

## INFLAS<sup>®</sup> PRO



---

Sample illustrations, all possible model variations are not displayed!!

## **Original Assembly Instruction with operating manual and technical annex**

**pursuant to EC Machinery Directive 2006/42/EC  
pursuant to EC-ATEX Directive 2014/34/EU**

*Language version English*

---

Revision 04: 10/08/2018

# Table of Contents

	Page
<b>A) GENERAL INFORMATION</b>	<b>4</b>
A01 MODEL OVERVIEW	4
A02 DESIGN OF THE HAZARD SYMBOLS	5
A03 TERMS USED	7
A04 ABOUT THIS OPERATING MANUAL	7
A05 NOTE ON COPYRIGHT AND TRADEMARK	8
A06 WARRANTY AND LIABILITY	8
A07 LEGAL REGULATIONS	8
A08 NOTES FOR THE OPERATOR	8
A09 QUALIFIED STAFF	10
A10 TRAINING AND EDUCATION	11
A11 LABELLING OF INFLAS PRO CONTROL UNIT	11
<b>B) SAFETY NOTES</b>	<b>11</b>
B01 GENERAL SAFETY NOTES	12
B02 PROPER USAGE	13
B03 ORGANISATIONAL MEASURES	15
B04 SAFETY NOTES FOR THE OPERATING STAFF	15
B05 SAFETY NOTES FOR OPERATING THE INFLAS PRO	16
B06 SAFETY NOTES FOR START/SHUTDOWN, MAINTENANCE AND REPAIR	16
B07 SAFETY NOTES FOR WORKING ON THE PNEUMATIC SYSTEM	18
B08 SAFETY NOTES FOR WORKING ON THE ELECTRICAL SYSTEM	19
B09 SAFETY NOTES FOR HANDLING OPERATING SUPPLIES OR MEDIA	20
B10 SAFETY NOTES FOR USE IN POTENTIALLY EXPLOSIVE AREAS	22
B11 SAFETY NOTES FOR ELECTRICAL INSTALLATION IN POTENTIALLY EXPLOSIVE AREAS	24
B12 ATEX DIRECTIVE 2014/34/EU MANUFACTURER	25
B13 ATEX DIRECTIVE 1999/92/EC INFLAS PRO OPERATOR	25
B14 RESIDUAL HAZARDS	26
B15 HAZARDS FROM PREDICTABLE MISUSE	27
<b>C) USAGE CONDITIONS</b>	<b>28</b>
C01 TEMPERATURES – SURROUNDING	28
C02 TEMPERATURES – MEDIA	28
C03 AMBIENT CONDITIONS	28
C04 INSTALLATION CONDITIONS	28
C05 OPERATING PRESSURE	28
<b>D) STORAGE, PACKAGING AND TRANSPORTATION</b>	<b>29</b>
D01 STORAGE	29
D02 PACKAGING	29

<b>D03</b>	<b>GENERAL TRANSPORTATION</b>	<b>29</b>
<b>D04</b>	<b>TRANSPORTING THE INFLAS PRO WITH A FORKLIFT TRUCK</b>	<b>30</b>
<b>D05</b>	<b>TRANSPORTING THE INFLAS PRO BY CRANE</b>	<b>30</b>
<b>D06</b>	<b>ATTACHING THE HOIST TO THE VALVES WITH INFLAS PRO</b>	<b>31</b>
<b>E) <u>INSTALLATION INSTRUCTIONS</u></b>		<b>32</b>
<b>E01</b>	<b>INSTALLATION OF THE INFLAS PRO SWITCH BOX ON THE SWIVEL DRIVE</b>	<b>34</b>
<b>E02</b>	<b>ASSEMBLY OF THE INFLAS PRO VALVE MANIFOLD TO THE PNEUMATIC DRIVE</b>	<b>35</b>
<b>E03</b>	<b>ASSEMBLY OF THE INFLAS PRO VACUUM VALVE MANIFOLD TO THE PNEUMATIC DRIVE</b>	<b>36</b>
<b>E04</b>	<b>ELECTRICAL CONNECTION</b>	<b>37</b>
<b>E05</b>	<b>SETTING OF THE PROCESS TIMES</b>	<b>42</b>
<b>E06</b>	<b>SETTING AND CALIBRATION OF THE END POSITION SIGNALLING</b>	<b>44</b>
<b>E07</b>	<b>CONNECTION OF THE PNEUMATIC COMPONENTS</b>	<b>46</b>
<b>E07</b>	<b>SETTING OF THE PRESSURE SWITCH</b>	<b>51</b>
<b>E08</b>	<b>DISASSEMBLY OF INFLAS PRO</b>	<b>51</b>
<b>F) <u>SAMPLE RUN AFTER INSTALLATION</u></b>		<b>54</b>
<b>F01</b>	<b>SAMPLE RUN</b>	<b>54</b>
<b>G) <u>PRODUCT DESCRIPTION</u></b>		<b>55</b>
<b>G01</b>	<b>PROPER USAGE</b>	<b>55</b>
<b>G02</b>	<b>SCOPE OF DELIVERY</b>	<b>56</b>
<b>G03</b>	<b>DESCRIPTION OF THE MODULES</b>	<b>58</b>
<b>G04</b>	<b>FUNCTIONAL SEQUENCE OF INFLAS PRO</b>	<b>59</b>
<b>H) <u>MAINTENANCE AND SERVICE</u></b>		<b>60</b>
<b>H01</b>	<b>GENERAL MAINTENANCE AND OVERHAUL</b>	<b>60</b>
<b>H02</b>	<b>MAINTENANCE INTERVALS</b>	<b>62</b>
<b>H03</b>	<b>CLEANING OF THE INFLAS PRO IN GENERAL</b>	<b>63</b>
<b>I) <u>ERRORS, CAUSES AND REPAIR</u></b>		<b>65</b>
<b>I01</b>	<b>GENERAL DISRUPTIONS</b>	<b>65</b>
<b>I02</b>	<b>GENERAL FAULT</b>	<b>66</b>
<b>I03</b>	<b>FAULTS - CAUSE - REPAIR</b>	<b>66</b>
<b>J) <u>DISPOSAL</u></b>		<b>67</b>
<b>J01</b>	<b>ENVIRONMENTAL PROTECTION</b>	<b>67</b>
<b>K) <u>SPARE PARTS</u></b>		<b>68</b>

K01 SPARE PARTS IN GENERAL  
 K02 SPARE PARTS ORDER

68  
 68

Additional information and current addresses from our branches and trade partners can be found under:

**[www.ebro-armaturen.com](http://www.ebro-armaturen.com)**

EBRO ARMATUREN GmbH  
 Karlstraße 8  
 58135 Hagen, Germany  
 ☎ (02331) 904-0  
 Fax (02331) 904-111

**A) General Information**

**A01 Model Overview**

Model	Description
INFLAS PRO (standard) INFLAS PRO Vacuum	Electro-pneumatic control for valves with inflatable seal for use in areas that are <b>not</b> potentially explosive.
INFLAS PRO (ATEX)	Electro-pneumatic control for valves with inflatable seal for use in potentially explosive areas.

**Valves:**

Only valves with the option of an inflatable seal are suitable for use of INFLAS PRO.

**Drives:**

Model	Manufacturer	Design
EBX.1 SYD/SYS	EBRO	Single or double-acting

**Solenoid valve:**

Only valves with a NAMUR interface and a control voltage of 24 V DC (max. 2 watts) are allowed as a solenoid valve for activating the pneumatic drive.


## A02 Design of the Hazard Symbols

The hazard symbols can be found in the safety notes, which point out particular hazards for people or property. They are all designed in a uniform manner in this operating manual and must be observed.

			
General hazard	Electrical voltage	Hand injuries	Explosion

Keyword	Meaning
HAZARD	Points out a threatening hazard that will lead to severe injuries or death if the identified instruction is not followed completely.
WARNING	Points out possible hazardous situations that could lead to severe injuries or death if the identified instruction is not followed completely.
CAUTION	Points out a potentially hazardous situation or unsafe dangerous practice that could result in personal injury or material damage to the INFLAS Pro or its surroundings

### Structure of the safety notes

Keyword	
	Type and source of hazard
	Explanation
Hazard symbol	Measures to prevent the hazard

Follow the respectively named safety notes and behave with particular caution in these areas! Also share all safety notes with other users!

In addition to the notes in the operating manual, the generally valid safety and accident prevention guidelines must be considered!

## A03 Design of the Note Symbols

The behaviour or activities section includes the note symbols, whose compliance guarantees a safe, proper and efficient handling of the INFLAS PRO. They are all designed in a uniform manner in this operating manual and must be observed.

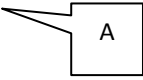


Safety gloves



Eye protection

Symbol	Meaning
	This symbol points out that electrical components and INFLAS Pro must be turned off and secured against being turned on again during all work, before maintenance and repairs.
	This symbol points to special behaviour, whose compliance guarantees safe, proper and efficient handling of the INFLAS Pro. All notes should be fulfilled in the interest of proper usage of the INFLAS Pro. Share all notes with other users as well!
<ul style="list-style-type: none"><li>•</li></ul>	Work and/or operating steps are marked with the bullet point. The steps must be executed from top down!
	The rectangular and round legend and a letter identify components and their installation location within the INFLAS Pro. Remember that the letters are assigned again for every chapter and always start with A.



Notes and symbols directly installed on the INFLAS PRO, like warning signs, activation signs, rotating direction arrows, component identifications, etc. must be observed.

The notes and symbols attached directly on the INFLAS PRO may not be removed and must be kept in a completely legible condition!

## A03 Terms Used

### INFLAS PRO

The term INFLAS PRO is used in the following text for this incomplete machine for controlling pneumatically actuated valves with an inflatable sealing system.

### Product

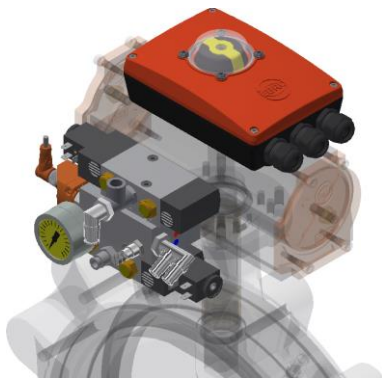
For the products to be delivered, the term medium/media, product or material is used in the following text.

### Operating Personnel

For the operating personnel or the users of the INFLAS PRO, the term operator is used in the following text. This group of people is trained at the INFLAS PRO and informed about the possible hazards.

## A04 About this Operating Manual

This operating manual is valid for the INFLAS PRO in the standard version as well as in the ATEX version for use in potentially explosive atmospheres. The INFLAS PRO serves as control unit for valves with inflatable seal.



INFLAS PRO mit Ventilblock



INFLAS PRO Vacuum

The INFLAS PRO in the incomplete machine supplied by EBRO ARMATUREN for installation in a piping system or for attachment to a silo, container or similar systems.

When operating the INFLAS PRO, you must observe the operating instructions of our suppliers in addition to this operating manual.

This operating manual serves for safe work with the INFLAS PRO and represents a significant help for the successful and safe operation of the INFLAS PRO.

It contains important notes on how to operate the INFLAS PRO in a safe, proper and efficient manner and to use the complete scope of functions of the INFLAS PRO. Their observation helps to avoid hazards, lower re-pair costs and failure times and increase the reliability and lifespan of the INFLAS PRO.

Furthermore, the operating manual should allow the users to execute any maintenance or repair work to the INFLAS PRO independently for daily usage. It contains safety notes that must be observed.

All people, who work on and with the INFLAS PRO must have the operating manual accessible and observe the tasks and notes relevant for this.

The operating manual must always be complete and in a completely legible condition.

EBRO ARMATUREN GmbH puts together all specifications of this documentation with the greatest care. Nevertheless, EBRO ARMATUREN cannot rule out deviations and EBRO ARMATUREN reserves the right to technical changes to the INFLAS PRO without prior notice. EBRO ARMATUREN does not take over any legal responsibility or liability for damage that may arise through this. EBRO ARMATUREN will include any necessary changes in the following requirements.

## **A05 Note on Copyright and Trademark**

Without special consent of EBRO ARMATUREN GmbH, no part of this documentation may be reproduced or made accessible to third parties. It may only be made accessible to authorised people.

This documentation, including all of its parts, has copyright protection. Reproductions, translations, microfilming and the saving and processing in electronic systems require the written consent of EBRO ARMATUREN GmbH.

Violations can be penalised and may obligate to compensation.

All rights to exercise commercial protective rights are given to EBRO ARMATUREN GmbH.

## **A06 Warranty and Liability**

The warranty and liability are based on the contractually determined conditions. For warranty conditions, see sales and delivery conditions of EBRO ARMATUREN GmbH.

Report any guarantee or warranty claims to EBRO ARMATUREN GmbH once a defect or error is determined. The guarantee or warranty expire in all cases in which no liability claims can be asserted. In the event of software changes without the knowledge and authorisation of EBRO ARMATUREN GmbH, the liability and warranty claim expires.

Figures and drawings serve for general illustration and may deviate from the delivered INFLAS PRO. EBRO ARMATUREN GmbH does not assume any guarantee for damage that occur through improper usage, storage or transportation.

## **A07 Legal Regulations**

The information, data and notes specified in the operating manual were up to date at the time of printing. No claims for already delivered INFLAS PRO may be asserted from the specifications, figures and descriptions.

EBRO ARMATUREN GmbH does not assume any liability for damage and operating disruptions that arise through:

- the assembly.
- the incorrect operation and troubleshooting during operation.
- the repair (maintenance, care, commissioning)
- improper usage.
- independent changes to the INFLAS PRO.
- improper work on and with the INFLAS PRO.
- operating and adjustment errors.
- program errors to the control.
- non-observance of existing standards, directives and accident prevention regulations.
- non-observance of operating manuals from the supplier.
- non-observance of this operating manual.

## **A08 Notes for the Operator**

The operator is any natural or legal person, who uses the INFLAS PRO or commissions its use.



The operator is the person responsible for safety.

The operator or his representative must make sure that:

- all relevant guidelines, notes and laws for accident prevention and operating safety are complied with.
- after construction and connection of the INFLAS PRO, the complete INFLAS PRO corresponds to the corresponding directives, and the INFLAS PRO conformity is established for the complex INFLAS PRO.
- the required protective equipment must be installed in conjunction with the on-site INFLAS PRO.
- only qualified personnel work at and with the INFLAS PRO.
- the staff has the operating manual available during all corresponding work and follows it as well.
- unqualified staff do not work on and with the INFLAS PRO.
- during installation or maintenance work for the INFLAS PRO, the required accident prevention regulations and safety guidelines are complied with.
- during installation or maintenance work for the INFLAS PRO, the operating manuals and safety notes from the supplier are complied with.

