
Operating instructions and spare parts list

OptiFlex A1 Control system (AS07 type)



Translation of the original operating instructions

Documentation - OptiFlex A1 (AS07) Control system

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Table of contents

| | |
|---|-----------|
| General safety regulations | 3 |
| Safety symbols (pictograms)..... | 3 |
| Proper use..... | 3 |
| Product-specific safety measures..... | 4 |
| OptiFlex A1 Control system..... | 4 |
| About this manual | 5 |
| General information..... | 5 |
| Function description | 7 |
| Field of application..... | 7 |
| Scope of delivery..... | 7 |
| OptiFlex A1 Control system - components..... | 8 |
| OptiFlex A1 Control system - possible configurations..... | 9 |
| Automatic equipment without reciprocator..... | 9 |
| Automatic equipment with reciprocator..... | 9 |
| Technical data | 11 |
| OptiFlex A1 Control system..... | 11 |
| Electrical data..... | 11 |
| Pneumatic data..... | 11 |
| Dimensions..... | 11 |
| Commissioning | 13 |
| Set-up and assembly..... | 13 |
| Assembly notes..... | 13 |
| OptiFlex A1 Control cabinet..... | 14 |
| Start-up..... | 14 |
| General information..... | 14 |
| Power supply..... | 14 |
| Compressed air..... | 15 |
| Spare parts list | 17 |
| Ordering spare parts..... | 17 |
| OptiFlex A1 control cabinet - spare parts list..... | 18 |
| OptiFlex A1 control cabinet - spare parts..... | 19 |
| OptiFlex A1 - Pneumatics (systems without OptiAir CA10) – spare parts list..... | 20 |
| OptiFlex A1 - Pneumatics (systems without OptiAir CA10) – spare parts..... | 21 |

General safety regulations

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using the OptiFlex A1 (AS07) control system.

These safety regulations must be read and understood in full before the OptiFlex A1 (AS07) control system is put into operation.

Safety symbols (pictograms)

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

**DANGER!**

Danger due to electrically live or moving parts. Possible consequences: death or serious injury

**WARNING!**

Improper use of the equipment could damage the machine or cause it to malfunction. Possible consequences: minor injuries or damage to equipment



**INFORMATION!**

Useful tips and other information

Proper use

1. The OptiFlex A1 (AS07) control system is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.
2. Any other use is considered non-compliant. The manufacturer shall not be liable for damage resulting from such use; the user bears sole responsibility for such actions. If the OptiFlex A1 (AS07) is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.

3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The OptiFlex A1 (AS07) should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.
4. Start-up (i.e. the execution of a particular operation) is forbidden until it has been established that the OptiFlex A1 (AS07) has been set up and wired according to the guidelines for machinery (2006/42 EG). EN 60204-1 (machine safety) must also be observed.
5. Unauthorized modifications to the OptiFlex A1 (AS07) exempt the manufacturer from any liability from resulting damage.
6. The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.
7. Furthermore, the country-specific safety regulations also must be observed.

| Explosion protection | Protection type | Temperature class |
|---|-----------------|------------------------------|
|   | IP54 | T6 (zone 21) T4 (zone 22) |

Product-specific safety measures

- Installation work performed by the customer must be carried out according to local regulations.
- Before starting up the plant a check must be made that no foreign objects are in the booth or in the ducting (input and exhaust air)
- All components must be grounded according to the local regulations before start-up.

OptiFlex A1 Control system

The OptiFlex A1 (AS07) control system is a constituent part of the equipment and is therefore integrated in the system's safety concept.

If it is to be used in a manner outside the scope of the safety concept, then corresponding measures must be taken.



NOTE:

For further information, see the more detailed Gema safety regulations!

About this manual

General information

This operating manual contains all important information which you require for the working with the OptiFlex A1 (AS07) control system OptiFlex-A1-de.doc. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new powder coating system.

Information about the functionality of the individual system components - booth, gun control unit, manual gun or powder injector - should be referenced to their enclosed corresponding documents.



DANGER:

Working without operating instructions

Working without operating instructions or with individual pages from the operating 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.
-

Function description

Field of application







The OptiFlex A1 Control system was especially designed to meet the requirements of production, and also the custom electrostatic coating requirements.

The flexible, modular structure of the OptiFlex A1 Control system is readily adaptable to any modifications in the installation.

