
Operating instructions and spare parts list

OptiFlex A2 Control system (AS08 type)



Translation of the original operating instructions

Documentation – Control system OptiFlex A2 (AS08)

© Copyright 2012 Gema Switzerland GmbH

All rights reserved.

This publication is protected by copyright. Unauthorized copying is prohibited by law. No part of this publication may be reproduced, photocopied, translated, stored on a retrieval system or transmitted in any form or by any means for any purpose, neither as a whole nor partially, without the express written consent of Gema Switzerland GmbH.

MagicCompact, MagicCylinder, MagicPlus, MagicControl, OptiFlex, OptiControl, OptiGun, OptiSelect, OptiStar and SuperCorona are registered trademarks of Gema Switzerland GmbH.

OptiFlow, OptiCenter, OptiMove, OptiSpeeder, OptiFeed, OptiSpray, OptiSieve, OptiAir, OptiPlus, OptiMaster, MultiTronic, EquiFlow, Precise Charge Control (PCC), Smart Inline Technology (SIT) and Digital Valve Control (DVC) are trademarks of Gema Switzerland GmbH.

All other product names are trademarks or registered trademarks of their respective holders.

Reference is made in this manual to different trademarks or registered trademarks. Such references do not mean that the manufacturers concerned approve of or are bound in any form by this manual. We have endeavored to retain the preferred spelling of the trademarks, and registered trademarks of the copyright holders.

To the best of our knowledge and belief, the information contained in this publication was correct and valid on the date of publication. Gema Switzerland GmbH makes no representations or warranties with respect to the contents or use of this publication, and reserves the right to revise this publication and make changes to its content without prior notice.

For the latest information about Gema products, visit
www.gemapowdercoating.com.

For information regarding patents, visit
www.gemapowdercoating.com/patents or
www.gemapowdercoating.us/patents.

Printed in Switzerland

Gema Switzerland GmbH
Mövenstrasse 17
9015 St.Gallen
Switzerland

Phone: +41-71-313 83 00

Fax: +41-71-313 83 83

E-mail: info@gema.eu.com

Table of contents

About this instructions	3
General information	3
Keeping the manual	3
Safety symbols (pictograms).....	3
Presentation of the contents	4
Figure references in the text	4
Safety	5
General information	5
Intended use	5
Product-specific safety measures	6
Product description	7
Field of application	7
Scope of delivery	7
OptiFlex A2 Control system – components	8
OptiFlex A2 Control system – possible configurations	9
Automatic equipment	9
Automatic equipment with superordinated control unit.....	10
Technical Data	10
Electrical data	10
Pneumatic data	11
Control cabinet dimensions.....	11
ICS cabinet dimensions	11
Start-up	13
Set-up and assembly	13
Assembly notes.....	13
Configuration.....	13
OptiFlex A2	14
OptiFlex A2 with MagicControl CM30	14
Start-up	15
General information	15
Power supply.....	15
Compressed air.....	16
Spare parts list	17
Ordering spare parts	17
Control cabinet – spare parts list	18
Control cabinet – spare parts.....	19

About this instructions

General information

This operating manual contains all important information you will need to work with the OptiFlex A2 (AS08). 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 functional mode of the individual system components should be referenced in the respective enclosed documents.

Keeping the manual

Please keep this Manual ready for later use or if there should be any queries.

Safety symbols (pictograms)

The following contains a list of warnings with their meanings found in the Gema operating instructions. Apart from the regulations in the relevant operating instructions, the general safety precautions must also be followed .

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

ATTENTION

Indicates a potentially harmful situation which, if not avoided, the equipment or something in its surrounding may be damaged.

ENVIRONMENT

Indicates a potentially harmful situation which, if not avoided, may have harmful consequences for the environment.

**NOTE**

Useful tips and other information.

Presentation of the contents

Figure references in the text

Figure references are used as cross references in the descriptive text.

