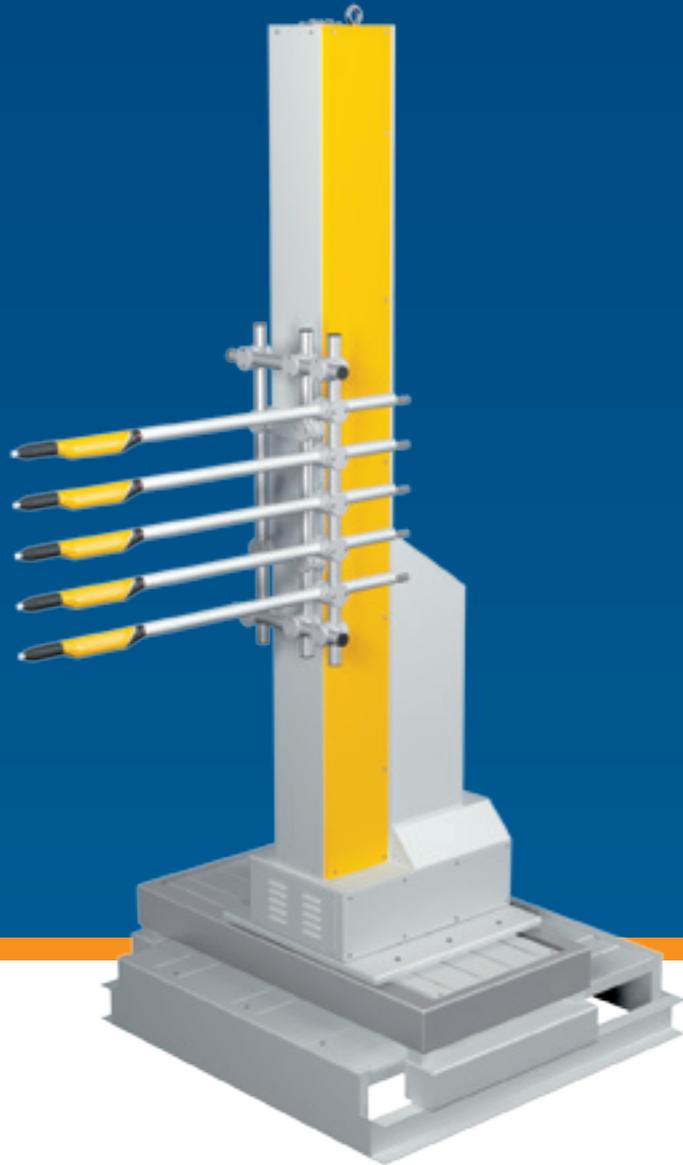


# Reciprocators and axes

Cost reduction and quality improvement  
through automation



## Automatic powder coating systems

Making the right choice of automation will save time and money!

Gema offers a broad range of multi-axis systems with different levels of automation selected to meet the individual needs of the customer.

Your global partner for high quality powder coating

The Gema logo consists of the word "Gema" in a bold, black, sans-serif font. A red curved line is positioned above the letter 'e', starting from the top of the 'G' and curving over the 'e'.

# The base for all motion

## Reliable and precise

Quiet running, individual programming options and stability combined with high loading capacity are indispensable for uniform powder coating. The reciprocators of the ZA series meet these requirements perfectly and feature a solid and maintenance-friendly design. They constitute the base for all automation, from simple vertical strokes to complex and multidimensional processes.

## Benefits of the ZA reciprocators

- Long-stroke and short-stroke operation
- Tooth belt transmission for quiet running
- Maintenance-free AC-motor
- Narrow column design for space-saving gun configurations



## OptiMove Control

The OptiMove axis control unit is user-friendly, allowing ease of programming. Each control module controls a single axis. Despite its compact design, OptiMove offers many functions normally found in more complex control units.