Scope of delivery

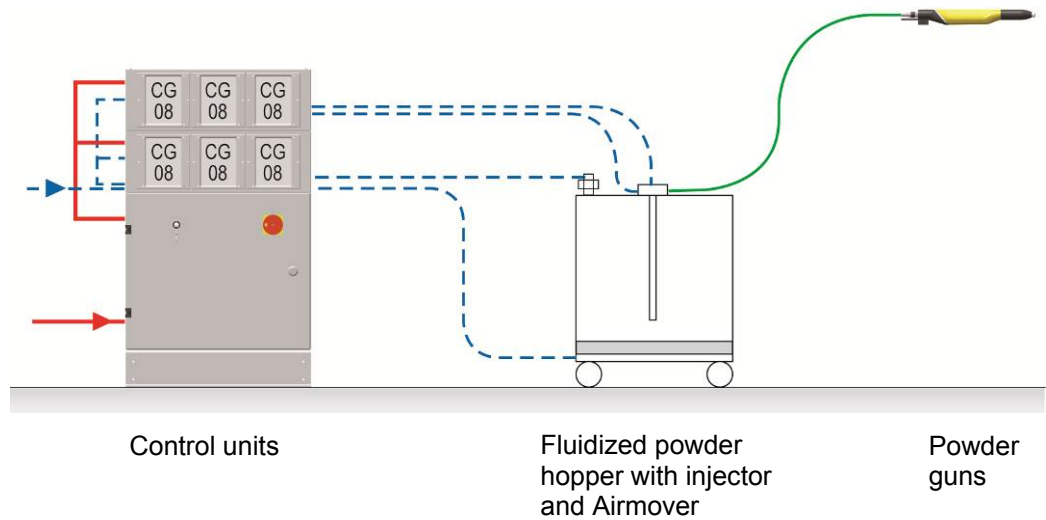
The scope of delivery depends on the type and the number of installed control units (see therefore chapter "OptiFlex A1 Control system - components").

OptiFlex A1 Control system - components

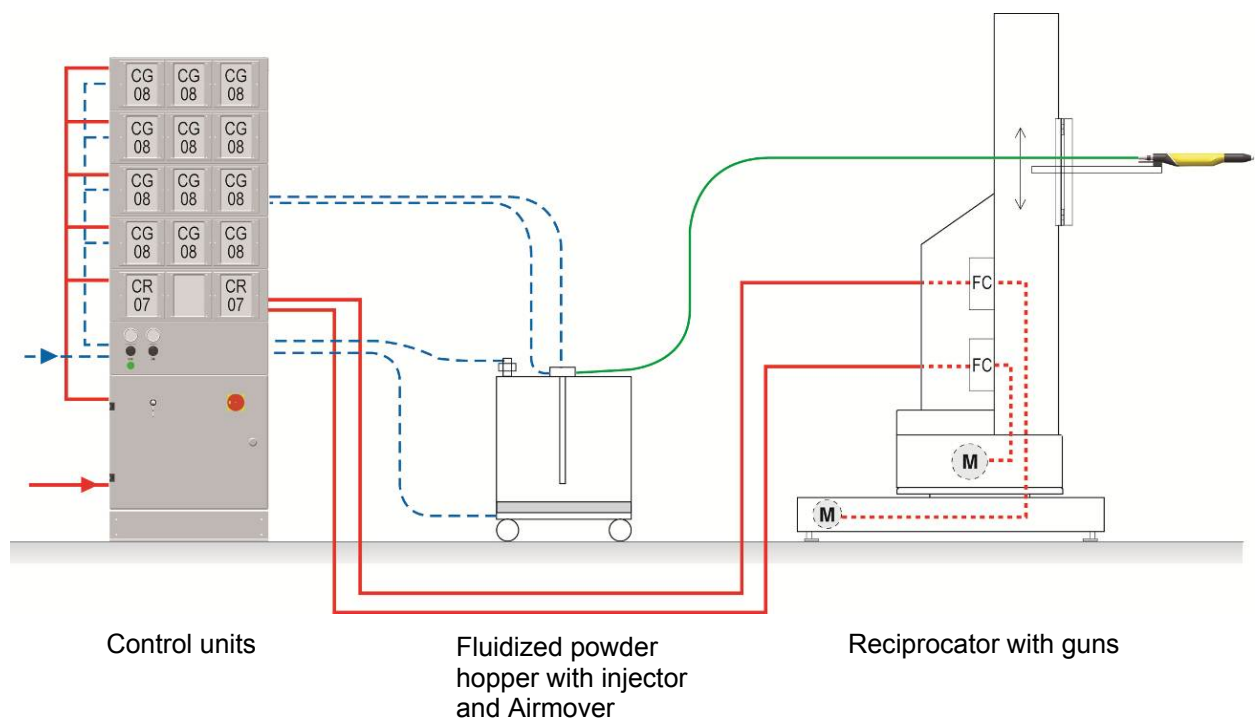
| OptiFlex A1 control cabinet | Function |
|---|---|
|  | <ul style="list-style-type: none"> - Equipment main switch - Key switch for switching on/off the guns - Interlocks on the mounting plate - Max. 15 places for gun or axis control units - Pneumatic functions by OptiAir CA10 - Option: connectable LM02 Level sensor |
| OptiStar CG08 Gun control unit | Function |
|  | <ul style="list-style-type: none"> - OptiStar CG08 standard gun control unit - Max. 250 stored programs possible - DVC (Digital Valve Control) - PCC (Precise Charge Control) |
| OptiMove CR07 Axis control unit | Function |
|  | <ul style="list-style-type: none"> - Axis control unit for ZA0x Reciprocator - Pendulum operating mode or sequence programs - Max. 255 stored programs possible |
| OptiAir CA10-A/B pneumatic-fluidizing unit | Function |
|  | <ul style="list-style-type: none"> - Air distribution for OptiFlex A1 and gun control units - Airmover control unit - Fluidization in the powder hopper - Manual prefluidization |
| OptiAir CA10-C pneumatic unit | Function |
|  | <ul style="list-style-type: none"> - Air distribution for OptiFlex A1 and gun control units |
| LM02 Level sensor | Function |
|  | <ul style="list-style-type: none"> - Level detection in the powder hopper |

