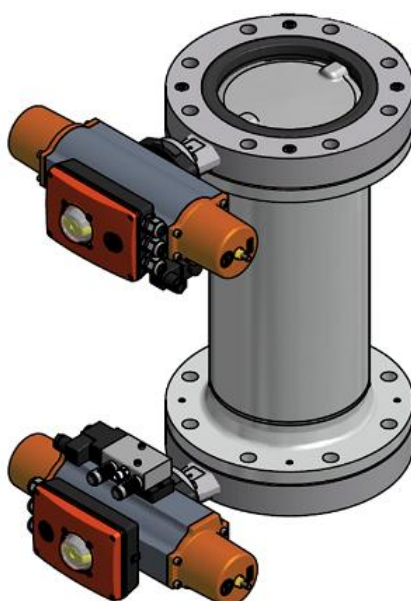


Cycle Lock CL Explosion Decoupling ATEX

"Cleaning Position Option"

for use in potentially explosive areas



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

Operating Manual with technical Annex

in accordance with EC Machinery Directive 2006/42/EC
in accordance with EC ATEX Directive 2014/34/EC

Language version English

Table of Contents

	Page
A) GENERAL INFORMATION	4
A01 NOTE TO THE OPERATING MANUAL	4
A02 DESIGN OF THE HAZARD SYMBOLS	4
A03 TERMS USED	6
A04 ABOUT THIS OPERATING MANUAL	6
A05 NOTE ON COPYRIGHT AND TRADEMARK	7
A06 WARRANTY AND LIABILITY	7
A07 LEGAL REGULATIONS	7
A08 NOTES FOR THE OPERATOR	7
A09 QUALIFIED STAFF	9
A10 TRAINING AND EDUCATION	10
B) SAFETY NOTES	10
B01 GENERAL SAFETY NOTES	10
B02 PROPER USAGE	10
B03 ORGANISATIONAL MEASURES	11
B04 SAFETY NOTES FOR THE OPERATING STAFF	12
B05 SAFETY NOTES FOR OPERATING THE CLEANING POSITION OPTION	13
B06 SAFETY NOTES FOR MAINTENANCE AND OVERHAUL	14
B07 SAFETY NOTES FOR WORKING ON THE ELECTRICAL SYSTEM	14
B08 SAFETY NOTES FOR HANDLING OPERATING SUPPLIES OR MEDIA	16
B09 SAFETY NOTES FOR USE IN POTENTIALLY EXPLOSIVE AREAS	17
B10 SAFETY NOTES FOR ELECTRICAL INSTALLATION IN POTENTIALLY EXPLOSIVE AREAS	17
B11 ATEX DIRECTIVE 2014/34/EU MANUFACTURER	18
B12 ATEX DIRECTIVE 1999/92/EC CYCLE LOCK OPERATOR	19
B13 RESIDUAL HAZARDS	19
B14 HAZARDS FROM PREDICTABLE MISUSE	21
C) USAGE CONDITIONS	22
D) STORAGE, PACKAGING AND TRANSPORTATION	22
D01 STORAGE	22
D02 PACKAGING	22
D03 GENERAL TRANSPORTATION	22
E) INSTALLATION INSTRUCTIONS	23
E01 INSTALLATION OF THE CLEANING POSITION OPTION	23
E02 CONNECTION OF THE ELECTRICAL COMPONENTS	23
E03 ELECTRICAL CUSTOMER CONNECTION	25
E04 ELECTRICAL CUSTOMER CONNECTION – OFFSET CONTROL BOX	26
E05 ACTIVATION OF THE CLEANING POSITION OPTION	26
E06 DISASSEMBLY OF THE CYCLE LOCK	28
F) SAMPLE RUN AFTER INSTALLATION	29
F01 SAMPLE RUN	29
G) PRODUCT DESCRIPTION	29

G01	PROPER USAGE	29
G02	SCOPE OF DELIVERY	31
G03	DESCRIPTION OF THE MODULE	32
G04	FUNCTIONAL SEQUENCE OF THE CLEANING POSITION	33
G05	SOFTWARE-RELATED LOCKING	33
H) OPERATION AND VISUALIZATION		34
H01	GENERAL NOTES FOR OPERATION	34
H02	OPERATING SET-UP ON THE TOUCH PANEL	34
H03	MAIN SCREEN	35
H04	MANUAL SCREEN	36
I) PLC PROGRAMMING		37
I01	PROGRAM EXTENSION ORGANISATION	37
J) MAINTENANCE AND OVERHAUL		37
J01	GENERAL MAINTENANCE AND OVERHAUL	37
J02	MAINTENANCE INTERVALS	39
K) ERRORS, CAUSES AND REPAIR		39
K01	GENERAL DISRUPTIONS	39
K02	ERROR DISPLAY SCREEN	40
K03	ERRORS – CAUSE – REPAIR	41
L) DISPOSAL		41
L01	ENVIRONMENTAL PROTECTION	41
M) SPARE PARTS		42
M01	SPARE PARTS IN GENERAL	42
M02	SPARE PARTS ORDER	42
N) INDEX		42

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

www.ebro-armaturen.com
 EBRO ARMATUREN GmbH
 Karlstraße 8
 58135 Hagen, Germany
 ☎ (02331) 904-0
 Fax (02331) 904-111

A) General Information

A01 *Note to the Operating Manual*

The "Cycle lock CL explosion decoupling ATEX cleaning position option" manual described below is only valid and applicable in conjunction with the "Cycle lock CL explosion decoupling ATEX" original assembly manual.


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	Macht auf eine mögliche Gefahrensituation oder unsichere gefährliche Verfahrensweisen aufmerksam, die zu Verletzungen von Personen oder Sachschäden an der Taktschleuse oder ihrer Umgebung führen könnten

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 safe, proper and efficient handling of the cycle lock. 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 cycle locks 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 cycle lock. All notes should be fulfilled in the interest of proper usage of the cycle locks. Share all notes with other users as well!
<ul style="list-style-type: none">•	Work and/or operating steps are marked with the bullet. The steps must be executed from top to bottom!
	Components and their installation spot within the cycle locks are identified with the square and round keys and a letter. Remember that the letters are assigned again for every chapter and always start with A.



