 m-PA
3	1	2312061	Air hose compl. (10.5 m)
4	1	2309474	GM 5000E gun cable (15.0 m)
5	9.5 m	3676437	Protective hose mesh PP30 (9.5 m)

Item	Qty	Part No.	Description
1	1	2309859	GM 5000EAC hose set (15.0 m)
Consisting of:			
2	1	9984573-15	High pressure hose-DN4-PN270-¼"NPS-15.0 m-PA
3	1	2312062	Air hose compl. (15.5 m)
4	1	2309475	GM 5000E gun cable (20.0 m)
5	14.5 m	3676437	Protective hose mesh PP30 (14.5 m)

Item	Qty	Part No.	Description
1	1	2309860	GM 5000EAC hose set (20.0 m)
Consisting of:			
2	1	9984573-20	High pressure hose-DN4-PN270-¼"NPS-20.0 m-PA
3	1	2312063	Air hose compl. (20.5 m)
4	1	2309476	GM 5000E gun cable (25.0 m)
5	19.5 m	3676437	Protective hose mesh PP30 (19.5 m)

9.5.2 HOSE SETS FOR LOW IMPEDANCE MATERIALS



Note to the material hose:
- nominal pressure 250 bar
- inlet diameter 4 mm
- inside hose material FEP

Item	Qty	Part No.	Description
1	1	2309951	GM 5000EAC hose set (7.5 m), Low R
Consisting of:			
2	1	2310468	EAC high pressure paint hose, compl. (7.5 m) LowR
3	1	2312060	Air hose compl. (8.0 m)
4	1	2307293	GM 5000E gun cable (10.0 m)
5	7m	3676437	PP30 protective hose mesh (7.0 m)

Item	Qty	Part No.	Description
1	1	2309952	GM 5000EAC hose set 10.0 m), Low R
Consisting of:			
2	1	2310469	EAC high pressure paint hose, compl. (10.0 m) LowR
3	1	2312061	Air hose compl. (10.5 m)
4	1	2309474	GM 5000E gun cable (15.0 m)
5	9.5 m	3676437	PP30 protective hose mesh (9.5 m)

Item	Qty	Part No.	Description
1	1	2309953	GM 5000EAC hose set (15.0 m), Low R
Consisting of:			
2	1	2310470	EAC high pressure paint hose, compl. (15.0 m) LowR
3	1	2312062	Air hose compl. (15.5 m)
4	1	2309475	GM 5000E gun cable (20.0 m)
5	14.5 m	3676437	PP30 protective hose mesh (14.5 m)

Item	Qty	Part No.	Description
1	1	2309954	GM 5000EAC hose set (20.0 m), Low R
Consisting of:			
2	1	2310471	EAC high pressure paint hose, compl. (20.0 m) LowR
3	1	2312063	Air hose compl. (20.5 m)
4	1	2309476	GM 5000E gun cable (25.0 m)
5	19.5 m	3676437	PP30 protective hose mesh (19.5 m)

9.5.3 GUN CABLE AND GUN CABLE EXTENSIONS

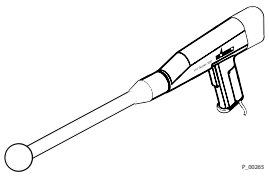
Part No.	Description
2307295	GM 5000E extension cable 10 m
2307296	GM 5000E extension cable 20 m


B_03219

9.6 MISCELLANEOUS

Part No.	Description
2319653	Gun protective cover
259010	HV200 N high-voltage tester
2326041	Paint resistance measuring device
999080	Wet film thickness measurer
50342	Viscosity cup DIN 4 mm; 0.16 inches


B_03693

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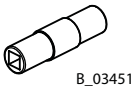
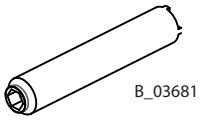
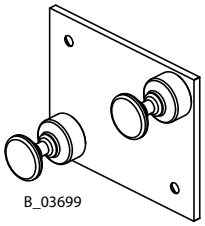
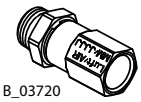
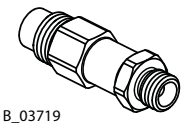
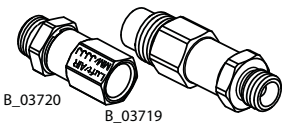
B_03224

2309368	Assembly tool valve needle	 B_03451
128901	ACR nozzle spanner	 B_01971
2325263	Assembly tool clamping screw	 B_03681
2326485	Part # 2357106 GM 5000E wall mount (left/right)	 B_03699
2324766	Swivel for air	 B_03720
2327060	Fitting-SJM-GM5000EAC-1/4“NPS (swivel material)	 B_03719
2327061	GM 5000EAC swivel set	 B_03720 B_03719

10 SPARE PARTS

10.1 HOW TO ORDER SPARE PARTS?

Always supply the following information to ensure delivery of the right spare part:

Part Number, description and quantity

The quantity need not be the same as the number given in the „Quantity“ column. This number merely indicates how many of the respective parts are used in each sub assembly.

