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Каталог продукции ODE

HOW TO READ THE CATALOGUE

In order to identify more easily the product of your interest, we have developed two different indices that will help you in the search.

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ODE is a leading company since 1960 in designing and manufacturing a complete line of solenoid valves and pumps able to satisfy to all our customers needs.

ODE is headquartered in Milan, Italy, with the manufacturing plant in Colico, close to the Swiss border.

In 2010 we celebrated 50 years of design and manufacturing excellence in the solenoid valves industry.

Our general purpose and customized valves are designed to operate very effectively in the coffee machines industry.

ODE's products are manufactured, assembled and tested in our factory in Italy using lean manufacturing techniques driven by Six Sigma quality practices.

ODE quality is based on the platform of process control granting the elimination of variances, a computerized integrated system able to guarantee the conformity of products, the recording each production step able to ensure effective data analysis as well as a complete and efficient traceability of both components and finished products, always maintaining standards of high competitiveness in the marketplace.

All the above allowed Ode to obtain the ISO 9001, UL, CSA, UR, VDE, NSF, PED and ATEX certifications.



THE CONCEPT OF QUALITY HAS ALWAYS BEEN PART OF ODE CULTURE AND MISSION.



ODE IN THE WORLD Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Chile, China, Croatia, Czech Republic, Denmark, Egypt, El Salvador, Finland, France, Germany, Greece, Guatemala, Hungary, India, Iran, Israel, Italy, Ivory Coast, Japan, Korea, Lebanon, Lithuania, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Pakistan, Perú, Poland, Portugal, Romania, Russia, San Marino, Saudi Arabia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, Spain, South Africa, Sweden, Switzerland, Syria, Taiwan, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom, Usa, Vietnam.



ATTENTION

Read carefully the conditions of sale before purchase

1 Subject

The present conditions represent all current and future contractual relations for ODE product suppliers.

2 Contract Preparation

- 2.1 The supply contract is concluded with the emission of the order confirmation on behalf of ODE.
If ODE does not accept part or all of the order, modifications to the order required will be sent in writing to the Client within five working days from the date of receipt. After 24 hours without receiving notification of objection from the client, the modifications introduced by ODE will be deemed to be accepted.

3 Exclusions

- 3.1 System design, installation of supplied devices, specific tests, instructional courses, assistance
3.2 In addition, taxes, exportation fees and any other additional expenses are not included in the price, unless otherwise specified and agreed upon by all parties.

4 Technical data, design and documents supplied

- 4.1 The information provided by ODE in catalogues, brochures, technical sheets or other illustrative documentation are only suggestive. This information is not binding unless specifically mentioned in the delivery.
4.2 ODE reserves the right to make modifications at any moment without warning in order to make technical and constructive improvements.
4.3 The client is expressly committed to not use images, technical information and other aspects of the delivery for various reasons other than those mentioned in the contract, they remain property of ODE and the client cannot provide them to third parties or reproduce them without written authorization.

5 Transport, packaging and consignment

- 5.1 Transport: for the transportation the goods, if not otherwise stipulated, are packaged in standard packaging, the client bears all risks.
5.2 Packaging: the packaging is not received by return to sender, unless agreed upon in writing among parties.
5.3 Consignment: the date of consignment and postage are not legally binding; in any circumstance, ODE is not liable for lateness of consignment:
a) If the client does not supply the details or materials necessary for the delivery before the deadline or requests variations to be made to a package or is delayed in answering requests deadline or requests variations to be made to a package or is delayed in answering requests of design approval.
b) If caused by reasons other than the good will and diligence of ODE, including lateness of subcontractors, that blocks or causes the excessively late consignment according to established terms.
Not including the specifications of article 13 below, regarding products not consigned to the client for reasons for which they are liable or otherwise, for causes outside the responsibility of ODE, the Client will accept the risks and expenses for custody.
5.4 Claims: no claims will be accepted if sent after eight days from the receipt of goods, unless otherwise agreed amongst parties.
5.5 If the client is not up to date with payments, ODE has the right to delay all consignments until the client has paid the sum owed.
5.6 If the ODE consignment is delayed where parties have previously agreed that ODE must pay a penalty fee for late consignment, the client cannot ask for compensation for damages caused above the penalty fee agreed upon.

6 Conformity and tests

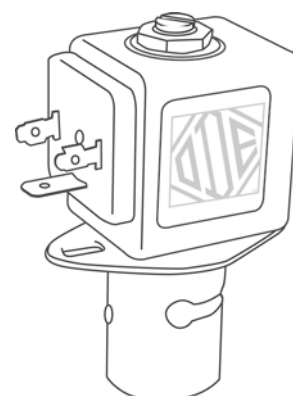
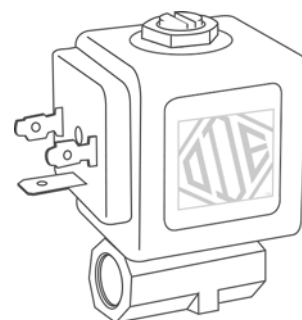
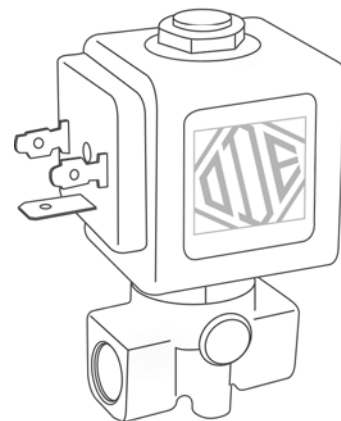
- 6.1 A multilingual copy of the "Certificate of Conformity" regarding catalogue information, indicating the information of clients order and of the ODE delivery note is available if requested by the client within the delivery contract.
6.2 Special deliveries according to client requests are to be agreed upon by parties and be executed at the expense of the client in the ODE headquarters.

7 Prices, discounts and reparations

- 7.1 The prices indicated on the price list do not include VAT (value added tax)
7.2 Price variability: ODE reserves the right to vary prices without any warning; the price lists are not binding. The prices can also vary if the quantities ordered are reduced or requested to be delivered in a shorter time period than previously stipulated.
7.3 The offers emitted by ODE are referred to a specific consignment, they are not applicable for other deliveries of the same products if not otherwise specified in the supply contract.
7.4 All the discounts given by ODE are valid for thirty days from the date of proposal. Unless other wise agreed by all parties, discounts are irrevocable and expire after thirty days automatically according to article 1329 of the Italian Commercial Code. 7.5 Minimum Order: Direct orders below the following net sums are not accepted € 300,00 for OEM clients € 300,00 for distributors and resellers price supplements will be applied to orders under this sum.

8 Payment

- 8.1 Unless otherwise stipulated payments must be made by the Client within the indicated terms of the invoice through the chosen credit institution.
8.2 For administrative reasons no rounding off will be accepted.
8.3 If the client's payment is late he's bound to pay the interest according to the Italian Legislative Decree N° 231/2002, without necessity of statutory notice from ODE S.r.l., with calculation deriving from the above mentioned Decree and based on the currently applied interest rate as per the mentioned Decree.
ODE has the right to request compensation for major damage caused and the termination of the contract according to the following article 13.



8.4 Any future disputes that occur between the parties do not exempt the Client from the obligation to observe the terms and conditions of payment.

9 Returns

9.1 Returns are not accepted if not authorized beforehand by our personnel, as a result of a written request from the Client. The transportation costs will remain at the client expense.

The value of the goods returned will be reduced by a percentage to be established, never below 20%, to account for costs incurred during testing and returning products to storage.

9.2 Similarly returns for repair or substitution of products must be previously authorized by our personnel through a written notice by the client regarding product defects; if the defects are covered by the guarantee, article 10 is applied.

10 Warranty

10.1 ODE guarantees the conformity of products supplied, the products are free from defects in materials and workmanship and they conform to all indications in the catalogue.

10.2 The warranty lasts 12 months beginning from the date of products consignment and for products or components substituted under warranty, from the day they are consigned to the client.

10.3 Within this period the client may denounce defects through relative non conformance documentation according to the terms of article 9.2, ODE is committed without obligation- within a reasonable time period in relation to the product of disputes- to repair or substitute the products or parts of the product that have proved dysfunctional free of charge; the client is obliged to send the dysfunctional products in an appropriate package, unless otherwise stipulated.

If ODE substitutes the products before receiving the dysfunctional products, the client is then obliged to return the dysfunctional products or articles to ODE unless otherwise stipulated referring to the reparation/substitution bill in the returned consignment note guaranteed by ODE.

ODE reserves the right to charge the client for costs of products substituted and/or transportation fees if necessary, following testing, for products that are not covered by the guarantee.

10.4 The substitution and reparations are undertaken by ex-works; the costs and risks of transport of dysfunctional products are the responsibility of the client.

10.5 ODE excludes any warranty on products mounted or utilized incorrectly or noncompliantly to indications in the catalogue or in the instructions for usage and maintenance; in addition the warranty terminates if the products are stored incorrectly or exposed to insufficient maintenance or have been modified without ODE authorization.

11 Suppliers responsibility

11.1 ODE is thereafter responsible for the correct functioning of products supplied regarding characteristics and performance as indicated by the catalogue and/or relative documentation.

11.2 ODE is not responsible in any way for defects in machine operations or systems caused by the client or third parties to ODE products, even if these products have been mounted or connected following diagrams and illustrations produced by ODE.

11.3 The client cannot request compensation for indirect damage, lost profits or loss of production caused by the product, nor can they receive compensation above the value of the products supplied, with the exception of any aspects covered by the Consumer Code (Legislative decree 6 September 2005, number 206), and by article 1229 of the Italian commercial Code.

12 Retention of title

12.1 The products supplied remain the property of ODE until the client pays the agreed in full.

If the client does not pay, ODE reserves the right to request the restitution of the goods by the client, in this case they lose their right of ownership.

13 Resolutive clause expressed and resolutive conditions

13.1 The supply contract will terminate in accordance with article 1456 of the Italian Commercial Code following a simplified declaration written by ODE exercising the right of the resolutive clause expressed, if the client:

- a) omits or delays payments owed is late or does not consign the products within the terms stipulated by the previous article 5.
- b) does not observe the obligations of copyright as stipulated in the previous article 4.

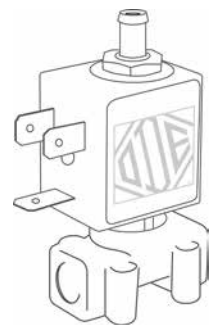
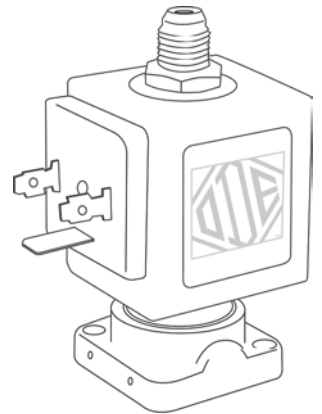
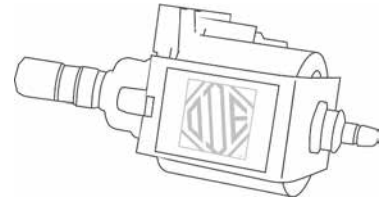
13.2 The contract will terminate if the client is in liquidation.

14 Applicable laws

14.1 The supply contracts, including those for overseas clients, are regulated by the present general conditions and the Italian Law.

15 Court of Jurisdiction

15.1 The Court of Jurisdiction of Milan is competent if any dispute regarding the execution, interpretation, validity, resolution and termination of supply contracts between parties filed by the client; if the action is filed by ODE any Court according to the law is competent in addition to the Court of Jurisdiction of Milan.



GLOSSARY

This chapter illustrates some of the technical terms used in the ODE catalogue.

Fixed core: component in ferrous-magnetic material which, due to the effect of a magnetic field generated from the coil, attracts the plunger.

Plunger: component in ferrous-magnetic material which, under the effect of a magnetic field, moves towards the fixed core causing directly or indirectly the switching of the solenoid valve. Often the plunger houses one or more shutters which open or close one or more orifices for the solenoid valve functioning.

Complete plunger: this is the grouping of the plunger, the shutters and any springs.

Armature tube: a guide tube in which the plunger runs.

Complete armature tube: the assembly of fixed core and armature tube, generally welded or assembled with rolling, threading or other means.

Coil: it consists of a copper winding, a support bobbin and a holder in ferrous-magnetic material. The whole is covered over with insulating material from which the electrical connections emerge, which may be different depending on the type of coil. (see COIL INDEX). The winding generates the magnetic field while the ferrous-magnetic holder closes the magnetic circuit constituted by the holder itself, the plunger and the fixed core.

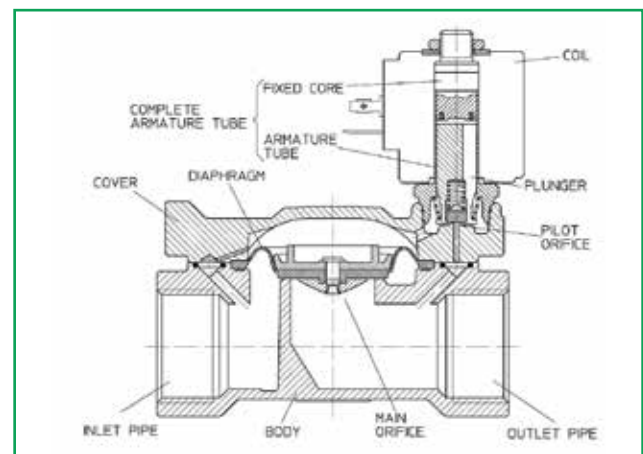
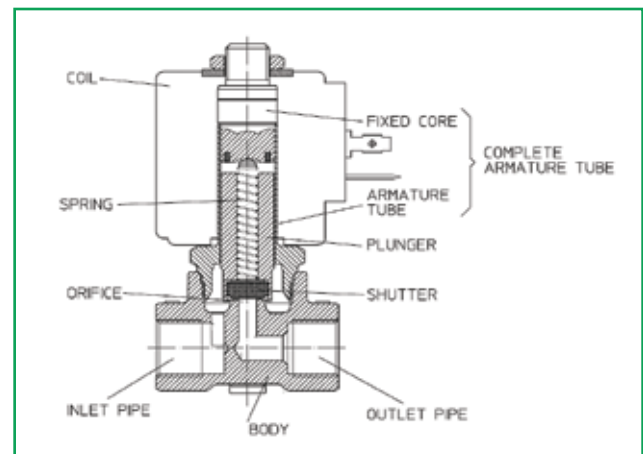
Shutter (or sealing gasket): this component may be housed directly in the plunger, in a gasket housing, in the piston, or be part of the complete diaphragm. With a movement the shutter opens or closes an orifice thus permitting or preventing the flow of fluid. Certain valves have more than one shutter, for example the 3 way direct acting solenoid valves: the two shutters, housed at the ends of the fixed core, alternately open and close the inlet and outlet orifices. There are also two shutters in the combined operation and in the pilot control solenoid valves, one acting on the pilot orifice and the other on the main orifice. Sometimes shutter function is carried out directly by the diaphragm or piston. Note: in the same solenoid valve there may be shutters made of different materials.

Orifice: this is a holed component which is opened or closed by the shutter, permitting or preventing the passage of fluid. It may be either machine-tooled or inserted. The solenoid valve main orifice is the one permitting maximum flow of the valve itself while the pilot orifice, when opened or closed due to an unbalance of pressure, leads to opening or closing the main one by means of a diaphragm or a piston.

Diaphragm: an element of mixed action or solenoid valves with pilot control which opens or closes the main orifice due to the effect of different pressures on its surfaces.

Complete diaphragm: this is the grouping of components united to the diaphragm such as diaphragm bearings, rivet etc.

Piston: an element of mixed action or solenoid valves with pilot control which opens or closes the main orifice due to the effect of different pressures on its surfaces.



Complete piston: this is the grouping of components united to the piston such as rivet, shutter etc.

Body: it is the central part of the solenoid valve. The pipes are on the body and the main orifice is generally inside. In some cases the body is divided in two parts: for example in solenoid valves for drink dispensing there is the upper body with the inlet pipe and the lower body with the main orifice and the outlet pipe.

Cover: this is found in certain solenoid valves, generally in all those with pilot control, the cover of which normally houses the pilot orifice.

Pipe: a mechanical component for connecting the solenoid valve to inlet, outlet and exhaust pipes.

1.1 2/2 way normally closed direct acting solenoid valves

Main components:

body with main orifice, complete armature tube + complete plunger (normally closed kit), coil.

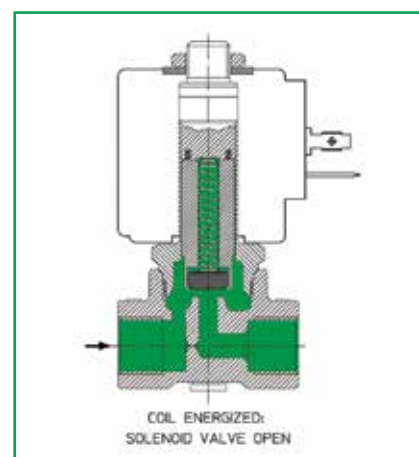
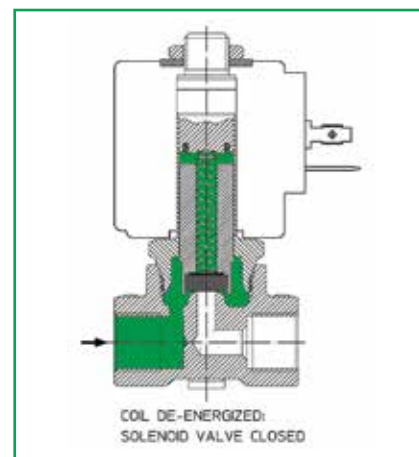
Functioning:

2/2 way normally closed direct acting solenoid valves have an inlet pipe and an outlet pipe. The plunger, on which a sealing gasket is mounted, provides directly for opening and closing the main orifice. When the coil is not energized, the plunger is in such a position as to close the orifice thus preventing the fluid flow.

When the coil is energized the plunger moves to such a position as to open the orifice, permitting fluid flow.

Notes:

in this solenoid valve range, a pressure increase causes the force required to open the valve: if the pressure difference between inlet and outlet is greater than the maximum value for which the solenoid valve has been designed, the latter may not open even with the coil energized.



1.2 2/2 way normally open direct acting solenoid valves

Main components:

body with main orifice, complete armature tube + plunger + rod + gasket holder assembly (normally open kit), coil.

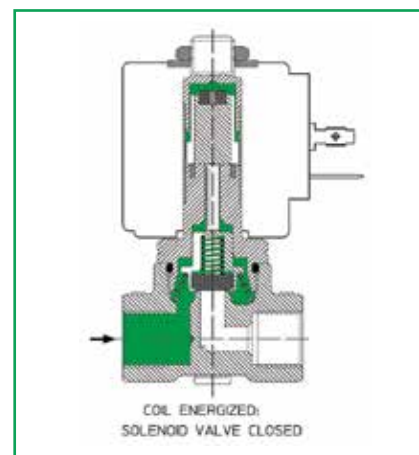
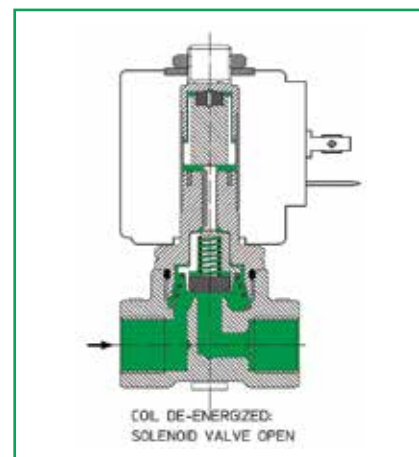
Functioning:

2/2 way normally open direct acting solenoid valves have an inlet pipe and a outlet pipe. The plunger, acting on the gasket holder by means of a rod, provides for opening and closing the solenoid valve. When the coil is not energized the gasket holder, under the action of a spring, is kept in such a position that the orifice is open, permitting fluid flow.