The operating manual must be amended by the operator to include operating instructions due to national accident prevent regulations and environmental protection guidelines, including the information about supervisory and reporting obligations for the consideration of operational particularities, for example, with regards to work organisation, work procedures and staff used.

In addition to the operating manual and the accident prevention regulations valid in the user country, as well as at the place of usage, the recognised technical rules or the state of the art must be observed for occupational health and safety.

**A09 Qualified Staff**

Qualified staff includes people, who can execute the required activities on the INFLAS PRO due to their training, experience, education and knowledge. They possess knowledge about local standards, conditions, accident prevention regulations and operating circumstances and have been authorised by the responsible individuals for the safety of the INFLAS PRO, who also execute the respectively required work. They must be able to recognise and avoid possible hazards.

The staff, who have learned and been trained at EBRO ARMATUREN GmbH may work with the INFLAS PRO. Furthermore, they may also train other people in the usage and functions of the INFLAS PRO.

Otherwise, special knowledge is required for certain tasks and activities. This may only be done by trained specialists.

Activities	Instructed persons	Instructed persons with technical qualification	Specialist electricians	Pneumatic technicians
Installation / set-up		•	•	•
Start-up		•	•	•
Operation	•			
Troubleshooting mechanical	•	•		
Troubleshooting electrical			•	
Troubleshooting pneumatic				•
Cleaning	•			
Servicing		•	•	•
Work on the electrical system			•	
Work on the pneumatic system				•
Packaging and transportation	•			

## A10 Training and Education

As the operator, you are obligated to inform and instruct the operating and maintenance staff about the existing safety and accident prevention regulations as well as about existing safety equipment on the INFLAS PRO.

The different technical qualifications of the employees must be considered here.

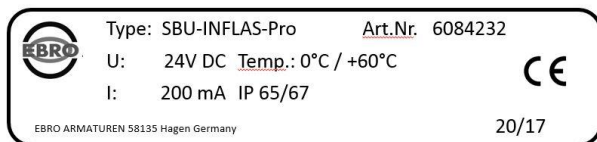
The operating staff must have understood the instructions. Furthermore, it must be guaranteed that the instruction has been observed. This is the only way you can guarantee the safety and hazard-conscious working of your staff. This should be checked regularly. As an operator, therefore, you should have the participation in the training or education confirmed in writing by every employee.

If there is still further need for educating the operating staff after handing over the INFLAS PRO, please contact EBRO ARMATUREN GmbH for the purpose of agreeing on the conditions.

## A11 Labelling of INFLAS PRO control unit

All standard individual components of the INFLAS PRO are accordingly provided with a nameplate.

Each SBU-INFLAS PRO control unit bears the following information on the casing or on the nameplate:



Example of SBU-INFLAS PRO in standard version (outside an explosion safety zone)



Example of EX SBU-INFLAS PRO under explosion safety in the option for use in potentially explosive areas Zone 22

The nameplate describes the temperature range and device category applicable to this INFLAS PRO. It should not be covered so that the built-in SBU-INFLAS PRO remains identifiable.

Labelling of devices for operation in potentially explosive atmospheres according to the ATEX Product Directive 2014/34/EU

The ATEX Directive 2014/34/EU requires:

"Ex-sign" ATEX logo

device group

Category as defined in ATEX Directive 2014/34/EU (1G, 2G, 3G, 1D, 2D, 3D)

Labelling according to the applied standards

CE mark (see also [CE mark](#))

For products requiring production monitoring by a notified body, the CE mark shall indicate the corresponding number of the notified body. This applies to devices/systems with an EC type examination certificate.

## **B) Safety Notes**

### ***B01 General Safety Notes***

This manual contains safety notes for foreseeable risks during installation, connection, operation and disassembly of the INFLAS PRO.

It is the responsibility of the operator to keep these notes up-to-date for others, specifically on-site or process-related risks.

For questions and issues, please contact EBRO ARMATUREN GmbH.

The INFLAS PRO corresponds to the state of the art at the time of delivery and is considered an incomplete machine within the meaning of the Machinery Directive.

The INFLAS PRO poses risks to persons, the INFLAS PRO itself and other property of the operator, if:

- unqualified and untrained personnel work at and with the INFLAS PRO.
- the INFLAS PRO is used improperly and illegally.
- the INFLAS PRO is set, repaired, maintained, programmed or connected incorrectly.

The INFLAS PRO must be adjusted and equipped in such a way that, when properly adjusted, equipped and used as intended in error-free operation, it fulfils its function and does not endanger persons. Make sure that no material damage occurs if the shut-off function fails by taking suitable measures during proper usage in the complete machine. Operate the INFLAS PRO only in failsafe condition. Retrofitting, modifications or conversions of the INFLAS PRO are strictly forbidden. In any case, they require consultation with EBRO ARMATUREN GmbH.

## B02 Proper Usage

INFLAS PRO serves as control unit for inflatable valve and is intended to pass on external customer control commands to shut-off valves incl. drive and to realise the parallel control of the inflation of the sleeve. INFLAS PRO can only be used in conjunction with EBRO butterfly valves and drives. The conditions of use depend on the intended use of the respective butterfly valves.

The INFLAS PRO may only be put into operation after observance of the following documents:

- <Declaration on EC Directives>
- This assembly/operating manual

---

### HAZARD

#### Hazard through improper usage of the INFLAS Pro



In the event of improper or illegal usage of the INFLAS Pro, people may be severely injured or killed. Furthermore, the INFLAS Pro may also be damaged.

Use INFLAS Pro only as intended!

Do not make any changes to the INFLAS Pro!

Only deliver and dose approved media!

---

### INFO



Observe all notes in this operating manual, in particular the safety notes. You must be read and observe them before all activities on the INFLAS Pro.

Any usage, setting and variation other than that described in this operating manual is seen as illegal and as an improper use of the INFLAS Pro!

---

### HAZARD



#### Life-threatening hazard if the regulations in the potentially explosive area are not observed.

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

This EBRO-INFLAS PRO, which

- a) is a complete functional unit ready for installation in a complete system  
Mounted directly on a pneumatic EB rotary actuator
- b) should usually control EBRO valves with inflatable seat.
- c) This functional unit

- is delivered as a complete functional unit, an "incomplete machine" within the meaning of the EC Machinery Directive 2006/42/EC.  
Only after it has been installed on site on an EB rotary actuator and pneumatically with a shut off valve with inflatable seat, as well as electrically connected to the control point, is it completely closed and thus, a "complete machine" within the meaning of this Machinery Directive.
- The details of pressure and temperature limits of the valves must be observed; accordingly, the manufacturer, Ebro ARMATUREN and the user/purchaser agree on the materials to be used for all modules.
- The user must ensure that the materials used for the parts of the INFLAS PRO in contact with the media are suitable for the fluids.
- The INFLAS PRO can meet the requirements of the 2014/34EU Directive – as "**device**" **within the meaning of ATEX** – *but only upon special customer requirement* and is optionally equipped in all mechanical and electrical modules in special version such that it is → explosion-safe **for surrounding zones** and does not pose any ignition hazard for the following classification according to the ATEX Directive 1999/92/EC: Zone 22.

### **B03 Organisational Measures**

The INFLAS PRO has been designed and built in accordance with the state of the art and recognised safety regulations. In order to avoid hazards for the users and impairments to the INFLAS PRO and other objects, the following organisational measures must be complied with:

- Observation of the proper usage of the INFLAS PRO.
- Operation of the INFLAS PRO in a technically proper state.
- Usage of adequately qualified staff.
- Compliance with the maintenance intervals.
- Observation and compliance with the hazard signs and markings on the INFLAS PRO.
- Observation of this operating manual and the operating manuals from the suppliers of the purchased components.

The operating manual must always be accessible at the INFLAS PRO. The staff assigned with activities on the INFLAS PRO must read the operating manual, in particular the safety notes chapter, before beginning the work. This applies, in particular for staff that is only occasionally active at the INFLAS PRO.

Spare parts must correspond to the technical requirements while operating the INFLAS PRO. This is guaranteed with original spare parts from EBRO ARMATUREN GmbH.

The area surrounding the INFLAS PRO must be kept in a clean and proper state. Contaminations and impairment of the INFLAS PRO functions as well as restrictions in the user's freedom of motion may lead to disruptions and accidents.

The INFLAS PRO may only be operated by staff with the corresponding qualifications.

The operating personnel is obliged to check the INFLAS PRO and its functional groups at regular intervals (at least once a year) for externally visible damage and defects. Occurred changes, including the operating behaviour, which affect the safety, must be reported and eliminated immediately.

### **B04 Safety Notes for the Operating Staff**

The INFLAS PRO must therefore be used only in perfectly working condition and according to its intended purpose, as well as adequate consideration of safety aspects and risks and compliance with this operating manual. All disruptions and in particular those that can impair safety must be repaired immediately!

Any person, who is assigned with the set-up, operation, commissioning or maintenance of the INFLAS PRO must have read and understood this operating manual before beginning their work - in particular, the Safety chapter. This applies, in particular to staff, who is only occasionally used at the INFLAS PRO.

No liability will be assumed for any damage and accidents that occur through the non-compliance of the operating manual.

The standard accident prevention regulations as well as the other generally recognised occupational safety and health regulations must be complied with.

The responsibilities for the different activities within the scope of the operation, maintenance and repair of the INFLAS PRO must be clearly set and complied with. Only then can incorrect actions - in particular, in hazardous situations - be avoided.

The operator must obligate the operating and maintenance staff to wear personal protection equipment. This includes, in particular safety shoes, safety gloves, protective goggles, protective clothing, ear protection and tight work clothing.

Do not wear loose clothing or jewellery and leave long hair loose! There is the risk of injury by getting stuck, drawn or taken along by mobile parts!

If there are safety-related changes to the operating behaviour or disruptions to the INFLAS PRO, it must be stopped immediately and the process must be reported to the responsible person!

First aid equipment like bandage sets, eye flushing bottles, fire extinguishers, etc. must be stored within reach!

Work on the INFLAS PRO may only be done by reliable, qualified personnel. The legally permissible minimum age must be observed!

Only trained or educated staff may be used!

Staff that must be trained, taught, instructed or are currently in an apprenticeship may only work with the INFLAS PRO under the constant supervision of an experienced, qualified person!

### ***B05 Safety Notes for Operating the INFLAS PRO***

For all work that affects the operation, refitting or setting of the INFLAS PRO and its safety equipment, the inspection, maintenance and repair, the switch on and off processes must be observed in accordance with this operating manual and the notes for maintenance!

The INFLAS PRO may only be put into operation in the assembled and ready for operation state.

The INFLAS PRO is only suitable with the corresponding option (label) for operation in potentially explosive atmospheres!

Before starting work, staff must familiarise themselves with the work environment around the INFLAS PRO.

At regular intervals (at least once a year), the INFLAS PRO and its functional groups must be checked for any externally detectable damage. Changes (including those to the operating behaviour) must be reported immediately to the responsible technician or works manager

If there are functional disruptions to the INFLAS PRO, stop it immediately and secure against restart. Have disruptions repaired immediately by trained technicians.

### ***B06 Safety Notes for Start/Shutdown, Maintenance and Repair***

The operating staff must be informed about the execution of special and maintenance work before it is executed.

The periods for recurring inspections, maintenance or upkeep required or specified in the operating manual must be complied with.

For the execution of maintenance and upkeep measures, factory equipment appropriate for the work is required.

Additionally, illuminate maintenance and upkeep areas, if required, with manual or standing lamps.

The upkeep area, if required, must be blocked off!

To avoid electric shock, do not touch electrical components or damaged, cracked, especially live parts.

During adjustment and calibration work, the carrier shaft can rotate with the end cam and the remote position indicator. A corresponding safety distance must always be observed.

Regularly check and, if applicable, replace seals from electrical casings.

Cleaning the area around INFLAS PRO so that no explosive atmosphere can occur during maintenance and upkeep.

Always tighten loose screws during maintenance and repairs!

Individual parts and larger modules must be carefully attached and secured to hoists when they are replaced, so that the hazard arising from them is minimised. Only suitable, properly-functioning hoisting and load suspension equipment with sufficient load bearing capacity may be used!

Do not stand or work beneath suspended loads.

Only assign experienced persons to fasten loads and train crane operators! The instructor must remain in the operator's line of vision or in verbal contact.

When carrying out installation works above a height of 1.6 m, use the safety climbing aids and work platforms provided or other suitable equipment! Do not use INFLAS PRO parts and piping systems as climbing aid!

For standing places or for work at heights higher than 1.0 m, corresponding fall-safety mechanisms must be provided! Keep all handles, steps, railings, pedestals, platforms, ladders free from contamination!



The INFLAS PRO, and here in particular the connections and screws, must be freed of all dirt and residues, like oil, operating materials or cleaning agents, at the beginning of the maintenance, upkeep and care. Do not use any aggressive or solvent-containing cleaning agents. Use fibre-free cleaning cloths. Only use mild, water-borne cleaning agents. Observe the manufacturer's specifications. Do not use any organic solvents, as this results in fire and explosion hazard!  
Before cleaning with water, steam jet (high-pressure cleaner) or other cleaning agents, cover or glue all components of INFLAS PRO.  
Ensure safe and environmentally-friendly disposal of operating and auxiliary materials.

---

### HAZARD

#### Danger due to rotating components.



Severe injuries from crushing, being drawn in or caught, gripping, rubbing or scraping as well as cutting.

Assembly, disassembly, adjustment and calibration work may only be carried out by a specialist.

Safety distance to the rotating parts must be observed.

---

## **B07 Safety Notes for Working on the Pneumatic System**

The pressures required for the INFLAS PRO can result in physical injury.

When working on the compressed air components, pressure lines to be opened must be made pressureless before starting work.

The lines to be connected must be clearly and permanently labelled, as they can cause risks due to confusion.

Operate the INFLAS PRO only in a safe and functional condition. The INFLAS PRO may only be operated without visible external damage.

---

### **HAZARD**

#### **Danger due to uncontrolled start of pneumatic components.**



Severe injuries in the case of incorrectly connected pneumatic components or pneumatic components, which start in an uncontrolled manner.

The pneumatic components may only be connected by a specialist.

Before switching on the pneumatics, all components and connections must be checked.

---

### **HAZARD**

#### **Danger due to rotating components.**



Severe injuries from crushing, being drawn in or caught, gripping, rubbing or scraping as well as cutting.

Assembly, disassembly, adjustment and calibration work may only be carried out by a specialist.

Safety distance to the rotating parts must be observed.

---

## B08 Safety Notes for Working on the Electrical System

The operating voltage required for the system may have fatal consequences if one of the parts under voltage is touched. If there is a short circuit, the hazard of sparks forming and fire exist.