The following information is also required to ensure smooth processing of your order:

- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery required (air freight or mail, sea route or overland route, etc.)

Marks in spare parts lists

Note to column „K“ in the following spare parts lists.

◆ = Wearing parts
Note: No liability is assumed for wearing parts

● = Not part of standard equipment, available, however, as additional extra.

⚠WARNING

Incorrect maintenance/repair!
Risk of injury and damage to the equipment

→ Repairs and part replacement may only be carried out by specially trained staff or a WAGNER service center.
→ Before all work on the unit and in the event of work interruptions:
- Switch off the energy/compressed air supply.
- Relieve the pressure from the spray gun and unit.
- Secure the spray gun against actuation.
→ Observe the operating instructions when carrying out all work.

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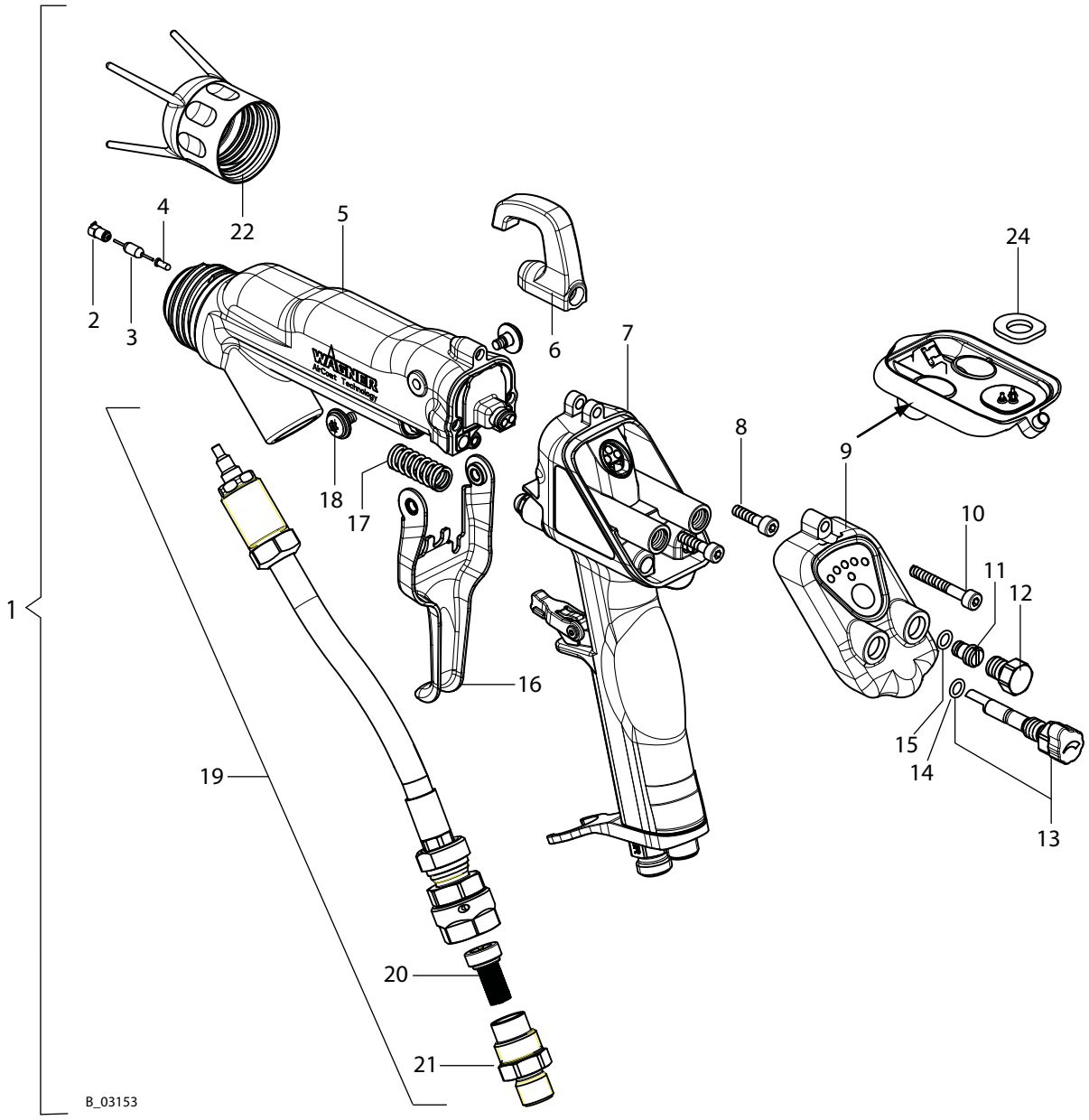
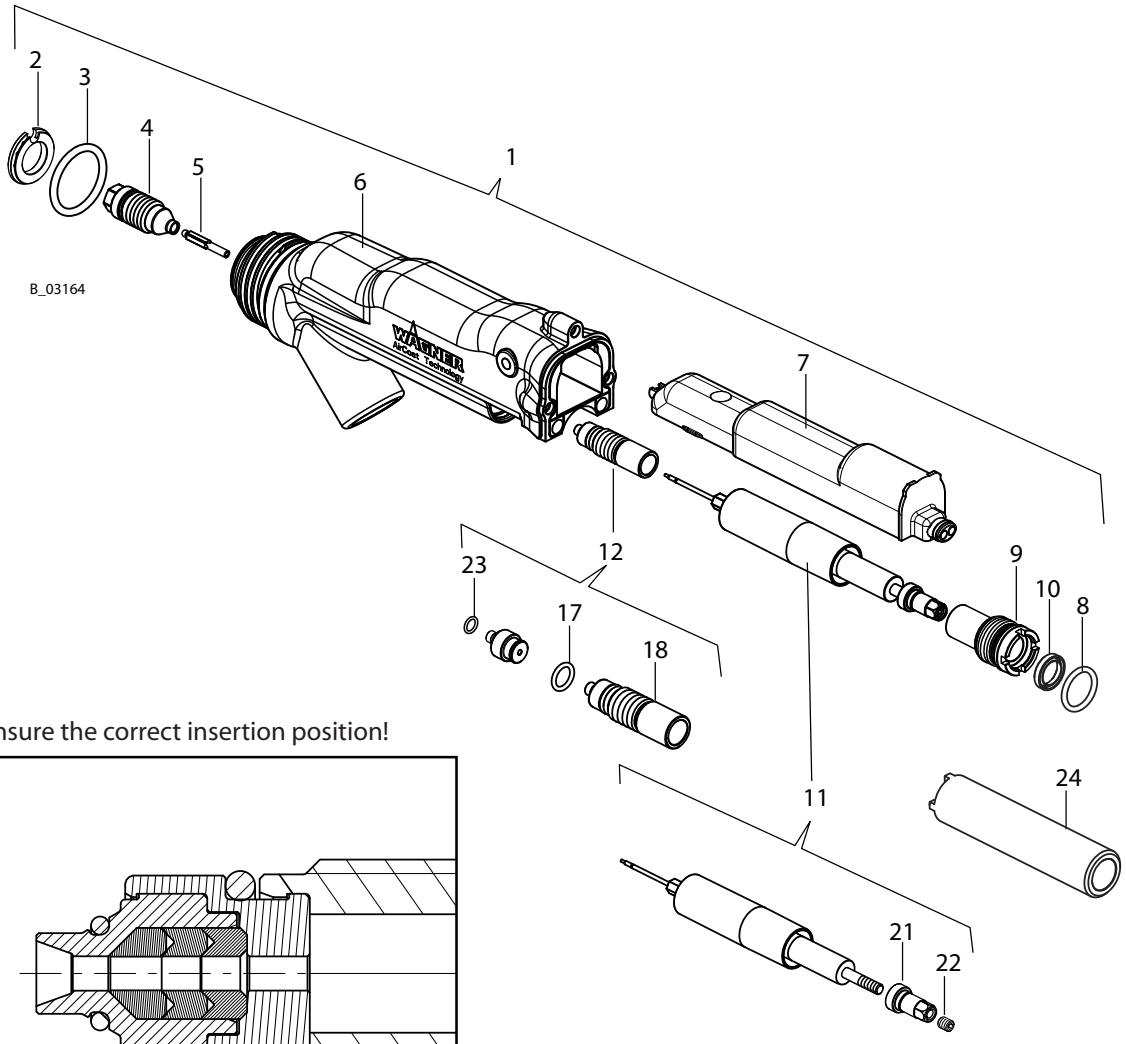
10.2 GM 5000EAC SPARE PARTS LIST