When the coil is energized the plunger moves downwards and, by means of the rod, pushes the gasket holder into a position that closes the orifice, preventing fluid flow.

Notes:

In this solenoid valve family an increase in pressure causes an increase in the force required to open the valve: if the pressure difference between inlet and outlet is greater than the maximum value for which the valve has been designed, the latter may not reopen even with the coil deactivated.



1.3 2/2 way normally closed solenoid valves with pilot control

Main components:

body with main orifice, cover, diaphragm (or piston) assembly, complete armature tube, + complete plunger (normally closed kit), coil.

Functioning:

2/2 way normally closed solenoid valves with pilot control have an inlet pipe and a outlet pipe. The main orifice, in the body, is opened by the effect of an unbalance in pressure between the upper and lower surfaces of a diaphragm (or piston): when the coil is not energized there is fluid under pressure in the chamber above the diaphragm while beneath the diaphragm there is pressure only in the area external to the main orifice: thus the resultant of the forces on the diaphragm is such as to push it and close the main orifice. When the coil is energized, movement of the plunger, on which a gasket is mounted, cause the pilot orifice opening and the chamber discharging above the diaphragm: the pressure unbalance moves the diaphragm which opens the main orifice.

Notes:

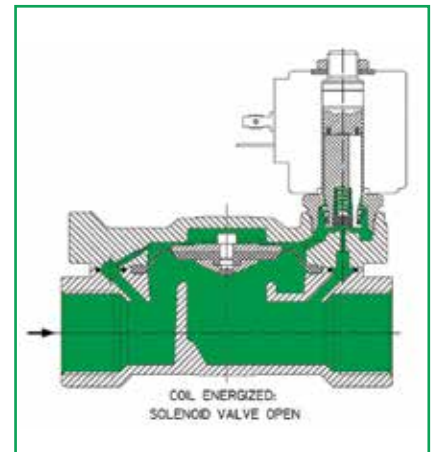
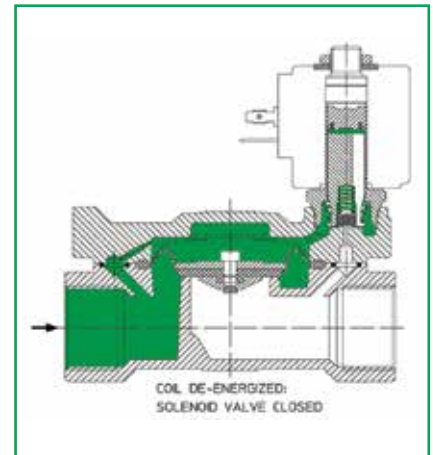
In this solenoid valves range there must be a minimum pressure difference between the inlet and the outlet pipes to ensure the correct solenoid valve functioning.

However, an excessive pressure difference between inlet and outlet, as with 2 way normally closed direct acting solenoid valves, causes an increase in the force required to open the pilot orifice, so if this pressure difference is greater than the maximum value for which the solenoid valve has been designed, the latter may not open even when the coil is energized.

For a correct operation of the solenoid valve, and to avoid a quick wear of the diaphragm, it is advisable that, once starting the valve closing, the actual flow isn't higher than the Kv (i.e.: flow rate through the valve with a pressure loss of 1 bar).

For this reason, should the inlet pressure when the valve is open, be higher than 1 bar, it is not advisable the use of the valve itself with free outlet, i.e. without an outlet restriction bringing the pressure drop to the value of 1 bar.

Moreover, particular attention must be paid in designing the hydraulic circuit to the problem of water hammering which could cause overpressures such as to lacerate the diaphragm or damage other parts of the solenoid valve.



1.4 2 way normally open solenoid valves with pilot control

Main components:

body with main orifice, cover, diaphragm (or piston) assembly, complete armature tube + plunger + gasket holder + gasket (normally open kit), coil.

Functioning:

2 way normally open solenoid valves with pilot control have an inlet and an outlet pipe. These solenoid valves functioning, as regards movement of the diaphragm, identical to that of 2 way normally closed solenoid valves with pilot control except that in place of the normally closed kit a normally open kit is mounted to open and close the pilot orifice. So in this case with the coil energized the pilot orifice is closed and the diaphragm therefore in such a position as to close the main orifice, whereas with the coil energized the pilot orifice is open, thus causing the main orifice to open.

Notes:

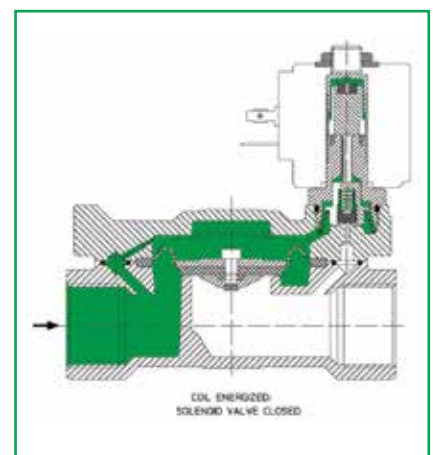
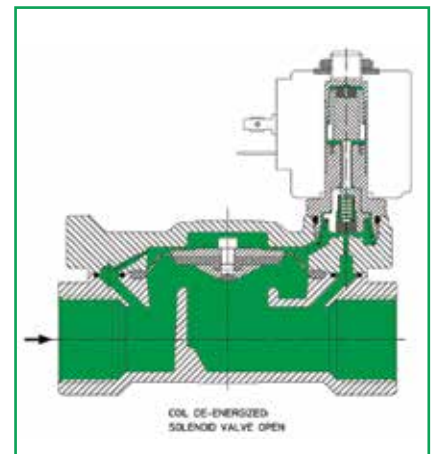
In this solenoid valves range there must be a minimum pressure difference between the inlet and outlet pipes to ensure correct solenoid valve functioning.

However, an excessive pressure difference between inlet and outlet, as with 2 way normally open direct acting solenoid valves, causes an increase in the force required to open the pilot orifice, so if this pressure difference is greater than the maximum value for which the solenoid valve has been designed, the latter may not reopen even when the coil is not energized.

For a correct operation of the solenoid valve, and to avoid a quick wear of the diaphragm, it is advisable that, once starting the valve closing, the actual flow isn't higher than the Kv (i.e.: flow rate through the valve with a pressure loss of 1 bar).

For this reason, the inlet pressure when the valve is open, should be higher than 1 bar, it is not advisable the use of the valve itself with free outlet, i.e. without an outlet restriction bringing the pressure drop to the value of 1 bar.

Moreover, particular attention must be paid in designing the hydraulic circuit to the problem of water hammering which could cause overpressures such as to lacerate the diaphragm or damage other parts of the solenoid valve.



1.5 2/2 way normally closed combined operation solenoid valves

Main components:

body with main orifice, cover, diaphragm (or piston) assembly, complete armature tube + complete plunger, coil.

Functioning:

2 way normally closed combined operation solenoid valves have an inlet and an outlet pipe. The main orifice opening, which is in the body, comes about by an unbalance in pressure between the upper and lower surfaces of a diaphragm (or piston) together with direct action of the plunger which is fixed to the diaphragm. Functioning is substantially similar to that of solenoid valves with pilot control as regards diaphragm movement except that even with small pressure differences between inlet and outlet, functioning is ensured by the direct action of the plunger on the diaphragm. So, also in this case, when the coil is not energized there is fluid under pressure in the chamber above the diaphragm while beneath the diaphragm there is pressure only in the area external to the main orifice: therefore the resultant of the forces on the diaphragm is such as to push it to close the main orifice. When the coil is energized, movement of the plunger, on which a gasket is mounted, opens an orifice on the complete diaphragm (pilot orifice) and discharges the chamber above the diaphragm. At the same time the plunger exercises direct force on the diaphragm, aiding its opening. The sum of this force and the pressure unbalance on the two sides of the diaphragm causes the diaphragm to move and open the main orifice.

Notes:

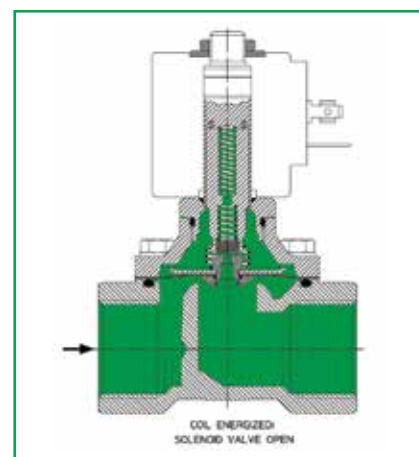
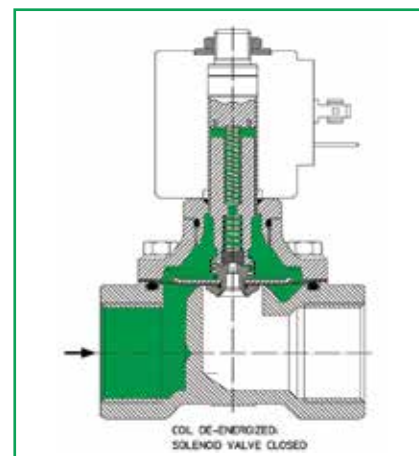
In this solenoid valves range there must not be a minimum pressure difference between the inlet and outlet pipes to ensure correct solenoid valve functioning.

However, an excessive pressure difference between inlet and outlet, as with 2 way normally closed direct acting solenoid valves, causes an increase on the force required to open the pilot orifice, so if this pressure difference is greater than the maximum value for which the solenoid valve has been designed, the latter may not open even when the coil is energized.

For a correct operation of the solenoid valve, and to avoid a quick wear of the diaphragm, it is advisable that, once starting the valve closing, the actual flow isn't higher than the Kv (i.e.: flow rate through the valve with a pressure loss of 1 bar).

For this reason, the inlet pressure when the valve is open, should be higher than 1 bar, it is not advisable the valve itself use with free outlet, i.e. without an outlet restriction bringing the pressure drop to the value of 1 bar.

Moreover, particular attention must be paid in designing the hydraulic circuit to the problem of water hammering which could cause overpressures such as to lacerate the diaphragm or damage other solenoid valve parts.



1.6 2/2 way normally open combined operation solenoid valves

Main components:

body with main orifice, cover, diaphragm (or piston) assembly, complete armature tube + complete plunger, coil.

Functioning:

2 way normally open combined operation solenoid valves have an inlet pipe and an outlet pipe. 2 way normally open functioning is substantially similar to that of solenoid valves mixed actuated normally closed. The difference is basically in the piloting kit. Instead of a normally closed solenoid operator, it is mounted a normally open kit. In this case when the coil is powered the piloting orifice will be closed and the main seat will keep close the valve. The opposite happens when the coil is not powered and the main seat remains open allowing the fluid flow.

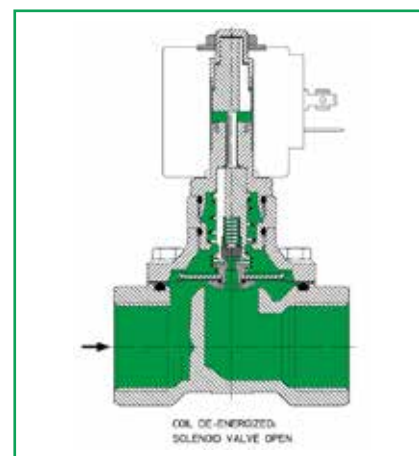
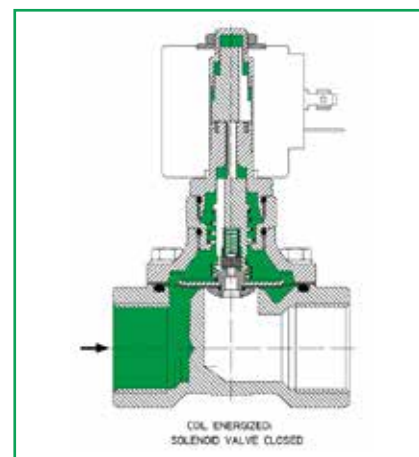
Notes:

In this family of solenoid valves there must not be a minimum pressure difference between the inlet and outlet pipes to ensure correct functioning of the solenoid valve.

However, an excessive pressure difference between inlet and outlet, as with 2 way normally closed direct acting solenoid valves, causes an increase in the force required to open the pilot orifice, so if this pressure difference is greater than the maximum value for which the solenoid valve has been designed, the latter may not open even when the coil is energized.

For a correct operation of the solenoid valve, and to avoid a quick wear of the diaphragm, it is advisable that, once starting the valve closing, the actual flow isn't higher than the Kv (i.e.: flow rate through the valve with a pressure loss of 1 bar).

For this reason, should the inlet pressure when the valve is open, be higher than 1 bar, it is not advisable the use of the valve itself with free outlet, i.e. without an outlet restriction bringing the pressure drop to the value of 1 bar. Moreover, particular attention must be paid in designing the hydraulic circuit to the problem of water hammering which could cause overpressures such as to lacerate the diaphragm or damage other parts of the solenoid valve.



1.6 Proportional direct acting solenoid valves

Main components:

body with main orifice, complete armature tube + adjustment screws + plunger + gasket, coil.

Functioning:

Proportional direct acting solenoid valves have an inlet and an outlet pipe. The plunger, on which a sealing gasket is mounted, provides directly for opening and closing the main orifice of the solenoid valve.

Unlike 2 way normally closed solenoid valves which have only two states, open and closed, a proportional solenoid valve, in function of the current run in the coil, can open partially. The solenoid valve can be set with the adjustment screws in such a way that, with the coil not energized, a perfect seal at maximum project pressure is guaranteed.

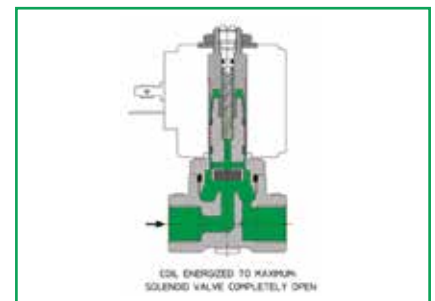
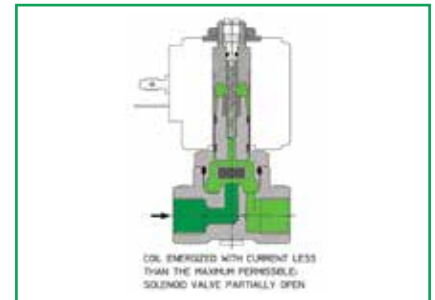
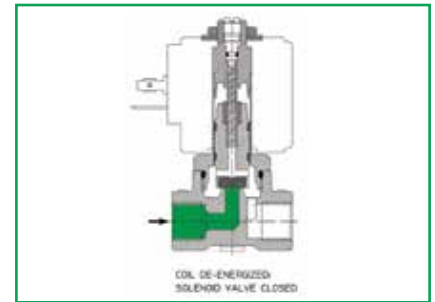
For clarification regarding methods used for energising and controlling this type of solenoid valve, see the functioning scheme for these valves in this section.

It is important to note that proportional solenoid valves are always operated by Direct Current (DC).

Notes:

On these valves, unlike the other models, the fluid shall enter into the valve so to pass through the main orifice from the lower side towards the higher one.

In this solenoid valves range an increase in pressure, as 3 way solenoid valves, causes a reduction in the pressure required to open the valve: if the pressure difference between inlet and outlet is greater than the maximum value for which the solenoid valve has been tared, the latter may open even when the coil is not energized. Proportional solenoid valves are tared individually, at the moment of installation and inspection testing, with the adjustment screws in the fixed core: any modification of this taring may make the valve work in a different way with regard to the data shown on the label.



2.1 3/2 way normally closed direct acting solenoid valves

Main components:

body with orifice, complete armature tube + fixed core + plunger + 2 gaskets (3 way kit), coil.

Functioning:

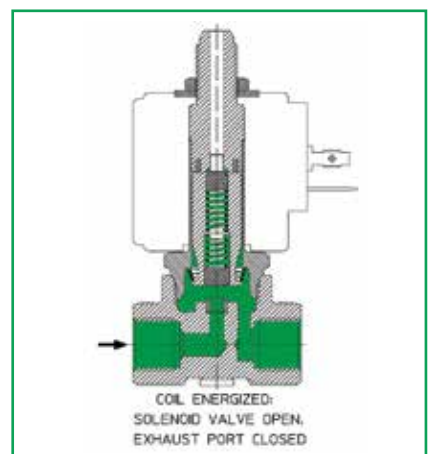
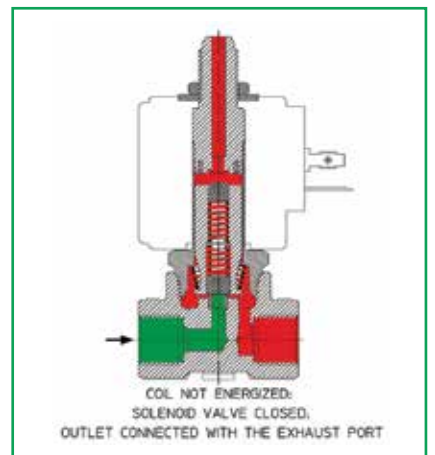
3 way normally closed solenoid valves have an inlet pipe, an outlet pipe and an exhaust pipe. The plunger, on which two gaskets are mounted, provides directly for opening and closing the solenoid valve's main orifice with one of the two gaskets and, simultaneously, opening or closing the outlet orifice with the other gasket. When the coil is not energized the plunger is in such a position as to close the main orifice, preventing the fluid flow from the inlet pipe to the outlet pipe, whereas the outlet pipe is in communication with the exhaust pipe.

When the coil is energized the plunger moves to a position in which it opens the main orifice and closes the exhaust orifice, permitting fluid to flow from the inlet pipe to the outlet one and preventing flow to the exhaust.

Notes:

On these valves, unlike the other models, the fluid shall enter into the valve so to pass through the main orifice from the lower side towards the higher one.

In this solenoid valves range an increase in pressure causes a reduction in the force required to open the valve: if the pressure difference between inlet and outlet is greater than the maximum value for which the solenoid valve has been designed, the latter may open even when the coil is not energized.



3.1 Single solenoid valves for automatic drink-dispensers

Main components:

body, lower body with orifice, complete armature tube + fixed core + plunger + cap gasket (2 way kit), coil.

Functioning:

Single solenoid valves for drink-dispenser have an inlet pipe and an outlet pipe on which there is generally a small pipe for attaching a vent. The plunger, on which the sealing cap gasket is fitted, provides directly for opening and closing the orifice, as with 2 way normally closed solenoid valves.

When the coil is not energized the plunger is in a position that closes the orifice, preventing fluid flow from the inlet to the outlet pipe.

When the coil is energized the plunger moves to a position that opens the orifice, permitting fluid flow from the inlet to the outlet pipe.

As well as opening and closing the orifice, the cap gasket provides for keeping the fluid separate from the armature tube-complete plunger and to avoid any deposit of limestone into the armature tube.

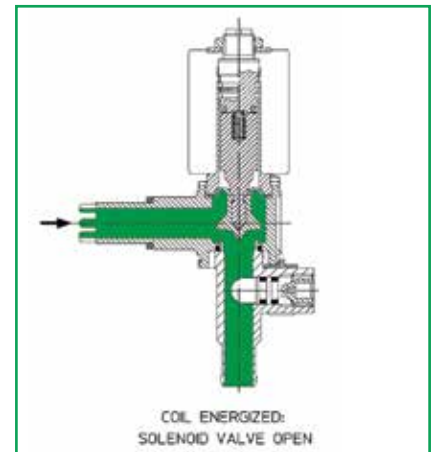
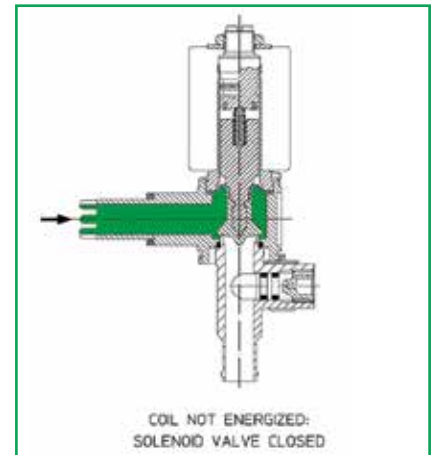
On the outlet pipe there is usually an adjustment screw for setting the solenoid valve flow, dividing the conduit.

