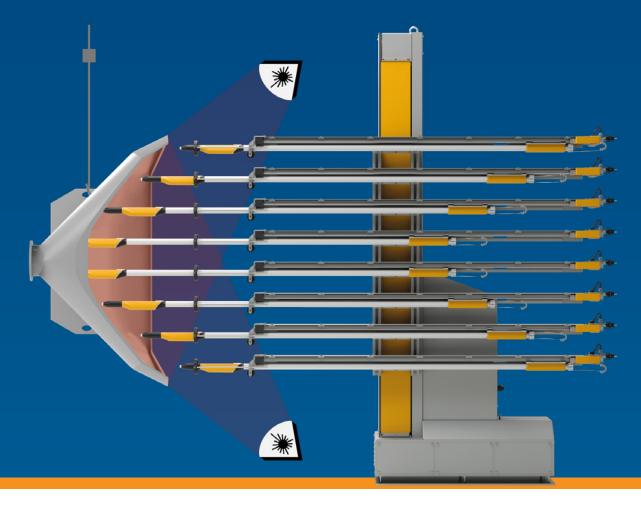
Dynamic Contour Detection

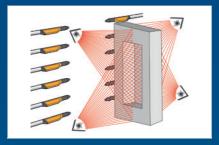
Scan & Spray – programming-free coating of any shape



Hang any product and automatically coat at optimum quality

The second generation of Dynamic Contour Detection includes the advanced laser scanner technology paired with the enhanced generation of vertical reciprocator and gun axes. The solution significantly extends the application range, improves the coating quality and consistency, increases first pass transfer efficiency and reduces the risk of human errors. The application is extended to the most complex of components and geometries.





Automated object scanning process and application program selection

Scan: Dynamic shape detection

The laser scanners, installed near the booth entrance, provide a digital image of the contour of the application area. This data combined with precise line speed tracking from a dedicated encoder creates an exact 3-dimensional outline of the object.

Spray: Dynamic coating of complex geometries

Based on the exact digital detail of each part, each individual gun's target position and triggering gets dynamically adjusted automatically. Depending on part geometries and actual gun arrangements, the guns may reciprocate or remain in a fix position.

Intelligent multi-angle technology

The advanced scanner technology detects even the thinnest object contours using multi-angle technology. This enables reliable object detection with high resolution down to 5 mm and at line speeds of up to 5 m/min. Utilizing this technology virtually any component may be hung, its countour automatically detected and coated while maintaining optimum application quality.

Number of gun axes per reciprocator	up to
Gun position accuracy	±1n
Min. edge resolution in conveyor travel direction	dow

* improved resolution accuracy at reduced line speeds, with no limitation on the maximum speed

Seamless integration with MagicControl 4.0

The Dynamic Contour Detection solution is seamlessly integrated into the master control MagicControl 4.0. The MagicControl 4.0 software automatically translates object geometries into optimized gun coating parameters and adjusts each gun axis individually to achieve outstanding coating results on complex geometries.

System components



Laser scanner

MagicControl 4.0



Vertical reciprocator ZA16 / Gun axes UA05

Every axis provided for complex application demands

The enhanced axes technology complements the Dynamic Contour Detection solution. The advanced configuration and design allow for more guns, faster, precise gun positioning and movement than previously available.

The ZA16 unit is the most powerful robust reciprocator available today providing high load capacity and precision movement. It provides a space-saving, versatile application solution for up to 8 individual UA05 gun axes.

The individual UA05 gun axis automatically positions each gun horizontally during the coating of complex objects. The UA05 may be mounted on a vertical reciprocator ZA16 as close together as 110 mm. This improves the coating performance and results for parts with complex geometries.

0.8

nm

n to 5 mm at up to 5 m/min line speed*





Highest application flexibility

The second generation of Dynamic Contour Detection enables the automated coating of difficult component geometries and most complex and demanding application requirements. Part size is virtually unlimited and allows coating for all complex application challenges, automatically!

From small to XXL large parts, the solution is fully scalable. It allows multipliable gun stations to be operated simultaneously, resulting in the highest application flexibility, increased productivity and improved production efficiency.

Fully automated detection of complex geometries and thin parts

ogramming-free coating of any part

Dynamic Contour Detection eliminates the requirement for cogramming, extending automated coating capabilities and process improvement to new levels.

Dynamic Contour Detection utilizes intelligent scan technology, nabling reliable object detection as low as 5mm at high conveyor speeds.