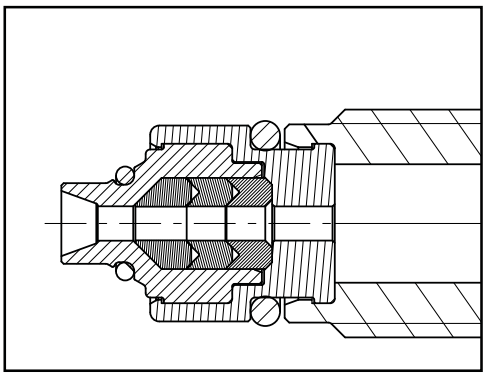
GM 5000EAC spare parts list			
Item K	Quantity	Part No.	Description
1	1	2309871	GM 5000EAC standard variant
2 ◆★	1	2314283	AC contacting
3 ◆★	1	9952777	High resistance, bare
4	1	9960808	Socket contact component
5	1	-	GM 5000EAC end piece compl. Details see chapter 10.2.1
6 ◆	1	2314361	Hook
7	1	-	GM 5000EAC handle compl. Details see chapter 10.2.2
8	2	9900308	Cheese head screw with hexagon
9	1	2312183	Cover compl.
10	1	9900386	Cheese head screw with hexagon
11	1	2311970	Sealing plug
12	1	2307104	Seal screw
13	1	2312180	Air regulation compl.
14 ◆★	1	9971182	O-ring
15 ◆★	1	9971182	O-ring
16 ◆	1	2314360	Trigger
17	1	2307283	Cylindrical helical spring
18	2	2310617	Oval head screw with hexagon
19 ◆	1	2314359	AC material hose compl.
20 ◆	1	3204605	Edge filter 100 mesh (black) (for different edge filter sizes see chapter 9.3)
21	1	2308764	AC hose nipple
22	1	2315775	AC union nut compl.
24 ◆★	1	2308699	Sealing Cover
◆	1	2326336	GM 5000EAC service set

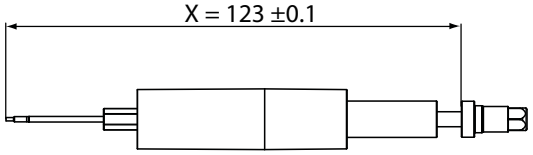
◆ = Wear part
★ = Included in service set'

10.2.1 GM 5000EAC SPARE PARTS LIST- END PIECE



Ensure the correct insertion position!