Notes:

In this solenoid valves range an increase in inlet pressure causes a force reduction required to open the valve: if the inlet pressure is greater than the maximum value for which the solenoid valve has been designed, the latter may open even when the coil is not energized.

On the lower body of the solenoid valves for automatic drink-dispensers there is also a little venting fitting, on which usually a plastic pipe is connected.

This device assures a better fluid efflux and therefore a steady flow.



3.2 Solenoid valves manifold for automatic drink-dispensers

Main components:

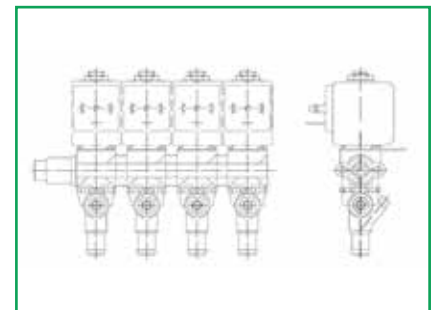
headers, lower bodies with orifices, complete armature tube + fixed cores + plungers + cap gaskets (2 way kit), coils.

Functioning:

in the solenoid valves functioning the manifolds are identical to the single valves.

The only difference is that they can be put together to form a group of solenoid valves with an inlet pipe and various outlet pipes, each one of which can be opened by energizing the corresponding coil.

The number of components of the group is in theory unlimited, but normally there are not more than 4 ÷ 5 elements per group.



4. 5/2 way solenoid valves

Main components:

solenoid valve body, profiled shaft, pistons, spring where required, 3 way kit, coil.

Functioning:

5 way solenoid valves are divided into two distinct groups: pneumatic return and spring return.

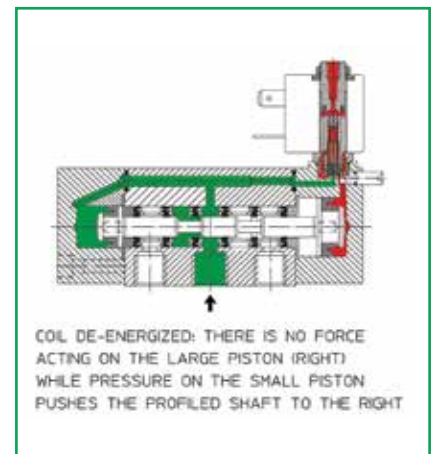
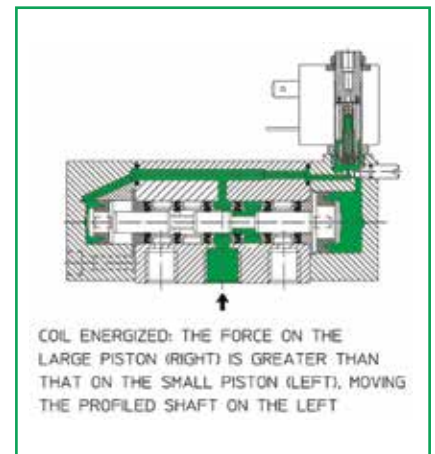
In pneumatic return 5 way solenoid valves, the coil energizing or de-energizing and on the consequent opening or closing of a pilot orifice an unbalance of forces is created on two pistons of different section, fixed to a suitably profiled shaft which moves, putting the inlet pipe (pipe 1) in communication with one of the other 4 pipes and putting others into outlet, closing or opening them in accordance with specific schemes for each single valve.

The pilot orifice closure causes the return of the profiled shaft to its original position due to a play of pressures.

In 5 way spring return solenoid valves there is, instead of the small piston, a spring which carries out the function of the piston returning to its initial position when the coil is de-energized the pilot orifice is closed.

Notes:

For a correct solenoid valves functioning there must be a specified minimum pressure for each type of solenoid valve at the inlet pipe (pipe 1).





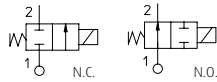
▶ 21A N.C./N.O.	page 26-27
▶ 21A PROP N.C.	" 28-29
▶ 21A-PW N.C./N.O.	" 30-31
▶ 21A16 N.C.	" 32-33
▶ 21H-EN N.C.	" 34-35
▶ 21HT-HN-HF N.C./N.O.	" 36-37
▶ 21IH-IN N.C.	" 38-39
▶ 21JN N.C.	" 40-41
▶ 21L N.C./N.O.	" 42-43
▶ 21M N.O.	" 44-45
▶ 21T N.C.	" 46-47
▶ 21W N.C./N.O.	" 48-49
▶ 21X N.C.	" 50-51
▶ 21YW-YN N.C./N.O.	" 52-53
▶ 31A N.C./N.O.	" 54-55
▶ 31A N.C.	" 56-57
▶ 31JN N.C.	" 58-59
▶ 31L N.C.	" 60-61
▶ 512 N.C.	" 62-63
▶ 4743 N.C.	" 64-65





FEATURES

- Wide range of application valves for liquids and gas
- Reliable proven design with high flow
- Small poppet valve for tight shutoff
- Wide range of elastomers
- Mountable in any position



21A	1	K	V	15	21A	**	B	D	A	08	024	A	S
Model valve	B= Flange	K= N.C.	V= FKM	10	Orefice 10 ⁻¹ mm	D= for 8W coil G= for 12W-14W coil	B= 30mm Ø 13	D EN 175301-803	B= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
	1= G 1/8	Z= N.O.	B= NBR	20			U= 36mm Ø 13		V= Class H	12= 12W	112= 110V-120V	A= AC	Y= UL, CSA, VDE
	2= G 1/4		E= EPDM	25			G= 52mm Ø 13			14= 14W	223= 220V-230V	D= AC	
	3= G 3/8		T= PTFE	45									
	4= G 1/2		R= RUBY	55									

(**) Only for N.O. version

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			

Normally Closed

Flange	1,5	1,4	12(2)	0	30	-	-	18	-	-	21A1KV15	(Part numbering example add "N" at the 4th digit 21AN2K0V20)	1
	2	2	37(5)		22	35	35	16	30	30	21A1KV20		1
	2,5	3,2	53(7)		14	30	30	9	25	25	21A1KV25		1
	3	4	53(7)		10	25	25	6	18	20	21A1KV30		1
G 1/8	1,5	1,4	12(2)	0	30	-	-	18	-	-	21A3KV15		2
	2	2	37(5)		22	35	35	16	30	30	21A3KV20		2
	2,5	3,2	53(7)		14	30	30	9	25	25	21A3KV25		2
	3	4	53(7)		10	25	25	6	18	20	21A3KV30		2
G 1/4	4,5	6,5	53(7)	0	5	12	12	2	7	8	21A3KV45		2
	1,5	1,4	12(2)		30	-	-	18	-	-	21A2KV15		2
	2	2	37(5)		22	35	35	16	30	30	21A2KV20		3
	2,5	3,2	53(7)		14	30	30	9	25	25	21A2KV25		3
G 3/8	3	4	53(7)	0	10	25	25	6	18	20	21A2KV30		3
	4,5	6,5	53(7)		5	12	12	2	7	8	21A2KV45		3
	5,5	9	53(7)		3	7	10	1	2,5	5	21A2KV55		3
	4,5	6,5	53(7)		5	12	12	2	7	8	21A5KV45		4
G 1/2	5,5	9	53(7)	0	3	7	10	1	2,5	5	21A5KV55		4
	4,5	6,5	53(7)		5	12	12	2	7	8	21A8KV45		5
	5,5	9	53(7)	0	3	7	10	1	2,5	5	21A8KV55		5

Normally Open

Flange	1,5	1,4	12(2)	0	25	-	-	25	-	-	21A1ZV15D	(Part numbering example add "N" at the 4th digit 21AN2K0V20)	1
	2	2	37(5)		20	-	-	20	-	-	21A1ZV20D		1
	2,5	3,2	53(7)		14	-	-	14	-	-	21A1ZV25D		1
	3	4	53(7)		10	-	-	10	-	-	21A1ZV30D		1
G 1/8	1,5	1,4	12(2)	0	25	-	-	25	-	-	21A3ZV15(*)		2
	2	2	37(5)		20	30	30	20	30	30	21A3ZV20(*)		2
	2,5	3,2	53(7)		14	17	17	14	17	17	21A3ZV25(*)		2
	3	4	53(7)		10	15	15	10	15	15	21A3ZV30(*)		2
G 1/4	4,5	6,5	53(7)	0	5	6	6	4	-	6	21A3ZV45(*)		2
	1,5	1,4	12(2)		25	-	-	25	-	-	21A2ZV15(*)		2
	2	2	37(5)		20	30	30	20	30	30	21A2ZV20(*)		3
	2,5	3,2	53(7)		14	17	17	14	17	17	21A2ZV25(*)		3
G 3/8	3	4	53(7)	0	10	15	15	10	15	15	21A2ZV30(*)		3
	4,5	6,5	53(7)		4	6	6	4	-	6	21A2ZV45(*)		3
	5,5	9	53(7)		2,5	3,5	3,5	2,5	-	3,5	21A2ZV55(*)		3
	4,5	6,5	53(7)		4	6	6	4	-	6	21A5ZV45(*)		4
G 1/2	5,5	9	53(7)	0	2,5	3,5	3,5	2,5	-	3,5	21A5ZV55(*)		4
	4,5	6,5	53(7)		4	6	6	4	-	6	21A8ZV45(*)		5
	5,5	9	53(7)	0	2,5	3,5	3,5	2,5	-	3,5	21A8ZV55(*)		5

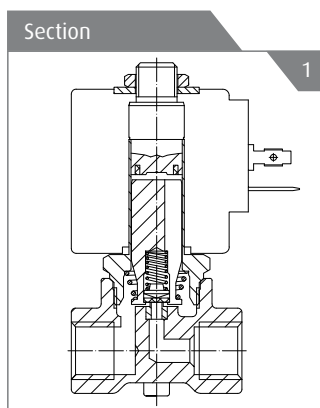
(*) D for B Coil; G for U/G coil

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** mineral oils, gasoline, diesel, fuel oils water, air, inert fluids, inert gases, steam
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM and EPDM seals
-10°C +90°C with NBR seals
-40°C +180°C with PTFE and RUBY seals
- ▶ **Max allowable pressure (PS):** 40 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
IP67 (with antiumidity kit can be rated to IP67)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20 - 40 msec (depending on pressure conditions)

AVAILABLE ON REQUEST

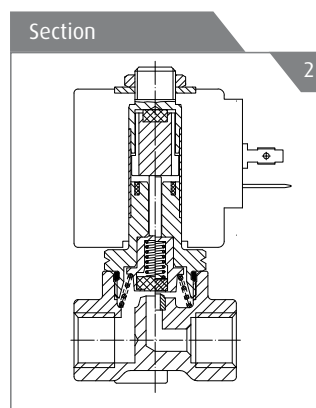
- ▶ Low lead brass for food grade
- ▶ Nickel plated version
- ▶ NSF approved version
- ▶ Double spring for higher operative pressure
- ▶ High pressure up to 100bar (see High Pressure section)
- ▶ Compressor flange interface (i.e. 4690K0V20 see Drawing reference 1a)
- ▶ Manual override (i.e. 21A3KV15-M)
- ▶ Explosion proof coil Ex m (see Atex section)
- ▶ Explosion proof coil Ex d (see Atex section)
- ▶ Explosion proof coil Ex nA (see Atex section)
- ▶ Latching coil (See coil section)



REPAIR KIT

Normally Closed

Orifice ≤3mm: KT130KV30-A
Orifice >3mm: KT130KV55-A



REPAIR KIT

Normally Open

Coil B type (8W)

Orifice ≤3mm: KT130ZV30-G
Orifice >3mm: KT130ZV55-F
KT130KV55-A

Coil U type (12W)

Coil G type (14W)

Orifice ≤3mm: KT130ZV30-G
Orifice >3mm: KT130ZV55-G

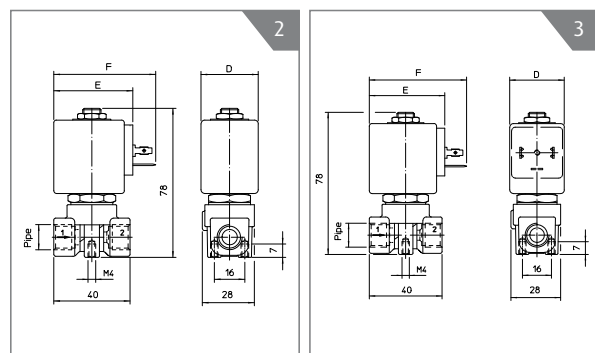
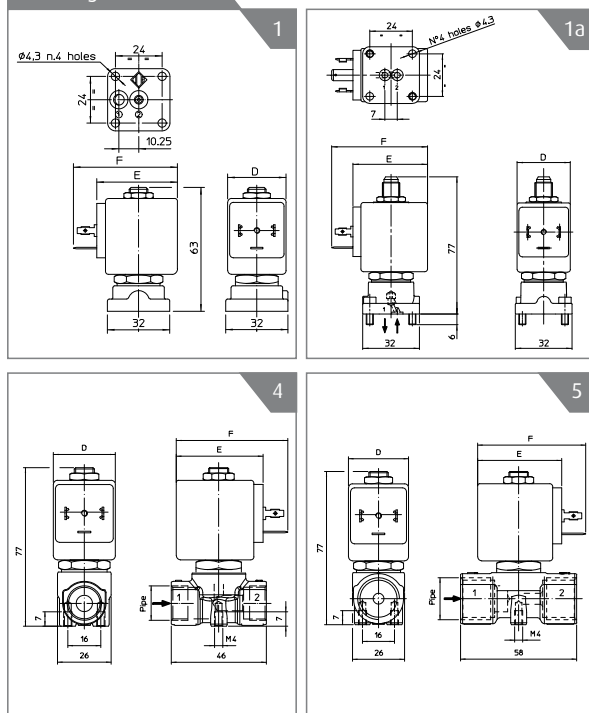
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antiumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares

Drawing Reference



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-1a-2-3-4-5	B	30	42	56
	U	36	48	60
	G	52	55	67



21A PROP N.C.



FEATURES

- Flow control solenoid valve
- Good repeatability and low hysteresis
- Different flow curves depending on the coil (contact our Customer Service)

CE



21A	2	KC	V	15	
Model valve	2= G 1/4	K= N.C.	V= FKM	15 20 25 30 45 55	Orefice 10 ⁻¹ mm

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
U= 36mm Ø 13		V= Class H	12= 12W	112= 110V-120V	A= AC	S= Without Approval

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			
G 1/4	1,5	1,4	21(3)	0	-	-	-	10	10	-	21A2KCV15-10		1
	2	2	21(3)		-	-	-	10	10	-	21A2KCV20-10		2
	2,5	3,2	21(3)		-	-	-	8	8	-	21A2KCV25-10		3
	3	4	21(3)		-	-	-	5	5	-	21A2KCV30-10		4
	4,5	6,4	21(3)		-	-	-	1,5	1,5	-	21A2KCV45-10		5
	5,5	9	21(3)		-	-	-	-	1	-	21A2KCV55-10		6

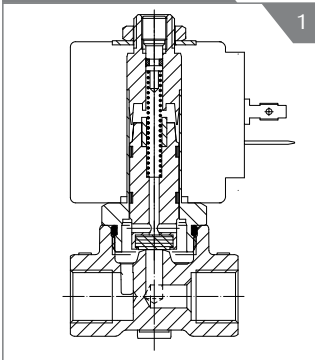
TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12165 CW617N
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Media:** water, inert gases, mineral oils, gasoline
- **Ambient temperature:** See coils catalogue page for its compatibility
- **Fluid temperature:** -10°C +140°C with FKM seals
- **Design pressure PS:** 40 bar
- **Protection class:** IP65 (complete with electric plug)
- **Electrical conformity:** IEC 335

AVAILABLE ON REQUEST

Proportional Electric Control System suitable on request, please consult the technical department for additional information

Section



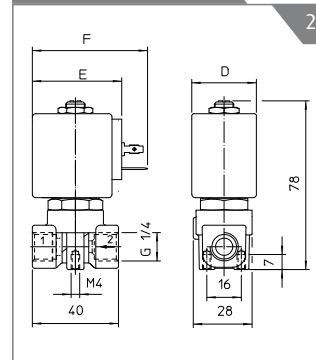
REPAIR KIT

KT130KCV55-I

RELATED ITEMS

- P990305: Electrical plug EN 175301-803 Pg9
- P990306: Electrical plug EN 175301-803 Pg11

Drawing Reference



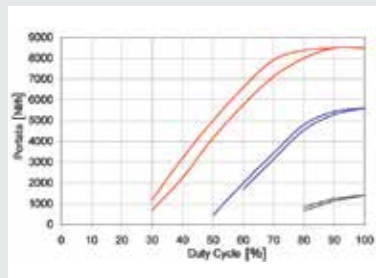
INSTALLATION

- Can be installed in any position
- Maintenance and instruction sheet available in each solenoid valve box

Flow Curve

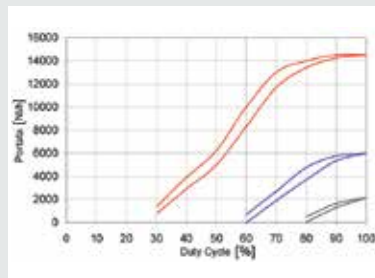
Produced with coil (8W); for 12W curve please consult technical department

Coil 8W



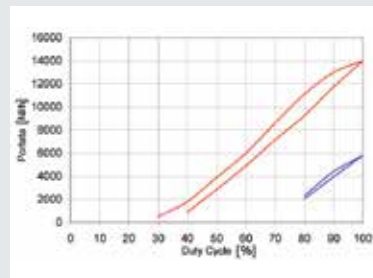
21A2KCV15-10

1 Coil 8W



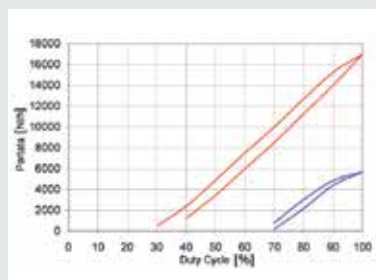
21A2KCV20-10

2 Coil 8W



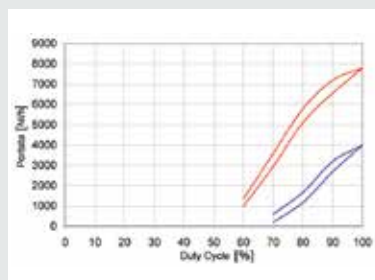
21A2KCV25-08

Coil 8W



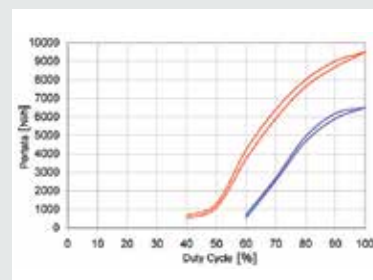
21A2KCV30-05

4 Coil 8W



21A2KCV45-1X

5 Coil 12W



21A2KCV55-01

Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
2	B	30	42	54
	U	36	48	60

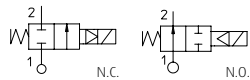


FEATURES

- Specially designed for compressor use
- Heavy duty design for high number of cycles
- High working temperature



CE



21PW	3	K0	T	120	
Model valve	2= G 1/4	K0= N.C.	T= PTFE	55 120	Orefice 10-1mm
	3= G 3/8	W0= N.C.	F= H-NBR		
	4= G 1/2				

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	A= AC	S= Without Approval
		V= Class H		110= 110V	C= DC	Y= UL, CSA, VDE
				223= 220V-230V		