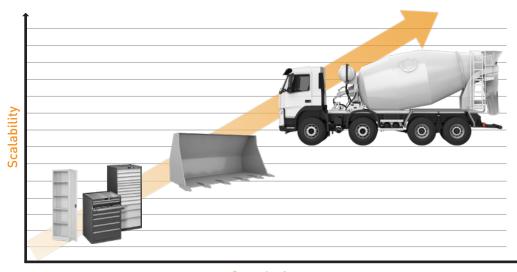
Unrivaled coating repeatability, quality and consistency are achieved with significant reduction in manual touch-up.

The solution meets the most demanding customer product diversity hallenges without the complexity of developing unique application programs or manual adjustment of guns. Regardless of the product size and complexity, the system delivers unequaled application consistency and quality, automatically.

Unlimited application possibilities

Every single part is automatically recognized and coated without the need for teaching or programming. Dynamic Contour Detection is the fully automatic alternative solution to conventional and robot powder coating applications.

The solutions for a wide variety of product geometries and sizes



Customer benefits Dynamic Contour Detection

- Improved coating quality and consistency with automatic (programming-free) adaption of all relevant setting parameters driven by each object's individual geometry
- Improved application efficiency resulting in powder savings with optimized and automatically adjusted spraying distance
- Significant reduction of human errors and manual touch-up due to repeatable application process
- Minimal operator training required
- Scalability: Full application flexibility for coating of small up to XXL large parts

Complexity







Gema Switzerland

Your global partner for high quality powder coating

Take advantage of our expertise and experience from more than 50 years of electrostatic powder coating applications. From simple hand coating through to fully automated powder coating, we offer solutions that meet the demands and requirements of customers around the world in a wide range of industrial sectors. A global service network ensures you always get professional support, at any time and any place!

Gema is part of Graco Inc. Our goal is to help our customers to increase their productivity while creating attractive, long-lasting products. Our experts continually set new standards in the surface coating industry.



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OptiCenter® All-in-One

The first powder centre combining electrostatics and powder feeding



Integrated solution for all powder management needs

Your solution for efficient and space-saving powder management is OptiCenter All-in-One. The system is equipped with the latest generation of OptiStar All-in-One gun controls and guarantees the fastest powder output response times for reliable coating quality. The fully automated application and cleaning process ensures efficient color changes with simple and intuitive operator guidance.



Outstanding application performance

Reliable coating quality



OptiSpeeder



OptiSpeeder with OptiStar All-in-One

Efficient and flexible color changes

The heart of the OptiCenter All-in-One is the OptiSpeeder powder hopper, which optimally conditions the powder by fluidization. The new OptiSpeeder has a large inclined opening, which allows a quick and easy access and insight into the interior of the powder container. The short suction distances are designed for an even powder flow and best coating results!

The closed powder circuit is controlled fully automatically and ensures a clean working environment as well as measurably greater efficiency.

The OptiSpeeder is equipped with a powder level detection and automatic fresh powder feed, which guarantee a constantly available powder quantity.

The switching from fresh powder to recovery operation and cleaning mode is fully automatic.

Fastest reaction times due to integrated control technology The OptiStar All-in-One controls are directly integrated into the OptiSpeeder. The OptiStar All-in-One controls all coating parameters and also the powder flow through the integrated injector technology.

The integrated OptiFlow injector technology is characterized by extreme longevity and stable application results. Fastest trigger times of the powder output allow a delay-free control of the powder cloud and a qualitative improvement of the coating.

Bi-directional cleaning to the gun and to the powder hopper ensures highly efficient cleaning performance.

Due to the extremely compact arrangement of the OptiStar All-in-One, up to 36 guns can be supplied with powder from one OptiSpeeder!



Integrated OptiStar All-in-One

Individual cleaning efficiency

With the fully automatic cleaning of the powder hopper and all powder-carrying components, you achieve the highest cleaning efficiency! The user can apply the cleaning modes individually:

- Quality Mode: cleaning program for contrasting colors and highest cleaning demands
- Fast Mode: guick cleaning program for color changes within the same color spectrum
- Custom Mode: user-specific color change programs

Variable powder level detection

The integrated stepless level control detects the powder level in the powder hopper and shows it on the display at any time, maintaining application consistency perfectly. Even small powder quantities are detected and allow the coating of small production batches.