Notes and symbols directly installed on the cycle locks, like warning signs, activation signs, rotating direction arrows, component identifications, etc. must be observed.
The notes and symbols attached directly on the cycle locks may not be removed and must be kept in a completely legible condition!

A03 Terms Used

Cycle lock CL explosion decoupling with functional safety for potentially explosive areas.

For this incomplete machine for delivering and dosing products, the term cycle lock is used in the following text.

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 cycle lock, the term operator is used in the following text. This group of people is trained at the cycle lock and informed about the possible hazards

A04 About this Operating Manual

This operating manual is valid for the cleaning position option of cycle locks in the safety version with functional safety for use in potentially explosive areas. It is an addition to the previous original assembly instructions for the cycle lock explosion decoupling ATEX.

The cleaning position option in the incomplete machine delivered by EBRO ARMATUREN is specified as an option for the cycle lock explosion decoupling ATEX.

When operating the cleaning position option, in addition to this operating manual, you must also observe the operating manual of the original assembly instructions for the cycle lock explosion decoupling ATEX and from our suppliers.

This operating manual serves for safe work with the cleaning position option and represents a significant help for the successful and safe operation of the cycle lock.

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

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

All people, who work on and with the cycle lock 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 cycle lock 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 cycle lock. 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 cycle locks 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 cycle lock.
- improper work on and with the cycle lock.
- 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 cycle lock 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 cleaning position option, the complete cycle lock corresponds to the corresponding directives, and the cycle lock conformity is established for the complex cycle lock.
- the required protective equipment and the EMERGENCY STOP equipment are installed and programmed in connection with the on-site cycle lock.
- 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 cleaning position option.
- during installation or maintenance work for the cleaning position option, the required accident prevention regulations and safety guidelines are complied with.
- during installation or maintenance work for the cleaning position option, 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, in 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 cycle lock 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 cycle lock, 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 cycle lock. Furthermore, they may also train other people in the usage and functions of the cycle lock.

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

Activities	Trained personnel	Trained personnel with technical qualification	Specialist electricians
Installation / set-up		•	•
Commissioning		•	•
Operation	•		
Troubleshooting mechanical		•	
Troubleshooting electrical			•
Disassembly		•	•
Cleaning	•		
Maintenance		•	•
Work on the electrical system			•
Packaging and transportation	•		
Work on the safety components or the safety chain	Trained and instructed personnel of EBRO Armaturen Gebr. Bröer GmbH		

Any work to be performed at the cleaning position option may only be carried out by employees of EBRO ARMATUREN GmbH.

- The operating personnel is obliged to check the cycle lock and its functional groups at least once per shift for externally visible damage and defects. Occurred changes, including the operating behaviour, which affect the safety, must be reported immediately and have EBRO ARMATUREN GmbH eliminate them.
Within the protective device, no change may be made to the connecting cables, the terminals and connectors, and all other connections.

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 cycle lock.

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 cycle lock, please contact EBRO ARMATUREN GmbH for the purpose of agreeing on the conditions.

B) Safety Notes

B01 General Safety Notes

The applicable general safety instructions for the cycle lock are listed in the original assembly instructions for cycle lock explosion decoupling ATEX under "B01 General safety notes".

The safety notes of the cleaning position option are named below and are considered as additional information

B02 Proper Usage

This cleaning position option of the cycle lock CL explosion decoupling ATEX, which

- a) applies only as supplementary information to the existing cycle lock explosion decoupling ATEX,
- b) must provide the operator with the option to open and close both valves at the same time when cleaning the cycle lock.
- c) additionally consists of the "cleaning position" module:
 - two safety coupling relays
 - a key switch mounted on the control cabinet
 - additional customer interface
- d) 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 and firmly screwed on the site with the two flange ends between the silo top and (piping) system, it is completely closed and thus, a "complete machine" in the sense of this Machinery Directive.
- may only be used in a non-explosive atmosphere. This is at the discretion of the operator.

Please also note the supplementary information on proper usage in the "G01 Proper Usage" section

B03 Organisational Measures

The cleaning position option 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 cycle lock and other objects, the following organisational measures must be complied with:

- Observation of the proper usage of the cleaning position option.
- Operation of the cleaning position option in a technically proper state.
- Usage of adequately qualified staff.
- Compliance with the maintenance intervals.
- 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 cycle lock. The staff assigned with activities on the cycle lock 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 cycle lock.

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

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

The cycle lock may only be operated by staff with the corresponding qualifications.

The operating personnel is obliged to check the cycle lock and its functional groups at least once per shift 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 cycle lock may only be used in a technically proper state as well as properly, safely and hazard-conscious manner under observation of this operating manual as well as the original assembly instructions for cycle lock explosion decoupling ATEX! 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 cycle lock 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 cycle lock.

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 cycle lock 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 cycle lock, 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 cycle lock 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 cycle lock under the constant supervision of an experienced, qualified person!

B05 Safety Notes for Operating the Cleaning Position Option

For all work that affects the operation, refitting or setting of the cycle lock and its safety equipment, the inspection, maintenance and repair, the switch on and off processes must be observed in accordance with this operating manual, the original assembly instructions for the cycle lock explosion decoupling ATEX and the notes for maintenance!

The cleaning position option may only be put into operation in conjunction with the cycle lock explosion decoupling ATEX in ready-to-operate state.

Before switching on the cleaning cycle lock option, make sure nobody is within the danger zone to prevent any danger from the starting cycle lock! The cleaning position option may only be operated in the installed state. Cleaning is only permitted with a medium flow. Mechanical/manual cleaning is prohibited. The cycle lock must be checked for any externally recognisable damage at least once a shift. 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 cycle lock, stop it immediately and secure against restart. Have disruptions repaired immediately by trained technicians.