L	B	A	05	024	A	S
L= 22mm Ø 10	B EN 175301-803	A= Class F	05= 5W	024= 24V	A= AC	S= Without Approval
				100= 100V	D= AC	
				220= 220V	B= AC	U= UL

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)								GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE										
					AC				DC						
					L	B	G	U	L	B	G	U			

Normally Closed

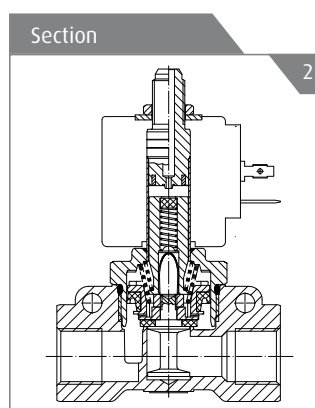
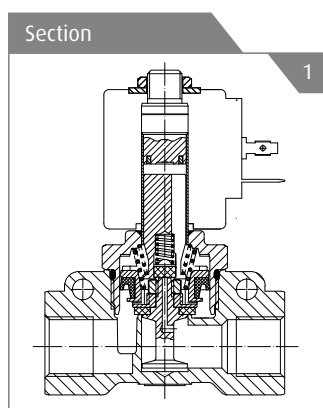
G 3/8	12	32	12(2)	0,5	-	18	20	20	-	-	15	-	21A1KV15		1
G 3/8	12	32	12(2)	0,3	-	15	15	15	-	-	10	-	21A1KV20		1
G 1/2	12	38	12(2)	0,5	-	18	20	20	-	-	15	-	21A1KV25		1
G 1/2	12	38	12(2)	0,3	-	15	15	15	-	-	10	-	21A1KV30		1

Normally Open

G 1/4	5,5	9	53(7)	0,5	12	-	-	-	-	-	-	-	21A2W0F55-PW		1
G 1/4	5,5	9	53(7)	0,5	-	15	-	-	-	-	-	-	21A2Y0F55-PWB		2
G 3/8	12	32	12(2)	0,5	-	18	-	-	-	18	-	-	21PW3F0T120		2
G 3/8	12	32	12(2)	0,3	-	15	-	-	-	15	-	-	21PW3F0V120		2
G 1/2	12	38	12(2)	0,5	-	18	-	-	-	18	-	-	21PW4F0T120		2
G 1/2	12	38	12(2)	0,3	-	15	-	-	-	18	-	-	21PW4F0V120		2

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series (21A2)
- ▶ **Welded armature tube:** Brass - UNI EN 12165 CW617N + Stainless steel AISI 300 series (21PW)
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** air, inert gases, water
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
-10°C +140°C with H-NBR seals
-10°C +180°C with PTFE seals
- ▶ **Design pressure PS:** 25 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335

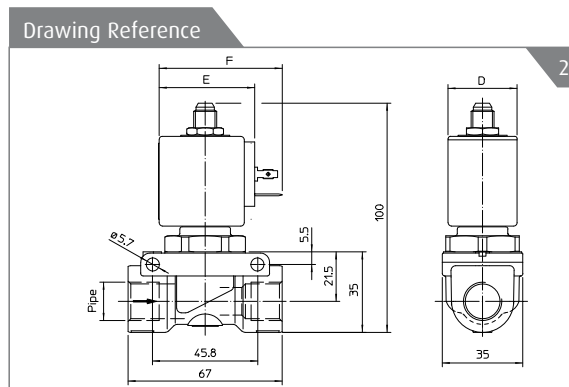
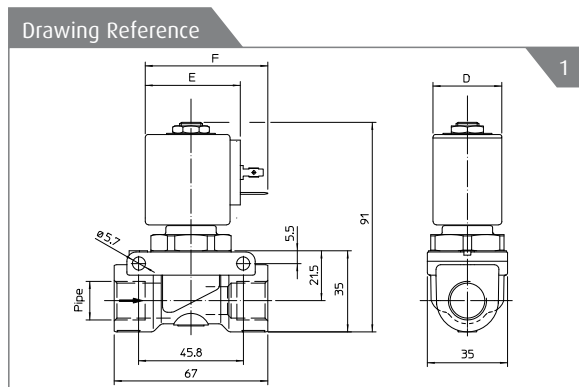


RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P990307: Electrical plug EN 175301-803 Pg 9 (22 mm)
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coil class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-2	B	30	42	54
	L	22	27,5	39,5

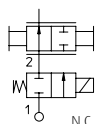


21A16 N.C.



FEATURES

- ▶ Reliable solution for steam
- ▶ Flow regulation for steam control
- ▶ 90° shape for compact installation



CE

21A	16	K	T	120	
Model valve	16= G 1/4	K= N.C.	E= EPDM	25 30	Orefice 10 ⁻¹ mm
			T= PTFE		

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F		024= 24V	C= DC	S= Without Approval
		V= Class H	08= 8W	110= 110V-120V	A= AC	Y= UL, CSA, VDE
				223= 220V-230V	D= AC	

PIPE	Ø (mm)	Kv (l/mn)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)		GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE				
					AC	DC			
					B	B			

Without Manual Handwheel

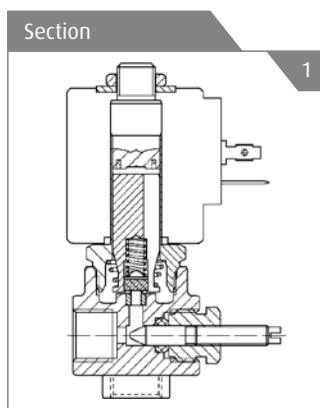
G 1/4	2,5	3,2	53(7)	0	14	9	21A16KE25	Not Applicable	1
	3	4			10	6	21A16KE30		1
	2,5	3,2			14	5	21A16KT25		1
	3	4			10	4	21A16KT25		1

With Manual Handwheel

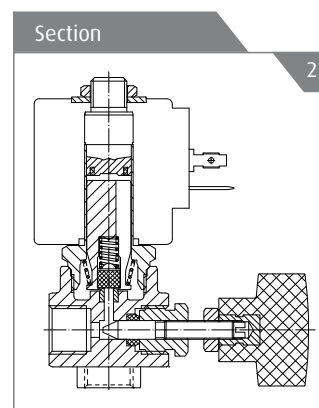
G 1/4	2,5	3,2	53(7)	0	14	9	21A16KE25-XV	Not Applicable	2
	3	4			10	6	21A16KE30-XV		2
	2,5	3,2			14	5	21A16KT25-XV		2
	3	4			10	4	21A16KT25-XV		2

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Reliable solution for steam**
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** low pressure steam, mineral oils, gasoline, diesel, fuel oils, water
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM, EPDM seals
-40°C +180°C with PTFE, RUBY seals
- ▶ **Design pressure PS:** 25 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335



REPAIR KIT
KT130KE30-A
KT130KT30-A



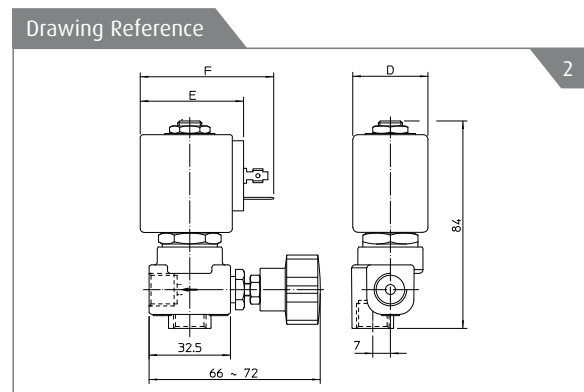
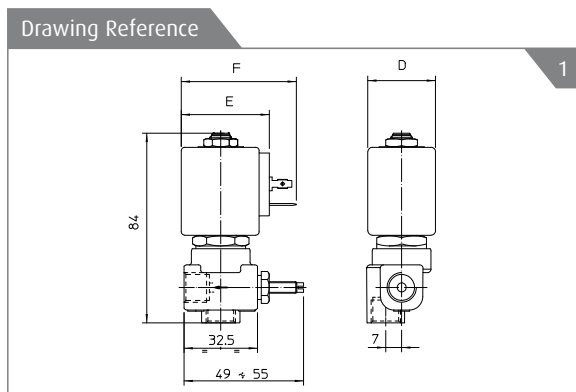
REPAIR KIT
KT130KE30-A
KT130KT30-A

RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11

INSTALLATION

- ▶ The solenoid valves can be installed in any position
- ▶ Maintenance and instruction sheet available in each solenoid valve box



Dimensionale Table

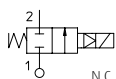
Figure	Coil Type	D mm	E mm	F mm
1-2	B	30	42	54





FEATURES

- Compact design
- Pressure up to 20 bar
- Wide elastomers range for fluid compatibility



21EN	2	K0	B	105		B	D	A	08	024	A	S
Model valve	2= 1/4 (GAS o NPT)	K0= N.C.	B= NBR	105 120 180	Orifice 10 ⁻¹ mm	B= 30mm Ø 13	D EN 175301-803	B= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
	3= 3/8 (GAS o NPT)		E= EPDM			U= 36mm Ø 13		V= Class H	12= 12W	112= 110V-120V	A= AC	Y= UL, CSA, VDE
	4= 1/2 (GAS o NPT)		V= FKM			G= 52mm Ø 13			14= 14W	223= 220V-240V	D= AC	
	5= 3/4 (GAS o NPT)											

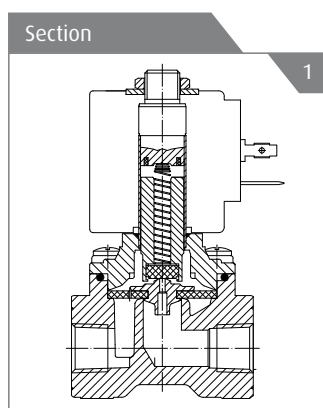
PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			
1/4 NPT	10,5	20	12(2)	0,1	20	20	20	10	20	20		21EN2K0B105	1
G 3/8	12	35	12(2)	0,1	20	20	20	10	20	20	21H7KV120		1
3/8 NPT	10,5	25	12(2)	0,1	20	20	20	10	20	20		21EN3K0B105	1
G 1/2	12	45	12(2)	0,1	20	20	20	10	20	20	21H8KV120		1
1/2 NPT	10,5	20	12(2)	0,1	20	20	20	10	20	20		21EN4K0B105	
G 3/4	18	50	12(2)	0,1	16	16	16	3	10	16	21H9KV180		
3/4 NPT	18	50	12(2)	0,1	16	20	20	3	9	16		21EN5KB105	

TECHNICAL SPECIFICATION

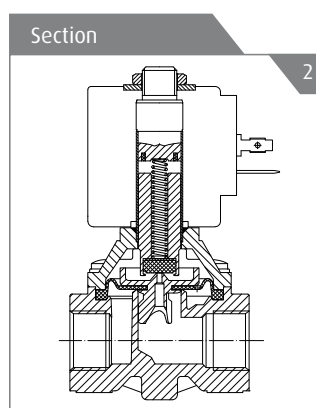
- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless steel AISI series 300
- ▶ **Welded armature tube:** Stainless steel AISI series 300+Brass - UNI EN 12165 CW617N
- ▶ **Plungers:** Stainless Steel AISI 400 serie
- ▶ **Spring:** Stainless Steel AISI series 300
- ▶ **Media:** mineral oils, gasoline, diesel, air, water, steam, inert gases
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +90°C with seals NBR
-10°C +140°C with seals FKM, EPDM
- ▶ **Design pressure PS:** 16 - 20 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335

AVAILABLE ON REQUEST

- ▶ Explosion proof coil Ex nA (see Atex section)



REPAIR KIT
KTGEN2K0B10



REPAIR KIT
KTGOH7KV12
KTGOH9KV18

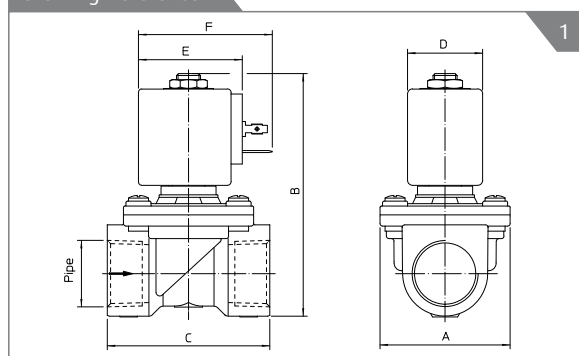
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coil class)
- ▶ P992087: Timer for automatic switch

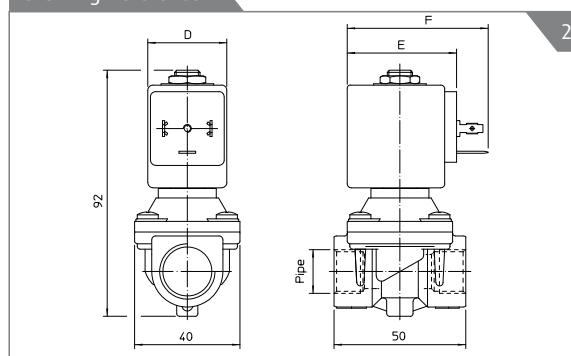
INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares

Drawing Reference



Drawing Reference



Dimensionale Table

Figure	Coil Type	A mm	B mm	C mm	D mm	E mm	F mm
1-2	B	40	90	50 72	30	42	54
	U				36	48	60
	G				52	55	67



21HT-HN-HF N.C./N.O.

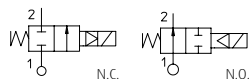


FEATURES

- ▶ Minimum pressure not required
- ▶ Textyle diaphragm for heavy duty applications also with air
- ▶ Normally closed and normally open available as standard



(Pressure Equipment Directive 97/23/CE) for S.V. 21HF7+21HF8



21HT	6	KO	V	250	
Model valve	2= G 1/4 - 1/4 NPT	K0= N.C.	V= FKM	110 160 200 250 350 400	Orefice 10 ⁻¹ mm
	3= G 3/8 - 3/8 NPT	Z0= N.O.	Y= NBR+PA		
	5= G 3/4 - 3/4 NPT				
	6= G 1 - 1 NPT				
	7= G1 1/4 - 1 1/4 NPT				
	8= G 1/2 - 1/2 NPT				

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
U= 36mm Ø 13		V= Class H	12= 12W	110= 110V-120V	A= AC	Y= UL, CSA, VDE
G= 52mm Ø 13			14= 14W	230= 230V-240V	D= AC	

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			

Normally Closed

(1) For DC only

1/4	11	20	12(2)	0	14	14	14	5	14	14		21HN2K0Y110-HT	1
3/8	11	20	12(2)	0	14	14	14	5	14	14	21HT3K0Y110	21HN3K0Y110-HT	1
3/8	11	6,5	12(2)	0	-	-	-	14	-	-	21HT3K0Y110-S (1)		1
1/2	16	40	12(2)	0	14	14	14	2,5	11	14	21HT4K0Y160	21HN4K0Y160-HT	1
1/2	16	40	12(2)	0	-	-	-	10	-	-	21HT4K0Y160-S (1)		1
3/4	16	40	12(2)	0	14	14	14	1,5	11	14	21HT5K0Y160	21HN5K0Y160-HT	1
3/4	20	120	12(2)	0	16	16	16	6	16	16	21HF5K0V200		3
3/4	16	30	12(2)	0	-	-	-	10	-	-	21HT5K0Y160-S (1)		1
1	25	120	12(2)	0	8	14	14	-	1,5	6	21HT6K0Y160	21HN6K0Y160-HT	1
1	25	90	12(2)	0	-	-	-	1	6	12	21HT6K0Y160-S (1)		1
1	25	140	12(2)	0	16	16	16	5	16	12	21HF6K0V250		3
1 1/4	35	270	12(2)	0	16	16	16	-	-	6	21HF7K0V350		3
1 1/2	40	280	12(2)	0	16	16	16	-	-	6	21HF8K0V400		3

Normally Open

(*) To use in AC, DC coil will be supplied with a bridge rectifier

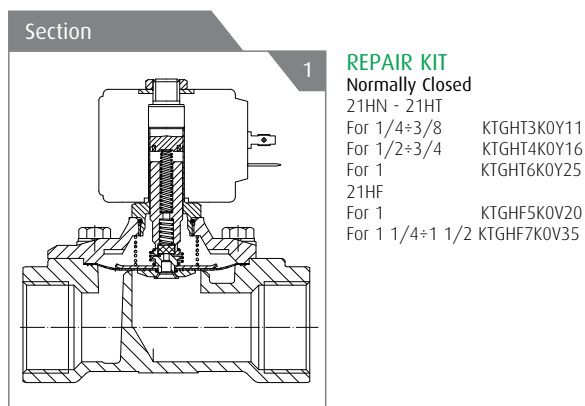
1/4	11	20	12(2)	0	10	-	-	10	-	-		21HN2Z0Y110-HT(*)	2
3/8	11	20	12(2)	0	10	-	-	10	-	-	21HT3Z0Y110(*)	21HN3Z0Y110-HT(*)	2
1/2	16	40	12(2)	0	10	-	-	10	-	-	21HT4Z0Y160(*)	21HN4Z0Y160-HT(*)	2
3/4	16	40	12(2)	0	10	-	-	10	-	-	21HT5Z0Y160(*)	21HN5Z0Y160-HT(*)	2

TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12165 CW617N
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Media:** air, gasoline, fuel oils, inert gases, water, mineral oils, diesel, steam
- **Ambient temperature:** See coils catalogue page for its compatibility
- **Fluid temperature:** -10°C +90°C with NBR+PA seals
-10°C +140°C with FKM+NBR,EPDM seals
- **Design pressure PS:** 16 bar
- **Protection class:** IP65 (complete with electric plug)
- **Electrical conformity:** IEC 335
- **Switching time:** 20 - 40 msec

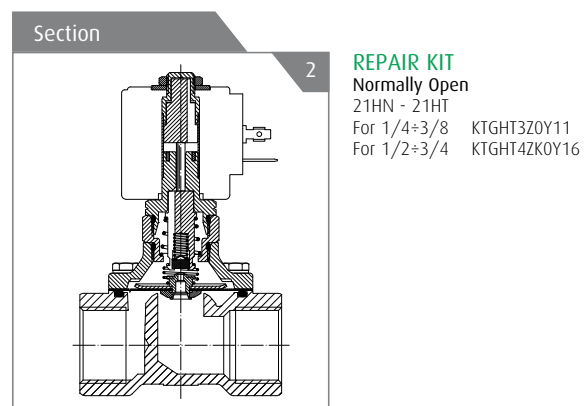
AVAILABLE ON REQUEST

- Explosion proof coil Ex nA (see Atex section)



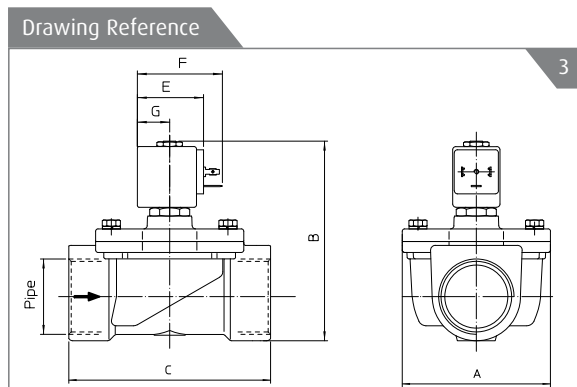
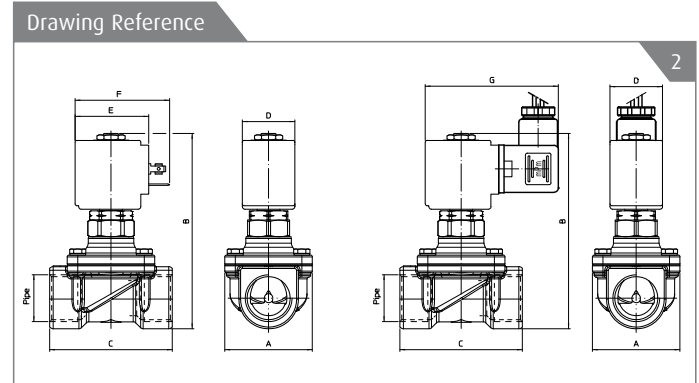
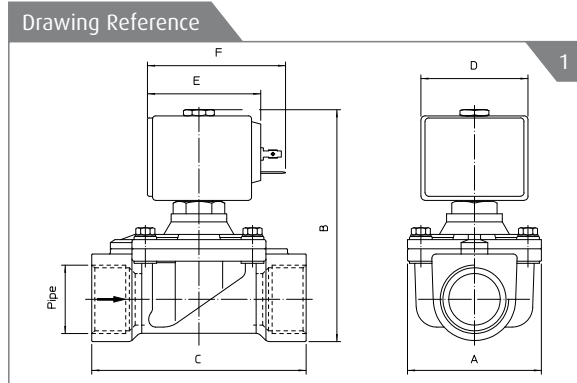
RELATED ITEMS

