Gun nozzles for every application

Different extensions, flat spray, round spray and angle nozzles are designed to offer the best results even with difficult applications.

- Highest powder transfer efficiency
- Perfect powder distribution
- Consistent application quality

Compliant with ATEX directive 94/9/EG
Overview Nozzle Assortment

Hyperlink on Nozzle Gema No.

→ will lead to nozzle portrait

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Gun nozzle design

- Powder coating requires a perfect combination of nozzle design and high voltage supply to achieve an homogeneous powder cloud.

- The high voltage field plays a very important role ensuring a perfect powder atomization and charging.

- Different object geometries to be coated require different nozzle geometries to ensure that the powder cloud is ideal and at the right speed.
Effect high voltage on powder cloud

With high voltage

Without high voltage
Powder distribution NF27 (close up)

NF27 Homogeneous powder distribution
Gun nozzles and extensions

- The nozzles and extensions are interchangeable for the manual and automatic guns, thanks to the compatible and smart gun shaft design.

- All nozzles and extensions are compliant to the ATEX directives.

- The use of high quality non-stick materials prevents powder accumulations and allows a high quality color change.
Extensions for round and flat jet nozzles

● Manual and automatic guns can be provided with robust and solid nozzle extensions of 150 and 300 mm length. These nozzles are interchangeable with the standard nozzles and offer a perfect flexibility of use.

● Special smaller and lighter-weight extensions are also available.
  o In manual applications they offer easy and stress-free operation over a long working time.
  o In automatic application, they are ideal for inside coating of narrow areas like in boilers.
Angle nozzles for special applications

- A wide range of 45°, 60° and 90° angle nozzles are available for challenging applications.
- The typical area of use are complex geometries like profiles, chassis, beam frames and cabinet coating.
- The angle nozzles are also ideal for variety of applications where fixed guns are needed.
SuperCorona add-on to improve quality

- In a corona gun the high voltage electrode generates a big quantity of air ions.
- Only a few air ions really charge the powder particles, the other ions remain free and are attracted by the surface to coat (which is grounded).
- The high accumulation of free ions on the surface to coat can produce an uneven powder layer and the so called “orange peel effect” or “back-ionization” problems.
- **SuperCorona** discharges the excessive free ions to ground and avoids overcharging of the powder and of the surface to coat.
Flat jet nozzle type NF20
Standard for GM03

NF20 complete with electrode holder
Gema No. 1’010’160

NF20 without electrode holder
Gema No. 1’010’090

Field of application
Standard manual nozzle
• Flat parts
• Profiles

Angle = 50°

Velocity = moderate - low

Distance to object maximal = 250 mm
Flat jet nozzle type NF21

**NF21 complete with electrode holder**
Gema No. 1’007’932

**NF21 without electrode holder**
Gema No. 1’007’935

**Field of application**
Automatic & manual nozzle
- Complex parts (deep recess)
- Target spraying

Angle = 30°

Velocity = high

Distance to object maximal = 400 mm
Flat jet nozzle type **NF22**

**NF22** *complete with electrode holder*
Gema No. 1’008’140

**NF22** *without electrode holder*
Gema No. 1’008’145

**Field of application**
Automatic & manual nozzle
• Complex parts (deep recess)
• Target spraying
• Robot applications

Angle = **30°**

Velocity = **high**

Distance to object maximal = **450 mm**
Flat jet nozzle type NF24

NF24 complete with electrode holder
Gema No. 1’008’142

NF24 without electrode holder
Gema No. 1’008’147

Field of application
Automatic & manual nozzle
• Large object
• Flat parts
• Complex parts when nozzle close to the object

Angle = 65°
Velocity = low
Distance to object maximal = 200 mm

Remark:
In combination with threaded sleeve
Gema No. 1’008’326
Flat jet nozzle type **NF25** (mini)

**NF25 complete with electrode holder**
Gema No. 1’007’743

**NF25 without electrode holder**
Gema No. 1’007’735

**Field of application**
Automatic & manual nozzle
- Flat parts
- Profiles

Angle = 50°

Velocity = **moderate - low**

Distance to object maximal = **250 mm**

**Remark:**
In combination with **extension Ø 25 mm**, reduced diameter to penetrate into cavities / Powder cloud like NF20
Flat jet nozzle type **NF26** (mini)

**NF26 complete with electrode holder**  
Gema No. 1’007’744

**NF26 without electrode holder**  
Gema No. 1’007’742

**Field of application**

Automatic & manual nozzle
- Complex parts (deep recess)
- Target spraying
- Robot applications

Angle = **30°**

Velocity = **high**

Distance to object maximal = **450 mm**

**Remark:**  
In combination with extension **Ø 25 mm**, reduced diameter to penetrate into cavities / Powder cloud like NF22
Flat jet nozzle type **NF27**
Standard for GA03

