



General Operating Manual for valves

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Table of contents

1.0 General	3
1.1 Target group	3
1.2 Documentary structure	3
1.3 Safekeeping	4
2.0 Product description	4
2.1 Important information concerning the valve	4
2.2 Technical data	5
3.0 Safety instructions	5
3.1 Presentation	6
3.2 Product safety	6
3.3 Organizational, personnel information	6
3.4 Product-specific dangers	7
3.5 Emergency information	9
4.0 Operation	9
5.0 Installation / commissioning	9
5.1 Measures and considerations prior to installation	9
5.2 Valve installation	10
5.3 Electrical connection	11
5.4 Pneumatic / hydraulic connection	11
5.5 Commissioning	11
6.0 Maintenance	11
7.0 Repair	12
8.0 Storage	12
9.0 Packaging	13
10.0 Transport	13
11.0 Disposal	13
12.0 Replacement parts	13
13.0 Declaration of conformity	14
14.0 Nameplate	15
15.0 Manufacturer and inquiries	16

1.0 General

In order to ensure successful and safe operation of our valves the entire Operating Manual must have been read through and understood prior to installation and commissioning. Special attention must be placed on the safety instructions.



Before using our valves, read and observe the safety regulations.

Should difficulties arise that cannot be solved with the help of the Operating Manual, please contact the supplier/manufacturer. This Operating Manual covers the areas of installation/commissioning, maintenance, repair, storage, packaging, transport and disposal. The Operating Manual was compiled in accordance with the regulations of guideline 97/23/EC concerning pressure devices.

The operator is responsible for adhering to local safety regulations also with regard of the assembly personnel employed. When using the valve outside the Federal Republic of Germany, the operator or those responsible for the design of the plant must ensure that valid national regulations are adhered to. The manufacturer reserves all rights of technical changes and improvements at any time. The use of this Operating Manual and the direct handling of valve require that the user is qualified as described in chapter 1.1.

1.1 Target group

The Operating Manual is directed at persons who are entrusted with the installation planning, installation, commissioning or maintenance/repair and have qualifications in accordance with their activities and functions and who, based on their technical training, their knowledge and experience and their knowledge of the applicable standards, are able to evaluate the work assigned to them and recognize possible hazards.

This also includes the knowledge of applicable accident prevention regulations, generally recognized safety regulations, EC guidelines and country-specific standards and regulations.

1.1.1 Personnel qualification

Transport, installation, commissioning, maintenance or repair must only be performed by trained or instructed personnel. Electrical installation: Work on electrical equipment of the device must only be performed by a qualified electrician or instructed persons under the guidance and supervision of a qualified electrician according to the rules of engineering.

1.2 Documentary structure

The operating instructions for our valves, as a standard, consist of two main modules and additional supplementary modules for control valves and the Quadax series.

1.2.1 The “General Operating Manual”

This contains important basic information and safety instructions for the safe handling of all valves of müller co-ax ag.

1.2.2 The “Data sheets”

These contain supplementary additional information and technical data necessary for the individual specific valve types. Use the data sheets only in connection with the General Operating Manual. In particular, observe the safety instructions in the General Operating Manual!

1.2.3 The supplementary “Specific Operating Manual” for control valves

This contains supplementary operating instructions necessary for individual control valves, which are not included in the General Operating Manual or the data sheet. Apply the supplementary Specific Operating Manual for control valves only in connection with the General Operating Manual. In particular, observe the safety instructions in the General Operating Manual!

1.2.4 The supplementary “Specific Operating Manuals” for the Quadax series

This contains supplementary operating instructions necessary for the Quadax series, which are not contained in the General Operating Manual or the data sheet.

1.3 Safekeeping

Access to the entire Operating Manual must be guaranteed at all times at the place of operation of the valve.

2.0 Product description

2.1 Important information concerning the valve

2.1.1 Purpose

The valves are only to be used following the installation of a pipeline system (between flanges, sleeves, screws, or the like) and following the connection of the actuator to the controls - to close off or pass on media or to regulate flow within the permitted pressure and temperature limits.

It must be ensured that in this pipe system the usual flow rates (e.g. 4 m/s for liquids) in continuous operation are not exceeded and abnormal operating conditions such as vibrations, water hammers, temperature shocks, cavitations, wet steam with a high water content and more than insignificant portions of solids in the medium - particularly abrasive ones - are cleared with the manufacturer.

