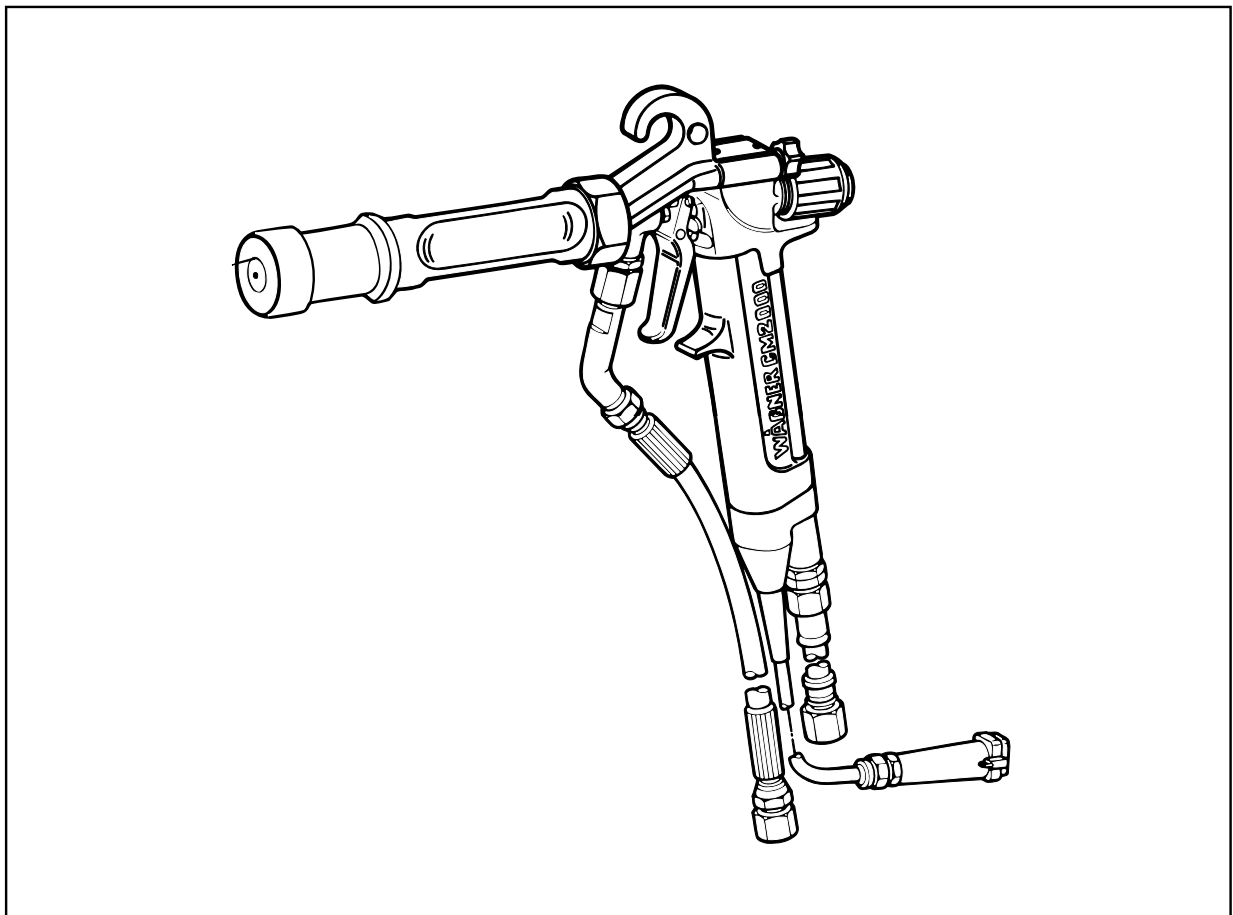




Operating Manual

Electrostatic AirCoat Spraygun, with flat or round jet tips



GM 2000 EACR - EN
GM 2000 EACF - EN

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1. INTRODUCTION

This operating manual contains information and instruction for the operation, repair and maintenance of the spray gun.



This equipment can be dangerous if it is not operated in accordance with this Operating manual!

Compliance with these instructions constitutes an integral component of the guarantee agreement.

1.1 Using the manual

"Caution"

This heading is used wherever non-compliance with operating instructions, working instructions, specified working sequences etc. may result in injury or accident.

"Attention"

This heading is used wherever non-compliance with operating instructions, working instructions, specified working sequences etc. may result in damage to the equipment.

"Note"

This heading is used to draw attention to a particular passage in the text.

1.2 SAFETY REGULATIONS

The safety requirements for electrostatic hand spraying equipment are laid down in the following documents: (Germany)

- 1) ZH 1/250 Electrostatic enamelling with hand-held spraying equipment
(Published by C. Heymanns-Verlag, Cologne)
- 2) ZH 1/406 Guidelines for jet stream equipment (spraying devices)
(Published by C. Heymanns-Verlag, Cologne)
- 3) EX-RL/ZH 1/10 Explosion protection guidelines - spraying equipment
(Published by C. Heymanns-Verlag, Cologne)
- 4) VBG 23 Working with coating materials
(Published by C. Heymanns-Verlag, Cologne)
- 5) DIN-VDE 0165 Installation of electrical equipment in a potentially explosive atmosphere (Published by VDE-Verlag, Berlin)
- 6) EN 50050/DIN-VDE 0745 Part 100 Electrostatic hand spraying equipment
(Published by VDE-Verlag, Berlin)
- 7) EN 50053/DIN-VDE 0745 Part 101 Selection, installation and use of electrostatic spraying equipment - electrostatic hand spraying equipment for combustible liquid spray media (Published by VDE-Verlag, Berlin)

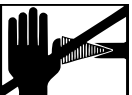
Caution

The following points should receive special attention for the safe use of the electrostatic spraying equipment:

1.2.1 Caution! Danger of injury by injection



The pressure should be released from the spray gun during breaks in work or while assembling and dismantling the nozzle. It should be secured, the control unit switched off, and the plug pulled out. Never point the gun at yourself or any other person, the spray jet can cause injury by injection.



Never put your finger or hand in the spray jet.

In case of injury to skin by paint or cleaning agents consult a doctor immediately. Inform the doctor of the type of paint or cleaning agent used.

1.2.2 Cleaning

The gun must be switched off when being cleaned and should never be sprayed in "closed" containers (formation of a gas air/mixture which can explode). The containers must be earthed.

1.2.3 Safety

Spraying can only be carried out safely, both for people and the environment, if it is done in a spray booth or in front of a spraying wall with sufficient ventilation (removal by suction).

In order to avoid occupational illness the safety regulations laid down by the manufacturer of the paint or cleaning agent used must be adhered to during preparation and application of the paint and while cleaning the equipment. In particular, protective clothing, gloves, skin protection cream and breathing equipment must be used to protect the skin and respiratory tracts.

1.2.4 Protective breathing masks

Although the E-Static AirCoat spraying procedure produces very little mist, it is not completely mist free. There are, in fact, few paint particles to be found in the air. Nevertheless, the operator must use a protective breathing mask, (see respiratory equipment instruction sheet ZH 1/134 and VGB 23 from the professional trade association) during spraying operations.

1.2.5 The spray gun and the high pressure hoses between the pump and the spray gun must be of a sufficient quality for the pressure produced by the pump.

A permanent marking on the high pressure hoses must indicate the maximum permitted working pressure, the manufacturer and date of production. Furthermore, it must be of a suitable quality so that the electric resistance between the pump connection and the spray gun is less than 1 megaohm.

1.2.6 Earthing

Depending on the electrostatic charge and the flow speed of the spray an electrostatic charge may, in certain cases, occur on the equipment. This could cause a spark or flame on discharging. In order to avoid this the equipment must always be earthed.

There must be a conductive connection (potential equalisation cable) between the material container and the equipment.

All persons within the working area must wear shoes with electricallyconductive soles (e.g. shoes with leather soles). Gloves must also be conductive, because the operator is earthed through the handle of the spraygun. The floor of the working area must be conductive, in accordance with VDE 0745, part 1, paragraph 35: measurements according to DIN 51953.