The connection of the system must be adequately dimensioned in order to prevent overload. In the event of disruptions to the electrical energy supply, turn off the INFLAS PRO immediately.

Active parts of the electrical INFLAS PRO under voltage may not be worked on.

The electrical INFLAS PRO must be in a secure state and maintained in this state. The electrical INFLAS PRO must be checked regularly. Defective and loose connections, etc. must be reported and repaired immediately.

The junction boxes must always be kept closed. Only authorised staff is permitted to access the electrical INFLAS PRO for inspection and maintenance.

The active parts of the electrical INFLAS PRO must be protected against direct contact corresponding to their voltage, frequency, usage type and operating location through insulation, location, arrangement or installed equipment.

The electrical INFLAS PRO must be protected against indirect contact corresponding to its voltage, frequency, usage type and operating location so that in the event of an error in the electrical INFLAS PRO, protection against hazardous contact voltage is also provided.

---

### HAZARD Life-threatening hazard due to electric voltage.



Severe injury or death caused by electric shock or impact on medical implants.

The INFLAS Pro may only be connected by a specialist electrician.  
Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

An electrostatic charge may be created through friction between the media and the pipeline and through the high pressures. This charge may influence and disturb the operation of the INFLAS PRO. That is why there must be sufficient grounding of the INFLAS PRO.

---

### WARNING Disruptions to operation through electrostatic charge.



Disruptions or damage to components.

The INFLAS Pro may only be connected by a specialist electrician.

INFLAS Pro must be grounded.

---

### HAZARD Danger due to rotating components.



Severe injuries from crushing, being drawn in or caught, gripping, rubbing or scraping as well as cutting.

Assembly, disassembly, adjustment and calibration work may only be carried out by a specialist.

Safety distance to the rotating parts must be observed.

---

## **B09 Safety Notes for Handling Operating Supplies or Media**

When handling raw substances, solvents, oils, greases, media and other chemical substances, the applicable guidelines and safety specifications from the manufacturer of these substances with regards to storage, handling, usage and disposal must be observed and complied with!

When working with certain operating and hazardous substances, protective equipment made of suitable material must be worn (protective goggles, rubber gloves, rubber boots, protective clothing)! Pay attention to the specifications in the safety data sheet for the operating or hazardous substance. The safety data sheet will be provided to you by the respective manufacturer of the substance.

In the event of eye or skin contact, the affected spot must be immediately cleaned with a lot of water. Suitable facilities (eye flushing bottle, sink, shower) must be available near the workplace!

---

### **CAUTION Hazard through operating or hazardous substances or through media.**



Severe injuries or damage to the INFLAS Pro.

The safety data sheets of the operating and hazardous substances must be present and observed.

Use the personal protection equipment required in the safety data sheet when handling the respective hazardous substance.

---

### **NOTE**

Use personal protection equipment.



When handling hazardous substance, the personal protection equipment specified in the safety data sheets must be used.

Use the personal protection equipment.



### **HAZARD**



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---



## B10 Safety Notes for Use in Potentially Explosive Areas

The operator must take into account the safety notes listed here for using the INFLAS PRO in potentially explosive atmospheres. Failure to follow these instructions could result in fire or explosion hazard.

The observance, in particular of the safety notes for potentially explosive areas, but also of all other safety notes, is mandatory for the operator.

EBRO ARMATUREN GmbH supplies a INFLAS PRO, in which all used components, materials and control components (electrical and pneumatic) meet the requirements of the listed directives.

The INFLAS PRO is governed by the same safety regulations as the piping system, into which the former is installed.

The operator of the INFLAS PRO is responsible for installing, connecting and using INFLAS PRO as intended within the scope of the information contained in this operating manual.

The INFLAS PRO manufacturer is not responsible for this.

Any existing dust layers on the components of the INFLAS PRO can reduce the heat exchange of the INFLAS PRO with the ambient air. This can lead to heat accumulation. Any deposits or dust layers must be removed to avoid increase in surface temperature above the allowed max. limit.

### HAZARD



**Life-threatening hazard due to elevated surface temperature in the potentially explosive area.**

Severe injury or death due to explosion or fire.

When operating the INFLAS Pro, make sure the dust deposits do not lead to an increase in the surface temperature. In this regard, follow the technical data.

Remove the dust deposits from INFLAS Pro!

The compressed air required for the pneumatic valves must be taken out of the ambient air and provided outside the explosion safety zone. Care must be taken to make sure the compressed air supplied does not contain any constituents or particles, which may contribute to a risk of explosion. In addition, it must be ensured that inadmissible heating of the supplied compressed air cannot lead to an increase in surface temperature to a value above the maximum limit allowed.

### HAZARD



**Danger to life due to components or high temperatures of the compressed air in the potentially explosive area.**

Severe injury or death due to explosion or fire.

When operating the INFLAS Pro, it must be ensured that the compressed air used does not pose an explosion hazard, be it due to components or high temperatures of the compressed air.

The switching cycles of the INFLAS PRO must not be so high that they lead to an increase in surface temperature to a value above the maximum limit allowed. Therefore, all moving components have a relative speed of  $< 1 \text{ m}\cdot\text{s}^{-1}$ . Thus, the formation of flammable impact and friction sparks, as well as ignition of the medium-related heating of surfaces by the switching operations of INFLAS PRO are not expected.

The maximum thickness of the dust layers must not exceed 5mm.

When installing the INFLAS PRO, earthing of the INFLAS PRO must be ensured, so that it cannot lead to an electrostatic charge, which can lead to a risk of explosion.

The maintenance and installation work may only be carried out outside the considered hazard zones of the explosion safety zone. This prevents inadvertent discharge in conjunction with a hazardous atmosphere.

The operator must ensure that the INFLAS PRO are earthed via a safe earth with a fixed earthing point. This applies especially when insulating gaskets and fittings made of electrically non-conductive material are used.

The shunt resistance must be  $< 10^6 \Omega$ .

### HAZARD



**Life-threatening hazard in the absence of earthing in the potentially explosive area.**

Severe injury or death due to explosion or fire.

When installing and operating the INFLAS PRO, make sure the INFLAS PRO is earthed.

Earth the INFLAS PRO via safe earthing with a fixed earthing point!

Electrostatic charging of any existing plastic hoses cannot be ruled out by the friction of condensate on the hose inner wall, in conjunction with the flowing compressed air. These charges may become hazardous if unintentional discharge occurs; so, they should be avoided. The operator must therefore ensure that the maintenance unit is always observed and that the water collected there is emptied at regular intervals. Solid particles that are in the compressed air flow and that move along the inner wall of the hose can also lead to electrostatic charge.

The operator must therefore ensure installation of a fine filter at a suitable location. A suitable location for the fine filter is before the compressed air passes through the possibly used plastic hose.

The operator of the INFLAS PRO is responsible for ensuring that the relevant laws, regulations and directives of the professional association regarding the prevention of ignition hazards due to electrostatic charge with respect to earthing, protection of bleeder resistors, electrostatic charging of persons, conductive footwear, floors, clothing, gloves, protective helmets, etc. are respected. Failure to comply with this requirement may cause an explosive atmosphere through contact between the INFLAS PRO and a potentially explosive atmosphere.

### HAZARD



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

## B11 Safety Notes for Electrical Installation in Potentially Explosive Areas

The requirements of DIN EN 60079-14 must be observed.

When setting up and operating the explosion-proof controls and connections of the INFLAS PRO, the applicable national ordinances and regulations must be observed.

Work on live electrical INFLAS PRO and equipment is generally prohibited in potentially explosive atmospheres.

Exceptions are work on intrinsically safe circuits. In special cases, work can also be carried out on non-intrinsically safe circuits, whereby it must be ensured that no explosive atmosphere is present during this work.

The absence of voltage must only be checked with explosion-proof, approved measuring instruments.

Earthing may only be carried out if there is no explosion hazard at the earthing point.

Otherwise, the safety instructions for electrical work must be observed.

---

**HAZARD** Life-threatening hazard due to electric voltage.



Severe injury or death due to electric shock.

The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

**WARNING** Disruptions to operation through electrostatic charge.



Disruptions or damage to components.

The INFLAS Pro may only be connected by a specialist electrician.

INFLAS Pro must be grounded.

---

**HAZARD** Life-threatening hazard in the absence of earthing in the potentially explosive area.



Severe injury or death due to explosion or fire.

When installing and operating the INFLAS PRO, make sure the INFLAS PRO including all components and the piping system are earthed.

Earth the INFLAS PRO and the piping system via safe earthing with a fixed earthing point!

---



## **B12 ATEX Directive 2014/34/EU Manufacturer**

The quality requirements for mechanisms and operating equipment that could pose a risk of ignition have been harmonised throughout Europe. The requirements are listed in the product directive 2014/34/EU (also called ATEX 100a or ATEX 95). The directive describes the requirements of the "basic occupational health and safety requirements as well as conformity assessment procedures for electrical and non-electrical devices that can be used in potentially explosive atmospheres.

The INFLAS PRO system is labelled according to 2014/34/EU and receives a declaration of conformity by the manufacturer, which is given to the operator together with the technical documentation.

## **B13 ATEX Directive 1999/92/EC INFLAS PRO Operator**

The ATEX Operating Directive 1999/92/EC (also referred to as ATEX 118a or ATEX 137) describes the requirements for the operation of INFLAS PRO in potentially explosive atmospheres. The ATEX Directive 1999/92/EC describes the risk analysis (possible ignition sources), the zoning, the preparation of explosion protection documents and persons, who are responsible for the INFLAS PRO.

In a second step, a person qualified in the field of explosion protection must check whether the specifications of the explosion protection concept have been implemented and whether the electrical and non-electrical devices used are suitable for the specified zone.

All of these tasks shall be performed by the operator of the INFLAS PRO.

The operator is also responsible for the correct assessment and classification of the explosion zones in his factory. He must also select the approved electrical and non-electrical equipment and systems according to the zoning performed by him.

The required device category is interpreted according to the determined hazard zone, in which a device is to be used.

---

### HAZARD



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

## B14 Residual Hazards

The hazards that come from the INFLAS PRO occur during work within the actual limits of the INFLAS PRO if you have to operate the INFLAS PRO for work, for example, during:

- maintenance.
- refitting.
- troubleshooting and repair.

Make sure to be accompanied by another person for maintenance, refitting or repair work where the INFLAS PRO has to be operated so that they can turn off the complete INFLAS PRO in the event of an emergency.

Work with extreme caution and attention.

Even when all safety regulations are followed, there remains a residual risk when operating the INFLAS PRO. Anybody, who works on and with the INFLAS PRO must know these residual risks and follow the instructions that prevent these residual risks from leading to accidents or damage.

---

### HAZARD

#### **Hazard through missing protection equipment.**



Severe injuries through moving components.

If protection equipment must be disassembled or shut down for adjustment and equipping work, all work must be executed in a well thought-out and conscious manner!

Any routine in the operating procedure must be avoided!

---

In addition, there may be explosion-related residual hazards if the relevant regulations and rules are not applied. Here, the operator of the INFLAS PRO is especially responsible, as he is responsible for the zoning, selection of the device category and usually also for the installation.

---

### HAZARD



#### **Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

## B15 Hazards from Predictable Misuse

It is the responsibility of the operator to ensure the proper usage of the INFLAS PRO to protect it from foreseeable misuse and to consider this in the safety analysis of the entire machine.

- Operate the INFLAS PRO outside the minimum or maximum operating conditions of temperature, pressure, air quality, and voltage.
- Operating with open switch room.
- Operating with modified actuators for signalling the end positions.
- Operating without silencer on the pneumatic vents.

---

### HAZARD

**Risk of misuse.**



Severe injuries through moving components.



Severe injury or death due to electric shock.

- 
- The disconnection of contact and plug connections under voltage is prohibited.
  - The INFLAS PRO must not be disconnected from the earthing system.

---

### HAZARD



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

## **C) Usage Conditions**

### ***C01 Temperatures – Surrounding***

Ambient temperature operating range:

- INFLAS PRO 0° C to + 60° C
- INFLAS PRO Vacuum 0° C to + 60° C
- INFLAS PRO ATEX 0° C to + 60° C

In this temperature range, proper functioning of the INFLAS PRO is ensured.

The functionality can no longer be guaranteed at temperatures above and below the above-mentioned temperatures.

### ***C02 Temperatures – Media***

Medium temperature operating range:

- Compressed air 0° C to + 60° C

In this temperature range for the media, proper functioning within the INFLAS PRO is ensured.

The functioning can no longer be guaranteed at temperatures of the media outside the temperature range.

### ***C03 Ambient Conditions***

The INFLAS PRO meets the protection class of IP 67 according to DIN if the individual components are assembled correctly.

Ambient media, especially chemically aggressive ones can attack seals, hoses, cables, and plastics.

The INFLAS PRO with the optional ATEX marking can be installed in potentially explosive areas of zone 22.

### ***C04 Installation Conditions***

The INFLAS PRO should only be installed in an area that meets the temperature requirements and the ambient conditions. In doing so, the general guidelines for workplaces must also be observed.

The entire INFLAS PRO ATEX may also be installed and operated in a potentially explosive atmosphere.

In this case, the zoning and the device category must be strictly observed.

### ***C05 Operating Pressure***

Allowed pressure range: 2-10 bar Observe the details on the nameplate

Compressed air quality: ISO 8573-1:2010, class 7.4.4

To avoid freezing of the expanded compressed air, the pressure dew point must be at least 10 K lower than the medium temperature.

## **D) Storage, Packaging and Transportation**

### **D01 Storage**

If you do not install the INFLAS PRO immediately, ensure suitable storage conditions in dry, dust-free, frost-free and sunlight protected indoor areas. Cover the INFLAS PRO in a cardboard, plastic or foil packaging.

In order to keep the unused INFLAS PRO functioning for a maximum of six months, please note the following storage conditions:

- the storage room should be dry and dust-free.
- the storage temperature should be between + 5°C and + 40°C.
- the storage should be on a level ground.
- The INFLAS PRO must be protected against accidental movement and damage.
- the INFLAS PRO must be protected against static discharge.

### **D02 Packaging**

The complete INFLAS PRO from EBRO ARMATUREN GmbH is packed appropriately and safely depending on the transport route and destination.

---

**INFO**



Note.

Upon arrival of the delivery at the destination, the completeness of the delivery must be checked immediately on the basis of the shipping documents and packing lists as well as the integrity of the delivery.

In the event of complaints, EBRO ARMATUREN GmbH must be notified immediately.

---

### **D03 General Transportation**

Unless agreed otherwise, the INFLAS PRO will be delivered fully assembled by EBRO ARMATUREN GmbH.