- P990305: Electrical plug EN 175301-803 Pg9
- P990306: Electrical plug EN 175301-803 Pg11
- P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coil class)
- P992087: Timer for automatic switch



INSTALLATION

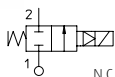
- The solenoid valves can be mounted in any position
- Other port connections available on request
- Maintenance and instruction sheet available in each solenoid valve box
- Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm	G mm
1-2-3	B	30	42	54	20,5
	U	36	48	60	23,5
	G	52	55	67	25





FEATURES

- ▶ Minimum pressure not required
- ▶ Textile diaphragm for heavy duty applications
- ▶ AISI 316 for high compatibility with aggressive fluids

21IH	3	K1	V	150	
Model valve	3= G 3/8 - 3/8 NPT	K1= N.C.	V= FKM		Orefice 10 ⁻¹ mm
	4= G 1/2 - 1/2 NPT			150	
	5= G 3/4 - 3/4 NPT			160	
	6= G 1 - 1 NPT			200	
	7= G1 1/4 - 1 1/4 NPT			250	
	8= G1 1/2 - 1 1/2 NPT			350 400	

B	D	A	08	024	A	S
B = 30mm Ø 13	D EN 175301-803	A = Class F	08 = 8W	024 = 24V	C = DC	S = Without Approval
U = 36mm Ø 13		V = Class H	12 = 12W	110 = 110V-120V	A = AC	Y = UL, CSA, VDE
G = 52mm Ø 13			14 = 14W	230 = 230V-240V	D = AC	

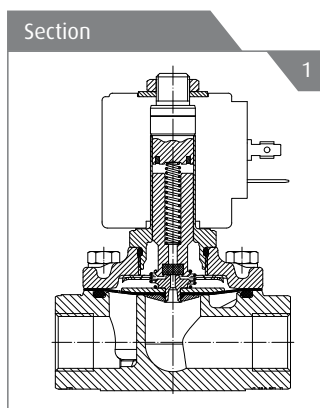
PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			
3/8	15	40	12(2)	0	14	-	-	6	-	14	21IH3K1V150	21IN3K1V150-IH	1
1/2	16	50	12(2)		14	-	-	6	-	14	21IH4K1V160	21IN4K1V160-IH	1
3/4	20	60	12(2)		14	-	-	6	-	14	21IH5K1V200	21IN5K1V200-IH	1
1	25	140	12(2)		14	-	-	3	8	14	21IH6K1V250	21IN6K1V250-IH	1
1 1/4	35	300	12(2)		-	14	-	-	-	-	21IH7K1V350	21IN7K1V250-IH	1
1 1/4	35	300	12(2)		-	-	-	-	7	-	21IH7K1V350-S	21IN7K1V250-IHS	1
1 1/2	40	340	12(2)		-	14	-	-	-	-	21IH8K1V400	21IN8K1V400-IH	1
1 1/2	40	340	12(2)		-	-	-	-	7	-	21IH8K1V400-S	21IN8K1V400-IHS	1

TECHNICAL SPECIFICATION

- ▶ **Body material:** Stainless Steel AISI 316 series
- ▶ **Armature tube:** Stainless Steel AISI 316 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Ex d Housing in Aluminium die cast**
- ▶ **Media:** air, inert gas, water, mineral oils, gasoline, diesel
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +90°C with NBR + PA seals
-10°C +140°C with FKM + PA seals
- ▶ **Design pressure PS:** 16 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335

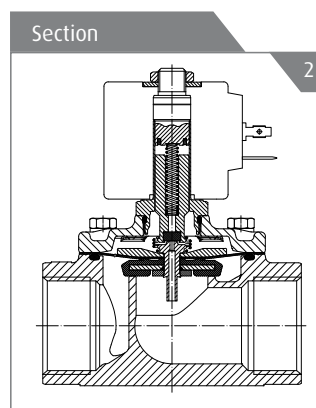
AVAILABLE ON REQUEST

- ▶ Explosion proof coil Ex m (see Atex section)
- ▶ Explosion proof coil Ex d (see Atex section)
- ▶ Explosion proof coil Ex nA (see Atex section)
- ▶ Latching coil (see Atex section)



REPAIR KIT

G 3/8 - 3/8 NPT ÷ G 1/2 - 1/2 NPT
KTGIH3K1V15
G 3/4 - 3/4 NPT
KTGIH5K1V20



REPAIR KIT

G 1 - 1 NPT
KTGIH6K1V25
G 1 1/4 - 1 1/4 NPT ÷ G 1 1/2 - 1 1/2 NPT
KTGIH7K1V35

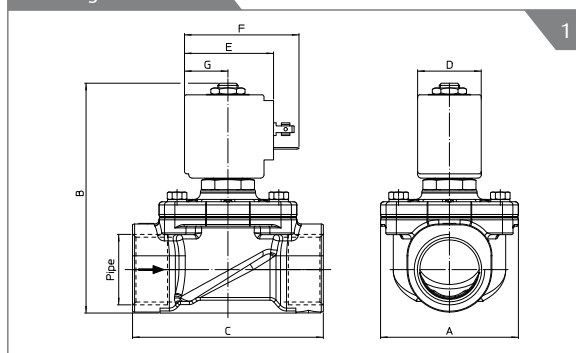
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coil class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares

Drawing Reference



Dimensionale Table

Figure	Pipe	A mm	B mm	C mm
1	G 3/8 3/8 NPT	58	92	68
	G 1/2 1/2 NPT			
	G 3/4 3/4 NPT	58	100	75
	G 1 1 NPT	65	109	90
	G 1/4 1/4 NPT	94	125	128
	G 1/2 1/2 NPT			

Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm	G mm
1	B	30	42	54	20,5
	U	36	48	60	23,5
	G	52	55	67	25

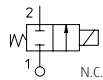


21JN N.C.



FEATURES

- ▶ Compact design
- ▶ Low power consumption
- ▶ NSF approved version



21J	N1	R0	V	12	
Model valve	N1= G 1/8	R0= N.C.	V= FKM	15	Orifice 10 ⁻¹ mm
	BM= M5X0,5		B= NBR	20 25	

L	B	A	05	024	C	S
L 22 mm 2,5W - 5W -4W	B EN 175301-803	A= Class F	05= 5W	024= 24V	C= DC	S= Without Approval
		V= Class H	04= 4W	110= 110V-120V	A= AC	
				220= 220V	B= AC	U= UL
				230= 230V	A= AC	V= VDE

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					2,5W	5W		2,5W	5W				
M5	2	2	37(5)	0	-	22		-	10		21JBM0B20	Part numbering example add “-JN” after code 21JN1R0V20-JN	2
G 1/8	1,2	1	12(2)		20	25		3,5	12		21JN1R0V12		1
	1,2	1	12(2)		20	25		3,5	12		21JN1R1V12-T3(*)		1
	1,5	1,1	12(2)		-	25		-	10		21JN1R0V15		1
	2	2	37(5)		-	22		-	10		21JN1R0V20		1
	2,3	2,3	37(5)		6	18		-	8		21JN1R0V23		1
	2,3	2,3	37(5)		6	18		-	8		21JN1R1V23-T3(*)		1

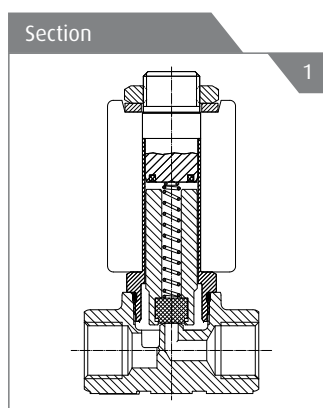
(*) NSF Certified

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass
- ▶ **Armature tube:** Stainless steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** mineral oils, gasoline, diesel, fuel oils
water, air, inert fluids, inert gases
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
-10°C +90°C with NBR seals
- ▶ **Design pressure PS:** 40 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20 msec A (Depending on pressure conditions)

AVAILABLE ON REQUEST

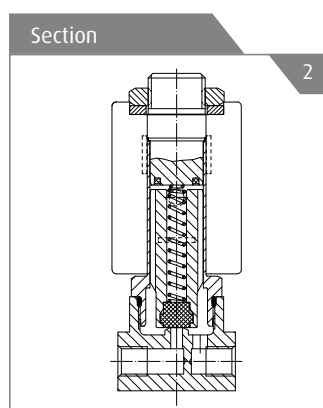
- ▶ Nickel plated version
- ▶ Explosion proof coil Ex nA (see Atex section)



REPAIR KIT
KT100R0V25-FJ

RELATED ITEMS

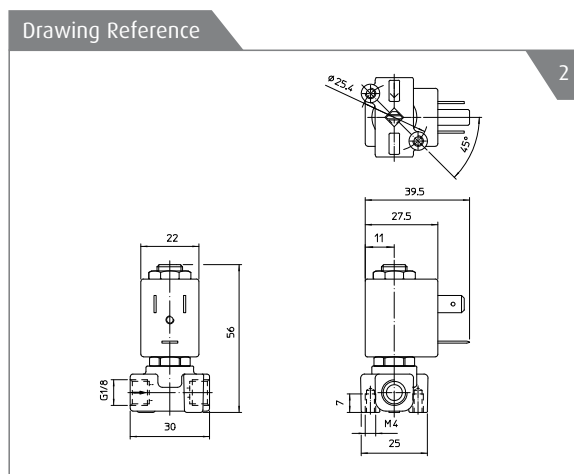
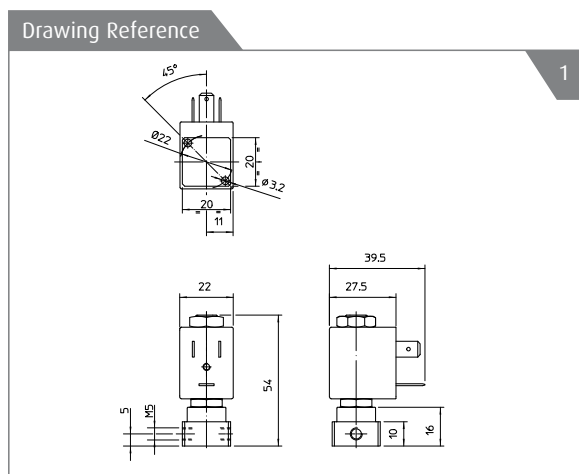
- ▶ P990307: Electrical plug EN 175301-803 Pg11



REPAIR KIT
KT100R0B25-FJ

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Instruction sheet available in each solenoid valve box
- ▶ Fixing holes

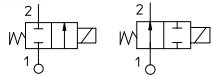




FEATURES

- ▶ Small poppet valve for tight shut off
- ▶ Mountable in any position
- ▶ AISI 316 for aggressive fluids

CE



21L	1	K1	V	25	
Model valve	1= G 1/8	K1= N.C.	V= FKM	25 30 40 55	Orifice 10 ⁻¹ mm
	2= G 1/4	Z= N.O.	T= PTFE		

L	B	A	05	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
U= 36mm Ø 13		V= Class H	12= 12W	112= 110V-120V	A= AC	Y= UL, CSA, VDE
G= 52mm Ø 13			14= 14W	230= 230V-240V	D= AC	

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			

Normally Closed

G 1/8	2,5	3,2	53(7)	0	14	30	30	9	25	25	21L1K1T25	Part numbering example add "N" at the 4th digit 21LN1K1T25	1
	3	4	53(7)	0	10	25	25	6	17	20	21L1K1T30		1
	4	5	53(7)	0	6	15	15	1,7	6	8	21L1K1T40		1
	2,5	3,2	53(7)	0	14	30	30	9	25	25	21L1K1T25		1
	3	4	53(7)	0	10	25	25	6	17	20	21L1K1T30		1
G 1/4	4	5	53(7)	0	6	15	15	1,7	6	8	21L1K1T40		1
	2,5	3,2	53(7)	0	14	30	30	9	25	25	21L2K1T25		2
	3	4	53(7)	0	10	25	25	6	17	20	21L2K1T30		2
	4	5	53(7)	0	6	15	15	1,7	6	8	21L2K1T40		2
	5,5	9	53(7)	0	3,5	6	7	1	2	5	21L2K1T55		2
	2,5	3,2	53(7)	0	14	30	30	9	25	25	21L2K1T25		2
	3	4	53(7)	0	10	25	25	6	18	20	21L2K1T30		2
	4	5	53(7)	0	6	15	15	1,7	6	8	21L2K1T40		2
	5,5	9	53(7)	0	3,5	7	10	1	2,5	5	21L2K1T55		2

Normally Open

G 1/8	2,5	3,2	53(7)	0	14	-	-	14	-	-	21L1ZV25(*)	(On request)	2
	3	4	53(7)	0	10	-	-	10	-	-	21L1ZV30(*)		2
G 1/4	5,5	9	53(7)	0	2,5	3,5	3,5	2,5	3,5	3,5	21L2ZV55(*)		2

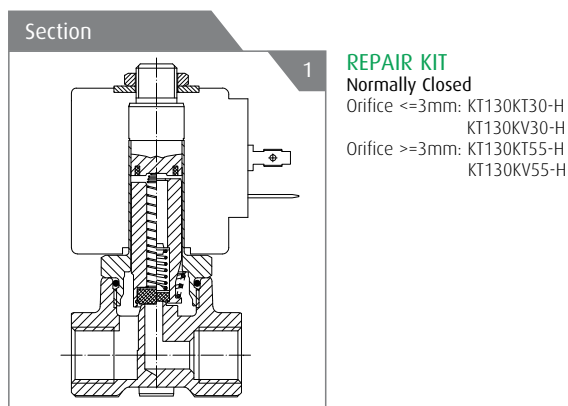
(*) D for B coil; G for U/G coil

TECHNICAL SPECIFICATION

- ▶ **Body material:** Stainless steel AISI 316 series
- ▶ **Armature tube:** Stainless steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** demineralized water, steam, syrups, chemical products compatible with stainless steel
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
-40°C +180°C with PTFE seals
- ▶ **Design pressure PS:** 40 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20 - 40 msec (depending on pressure conditions)

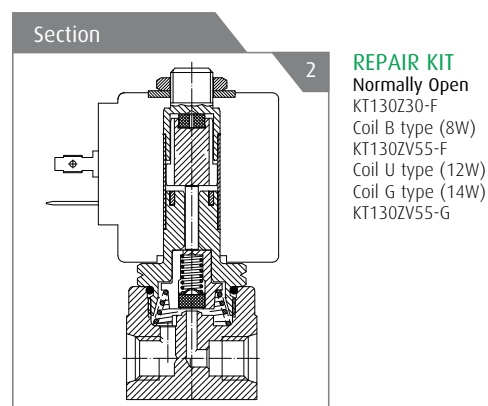
AVAILABLE ON REQUEST

- ▶ Lateral regulation
- ▶ Explosion proof coil Ex nA (see Atex section)



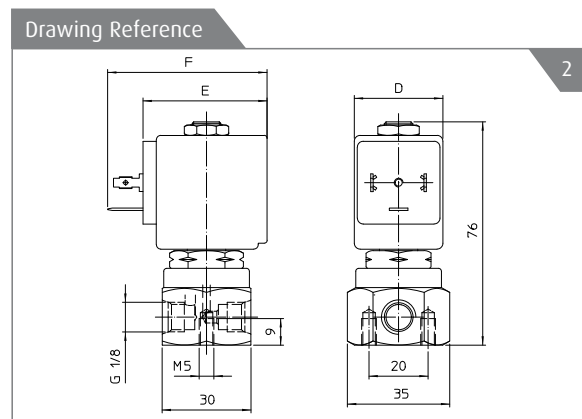
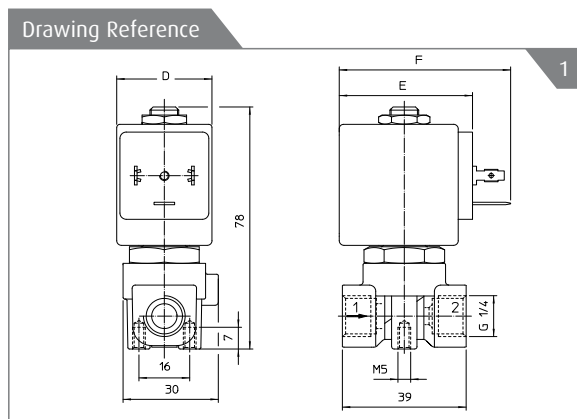
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coil class)
- ▶ P992087: Timer for automatic switch



INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-2-3	B	30	42	54
	U	36	48	60
	G	52	55	67



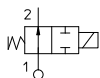
21M N.O.



