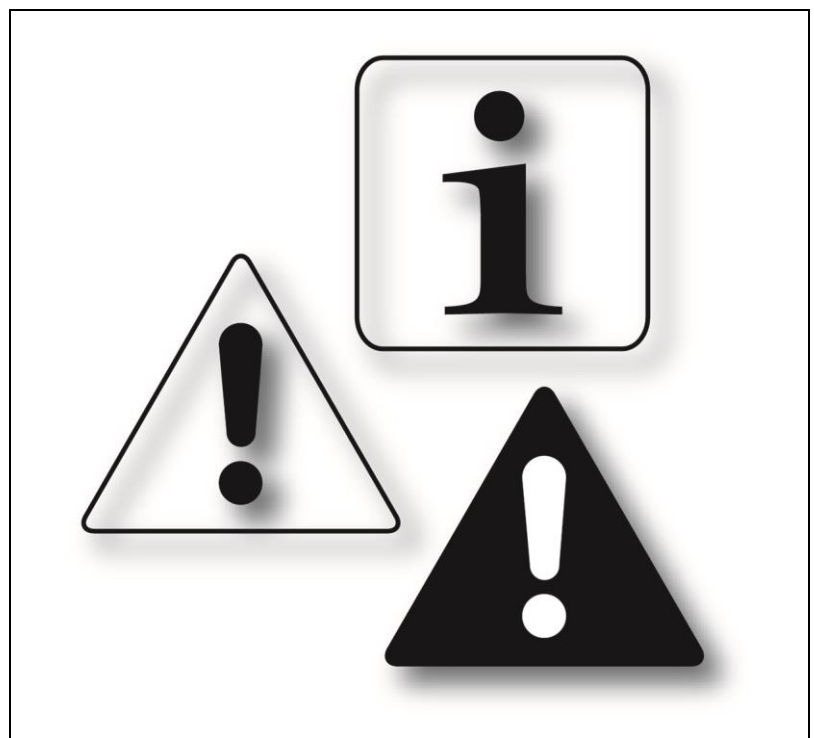

Powder coating plant Gema



Translation of the original operating instructions

Documentation Gema

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About these instructions

Keeping the Manual

Please keep this Manual ready for later use or if there should be any queries.

Safety symbols (pictograms)

The following warnings with their meanings can be found in the Gema instructions. The general safety precautions must also be followed as well as the regulations in the relevant instructions.

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

ATTENTION

Indicates a potentially harmful situation. If not avoided, the equipment or something in its surrounding may be damaged.

ENVIRONMENT

Indicates a potentially harmful situation which, if not avoided, may have harmful consequences for the environment.



MANDATORY NOTE

Information which must be observed.



NOTICE

Useful information, tips, etc.

Structure of Safety Notes

Every note consists of 4 elements:

- Signal word
- Nature and source of the danger
- Possible consequences of the danger
- Prevention of the danger

 SIGNAL WORD**Nature and source of the hazard!****Possible consequences of the danger**

- ▶ Prevention of the danger
-

Safety

General information

This chapter provides the user and third parties who operate this product with all essential safety regulations, the adherence to which is imperative.

These safety regulations must be read and understood in their entirety before the product is put into operation.

The standards and guidelines applied during the development, manufacture and configuration are described in the EC declaration of conformity and in the manufacturer's declaration.

WARNING

Working without instructions

Working without instructions or with individual pages from the instructions may result in damage to property and personal injury if relevant safety information is not observed.

- ▶ Before working with the device, organize the required documents and read the section "Safety regulations".
- ▶ Work should only be carried out in accordance with the instructions of the relevant documents.
- ▶ Always work with the complete original document.

WARNING

These general safety regulations must be read and understood in all cases prior to start-up!



General information

This product is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.

Any other use is not considered as intended use. The manufacturer shall not be liable for damage resulting from such use; the user bears sole responsibility for such actions. Gema Switzerland GmbH must be consulted prior to any use of this product for any purposes or substances other than those indicated in our guidelines.

Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of the intended use.

The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.

Furthermore, the country-specific safety regulations also must be observed.

Additional safety and operation notices can be found on the homepage www.gemapowdercoating.com.