OptiStar All-in-One[®]: Reliable results over the long term time periods

The OptiStar All-in-One control unit is the key to achieving accurate and reproducible coating results:

- Compactest design for space-saving integration with shortest powder suction distances
- Integrated one-piece OptiFlow Injector
 - Cartridge merges injector nozzle and conveying insert into a single component
- Quick release design for the powder hose
- Digital Valve Control (DVC) for precise powder output control
- Precise Charge Control (PCC) guarantees exact current control below 10 µA in 0.5 increments. This prevents overcharging of challenging powders.
- CAN bus technology for horizontal integration into the higher-level plant control system



OptiStar All-in-One





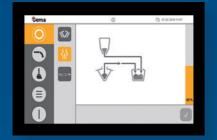


OptiFlow Injector The OptiFlow IG08 is

horizontally integrated directly into the OptiStar All-in-One control unit. This eliminates the pneumatic lines between the injector and control unit and ensures greater cleaning efficiency and faster powder output response.

Trendsetting and intuitive

Compact design and flexible configuration





OptiControl powder management control

Easy operation and programming

The operation of the OptiCenter is particularly intuitive and takes place via the 7" touch screen of the integrated OptiControl control unit.

The OptiControl control unit has the following highlights:

- Clear user interface: Easy operation of the coating and color change process
- Coating process: Automatic and programmable changeover time from fresh powder to recovery operation
- Minimum Fresh Powder Ratio Control: Quality increase for coating in recovery operation through controlled additional fresh powder supply
- Programmable powder level for standard and small series coating
- Selection of the cleaning programs: Quality Mode for deep cleaning, Fast Mode for quick cleaning and Custom Mode for user-specific color change programs

Space-saving design

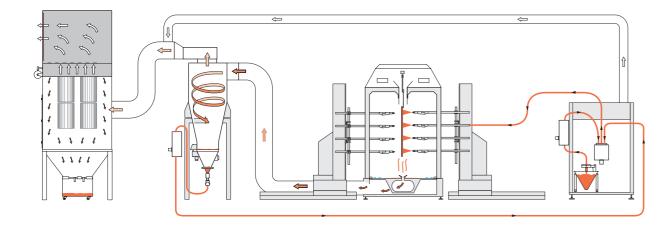
The OptiCenter All-in-One has a very compact design and can be flexibly adapted to any system layout, as no gun control cabinet is required. The result is not only space-saving, but also ergonomic solutions that can be installed in a minimum of time.

Gentle powder recovery

The powder recovery system is based on the proven OptiFeed powder pumps from Gema. These pumps convey the powder gently to the OptiSpeeder. The OptiFeed pumps do not have any moving parts and therefore require only minimum maintenance.

Closed loop and efficient powder circuit

The powder circuit guarantees a continuous and consistent powder feed with minimal wear and tear on parts. The OptiCenter, injectors, powder pumps and recovery system are all ideally matched to each another and ensure perfect working conditions. With a fresh powder feed and sieving solution, the most demanding quality requirements and expectations can be met.



A variety of configurations

The OptiCenter All-in-One can be equipped flexibly according to your individual demands. The equipment variants include the following:

- Ultrasonic sieve insert US07: The free-swinging sieve surface ensures loss-free energy coupling for ultrasonic sieving and enables efficient sieving performance.
- Variants of the internal fresh powder feed:
- Cone (standard)
- Vibrating table for powder box
- Powder Hopper (50l/100l volume)
- External fresh powder supply with OptiFeed FPS16 BigBag



OptiCenter All-in-One



OptiFeed powder pump











OptiCenter All-in-One

Excellent Coating Results

- Short suction distances
- Fastest trigger times
- Variable powder level detection
- Continuous supply of fresh and recycled powder
- Integrated ultrasonic sieve solution

Quick Color Change

- Closed powder circuit
- Fully-automated cleaning process
- Fully automatic switching from fresh powder to recovery operation

Compact Design

- Space-saving system integration (no control cabinet)

Ergonomic and intuitive Interface

Easy Maintenance

OptiSpeeder

- Closed powder hopper - Generous access to the powder hopper
- Versions: 24 / 36 integrated OptiStar All-in-One control units
- Constant powder level
- Short suction distances

Cleaning

- Automatic cleaning of powder hopper
- Automatic cleaning of the suction tubes, powder hoses and guns
- Automatic cleaning of the fresh powder and recovery pump and hoses

Compact Integration

- Extremely space-saving integration of the OptiStar All-in-One controls directly into the powder hopper
- Fastest reaction times (powder on/off) due to the elimination of all pneumatic lines between control and injector
- Up to 36 guns can be supplied from one powder hopper thanks to the compact arrangement of the controls
- Completely pre-assembled system, ready for operation