Example:

"The high voltage (**H**) created in the gun cascade is guided through the center electrode.

Safety

General information

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using the OptiFlex A2 (AS08) control system.

These safety regulations must be read and understood in full before the OptiFlex A2 (AS08) control system is put into operation.

WARNING

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 on "Safety regulations".
 - ▶ Work should only be carried out in accordance with the instructions in the relevant documents.
 - ▶ Always work with the complete original document.
-

Intended use

- This product is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.
- 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 this product is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.
- Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. This product should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.
- Start-up (i.e. the execution of intended operational tasks) is forbidden until it has been established that this product has been set

up and wired according to the guidelines for machinery. The standard "Machine safety" must also be observed.

- Unauthorized modifications to the product exempt the manufacturer from any liability from resulting damage.
- The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.
- Furthermore, the country-specific safety regulations also must be observed.

Product-specific safety measures

- This product 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.
- The installation work to be done by the customer must be carried out according to local regulations.
- It must be ensured, that all components are earthed according to the local regulations before start-up.



For further security information, see the detailed Gema safety .

Product description

Field of application

The OptiFlex A2 Control system with the Gema automatic powder guns was especially designed to meet the requirements of serial production in industry, where reliability in automated operation, easy to handle operation and security are the most projecting advantages for the user.

The flexible, modular structure of the OptiFlex A2 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 (For additional information see chapter "OptiFlex A2 Control system – components").

OptiFlex A2 Control system – components



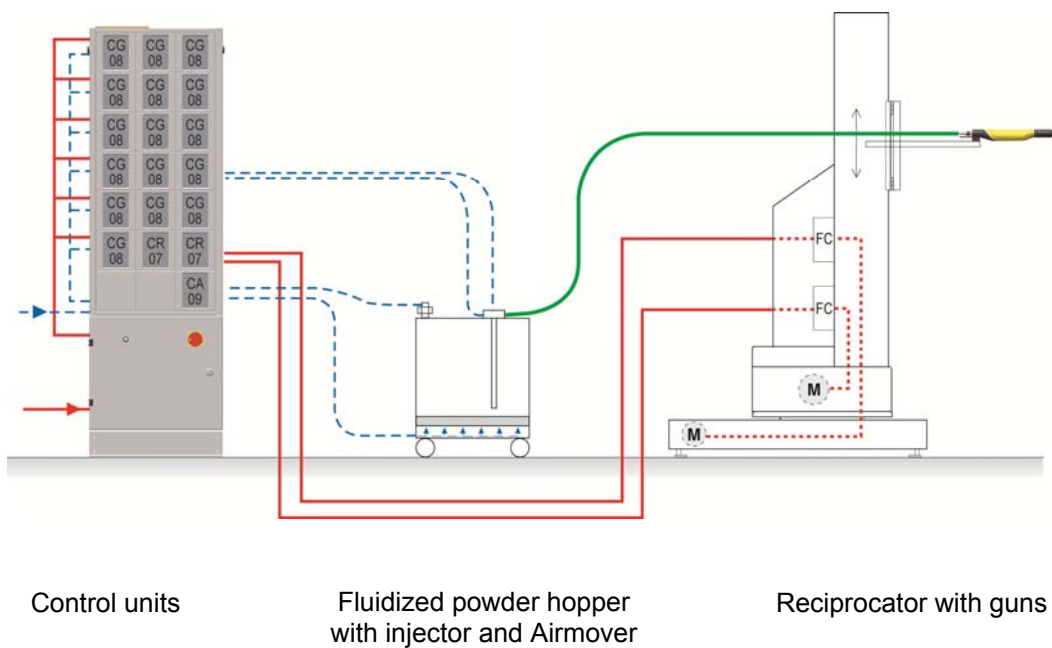
These components are assembled according to client's plant specifications. Further information about the components will be found in the corresponding operating manuals.