1.2.7 Extraction systems

Paint mist extraction systems must be fitted on site according to the local regulations.

1.2.8 Accessories and spare parts

The manufacturer's guarantee and product liability are only valid if original Wagner accessories are used.


1.2.9 Safety information on harmless electrostatic discharges

If the plastic parts of the spray gun are touched with the hand this can result in a harmless discharging (so-called brush discharge). The same occurs when you electrostatically charge yourself by walking on a synthetic carpet and then touch a metallic door handle, thus discharging the electrostatic charge. The charge on the plastic parts is caused by the high-voltage field of the gun. The discharging is completely safe for people and is not able to cause any ignition.

A corona glow may occur at the electrode end of the gun when it is in use (only visible under dark conditions). A corona discharge can occur if the electrode (spray gun) comes within a distance of 4 - 10 mm from the object being sprayed. The corona glow does not cause any ignition hazard.

1.3 PTB Conformity certification

Physikalisch-Technische Bundesanstalt



KONFORMITÄTSBESCHEINIGUNG
PTB Nr. Ex-92.C.9101

(1)

(2)

(3) Diese Bescheinigung gilt für

Elektrostatische Handsprüheinrichtung für flüssigen Sprühstoff
Typ GM 2000

(4) der Firma **J. Wagner GmbH**
42778 Marl

(5) Die Bauart dieses elektrischen Betriebsmittels sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Konformitätsbescheinigung festgelegt.

(6) Die Physikalisch-Technische Bundesanstalt bescheinigt als Prüfstelle nach Artikel 14 der Richtlinie des Rates der Europäischen Gemeinschaften vom 18. Dezember 1975 (76/117/EWG) die Übereinstimmung dieses elektrischen Betriebsmittels mit den harmonisierten Europäischen Normen

Elektrische Betriebsmittel für explosionsgefährdete Bereiche
EN 50 050:1986 (VDE 0746 Teil 100/1.87) Elektrostatische Handsprüheinrichtungen

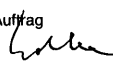
nachdem das Betriebsmittel mit Erfolg einer Bauartprüfung unterzogen wurde. Die Ergebnisse dieser Bauartprüfung sind in einem gemeinsamen Prüfprotokoll festgelegt.

(7) Das Betriebsmittel ist mit dem folgenden Kennzeichen zu versehen:

EEx 0,24 mJ

(8) Der Hersteller ist dafür verantwortlich, daß jedes derart gekennzeichnete Betriebsmittel in seiner Bauart mit den in der Anlage festgelegten Bauartprüfungen übereinstimmt und daß die vorgeschriebenen Bauartprüfungen durchgeführt wurden.

(9) Das elektrische Betriebsmittel darf mit dem hier abgedruckten gemeinschaftlichen Unterscheidungszeichen gemäß Anhang II der Richtlinie des Rates vom 6. Februar 1979 (79/196/EWG) gekennzeichnet werden.

Im Auftrag  Braunschweig, 29.12.1992



Dr. H. Bothe

Prüfbescheinigungen ohne Unterschrift und ohne Dienststempel haben keine Gültigkeit.
Die Bescheinigungen dürfen nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt, Bundesallee 100, Postfach 33 45, D-3300 Braunschweig.

V 15 - 320 007 - 12.85

1.4 Product liability and guarantee

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.

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

Warranty

12 months / 6 months for multi-shift operation

This equipment is covered by the following manufacturing warranty:

All parts which prove unusable or the use of which is seriously impaired within 12 months or 6 months of receipt by the purchaser due to circumstances predating receipt, such as faulty design, defective materials or poor workmanship, shall be repaired or replaced at our discretion and free of charge.

No liability is assumed for damage attributable to the following factors:

Inappropriate or incorrect use, faulty installation or start-up by the purchaser or third parties, natural wear and tear, as well as wear parts (marked * in the list of spare parts), incorrect handling or maintenance.

The equipment must be checked immediately upon receipt. Obvious defects must be reported to the supplier or to us in writing within 14 days of receipt in order to avoid losing the right of complaint.

We reserve the right to assign warranty performances to a contractual partner.

Warranty performances shall only be rendered if the purchaser returns the warranty card bearing the date of sale and seller's signature together with the equipment. The repair costs will be charged to the purchaser if it is found that the warranty does not apply.

1.5 CE Conformity**1.5.1 Short explanation****CE = Communauté Européenne:**

Products identified with the CE mark have been manufactured and checked according to EU guidelines. This means that, in terms of materials used, manufacturing process and operation, they are in accordance with the EU safety and health requirements and therefore the EU regulations and standards. The regulations and standards applying to a particular product can be found in the CE Certificate of Conformity. This is enclosed with the product or can be requested from the manufacturer. The CE identification has been compulsory in Europe since 1st January 1995, and only products bearing CE identification may be released into circulation.

EMC test:

The electromagnetic compatibility test forms an integral part of the CE conformity. EMC tested products are built such that their interference radiation does not influence other devices within the stipulated limits (noise on the radio, etc.). The EMC standard differentiates between use in domestic, business and commercial or industrial areas. Moreover, if required for comfort or safety reasons, products can be EMC tested for their interference immunity. This means they are protected from the influence of external interference.

1.5.2 EC Certificate of Conformity

The certificate with the Part No.:

0179 780

is enclosed with this product. This can be reordered from your WAGNER representative, quoting the product and serial number.

2. DESCRIPTION

2.1 Scope of supply

Part No.	Quantity	Description
0179 018	1	Electrostatic AirCoat spray gun GM 2000 EAC R, with round jet tip R 15 .
or		
0179 019	1	Electrostatic Air coat spray gun GM 2000 EAC F, without flat jet tip.

The standard equipment includes:

		GM 2000 EACR	GM 2000 EACF
0179 901	Universal spanner	1 piece	1 piece
0128 901	Tip spanner	1 piece	-
0034 041	Coupler fitting NPS1/4-M16x1.5	1 piece	1 piece
9994 682	Glove	1 piece	1 piece
0179 941*	Spare parts kit EAC/AC	1 piece	1 piece
0179 887	Operating manual	1 piece	1 piece

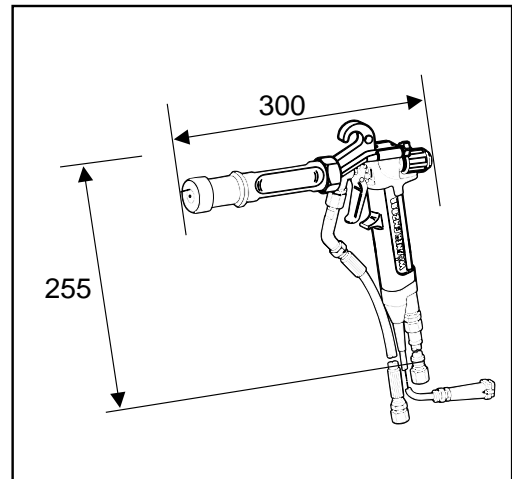
*** Spare parts kit EAC/AC comprises of:**

0179 946	Set of seals	1 piece
9995 611	Cylindrical filter 180 meshes	3 pieces

For "special" models the delivery note is valid for specific details.