The type of medium (chemical, abrasive and corrosive effect) must be adhered to. Any other or additional use is not in accordance with that intended. The area of operation of the valve is under the responsibility of the plant planner. Observe special valve markings.

2.1.2 Fittings for oxygen

With the goods inwards inspection it is to be checked whether the fittings supplied are furnished with appropriate certificates for the oxygen cleaning and whether the fittings have packaging suitable for oxygen (see identification oxygen "Clean for Oxygen Service"). The packaging is to be checked for damage. If there is damage, such fittings may not be employed for oxygen applications as there is a strong suspicion that the fittings are contaminated which could lead to an oxygen combustion.

When it is assured that the packaging has suffered absolutely no damage during transport then the fittings are to be removed from the packaging in a room suitable for this purpose. The room must be free of oxygen and grease and it must also be ensured that the room has no aliphatic atmosphere. Staff, who remove the fittings from the packaging and also install the fittings in the pipeline, must have suitable protective clothing (grease- and oil-free gloves, grease- and lubricant-free clothing etc.).

The fittings removed from the packaging are to be checked once again for damage. An optical visual check under UV light is the minimum requirement. The fittings, which have been checked for possible contamination, whose perfect condition has been established, are to be taken without delay to the place of installation whereby it is to be ensured there that the fittings during this transportation route have not come into contact with oil and grease or been contaminated in any other way.

With the installation of the fittings, the normal safety regulations and the instructions of this operation and maintenance manual are to be followed. In this connection attention is additionally to be paid that,

in particular, also the pipelines, the adaptors face to face with the fitting and also, in particular, the seals, are suitable for oxygen and that there is also absolutely no contamination, in particular due to oil and grease, apparent.



Disregard of this instruction can represent a danger to life and limb because oxygen combustion equates to an explosion!

2.1.3 Precautionary measures

When using the valves, observe the currently applicable laws (e.g. EC guideline and national regulations) and the recognized rules of engineering, i.e. DIN standards, DVGW information and working sheets, VDI guidelines, VDMA standard sheets, etc. On systems subject to supervision, adhere to the applicable laws and regulations, e.g. code of commerce, accident prevention regulations, boiler regulations, regulations concerning high gas pressure lines, regulations concerning combustible liquids and the technical regulatory works VDE, TAB, TRD, TRG, TRbF, TRGL, TRAC, AD information sheets, etc. The general equipment and safety regulations for pipeline and plant construction and the local safety and accident prevention regulations apply in addition. It is indispensable to observe the Operating Manual with regard to all work on the valve and whenever handling the valve.



Failure to observe the Operating Manual can result in serious injuries or damage to property (e.g. due to mechanical, chemical or electrical effects).

2.1.4 Conformity

The valves of müller co-ax ag have been built according to the state of the art and in accordance with the guideline 97/23/EC concerning pressure devices.

2.1.5 Marking of the valve

The valves are provided with a nameplate containing the necessary information according to the pressure device guideline. Explanation of the nameplate in chapter 14.

2.2 Technical data

The housing materials and sealing materials are selected in accordance with the operating conditions specified by the customer with the order. These operating conditions have a major effect on the service life of the valve for instance due to abrasion, chemical or corrosive attack of the materials. The valves have been designed without wear allowance and statically with 1.5 times the safety of the rated pressure at room temperature.

The technical data (also electrical) and the essential permissible limit values, especially of medium pressure and temperature, is included in the data sheet and, in the case of control valves, additionally in the supplementary Specific Operating Manual.


3.0 Safety instructions


This chapter contains important general safety instructions. However, the special safety instructions in the remaining chapters must also be observed.


3.1 Presentation

Dangers are identified with a signal word and allocated safety colors according to ANSI Z535 depending on the seriousness and probability:

 **DANGER** For immediately threatening danger resulting in serious physical injuries or death.

 **WARNING** For a potentially dangerous situation that could lead to serious physical injuries or death.

 **CAUTION** For a potentially dangerous situation that could lead to minor physical injuries or damage to property.


 **NOTE** For a potentially harmful situation where the product or an item in its vicinity could be damaged.

 **IMPORTANT** For application instructions and other useful information.

However, observing other notes and information not specially emphasized is equally indispensable in order to avoid disruptions, which in turn could result in direct or indirect damage to persons or property.

3.2 Product safety

The valves comply with the state of the art and the recognized rules of technical safety, but dangers can still arise. Operate the valves only in perfect condition taking into account the entire Operating Manual. The valves are only intended for the purpose according to chapter 2.1.1.