OptiFlex A2 control cabinet	Function
	<ul style="list-style-type: none"> – Equipment main switch – Air supply – Max. 21 places for gun or axle control units per control cabinet – Option: Master control unit for the complete integration of the plant into the production process by CAN bus
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) – Option: CAN bus
OptiMove CR07 axis control unit	Function
	<ul style="list-style-type: none"> – Axis control unit for ZA0x Reciprocator and XTxx Horizontal axis – Pendulum operating mode or sequence programs – Max. 255 stored positions possible
Magic Control CM30 Plant control	Function
	<ul style="list-style-type: none"> – Master control unit – Communication by CAN bus – 12" Touch Screen – Flash Card for programs and parameters
OptiControl CM22 Master control unit	Function
	<ul style="list-style-type: none"> – Master control unit – Communication by CAN bus – 5.7" Touch Screen – Flash Card for parameters
OptiControl CM03 Integrated master control unit	Function
	<ul style="list-style-type: none"> – Interlocking functions – Gap control – Monitoring the powder level in the powder hopper

OptiAir CA09 Pneumatic-fluidizing unit	Function
	<ul style="list-style-type: none"> – Automatic prefluidization – Airmover control unit – Fluidization in the powder hopper
LM02 Level sensor	Function
	Level detection in the powder hopper

OptiFlex A2 Control system – possible configurations

Automatic equipment



Automatic equipment with superordinated control unit

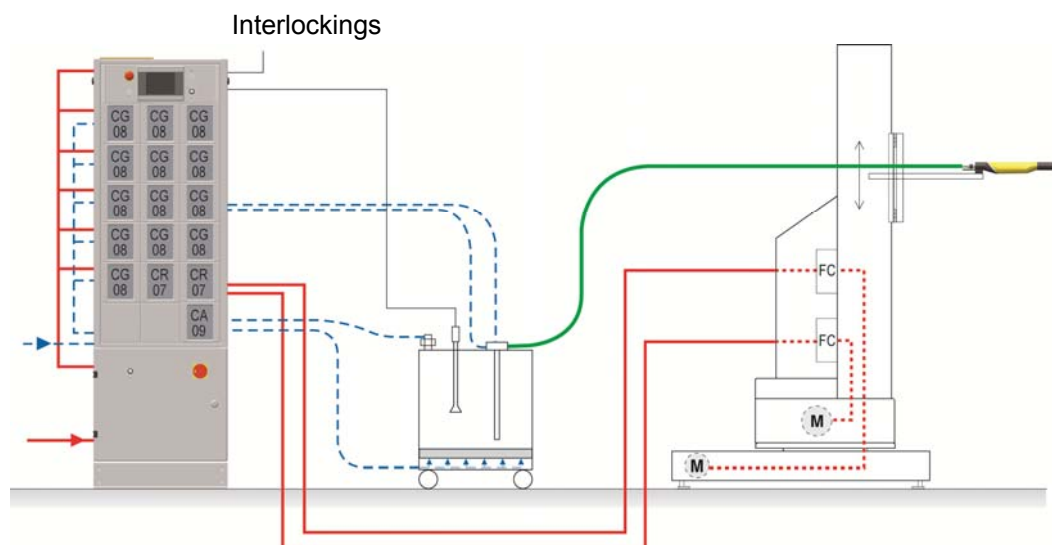


fig. 2:

Control units

Fluidized powder hopper
with injector, Airmover and
level sensor

Reciprocator with guns

Technical Data

Electrical data

OptiFlex A2	
Main input voltage	3 x 400 VAC+N+PE 100-120 VAC (USA with transformer)
Device input voltage	100-240 VAC (for gun control units) 200-240 VAC (for axis control units)
Frequency	50/60 Hz
Input power value	40 VA per gun control unit 1.1 VA per axis control unit
Temperature range (operation)	10-40 °C / 50-104 °F
Protection type (control units)	IP54
Approval	ATEX zone 22

Pneumatic data

OptiFlex A2	
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)

Control cabinet dimensions

OptiFlex A2	
Width	600 mm
Depth	697 mm
Height	max. 1931 mm

ICS cabinet dimensions

OptiFlex A2	
Width	1500 mm
Depth	700 mm
Height	1931 mm



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

Start-up

Set-up and assembly

Assembly notes

CAUTION

Tilting danger!