OptiFlex A1 Control system - possible configurations

Automatic equipment without reciprocator



Automatic equipment with reciprocator



Technical data

OptiFlex A1 Control system

Electrical data

| OptiFlex A1 (AS07) | |
|--|---|
| Main input voltage | 100-240 VAC |
| Device input voltage | 100-240 VAC (for gun control units) 200-240 VAC (for axis control units) |
| Frequency | 50/60 Hz |
| Input power (sum of the power values of all control units) | 40 VA per gun control unit 1.1 kVA per axis control unit |
| Protection type (control units) | IP54 |
| Temperature range (operation) | 10-40°C / 50-104 °F |

Pneumatic data

| OptiFlex A1 (AS07) | |
|--|---|
| Min. input pressure | 6 bar / 87 psi |
| Max. input pressure | 8 bar / 116 psi |
| Max. water vapor content of the compressed air | 1.3 g/m ³ |
| Max. oil vapor content of the compressed air | 0.1 mg/m ³ |
| Total air consumption | 8 Nm ³ /h per gun (plus powder hopper air requirement) |

Dimensions

| OptiFlex A1 (AS07) | |
|--------------------|--------------|
| Width | 600 mm |
| Depth | 697 mm |
| Height | max. 1838 mm |



NOTE:

Further specifications will be found in the corresponding manuals of the components!