 **WARNING** Use of material-incompatible media, exceeding the limit values of medium pressure and temperature and mechanical additional loads such as caused by connected pipelines can result in failure of the valve material and bursting of the valve.

3.3 Organizational, personnel information

3.3.1 General

Observe the recognized rules of industrial safety. The persons entrusted with the installation planning, installation, commissioning, maintenance or repair must be qualified in accordance with their activities and functions.

Based on their technical training, their knowledge and experience and their knowledge of the applicable standards, the personnel must be able to evaluate the work entrusted to them, understand the interactions between valve and system and recognize possible dangers. They must also have knowledge of applicable accident prevention regulations, generally recognized safety regulations, EC guidelines and country-specific standards and regulations and all application-based regional and company-internal regulations and requirements.

They must have passed training or instructions in accordance with the standards of safety engineering in the care and use of appropriate safety and protective working equipment as well as training in first aid, etc. (Refer also TRB 700). They must have read and understood the entire Operating Manual.

No changes, attachments or conversions must be performed without approval of the manufacturer or supplier.

3.3.2 Transport / installation / commissioning / maintenance / repair

Only by trained or instructed personnel. For safety reasons, recheck whether all necessary measures for the protection of persons have been taken before commencing the work. Valves that have come in contact with harmful media must be decontaminated prior to the work.

3.3.3 Electrical installation

Electrical energy hazards must be excluded. Work on electrical equipment of the device must only be performed by an electrician or persons under the guidance and supervision of an electrician in accordance with the rules of engineering.

3.4 Product-specific dangers

Hazards that may arise from the flow medium, the control pressure and moving parts must be prevented through suitable measures. In addition to this ensure that the valves are employed only where type of medium, operating pressure and temperatures correspond with the design criteria used as a base for the order and specified on the nameplate. Proper transport and proper storage of the valve are assumed as a matter of course. The following chapters contain a number of product-specific dangers and measures for their avoidance:

3.4.1 Use of a medium unsuitable for the valve

The valve materials are compatible only with certain media. Please contact the manufacturer/supplier when used for media requiring or excluding certain materials.

DANGER

When using unintended media, the materials included in the valve may be attacked or could even be combusted explosively with fatal consequences. For this reason, only use media for which the valve has been approved. Keep valves for oxygen free of oil and grease. For ammonia, use valves free of non-ferrous metals. For combustible, aggressive or toxic media, use valves made of suitable materials.

3.4.2 Reduction of required minimum wall thickness through corrosion or abrasion

WARNING

Regularly carry out inspections to determine the technically safe condition of the inner wall.

3.4.3 Exceeding the permissible pressure with risk of bursting

A cause for such exceeding could be for instance so-called closing hammer or cavitation. Closing hammer are pressure peaks, which occur when a pipe is closed by means of a valve. The reason for this expressed in simple terms is the momentum of the moved medium column impacting on the closing valve.

WARNING

The pressure peaks occurring during closing can reach a multiple of the pressure at rest. The user must select the operating pressure stage of the valve so that the pressure peaks occurring in the concrete installation situation do not exceed the maximum permissible operating pressure of the valve. With the flow, the static pressure of a liquid media must additionally always be above the vapor pressure of the medium in order to avoid cavitation.

3.4.4 Valve overload

Valve overloads can be triggered through additional loads such as for instance stepping loads, connected pipelines or high ambient temperature.

⚠ WARNING

The valve is only intended for the permissible medium pressure load. For this reason, install the valve without force and ensure that no additional loads occur due to pipelines or stepping loads.

No welding operations or heat treatments must be performed or mounting holes be provided on the walls subject to pressure. Install the valve and the electrical and pneumatic lines so that they cannot be damaged and no moisture-induced short circuit can occur on electrical plug connections.

3.4.5 Opening screw connections with pressurized valve

Opening screw connections with pressurized valve results in the leakage of medium and damages the valve.

⚠ DANGER

Opening pressurized valves can be fatal!

⚠ WARNING

Prior to any work on the valve:
Depressurize the valve and all connected lines. Ensure that the valve is electrically de-energized. Allow valve and medium to cool down. The temperature must be below the evaporation temperature of the medium in order to exclude scalding. With media that is caustic, combustible, aggressive or toxic, flush the pipe system and ventilate, wear goggles or protective mask with eye protection or take other necessary protective measures.