Observe the specified weights and dimensions in the delivery documents of the INFLAS PRO for transport. The INFLAS PRO should be left in the factory packaging until use or assembly. The specified storage conditions must be observed.

---

**HAZARD**

**Danger due to incorrect transport or incorrect attachment.**



Most severe damage to the INFLAS Pro.

Do not suspend the INFLAS Pro valves on the swivel drive!

Use the attachment points specified for the valve/drive.

Use only suitable lifting accessories.

---

## D04 Transporting the INFLAS PRO with a Forklift Truck

Transport valves/drives with INFLAS PRO only with sufficiently strong means of transport and hoists!  
Ensure secure attachment and avoid impact!

Valves/drives with INFLAS PRO can be moved for internal transport with a hand pallet truck or forklift truck. When transporting or operating the valves/drives with INFLAS PRO, pay attention to the centre of gravity so that the INFLAS PRO cannot tip over or wobble.

When moving the valves/drives with INFLAS PRO, the lifting height of the lifting device should be kept as low as possible.

Furthermore, the safety regulations for handling hand pallet or forklift trucks should be observed.

---

### HAZARD Danger to life through transport by forklift truck



If the load is improperly picked up or the forklift truck is damaged, people can be seriously injured or killed by falling loads.

Do not stay in the swivel range and danger area of the forklift!

Use tested and approved forklifts!

The driver must be in possession of a forklift license!

---

## D05 Transporting the INFLAS PRO by Crane

Transport valves/drives with INFLAS PRO only with sufficiently strong means of transport and hoists!  
Ensure secure attachment and avoid impact!

In addition, the INFLAS PRO can be lifted and positioned by crane with a suitable hoisting gear consisting of chains and hooks or lifting slings. Secure your hoist with sufficient safety to the valves/drives with INFLAS PRO and raise the valves/drives with INFLAS PRO.

In doing so, the safety regulations for the handling of hoists (hoisting devices) and cranes should be observed.

---

### HAZARD Life-threatening danger due to suspended loads



If the load is improperly fastened or the load handling equipment or cranes are damaged, persons can be seriously injured or killed by falling loads.

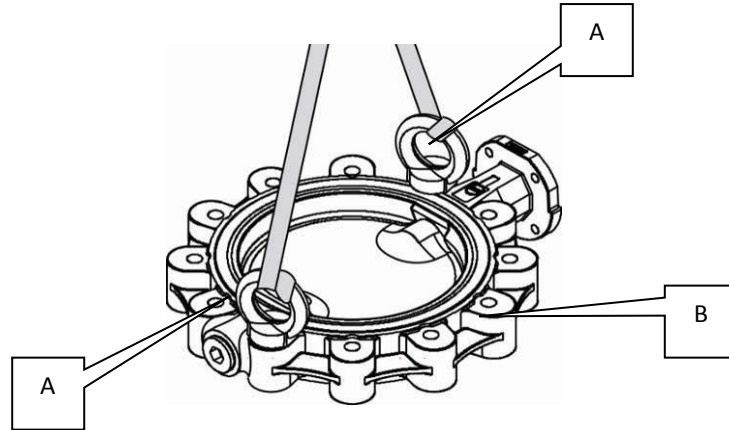
Do not stay under the suspended load!

Tested and approved and load handling equipment and cranes must be used!

---

## D06 Attaching the Hoist to the Valves with INFLAS PRO

Transport the valves with INFLAS PRO only with sufficiently strong means of transport and hoists! Screw at least two sufficiently sized eyelets (Pos. A) to a valve (Pos. B) of the valves/drives with INFLAS PRO. Please note the weight of the supplied valves with INFLAS PRO. Attach your hoist to the two eyelets.



### HAZARD Danger by wrong attachment.



Most severe damage to the INFLAS Pro.  
Use sufficiently sized eyelets and fasteners for attachment.  
Do not suspend the INFLAS Pro on the swivel drive!  
Make sure that the hinged disc and the flange sealing surfaces on the valves are not damaged!

## E) Installation Instructions

When installing the INFLAS PRO, observe the safety instructions in this operating manual and the safety regulations applicable at the installation site. The installation or assembly site must have sufficient load-bearing capacity and should be vibration-free.

The INFLAS PRO should only be installed in an area that meets the temperature requirements and the ambient conditions. In doing so, the general guidelines for workplaces must be observed. Also, observe the installation conditions in this operating manual.

The INFLAS PRO is assembled and set at the factory for the purpose of use ordered by you. This use also corresponds to the intended use of the INFLAS PRO.

Before installing the INFLAS PRO, the intended use must be compared with the installation situation. This is because it must be ensured that the INFLAS PRO to be installed corresponds to the existing pressures and the media to be processed.

Installation must be authorised by the operator and may only be carried out by qualified personnel.

The actuation of the INFLAS PRO is only permitted if the valve is completely installed in a piping system on both sides.

---

**HAZARD**

**Risk of crushing the upper limb.**



Severe injuries when the INFLAS PRO is actuated, as long as it is not completely installed in a piping system.

Before switching on the INFLAS PRO, all components and connections must be fully assembled by qualified personnel.

---

Be extremely careful when installing the INFLAS PRO and avoid damaging the components of the INFLAS PRO.

---

**HAZARD**

**Danger due to damaged components.**



Severe injuries through moving components.



Severe injury or death due to electric shock.



The operator must ensure that the INFLAS PRO and the piping system are earthed via a safe earth with a fixed earthing point. This applies especially when insulating gaskets and fittings made of electrically non-conductive material are used.

The shunt resistance must be  $< 10^6 \Omega$ .

To be ensured by the operator that the INFLAS PRO is connected via an electrostatically conductive pipe connection or via a separate earthing point.

---

### HAZARD



**Life-threatening hazard in the absence of earthing in the potentially explosive area.**

Severe injury or death due to explosion or fire.

When installing and operating the INFLAS PRO, make sure the INFLAS PRO including all components and the piping system are earthed.

Earth the INFLAS PRO and the piping system via safe earthing with a fixed earthing point!

---

### HAZARD



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

## E01 Installation of the INFLAS PRO switch box on the swivel drive

The switch box of the INFLAS PRO is suitable for direct mounting on swivel drives with the mounting interface according to VDI/VDE 3845 AA2 80mm x 30mm shaft height 30mm.

All other interfaces require adaptations. The INFLAS PRO may only be operated with the accessories, which are specified and approved for this by EBRO ARMATUREN GmbH.

### HAZARD

**Risk of injury due to improper installation.**



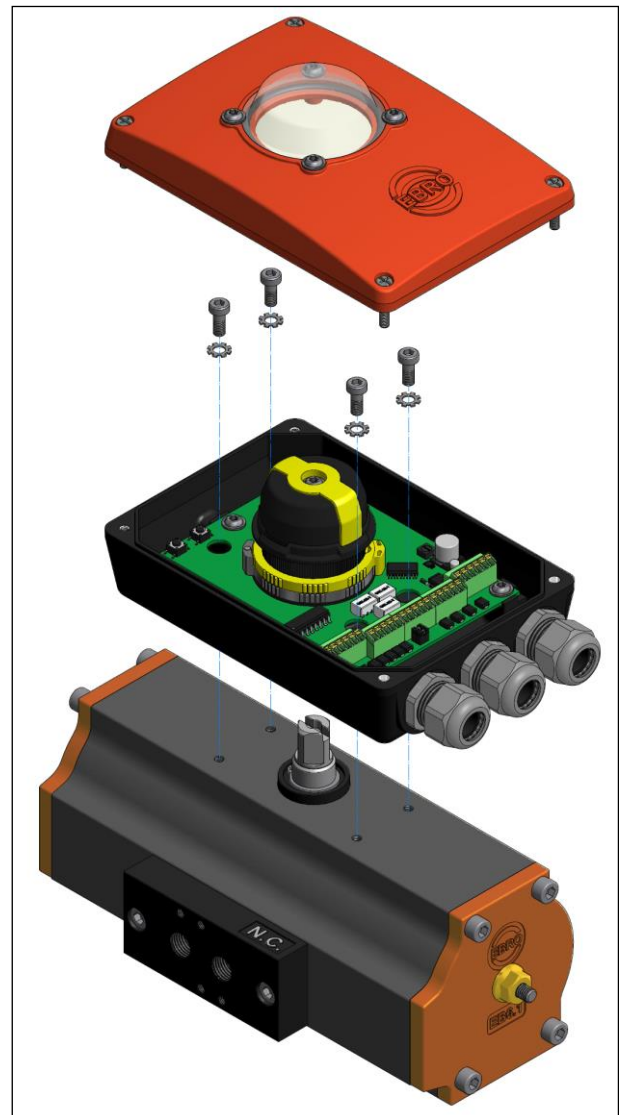
The assembly may only be carried out by authorised specialist personnel with suitable tools!

**Danger of injury due to unintentional system start and uncontrolled restart.**

System safe against unintentional actuation.  
Ensure controlled restart after installation.

The INFLAS PRO switch box should be installed as follows:

- unpack the INFLAS PRO from the factory packaging at the installation site.
- check the INFLAS PRO for any transport damage.
- check the INFLAS PRO for damage.
- if necessary, measures must be taken for the INFLAS PRO installed outdoors to ensure proper operation. these include the "membrane element" option for switching room ventilation or, for example, rain protection roofs, if applicable, enclosures with sufficient protection.
- determine the mounting position of the device (parallel to the drive).
- open switch box cover.
- align drive shafts (groove) and switch box shaft (spring).
- check the flush seat of the inlet seals on the underside of the switch box housing.
- plug switch box on the drive shaft.
- attach the switch box to the drive using 4 cylinder screws and spring washers.
- if the electrical connection does not occur immediately, close the switch box cover again.



## E02 Assembly of the INFLAS PRO Valve Manifold to the Pneumatic Drive

The valve manifold of the INFLAS PRO is suitable for directly mounted control valves on swivel drives with the attachment interface according to VDI/VDE 3845.

All other interfaces require adaptations. The INFLAS PRO may only be operated with the accessories, which are designated and approved for this by EBRO ARMATUREN GmbH.

### HAZARD

**Risk of injury due to improper installation.**



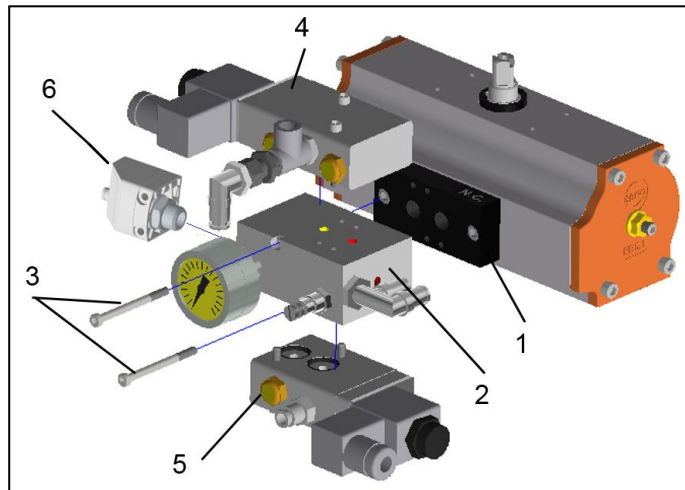
The assembly may only be carried out by authorised specialist personnel with suitable tools!

**Danger of injury due to unintentional system start and uncontrolled restart.**

System safe against unintentional actuation.  
Ensure controlled restart after installation.

The INFLAS PRO valve manifold should be installed as follows:

- unpack the INFLAS PRO valve manifold from the factory packaging at the installation site.
- check the INFLAS PRO valve manifold for any transport damage.
- check the INFLAS PRO valve manifold for damage.
- The mounting plate (1) on the pneumatic drive must be mounted in the N.C. (Normally Closed) position.
- The duo-block valve (2) with built-in pressure regulator, manometer and optional pressure switch is fastened to the mounting plate (1) with two screws (3).
- The fittings valve (4) is flanged to the upper mounting flange according to VDI/VDE 3845.
- The inflation valve (5) is flanged to the upper mounting flange according to VDI/VDE 3845.
- The pressure switch (6) is adapted to the side of the duo-block valve (2).



### E03 Assembly of the INFLAS PRO Vacuum Valve Manifold to the Pneumatic Drive

The valve manifold of the INFLAS PRO vacuum is suitable for directly mounted control valves on swivel drives with the attachment interface according to VDI/VDE 3845.

All other interfaces require adaptations. The INFLAS PRO may only be operated with the accessories, which are designated and approved for this by EBRO ARMATUREN GmbH.

**HAZARD**

**Risk of injury due to improper installation.**



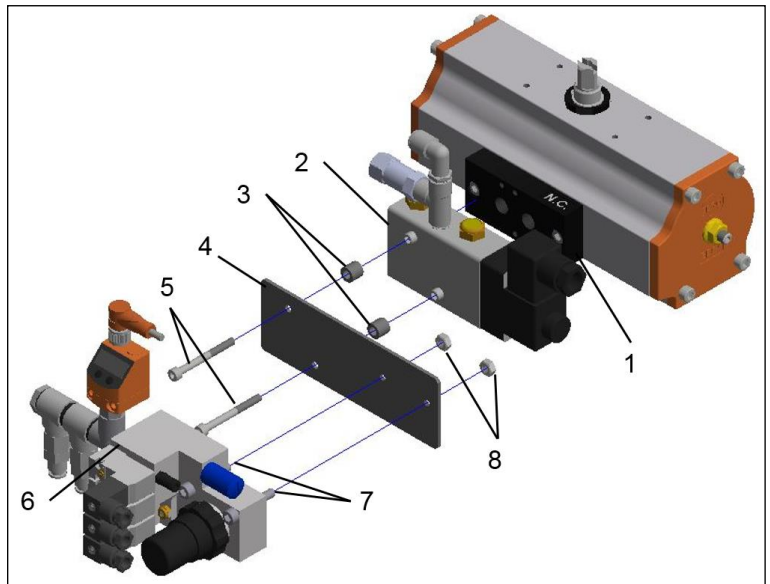
The assembly may only be carried out by authorised specialist personnel with suitable tools!

**Danger of injury due to unintentional system start and uncontrolled restart.**

System safe against unintentional actuation.  
Ensure controlled restart after installation.

The INFLAS PRO vacuum valve manifold should be installed as follows:

- unpack the INFLAS PRO vacuum valve manifold from the factory packaging at the installation site.
- check the INFLAS PRO vacuum valve manifold for any transport damage.
- check the INFLAS PRO vacuum valve manifold for damage.
- The mounting plate (1) on the pneumatic drive must be mounted in the N.C. (Normally Closed) position.
- The solenoid valve (2) and the mounting plate (4) are fastened to the attachment plate (1) using two screws (5) and the spacers (3).
- The valve control block (6) is fastened to the mounting plate (2) using the screws (7) and the nuts (8).