OptiControl

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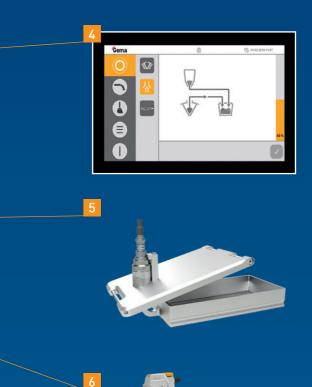
OptiCenter

- Programmable changeover time from fresh powder to recovery operation
- Minimum Fresh Powder Ratio Control
- Programmable powder level Cleaning programs: Quality,

Fast and Custom mode

Ultrasonic Sieve

- Sieving of recycled and fresh powder - Free-swinging sieve surface
- for maximum sieving performance
 - Different mesh sizes available - Extremely gentle sieving





OptiStar All-in-One

- Direct integration of injector OptiFlow IG08 into control unit
- No pneumatic lines between control unit and injector
- Fastest trigger times of the powder output
- Highest cleaning efficiency
- Precise powder output control by Digital Valve Control (DVC)
- Exact current settings under 10 μA in 0.5 μA increments by Precise Charge Control (PCC)
- CAN bus technology for horizontal integration into the higher-level plant control system

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OptiFlex® Pro

Boost your manual coating to a new level!



Power - Quality - Control

The new generation of OptiFlex Pro manual units impresses with additional application performance due to the outstanding PowerBoost technology.

With OptiFlex Pro, you easily process all powder types and coat complex parts in superior quality - all this worldwide and in the most difficult industrial environments.

The use of the Electrostatic App is your first step into Smart Factory Automation and makes the manual coating process transparent.



Maximum coating performance

Best application results



The first choice in manual coating

The OptiFlex Pro manual units are uncompromisingly and agilely designed for maximum industrial suitability and worldwide use. The intelligent and durable components fit perfectly together and form the powerful package for superior manual powder coating. The ergonomic and intuitive operation enables every user to achieve the best coating results at any time.

PowerBoost[®] - Safe technology for more power performance The newly developed PowerBoost technology of the OptiFlex Pro series offers with the 110 kV the highest powder charging capacity in the powder coating industry while complying with safety regulations. The operator benefits from an outstanding coating performance. The new feature completes the proven high-voltage functionalities, such as PCC mode, presettings and individual coating programs and extends the application range significantly.

Be one step ahead of the competition!

With OptiFlex Pro you coat extremely efficiently and with consistently high quality.

The PCC (Precise Charge Control) mode regulates the spray current even in the lowest ampere ranges $(0-10 \mu A)$ with the highest accuracy. This prevents overcharging of even the most demanding powders such as metallic powder and ensures the highest quality in thick film and multi-layer applications and recess areas.

The DVC (Digital Valve Control) technology allows an exact and repeatable adjustment of the powder output and ensures an uniform layer thickness.



OptiSelect® Pro - highest industrial suitability

- The new OptiSelect Pro gun features a particularly robust and durable design. The ergonomic and light-weight gun is well-balanced in the hand, has a good grip and enables you to coat efficiently and faster.
- The new PowerBoost high-performance technology charges all types of powder even more efficiently. The benefits of the additional power provide higher productivity, faster conveying speeds and maximum area performance.
- The integrated remote control allows easily to activate the Power-Boost powder charging mode and to regulate the powder output right away.
- The integrated cleaning of the powder conveying components can be enhanced by the optional PowerClean[™] module, which ensures a faster and efficient cleaning. This improves performance when processing difficult powders and facilitates color change.
- The latest generation of nozzles ensures an excellent powder distribution and penetration.

OptiFlow injector - for repeatable guality

The new OptiFlow injector with cartridge design further optimises the venturi principle in terms of transport efficiency and low wear. By simply exchanging the one-piece cartridge, the injector performance is optimally maintained.

The usage of fewer parts and the seamless design of the injector improves the ability for fast color changes.

Main features OptiFlow injector

- Cartridge design merges injector nozzle and conveying insert into a single component
- Powder outputs of up to 450 g/min achievable depending upon hose length and diameter
- Quick release design for the powder hose
- Unique Inline-Design
- Cartridge sleeve manufactured from high quality non stick materials
- Robust diecast injector housing
- Quick disconnect air connections







The OptiFlow injector with Inline-Design ensures precise and uniform powder delivery to the gun.

Master the application!