- ▶ 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 control cabinet base.

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!

Configuration

A maximum of up to 21 control units can be installed. OptiFlex A2 control cabinets can be laterally lined up without gap, and/or be set up at a wall.

Not used openings are covered with blind plates. These are screwed on and can be easily removed, when possible extension of the OptiFlex A2 Control system.

OptiFlex A2

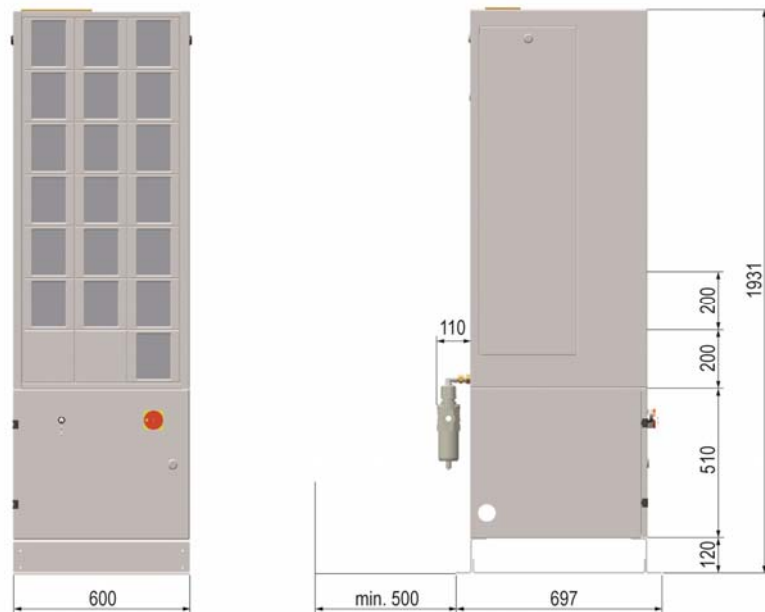


fig. 3: Set-up

Optionally:

- Max. 21 CG08 Gun control units or mixed with:
 - CR07 Axis control unit
 - CA09 Pneumatic-fluidizing unit
 - MagicControl CM30 Master control unit
 - OptiControl CM22 Master control unit

OptiFlex A2 with MagicControl CM30



fig. 4: OptiFlex A2 with MagicControl CM30

Start-up

General information

These general information serves to obtain an overview of the possible OptiFlex A2 system combinations.

Detailed information will be found in the corresponding operating manuals!

Power supply

- The power supply is dependent on the type and the number of control units:
 - **Stand alone** – 1x100-230 V / 50/60 Hz
 - **Full extension** – 3x400 V+N+PE / 50/60 Hz
- The input power value is plant-specific and evident in the provided wiring diagram
- All electrical components are implemented in accordance to IP54 protection type regulations

ATTENTION

The OptiFlex A2 control system may can be switched on only if the booth is in operation!