3.4.6 Leakage of dangerous substances

Dangerous substances can leak for instance from relief bores or when disassembling the valve.

⚠ WARNING

Collect and dispose of dangerous media (for instance leakages from relief bores or traces of medium remaining during the disassembly of the valve) so that persons and the environment are not endangered. Observe the legal regulations.

3.4.7 Free valve outlet

If nothing is connected to the outlet of a valve, the exiting medium could constitute a hazard during the (possibly inadvertent) opening of the valve.

⚠ WARNING

In order to avoid any hazardous conditions on the discharge side of the valve, the exiting media should be going into a appropriate fixture.

3.4.8 Drive energy failure

Upon failure of the actuator, the valve could change to a condition that is unsafe for the intended operation.

⚠ CAUTION

Deliberately select the valve function (NC/NO) so that the valve assumes the operating condition that is safe for the intended operation in the event of drive energy failure.

3.4.9 Paintwork

When carrying out painting operations the valve could be painted as well, which would impair the heat radiation of the magnet or clog the relief bore.

 **NOTE**

Effectively cover the valves when carrying out work such as concrete, plastering, painting or sandblasting operations in the area of the valve, which could affect it.

3.5 Emergency information

In the event of fires, use only such extinguishing agents as are suitable for the extinguishing of corresponding electrical systems. Ensure that the extinguishing agent does not result in a dangerous reaction together with possibly leaking medium.

4.0 Operation

The operation of your specific valve is included in the appropriate data sheet or, in the case of control valve, additionally in the Specific Operating Manual.

5.0 Installation / commissioning

 **WARNING**

Read and observe the general safety instructions in chapter 3.0 prior to installation or commissioning. Whenever handling the valves, always observe the valid accident prevention regulations.

5.1 Measures and considerations prior to installation

Always observe the following when installing the TRB 700: Compare material, pressure and temperature details of the valves with the operating conditions of the pipeline system to verify material resistance and load capacity. Possible water hammer must not exceed the maximum permissible pressure of the valve.

 **WARNING**

Water hammer can reach a multiple of the pressure at rest. With the flow, the static pressure of a liquid medium must always be above the vapor pressure of the medium in order to avoid cavitation.

Install the valve so that it is easily accessible for all possible later necessary connection and maintenance tasks (e.g. connection of drives, sensors, exchange of cartridge valves etc.). If nothing else is specified the installation position is arbitrary.

Install a suitable dirt trap in front of the valve in order to ensure trouble-free valve operation.

It is advisable to install hand shut-off valves in front of the dirt trap and behind the valve so that maintenance operations can be performed on the dirt trap and the valve without having to drain the entire system.

If the system is to operate without any interruption, a bypass line should be included even when planning the system. Protect the valve from the direct effects of the weather when installing in the open.

In the event of flange connection, the connection flanges must match. Install the valve so that no mechanical loads such as pipe stress are exerted on the valve during and after the installation. The valve must always be loaded only with the intended medium internal pressure, without additional mechanical loads.

⚠ WARNING

Additional mechanical loads can result in malfunctioning or overloading and bursting especially of the valve under medium pressure.

For force free installation, the connection lines must be axially aligned with the valve connections and have the correct distance. Heat expansion of the pipelines must be offset by compensators. The transfer of vibrations must be avoided through flexible vibration compensators if required.

5.2 Valve installation**⚠ CAUTION**

Before installing the valve, inspect for possible transport damage. Damaged valves might no longer comply with the safety requirements and must not be installed.

⚠ NOTE

Before installing the valve, check the pipe system for absolute cleanliness in order to prevent that traces from the pipe installation or other foreign bodies are flushed into the valve during commissioning. When installing the valve on non-conductive pipes, it must be grounded.

Remove protective caps on the connections only immediately prior to the installation without damaging existing sealing surfaces or threads. The sealing surfaces must be in good technical condition.

Use only permissible fasteners (e.g. according to DIN EN 1515-1) and permissible sealing elements (e.g. according to DIN EN 1514).

Valves and pipelines operated at high (> 50°C) or low temperatures (< 0°C) must be protected against touching through insulation or the danger of possible contact must be pointed out through appropriate warning signs.

In the event of condensate formation or the risk of icing-up in air conditioning, cooling and refrigeration systems the complete valve must be furnished with a suitable diffusion-proof insulation. Icing-up may cause the drive to be blocked.