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 cycle lock, 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!

HAZARD



Risk of crushing the upper limb.

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

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

B06 Safety Notes for Maintenance and Overhaul

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

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

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

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

The overhaul area, if required, must be blocked off generously!

The cycle lock must be completely turned off for maintenance, repair and overhaul work and secured against unexpectedly being turned on again.

In order to avoid electric shocks, do not open any electrical components, casings and covers.

Do not touch damaged, torn parts, in particular those with voltage.

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

Cleaning the area around cycle lock so that no explosive atmosphere can occur during maintenance and overhaul.

The disassembly of the safety equipment during maintenance or overhaul must be carried out only by the manufacturer or a qualified person with official approval (Ordinance on Industrial Safety and Health Annex 2 Section 3 No. 4.2) with subsequent check!

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 cycle lock, 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, overhaul 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!

B07 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 cycle lock immediately.

Active parts of the electrical cycle lock under voltage may not be worked on.

Before beginning work with parts of the cycle lock that are supplied with electrical energy, turn off the cycle lock on the main switch and secure the cycle lock against being turned on unexpectedly. Otherwise a hazard through electrical voltage exists!

Only use original fuses with the prescribed current strength.

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

The switch cabinet and all clamp and connection boxes must be closed at all times. Only authorised staff is permitted to access the electrical cycle lock for inspection and maintenance.

The active parts of the electrical cycle lock 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 cycle lock 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 electric cycle lock, protection against hazardous contact voltage is also provided.

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



Severe injury or death due to electric shock.

The cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock 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 cycle lock. That is why there must be sufficient grounding of the cycle lock

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



Disruptions or damage to components.

The cycle lock may only be connected by a specialist electrician.

The cycle lock must be grounded.

B08 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 in 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! The operator must ensure that there is no hazard due to materials and substances in the pipeline during activation of the cleaning position option.

CAUTION Hazard through operating or hazardous substances or through media.



Sever injuries or damage to the cycle lock.

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.



B09 Safety Notes for Use in Potentially Explosive Areas

The operator must take into account the safety notes listed here for using the cleaning position option 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 cycle lock, in which all used components, materials and control components (electrical and pneumatic) meet the requirements of the listed directives.

The cleaning position option is governed by the same safety regulations as the cycle lock explosion decoupling ATEX, into which the former is installed.

The operator of the cleaning position option is responsible for using and connecting it as intended within the scope of the information contained in this operating manual.

The cycle lock manufacturer is not responsible for this.

B10 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 cleaning position option, the applicable national ordinances and regulations must be observed.

Work on live electrical cycle locks 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 cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock against being turned on again.

WARNING

Disruptions to operation through electrostatic charge.



Disruptions or damage to components.

The cycle lock may only be connected by a specialist electrician.

The cycle lock 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 cycle lock, make sure the cycle lock including all components and the piping system are earthed.

Earth the cycle lock and the piping system via safe earthing with a fixed earthing point!

B11 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 (formerly directive 94/9/EC also called ATEX 100a or ATEX 95). The directive describes the requirements of the "essential occupational health and safety requirements as well as conformity assessment procedures for electrical and non-electrical devices and protective systems that can be used in potentially explosive atmospheres.

For the cycle lock of EBRO ARMATUREN, the conformity assessment procedure of the EU-type examination was successfully applied according to Annex III of the Directive 2014/34/EU and concluded with the award of the EU-type examination certificate.

Furthermore, before the delivery of the cycle lock, the production monitoring according to 2014/34/EU is ensured by

- Annex IV (Quality Assurance) or
- Annex V (testing of products by a notified body)

The cycle lock 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.

B12 ATEX Directive 1999/92/EC Cycle Lock Operator

The ATEX Operating Directive 1999/92/EC (also referred to as ATEX 118a or ATEX 137) describes the requirements for the operation of cycle locks 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 cycle lock.

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 cycle lock.

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 cycle lock, 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!

B13 Residual Hazards

The hazards that come from the cleaning position option occur during work within the actual limits of the cycle lock if you have to operate the cycle lock 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 cleaning position option has to be operated so that they can turn off the complete cycle lock 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 cycle lock. Anybody, who works on and with the cycle lock 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 cycle lock 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 cycle lock, 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 Hazards from Predictable Misuse

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

- The additional cleaning position option may be operated outside commissioning or maintenance only with the switch room closed
- The use of modified actuators to signal the release is prohibited.
- Within the protection equipment, no change may be made to the connection cables, as well as the terminal and plug connections.
- The disconnection of contact and plug connections under voltage is prohibited.
- The cycle locks must not be disconnected from the earthing system.
- The maximum and minimum operating conditions must be observed (for further information, refer to the original assembly instructions for cycle lock explosion decoupling ATEX)

HAZARD

Hazard from bypassing protection equipment.



Severe injury or death due to explosion or fire.

When operating the cycle lock, make sure the protective equipment is fully functional and is not improperly operated by intentional or unintentional manipulation.

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 cycle lock, 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

The aspects of spatial boundaries to be considered include:

- a) The movement space around the switch room of the additional cleaning position option of a cycle lock CL explosion decoupling is freely accessible.
- b) The space requirement of persons during the operation is negligible. Free access to all components must be ensured during maintenance and repair work.
- c) In order to avoid interactions between human and machine, it is essential to keep a safe distance of at least 45 cm between the silencers and the eyes and all body openings.
- d) The interface of the power supply is to be made inaccessible to people during operation.

For additional usage conditions, please refer to the original assembly instructions for cycle lock explosion decoupling ATEX "C) Operating conditions".

D) Storage, Packaging and Transportation

D01 Storage

Notes for storage can be found in the original assembly instructions for the cycle lock explosion decoupling ATEX under "*D01 Storage*".

D02 Packaging

Notes for packaging can be found in the original assembly instructions for the cycle lock explosion decoupling ATEX under "*D02 Packaging*".