FEATURES

- Response time reduced
- Reliable for heavy applications
- In line connection
- Suitable for compressors applications

CE



21M	0	A	V	25	
Model valve	0= G 1/8	A= N.C.	V= FKM	15 17 25	Orefice 10 ⁻¹ mm

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
		V= Class H		112= 110V	A= AC	Y= UL, CSA, VDE
				230= 230V	D= AC	

L	B	A	05	024	A	S
L= 22mm Ø 10	B EN 175301-803	A= Class F	05= 5W	024= 24V	A= DC	S= Without Approval

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	L		B	L				
G 1/8	2,5	3,5	53(7)	0	18	-		-	-		21M0AV25(*)		1
	2,5	3,5	53(7)	4	-	-		18	-		21M0AV25(*)		1
	2,5	3,5	53(7)	0	18	-		-	-		212M0AV25(*)		1
	2,5	3,5	53(7)	4	-	-		18	-		212M0AV25(*)		1
	2,5	3,5	53(7)	0	8	-		-	-		21M0AV25(**)		1
	2,5	3,5	53(7)	4	-	-		8	-		21M0AV25(**)		1
	2,5	3,5	53(7)	0	8	-		-	-		212M0AV25(**)		1
	2,5	3,5	53(7)	4	-	-		8	-		212M0AV25(**)		1
	2,5	1	12(2)	0	-	15		-	-		4144XPV17		2
2,5	0	12(2)	0,8	-	12		-	12		4144W0V15		2	

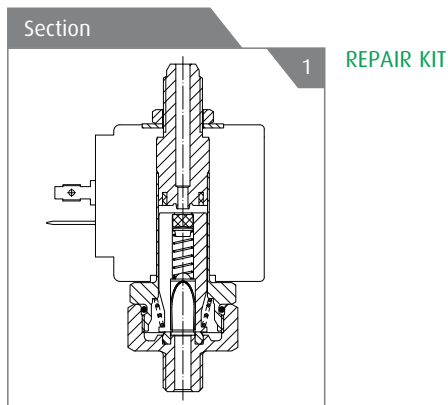
(*) for Gas/Air
(**) for Liquids

TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12164 CW614N
- **Armature tube:** Stainless steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Media:** mineral oils, gasoline, diesel, fuel oils, water, air, inert gases
- **Ambient temperature:** See coils catalogue page for its compatibility
- **Fluid temperature:** -10°C +90°C with NBR seals
-10°C +140°C with FKM seals
- **Design pressure PS:** 25 bar for S.V. 21M
- **Design pressure PS:** 40 bar for S.V. 4144
- **Protection class:** IP65 (complete with electric plug)
- **Electrical conformity:** IEC 335

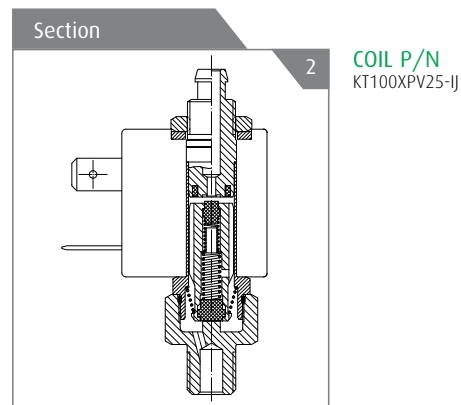
AVAILABLE ON REQUEST

- Explosion proof coil Ex nA (see ATEX section)



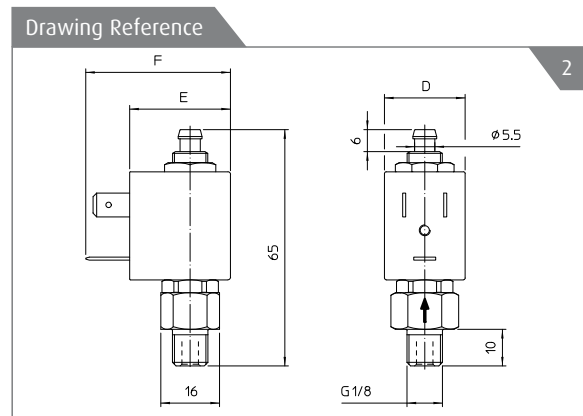
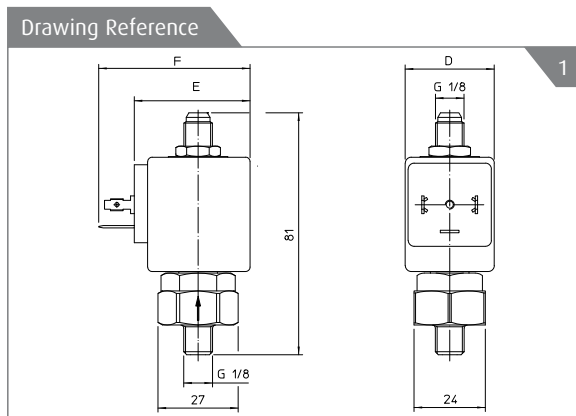
RELATED ITEMS

- P990305: Electrical plug EN 175301-803 Pg9
- P990306: Electrical plug EN 175301-803 Pg11
- P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coil class)
- P992087: Timer for automatic switch



INSTALLATION

- The solenoid valves can be mounted in any position
- Holes and threaded connections for panel fixing
- Other port connections available on request
- Maintenance and instruction sheet available in each solenoid valve box
- Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	B	30	42	54
2	L	22	27,5	39,5





FEATURES

- ▶ Compact design
- ▶ Minimum pressure is not required
- ▶ Version DVGW approved for gas application



21T	1	B	V	17	
Model valve	1= G 1/8	K= N.C.	V= FKM	17	Orifice 10 ⁻¹ mm
	2= G 1/4			22 28 40	

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
		V= Class H	04= 4W	110= 110V-120V	A= AC	Y= UL, CSA, VDE
				230= 230V	D= AC	

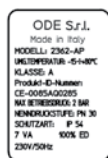
PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B			B					

Normally Closed

G 1/8	1,7	1,5	37(5)	0	30			15			21TG1KR0V17	21TN1KR0V17	1
	2,2	2,1	37(5)	0	20			10			21TG1KR0V22	21TN1KR0V22	1
	2,8	3,5	53(7)	0	12			6			21TG1KR0V28	21TN1KR0V28	1
	4	5	53(7)	0	6			2			21TG1KR0V40	21TN1KR0V40	1
G 1/4	1,7	1,5	37(5)	0	30			15			21TG2KR0V17	21TN2KR0V17	1
	2,2	2,1	37(5)	0	20			10			21TG2KR0V22	21TN2KR0V22	1
	2,8	3,5	53(7)	0	12			6			21TG2KR0V28	21TN2KR0V28	1
	4	5	53(7)	0	6			2			21TG2KR0V40	21TN2KR0V40	1

Normally Closed DVGW Approval

G 1/4	4	5	53(7)	0	2			-			21T2BB40-F-AP		1
			-	0	2			-			2362-AP		2

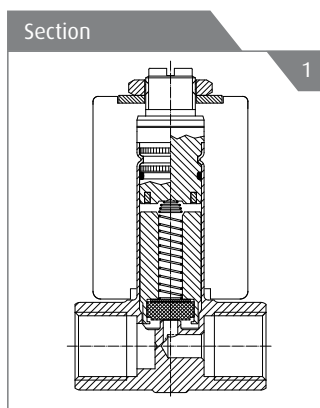


TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Brass UNI EN 12165 CW617N
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** mineral oils, gasoline, diesel, fuel oils, water, air, inert fluids, inert gases, combustible gases
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with seals FKM
-10°C +90°C with seals NBR
- ▶ **Working temperature for S.V. approved:** -15°C +80°C
- ▶ **Design pressure PS:** 30 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20 msec (depending on pressure conditions)

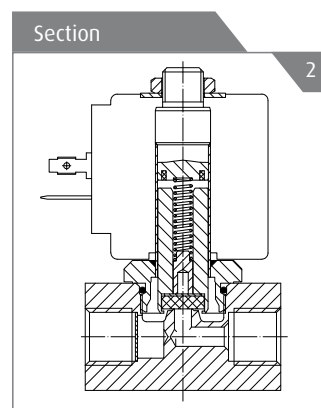
AVAILABLE ON REQUEST

- ▶ Explosion proof coil Ex nA (see Atex section)



RELATED ITEMS

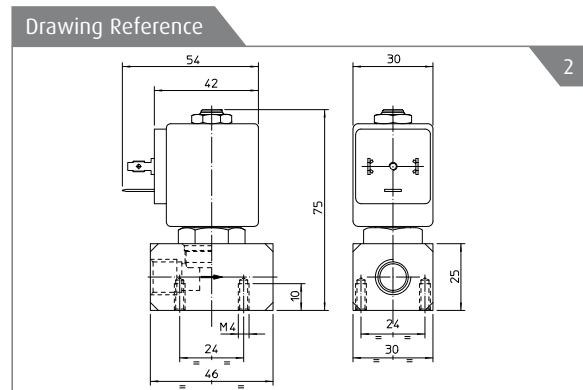
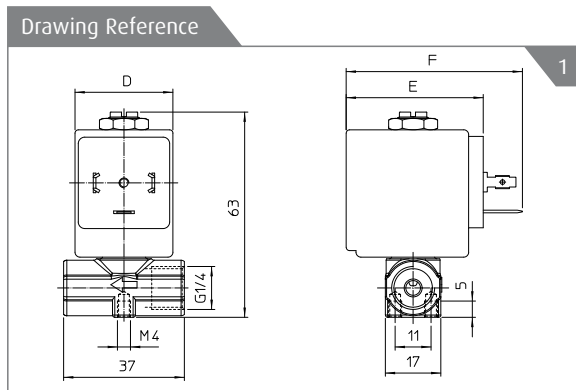
- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11



COIL P/N
RBDA04230AS

INSTALLATION

- ▶ The solenoid valves can be installed in any position
- ▶ Fixing holes
- ▶ Other port connections available on request
- ▶ Instruction sheet available in each solenoid valve box
- ▶ Coils available as spares



Dimensionale Table

Figure	Pipe	Coil Type	D mm	E mm	F mm
1	G 1/8	B	30	42	54
	G 1/4				

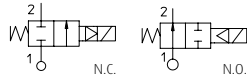


21W N.C./N.O.



FEATURES

- High flow rates
- Long life version
- Wide range of applications valves for liquids and gases
- Wide elastomers range
- Mountable in any position



(Pressure Equipment Directive 97/23/CE) for S.V. 21W5+21W7 - 21WN7+21WN9

21W	3	K	B	190	
Model valve	3= G 3/8 - 3/8 NPT	K= N.C.	V= FKM	130 190 250 350 400 500	Orefice 10 ⁻¹ mm
	4= G 1/2 - 1/2 NPT	Z= N.O.	B= NBR		
	5= G 3/4 - 3/4 NPT		E= EPDM		
	6= G 1 - 1 NPT				
	7= G 1 1/4 - 1 1/4 NPT				
	8= G 1 1/2 - 1 1/2 NPT				
	9= G 2 - 2 NPT				

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	A= AC	S= Without Approval
		V= Class H		110= 110V	C= DC	Y= UL, CSA, VDE
				223= 220V-230V		
L	B	A	05	024	A	S
L= 22mm Ø 10	B EN 175301-803	A= Class F	05= 5W	024= 24V	A= AC	S= Without Approval
				100= 100V	D= AC	
				220= 220V	B= AC	U= UL

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	FLOW CURVE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			

Normally Closed

3/8	13	60	12(2)	0,2	16	-	-	16	-	-	21WA3K0B130	21WN3K0B130	1
3/8	13	60	12(2)	0,2	-	12	-	-	12	-	21WA3R0B130	21WN3R0B130	2
1/2	13	70	12(2)	0,2	16	-	-	16	-	-	21WA4K0B130	21WN4K0B130	1
1/2	13	70	12(2)	0,2	-	12	-	-	12	-	21WA4R0B130	21WN4R0B130	2
3/4	19	140	12(2)	0,2	16	-	-	16	-	-	21W3KB190	21WN5KB190	1
1	25	190	12(2)	0,2	16	-	-	16	-	-	21W4KB250	21WN6KB250	1
1 1/4	35	400	12(2)	0,2	10	-	-	10	-	-	21W5KB250	21WN7KB350	1
1 1/2	40	520	12(2)	0,2	10	-	-	10	-	-	21W6KB400	21WN8KB400	1
2	50	750	12(2)	0,2	10	-	-	10	-	-	21W7KB500	21WN9KB500	1

Normally Open

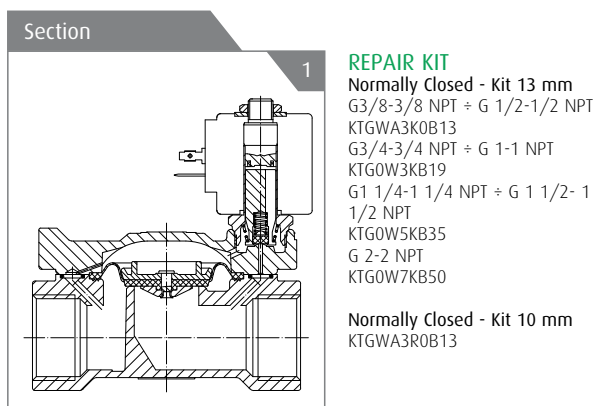
3/8	13	60	12(2)	0,2	16	-	-	16	-	-	21WA3K0B130	21WN3Z0B130	1
3/8	13	60	12(2)	0,2	16	12	-	-	12	-		21WN3ZIB130	1
1/2	13	70	12(2)	0,2	16	-	-	16	-	-	21WA4Z0B130	21WN4Z0V130	1
1/2	13	70	12(2)	0,2	16	12	-	-	12	-	21WA4Z0B130	21WN4Z0V130	1
3/4	19	140	12(2)	0,2	16	-	-	16	-	-	21W3ZB190		1
1	25	190	12(2)	0,2	16	-	-	16	-	-	21W4ZB250		1
1 1/4	35	400	12(2)	0,2	10	-	-	10	-	-	21W5ZB250		1
1 1/2	40	520	12(2)	0,2	10	-	-	10	-	-	21W6ZB400		1
2	50	750	12(2)	0,2	10	-	-	10	-	-	21W7ZB500		1

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 serie
- ▶ **Media:** air, water, inert gas, low pressure steam mineral oils, gasoline, diesel, R 134a, R 404a
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM, EPDM seals
-10°C +90°C with NBR seals
- ▶ **Design pressure PS:** G 3/8 - G 1/2 20 bar
3 /8 NPT - 1 NPT 25 bar
G 3/4 - G 1 25 bar
G 1 1/4 - 1 1/4 NPT - G 2 - 2 NPT 16 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335

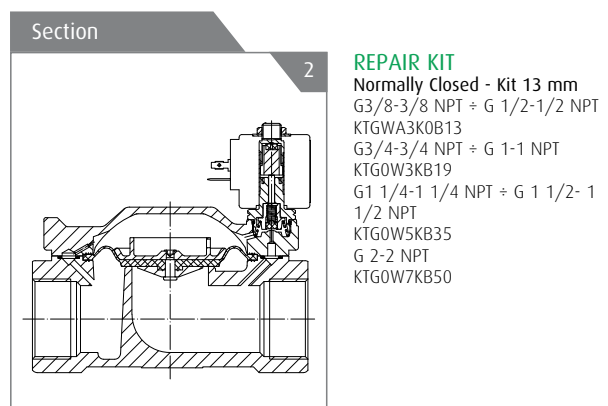
AVAILABLE ON REQUEST

- ▶ Manual override
(i.e. 21WA3K0B130-M)
- ▶ Manual override+closing speed control
(i.e. 21WA3K0B130-MR)
- ▶ Progressive closing
(i.e. 21WA3K0B130-PC)
- ▶ Spring on diaphragm
(i.e. 21WA4R0B130-MM)
- ▶ Latching coils (see coil section)
- ▶ Explosion proof coil Ex nA (see Atex section)



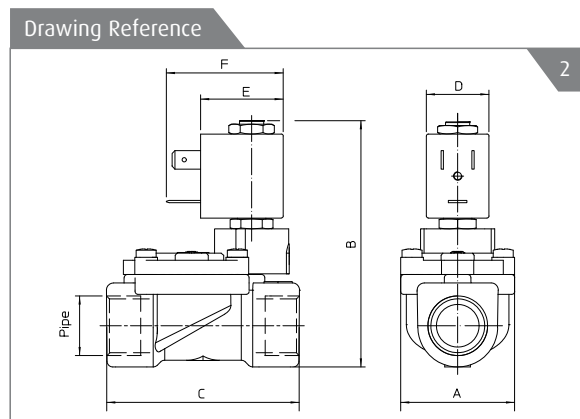
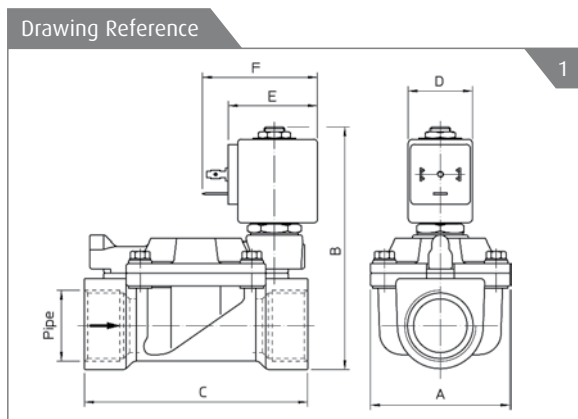
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ P992087: Timer for automatic switch



INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares
- ▶ Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve



Dimensionale Table

Figure	Pipe	Coil Type	A mm	B mm	C mm	D mm	E mm	F mm
1	G 3/8 - 3/8 NPT	B	40	97	60	30/47	42	54
		L		84,5		-	-	-
	G 1/2 - 1/2 NPT	B	40	97	66	-	-	-
		L		84,5		-	-	-
	G 3/4 - 3/4 NPT	B	65	105	104	-	-	-
	G 1 - 1 NPT	B	65	112	104	-	-	-
	G 1 1/4 - 1 1/4 NPT G 1 1/2 - 1 1/2 NPT	B	98	125	144	-	-	-
	G 1/2 - 1/2 NPT	B	118	141	172	-	-	-

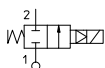




FEATURES

- Proven Piloting System
- Reliable for heavy applications
- Suitable for high temperature

CE



21X	2	K	V	120		B	D	A	08	024	A	S
Model valve	2= G 1/2	K= N.C.	V= FKM	120 190 250	Orifice 10 ⁻¹ mm	B= 30mm Ø 13	D EN 175301-803	B= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
	3= G 3/4	K= N.O.	B= NBR			U= 36mm Ø 13		V= Class H	12= 12W	112= 110V-120V	A= AC	Y= UL, CSA, VDE
	4= G 1		E= EPDM			G= 52mm Ø 13			14= 14W	230= 230V	D= AC	
			T= PTFE									

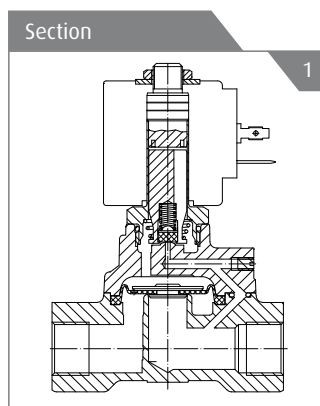
PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			
G 1/2	12	35	-	0,5	10	-	-	10	-	-	21X2KT120		1
G 1/2	12	35	12(2)	0,1	20	-	-	20	-	-	21X2KV120		1
1/2 NPT	12	35	12(2)	0,1	20	-	-	20	-	-		21XN4K1V120	1
G 3/4	19	120	-	0,5	10	-	-	10	-	-	21X3KT190		1
G 3/4	19	130	12(2)	0,1	16	-	-	16	-	-	21X3KV190		1
G 1	25	130	-	0,5	10	-	-	10	-	-	21X4KT250		1
G 1	25	160	12(2)	0,1	16	-	-	16	-	-	21X4KV120		1
1 NPT	25	160	12(2)	0,1	16	-	-	16	-	-		21XN6K1V250	1

TECHNICAL SPECIFICATION

- ▶ **Body material:** Stainless Steel AISI 316 series
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** steam, hot water, chemical products compatible with stainless steel, demineralized water, air, water, low pressure steam
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +90°C with NBR seals
-10°C +140°C with FKM, EPDM seals
(*) +180°C with PTFE seals
- (*) **WARNING:** For a correct functioning of the solenoid valve the minimum temperature should not be less than + 60°C; in order to ensure a long diaphragm life, the steam filtration is recommended)
- ▶ **Design pressure PS:** 25 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

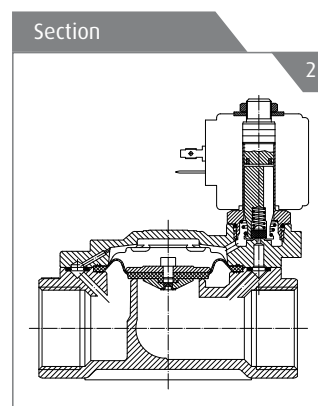
- ▶ Explosion proof coil Ex nA (see Atex section)



REPAIR KIT

KT130KT30-H
KT130KV30-H

G 1/2 - 1/2 NPT
KTG0X1KT12
KTG0X1KV12
G 3/4 - G 1 - 1 NPT
KTG0X3KT19



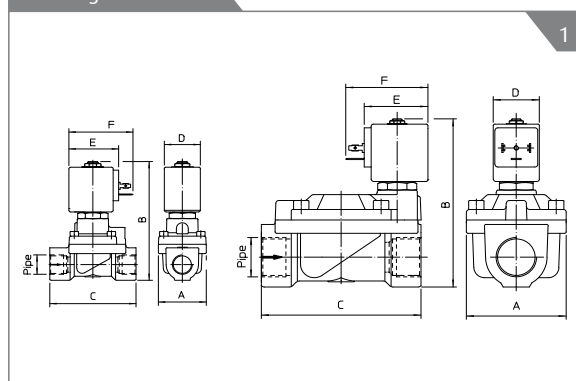
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares

Drawing Reference



Dimensionale Table

Figure	Pipe	Coil Type	A mm	B mm	C mm	D mm	E mm	F mm
1-2	G 1/2 1/2 NPT	B	40	103	73	30	42	54
	G 3/4 G 1 NPT	B	65	115	104	30	42	54



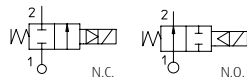
21YW-YN N.C./N.O.