Accessories OptiSelect[®] Pro



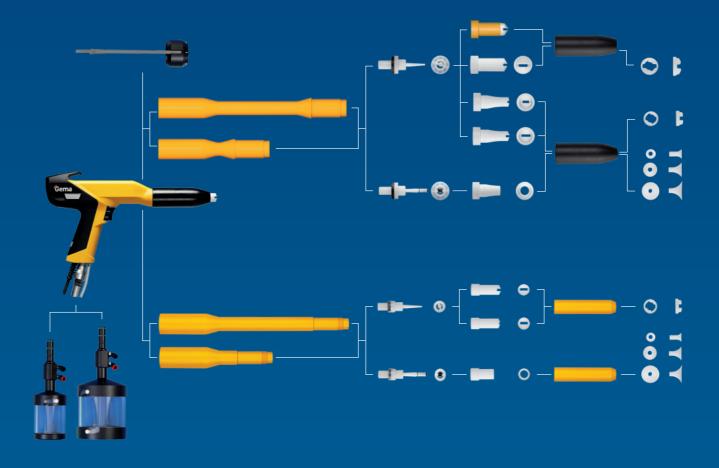
Electrostatic App (Gema E-App)

The new features of OptiFlex Pro also give you a technological edge. The Electrostatic App (E-App) with the integrated line management functions and additional service features make the coating process transparent and better controllable.

Important data of your application are always at hand and can be easily exported for further usage.

Gema E-App Functions

- Application: Adjustment and control of coating parameters
- Line Management: Review of productivity and maintenance data
- Setup: OptiStar configuration and system information
- Service: Access to user manuals and Gema website





The OptiStar 4.0 control unit precisely controls and monitors all pneumatic and electrostatic parameters of the application.

OptiStar[®] 4.0 - the benchmark for gun controls

- The PowerBoost technology offers maximum coating performance over the entire working area through highly efficient charging of the powder particles. This achieves higher productivity, faster conveying speeds and maximum area performance.
- Precise Charge Control Mode (PCC) for high-quality coating tasks
- Three standard programs (flat parts, profiles and re-coating) make the coating easy for beginners.
- The intuitive display makes it easy for any user to set and program the optimal parameters. The result is a perfect coating quality that can be reproduced at any time.
- Digital Valve Control Technology (DVC) for precise powder delivery
- Electrostatic App (E-App) for transparency of the coating



Nozzle Assortment

Flat- and round jet nozzles for all applications to ensure the optimal spray pattern for the object. The nozzle range is characterized by:

Optimal powder cloud creation

- Elimination of powder
- spitting – Low wear characteristics
- Quick color changes
- Uncompromising use of material
- No powder deposits
- Seamless design

SuperCorona

The optional SuperCorona extension:

- Neutralizes the free ions
- (back ionisation), where thicker coatings are required
- Reduces the picture frame effect



Reduces orange peel effect



Increase the productivity!

OptiFlex Pro B, Q, F and S are available with double gun versions.



Versatile model range for all requirements



OptiFlex[®] Pro B



OptiFlex[®] Pro Q



OptiFlex[®] Pro F

For frequent color changes

If your production requires frequent and quick color changes, then we would recommend the OptiFlex Pro B, which is designed to use the manufacturer's original powder box.

- Highest flexibility
- Shortest and cleanest color changes
- For direct transport from the original powder box
- Complete emptying of the powder box thanks to the tilted vibrating base
- Integrated fluidization
- Scratch resistant and easy accessible box plate

Color change in 35 seconds

Are super-fast color changes your priority? OptiFlex Pro Q is equipped with additional features that allow:

- Super-fast color change in 30-40 seconds
- Suitable for all types of powder
- Minimal space usage

For continuous powder use

If continuous use of the same powder over a long period of time is the bulk of your production schedule, then we would recommend the OptiFlex Pro F with the 50-litre fluidized powder container.

- Ideal for large powder quantities
- Compatible with all powder types
- Scratch-free 50 litre powder container with fluidization
- Easy cleaning of the container



OptiFlex® Pro S

For powders that are difficult to fluidize

Do you need to economically process powders with a tendency to separation during fluidization? OptiFlex Pro S is your best choice!

- Unique stirrer system with 18 litre hopper capacity
- Processing of powders with poor fluidization capability
- Preventing the separation of powders
- Processing of small quantities without any loss
- Complete emptying of remaining powder



OptiFlex[®] Pro C



OptiFlex[®] Pro CF



OptiFlex[®] Pro L

For Lab use

Do you want to coat small batches or samples? Your solution is the OptiFlex Pro C with self-fluidizing application cup.