### Features:

- Programming via touch panel
- Up to 255 programs
- Segment operation and stroke adjustment
- Cycle times displayed
- Integrated DigiBus / CAN-bus

# Detection of gaps, height and width

## Gap detection

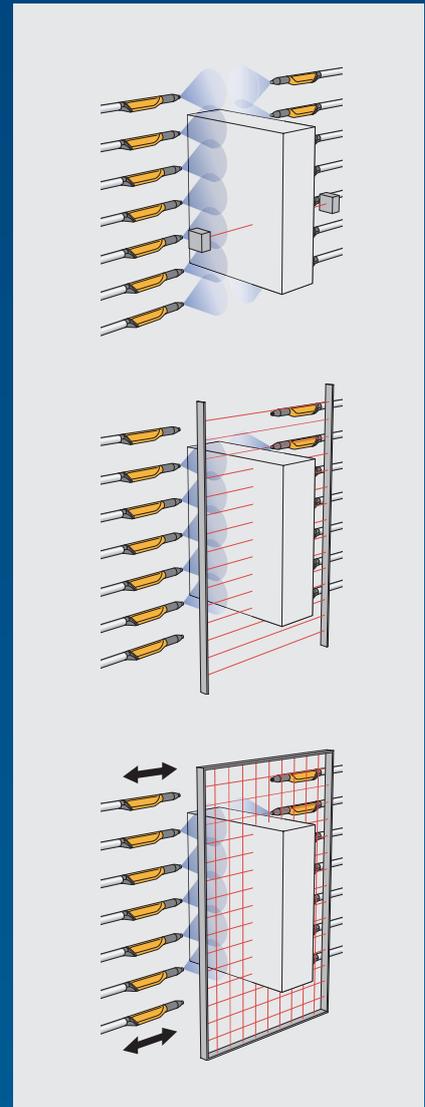
The gap control turns off the guns where a gap is detected. For this application a light barrier detects the object to be coated at the booth entrance and the guns are activated just before the object passes through. In case of a gap, the guns are turned off after the object has passed.

## Height detection

For the height detection a light grid is used, which automatically triggers the required guns. With horizontal gun arrangement, the reciprocator stroke lengths are automatically adapted to the object heights.

## Width detection

In addition to the gap and height detection systems, the width detection automatically adjusts the reciprocators via X-axis to variable object widths. Ideally the guns are arranged vertically, so that the object contour can be scanned exactly.



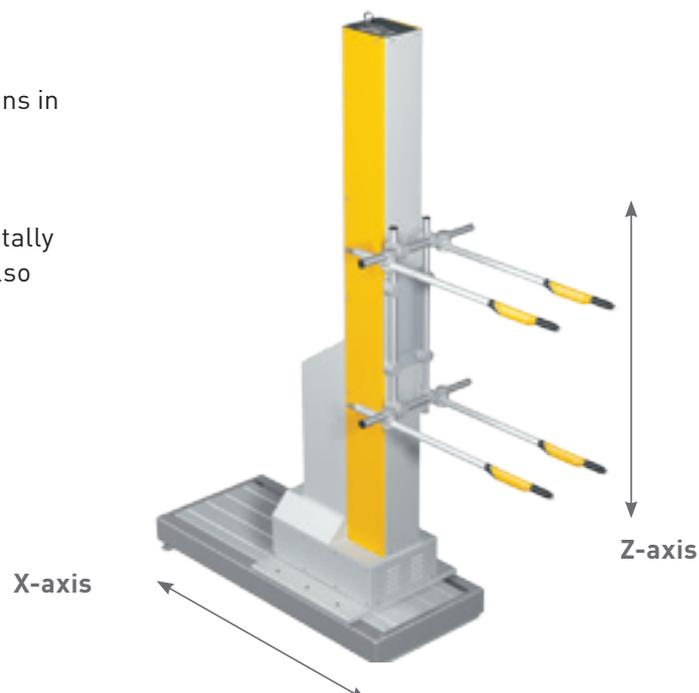
## Standard axes for all applications

### Z-axis:

This is the standard axis. It moves the guns in a vertical direction.

### X-axis:

This axis moves the reciprocator horizontally for the width adjustment. The X-axis is also used for the automatic gun cleaning via blow-off nozzles.



# Multidimensional solutions



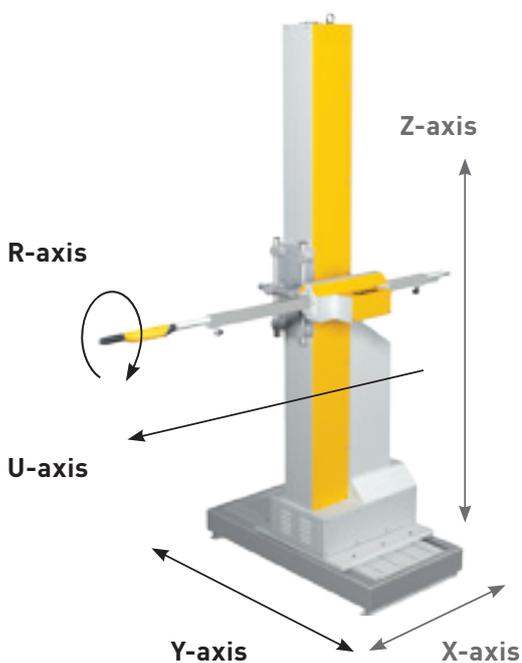
## Synchronization with conveyor (Y-axis)