General dangers

Start-up is forbidden until it has been established that the product has been set up and wired according to the EU guidelines for machinery.

Unauthorized modifications to the product exempt the manufacturer from any liability from resulting damages or accidents.

The operator must ensure that all users do have the appropriate training for powder spraying equipment and are aware of the possible sources of danger.

Any operating method, which will negatively influence the technical safety of the powder spraying equipment, is to be avoided.

For your own safety, only use accessories and attachments listed in the operating instructions. The use of other parts can lead to risk of injury. Only original Gema spare parts should be used!

Repairs must only be carried out by specialists or by authorized Gema service centers. Unauthorized conversions and modifications can lead to injuries and damage to the equipment and invalidate the Gema Switzerland GmbH guarantee.



Electrical danger

The connecting cables between the control unit and the spray gun must be installed in such a way, that they cannot be damaged during the operation. Please observe the local safety regulations!

The plug connections between the powder spraying equipment and the mains should only be removed when the power supply is switched off.

All maintenance activities must take place when the powder spraying equipment is switched off.

The product may not be switched on until the booth is in operation. If the booth stops, the product must switch off too.



Explosion hazard

The control units for the spray guns must be installed and used in zone 22. Spray guns are allowed in zone 21.

Only original Gema OEM parts are guaranteed to maintain the explosion protection rating. If damages occur by using spare parts from other manufacturers, the warranty or compensation claim is void!

Conditions leading to dangerous levels of dust concentration in the powder spraying booths or in the powder spraying areas must be avoided. There must be sufficient technical ventilation available, to prevent a dust concentration of more than 50% of the lower explosion limit (UEG = max. permissible powder/air concentration). If the UEG is not known, then a value of 10 g/m³ should be considered (see EN 50177).

All unauthorized conversions and modifications to the electrostatic spraying equipment are forbidden for safety reasons.

No safety devices should be dismantled or put out of operation.

Mandatory operational and workplace notices from the operating company must be written in a comprehensible manner in the language of equipment operators and posted in a suitable place.



Danger due to compressed air

Uncontrolled release of strong compressed air containing powder can cause hearing, eye and skin damage.



Slip hazard

Powder lying on the floor around the powder spraying equipment is a potentially dangerous source of slipping. Booths may be entered only in the places suitable for it.

Static charges

Static charges can have the following consequences: Charges to people, electric shocks, sparking. Proper grounding must be in place to prevent objects from becoming charged.

Grounding

Observe the grounding regulations



All electrically conductive parts found in the workplace of 5 meters around each booth opening, and particularly the objects to be coated, have to be grounded. The grounding resistance of each object must amount to maximally 1 MOhm. This resistance must be checked/tested regularly when starting work.

The condition of the work piece attachments, as well as the hangers, must guarantee that the work pieces remain grounded. The appropriate measuring devices must be kept ready in the workplace, in order to check the grounding.

The floor of the coating area must conduct electricity (normal concrete is generally conductive).

The supplied grounding cable (green/yellow) must be connected to the grounding screw of the electrostatic manual powder coating equipment. The grounding cable must have a good metallic connection

with the coating booth, the recovery unit and the conveyor chain, respectively with the suspension arrangement of the objects.

Smoking and open flames

Smoking and igniting fire are forbidden in the entire vicinity of the system! No work that could potentially produce sparks is allowed!

Fire and smoke prohibition



The stay for persons with active implants is forbidden



Stay of persons with active implants

In general, all persons with active implants (e.g. with cardiac pacemakers, neurostimulators, insulin pumps, etc.) must not be in areas where strong high voltage and electromagnetic fields are generated. Persons with active implants should not enter areas with powder spraying installations in operation!

Photographing with flashlight is forbidden



Photographing with flashlight

Photographing with flashlight can lead to unnecessary releases and/or disconnections by safety devices.

Disconnect from mains before maintenance works take place



Maintenance works

Disconnect the plugs and secure against restart before the machines are opened for maintenance or repair!

Verify by means of a voltmeter that the parts are deenergized!

The plug connections between the powder spraying equipment and the mains should only be removed when the power supply is switched off.