2.2 Technical data

Max. air pressure	8 bar
Max. paint pressure	250 bar
Air connection	R 1/4"
Paint connection	NPS 1/4"
Filter (standard)	180 M
Input voltage	max. 22 V AC
Input current	max. 0.7 A AC
Output voltage	max. 80 kV DC
Output current	max. 150 µA DC
Polarity	negative
Cable length	11 m
Weight	approx. 600 g (without cables)
Paint output	acc. to nozzle see tip table



2.3 Functional description

2.3.1 Functions of the gun

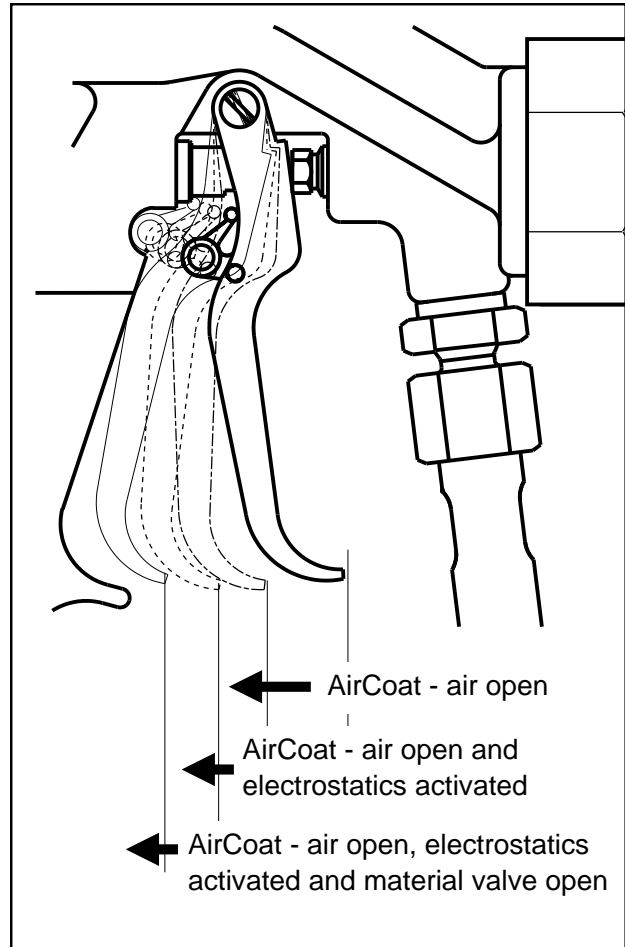


Attention

The electrostatic spray gun GM 2000 EAC EN can only be used with the control units VM 200 EN, VM2000 EN or EPP 200 EN.

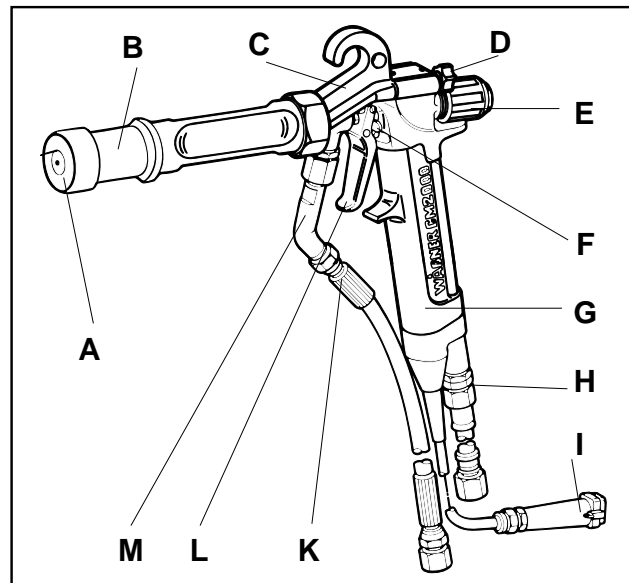
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- The trigger can be used to activate, one after the other, the various functions of the spray gun.
An increase in the tension needed to pull the trigger back will be felt at the position where the material valve opens.
- In order to overcome Faraday cages in corners, the high voltage can be switched off by flipping the HV switch (F) down.
- The supply of atomizing and flat jet air is adjusted by means of the star handles (D)



Legend

- A Tip
- B Tip nut
- C Spray gun body
- D Air control knob
- E Locking nut for trigger
- F HV flip switch (integrated into trigger)
- G Handle with integrated high voltage generator
- H Air connection
- I Cable connection
- K Paint connection
- L Trigger
- M Paint filter

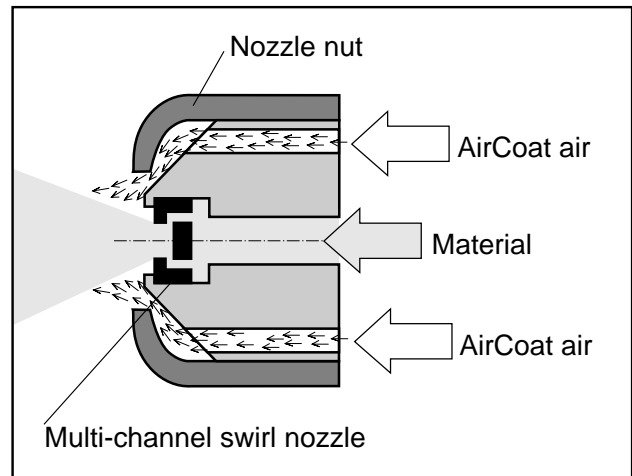


2.3.2 AirCoat round jet process

In the AirCoat process, high pressure of 30 to 150 bar is used to atomize the material. The AirCoat air at 0 to 2.5 bar produces a soft jet, which largely eliminates the problem of overlapping boundaries. The spray jet can be adjusted by turning the nozzle nut. The multi-channel swirl nozzle produces fine paint particles, while at the same time reducing their forwards speed and swirling them to produce a rotating motion. The result is a soft, extremely well atomized spraying cloud.

Advantages of AirCoat

- High painting capacity
- Low fogging tendency
- Good finish
- High- viscosity paints can easily be applied

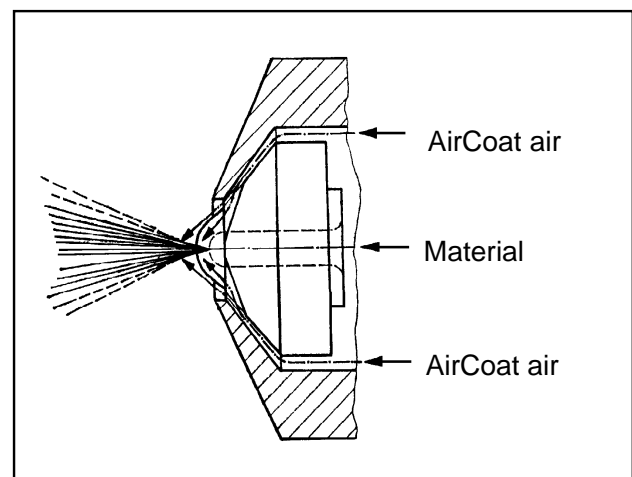


2.3.3 AirCoat flat jet process

In the AirCoat process, high pressure of 30 to 150 bar is used to atomize the material. The AirCoat air at 0 to 2.5 bar produces a soft jet, which largely eliminates the problem of overlapping boundaries.

Advantages of AirCoat

- High painting capacity
- Low fogging tendency
- Good finish
- High- viscosity paints can easily be applied

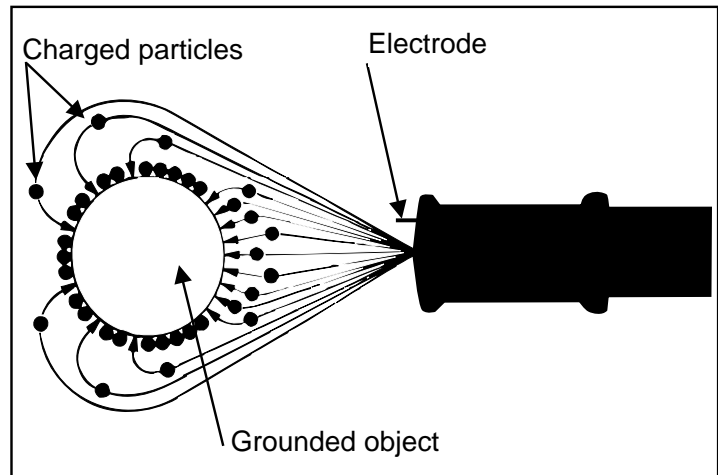


2.3.4 Electrostatic effect

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 of electrostatics:

- Very efficient spraying
- Little overspray
- Coating of entire circumferences due to an electrostatic field
- Less working time



2.4 What kind of spraying material can be applied?

- Paints containing solvents of the explosion class II A.
- Enamels, primers, textured paints etc., which have a specific resistance of $> 50 \text{ k}\Omega$ (according to the Wagner or Ransburg scale).
- The effectiveness of the spraying action is always dependant on the composition of the paint being used, e.g. pigments, resins and solvents.