## E04 Electrical Connection

Shut down the INFLAS PRO and secure it against restart! Connect the electrical supply lines in the control box, observing the terminal allocation in the circuit diagram.

Establish all connections according to the legal regulations and VDE guidelines.

Make sure the cable cross-sections and fuses are sufficiently dimensioned and protected according to the consumed power.

Metallic cable entries must be connected to an earthing system. Also unneeded holes for cable guides must be closed by sealing plugs.

The ferrules must always be attached using suitable squeezing tools in order to achieve a consistent quality of the pressing.

If necessary, measures against external influences must be taken for outdoor INFLAS PRO. This can be, e.g. rainproof roofs or casing. The test to that effect is incumbent on the operator of the INFLAS PRO.

In the explosion-safe version, the switch box of the INFLAS PRO is integrated into the potential equalisation via the externally mounted connection point for equipotential bonding conductors, suitable for 4 mm<sup>2</sup> conductors.

Equipotential bonding of the non-explosion safety version is made to the pipeline or via one of the three mounting screws of the boards.

For the cable entry, only separate cable glands suitable for the application have been used. Unnecessary connection threads on the switch casing are closed with suitable separately certified screw plugs.

The installation and maintenance may only be carried out by a **specialist electrician**, while paying particular attention to the Safety chapter.

---

### HAZARD

**Life-threatening hazard due to electric voltage.**



Severe injury or death due to electric shock.

The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

An electrostatic charge may be created through friction from the media and through the high pressures. This charge may influence and disturb the operation of the INFLAS PRO. That is why there must be sufficient grounding of the INFLAS PRO.

---

### WARNING

**Disruptions to operation through electrostatic charge.**



Disruptions or damage to components.

The INFLAS Pro may only be connected by a specialist electrician.

INFLAS Pro must be grounded.

---

The operator must therefore ensure that the INFLAS PRO and the piping system are earthed via a safe earth with a fixed earthing point. This applies especially when insulating gaskets and fittings made of electrically non-conductive material are used.

The shunt resistance must be  $< 10^6 \Omega$ .

To be ensured by the operator that the INFLAS PRO is connected via an electrostatically conductive pipe connection or via a separate earthing point.

---

### HAZARD



**Life-threatening hazard in the absence of earthing in the potentially explosive area.**

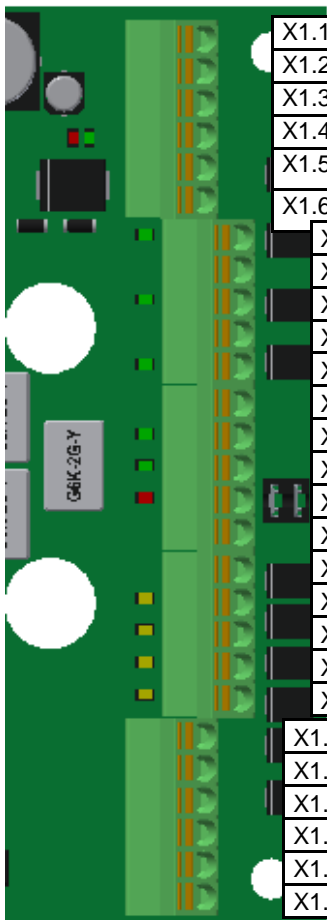
Severe injury or death due to explosion or fire.

When installing and operating the INFLAS PRO, make sure the INFLAS PRO including all components and the piping system are earthed.

**Earth the INFLAS PRO and the piping system via safe earthing with a fixed earthing point!**

---

Terminal allocation

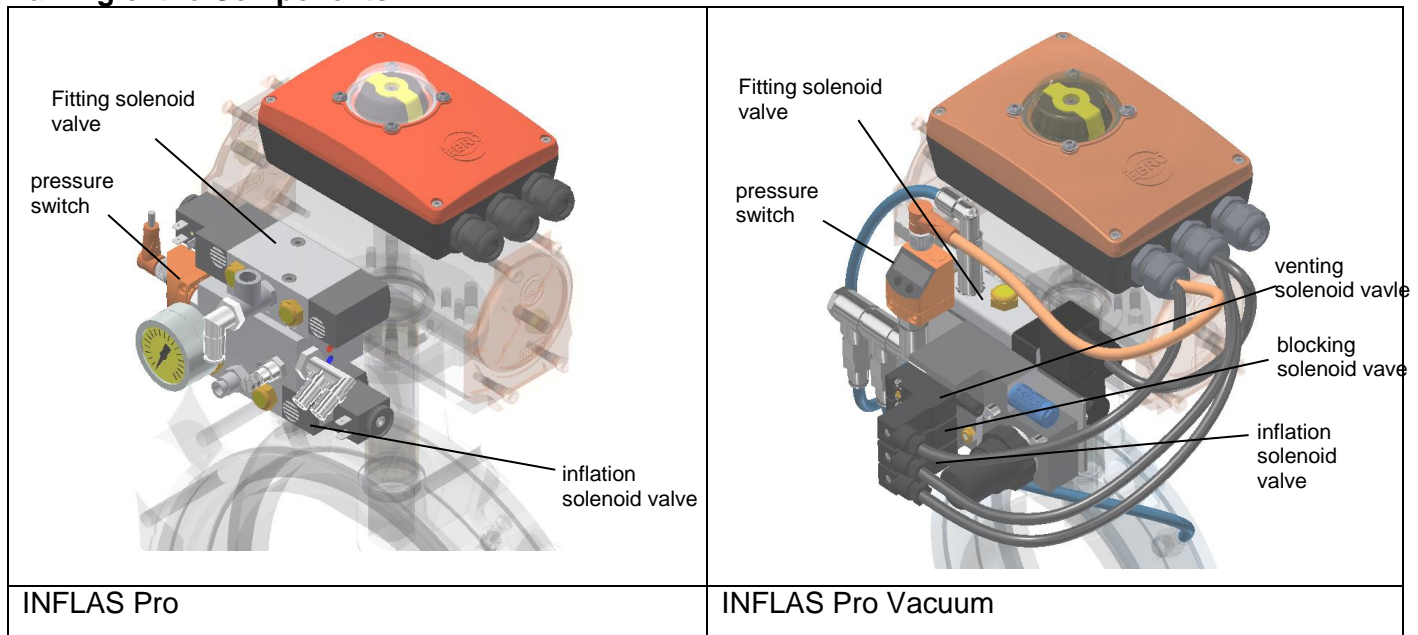


X1.1	PE
X1.2	PE
X1.3	GND (stop valve)
X1.4	GND supply
X1.5	+20...28 V DC (stop valve)
X1.6	+20...28 V DC
X1.7	Valve fitting
X1.8	GND
X1.9	Inflation valve
X1.10	GND
X1.11	Vent valve
X1.12	GND
X1.13	Valve is OPEN
X1.14	Valve is CLOSED
X1.15	General error
X1.16	GND 2
X1.17	GND 1
X1.18	NC
X1.19	NC
X1.20	Pressure switch (signal)
X1.21	Input signal open valve
X1.22	NC
X1.23	NC
X1.24	NC
X1.25	+ 24 V DC (pressure switch)
X1.26	NC
X1.27	GND (pressure switch)

Terminal	Customer connection
X1.1	PE
X1.2	
X1.3	GND voltage supply
X1.4	
X1.5	Voltage supply +24 V DC
X1.6	
X1.7	
X1.8	
X1.9	
X1.10	
X1.11	
X1.12	
X1.13	Output signal valve OPEN
X1.14	Output signal valve CLOSED
X1.15	Output signal general fault
X1.16	GND
X1.17	GND
X1.18	
X1.19	
X1.20	
X1.21	Input signal open valve
X1.22	
X1.23	
X1.24	
X1.25	
X1.26	
X1.27	



**Naming of the Components**



**Valve fitting**

Terminal	Allocation	Signal
X1.7	Switch output	+ 24V DC related to the operating voltage GND
X1.8	GND	related to the operating voltage GND

**Vent valve**

Terminal	Allocation	Signal
X1.11	Switch output	+ 24V DC related to the operating voltage GND
X1.12	GND	related to the operating voltage GND

**Stop valve**

Terminal	Allocation	Signal
X1.3	Voltage supply	+ 24V DC related to the operating voltage GND
X1.5	GND	related to the operating voltage GND

**Inflation valve**

Terminal	Allocation	Signal
X1.9	Switch output	+ 24V DC related to the operating voltage GND
X1.10	GND	related to the operating voltage GND

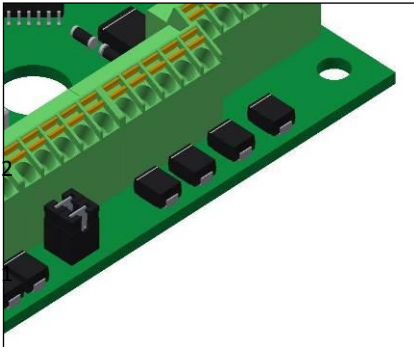
**Pressure switch**

Terminal	Allocation	Signal
X1.25	Sensor supply	+ 24V DC related to the operating voltage GND
X1.27	Sensor supply	related to the operating voltage GND
X1.20	Switch input	0V pressure undershot +24V pressure exceeded



Connection of the operator's signal lines

Jumper



Jumper	Terminal	GND relation for	Set	Not set
X1.1	17	Signal input: - open valve	related to the operating voltage GND	related to an external GND 1
X1.2	16	Signal outputs: - Valve is OPEN - Valve is CLOSED - General error	related to the operating voltage GND	related to an external GND 2

Operating voltage:

Terminal	Allocation	Signal
X1.1 and 2	Potential equalisation	PE
X1.3 and 4	Operating voltage GND	GND
X1.5 and 6	Operating voltage +	+ 24V DC ± 15% max. residuakl ripple 10%

Signal input:

Terminal	Allocation	Signal
X1.21	Switch input - open valve	+ 24V DC related to GND of terminal 17
X1.17	GND	Jumper 1: set - related to operating voltage GND not set - related to external GND 1

Signal outputs:

Terminal	Allocation	Signal
X1.13	Switch output – valve is OPEN	+ 24V DC related to GND of terminal 16
X1.14	Switch output – valve is CLOSED	+ 24V DC related to GND of terminal 16
X1.15	Switch output – general error	+ 24V DC related to GND of terminal 16
X1.16	GND	Jumper 2: set - related to operating voltage GND not set - related to external GND 2

### **E05 Setting of the Process Times**

When setting the process times, the carrier shaft can rotate with the end cam and the remote position indicator. A corresponding safety distance must always be observed.

---

**HAZARD**



**Danger due to rotating components.**

Severe injuries from crushing, being drawn in or caught, gripping, rubbing or scraping as well as cutting.

Assembly, disassembly, adjustment and calibration work may only be carried out by a specialist.

Safety distance to the rotating parts must be observed.

---

The setting and calibration work may only be carried out by **instructed personnel with technical qualification**, while paying particular attention to the Safety chapter.

---

**HAZARD**



**Life-threatening hazard due to electric voltage.**

Severe injury or death due to electric shock.

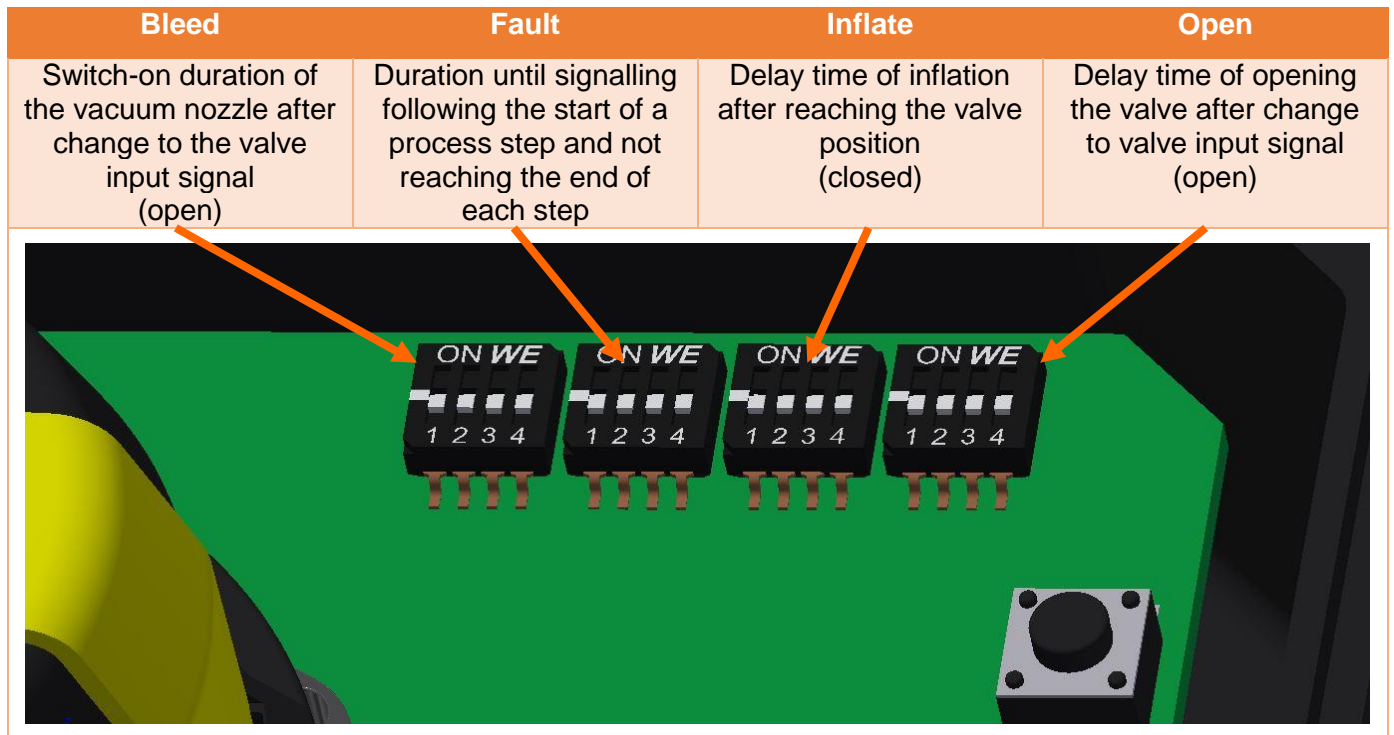
The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

**Function Assignment of the DIP Switches**

Assign the following functions to the DIP switches and change the respective process time via their binary coded setting.