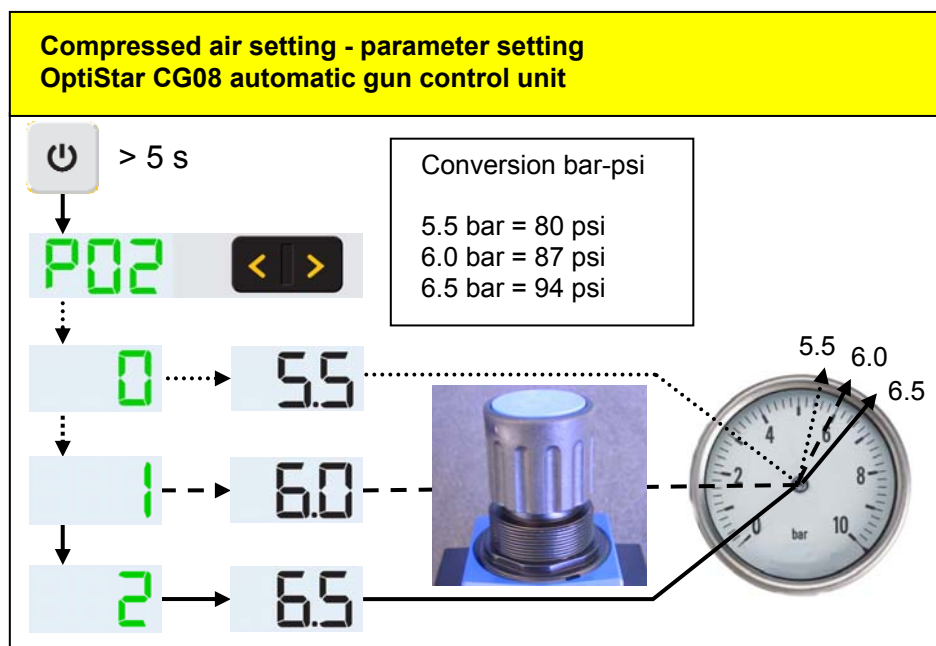
- ▶ If the booth switches off, the control system must also switch off!

Compressed air

- The OptiFlex A2 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**. If another value is set on the pressure regulator, then the **system parameter P02** on **each OptiStar** Control unit needs to be adjusted according to the following instructions:



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** Control system OptiFlex A2 (AS08)
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)

ATTENTION

Use of non-original Gema spare parts

When using the spare parts from other manufacturers the explosion protection is no longer guaranteed. If any damage is caused by this use all guarantee claims become invalid!

- Only original Gema spare parts should be used!
-

Control cabinet – spare parts list

1	Double nipple – 3/4"-3/4"	1012 862
2	Hexagon nut – 3/4"	1002 348
3	T-piece – 3/4"-3/4"-3/4"	1005 129
4	Sealing plug – 1/4"	203 300
(4.1)	Adapter nipple – 1/4"-3/4"	1005 130
5	Pressure switch – 1-10 bar, 1/4"-PG7 (optionally – according to order)	233 757
6	Solenoid valve – 1/2", NW 13.5 mm (without pos. 6.1)	1005 121
6.1	Valve coil – 230 VAC (not shown)	1005 117
	Valve coil – 110 VAC (not shown)	1005 116
	Valve coil – 24 VDC (not shown)	1005 119
7	Elbow joint – 3/4"-3/4"	1011 808
8	Adapter nipple – 1"-3/4"	1005 128
9	Sealing plug – 3/8"	266 965
10	Compressed air distributor – 24-fold	1006 649
11	Plug cap – 1"	258 679
12	Pressure gauge	1015 297
13	Connection sleeve – 1/8"- Ø 6 mm	233 412
14	Plug – Ø 8 mm	238 023
17	Mounting plate, system-dependent – see enclosed wiring diagram	
	Pressure regulating unit – complete, pos. 20-29	1010 965
20	R/F unit – 0.5-8 bar, 1"	1006 547
21	Pressure gauge – 0-10 bar, 1/4"	1010 964
23	Adapter – 3/4"-3/4"	259 632
24	Double nipple – 3/4"-3/4" divisible	243 574
25	Elbow joint 3/4"-3/4"	1005 140
26	Double nipple – 3/4"-3/4"	1005 567
27	Elbow joint – 3/4"-3/4"	259 233
28	Adapter nipple – 1"-3/4"	1005 128
29	Hose connector – Ø 25 mm, 3/4"	1011 809