Commissioning

Set-up and assembly

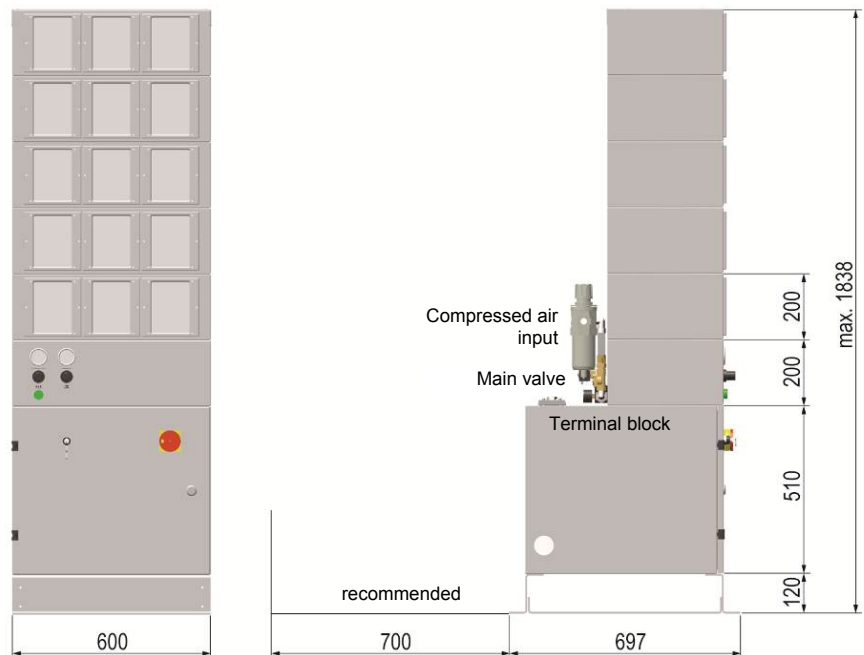
Assembly notes

After unpacking and installing the OptiFlex system, the control cabinet is to be fitted to the floor with the supplied steel bolts. The mounting holes are located in the Z-profiles on both cabinet sides.

The internal connections have already been made at the factory. The control unit connections to the external plant parts must be done at the start-up.

The connection possibilities for the individual control units are found in the corresponding operating manuals.

When connecting, pay attention particularly to the length and the radii of the pneumatics hoses!



Set-up and assembly

OptiFlex A1 Control cabinet



Combination examples:

- 1 OptiAir with max. 15 OptiStar control units
- 1 OptiAir with 2 OptiMove and 13 OptiStar control units

Start-up

General information

These general information serves to obtain an overview of the possible OptiFlex A1 system combinations.

Detailed information will be found in the corresponding operating manuals!

Power supply

- As mains supply, a single phase alternating current is required
- If the OptiStar CG08 gun control unit is used, it can be connected to tensions of 100-240 VAC
- If the OptiMove reciprocator control unit is used, a mains voltage of 230 VAC must be available
- Frequencies of 50 or 60 Hz can be used
- The input power value is evident in the technical data section
- All electrical components are implemented in accordance to IP54 protection type regulations

**NOTE:**

The OptiFlex A1 powder coating control system may can be switched on only if the booth is in operation!
If the booth switches off, the control system must also switch off!


Compressed air

- The OptiAir pneumatic-fluidizing unit is always used as main compressed air input, compressed air distributor and for fluidizing air monitoring
- The OptiFlex A1 Control system just requires a connection to the main compressed air system
- The compressed air values are evident in the technical data section

Air requirement with increased powder output

The control system offers the possibility to work with increased powder output in sufficiently dimensioned compressed air systems. The pressure regulator on the filter unit is preset by factory to **5.5 bar** with an air flow of **5 m³/h per control unit**. If another value is set on the pressure regulator, then the **system parameter 2** on each **OptiStar Control unit** needs to be adjusted according to the following instructions:

**Compressed air setting - parameter setting
OptiStar CG08 automatic gun control unit**

 > 5 s

↓

P02 < >

⋮

0 → **5.5**

⋮

1 → **6.0**

↓

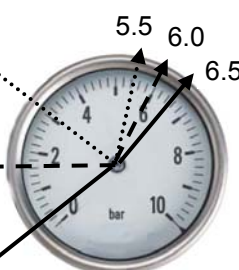
2 → **6.5**


Conversion bar-psi

5.5 bar = 80 psi

6.0 bar = 87 psi

6.5 bar = 94 psi





**NOTE:**

In order to achieve the largest accuracy, the air pressure is to be set during operation by average compressed air consumption!

Spare parts list

Ordering spare parts

When ordering spare parts for powder coating equipment, please indicate the following specifications:

- Type and serial number of your powder coating equipment
- Order number, quantity and description of each spare part

Example:

- **Type** OptiFlex A1 (AS07)
Serial number 1234 5678
- Order no. 203 386, 1 piece, Clamp - Ø 18/15 mm

When ordering cable or hose material, the required length must also be given. The spare part numbers of this bulk stock is always marked with an *.

Wearing parts are always marked with a #.

All dimensions of plastic hoses are specified with the external and internal diameter:

Example:

Ø 8/6 mm, 8 mm outside diameter (o/d) / 6 mm inside diameter (i/d)



WARNING!