**DIP switch code table for timer setting**

Time in seconds	Switch 1	2	3	4
<b>Infinite</b>	✗	✗	✗	✗
<b>0.5</b>	✓	✗	✗	✗
<b>1</b>	✗	✓	✗	✗
<b>2</b>	✗	✗	✓	✗
<b>3</b>	✗	✗	✗	✓
<b>4</b>	✓	✓	✓	✓
<b>5</b>	✓	✓	✗	✗
<b>7</b>	✓	✗	✓	✗
<b>9.5</b>	✗	✓	✓	✗
<b>12</b>	✗	✗	✓	✓
<b>15</b>	✓	✓	✓	✗

✓ = On  
✗ = Off

## E06 Setting and Calibration of the End Position Signalling

During adjustment and calibration work, the carrier shaft can rotate with the end cam and the remote position indicator. A corresponding safety distance must always be observed.

---

**HAZARD**

**Danger due to rotating components.**

Severe injuries from crushing, being drawn in or caught, gripping, rubbing or scraping as well as cutting.



Assembly, disassembly, adjustment and calibration work may only be carried out by a specialist.

Safety distance to the rotating parts must be observed.

---

The setting and calibration work may only be carried out by **instructed personnel with technical qualification**, while paying particular attention to the Safety chapter.

---

**HAZARD**

**Life-threatening hazard due to electric voltage.**

Severe injury or death due to electric shock.



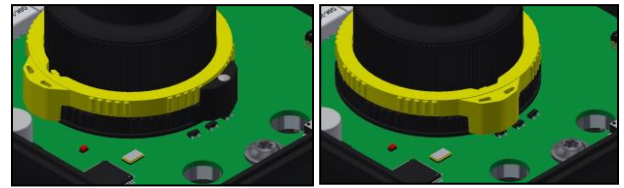
The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

The actuation rings of the INFLAS PRO are set as follows:

- release the fixing screw (1).
- close the valve.
- adjust the black actuator ring (6) on the carrier shaft (7) so that the actuator magnet is sensor. When the power supply is connected,
- Open valve.
- Adjust the yellow actuator ring (5) on the carrier shaft (7) so that the actuator magnet is placed directly over the left sensor. When the power supply is connected, the "open" LED lights up.
- Fit the spacer ring (4) on the carrier shaft (7).
- The cap (3) must be placed on the carrier shaft (7) so that it fits over the square of the shaft.
- Engage the position indicator (2) in the cap so that the indicator position matches the position of the disc.
- Tighten the fixing screw (1).



- 1. Fixing screw
  - 2. Position indicator
  - 3. Cap
  - 4. Spacer ring
  - 5. Yellow actuator ring
  - 6. Black actuator ring "closed"
  - 7. Carrier shaft
- placed directly over the "closed" LED
- placed directly over the "left" sensor
- the "open" LED lights up
- the position of the disc



## E07 Connection of the Pneumatic Components

The drive must be adapted to the valve in terms of its drive torque and characteristic curve, and correctly indicate the position of the valve with its visual display. Since the drive of the INFLAS PRO is equipped with a switch box, the position is displayed via the switch box.

The drives were built for the supplied INFLAS PRO and adapted to the respective valve. They may not be changed. Use of other components is considered improper use. You must consult with EBRO ARMATUREN GmbH if other components of the drive are required. The installation of these other versions must be confirmed in writing by EBRO ARMATUREN.

The drives are usually operated with compressed air but also another gaseous control medium. In addition, the control medium must have a dew point of  $-20^{\circ}\text{C}$  or at least  $10^{\circ}\text{C}$  below ambient temperature.

The compressed air used must be filtered with a  $40\ \mu\text{m}$  mesh filter to protect the solenoid valve. The compressed air must be dry and should be slightly oiled when switching cycles  $\geq 4\ \text{min}^{-1}$ .

Set the pressure to **6 bar**.

The entire pneumatic system is designed for operation with dried or slightly oiled air.

As a rule, a correctly connected drive must close clockwise when facing the drive shaft of the valve and open in the opposite direction.

### HAZARD

#### Danger due to uncontrolled start of pneumatic components.



Severe injuries in the case of incorrectly connected pneumatic components or pneumatic components, which start in an uncontrolled manner.

The pneumatic components may only be connected by a specialist.

Before switching on the pneumatics, all components and connections must be checked.

### HAZARD

#### Danger by exceeding the maximum pressure.



Exceeding the maximum pressure stated on the drive can lead to material damage to the components of the INFLAS Pro.

Check compliance with specified pressures.

### HAZARD

#### Risk of crushing the upper limb.



Severe injuries when the INFLAS PRO is actuated, as long as it is not completely installed in a piping system.

Before switching on the INFLAS PRO, all components and connections must be fully assembled by qualified personnel.

The compressed air must be supplied to the INFLAS PRO on the site.

The compressed air required for the pneumatic swivel drives must be taken out of the ambient air and provided outside the explosion safety zone. Care must be taken to make sure the compressed air supplied does not contain any constituents or particles, which may contribute to a risk of explosion. In addition, it must be ensured that inadmissible heating of the supplied compressed air cannot lead to an increase in surface temperature to a value above the maximum limit allowed.

## HAZARD



**Danger to life due to components or high temperatures of the compressed air in the potentially explosive area.**

Severe injury or death due to explosion or fire.

When operating the INFLAS Pro, it must be ensured that the compressed air used does not pose an explosion hazard, be it due to components or high temperatures of the compressed air.

Electrostatic charging of any existing plastic hoses cannot be ruled out by the friction of condensate on the hose inner wall, in conjunction with the flowing compressed air. These charges may become hazardous if unintentional discharge occurs; so, they should be avoided. The operator must therefore ensure that the maintenance unit is always observed and that the water collected there is emptied at regular intervals. Solid particles that are in the compressed air flow and that move along the inner wall of the hose can also lead to electrostatic charge.

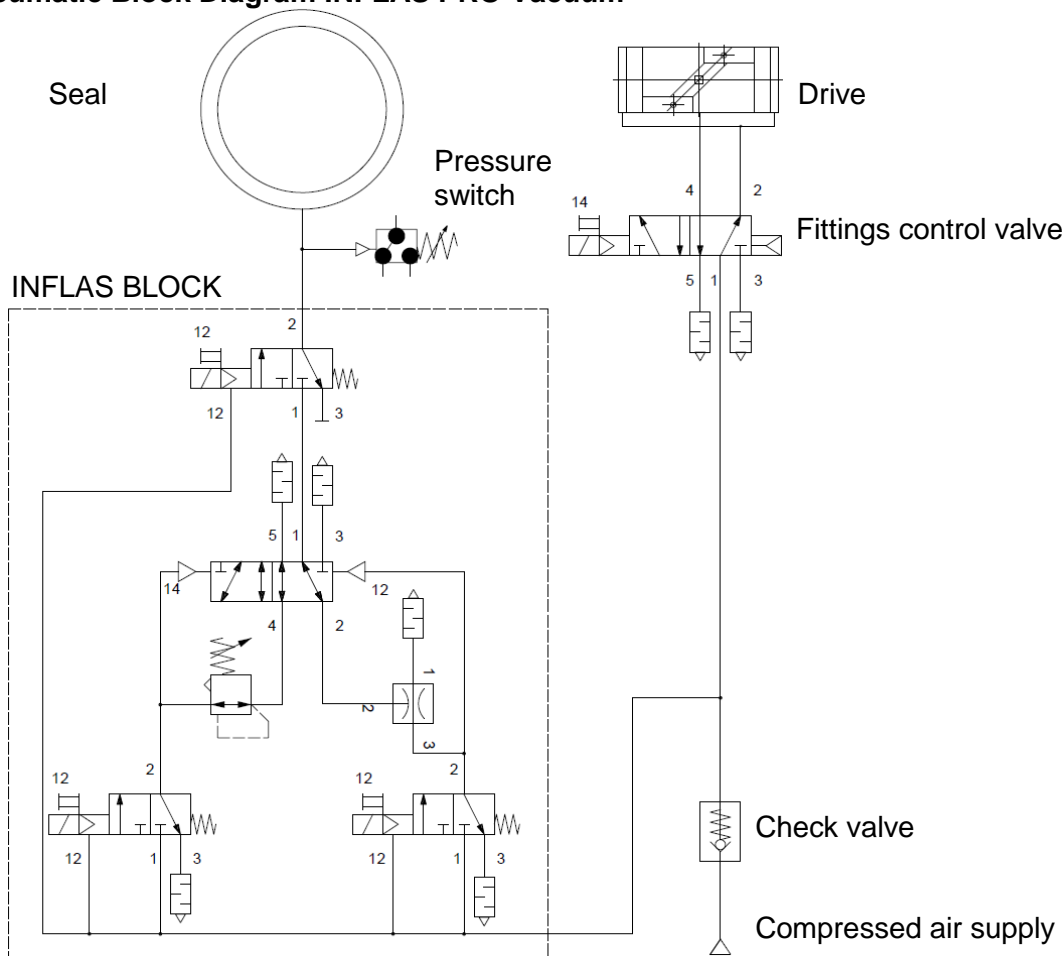
The operator must therefore ensure installation of a fine filter at a suitable location. A suitable location for the fine filter is before the compressed air passes through the possibly used plastic hose.

In any case, it must be ensured by qualified personnel that the INFLAS PRO data on control pressure, control voltage and frequency comply with the technical data indicated on the respective component nameplate.

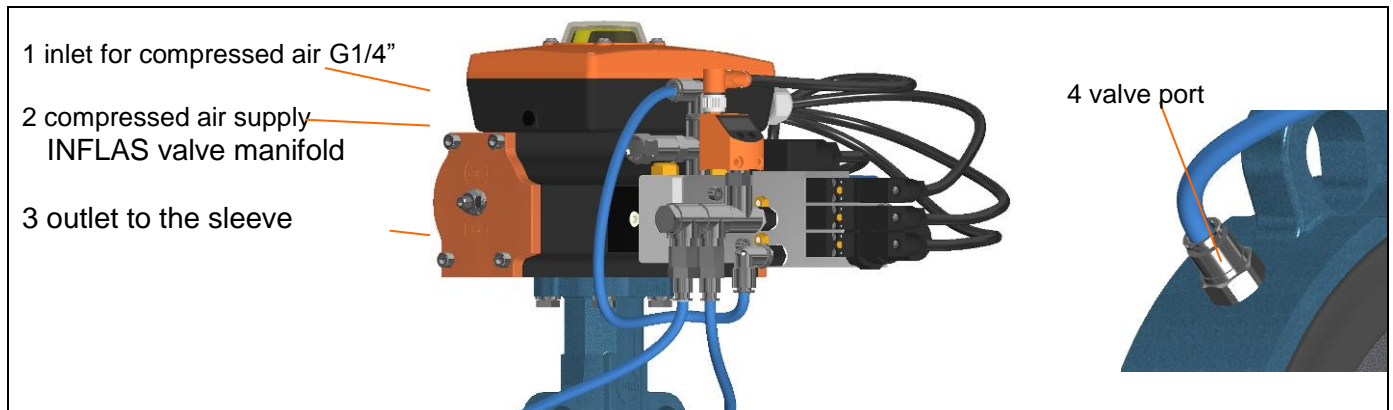
The compressed air line leading to the solenoid valve should be made as a non-binding recommendation as follows:

Size	EB4.1	EB5.1	EB6.1	EB8.1	EB10.1	EB12.1
Volume / stroke of the drive (litre)	0.18	0.46	0.91	1.49	3.25	5.63
Recommended feed line - Ø (up to 6m in length)	6 mm	6 mm	6 mm	6 mm	8 mm	8 mm

**Pneumatic Block Diagram INFLAS PRO Vacuum**



**Pneumatic Connections**

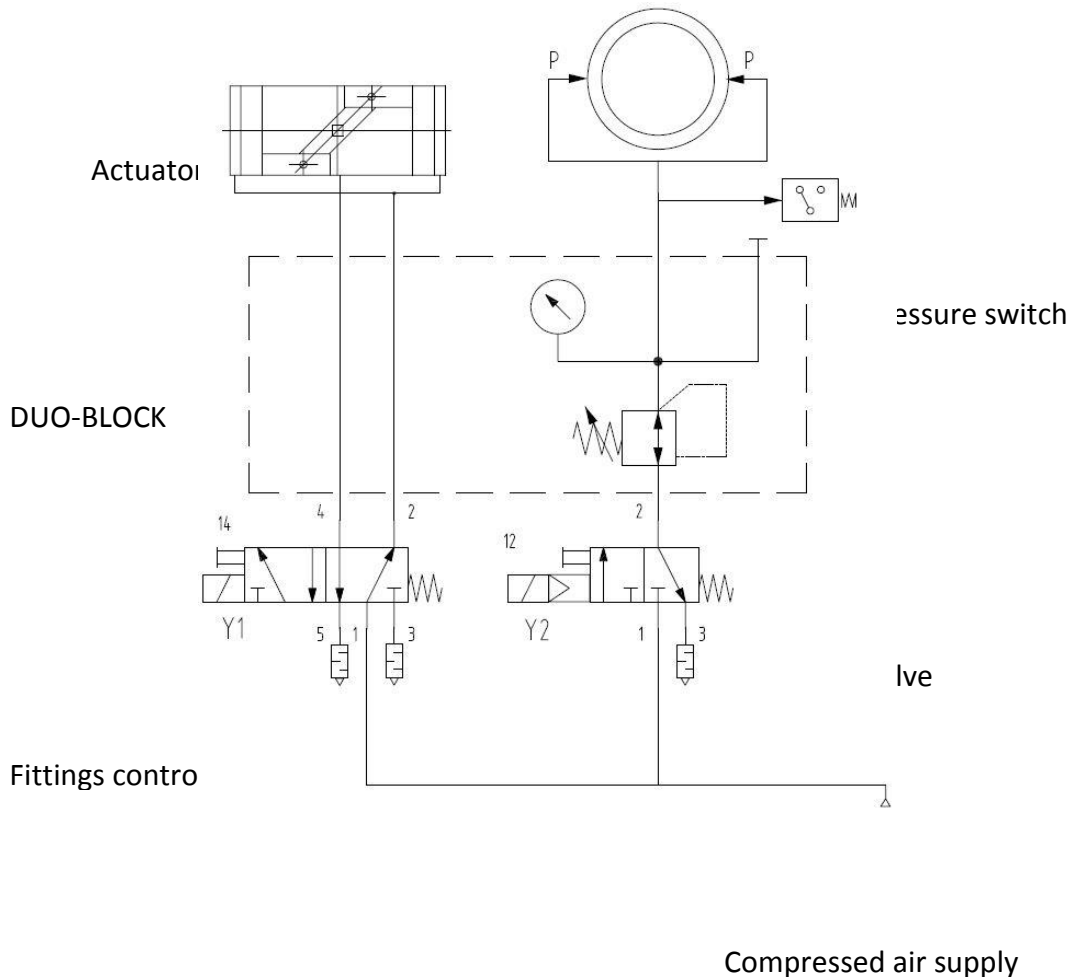


The pneumatic connection of the INFLAS block and the valve should be carried out as follows:

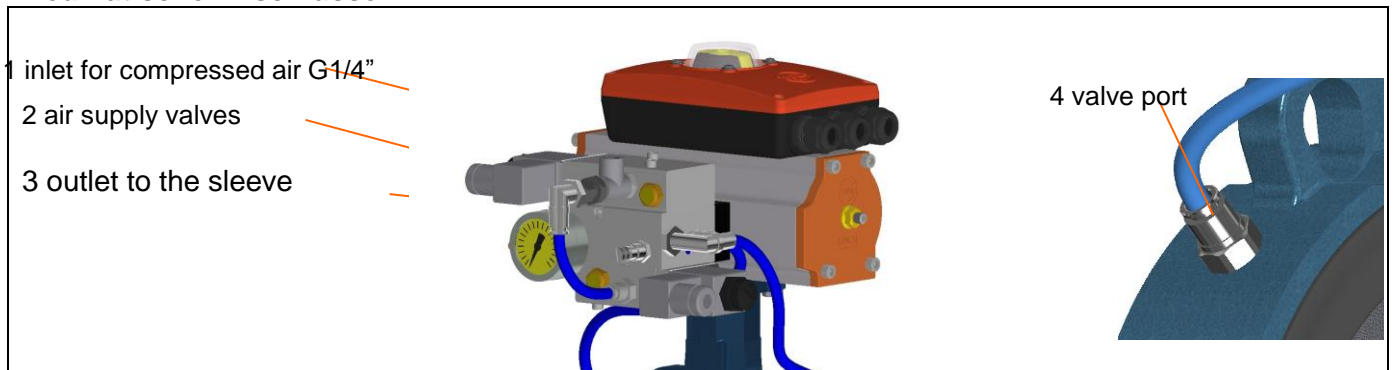
- check the INFLAS block and the valve for transport damage.
- When the INFLAS valve unit is included in the supply by EBRO Armaturen, the PU piping for the compressed air supply of the INFLAS valve manifold (2) and the connection to the valves (3) and (4) are usually pre-installed. If this is not the case, the hose connection must be connected according to the drawing above.
- The compressed air connection (1) must be connected to the on-site compressed air supply (G1/4 ").
- The operating pressure must be maintained according to C04.
- After connection, check all compressed air supply lines for leaks.



Pneumatic Block Diagram INFLAS PRO Duo-Block



Pneumatische Anschlüsse



The pneumatic connection of the INFLAS block and the valve should be carried out as follows:

- check the INFLAS block and the valve for transport damage.
- When the INFLAS valve unit is included in the supply by EBRO Armaturen, the PU piping for the compressed air supply of the valves (2) and the connection to the valve (3) and (4) are usually pre-installed. If this is not the case, the hose connection must be connected according to the drawing above.
- The compressed air connection (1) must be connected to the on-site compressed air supply (G1/4 ").
- The operating pressure must be maintained according to C04.

- After connection, check all compressed air supply lines for leaks.

## E07 Setting of the Pressure Switch

During adjustment and calibration work, the carrier shaft can rotate with the end cam and the remote position indicator. A corresponding safety distance must always be observed.

### HAZARD



#### Danger due to rotating components.

Severe injuries from crushing, being drawn in or caught, gripping, rubbing or scraping as well as cutting.

Assembly, disassembly, adjustment and calibration work may only be carried out by a specialist.

Safety distance to the rotating parts must be observed.

The setting and calibration work may only be carried out by **instructed personnel with technical qualification**, while paying particular attention to the Safety chapter.

When setting the pressure switch, the maintenance and operating instructions of the relevant manufacturer of the pressure switch must be followed.

## E08 Disassembly of INFLAS PRO

When disassembling the INFLAS PRO, observe the safety instructions in this operating manual and the safety regulations applicable at the installation site.

Disassembly from a piping system must be authorised by the operator and may only be carried out by qualified personnel.

Be extremely careful when disassembling the INFLAS PRO and avoid damaging the components of the INFLAS PRO and the piping system.

The INFLAS PRO should be disassembled as follows:

- Shut down the INFLAS PRO, disconnect and secure it against restart!

### NOTE



Unlock INFLAS Pro and secure against restart using a lock.

Unlock electrical components and INFLAS Pro before any work, maintenance, adjustment and repair, and secure them against being switched on again.

Depressurise pneumatic components and INFLAS Pro during all work and secure against pressurisation.

### HAZARD



#### Life-threatening hazard due to electric voltage.

Severe injury or death due to electric shock.

The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

**HAZARD****Danger due to uncontrolled start of pneumatic components.**

Severe injuries in the case of incorrectly connected pneumatic components or pneumatic components, which start in an uncontrolled manner.

The pneumatic components may only be connected by a specialist.

Before switching on the pneumatics, all components and connections must be checked.

---

**HAZARD****Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

- Make sure the piping system has been released by the operator for disassembling the INFLAS PRO.
  - Make sure the piping system and the INFLAS PRO have been completely emptied.
  - Make sure the piping system and the INFLAS PRO have been made completely pressureless.
  - Make sure the electrical components of INFLAS PRO are not live.
  - Make sure the pneumatic components of INFLAS PRO are pressureless.
  - Inform yourself about the safety regulations at the place of disassembly. If you carry out any welding or grinding work, you must obtain a welding and grinding permit, a so-called welding permit, from the operator beforehand.
  - Obtain sufficient information about the media used in the piping system and in the INFLAS PRO. Make sure you receive the important information from the operator and from any safety data sheets for hazardous substances. Before you do not have this information, you must not start disassembly.
  - Use the personal protective equipment (PPE) prescribed for the hazardous substance during disassembly of the INFLAS PRO.
  - Thoroughly clean and neutralise all media-contacting components before further processing after disassembly. If necessary, decontaminate these components.
- 

**CAUTION****Hazard through operating or hazardous substances or through media.**

Severe injuries or damage to the INFLAS Pro.

The safety data sheets of the operating and hazardous substances must be present and observed.

Use the personal protection equipment required in the safety data sheet when handling the respective hazardous substance.

---

- Move the flap of the valves to the CLOSED position so that the valve is fully closed.
  - Disconnect the compressed air supply from the INFLAS PRO.
  - Secure the INFLAS PRO against slipping, tipping or falling off with the corresponding lifting gear. Pay attention to the weight of the INFLAS PRO and, in particular the Attachment of lifting gear chapter.
- 

### HAZARD

#### **Danger by wrong attachment.**



Most severe damage to the INFLAS Pro.  
Use sufficiently sized eyelets and fasteners for attachment.  
Do not suspend the INFLAS Pro on the transmission or the swivel drive!  
Make sure that the hinged discs and the flange sealing surfaces on the valves are not damaged!

---

- Unscrew all flange screw connections and remove the screws and nuts from the INFLAS PRO.
  - Spread apart the flanges of the INFLAS PRO and those of the piping system with a suitable tool.
  - Remove the INFLAS PRO from the piping system. When removing the INFLAS PRO, make sure the flange sealing surfaces of the INFLAS PRO and the piping system are not damaged. If necessary, protect the sealing surfaces from damage.
- 

### CAUTION

#### **Leakage due to damaged disc or sealing surfaces.**



The outer edge of the disc is very finely machined to ensure the tightness of the valve with the hinged disc closed.

Therefore, make sure this surface is not damaged when handling during the removal process.

Make sure that the hinged discs and the flange sealing surfaces on the valves and the piping system are not damaged!

---

## F) Sample Run after Installation

### F01 *Sample Run*

The delivered INFLAS PRO has been produced according to the technical data specified in the order and has been factory set and checked.

However, once the INFLAS PRO has been completely installed, you must ensure that it works properly for automatic operation. For this reason, you should absolutely carry out and document the following steps before commissioning. It is important that you carry out these steps on both drives and valves.

- Check whether all components and connections have been correctly and firmly installed.
- Check the correct installation of the INFLAS PRO in the piping system.
- Check the parametrisation (DIP switch) of the process control of the INFLAS PRO for functionality.

#### HAZARD

#### **Danger due to incorrect setting or display.**



Serious damage to the INFLAS Pro during operation.

An incorrect display or feedback poses a risk.

Make sure the OPEN or CLOSED positions of the valves match the control.

#### INFO

Note.



Observe the setting and display of the valve and the drive.

A setting of the end stop CLOSED of a new INFLAS Pro should not be changed as long as the valve is tight at the end.

For adjustment, please observe the instructions in this operating manual.

- Check the control pressure directly at the inlet fitting. This must be sufficiently high. At least the control pressure must be present here, which is marked on the nameplate. Only in this way can faultless operation of the valve be ensured under operating conditions.
- Check the correct connection of the solenoid valve. In this case, with the control pressure applied and if a control signal fails (for testing, e.g. disconnect the plug), the valve must move to the set position "CLOSED".
- Check the screw connections between the drive and the valve with a torque wrench. Please note the corresponding torques.
- Check the flange connections between the piping system and INFLAS PRO with a torque wrench. Please note the corresponding torques.
- Check the earthing of the INFLAS PRO.
- Switch on the INFLAS PRO and perform a test run. When the control pressure is applied, ensure that the respective valve is moved to the intended end position with the corresponding control commands "OPEN" and "CLOSE" and that the seal is relieved of pressure during the closing and opening process.

## **G) Product Description**

### **G01 Proper Usage**

INFLAS PRO serves as control unit for inflatable valve and is intended to pass on external customer control commands to shut-off valves incl. drive and to realise the parallel control of the inflation of the sleeve. INFLAS PRO can only be used in conjunction with EBRO butterfly valves and drives. The conditions of use depend on the intended use of the respective butterfly valves.

The INFLAS PRO may only be put into operation after observance of the following documents:

- <Declaration on EC Directives>
- This assembly/operating manual

---

#### **HAZARD**



##### **Hazard through improper usage of the INFLAS Pro**

In the event of improper or illegal usage of the INFLAS Pro, people may be severely injured or killed. Furthermore, the INFLAS Pro may also be damaged.

Use INFLAS Pro only as intended!

Do not make any changes to the INFLAS Pro!

Only deliver and dose approved media!

---

#### **INFO**



Observe all notes in this operating manual, in particular the safety notes. You must be read and observe them before all activities on the INFLAS Pro.

Any usage, setting and variation other than that described in this operating manual is seen as illegal and as an improper use of the INFLAS Pro!

---

#### **HAZARD**



##### **Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

## G02 Scope of Delivery

The INFLAS PRO was designed and assembled by EBRO ARMATUREN and is suitable for shutting off media power. For this purpose, an annular gap between the valve, disc and the seal is closed by the inflation of the sleeve.

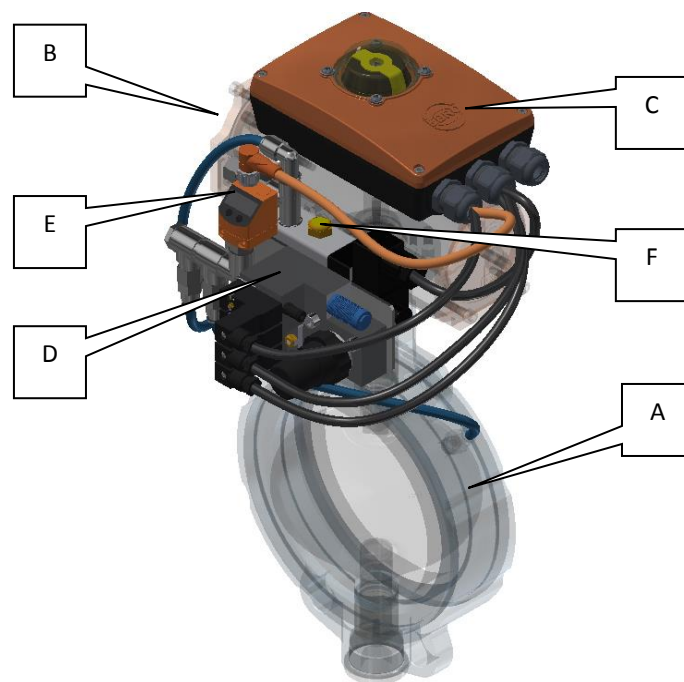
The INFLAS PRO is intended for installation in a piping system in the incomplete machine, supplied by us. It consists of:

- Pos. A A valve with inflatable sleeve (only if one valve unit is supplied).
- Pos. B A swivel drive (only for delivery of one valve unit).
- Pos. C An SBU-INFLAS PRO as control unit.
- Pos. D An INFLAS Vacuum valve manifold.
- Pos. D.1 An INFLAS valve manifold.
- Pos. E A pressure switch
- Pos. F A solenoid valve for valve control
- Pos. F.1 A solenoid valve for inflate the seat

Once you receive the INFLAS PRO, check whether it matches your order and that all modules are complete.

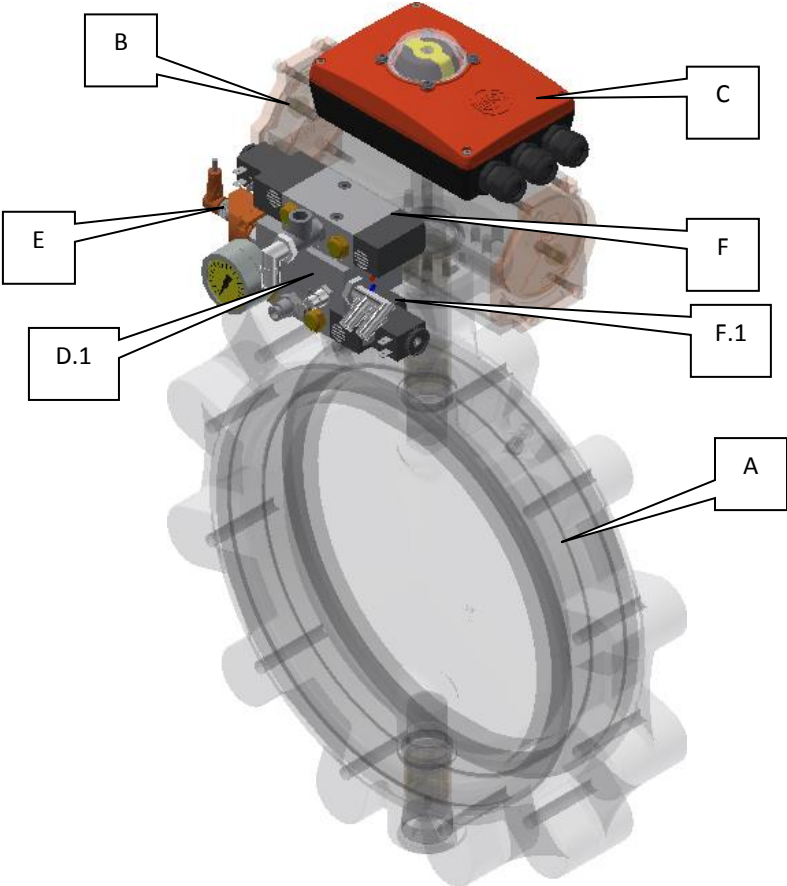
Notify:

- Recognisable transport damage immediately to the supplier.
- Recognisable defects or incompleteness immediately to EBRO ARMATUREN GmbH.