Note

With highly conductive materials, or those with a very high electrical resistance, the electrostatic effect does not work so efficiently.

In the case of application problems contact the Wagner branch and the paint producer.

3. PREPARATION BEFORE STARTING WORK

Caution



The operating instructions and the safety regulations for the additional system components used must be read before starting-up .

This spray gun must be used a part of an AirCoat-Electrostatic spraying system.

The control units VM 200 EN, VM 2000 EN or EPP 200 EN and other various components are also needed (see Wagner-accessories).

The spray gun and paint supply system must be flushed out with a suitable cleaning solvent before being used.

3.1 Preparation of paint

The **viscosity** of the paints is of great importance. The best results are obtained with paints between 18 and 30 DIN sec. (measured in immersion flow cup DIN 4 mm). In most cases, the application of paints of up to 50-60 DIN sec. for thick layers does not cause problems.

3.2 Earthing

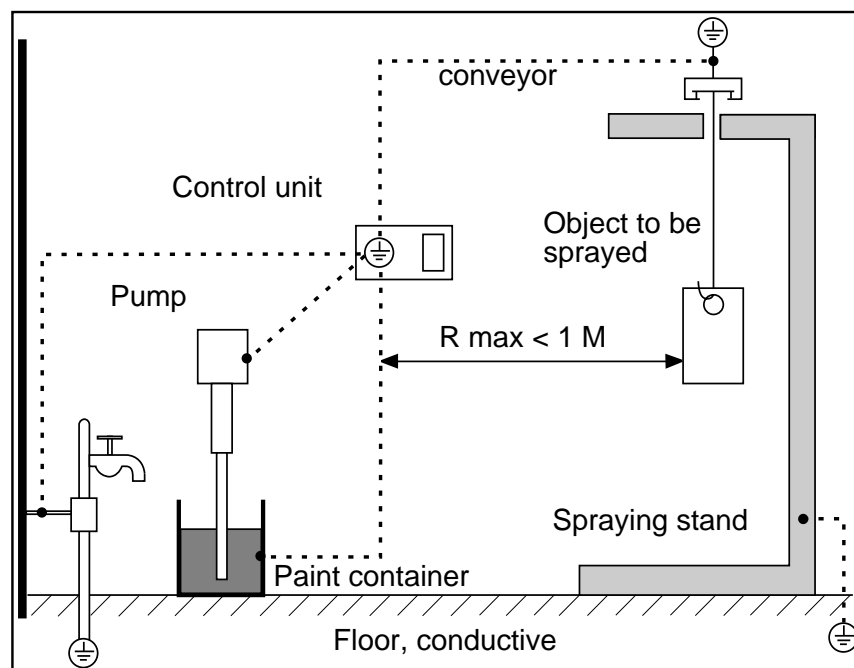
Perfect earthing is a prerequisite for optimum coating efficiency and safety.

The imperfect earthing of a workpiece will result in:

- Sparks between the object being sprayed and the suspension hook.
- Insufficient electrostatic effect (no wrap-around)
- Uneven coating thickness
- Back spraying to spray gun and sprayer

The prerequisites for perfect earthing and coating are:

- Clean workpiece suspension.
- Earthing of spraying cabin, conveyor system and suspension with 10mm² copper cable to system earth, earthing strip or ring.
- Earthing of all conductive parts within the working area.
- The earthing resistance of the workpiece may not exceed 1 M Ω .



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4. STARTING WORK, AND HANDLING



Caution

See SAFETY REGULATIONS in chapter 1.

4.1 Preparation

- Locking of spray gun! Turn locking nut clockwise until stop (viewed from back of gun)
- Check that spraying pressures are suitable.
- Check that all connections are tight and do not leak.

4.2 General rules for handling the spray gun

The following rules must be observed before any work is carried out on the equipment or during breaks in work:

- Switch off control unit.
- Relieve spray gun and system pressure.
- Lock the spray gun with the locking nut.

4.3 Start-up for AirCoat spraying

1. Connect earth cable to the earth terminal of the control unit. Fix the other end using the clamp to the nearest earthed piece of the equipment (cabin, transport device, or similar). Make sure that all other conductive parts within the work area are earthed.
2. Connect material hose to spray gun and to pump.
3. Connect air hose to spray gun and to oil-free, dry air supply with regulator.
4. Connect cable to control unit VM 200 EN or EPP 200 EN.
5. Set material pressure (approx. 80 bar) at material pump and switch on control unit.
6. Spray (actuate trigger).
7. Adjust spraying pressure at the paint pump regulator, according to jet and object.
8. Now open AirCoat air (approx. 1 to 2.5 bar) and adjust for the optimum atomization.

Adjusting round jet fan:

9. By turning the tip nut, the atomizing air jet can additionally be adjusted. By exchanging tips, various paint outputs can be achieved.

Note

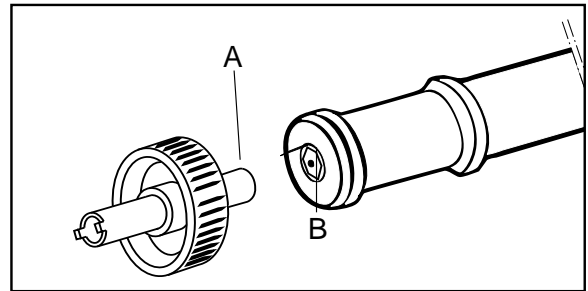
Do not close the gap for atomizing air between tip nut and body.

for flat jet process :

9. To change the jet width; fit another AirCoat flat jet nozzle, with the required fan angle. By exchanging tips, various paint outputs can be achieved.

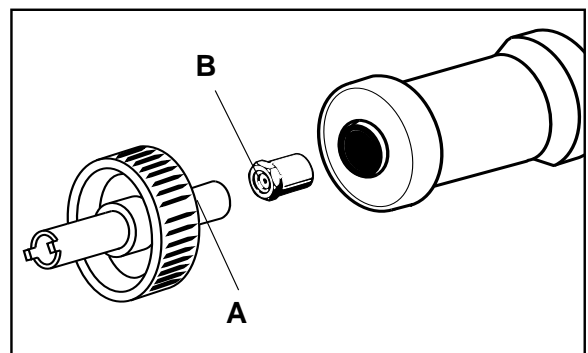
4.4 Cleaning of clogged round jet tips

1. By means of tip spanner (A), loosen tip insert (B) by a half turn.
2. Remove tip spanner and briefly pull trigger. **Caution**, never spray into an enclosed vessel.
3. After cleaning the tip retighten.