D03 General Transportation

Notes for transportation can be found in the original assembly instructions for the cycle lock explosion decoupling ATEX under "*D03 General Transportation*".

E) Installation Instructions

E01 Installation of the Cleaning Position Option

The cleaning position option is an addition to the existing functional safety control. This is located in the already completed switch box.

The installation or assembly site must have sufficient load-bearing capacity and should be vibration-free. The switch box 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.

The activation of the cleaning position option is only permitted if the cycle lock is completely installed in a piping system.

HAZARD

Risk of crushing the upper limb.



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

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

E02 Connection of the Electrical Components

Shut down the cycle lock 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, fuses and sockets are sufficiently dimensioned and protected according to the drive 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. All terminal points, even the unused ones, must be tightened.

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

The control unit of the cycle lock is integrated into the potential equalisation via the externally mounted connection point for equipotential bonding conductors, suitable for 4 mm² conductors.

Potential equalisation of the valve takes place towards the pipeline via a 4 mm² conductor attached to the valve, which makes contact with the pipeline via the fastening elements.

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 cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock 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 cycle lock. That is why there must be sufficient grounding of the cycle lock

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



Disruptions or damage to components.

The cycle lock may only be connected by a specialist electrician.

The cycle lock must be grounded.

The operator must therefore ensure that the cycle lock 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 cycle lock 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 cycle lock, make sure the cycle lock including all components and the piping system are earthed.

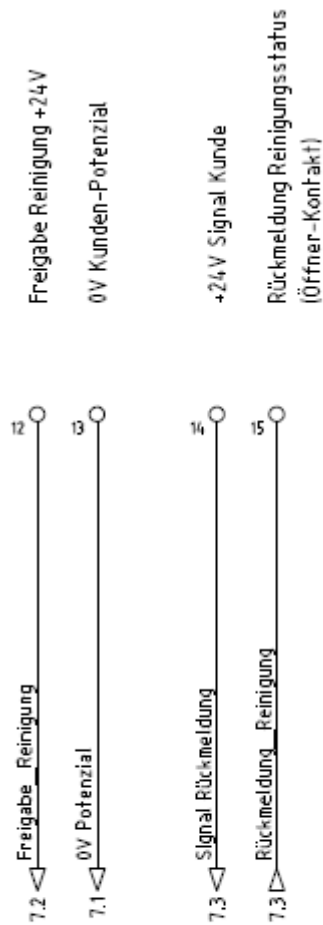
Earth the cycle lock and the piping system via safe earthing with a fixed earthing point!

E03 Electrical Customer Connection

The following customer connection described is considered as an addition to the cleaning position option. The components of the cleaning position option are already pre-wired. All you have to do is connect your cables for the signal lines to terminals X2 on site.

Please observe the attached wiring diagram. A signal that corresponds at least to the MTTFd value of 200 a and has a diagnostic coverage of at least 60% must be selected for external activation. The operator is solely responsible for this implementation.

Excerpt of external terminal allocation:



E04 Electrical Customer Connection – Offset Control Box

The components of the cleaning position option are pre-wired as an extension in the control box. All external signal lines must be laid separately, shielded and the shield earthed on both sides over a large area.

The maximum cable length between the protection system and the offset control unit is 20 metres.

These cables must be connected in the components as specified in the enclosed wiring diagram.

The connection cable must be protected from mechanical damage. Tensile, shear and torsional stress should be avoided.

E05 Activation of the Cleaning Position Option

The cleaning position option is to be activated via terminal row X2 and a key switch located on the control cabinet

Interference with the internal wiring is prohibited.