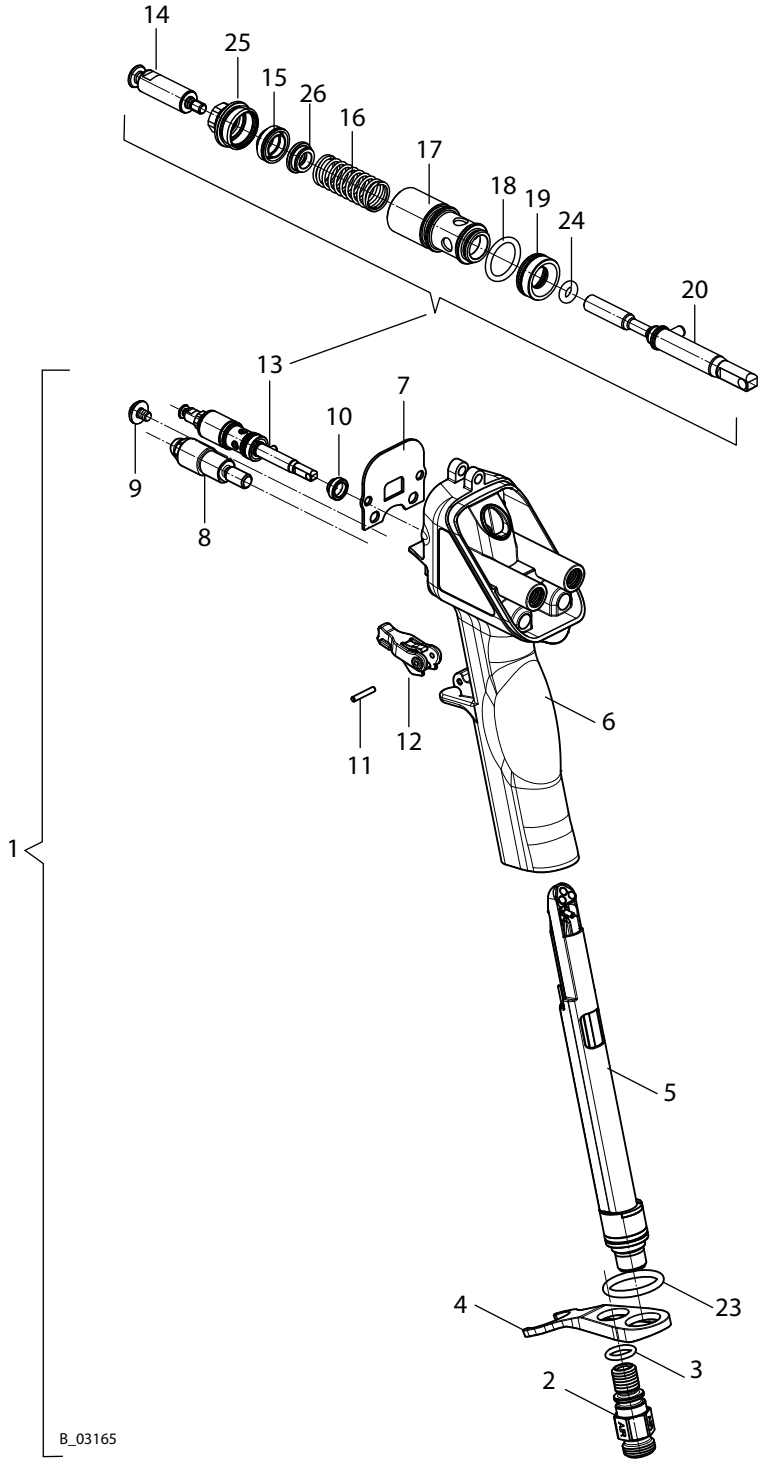
GM 5000EAC end piece spare parts list				
Item	K	Quantity	Part No.	Description
1		1	-	GM 5000EAC end piece compl.
2	★	1	2313314	AC air manifold ring
3	◆ ★	1	2307180	O-ring, sheathed
4	◆ ★	1	2312175	AC valve housing compl.
5	◆ ★	1	2312186	AC valve tip compl.
6		1	2314272	GM 5000EAC end piece
7		1	2312181	Cascade compl.
8	◆ ★	1	9974166	O-ring
9		1	2307062	Clamping screw valve rod
10	◆ ★	1	2311562	Rod seal
11	◆	1	2313639	AC valve rod unit
12	◆ ★	1	2312178	Package compl.
17	◆	1	2311624	O-ring
18		1	2307051	Clamping screw package
21		1	2307059	Withdrawal nut
22		1	9901411	Threaded pin with hexagon
23	◆	1	2320256	O-ring
24		1	2325263	Assembly tool clamping screw
		1	2326336	Service set GM 5000EAC