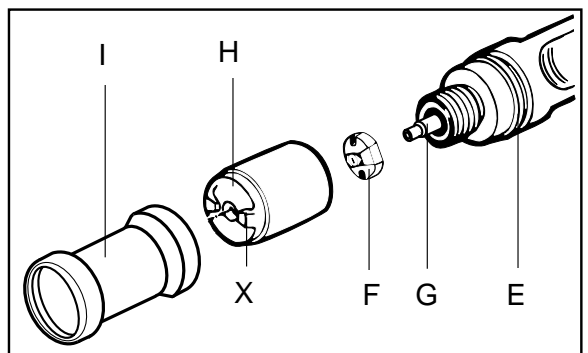
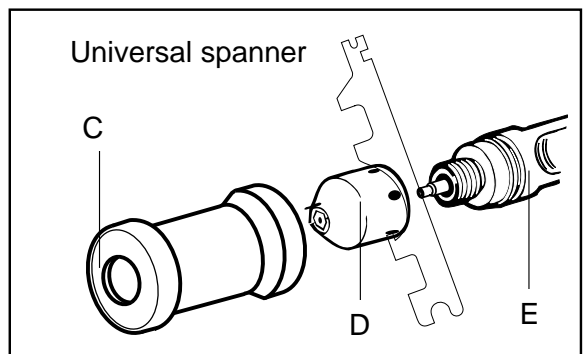
4.5 Exchange of Aircoat round jet tip insert (EAC round)

1. Remove tip insert (B) with tip spanner (A).
2. Fit desired tip insert (acc. to table 7.1) with tip spanner.



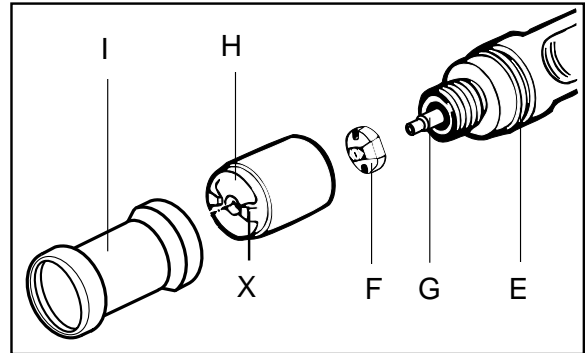
4.6 Changing from AirCoat round jet to AirCoat flat jet.

1. Replace paint with cleaning solvent, actuate trigger, and thoroughly rinse paint channel.
2. Relieve spray gun and system pressure.
3. Lock spray gun. Turn locking screw clockwise until stop. (Look in spraying direction)
4. Unscrew tip nut (C).
5. Remove tip body (D) by means of pin wrench.
6. Fit tip insert (F) on paint channel (G).
7. Fit air cap (H) onto fan nozzle (F); make sure that the pins in the air cap fit into the grooves in the flat nozzle.
8. Fit cap ring (I) with air cap (H) onto spray gun body (E).
9. Adjust desired jet level by means of air cap horns (X) and tighten cap ring (I) by hand.



4.7 Replacing AirCoat flat jet tips

1. Switch off control unit.
2. Relieve spray gun and system pressure!
3. Lock spray gun. Turn locking screw clockwise until stop. (look in spraying direction)
4. Unscrew cap ring (I) and remove air cap (H).
5. Remove AirCoat tip insert (F) and brush cleaning solvent until all traces of paint are dissolved.



Handle the hard metal tip insert (C) with care. Do not clean it with sharp metal objects.

6. **Assembly:** Fit tip insert (F) on paint channel (G).
7. Fit air cap (H) onto fan nozzle (F); make sure that the pins in the air cap fit into the grooves in the tip.
8. Fit cap ring (I) with air cap (H) onto spray gun body (E).
9. Adjust desired jet level by means of air cap horns (X) and tighten cap ring (I) by hand.

4.8 Cleaning of AirCoat flat jet tips

For disassembly and assembly see of AirCoat nozzles chapter 4.7.

The AirCoat nozzle (F) can be placed into a cleaning solvent which has been recommended by the paint manufacturer. Do not treat the hard metal on the AirCoat nozzle using sharp edged objects.

4.9 Clogging of AirCoat flat jet tips

For blockages in the AirCoat flat jet tip the accessory - tip cleaning device - is available with the partnumber 0139 014.

This tip cleaning device can be used together with the GM 2000 EAC to flush out blocked AirCoat flat jet tips in the opposite direction to the usual spray direction.

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5. MAINTENANCE



Caution

See SAFETY REGULATIONS in chapter 1.



Attention

The spray gun and the system must be cleaned every day. Use only the cleaning solvent recommended by the material manufacture.

Never immerse the spray gun into the solvent.

The following points must be observed before every maintenance works:

- Switch off control unit.
- Relieve spray gun and system pressure.
- Secure the spray gun.

5.1 Decommissioning and cleaning

1. Switch off control unit.
2. Relieve system pressure and cut off the air supply to the spray gun.
3. Replace material by cleansing agent.

if the round jet nozzle is fitted

4. By means of tip spanner (A), loosen tip insert (B) by a half turn.
5. Remove tip spanner and briefly actuate trigger. Caution, never spray into an enclosed vessel.
6. Relieve spray gun and system pressure !
7. Tighten tip insert.
8. Clean the body of the gun with solvent which has been recommended by the paint manufacturer and dry with a cloth or blow gun.

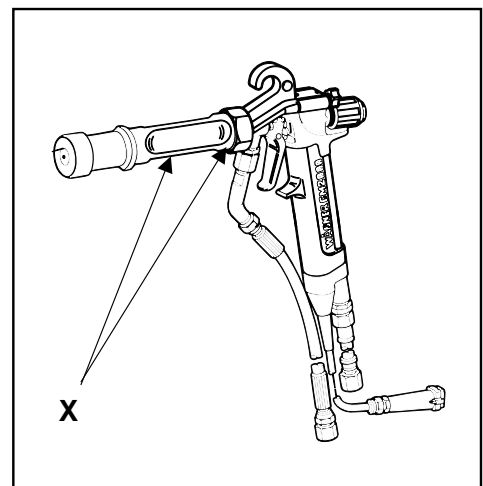
if the flat jet nozzle is fitted

5. Remove and clean the AirCoat tip. (see chapter 4.5)
6. Actuate trigger and thoroughly rinse paint channel. Never spray into an enclosed vessel.
7. Relieve spray gun and system pressure!
8. Clean the body of the gun with solvent which has been recommended by the paint manufacturer and dry with a cloth or blow gun.

Note

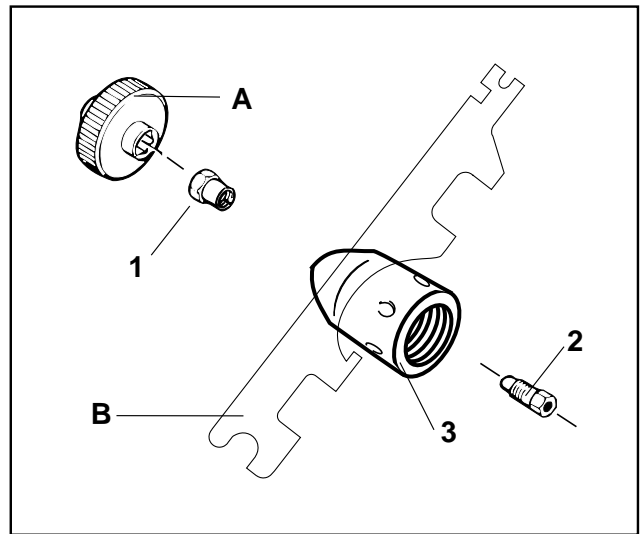
Keep the gun pointing downwards or horizontally, cleaning agent must not get into the air ducts.

The gun attachment (X) may only be changed by the WAGNER Service Station.



5.2 Dissassembly of AirCoat nozzle body (round jet)

1. Unscrew tip nut.
2. Remove nozzle body (3) with spanner (B)
3. Unscrew tip insert (1) with tip spanner (A)
4. Push threaded nozzle fitting (2) backwards out of the nozzle body (3).
5. Handle the round-jet tip insert (1) and threaded fitting (2) with care, do not clean with sharp metal objects. Use nozzle cleaning brush (parts no. 9997 001).



Replace any worn-out parts.