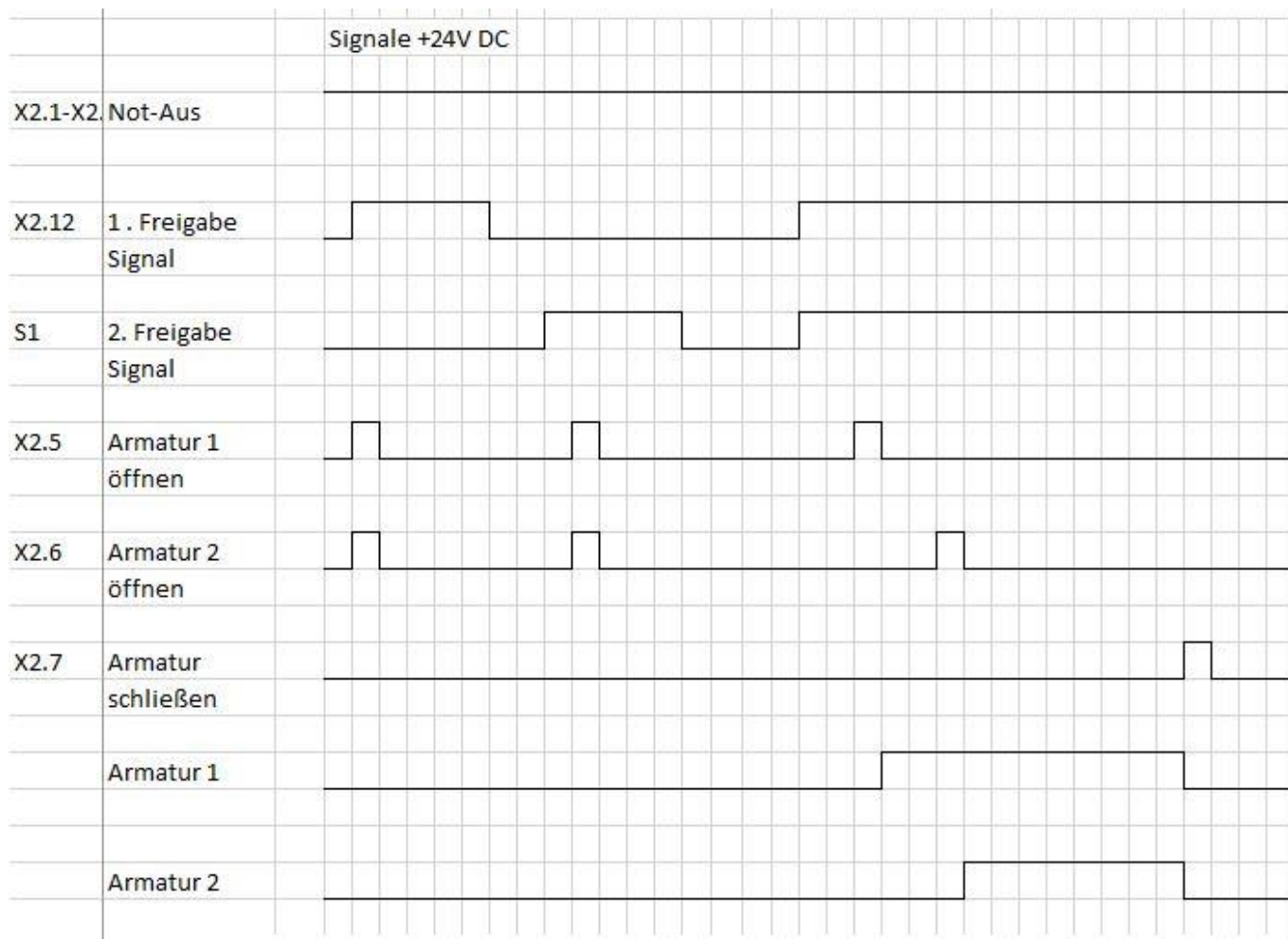
Terminal allocation

Terminal / component	Designation	Function
X2.12	K2.A1	+24V DC enable signal 1 cleaning position
X2.13	K2.A2	0V
X2.14	S1.11	Feedback key switch, NC contact (11), potential-free
X2.15	S1.12	Feedback key switch, NC contact (12), potential-free
S1	Key switch	Enable signal 2 cleaning position

Activation of the cleaning position may only take place in manual mode.

Signal allocation:

By the signal control at the above terminal row X2 in combination with the key switch S1, the following signal level diagram results.



Attention



Note

Any deviating activation of the cycle lock leads to the triggering of the safety function and thus, immediate closing of the valves.

E06 Disassembly of the Cycle Lock

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

Disassembly must be authorised by the operator and may only be carried out by qualified personnel. The cleaning position option actuates one or both drives of the cycle lock and rotates the disk of the valve. In addition, during disassembly of components of the cleaning position option, persons may come into contact with live parts. Therefore, take the cycle lock out of service, switch it off and secure it against restart before disassembling.

NOTE



Unlock cycle lock and secure against restart using a lock.

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

Depressurise pneumatic components and cycle locks during all work and secure against pressurisation.

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 due to electric voltage.



Severe injury or death due to electric shock.

The cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock against being turned on again.

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 cycle lock, 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!

F) Sample Run after Installation

F01 Sample Run

The delivered cleaning position option of the cycle lock explosion decoupling ATEX has been produced according to the technical data specified in the order and has been factory set and checked.

However, once the cycle lock 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 follow these steps on all components.

- Check whether all components and connections have been correctly and firmly installed.
- Check the programming or control of the cycle lock for functionality.
-

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 cycle lock, make sure the cycle lock including all components and the piping system are earthed.

Earth the cycle lock and the piping system via safe earthing with a fixed earthing point!

G) Product Description

G01 Proper Usage

The cleaning position option from EBRO ARMATUREN GmbH only supplements the cycle lock explosion decoupling ATEX. The option is used for temporary shutdown of the safety function (muting). Thus, the interlocking of both butterfly valves is disabled and allows simultaneous opening or closing of the valves.

The cycle lock is an incomplete machine, which is intended for the installation in a tubing system or for attachment to a silo, container or similar systems.

The manufacturer of the cycle lock, which completes the incomplete machine by installation and connection is obligated to create a risk assessment. In particular, the interfaces to the cycle lock components or the cycle lock must be observed here. If due to this observation it is necessary to install further protective equipment at the cycle lock, this occurs in the responsibility of the manufacturer of the machine.

The cycle lock may only be operated with the accessories, which are designated and approved for this by EBRO ARMATUREN GmbH.

The specifications in the Technical Data sub-chapter as well as in the original documentation of the supplier products in the attachment must be observed and complied with.

Any other use shall be deemed improper.

Only the operator of the cycle lock is responsible for any damage resulting from this. This also applies to independent changes to the cycle lock.

The proper usage includes compliance with the notes on safety, operation and maintenance and repair, which are described in this operating manual and in the documentation of the supplier products.

The following applies to the cleaning position option:

- the cleaning position option is used only for manual, simultaneous activation of the butterfly valves
- the operator must ensure that during the period of activation of the "cleaning position" option, there is no hazard from materials and substances in the pipeline and thus, no potentially explosive atmosphere prevails
- the operator is obliged to ensure this by taking measures he has defined during the risk assessment of the entire system.
- The cleaning position option disables the interlocking of both butterfly valves (muting).
- is only to be used for the purposes confirmed by EBRO ARMATUREN GmbH and operated only under the usage conditions specified in this operating manual.
- is only to be operated with the settings specified in this operating manual.
- Independent structural changes to the cleaning position option, without written consent from the manufacturer, as well as changes and interventions to the electric system or the control and settings are forbidden or must be agreed upon with EBRO ARMATUREN GmbH.

Please also note the supplementary information on proper usage in the "B02 Proper Usage" section

HAZARD



Hazard through improper usage of the cycle lock

In the event of improper or illegal usage of the cycle lock, people may be severely injured or killed. Furthermore, the cycle lock may also be damaged. Only use cycle locks properly! Do not make any changes to the cycle lock! 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 cycle lock.

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

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 cycle lock, 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 cleaning position option was designed and created at EBRO ARMATUREN. This option is intended for the cycle lock explosion decoupling ATEX delivered by us.