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

Control cabinet – spare parts

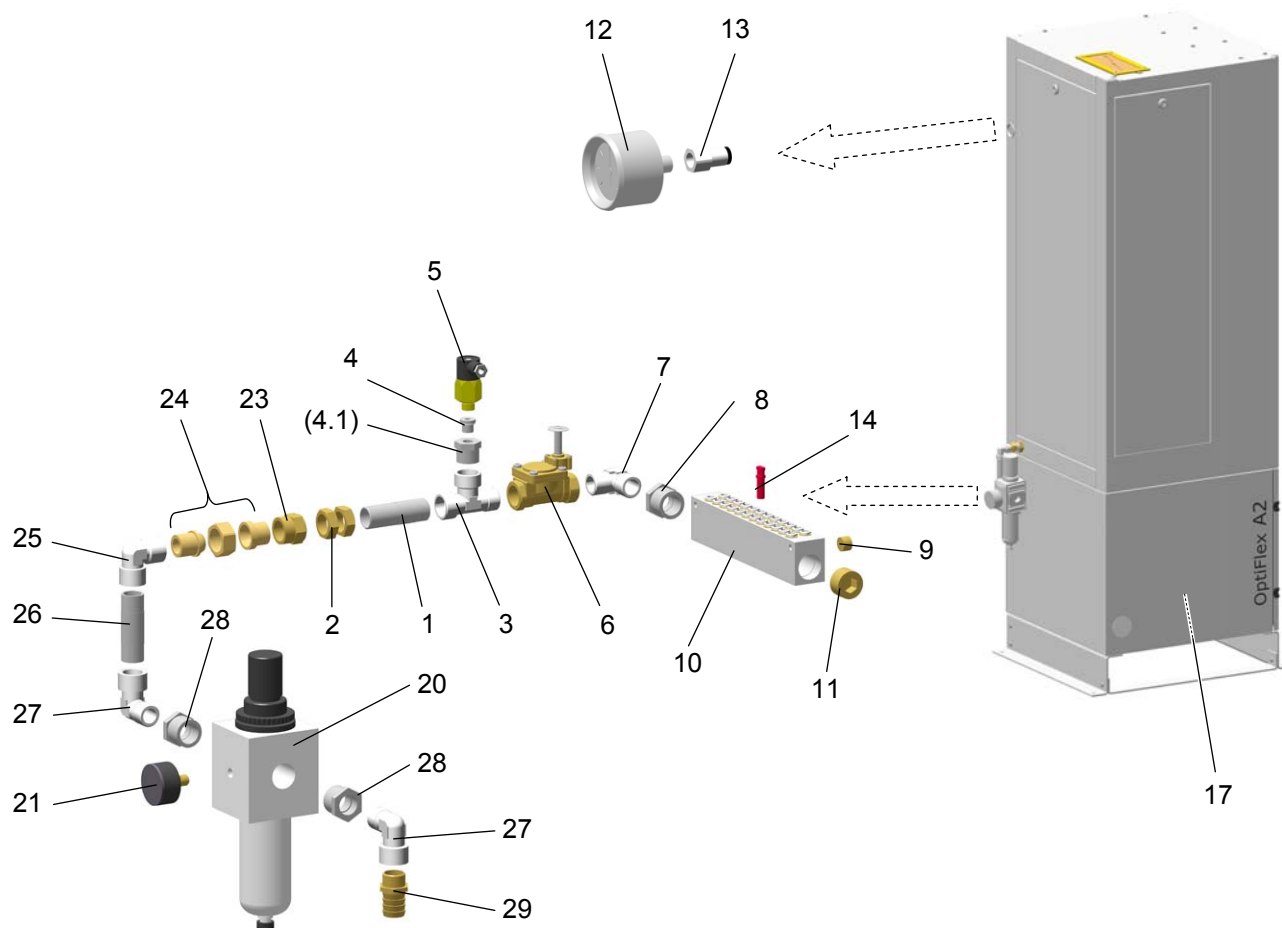


fig. 5: Control cabinet – spare parts