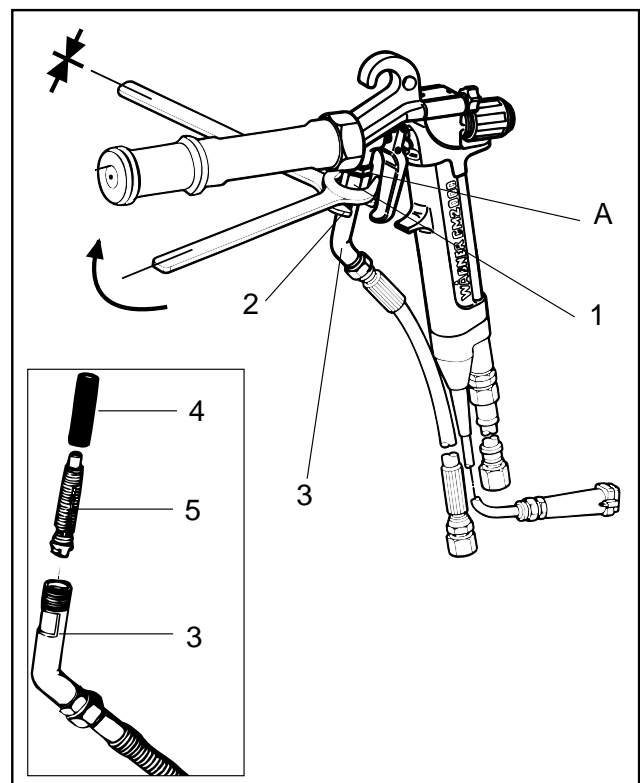
Assemble in reverse order.

Note (round jet EAC)

Care must be taken when assembling that the tip nut is not tight to the nozzle body (3). There must be room for the AirCoat air between nut and nozzle body.

5.3 Exchange or cleaning of filters

1. Place spanner, size 11, on surface (2) of material connection (3) and counterhold.
2. Turn union nut (1) to the right (clockwise) with open-end wrench, size 17, and unscrew material connection.
3. Do **not** unscrew counter nut (A), as the connection will leak.
4. Remove filter screw (5) and withdraw cylindrical filter (4).
5. Clean filter (4) with solvent, or exchange it.

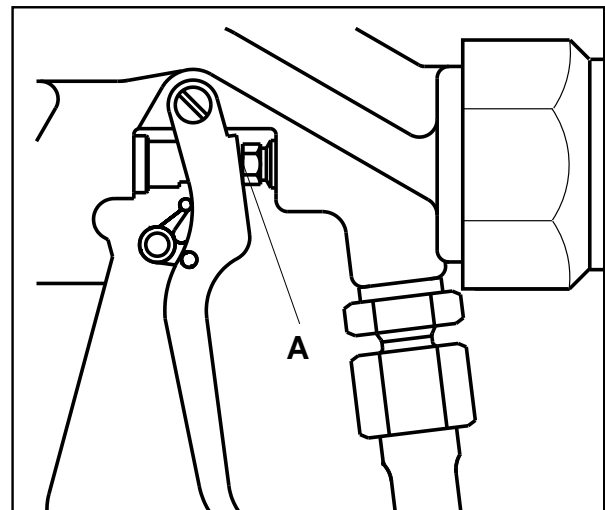


Assemble in reverse order.

5.4 Adjustment of the valve rod seal

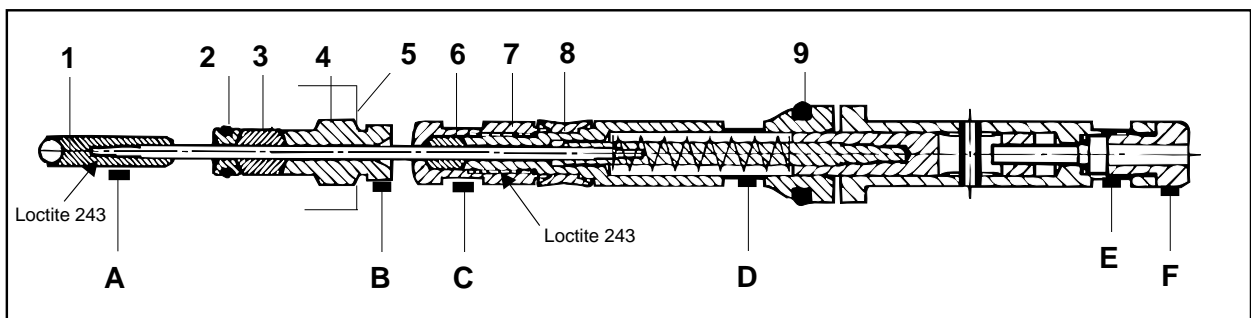
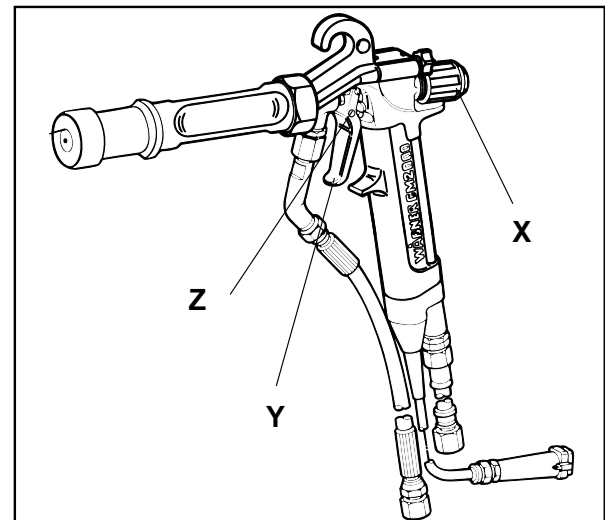
In case paint leaks at the valve rod near the trigger:

1. Pull trigger and thoroughly clean paint channel with solvent.
2. Tighten the sealing screw (A) carefully with universal spanner
3. If leaking continues, see chapter 5.5.



5.5 Exchange of complete valve rod, or of valve rod seals

1. Pull trigger (Y) and unscrew locking nut (X); remove compression spring.
2. Remove flat-head screw (Z) and take off trigger (Y).
3. Unscrew sealing screw (4/B) from sealing sleeve (5).
4. Carefully remove complete valve rod at surface (F) and replace. To replace seals:
5. Hold with universal spanner at surface (E) and unscrew valve sealing element (1/A) using universal pliers.



6. Remove compression ring (2) and packing (3).
7. Hold with spanner at surface (D) and unscrew at surface (C), removing push-rod cap (7).
8. Exchange compression ring (with O-ring) (2), front seal (3), rear seal (4), push-rod seal (8) and replace air valve seal (9) of the air valve.
9. Reassemble in reverse order and secure thread with Loctite 243.
10. Place locking nut (X) with compression spring in position. Actuate trigger (Y) and tighten the locking nut (X) until a noticeable resistance is felt.

5.6 Exchange of paint channel

● if the round jet nozzle is fitted

1. Unscrew tip nut (1).
2. Unscrew tip body (2) with universal spanner.
3. Unscrew seal screw (3) with paint channel assembly tool.
4. Remove paint channel.

Assemble in reverse order, use screw (3) again.