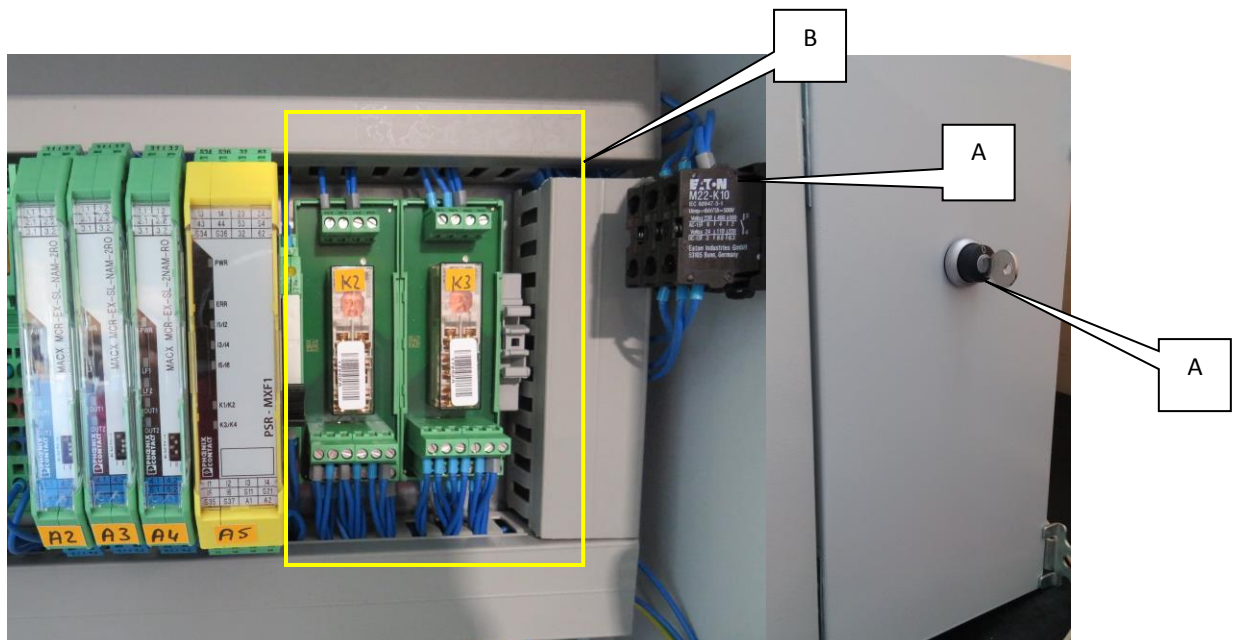
It consists of:

- An additional key switch on the control cabinet (A)
- "Cleaning position" module (B)
- Operating and installation instructions.
- Declaration of conformity and type examination certificate.

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

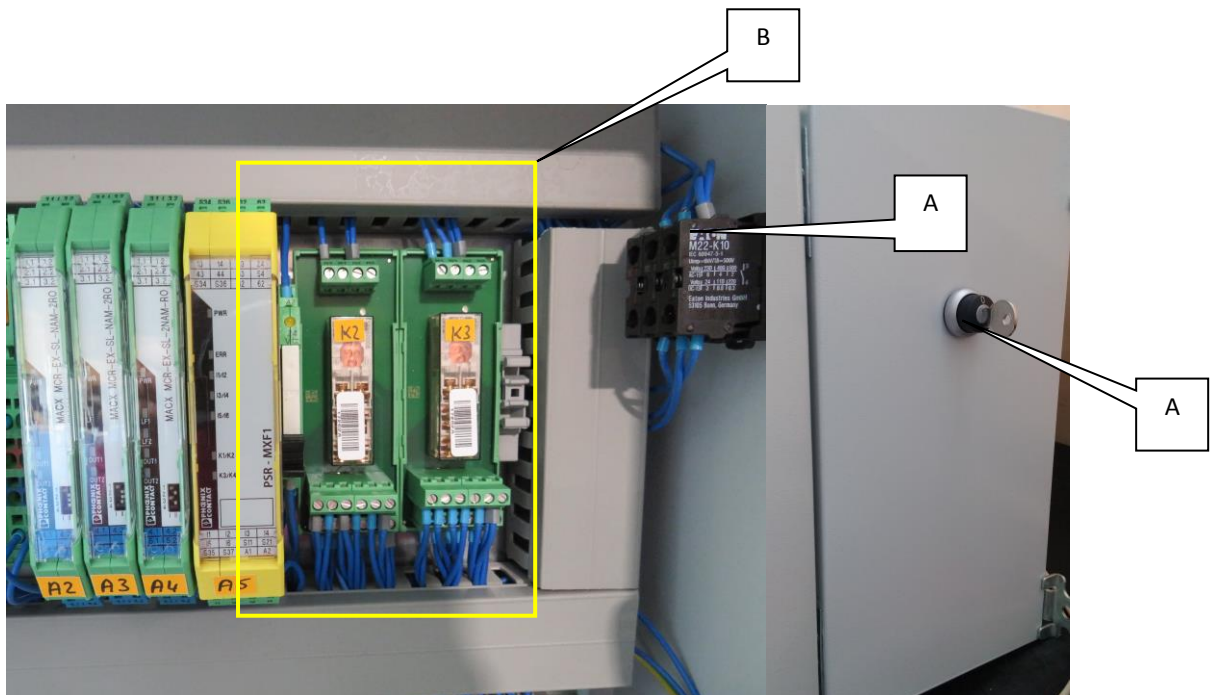
Notify:

- Recognisable transport damage immediately upon delivery.
- Recognisable defects or incompleteness immediately to EBRO ARMATUREN GmbH.



G03 Description of the Module

The cleaning position option consists of two additional safety coupling relays (B) and a key switch (A).