For high temperature valves (HT series) the following additionally applies: The valves are to be installed preferably with horizontal drive. If this is not possible then the drive is to be installed, as far as possible, away from the vertical. Attention is to be paid to correct insulation of the drive including the connecting cable and pipelines. Connecting cable and pipelines must be suitable and approved for the corresponding temperature range and intended purpose.

5.2.1 Installation with thread connection

Adhere to the flow direction specified on the valve to ensure that the valve is able to operate as intended. Use suitable sealing material. Install the piping so that the flow of force is not by way of the longitudinal axis of the valve. Following installation, perform leak and operating tests.

5.2.2 Installation with flange connection

Adhere to the flow direction specified on the valve so that the valve is able to operate as intended.

Insert specified bolts while using all flange holes provided.

Insert a suitable gasket in the center between the flanges.

Evenly tighten the bolts in uniformity to avoid distortion. Under no circumstances must the pipeline be pulled up against the valve during this process. Finally tighten the bolts with the specified tightening torque. Ensure the gasket is seated correctly.

Following installation, carry out leak and operating tests.

5.3 Electrical connection

Work on electrical equipment of the valve must only be performed by a qualified electrician or by instructed persons under the guidance and supervision of a qualified electrician according to the rules of engineering taking into account DIN EN 60204-1 (electrical equipment of machines), the VDE regulations including the safety regulations, the accident prevention regulations and the Operating Manual. Connect after unscrewing the connection box lid or with the respective plug connection. Prior to any electrical work on the valve, de-energize all poles and secure appropriately. Connect the valve to ground according to local regulations. No protective measures are specified in the wiring diagrams. These must be additionally provided when connecting the valve according to VDE 0100 and the regulations of the respective responsible electrical supply companies. Whenever installing anything electrical always ensure that only the specified voltage in the correct polarity is connected in order to avoid damage or hazards.

If the valve is equipped with additional equipment such as limit switch or explosion protection, etc., always observe the appropriate data sheets and wiring information. Valves with alternating current connection designed for higher temperatures are supplied with separate rectifier in accordance with the state of the art. In order to avoid excessive heating up, the rectifier should be mounted outside the heat zone. Instructions to that effect can be found on our high temperature valves.

The electrical characteristics and a wiring diagram are included in the data sheet and, in the case of control valves, additionally in the supplementary Specific Operating Manual.

5.4 Pneumatic / hydraulic connection

Use conditioned air for pneumatically activated valves (install air maintenance unit upstream if required). In the case of hydraulically activated valves, observe the recognized rules for the handling of hydraulic equipment. Additional information for the connection of control air or control hydraulics is included in the data sheet and, with control valves, additionally in the supplementary Specific Operating Manual.

5.5 Commissioning



Prior to commissioning, read and observe the safety instructions in chapter 3.0.

Before commissioning the valves, it is the customer's responsibility to check the operating parameters such as orifice size, pressure, media, temperature and control characteristic. If the valve is equipped with a safety valve, the triggering pressure must also be checked.

Prior to every commissioning of a new system or re-commissioning of a system after repairs or conversions, ensure the following:

TRB 700 is observed. All installation and assembly work has been properly completed. Commissioning only by qualified personnel according to chapter 3.3. The pipe system has been thoroughly flushed with fully opened valves to remove contamination harmful to the sealing surfaces. The valve is in the correct operating position. Existing protection and guards have been reinstalled or enabled.

6.0 Maintenance



Prior to any work on the valve, read and observe the general safety instructions in chapter 3.0.



The opening of valves under pressure can be fatal!

Our valves are largely maintenance-free. For operating safety reasons however, all valves should nevertheless be checked at regular intervals, e.g. external condition, including accessories. In general, valves should be operated regularly so as not to impair perfect operation of all moving parts through

long periods of disuse. Maintenance and maintenance intervals must be determined by the operator in accordance with the operating conditions (refer also to TRB 700).

⚠ CAUTION

The valve and connected pipelines can be very cold or very hot due to the temperature of the medium. Valves with magnetic drive can also have high temperatures due to the electrical dissipation of the drive.

7.0 Repair**⚠ WARNING**

Prior to any work on the valve, read and observe the general safety instructions in chapter 3.0. Valves, which come in contact with health-threatening media at the customer, must be decontaminated prior to the repair.

⚠ DANGER

Disassembling valves under pressure can be fatal!

⚠ CAUTION

The valve and connected pipelines can be very cold or very hot due to the medium temperature. Valves with magnetic drive can also have high temperatures due to the heat dissipation of the solenoid.