This option is used for the inner coating of hollow bodies such as ovens and control cabinets. A shaft encoder synchronizes the reciprocators to the chain speed, guaranteeing accurate coating of edges, recessed parts and internal features. The ideal coating data is calculated beforehand and stored in a database, where it can be recalled at any time.



## Infeed axes (U-axis)

For special object geometries and applications, there are different axes available (with rotating axes if required). These are equipped with an independent drive, which accurately moves the gun in and out of predefined zones.



## Special axes for complex applications

### U-axis:

The U-axis moves the single guns horizontally, one by one, into the recessed areas of the object.

### R-axis:

Rotates the spray gun around its own axis.

### Y-axis:

Moves the reciprocator synchronized with the conveyor along the booth.

# Robots and rotating axes

## Rotating axes (R-axis)

Rotating axes are ideally suited for the coating of inner edges and recessed parts (for example on control cabinets and rotating parts). They accurately trace the rounded geometries and guarantee optimum coating results even on difficult-to-reach areas.



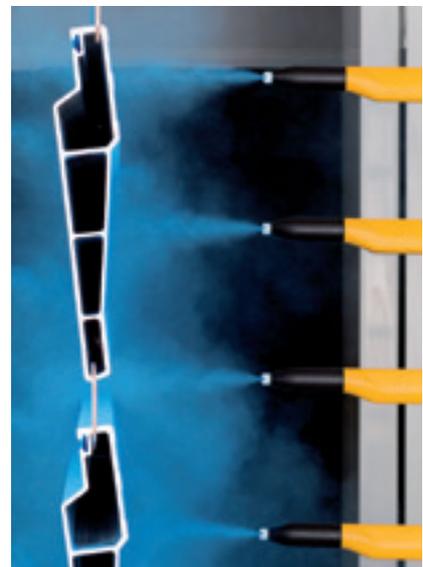
## Robots

When the highest flexibility and free programming are required, robots offer the perfect solution. The programming is done via "teach-in". The geometry and motion sequences are tracked with the spray gun, whereas the robot stores the data for the coating process.



## Special axes – Solutions for complex applications

Special application cases need special solutions. Thanks to our vast experience and wide range of products, we will find, in close collaboration with you, the ideal axis geometry for your specific needs.





# MagicControl® CM30



## All parameters under control

MagicControl CM30 module controls all parameters of the powder coating plant. The individual application layout is shown on the screen, and all operations and functions are transmitted in real-time.

## Individual programming

You program all parameters directly on the screen. With clear symbols, the touch screen displays the action messages. Different security levels prevent programs and parameters being modified by mistake.

## Storing with maximum security

To maintain security, coating programs and parameters can be stored onto memory cards.



## What is CAN-Bus?

A bus system allows the data exchange between the hardware components and the control module CM30/CM22, controlling the powder coating system.

The bidirectional Data exchange between the hardware components ensures a comfortable and process-safe Data exchange.

## PLC control units for fully automated coating

MagicControl is a fully programmable, central control module for controlling the booth, the gun control units, the reciprocators, the axes and the powder supply. MagicControl allows for interlocking and data exchange with higher-level plant control units.



The control and command of height, width and depth detection are easily executed via monitor with touch-screen function and large display. Clear symbols offer a simple and intuitive operation. The coating programs and production data are stored on CompactFlash cards and can be recalled at any time.

# Cost reduction and quality improvement with Gema reciprocators and axes



## Benefits of the ZA reciprocators

- Long-stroke and short-stroke operation
- Tooth belt transmission for quiet running
- Maintenance-free AC-motor
- Narrow column design for space-saving gun configurations
- Broad assortment of axes
- Wide range of control options
- Positioning accuracy within a millimeter
- Vast program diversity



## The powder coating world of Gema



## Gema Switzerland

### Your global partner for high quality powder coating

Take advantage of our expertise and experience from more than 40 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 in the Finishing Group continually set new standards in the surface coating industry.



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