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.

Compliant with **ATEX directive 94/9/EG**

Highest powder transfer efficiency

Perfect powder distribution

Consistent application quality
Overview Nozzle Assortment
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

Without high voltage

With high voltage
Powder distribution NF27

NF27 Homogeneous powder distribution
Gun nozzles and extensions

- The nozzles and extensions are interchangeable for 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.

- Smaller and **light-weight extensions** are also available.
  - In manual applications they offer easy and stress-free operation over a long working time.
  - 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 / NF

- Flat jet nozzle type **NF20**
- Standard for Gema manual guns
- Ordering references:
  - NF20 complete with electrode holder (No. 1’010’160)
  - NF20 without electrode holder (No. 1’010’090)
- Field of application
  - Standard manual nozzle
  - Flat parts
  - Profiles
- Spray angle = 50°
- Velocity = moderate - low
- Target distance = max 250 mm
Flat jet nozzle / NF

- Flat jet nozzle type **NF21**
- Ordering references:
  - NF21 complete with electrode holder (No. 1’007’932)
  - NF21 without electrode holder (No. 1’007’935)
- Field of application
  - Automatic & manual nozzle
  - Complex parts (deep recess)
  - Target spraying
- Spray angle = 30°
- Velocity = high
- Target distance = max 400 mm
Flat jet nozzle / NF

- Flat jet nozzle type **NF22**
- Ordering references:
  - NF22 with electrode holder (No. 1’008’140)
  - NF22 without electrode holder (No. 1’008’145)
- Field of application
  - Automatic & manual nozzle
  - Complex parts (deep recess)
  - Target spraying
  - Robot applications
- Spray angle = 30°
- Velocity = high
- Target distance = max 450 mm
Flat jet nozzle / NF

- Flat jet nozzle type **NF24**
- Ordering references:
  - NF24 with electrode holder (No. 1’008’142)
  - NF24 without electrode holder (No. 1’008’147)
  - Remark: in combination with threaded sleeve Gema No. 1’008’326
- Field of application:
  - Automatic & manual nozzle
  - Large object
  - Flat parts
  - Complex parts when nozzle close to the object
- Spray angle = 65°
- Velocity = low
- Target distance = max 200 mm
Flat jet nozzle / NF

- Flat jet nozzle type **NF25** (mini)
- Ordering references:
  - NF25 with electrode holder (No. 1'007'743)
  - NF25 without electrode holder (No. 1'007'735)
  - In combination with Ø 25 mm reduced diameter extension to penetrate into cavities
- Field of application
  - Powder cloud like NF20
  - Automatic & manual nozzle
  - Flat parts
  - Profiles
- Spray angle = 50°
- Velocity = moderate - low
- Target distance = max 250 mm
Flat jet nozzle / NF

- Flat jet nozzle type **NF26** (mini)
- Ordering references:
  - NF26 with electrode holder (No. 1’007’744)
  - NF26 without electrode holder (No. 1’007’742)
  - In combination with Ø 25 mm reduced diameter extension to penetrate into cavities
- Field of application
  - Powder cloud like NF22
  - Automatic & manual nozzle
  - Complex parts (deep recess)
  - Target spraying, Robot applications
- Spray angle = 30°
- Velocity = high
- Target distance = max 450 mm
Flat jet nozzle / NF

- Flat jet nozzle type **NF27**
- Standard for automatic guns
- Ordering references:
  - NF27 with electrode holder (No. 1’010’754)
  - NF27 without electrode holder (No. 1’010’752)
- Field of application
  - Standard automatic nozzle
  - Profiles, complex parts
  - Flat parts
- Spray angle = 40°
- Velocity = high - moderate
- Target distance = max 350 mm
- Remark: Alternative for large flat objects or complex parts, when nozzle close to the object = NF24
Round jet nozzle / NS

- Round spray nozzle type **NS**
- Ordering references:
  - NS04 (No. 1’008’150), or
  - NS09 mini (No. 1’008’259)
  - Deflector Ø16 mm (No. 331’341)
- Field of application
  - Automatic & manual nozzle
  - Flat parts
  - Low speed coating
- Max powder cloud = Ø 60mm
- Velocity = low
- Target distance = max 120 mm
Round jet nozzle / NS

- Round spray nozzle type **NS**
- Ordering references:
  - NS04 (No. 1’008’150), or
  - NS09 mini (No. 1’008’259)
  - Deflector **Ø24** mm (No. 331’333)
- Field of application
  - Automatic & manual nozzle
  - Flat parts
  - Low speed coating
- Max powder cloud = Ø 90mm
- Velocity = low
- Target distance = max 160 mm
Round jet nozzle / NS

- Round spray nozzle type NS
- Ordering references:
  - NS04 (No. 1’008’150)
  - NS09 mini (No. 1’008’259)
  - Deflector Ø32 mm (No. 331’325)
- Field of application
  - Automatic & manual nozzle
  - Flat parts
  - Low speed coating
- Max powder cloud = Ø 110 mm
- Velocity = low
- Target distance = max 160 mm
Round jet nozzle / NS

- Round spray nozzle type **NS**
- Ordering references:
  - NS04 (No. 1’008’150)
  - NS09 mini (No. 1’008’259)
  - Deflector Ø50 mm (No. 345’822)
- Field of application
  - Automatic & manual nozzle
  - Flat parts
  - Low speed coating
- Max powder cloud = Ø 200 mm
- Velocity = low
- Target distance = max 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>
<th>Reflector 24 mm</th>
<th>Reflector 24 mm</th>
<th>Reflector 16 mm</th>
<th>Reflector 12 mm</th>
<th>Reflector 10 mm</th>
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</thead>
<tbody>
<tr>
<td>Gema No.</td>
<td>1'010'150</td>
<td>1'007'332</td>
<td>1'007'140</td>
<td>1'007'142</td>
<td>1'007'743</td>
<td>1'007'744</td>
<td>1'007'754</td>
<td>1'007'52</td>
<td>1'007'341</td>
<td>1'007'353</td>
<td>1'007'325</td>
<td>345'022</td>
</tr>
<tr>
<td>Gema No. without electrode holder (Nozzle only)</td>
<td>1'010'090</td>
<td>1'007'935</td>
<td>1'007'145</td>
<td>1'007'147</td>
<td>1'007'755</td>
<td>1'007'742</td>
<td>1'007'52</td>
<td>335'341</td>
<td>335'353</td>
<td>335'325</td>
<td>345'022</td>
<td></td>
</tr>
</tbody>
</table>

### Powder cloud

- **Standard size of droplets**
  - Manual application (standard)
  - Automatic application (standard)

### Application

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

### Powder cloud

- Powder cloud Ø
  - 30°
- Velocity
  - Air setting @ (4 l/min) [l/min]
  - Moderate - low
  - High
- Reach distance
  - Maximal automatic application
  - Air settings @ (4 l/min) [l/min]
  - 250 mm
  - 400 mm
  - 450 mm

### Remark

- In combination with threading sleeve Gema Nr. 1'007'326
- Reduced diameter to penetrate into cavities
- Powder cloud like NF20
- In combination with extension Ø 21 mm, reduced diameter to penetrate into cavities
- Powder cloud like NF22