- Perfectly suited for small powder quantities
- Self-fluidizing application cup (optionally 150 ml or 500 ml)
- Processes powder quantities from 20 to 250 g/min
- The application cup can be easily combined with every coating unit

For Lab use

Do you want to coat small batches or samples? Your solution is the OptiFlex Pro CF with funnel cup.

- Perfectly suited for small powder quantities
- Reproducible coating results
- Simple and reliable color change in 20 seconds
- Visual inspection of all powder transporting components
- Robust and durable industrial design
 Removeable funnel cup with 300 ml or 600 ml

For small batches

Do you carry out lab applications or quality tests? The OptiFlex Pro L unit is the perfect solution for lab use and quality control.

- Fluidizised powder hopper
- 4 litre hopper volume
- Removable powder hopper
- Easy cleaning



The universal solution

For upgrades, to be mounted on booth walls or at your production site: OptiFlex Pro W can be integrated in any existing surrounding.

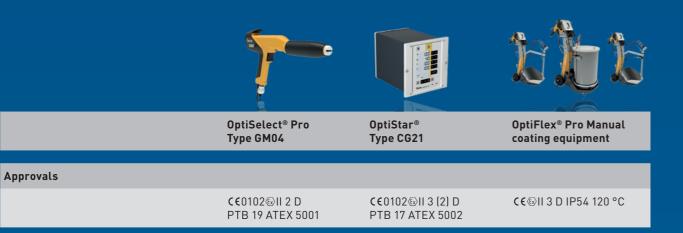
- Its bracket can be mounted on any powder booth
- Takes the powder from fluidized hoppers or original powder box

Technical data OptiFlex Pro models

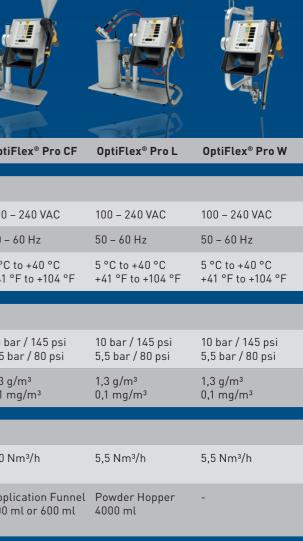


	OptiFlex® Pro B	OptiFlex® Pro Q	OptiFlex® Pro F	OptiFlex® Pro S
Electrical data				
Nominal input voltage	100 - 240 VAC	100 - 240 VAC	100 – 240 VAC	100 - 240 VAC
Frequency	50 – 60 Hz			
Temperature range	5 °C to +40 °C +41 °F to +104 °F	5 °C to +40 °C +41 °F to +104 °F	5 °C to +40 °C +41 °F to +104 °F	5 °C to +40 °C +41 °F to +104 °F
Pneumatic data				
Max. manual unit input pressure Input pressure OptiStar	10 bar / 145 psi 5,5 bar / 80 psi	10 bar / 145 psi 5,5 bar / 80 psi	10 bar / 145 psi 5,5 bar / 80 psi	10 bar / 145 psi 5,5 bar / 80 psi
Max. water vapor content of compressed air Max. oil vapor content of compressed air	1,3 g/m³ 0,1 mg/m³	1,3 g/m³ 0,1 mg/m³	1,3 g/m³ 0,1 mg/m³	1,3 g/m³ 0,1 mg/m³
Dimensions				

Compressed air consumption normal operation	5,5 Nm³/h	5,5 Nm³/h (for a short time during cleaning cycle 30 Nm³/h)	7,5 Nm³/h	5,5 Nm³/h
Hopper volume	-	-	50 l	18 L



	OptiFlex® Pro C	Opt
Electrical data		
Nominal input voltage	100 - 240 VAC	100
Frequency	50 – 60 Hz	50 -
Temperature range	5 °C to +40 °C +41 °F to +104 °F	5 °C +41
Pneumatic data		
Max. manual unit input pressure Input pressure OptiStar	10 bar / 145 psi 5,5 bar / 80 psi	10 b 5,5
Max. water vapor content of compressed air Max. oil vapor content of compressed air	1,3 g/m³ 0,1 mg/m³	1,3 0,1
Dimensions		
Compressed air consumption normal operation	5,0 Nm³/h	3,0
Powder container type Volume	Application Cup 500 ml optional 150 ml	Арр 300



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