Only original Gema spare parts should be used, because the explosion protection will also be preserved that way. The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!

OptiFlex A1 control cabinet - spare parts list

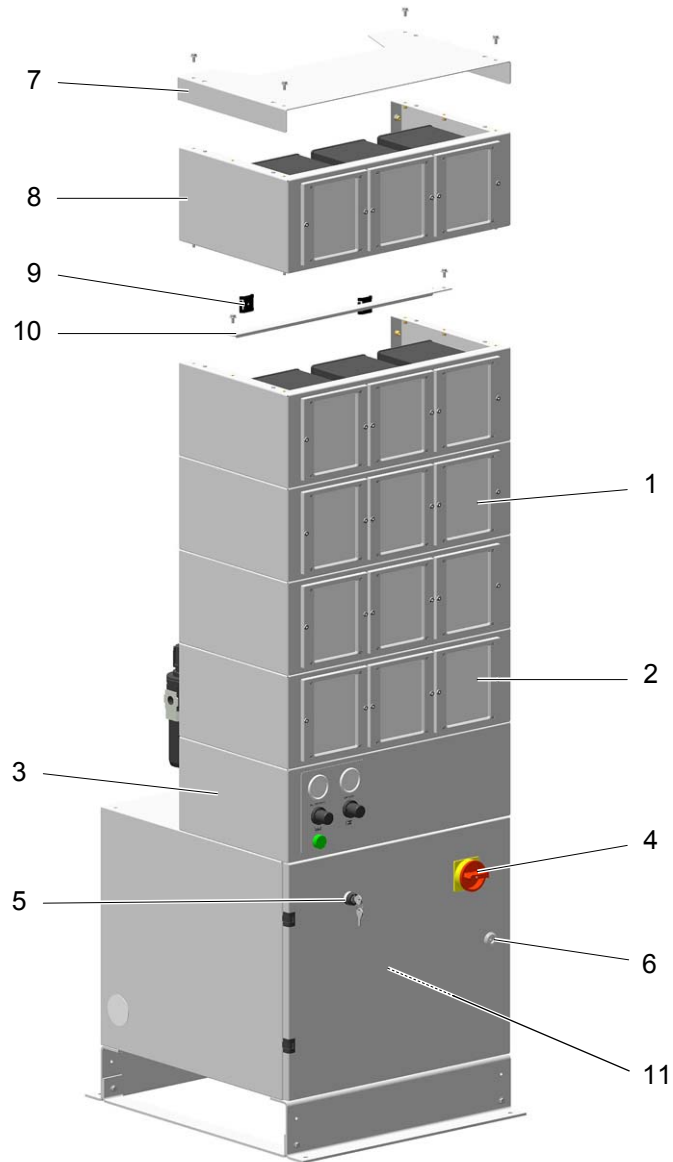
| | | |
|----|--|----------|
| 1 | OptiStar CG08 Gun control unit - see corresponding operating manual | |
| 2 | OptiMove CR07 Axis control unit - see corresponding operating manual | |
| 3 | OptiAir CA10-A Pneumatic-fluidizing unit - see corresponding operating manual | |
| | OptiAir CA10-B Pneumatic-fluidizing unit - see corresponding operating manual | |
| | Pneumatic unit (systems without OptiAir CA10) - see corresponding spare parts list | |
| 4 | Main switch – see enclosed wiring diagram | |
| 5 | Key switch – see enclosed wiring diagram | |
| 6 | Lock - complete | 262 110 |
| | Plate (for pos. 6, not shown) | 262 145 |
| | Key (for pos. 6, not shown) | 259 908 |
| 7 | Roof | 1008 813 |
| 8 | Standard module | 1008 806 |
| 9 | Support | 1007 873 |
| 10 | Crossbeam | 1008 812 |
| 11 | Mounting plate, system-dependent – see enclosed wiring diagram | |



NOTE:

Further specifications will be found in the corresponding manuals and spare parts list of the components!