⚠ WARNING

Before carrying out any work on the valve, ensure the following:

The valve and all connected pipes must be depressurized. Allow system and medium to cool down. The temperature must also be below the evaporation temperature of the medium in order to exclude scalding. Ensure that the valve is de-energized and inadvertent movements of the drive are excluded. Please consider that the valve spring loaded (serious injuries possible).

With media that are caustic, combustible, aggressive or toxic, flush and ventilate the pipeline system, wear goggles or protective mask with eye protection and take other necessary protective measures.

Traces of medium remaining in the valve during the disassembly must be collected and disposed so that persons and the environment are not endangered. Adhere to the legal regulations. Valves that have come in contact with health-threatening media must be decontaminated prior to the work.

The valve must be returned to the manufacturer for repair work. After consultation and approval by the manufacturer, such work can be performed on site in exceptional cases by qualified and specially trained personnel. On no account must the valves be removed without prior approval by the manufacturer. When disassembling the valve, observe the generally applicable installation guidelines and the TRB 700. Assembly and disassembly operation only by qualified personnel (see chapter 3.3) according to the manufacturer's instructions. Use new replacement parts after every parts removal/conversion. Use only original replacement parts of the manufacturer müller co-ax ag.

⚠ CAUTION

Prior to re-commissioning, read and observe chapter 5.5 Commissioning. Subject the valves to a strength and leak test according to DIN 3230 after repair prior to commissioning.

8.0 Storage

During storage, protect the valves from external effects and dirt. Avoid the formation of condensate through ventilation, desiccant or heating. Protect the connection openings to prevent entry of dirt. Store the valves so that perfect operation is maintained even after prolonged storage. To this end, the guidelines for the storage of elastomers (DIN 7716) must also be observed in particular:

The storage room should be dry, dust-free and moderately ventilated. Storage temperature frostfree up to +25°C. Existing stocks should be used up first in order to achieve the shortest possible storage times. Store replacement parts so that elastomers are not exposed to sunlight or UV light from other sources.

9.0 Packaging



Valves that have come in contact with health-threatening media at the customer must be decontaminated prior to packaging.

Pack the valves so that any coatings or accessories such as plug-in devices, controllers and sensors cannot be damaged through subsequent transport. Protect connection openings to prevent the entry of dirt. Use the packing material in accordance with the applicable regulations and observe country-specific regulations.

10.0 Transport



Valves that have come in contact with a health-threatening media must be decontaminated prior to the transport. Whenever handling the valves, always observe the valid accident prevention regulations.

Valves that can no longer be moved by hand must be transported with lifting equipment suitable for the weight to be moved. Transport the valves by using eyebolts if available. Do not hook up lifting equipment to accessories such as hand wheels, control lines, pressure gages or flange bores. When using suspension belts, these must be placed around the valve body, providing edge protection and ensuring even weight distribution.

Transport temperature -20°C to +65°C.

Protect against external force (shock, impact, vibration, etc.).

Protect existing sealing surfaces on the connections from damage.

Do not damage the corrosion protection layer.

11.0 Disposal






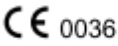

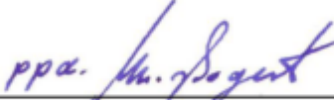
Valves that have come in contact with health-threatening media must be decontaminated prior to disposal.

Observe the valid legal regulations for appropriate disposal protecting the environment.

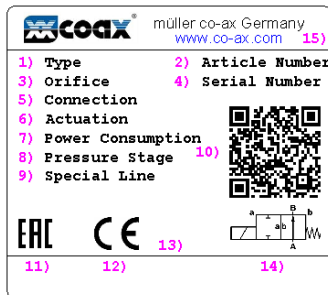
12.0 Replacement parts

If replacement parts are required, please contact the supplier/manufacturer.