- Pos. A) The key switch is used to activate one of the two safety coupling relays (K3). There are three contact elements on the key switch. A potential-free NC (Normally Closed) contact, which is to be considered as feedback for the customer connection (see wiring diagram). Two series-connected normally open contacts used to activate the K3.
- Pos. B) The two safety coupling relays are used to activate the cleaning position. K3 is activated as explained above using the key switch. K2 is activated by an external signal (e.g. 24VDC PLC signal) and therefore, activated by the customer. A potential-free customer interface is available for this purpose (see wiring diagram).

G04 Functional Sequence of the Cleaning Position

Based on two separate signals, the cleaning position option of the cycle lock explosion decoupling can be activated. This cleaning position allows simultaneous operation of both valves (inlet & outlet valves) manually via the existing external control signals. This status may only be used if there is no potentially explosive atmosphere in the intermediate pipe during this condition. The operator is solely responsible for activating this option. The following describes how to activate and deactivate the cleaning position.

1. Release signal - external (+24V, see wiring diagram).
2. Release signal using a key switch (on the control cabinet).
3. Reset the safety relay by setting a signal pulse to "Close valve" (see wiring diagram).
4. If both release signals are active, both valves can now be opened or closed.
5. To deactivate the cleaning position, both release signals must be reset or disabled.

Attention



Note.

If one of the two release signals should be disabled in the cleaning position, close both valves!

HAZARD



Crushing hazard

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

G05 Software-related Locking

Regardless of the operating mode and the external signal states, all valves are interlocked with each other via locking modules. If one of the two release signals is activated, automatic mode is deactivated immediately and the valves close.

H) Operation and Visualization

H01 General Notes for Operation

Before starting operation, read the Safety notes chapter. The listed safety notes must be followed and are valid for all subchapters. Also observe the information of the connected cycle lock, of the piping system or of the programming.

HAZARD

Life-threatening hazard due to electric voltage.



Severe injury or death due to electric shock.

The cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock 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.

H02 Operating Set-up on the Touch Panel

In addition to the cycle lock explosion decoupling ATEX with optional control (PLC), the visualization interface is adapted by adding the cleaning position option. Only the adjustments of the user interface are described below. All other known operating and visualization structures remain unaffected and are listed in the original assembly instructions for cycle lock explosion decoupling ATEX.

H03 Main Screen

In the main screen, the signaling indicator is extended by the two feedback commands "Release external" and "Key switch" (Fig. 1).

If one or both signals are present, the adjacent circles will light up in green (Fig.2).

If one of the two release signals is activated, the Automatic button is deactivated.

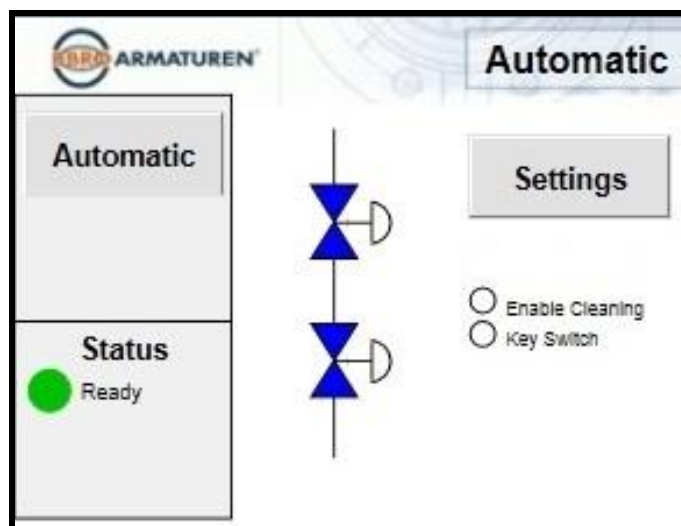


Fig. 1

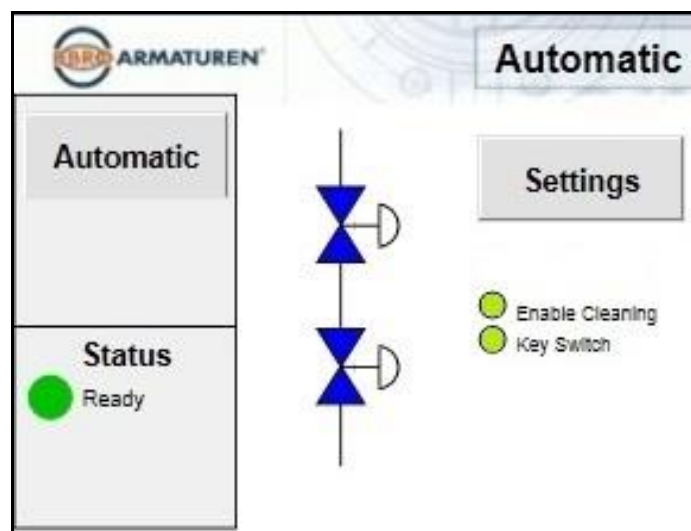


Fig. 2

H04 Manual Screen

In the "Set-up" -> "Manual" menu window, a banner will flash red when activating both release signals to activate the cleaning position. This reads as follows

"NOTE cleaning position" (Fig.3). In addition, the operating buttons of both valves are deactivated and an additional one is activated. This reads "Open valves". With this button (Fig. 4), you can open or close both valves at the same time on site.

Since the release signals are not set at the same time, the safety relay will first display an error message. This can be reset by pressing the "Open valves" button twice.

Subsequently, the operation can occur.