FEATURES

- Dedicate to control steam application
- Piston design
- High life time

CE



21YW	4	K0	T	15	
Model valve	4= G 1/2 1/2 NPT	K0= N.C.	T= PTFE	130 190 250	Orefice 10 ⁻¹ mm
	5= G 3/4 3/4 NPT	Z0= N.O.			
	6= G 1 1 NPT				

B	D	V	08	024	C	S
B= 30mm Ø 13	D EN 175301-803	F= Class H	08= 8W	024= 24V	C= DC	S= Without Approval
		V= Class H		110= 110V-120V	A= AC	Y= UL, CSA, VDE
				230= 230V-240V	D= AC	

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	FLOW CURVE
					COIL TYPE								
					AC			DC					
					B			B					

Normally Closed

G 1/2	13	50	-	0,9	10			10			21YW4K0T130		1
1/2 NPT	13	50	-	0,9	10			10				21YN4K0T130-YW	1
G 3/4	19	90	-	0,9	10			10			21YW5K0T190		1
3/4 NPT	19	90	-	0,9	10			10				21YN5K0T190-YW	1
G 1	25	160	-	0,9	10			10			21YW6K0T250		1
1 NPT	25	160	-	0,9	10			10				21YN6K0T250-YW	1

Normally Open

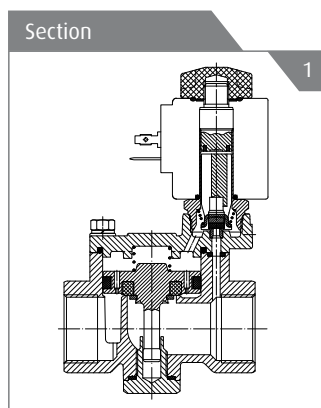
G 1/2	13	50	-	0,9	10			10			21YW4Z0T130		2
1/2 NPT	13	50	-	0,9	10			10				21YN4KZ0T130-YW	2
G 3/4	19	90	-	0,9	10			10			21YW5Z0T190		2
3/4 NPT	19	90	-	0,9	10			10				21YN5Z0T190-YW	2
G 1	25	160	-	0,9	10			10			21YW6Z0T250		2
1 NPT	25	160	-	0,9	10			10				21YN6Z0T250-YW	2

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** steam, hot water
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -40°C +180°C with PTFE seals
- ▶ **Design pressure PS:** 25 bar
- ▶ **Protection class:** IP 67
(with coil fitted by connector dedicated)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

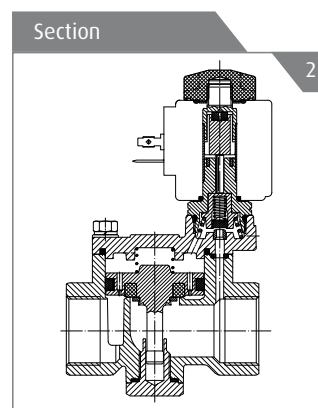
AVAILABLE ON REQUEST

- ▶ NPT threads



REPAIR KIT Normally Closed KT130KT30-AGP

G 1/2 - 1/2 NPT
KTPYW4K0T13
G 3/4 - 3/4 NPT
KTPYW5K0T19
G 1 - 1 NPT
KTPYW6K0T25



REPAIR KIT Normally Open KT130T30-TG

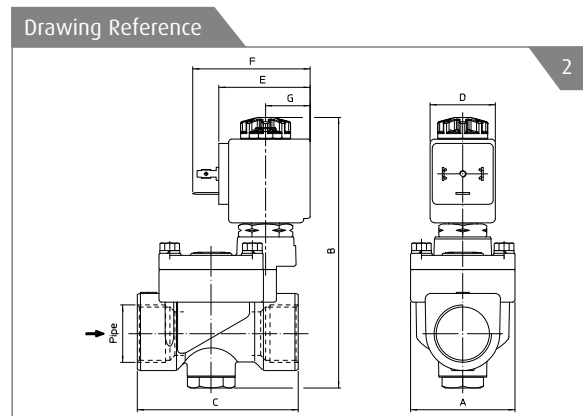
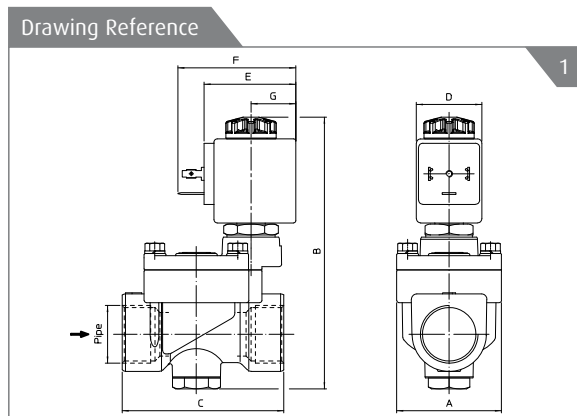
G 1/2 - 1/2 NPT
KTPYW4Z0T13
G 3/4 - 3/4 NPT
KTPYW5Z0T19
G 1 - 1 NPT
KTPYW6Z0T25

RELATED ITEMS

- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensional Table

Figure	Pipe	Coil Type	A mm	B mm	C mm	D mm	E mm	F mm	G mm
1-2	G 1/2 1/2 NPT	B	40	114	65	30	42	54	20,5
	G 3/4 3/4 NPT	B	48	127	74	30	42	54	20,5
	G 1 1 NPT	B	62	137	93	30	42	54	20,5

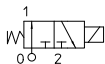




FEATURES

- ▶ Threaded exhaust connection
- ▶ Reliable performance
- ▶ Suitable with triple certification UL, CSA, VDE
- ▶ High flow

CE



31A	1	A	V	15	
Model valve	1 SUBPLATE MOUNTING	A= N.C.	R= RUBY V= FKM	10 15 20 25	Orefice 10 ⁻¹ mm

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F V= Class H	08= 8W	024= 24V 110= 110V-120V 223= 220V-230V	A= AC C= DC D= AC	S= Without Approval Y= UL, CSA, VDE

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			

Normally Closed (*) 3rd way exhaust= Ø 2,5 mm

SUBPLATE MOUNTING	1,5(*)	1,4	-	0	15			15			31A1A5R15-AG		1
	1,5(*)	1,4	-	0	15			15			21A1A5R15-AVG		1
	1(*)	0,45	-	0	20			20			31A1AR10		1
	1,5(*)	1,4	-	0	15			15			31A1AR15		1
	1,5(*)	1,4	-	0	15			15			31A1AR15-ORV		1
	1,5(*)	1,4	-	0	15			15			31A1AR15-VORV		1
	2(*)	2	-	0	10			10			31A1AR20		1
	2,5(*)	3,2	-	0	6			6			31A1AR25		1
	1(*)	0,45	12(2)	0	20			20			31A1AV10		1
	1,5(*)	1,4	12(2)	0	15			15			31A1AV15		1
	2(*)	2	37(5)	0	10			10			31A1AV20		1
	2,5(*)	3,2	53(7)	0	6			6			31A1AV25		1

Normally Open

SUBPLATE MOUNTING	1,5(*)	1,4	-	0	15			-			31A1FV15-Z		1
	2,5(*)	1,4	-	0	15			-			31A1FV20-Z		1

Suffix description: 31A1A5R15-AG

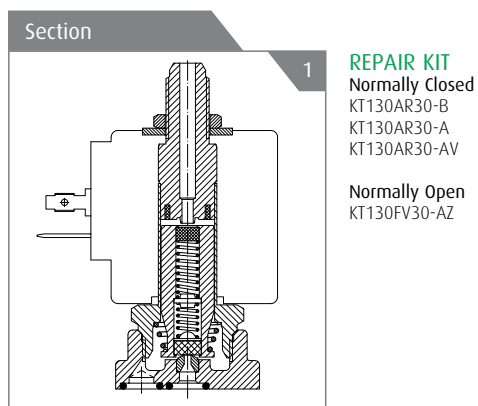
-AG	Version with dempness-proof kit
-AVG	Version with dempness-proof kit
-ORV	Sealing system with FKM
-VORV	Armature tube sealing with FKM
-Z	Sub base FKM O-Ring

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** mineral oils, gasoline, diesel, air, inert gases, water, steam, fuel oils, hot water,
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
-40°C +180°C with RUBY seals
- ▶ **Design pressure PS:** 40 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

- ▶ Also available with low lead brass for food grade
- ▶ The use of rigid sealings usually implies a slight leakage, limited within 2scc/min at the pressure of 1 bar
- ▶ Manual override (i.e. 31A2AV15-M)
- ▶ Latching coil (See coil section)

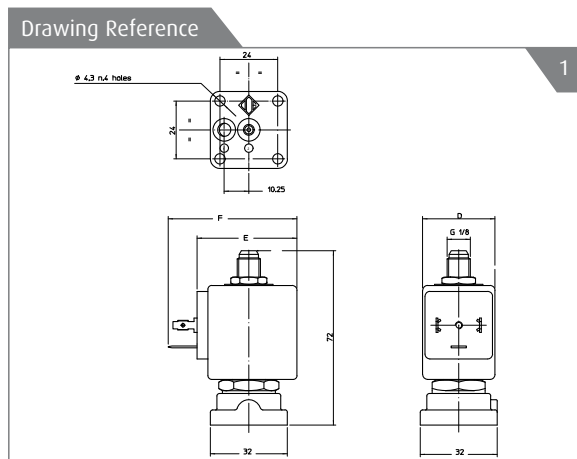


RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	B	30	42	54

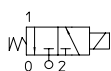




FEATURES

- ▶ Threaded exhaust connection
- ▶ Reliable performance
- ▶ Suitable with triple certification UL, CSA, VDE
- ▶ High flow

CE



31A	3	A	R	15	
Model valve	3= G 1/8 2= G 1/4	A= N.C.	R= RUBY V= FKM	10 15 20 25 30	Orefice 10 ⁻¹ mm

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F V= Class H	08= 8W	024= 24V 110= 110V-120V 223= 220V-230V	A= AC C= DC D= AC	S= Without Approval Y= UL, CSA, VDE

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U	G	B	U	G			

Normally Closed

G 1/8	1 ^(*)	0,45	12(2)	0	20			20			31A3AR10		1
	1,5 ^(*)	1,4	12(2)	0	15			15			31A3AR15		1
	2 ^(*)	2	37(5)	0	10			10			31A3AR20		1
	2,5 ^(*)	3,2	53(7)	0	6			6			31A3AR25		1
	1 ^(*)	0,45	12(2)	0	20			20			31A3AV10		1
	1,5 ^(*)	1,4	12(2)	0	15			15			31A3AV15		1
	2 ^(*)	2	37(5)	0	10			10			31A3AV20		1
	2,5 ^(*)	2,5	53(7)	0	6			6			31A3AV25		1
	3 ^(*)	4	53(7)	0	5			5			31A3AV30		1
	1,5 ^(*)	1,4	12(2)	0	15			15			31A3CV15		1
	1 ^(*)	0,8	12(2)	0	18			18			31A3GV10-U		1
	1,5 ^(*)	1,4	12(2)	0	10			10			31A3FV15-U		1
	2,5 ^(*)	3,2	53(7)	0	4			4			31A3AV25-U		1
	3 ^(*)	4	53(7)	0	3,5			3,5			31A3EV30-U		1
	1 ^(*)	0,45	12(2)	0	20			20			31A2AR10		1
G 1/4	1,5 ^(*)	1,4	12(2)	0	15			15			31A2AR15		1
	2 ^(*)	2	37(5)	0	10			10			31A2AR20		1
	2,5 ^(*)	3,2	53(7)	0	6			6			31A2AR25		1
	1 ^(*)	0,45	12(2)	0	20			20			31A2AV10		1
	1,5 ^(*)	1,4	12(2)	0	15			15			31A2AV15		1
	2 ^(*)	2	37(5)	0	10			10			31A2AV20		1
	2,5 ^(*)	3,2	53(7)	0	6			6			31A2AV25		1
	3 ^(*)	4	53(7)	0	5			5			31A2AV30		1
	1 ^(*)	0,8	12(2)	0	18			18			31A2GV10-U		1
	1,5 ^(*)	1,4	12(2)	0	10			10			31A2FV15-U		1
	2,5 ^(*)	3,2	53(7)	0	4			4			31A2AV25-U		1
	3 ^(*)	4	53(7)	0	3,5			3,5			31A2EV30-U		1
	2 ^(*)	2	37(5)	0	7			7			31A2FV20-U		1

(*) 3rd way exhaust= 31A-GV Ø 1mm, 31A-FV Ø 1,5mm, 31A-AR Ø 2,5mm, 31A-AV Ø 2,5mm, 31A-EV Ø 2,5mm

Suffix description: 31A3GV10-U

-U Universal valve

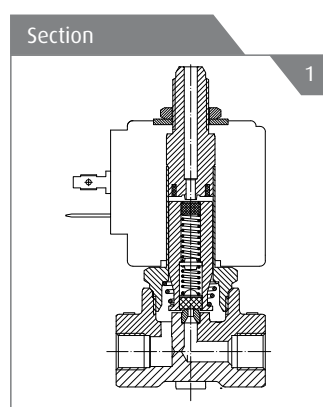
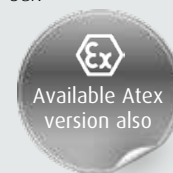
Possible to flow in any valve direction respecting the inox pressure mentioned in the table above

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** mineral oils, gasoline, diesel, air, inert gases, water, steam, fuel oils, hot water,
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
-40°C +180°C with RUBY seals
- ▶ **Design pressure PS:** 40 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

- ▶ Also available with low lead brass for food grade
- ▶ The use of rigid sealings usually implies a slight leakage, limited within 2scc/min at the pressure of 1 bar.
- ▶ Explosion proof coil Ex nA (see Atex section)
- ▶ Latching coil (See coil section)



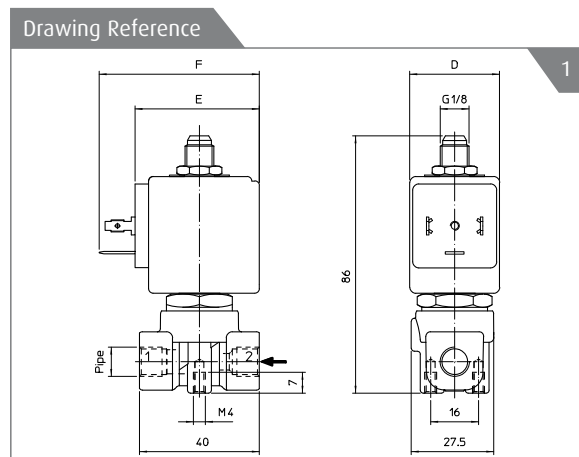
REPAIR KIT
Normally Closed
KT130AR30-A
KT130AR30-AR
KT130CU30-A
KT130AU30-A

RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	B	30	42	54

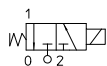


31JN N.C.



FEATURES

- Compact design
- Up to 15 bar
- Coil adjustable in any position without tools



31JN	1	W0	V	12	
Model valve	1= G 1/8	W0= N.C.	V= FKM	12 15 23	Orifice 10 ⁻¹ mm
			B= NBR		

L	B	A	05	024	C	S
L 22 mm 5W	B EN 175301-803	A= Class F	05= 5W	024= 24V	C= DC	S= Without Approval
		V= Class H		110= 110V-120V	A= AC	
				220= 220V	B= AC	U= UL
				230= 230V	A= AC	V= VDE

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					L			L					
SUBPLATE MOUNTUNG	1,2(*)	1	12(2)	0	15			-			4628Y0V12	N/A	1

(*) 3rd way exhaust= Ø 1,2mm

SUBPLATE MOUNTUNG	1,2(*)	1	12(2)	0	15			15			31JKBW0V12	N/A	1
G 1/8	1,2(*)	1	12(2)		15			15			31JN1W0V12		1
	1,2(*)	0,6	12(2)		15			15			31JR1W0B12-M		1
	1,5(*)	1	12(2)		10			10			31JR1W0B15-M		1
	2,3(*)	2,3	37(5)		5			5			31JN1W0V23		1

(*) 3rd way exhaust= Ø 1,5mm

G 1/8	1,2(*)	1	12(2)	0	15			-			31JN1XPV12	N/A	2
	1,2(*)	1	12(2)		15			15			31JN1XPV12-S		2
	2,3(*)	2,3	37(5)		-			-			31JN1XPV23		2

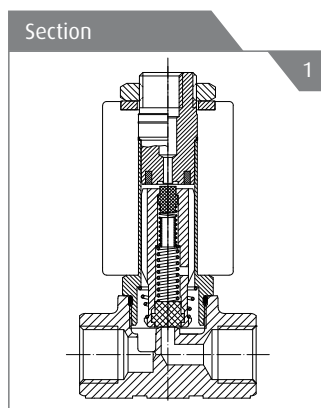
(*) 3rd way exhaust= Ø 1,7mm

TECHNICAL SPECIFICATION

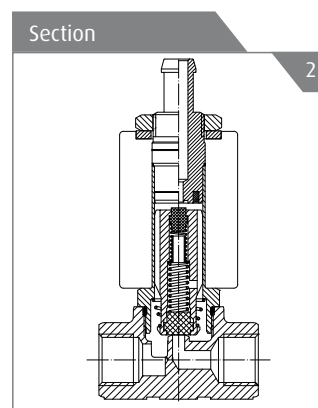
- ▶ **Body material:** Brass
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** low pressure steam, mineral oils, gasoline, diesel, fuel oils, water
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +90°C with NBR seals
-10°C +140°C with FKM seals
- ▶ **Design pressure PS:** 40 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

- ▶ Manual override (i.e. 21A3KV15-M)
- ▶ NSF approved version
- ▶ Also available with low lead brass for food grade
- ▶ Explosion proof coil Ex nA (see Atex section)



REPAIR KIT
KT100W0V25-FJ



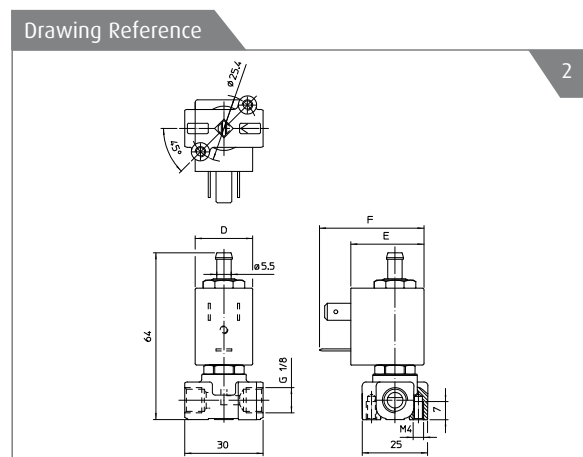
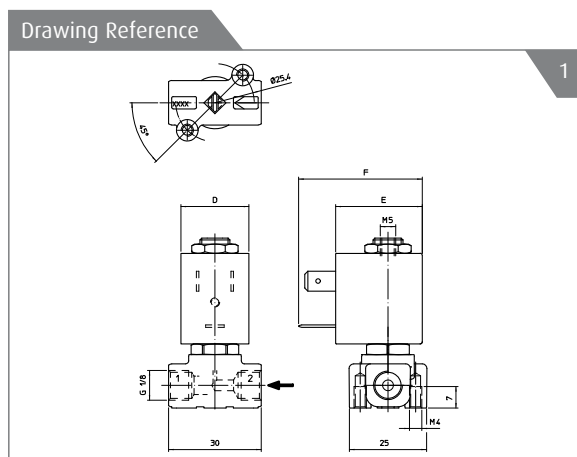
REPAIR KIT
KT100XPV25-IJ

RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-2	L	22	27,5	39,5



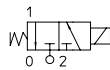
31L N.C.