As far as it is necessary, the operating firm must ensure that the operating personnel wear protective equipment (e.g. hearing, eye, respiratory protection etc.).

A dust mask corresponding to filter class FFP2 or N95 at minimum must be worn during any cleaning work, as powder can enter the respiratory tract in an uncontrolled manner and cause breathing difficulties.

The operating personnel must wear electrically conductive, steel-toe footwear (e.g. ESD shoes).

The operating personnel should hold the gun with bare hands. If gloves are worn, these must also conduct electricity.

Individual safety regulations for the operating firm and/or operating personnel

- Any operating method, which will negatively influence the technical safety of the powder spraying equipment, is to be avoided.
- The operator should care about no non-authorized personnel works on the powder spraying equipment (e.g. this also includes using the equipment for non-conform work).
- For dangerous materials, the employer has to provide an operating instructions manual for specifying the dangers arising for humans and environment by handling dangerous materials, as well as the necessary preventive measures and behavior rules. The operating instructions manual has to be written in an understandable form and in the language of the persons employed, and has to be announced in a suitable place in the working area.
- The operator is obliged to check the powder spraying equipment at least once per shift for externally visible damage and defects, and to report any changes (including the operating characteristics) that affect safety immediately.
- The operating enterprise has to ensure that GEMA electrostatic spraying equipment is only operated in perfect condition.
- As far as it is necessary, the operating firm must ensure that the operating personnel wear protective clothing (e.g. facemasks).
- The operating firm must guarantee cleanliness and an overview of the workplace with suitable instructions and checks in and around the powder spraying equipment.
- No safety devices should be dismantled or put out of operation. If the dismantling of a safety device for set-up, repair or servicing is necessary, reassembly of the safety devices must take place immediately after the maintenance or repair work is finished. All maintenance activities must take place when the powder spraying equipment is switched off. The operator must train and commit the responsible personnel to this.
- Activities, such as checking powder fluidization or checking the high voltage spray gun etc., must be carried out with the powder spraying equipment switched on.

A summary of the directives and standards

The Gema products were built according to the current state of the art. The products are subject to the European directives and comply with the following standards.

The products are suitable for the intended purpose and can be used in the appropriate areas.



For further information, also refer to the enclosed Declaration of Conformity.

European directives RL

EG-RL 2006/42/EU	Machinery
EG-RL 2014/34/EU	Equipment and Protective Systems in Potentially Explosive Atmospheres (ATEX)
EG-RL 2014/30/EU	Electromagnetic compatibility
EG-RL 2014/35/EU	Low Voltage Directive

EN European standards

EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN ISO 80079-34	Explosive atmospheres – Part 34: Application of quality systems for Ex product manufacture
EN ISO 9001	Quality Management Systems – Requirements
EN 1127-1	Explosive atmospheres – Explosion prevention and protection - Part 1: Basic Concepts and Methodology
EN 1953	Atomizing and spraying equipment for coating materials – Safety requirements
EN ISO 13849-1	Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
EN 14462	Surface treatment equipment – Noise test code for surface treatment equipment including its ancillary handling equipment – Accuracy grades 2 and 3
EN 16985	Spray booths for organic coating material – Safety requirements
EN 50050-2	Electrostatic hand-held spraying equipment – Safety requirements Part 2: Electrostatic hand-held spraying equipment
EN 50177	Stationary electrostatic application equipment for ignitable liquid coating material - Safety requirements
EN 55011	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics – Limits and methods of measurement
EN 60079:-0	Explosive atmospheres – Part 0: Equipment – General requirements

EN 60079-10	Explosive atmospheres – Part 10-2: Classification of areas – Explosive dust atmospheres
EN 60079-31	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
EN 60204-1	Safety of Machinery – Electrical Equipment of Machines – Part 1: General requirements
EN 60529	Degrees of protection provided by enclosures (IP Code)
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
EN 61000-3-3	Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
EN 61000-4-4	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test
EN 61000-6-1	Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments
EN 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments
EN 61000-6-3	Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for equipment in residential environments, commercial and light-industrial environments

Recognized safety-related regulations

764 / DGUV Information 209-052	Electrostatic coating Trade Union information concerning health and safety during work (BGI)
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