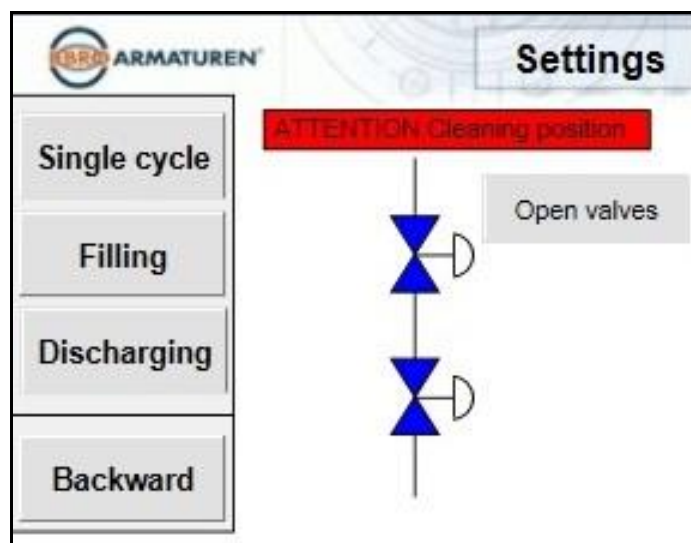


Fig. 3

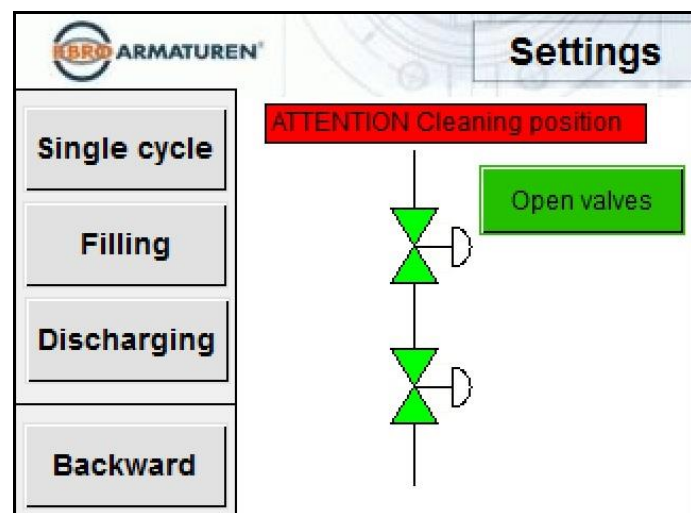


Fig. 4

I) PLC Programming

I01 *Program Extension Organisation*

In the cleaning position option, the existing PLC program is supplemented by the two additional safety relays (K2 & K3). These apply as an additional condition to the “Automatic” mode. In automatic mode, neither of the two safety relays may be activated. If activation is done, the automatic mode is immediately deactivated, and the valves closed.

J) Maintenance and Overhaul

J01 *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 cycle lock 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.

Before each start of the shift, the cycle lock must be subjected to a brief inspection in order to detect any possible damage at an early stage or to take the necessary measures to ensure trouble-free production process.

The resulting work and activities on the cycle lock 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. Also observe the operating manual of the connected cycle lock, or of the programming.

For adjustment and maintenance work, you should empty the complete cycle lock and remove all media from the connected piping system.

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

CAUTION

Damage and disruptions of the cycle lock due to lack of maintenance.



Material damage to the cycle lock and eventually shorter service life.

Maintain and repair the cycle lock 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 cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock 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.

Sever injuries or damage to the cycle lock.

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 cycle lock and secure against restart using a lock.

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

Depressurise pneumatic components and cycle locks 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 cycle lock, 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!

J02 Maintenance Intervals

The service life is limited to a maximum of 10 years or to a maximum of 87,000 activations. To extend the service life of the protection system, the manufacturer must perform a check and, if necessary, servicing. In any case, after reaching the above limits, the safety relay can be replaced with a new one.

The number of switching cycles must be recorded and documented by the customer.

K) Errors, Causes and Repair

K01 General Disruptions

Before beginning the troubleshooting, read the Safety notes chapter. The listed safety notes must be followed and are valid for all subchapters. Also observe the information of the connected processing cycle lock, of the piping system or of the programming.

HAZARD

Life-threatening hazard due to electric voltage.



Severe injury or death due to electric shock.

The cycle lock may only be connected by a specialist electrician.

Establish a freedom of voltage and secure the cycle lock 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.



Sever injuries or damage to the cycle lock.

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 cycle lock and secure against restart using a lock.

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

Depressurise pneumatic components and cycle locks 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 cycle lock, 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!

K02 Error Display Screen

The error display of the visualization remains unaffected. Please refer to the original assembly instructions for cycle lock explosion decoupling ATEX.

K03 Errors – Cause – Repair

Errors that affect the safety-related part must be eliminated exclusively by the manufacturer. These can be:

Error	Cause	Repair
<i>Safety relay reports "Error", possible causes:</i>		
	Safety relay reports "Error", possible causes	Restart system, check cabling and wiring
	Emergency stop – error	Check external wiring of the emergency stop terminals
	Safety relay K2 activated Safety relay K3 not activated	Interrupt activation of K2 and reset safety relay (24V pulse at X2.7)
	Safety relay K3 activated Safety relay K2 not activated	Interrupt activation of K3 and reset safety relay (24V pulse at X2.7)
	Safety relays K2 and K3 activated successively	Reset safety relay (24V pulse at X2.7)
<i>Other disruptions, e.g. no response from the valves</i>		
	Voltage reset - checking external signals	Inform manufacturer

L) Disposal

L01 Environmental Protection

Please refer to the original assembly instructions for cycle lock explosion decoupling ATEX.

M) Spare Parts

M01 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 cycle lock 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.

M02 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.

N) Index

Fall protection	14	Original fuses	14
System	6	Products	6
Work site	23	Qualified personnel	9
Operating personnel.....	6	Cleaning agent	14
Operation.....	34	Piping system	6
Operator	8	Control cabinet	14
Operating voltage	14	Intellectual property rights	7
Disassembly	28	Safety data sheets.....	16
Spare parts	37, 42	Voltage	15
Frequency	15	Standing places.....	14
Malfunctions	13	Troubleshooting.....	39
Hazard symbols.....	4	Current strength	14
Liability	7	Cycle lock	6
Note symbols.....	5	Accident prevention regulations	12
Scope of delivery	31	Maintenance	37
Media.....	6	Workshop equipment	14
Medium.....	6		