**NF27 complete with electrode holder**
Gema No. 1’010’754

**NF27 without electrode holder**
Gema No. 1’010’752

**Field of application**
Standard automatic nozzle
- Profiles
- Complex parts,
- Flat parts

Angle = **40°**
Velocity = **high - moderate**
Distance to object maximal = **350 mm**

**Remark:**
Alternative for large flat objects or complex parts, when nozzle close to the object = NF24
Round spray nozzle type NS

NS04 Gema No. 1’008’150
NS09 Gema No. 1’008’259 (mini)
+
Deflector Ø16 mm
Gema No. 331’341

Field of application
Automatic & manual nozzle
• Flat parts
• Low speed coating
• Powder cloud 60mm

\[ \Phi_{\text{maximal}} \text{ Powder cloud} = 60 \text{ mm} \]

Velocity = low

Distance to object maximal = 120 mm

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Round jet nozzle / NS

Round spray nozzle type NS

NS04 Gema No. 1’008’150
NS09 Gema No. 1’008’259 (mini)
+
Deflector Ø24 mm
Gema No. 331’333

Field of application
Automatic & manual nozzle
• Flat parts
• Low speed coating
• Powder cloud 90mm

\( \Phi_{\text{maximal}} \) Powder cloud = 90 mm

Velocity = low

Distance to object maximal = 160 mm
Round spray nozzle type NS

NS04 Gema No. 1’008’150
NS09 Gema No. 1’008’259 (mini) +
Deflector Ø32 mm
Gema No. 331’325

Field of application
Automatic & manual nozzle
• Flat parts
• Low speed coating
• Powder cloud 110 mm

$\Phi_{\text{maximal}}$ Powder cloud = 110 mm

Velocity = low

Distance to object maximal = 160 mm
Round spray nozzle type NS

NS04 Gema No. 1’008’150
NS09 Gema No. 1’008’259 (mini)
+
Deflector Ø50 mm
Gema No. 345’822

Field of application
Automatic & manual nozzle
• Flat parts
• Low speed coating
• Powder cloud 200 mm

$\Omega_{\text{maximal}}$ Powder cloud = 200 mm

Velocity = low

Distance to object maximal = 180 mm
Comparison

**NF 20** standard for manual \( \alpha = 50^\circ \)

**NF 27** standard for automatic \( \alpha = 40^\circ \)
Comparison

NF 21 $\alpha = 30^\circ$
NF 24 $\alpha = 65^\circ$
## Nozzle Assortment overview

### NOZZLE ASSORTMENT for the OptiGun GA03 and OptiSelect GM03

<table>
<thead>
<tr>
<th>Nozzle type</th>
<th>NF20</th>
<th>NF21</th>
<th>NF22</th>
<th>NF24</th>
<th>NF25</th>
<th>NF26</th>
<th>NF27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gema No. with electrode holder</td>
<td>1'010'160</td>
<td>1'007'932</td>
<td>1'008'140</td>
<td>1'008'142</td>
<td>1'007'743</td>
<td>1'007'744</td>
<td>1'010'754</td>
</tr>
<tr>
<td>Gema No. without electrode holder (Nozzle only)</td>
<td>1'010'090</td>
<td>1'007'935</td>
<td>1'008'145</td>
<td>1'008'147</td>
<td>1'007'735</td>
<td>1'007'742</td>
<td>1'010'732</td>
</tr>
</tbody>
</table>

### Powder cloud
- Manual application
- Standard

### Application
- Flat parts, profiles, manual applications
- Complex parts deep recess, target spraying
- Complex parts deep recess, target spraying, robot applications
- Large objects, flat parts, manual applications, complex parts, when nozzle close to the object
- Flat parts, profiles, manual applications
- Complex parts deep recess, target spraying, robot applications
- Profiles, complex parts, flat parts (Limitation: NF27 requires a minimal clearance between object and nozzle)

### Powder cloud @ Powder cloud Ø
<table>
<thead>
<tr>
<th>50°</th>
<th>30°</th>
<th>30°</th>
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<tbody>
<tr>
<td>50°</td>
<td>30°</td>
<td>40°</td>
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</tbody>
</table>

### Velocity
- Air setting @ (4 Nm³/h)
- Moderate - Low
- High
- Low

### Reach distance
- Maximal automatic application
- Air settings @ (14 Nm³/h)
- 250 mm
- 400 mm
- 450 mm
- 200 mm
- 250 mm
- 450 mm
- 350 mm
- 120 mm
- 160 mm
- 160 mm
- 180 mm

### Remark
- In combination with threaded sleeve Gema Nr. 1'008'326
- Powder cloud like NF20
- In combination with extension Ø 25mm, reduced diameter to penetrate into cavities
- Powder cloud like NF22

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