13.0 Declaration of conformity

	Declaration of EU Conformity	
The manufacturer:		
 müller co-ax ag Gottfried-Müller-Strasse 1 D-74670 Forchtenberg		
declares herewith that all products of the area of application Valves and Valve Assemblies with pressure ratings of 0 – 500 bar and nominal widths of 1.5 – 1,600 mm meet the safety requirements of Directive 2014/68/EU of the European Parliament and Council of 29 May 1997 on the approximation of the laws of the Member States relating to pressure equipment and were subjected to the following conformity assessment procedure. This Declaration of Conformity is issued under the sole responsibility of the manufacturer.		
<u>Valve types in the area of application Article 4 (3) (CE-marking is not permitted here):</u> A 45, CFM 08, DBV 20, DRV 12, DRV 20, DRV 25, ECD-H 10, ECD-H 10 DR, HPB 08, 3-HPB 15, HPB 20 ND, HPI 08, HPP 15, HPP 15 DR, HPP 20 RS, IV 10, IV 16, K 10, K 10 DR, K 15, K 15 DR, K 20, K 20 DR, K 25, K 25 DR, KB 15, KB 20, KBS 15, LVP 06, MCF 08, MCF-H 08, PC-1 10, PC-1 15, PC-2 10, PC-2 15, PC-3 15, PC-3 15 DR, PCD 10, PCD 10 DR, PCD-H 10, PCD-H 10 DR, PCD-H 15, PCD-H 15 DR, PCD-H 15, PCOS-H 20, PLB 05, RMQ 10, RMQ 20, RPD 05, RPD 15, RSV 12, RSV 20, RSV 25, SPB 08, SPB 15, SPB 20 ND, SPI 08, SPP 06 DR, SPP 15, SPP 15 DR, SPP 20 RS, V2-15, V2-25, VK 15, VK 15 DR, VK 20, VK 20 DR, VK 25, VK 25 DR, VK-H 15, VK-H 15 DR, VK-H 20, VK-H 20 DR, VK-H 25, VK-H 25 DR, VMK 10, VMK 10 DR, Spare parts.		
<u>Valve types of Category I – Module A (INTERNAL PRODUCTION CONTROL):</u> RSV 32, RSV 40, RSV 50, K 32, K 32 DR, K 40, K 40 DR, K 50, K 50 DR, FK 65, FK 65 DR, FK 80, FK 80 DR, RMQ 32, (3)-HPB 40 ND, SPB 40 ND, (3)-HPB-N 32, SPB-N 32, (3)HPB-S 50, SPB-S 50, VK 40, VK 40 DR, VK-H 40, VK-H 40 DR, VK 50, VK 50 DR, VK-H 50, VK-H 50 DR, VSV 40, VSV 40 DR, VSV 50, VSV 50 DR, VSV-F 40, VSV-F 40 DR, VSV-F 65, VSV-F 65 DR, VSV-F 80, VSV-F 80 DR, VSV-F 100, VSV-F 100 DR, VSV-F 125, VSV-F 125 DR, VSV-F 150, VSV-F 150 DR, VSV-F 200, VSV-F 200 DR, VSV-F 250, V2 DN40, V2 DN50, V2 DN65, V2 DN80, V2 DN100.		
<u>Valve types of Category II – Module A2 (INTERNAL PRODUCTION CONTROL PLUS SUPERVISED PRESSURE EQUIPMENT CHECKS AT RANDOM INTERVALS):</u> K 32, K 32 DR, K 40, FK 65, FK 65 DR, FK 80, FK 80 DR, RMQ 32, (3)-HPI 32, SPI 32, (3)-HPB 40 RS, SPP 40 RS, (3)-HPB-S 32, (3)-HPB-H 32, SPB-S 32, SPB-H 32, (3)-HPB-S 50, SPB-S 50, (3)-HPB 65, SPB 65, VK 32, VK 32 DR, VK 40, VK 40 DR, VK 50, VK 50 DR, VK-H 40, VK-H 40 DR, VK-H 50, VK-H 50 DR, VSV 40, VSV 40 DR, VSV 50, VSV 50 DR, VSV-F 40, VSV-F 40 DR, VSV-F 65, VSV-F 65 DR, VSV-F 80, VSV-F 80 DR, VSV-F 100, VSV-F 100 DR, VSV-F 125, VSV-F 125 DR, VSV-F 150, VSV-F 150 DR, VSV-F 200, VSV-F 200 DR, VSV-F 250, V2 DN40, V2 DN50, V2 DN65, V2 DN80, V2 DN100.		
<u>Valve types of Category III – Module H (CONFORMITY BASED ON FULL QUALITY ASSURANCE):</u> Quadax DN 50 – 1600, Cryax DN 25 – 100.		
<u>Valve types of Category IV – Module B (EU-TYPE EXAMINATION) + D (CONFORMITY TO TYPE BASED ON QUALITY ASSURANCE OF THE PRODUCTION PROCESS):</u> DVGW tested, Testing Specification DIN 3394-1, DIN EN 13611: MK / FK 15, MK / FK 20, MK / FK 25 TUV tested, Testing Specification DIN EN 264, E DIN 32725: MK10, MK / FK 15, MK / FK 20, FK 25, MK / FK 15 DR, MK / FK 20 DR, FK 25 DR		
Notified body involved:	TÜV SÜD Industrie Service GmbH Westendstraße 199 80685 Munich, Germany	
<u>(Harmonised) standards applied:</u> DIN EN ISO 6708; AD instruction sheets; DIN EN 12516; DIN EN 12266; DIN 3230; DIN CEN/TS 764-6; VDI 2230		
<u>Furthermore, conformity with the following EEC directives is declared:</u> ECC Low Voltage Directive 2014/35/EU Standards applied: EN 60947-5-1:2004 EEC Directive on Electromagnetic Compatibility 2014/30/EU standards applied: EN 61000-6-2:2005, EN 61000-6-4:2007		
Furthermore, the QM system of müller co-ax ag is certified according to DIN EN ISO 9001:2008		
<u>DIN EN 61508 - SIL:</u> We confirm herewith that all valves of müller co-ax ag were assessed according to DIN EN 61508 and classified into Safety Integrity Level 2 (SIL 2).		
		