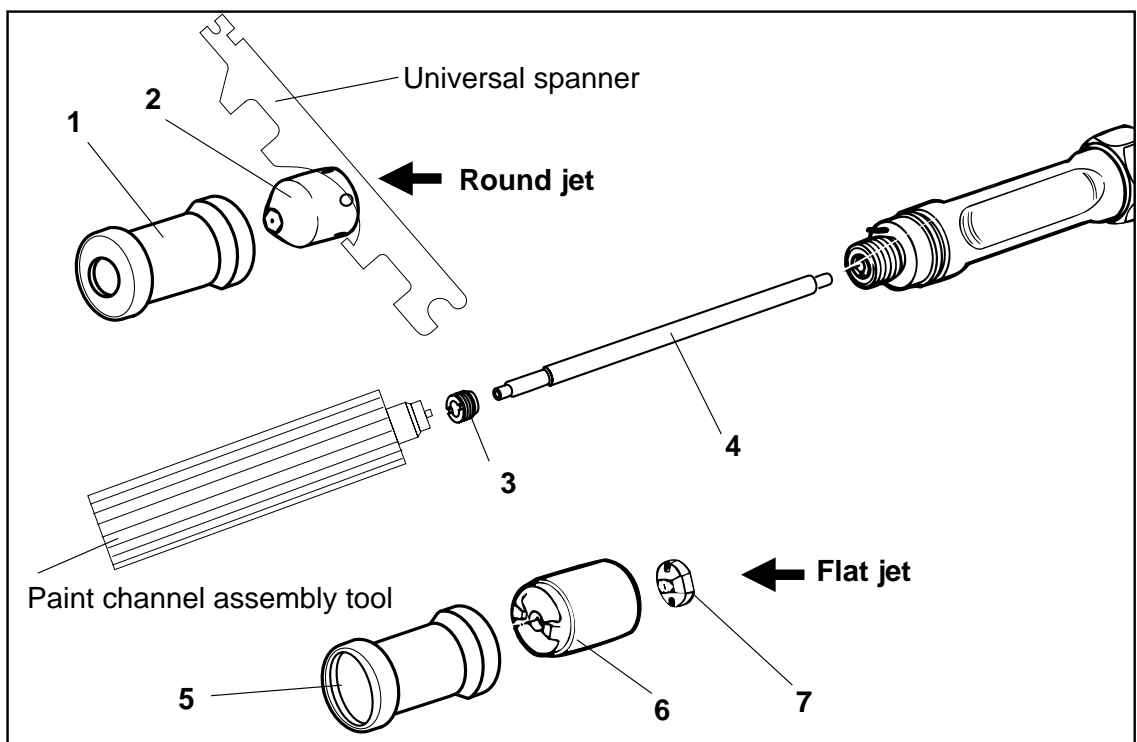
● if the flat jet nozzle is fitted

1. Unscrew cap ring (5).
2. Remove air cap (6) and AirCoat tip (7).
3. Unscrew seal screw (3) with paint channel assembly tool.
4. Remove paint channel.

Re-Assemble in reverse order, use screw (3) again.

Note

Insert the paint channel as shown below (note position of the shoulder for the seal screw)



6. TROUBLE SHOOTING AND SOLUTIONS

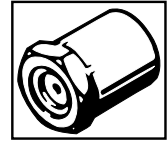
Problem	Cause	Solution
Insufficient material output	<ul style="list-style-type: none"> • Tip too small • Material pressure too low • Gun filter or high-pressure filter in pump blocked • AirCoat tip (round) clogged 	<ul style="list-style-type: none"> • Select larger tip (see chapter 7.1 and 7.2) • Increase material pressure • Clean or exchange filter • Clean tip (see chapter 4.4, 4.8 and 4.9)
Poor spray pattern	<ul style="list-style-type: none"> • Wrongly adjusted atomizing air • Tip too large • Material pressure too low • Material viscosity too high 	<ul style="list-style-type: none"> • Readjust the atomizing air • Select smaller tip (see chapter 7.1 and 7.2) • Increase material pressure • Thin material acc. to manufacturer's instruction.
Leaking air valve	<ul style="list-style-type: none"> • Damaged seals on the valve rod 	<ul style="list-style-type: none"> • Exchange seals (see chapter 5.4 and 5.5)
Poor wrap round or electrostatic effect	<ul style="list-style-type: none"> • Poor earth • Paint conductivity too high / resistance paint too high • Spraying pressure too high 	<ul style="list-style-type: none"> • Check earth of object • Check resistance of paint (see chapter 2.4) • Adjust spraying pressure
Back spraying	<ul style="list-style-type: none"> • No earth • Distance between spray gun and workpiece too large. 	<ul style="list-style-type: none"> • Check earth. (see chapter 3.2) • Reduce distance between spray gun and workpiece.
No electrostatic effect (no wrap around)	<ul style="list-style-type: none"> • High voltage switched off ? • High voltage failure 	<ul style="list-style-type: none"> • Switch on high voltage. • Repair failure acc. to operating instructions of control unit.

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7. ACCESSORIES

7.1 Round jet tip inserts

The round jet tips are especially suited to spray pipes, profiles and complex workpieces.



Part-No.	Marking	Volume flow 1)	Jet width 2)	Recommended filter
0132 720	R 11	0.160	appr. 250 mm	180 mesh
0132 721	R 12	0.220	appr. 250 mm	
0132 722	R 13	0.270	appr. 250 mm	
0132 723	R 14	0.340	appr. 250 mm	
0132 724 X	R 15	0.380	appr. 250 mm	
0132 725	R 16	0.430	appr. 250 mm	100 mesh
0132 726	R 17	0.480	appr. 250 mm	
0132 727	R 18	0.530	appr. 250 mm	
0132 728	R 19	0.590	appr. 250 mm	
0132 729	R 20	0.650	appr. 250 mm	50 mesh
0132 730	R 21	0.710	appr. 250 mm	
0132 731	R 22	0.770	appr. 250 mm	

X Standard tip

1) Volume flow in l/min water at 100 bar

2) Jet width in mm at a distance of 30 cm from the object and at a pressure of 100 bar

7.2
AirCoat flat tips


AirCoat flat jet tips are used for fast, economic application of material to flat workpieces.

Part number	Marking	size mm / inch	Spraying angle	Volume flow 1)	Jet width 2)	Recommended filter
0128 564	07.40	0.18-0.007	40	0.19	160	180 mesh
0128 550	09.10	0.23-0.009	10	0.26	90	
0128 216	09.20	0.23-0.009	20	0.26	120	
0128 567	09.40	0.23-0.009	40	0.26	170	
0128 211	09.50	0.23-0.009	50	0.26	200	
0128 551	09.60	0.23-0.009	60	0.26	220	
0128 552	11.10	0.28-0.011	10	0.38	100	
0128 217	11.20	0.28-0.011	20	0.38	125	
0128 568	11.40	0.28-0.011	40	0.38	190	
0128 201	11.50	0.28-0.011	50	0.38	210	
0128 573	11.60	0.28-0.011	60	0.38	235	
0128 553	11.80	0.28-0.011	80	0.38	290	
0128 554	13.10	0.33-0.013	10	0.57	100	
0128 218	13.20	0.33-0.013	20	0.57	120	
0128 569	13.40	0.33-0.013	40	0.57	200	
0128 212	13.50	0.33-0.013	50	0.57	220	
0128 574	13.60	0.33-0.013	60	0.57	250	
0128 555	13.80	0.33-0.013	80	0.57	310	
0128 556	15.10	0.38-0.015	10	0.72	115	
0128 219	15.20	0.38-0.015	20	0.72	145	
0128 570	15.40	0.38-0.015	40	0.72	210	
0128 213	15.50	0.38-0.015	50	0.72	250	
0128 575	15.60	0.38-0.015	60	0.72	270	
0128 557	15.80	0.38-0.015	80	0.72	330	
0128 220	18.20	0.46-0.018	20	1.14	140	50 mesh
0128 571	18.40	0.46-0.018	40	1.14	250	
0128 215	18.50	0.46-0.018	50	1.14	270	
0128 558	18.80	0.46-0.018	80	1.14	380	
0128 565	21.20	0.53-0.021	20	1.56	190	
0128 572	21.40	0.53-0.021	40	1.56	270	
0128 559	21.50	0.53-0.021	50	1.56	290	
0128 560	21.80	0.53-0.021	80	1.56	430	
0128 561	26.50	0.66-0.026	50	2.32	300	
0128 562	31.50	0.79-0.031	50	3.50	300	
0128 563	36.50	0.91-0.036	50	4.56	300	

- 1) Volume flow in l/min water at 100 bar
- 2) Jet width in mm at a distance of 30 cm from the object and at a pressure of 100 bar, synthetic resin paint, 20 DIN seconds

7.3 Filter (standard)

Description	Mesh	Part No. for 6 pcs.	Part No. for 12 pcs.	Part No. for 24 pcs.	For use with nozzle sizes	
					round	flat
Cylindrical filter	180	0179 931	0179 932	0179 933	R 11 - R 15	.007" - .011"
Cylindrical filter	100	0179 934	0179 935	0179 936	R 16 - R 19	.012" - .015"
Cylindrical filter	50	0179 937	0179 938	0179 939	R 20 - R 22	.018" - .036"

7.4 Long filter housing and filters

Part No.	Description
0179 160	Filter housing cpl.