#6 Part # Change
2314272 is now
2353476

Type text here

◆ = Wear part
★ = Included in service set

10.2.2 GM 5000EAC SPARE PARTS LIST - HANDLE

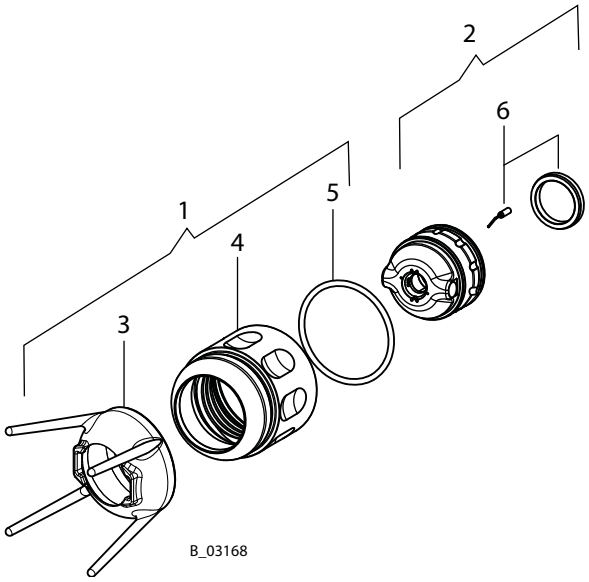


GM 5000EAC handle spare parts list			
Item K	Quantity	Part No.	Description
1	1	-	GM 5000EAC handle compl.
2	1	2307288	Nipple
3 ◆★	1	9971025	O-ring
4	1	2315344	Hose holder
5	1	2312182	Plug compl.
6	1	2314270	Handle compl.
7 ★	1	2307232	End piece seal
8	1	2311952	Stop screw
9	1	2309825	Oval head screw with hexagon
10 ◆★	1	2310692	Seal
11	1	2311182	Straight pin
12	1	2309400	Safety catch
13	1	2312189	Air valve
14	1	2307935	Piston front
15 ◆★	1	2307557	Seal
16	1	2312846	Cylindrical helical spring
17	1	2310680	Sleeve
18 ◆★	1	9974218	O-ring
19 ◆★	1	2310682	Seal
20	1	2316246	Piston compl.
23 ◆★	1	9974166	O-ring
24 ◆★	1	2303437	O-ring
25	1	2325291	Sealing nut
26	1	2325294	Air valve washer
	1	2326336	Service set GM 5000EAC

◆ = Wear part
★ = Included in service set

10.3 ACCESSORIES SPARE PARTS LISTS

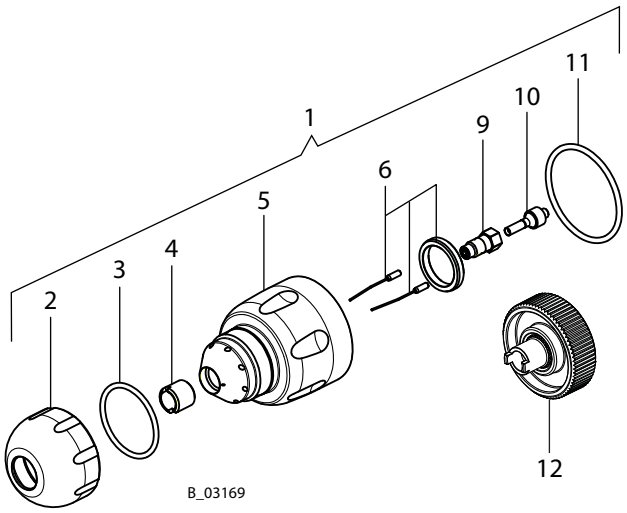
10.3.1 FLAT JET NOZZLES SPARE PARTS LIST



Flat jet nozzles spare parts list				
Item	K	Quantity	Part No.	Description
1		1	2315775	AC union nut compl.
2		1	2309882	LV air cap compl.
2		1	2314203	HV air cap compl.
3	◆	1	2311777	AC nozzle guard
4	◆	1	2311776	AC union nut
5	◆	1	2311217	O-ring, sheathed
6	◆	1	2319525	Flat electrode set

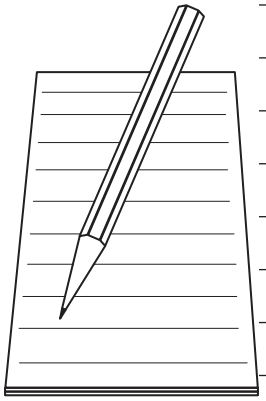
◆ = Wear part

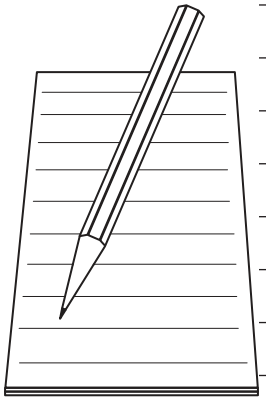
10.3.2 ACR 5000 ROUND JET NOZZLE CAP SPARE PARTS LIST



ACR 5000 round jet nozzle cap spare parts list				
Item	K	Quantity	Part No.	Description
1		1	2309883	ACR 5000 round jet nozzle cap
2		1	2307220	Nozzle nut
3	◆	1	2315310	O-ring
4	◆	1	132351	Nozzle screw connection holder
5		1	2307219	Nozzle body
6	◆	1	2319526	Round electrode set
9	◆	1	132516	Nozzle screwed connection compl.
10	◆	1	2307216	Sealing nipple
11	◆	1	2311217	O-ring
12		1	128901	Nozzle spanner compl.

◆ = Wear part





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