INFLAS PRO Vacuum





INFLAS PRO

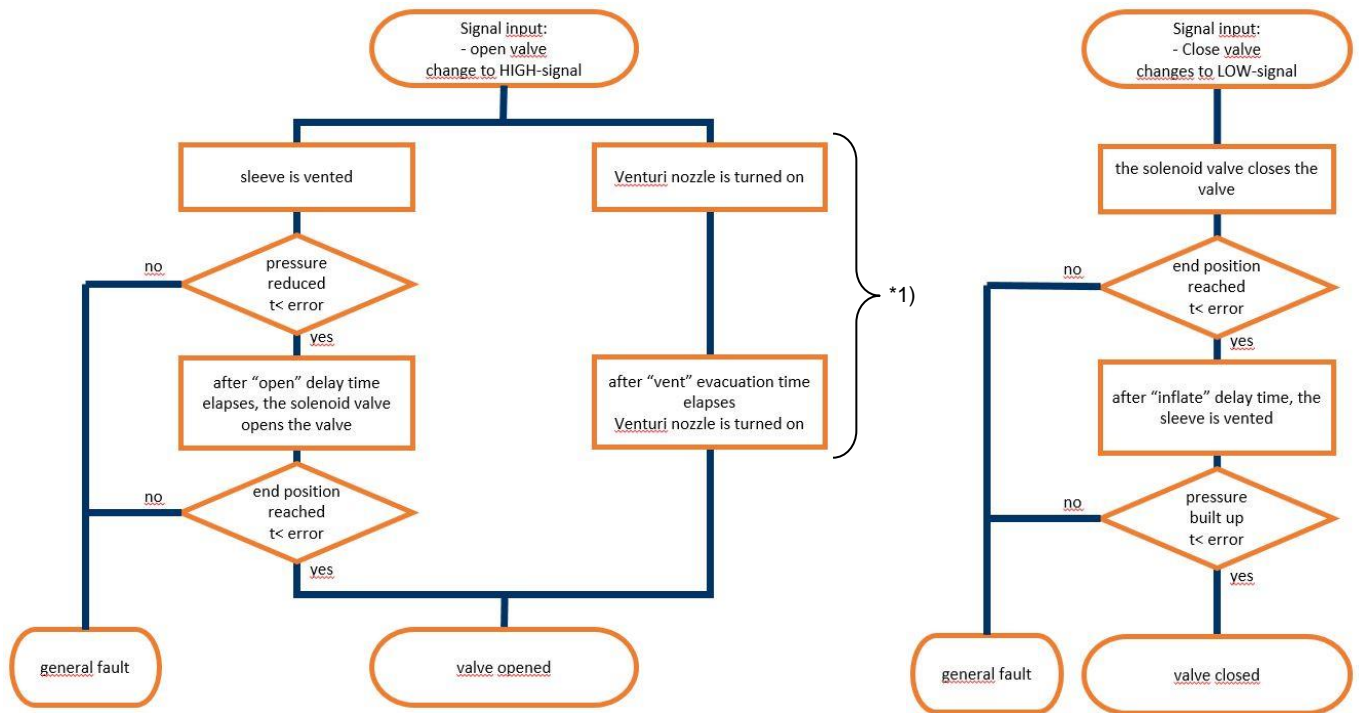
### **G03 Description of the Modules**

The INFLAS PRO consists of the components listed in chapter G02 Scope of delivery:

- Pos. A A valve with inflatable sleeve (only if one valve unit is supplied).  
Any valve from the EBRO range of products that has the option of an inflatable sleeve can be used here.
- Pos. B A swivel drive (only for delivery of one valve unit).  
Any pneumatic swivel drive from the EBRO range of products can be used here.
- Pos. C An SBU-INFLAS PRO as control unit.  
Only SBU switch boxes from the EBRO range of products, which have the INFLAS control function, can be used here.
- Pos. D An INFLAS Vacuum valve manifold.  
Only the valve manifold approved by EBRO can be used here.
- Pos. D.1 An INFLAS valve manifold.  
Only the valve manifold approved by EBRO can be used here.
- Pos. E A pressure switch  
Only pressure switches approved by EBRO and suitable for operation with the SBU INFLAS control can be used.
- Pos. F A solenoid valve for valve control  
Only solenoid valves with a coil voltage of 24 V DC and a maximum power of 3 watts that are approved by EBRO and suitable for operation with the SBU INFLAS controller can be used.
- Pos. F.1 A solenoid valve for inflate the seat  
Only solenoid valves with a coil voltage of 24 V DC and a maximum power of 3 watts that are approved by EBRO and suitable for operation with the SBU INFLAS controller can be used.

**G04 Functional Sequence of INFLAS PRO**

In the INFLAS PRO, the work steps are as follows:



\*1)  
Only INFLAS PRO Vacuum.

## H) Maintenance and Service

### H01 General Maintenance and Overhaul

Before starting any maintenance and repair work, read the Safety notes chapter. When purchasing spare parts and wear parts, original parts from EBRO ARMATUREN GmbH and those of the manufacturers of the purchased parts must be used. It should be noted that spare parts not supplied by the respective manufacturer have not been tested and approved. The installation or the use of such parts may therefore adversely affect the design specifications of the INFLAS PRO and thus, impair the active or passive reliability.

Any liability of the manufacturer for damage caused by the use of non-original parts and accessories is excluded.

The resulting work and activities on the INFLAS PRO may only be carried out by qualified personnel. Please also refer to the Qualified personnel chapter.

The listed safety notes must be followed and are valid for all subchapters.

Maintenance must be authorised by the operator and may only be carried out by qualified personnel.

---

**CAUTION**

**Damage and disruptions of the INFLAS PRO due to lack of maintenance.**



Material damage to the INFLAS PRO and eventually shorter service life.

Maintain and repair the INFLAS PRO according to the specified interval!  
Pay attention to shift operation!

---

**HAZARD**

**Life-threatening hazard due to electric voltage.**



Severe injury or death due to electric shock.

The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

**HAZARD**

**Danger due to uncontrolled start of pneumatic components.**



Severe injuries in the case of incorrectly connected pneumatic components or pneumatic components, which start in an uncontrolled manner.

The pneumatic components may only be connected by a specialist.

Before switching on the pneumatics, all components and connections must be checked.

---

## CAUTION

**Hazard through operating or hazardous substances or through media.**



Severe injuries or damage to the INFLAS Pro.

The safety data sheets of the operating and hazardous substances must be present and observed.

Use the personal protection equipment required in the safety data sheet when handling the respective hazardous substance.

---

## NOTE



Unlock INFLAS Pro and secure against restart using a lock.

Unlock electrical components and INFLAS Pro before any work, maintenance, adjustment and repair, and secure them against being switched on again.

Depressurise pneumatic components and INFLAS Pro during all work and secure against pressurisation.

---

## HAZARD



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

---

Refer to Chapter A10 on maintenance!

**H02 Maintenance Intervals**

The service life is limited to a maximum of 10 years or to a maximum of 1,000,000 switching cycles.

This documentation must be available during maintenance or repair work by the manufacturer.

Element	Maintenance activity	Maintenance intervals			Information
		Before every shift	Daily	Half-yearly	
Entire INFLAS Pro	Check		•		Immediately report and eliminate changes in the operating behaviour!
Tightness of INFLAS Pro and the flange connections	Check		•		Daily, external leak test must be carried out. Report leaks immediately and have them rectified! Intervals for the internal leak test and/or replacement of the sealing elements according to the operating instructions of the valve types used.
Entire INFLAS Pro	Cleaning			•	All impurities must be removed at least every 6 months!

## **H03 Cleaning of the INFLAS PRO in General**

The operation of the INFLAS PRO occasionally produces a mixture of oil, dust and other foreign particles. These deposits can disrupt the operation and function of the INFLAS PRO.

In order to avoid these disruptions, you must observe the maintenance intervals and clean the INFLAS PRO from the outside at least every 6 months.

---

### **HAZARD**

#### **Danger due to uncontrolled moving components.**



Severe injury or death when working on running INFLAS Pro n.

Prior to any cleaning work, the INFLAS Pro must be depressurised and secured against unexpected restart.

Do not carry out cleaning work during operation.

---

---

### **CAUTION**

#### **Danger due to incorrect or aggressive cleaning agents.**



Injuries or damage to the INFLAS Pro.

The safety data sheets of the cleaning agents must be present and observed.

Use only a dry cloth and, if necessary, commercially available cleaning agents.

---

Any existing dust layers on the components of the INFLAS PRO can reduce the heat exchange of the INFLAS PRO with the ambient air. This can lead to heat accumulation. Any deposits or dust layers must be removed to avoid increase in surface temperature above the allowed max. limit. Dust deposits are to be removed by suction before the layer thickness reaches 5 mm.

---

### HAZARD



**Life-threatening hazard due to elevated surface temperature in the potentially explosive area.**

Severe injury or death due to explosion or fire.

When operating the INFLAS Pro, make sure the passing media dust as well as the deposits do not lead to an increase in the surface temperature. In this regard, follow the technical data.

Remove the dust deposits from INFLAS Pro!

---



## I) Errors, Causes and Repair

### I01 *General Disruptions*

Before beginning the troubleshooting, read the Safety notes chapter. The listed safety notes must be followed and are valid for all subchapters.

---

**HAZARD**

**Life-threatening hazard due to electric voltage.**



Severe injury or death due to electric shock.

The INFLAS Pro may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the INFLAS Pro against being turned on again.

---

**HAZARD**

**Danger due to uncontrolled start of pneumatic components.**



Severe injuries in the case of incorrectly connected pneumatic components or pneumatic components, which start in an uncontrolled manner.

The pneumatic components may only be connected by a specialist.

Before switching on the pneumatics, all components and connections must be checked.

---

**CAUTION**

**Hazard through operating or hazardous substances or through media.**



Severe injuries or damage to the INFLAS Pro.

The safety data sheets of the operating and hazardous substances must be present and observed.

Use the personal protection equipment required in the safety data sheet when handling the respective hazardous substance.

---

**NOTE**



Unlock INFLAS Pro and secure against restart using a lock.

Unlock electrical components and INFLAS Pro before any work, maintenance, adjustment and repair, and secure them against being switched on again.

Depressurise pneumatic components and INFLAS Pro during all work and secure against pressurisation.

---

**HAZARD**



**Life-threatening hazard if the regulations in the potentially explosive area are not observed.**

Severe injury or death due to explosion or fire.

During installation and operation of the INFLAS Pro, make sure the applicable regulations, directives, etc. are complied with and observed, so that there is no danger of ignition due to electrostatic charge.

Observe the operator's regulations and guidelines!

**I02 General Fault**

Faults are signalled by a flashing of the fault LED in red colour and the switching of the output 15. General fault.

All fault messages have no effect on the current program sequence.

If the cause of the fault has been eliminated or the INFLAS PRO is restarted, the fault is reset.

**I03 Faults - Cause - Repair**

Faults that are signalled by the INFLAS PRO are:

These can be:

Fault	Cause	Remedy
General fault	Timeout: Pressure reduction of the sleeve	Check the following components: <ul style="list-style-type: none"> <li>- Vent valve switched on</li> <li>- Inflation valve switched off</li> <li>- Function of pressure switch, check compressed air supply</li> </ul>
	Timeout: Pressure build-up of the sleeve	Check the following components: <ul style="list-style-type: none"> <li>- Vent valve switched off</li> <li>- Inflation valve switched on</li> <li>- Function of pressure switch, check compressed air supply</li> </ul>
	Timeout: Reaching the end position "Open"	Check the following components: <ul style="list-style-type: none"> <li>- Fittings valve switched on</li> <li>- Drive function</li> </ul> Check compressed air supply
	Timeout: Reaching the end position "Closed"	Check the following components: <ul style="list-style-type: none"> <li>- Fittings valve switched off</li> <li>- Drive function</li> </ul> Check compressed air supply

## J) Disposal

### J01 Environmental Protection

Contribute to environmental protection by recycling valuable raw materials and conserving resources. Incidentally, we refer to the respective disposal guidelines of the countries.

What should be disposed of?	Material	How should it be disposed of?
Transport material Packaging	Pallets Paper and cardboard Plastics	Return to the manufacturer or forwarder Add to old paper Plastic recycling or yellow bag
Cleaning cloths Oil and grease	Material, oils and fats	Oil and greasy waste
Components	Control Electronic devices and components Metal Plastics	Add to the electronic waste Add to the electronic waste Metal recycling Add to the plastic recycling

**CAUTION Hazard caused by Operating Materials and Hazardous Substances.**



Severe injuries or environmental damage.

The safety data sheets of the operating and hazardous substances must be present and observed.

Use the personal protection equipment required in the safety data sheet when handling the respective hazardous substance.

The legal obligations concerning waste prevention and recycling and disposal according to regulations must be observed whenever work is carried out on or with the INFLAS Pro.

In particular, during installation, repair and maintenance water polluting substances such as lubricant greases and oils may not pollute the soil or enter drains! These substances must be kept, transported and disposed of in suitable containers.

## **K) Spare Parts**

### ***K01 Spare Parts in General***

When purchasing spare parts and wear parts, original parts from EBRO ARMATUREN GmbH and those of the manufacturers of the purchased parts must be used. It should be noted that spare parts not supplied by the respective manufacturer have not been tested and approved. The installation or the use of such parts may therefore adversely affect the design specifications of the INFLAS PRO and thus, impair the active or passive reliability.

Any liability of the manufacturer for damage caused by the use of non-original parts and accessories is excluded.

The spare and wear parts lists are attached to this operating manual.

### ***K02 Spare Parts Order***

For each spare parts order, you must provide the following information:

- type.
- order number.
- part no. (parts catalogue).
- ID no. or drawing no. (parts catalogue).

In case of non-compliance with these 4 points, we cannot guarantee speedy delivery of the ordered spare part.