Description	Mesh	Part No. for 1 pc.	Part No. for 10 pcs.	For use with nozzle sizes	
				round	flat
Gun filter, red	180	0034 383	0097 022	R 11 - R 15	.007" - .011"
Gun filter, yellow	100	0043 235	0097 023	R 16 - R 19	.012" - .015"
Gun filter, white	50	0034 377	0097 024	R 20 - R 22	.018" - .036"

7.5 Hoses and fittings

Part No.	Description
0229 200	Air and HP hose DN4 - ND 270 - M16 x 1.5 - length 7.5 m
0128 510	Air hose cpl. length 8.1 m
9984 481	HP- Hose DN 4 - ND 270 - M16 x 1.5 - length 7.5 m
9982 016	Protective hose cover (lengths order in m)
0179 228	Extension cable EN, length 7.5 m
0123 446	Double nipple M16x1.5 (for paint hoses)
9994 627	Double nipple R1/4 " (for air hoses)


7.6 Special tools

Part No.	Description
0179 926	Paint channel tool
0128 901	Tip spanner
0179 901	Universal spanner
0179 799	Service Instruction GM 2000 EA EN + EAC EN

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8. SPARE PARTS CATALOGUE

8.1 How to order spare parts?

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

Part No., description and quantity.

The quantity need not be the same as the number given in the "Quantity" column. This number merely indicates the 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

8.2 Special marks in spare parts lists

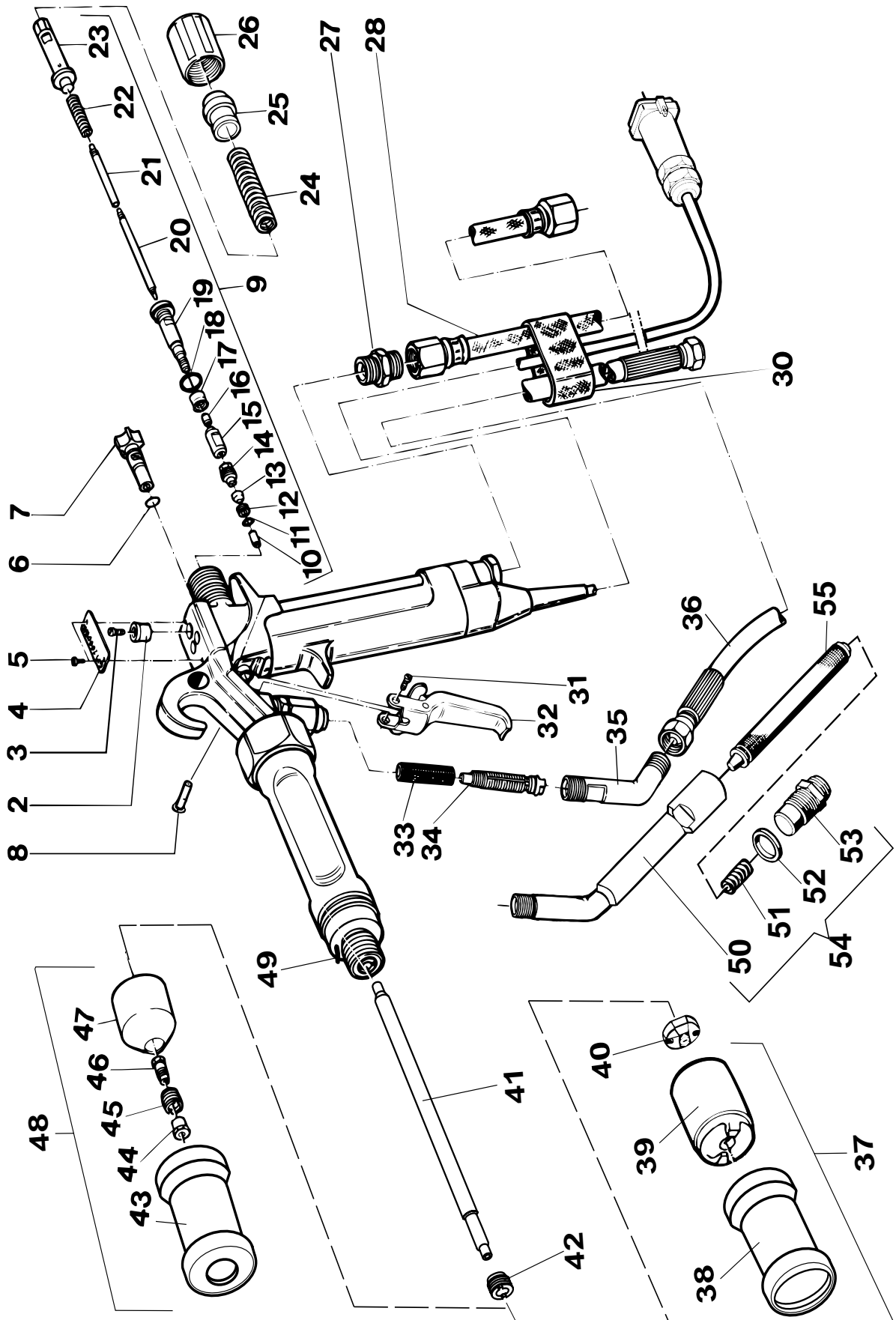
Note to column "K" in the following spare parts list:

* = Wearing part

● = Not a part of the standard equipment. Available, however, as additional extra

8.3 Spare parts list

Item	Part No.	K	Quantity	Description
2	0179 354		1	Positioning bush
3	9900 962		1	Countersunk screw M3x12
4	0179 564		1	Data plate GM 2000 EAC R EN
4	0179 569		1	Data plate GM 2000 EAC F EN
5	9900 810		2	Flat head screw
6	9971 003	*	1	O-ring green 6x1
7	0179 416		1	Air control knob
8	0179 396	*	1	Trigger pin
9	0179 254		1	Valve stem assy.
10	0179 236		1	Valve ball
11	9971 182	*	1	O-ring 4x1
12	0179 343		1	Thrust collar
13	0179 341	*	1	Needle packing
14	0179 342	*	1	Sealing screw
15	0179 340		1	Tappet cap
16	0179 395	*	1	Seal
17	0179 339		1	Tappet seal
18	0179 338	*	1	Air valve seal
19	0179 337		1	Valve tappet
20	0179 335		1	Valve stem
21	0179 394		1	Spring guide - valve stem
22	9994 247		1	Compression spring
23	0179 253		1	Adjuster for valve rod
24	9994 248		1	Compression spring
25	0179 488		1	Spring seat EAC/AC
26	0179 356		1	Tension nut
27	9994 627		1	Double nipple R1/4"
28	0128 510	●	1	Air hose
30	0179 248	●	1	Hose cover
31	9900 808	*	1	Pan-head screw M3x8
32	0179 219	*	1	Trigger
33	9995 611	*	1	Cylinder filter 180 M
34	0179 383		1	Filter screw
35	0179 241		1	Paint connector
36	9984 481	●	1	HP-hose DN4 - ND270 - M16x1.5 - 7.5 m
37	0179 643		1	Flat jet kit, 2000 EAC
38	0179 465		1	Cap ring 2000 EAC
39	0179 644		1	Air cap, 2000 EAC
40	0128 ...	●	1	AirCoat - flat tip (see chapter 7.2)
41	0179 485		1	Paint channel
42	0179 486		1	Seal screw
43	0179 452		1	Tip nut 2000 EAC
44	0132 724	*	1	Round jet tip R15 (see chapter 7.1)
45	0132 351		1	R-Tip holder
46	0132 516	*	1	Distributor
47	0179 642		1	Nozzle body 2000 EACR
48	0179 641		1	Nozzle set 2000 EACR
49	9994 269		1	Contact spring
50	0179 521	●	1	Long filter housing
51	0043 590	●	1	Compression spring
52	0128 389	●	1	Seal
53	0128 347	●	1	Hose connector M16x1.5
54	0179 160	●	1	Long filter housing assembly
55	●	1	Gun filter (see chapter 7.4.)
	0179 926	●	1	Paint channel assembly tool
	0179 946		1	Set of seals EA/EAC/AC



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