OptiFlex A1 control cabinet - spare parts

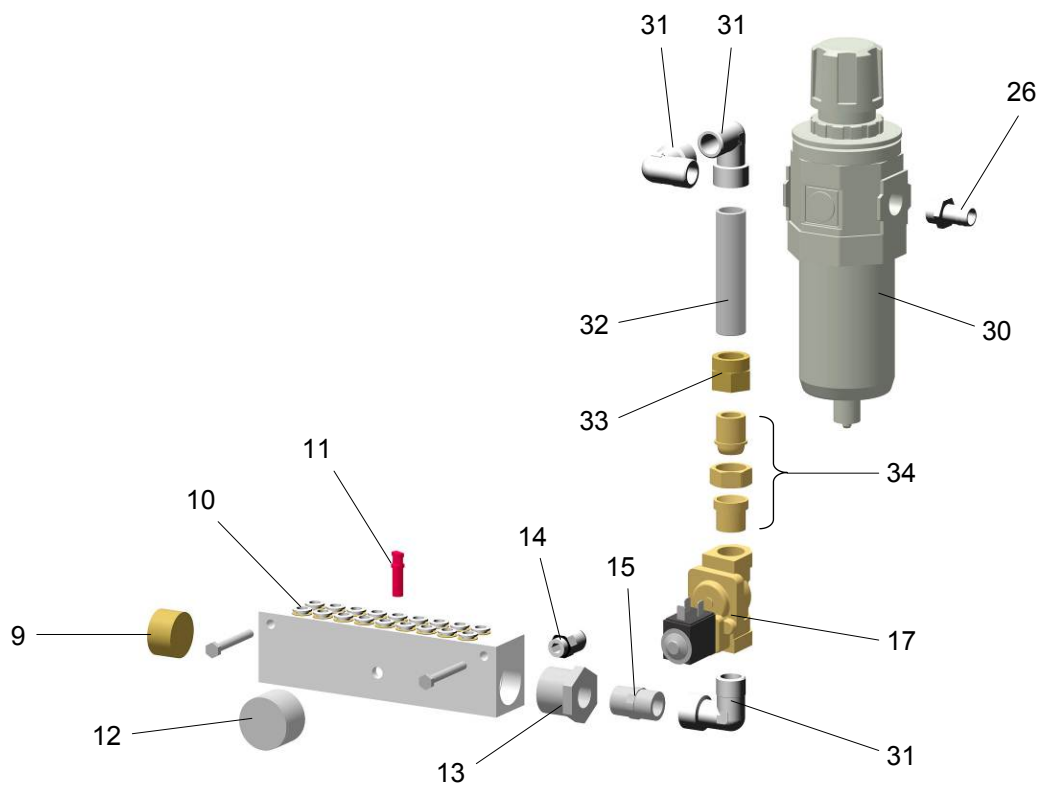


OptiFlex A1 control cabinet - spare parts

OptiFlex A1 - Pneumatics (systems without OptiAir CA10) – spare parts list

| | | |
|------|--|----------|
| 9 | Plug cap - 1"a | 258 679 |
| 10 | Compressed air distributor – 18-fold | 1008 805 |
| 11 | Plug - Ø 8 mm | 238 023 |
| 12 | Pressure gauge - 1-10 bar, 1/8"a | 259 179 |
| 13 | Adapter nipple - 1"a-1/2"i | 252 875 |
| 14 | Screw-in nipple - 1/4"a-Ø 10 mm | 266 990 |
| 15 | Double nipple - 1/2"a-1/2"a | 243 540 |
| 17 | Solenoid valve - without pos. 17.1 | 1005 120 |
| 17.1 | Valve coil - 230 VAC (for pos. 17) | 1005 117 |
| 17.2 | Valve coil - 110 VAC (for pos. 17) | 1005 116 |
| 17.3 | Valve coil - 24 VDC (for pos. 17) | 1005 119 |
| 26 | Hose connector - Ø 17 mm, 1/2"a | 223 069 |
| | Pressure regulator unit - complete, pos. 30-34 | 1010 400 |
| 30 | R/F unit- 0.5-8.5 bar, 1/2"i | 1005 841 |
| 31 | Elbow joint - 1/2"a-1/2"i | 223 166 |
| 32 | Pipe nipple - 1/2"a, 90 mm | 1008 807 |
| 33 | Adapter - 1/2"i-1/2"i | 202 622 |
| 34 | Double nipple - 1/2"a-1/2"a, divisible | 243 582 |

OptiFlex A1 - Pneumatics (systems without OptiAir CA10) – spare parts



OptiFlex A1 - Pneumatics (systems without OptiAir CA10) – spare parts