Place / Date:	Forchtenberg, 14 th July 2017	
Manufacturer's signature:	Martin Bogert	
		
Identification of signatory:	Business Division Manager Quality Management	

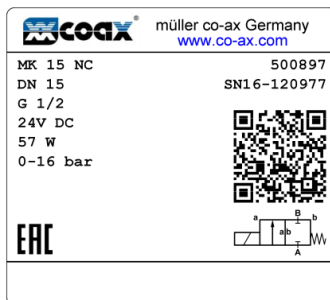
14.0 Nameplate



- 1) Type (with nominal width and model).
- 2) Article number
- 3) Orifice
- 4) Serial number. This number includes year of manufacture and clearly identifies a fitting. It can be used by every customer as identification number for reordering. Behind this number is concealed the exact technical design and parts list with all individual parts and the seal variant for the respective application case.

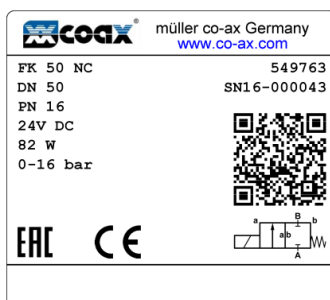
- 5) Definition of the connection (with flange model e.g. 2633).
- 6) Voltage connection and type of voltage of the solenoid actuator or control pressure of the pneumatic-/hydraulic actuator.
- 7) Performance details with magnetic valves, 8) Pressure level of the medium
- 9) Additional information such as, for example, TÜV-No., DVGW No., SIL No.
- 10) QR Code, 11) EAC mark, 12) CE-marking
- 13) Number of the named body in accordance with Pressure Equipment Directive (PED).
- 14) Circuit symbol, 15) Address of the manufacturer

Depending on the classification according to the Pressure Equipment Directive there are 3 kinds of type.



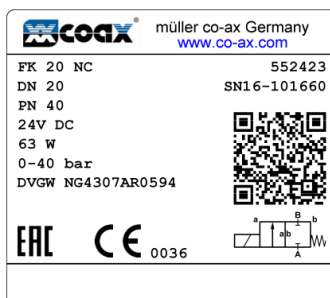
Type A:

For all valves included in article 3, paragraph 3 according to DGRL and must not be provided with an CE-mark.
The CE-mark and the details 13 are missing.



Type B:

For all valves of category I receiving the CE-mark.
Detail 12 is missing.



Type C:

For all valves of categories II, III and IV and for equipment components with safety function.
All details are available.

15.0 Manufacturer and inquiries

müller co-ax ag
Gottfried-Müller-Str. 1
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Fax +49 7947 828-11
E-Mail info@co-ax.com
Internet www.co-ax.com

For inquiries in regards to the directional control valves, please specify the following:

- Order number or KNA number
- Type designation
- Pressure stage
- Medium pressure before and after the valve
- Flow medium
- Medium temperature
- Flow rate in m³/h
- Installation sketch or actual operating conditions..

For inquiries concerning control valves, please specify the following:

- Order number or KNA number
- Type designation
- Pressure stage
- Medium pressure before and after the valve
- Flow medium
- Medium temperature
- Flow rate in m³/h
- Control accuracy
- Set value inputs
- Installation sketch or actual operating conditions