FEATURES

- Ideal for piloting
- High flow rate
- Quick response

CE



31L	2	A1	V	30	
Model valve	2= G 1/4	A1= N.C. F0= N.C.	V= FKM	15 30	Orefice 10 ⁻¹ mm

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V 110= 110V-120V 223= 220V-230V	C= DC	S= Without Approval

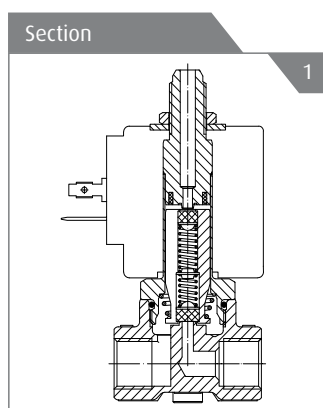
PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B			B					
Normally Closed		(*) 3rd way exhaust= Ø 2,5 mm											
G 1/4	3(°)	4	53(7)	0	5			5			31L2A1V30		1
Normally Closed		(*) 3rd way exhaust= Ø 1,5 mm											
G 1/4	15(°)	1,4	12(2)	0	10			10			31L2F0V15-U		2

TECHNICAL SPECIFICATION

- ▶ **Body material:** Stainless Steel 316 AISI series
- ▶ **Armature tube:** Stainless Steel 300 AISI series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** mineral oils, gasoline, diesel, fuel oils
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
- ▶ **Design pressure PS:** 40 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

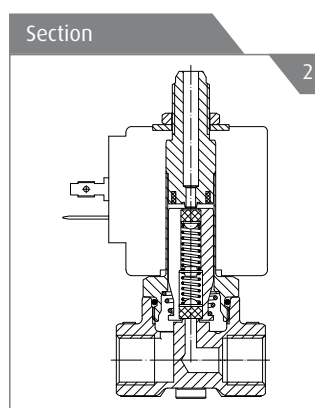
AVAILABLE ON REQUEST

- ▶ Explosion proof coil Ex nA (see Atex section)



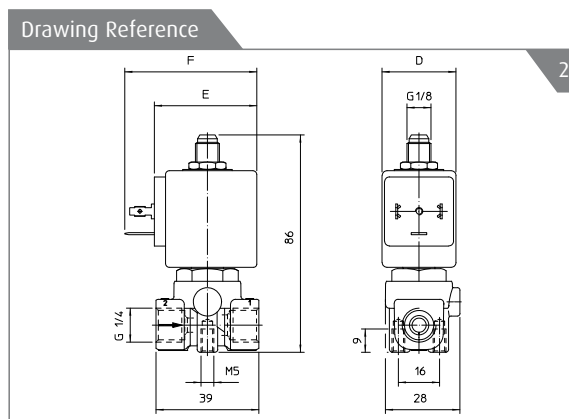
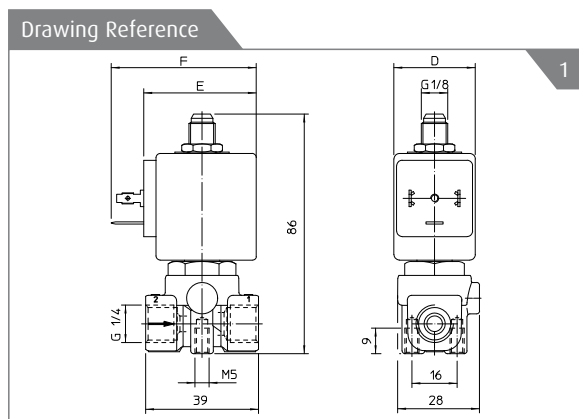
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch



INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-2	B	30	42	54





FEATURES

- Suitable for rotating actuators control
- Proven construction
- Long-life sealing system



5126	2	0W0	B	12	
Model valve	2= G 1/4	0W0= N.C.	B= NBR	12	Orefice 10 ⁻³ mm

L	B	A	05	024	A	S
L= 22mm Ø 10	D EN 175301-803	A= Class F	05= 5W	024= 24V	A= AC	S= Without Approval
			04= 4W	230= 230V		V= VDE
		V= Class H		220= 220V		V= UL

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					L			L					
1/4	6	6,5	-	1,3	10			10			515620W0B12-2	515620W0B12-N2	1
	6	6,5	-	1,3	10			10					2

TECHNICAL SPECIFICATION

- ▶ **Body material:** Aluminium
- ▶ **Armature tube:** Stainless steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** lubricated air
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +90°C with NBR seals
- ▶ **Design pressure PS:** 10 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

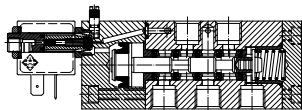
- ▶ Explosion proof coil Ex nA (see ATEX section)



Section

1

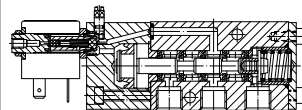
REPAIR KIT
KT100W0B25-FJ



Section

2

REPAIR KIT
KT100W0B25-FJ



RELATED ITEMS

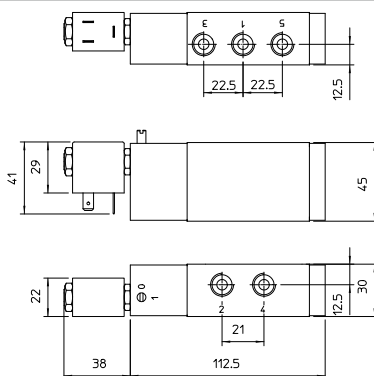
- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares

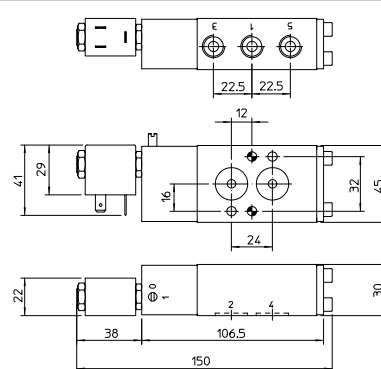
Drawing Reference

1



Drawing Reference

2



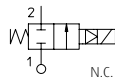
4743 N.C.



FEATURES

- Carwash
- Mountable in any position

CE



4743	K0	V	120	
Model valve	2= G 1/4	0W0= N.C.	B= NBR	Orefice 10 ⁻¹ mm

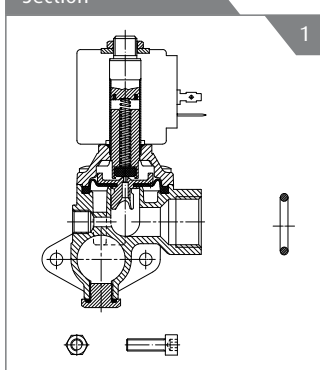
B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V	C= DC	S= Without Approval
U= 36mm Ø 13		V= Class H	12= 12W	230= 230V	D= AC	

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	U		B	U				
FLANGE	12	40	12(2)	0,1	16	-		10	16		4743K0V120		1

TECHNICAL SPECIFICATION

- ▶ **Body material:** Brass UNI EN 12165 CW617N
- ▶ **Armature tube:** Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** water
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
- ▶ **Design pressure PS:** 20 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20 - 40 msec (depending on pressure conditions)

Section



REPAIR KIT
KTG0H7KV12

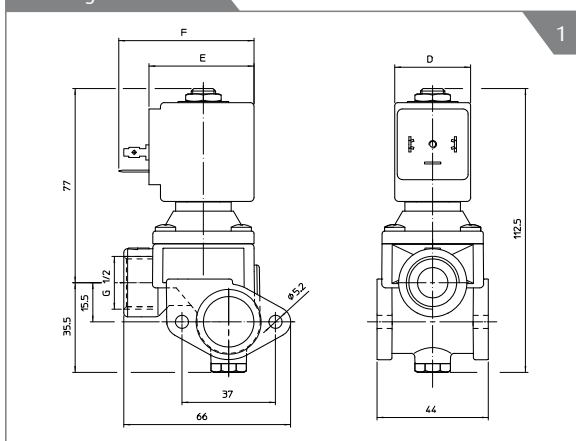
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ P992087: Timer for automatic switch

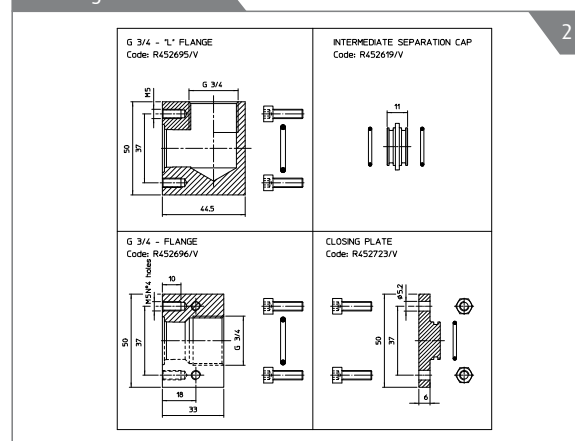
INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box
- ▶ Availability of repair kit and coils as spares

Drawing Reference



Drawing Reference



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-2	B	30	42	54
	U	36	48	60





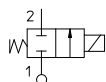
▶ 21D-K N.C.	page 68-69
▶ 21JP N.C.	" 70-71
▶ 21SBG N.C.	" 72-73
▶ 31JP N.C.	" 74-75





FEATURES

- ▶ Totally separation valve
- ▶ Reliable solution for hot water application
- ▶ Flow regulation for hot water control
- ▶ 90° shape for compact installation
- ▶ Directly connected to the boiler
- ▶ Reliable switch on-off time for accurate dispensing
- ▶ Modular system for multiple valve manifold
- ▶ NSF approved version



21D72	CONNEXION	KR	S	90	
Model valve	Ø= 12	KR= N.C.	S= VMQ	90	Orefice 10 ⁻¹ mm
	See connection types overleaf (A-B-D-I-L-R)	RR= N.C.			

B	D	A	08	024	A	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	024= 24V 110= 110V 223= 220V-230V	A= AC C= DC	S= Without Approval

I	C	A	12	024	E	S
I= 28mm 12 W	C= 2 faston	A= Class F	12= 12W	024= 24V 110= 110V 223= 220V-230V	E= 50% H= 50%	S= Without Approval

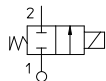
PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	I		B	I				
Ø 12	9	*	-	0	0,3			0,3			21D72KRS90-L	N/A	1
Ø 12	9	*	-	0	0,3			0,3			21D72KRS90-M		1
Ø 11	9	*	-	0	0,3			0,3			21D72KRS90-R		1
Ø 12	9	*	-	0		0,3			0,3		21D72RRS90-L		2
Ø 12	9	*	-	0		0,3			0,3		21D72RRS90-M		2
Ø 11	9	*	-	0		0,3			0,3		21D72RRS90-R		2
See connection types overleaf (A-B-D- I-L-R)	9	*	-	0	0,3			0,3			21K72KRS90-000		3
	9	*	-	0	0,3			0,3			22K72KRS90-000		3
	9	*	-	0	0,3			0,3			23K72KRS90-000		3
	9	*	-	0	0,3			0,3			24K72KRS90-000		3
	9	*	-	0	0,3			0,3			25K72KRS90-000		3
	9	*	-	0	0,3	0,3		0,3	0,3		26K72KRS90-000		3
	9	*	-	0		0,3			0,3		21K72RRS90-000		2
	9	*	-	0		0,3			0,3		22K72RRS90-000		2
	9	*	-	0		0,3			0,3		23K72RRS90-000		2
	9	*	-	0		0,3			0,3		24K72RRS90-000		2
	9	*	-	0		0,3			0,3		25K72RRS90-000		2
	9	*	-	0		0,3			0,3		26K72RRS90-000		2

* FLOW RATE WITH HEAD OF 80mm= 2,5 l/min.



FEATURES

- Food grade
- High performance technopolymer
- Compact design



21JP	1	RR	V	12	
Model valve	1= G 1/8	RR= N.C.	V= FKM	12	Orefice 10 ⁻¹ mm
	A= G 1/8	R1= N.C.		23	

L	B	A	05	024	A	S
L 22 mm 2,5 - 4W- 5W	B EN 175301-803	A= Class F	05= 5W	024= 24V	A= AC	S= Without Approval
		V= Class H	2X= 2,5W		C= DC	Y= UL, CSA, VDE
				110= 110V		X= UL, VDE
				230= 230V		U= UL

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					2,5W	5W		2,5W	5W				
G 1/8 male	1,2	1	12(2)	0	15	15		3,5	12		21JPARRV12	(Available on request)	1
G 1/8 male	1,2	1	12(2)	0	15	15		3,5	12		21JPAR1V12-T0(*)		1
G 1/8 male	2,3	2,1	37(5)	0	6	15		-	8		21JPARRV23		1
G 1/8 male	2,3	2,1	37(5)	0	6	15		-	8		21JPAR1V23-T0(*)		1
G 1/8	1,2	1	12(2)	0	15	15		3,5	12		21JP1RRV12		2
G 1/8	1,2	1	12(2)	0	15	15		3,5	12		21JP1R1V12-T0(*)		2
G 1/8	2,3	2,1	37(5)	0	6	15		-	8		21JP1RRV23		2
G 1/8	2,3	2,1	37(5)	0	6	15		-	8		21JP1R1V23-T0(*)		2

(*) NSF Certified

Note

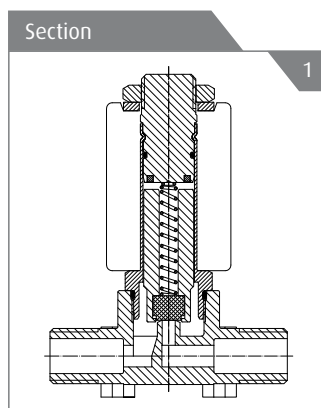
- Max torque for fittings and nut assembly 2Nm
- In case glue is used to seal the fittings, verify the compatibility with body material (PPS)
- For applications, with steam, please consult our Technical Service

TECHNICAL SPECIFICATION

- ▶ **Body material:** PPS
- ▶ **Armature tube (for JPARR - JP1RR)** Brass
UNI EN 12165 CW617N
- ▶ **Armature tube (JPARR1 - JP1R1)**
Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ **Media:** air, water, inert gases, steam
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C +140°C with FKM seals
- ▶ **Design pressure PS:** 16 bar
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20 - 40 msec (depending on pressure conditions)

AVAILABLE ON REQUEST

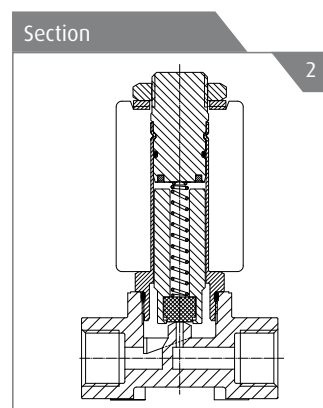
- ▶ NSF approved version



REPAIR KIT
Coil L 2,5W-5W
(see coil list)

RELATED ITEMS

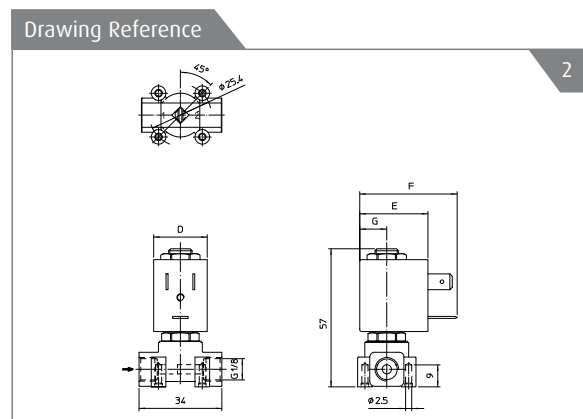
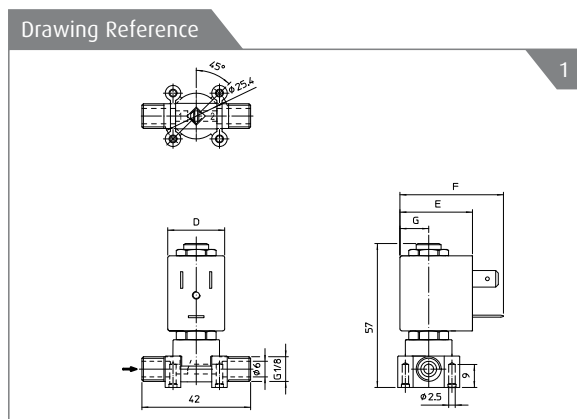
- ▶ P990307: Electrical plug EN 175301-803 Pg9



REPAIR KIT
Coil L 2,5W-5W
(see coil list)

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm	G mm
1-2	L	22	27,5	39,5	11

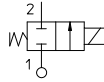


21SBG N.C.



FEATURES

- ▶ NSF approved version
- ▶ Totally separation Valve
- ▶ Fluid untouched when flowing



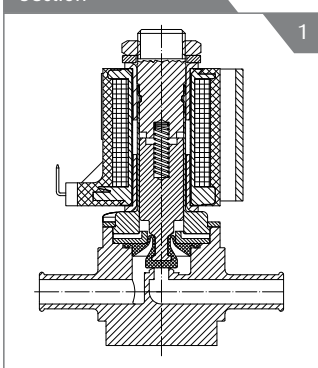
21SB	G	S4	E	30		H	L	R	7X	024	C	S
Model valve	G= Ø 7	S4= N.C.	E= EPDM	30 50	Orefice 10 ⁻¹ mm	H= 30mm Ø 10	L= 2 faston bent at 30°	R= Class F	7X= 7,5W	024= 24V	C= DC	S= Without Approval

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					H			H					
Ø 7	3	4	-	0	-			1			21SBGS4E30_H036		1
Ø 7	5	6	-	0	-			1			21SBGS4E50_H036		1

TECHNICAL SPECIFICATION

- **Body material:** PEI
- **Armature tube:** Brass - UNI EN 12164 CW614N
- **Plungers:** Stainless Steel AISI 400 serie
- **Spring:** Stainless Steel AISI 300 serie
- **Media:** water
- Up to 1 bar
- **Ambient temperature:** See coils catalogue page for its compatibility
- **Fluid temperature:** 0°C +95°C with EPDM seals
- **Electrical conformity:** IEC 335

Section

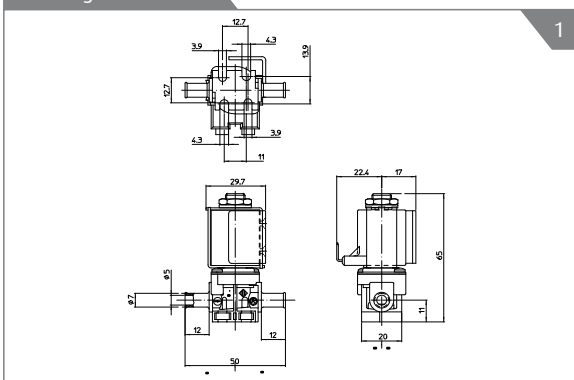


REPAIR KIT
Coil P/N
RHRL7X024CS

RELATED ITEMS

- The solenoid valves can be mounted in any position
- Holes and threaded connections for panel fixing
- Other port connections available on request
- Maintenance and instruction sheet available in each solenoid valve box
- Availability of repair kit and coils as spares.

Drawing Reference

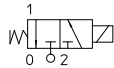


31JP N.C.



FEATURES

- ▶ Light and reliable
- ▶ Up to 15 bar
- ▶ Proven actuation system



31JP	1	XP	V	12	
Model valve	1= G 1/8	XP= N.C.	V= FKM B= NBR	12 23	Orefice 10 ⁻¹ mm

L	B	A	05	024	C	S
L 22 mm 5W	D EN 175301-803	A= Class F V= Class H	05= 5W 2X= 2,5W	024= 24V 110= 110V-120V 220= 220V	C= DC A= AC B= AC	S= Without Approval U= UL

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					L			L					
G 1/8 male	1,2(*)	0,75	12(2)	0	15			-			31JPAXPV12-T0(**)	(Available on request)	1
G 1/8 male	1,2(*)	0,75	12(2)	0	15			-			31JPAXRV12		1
G 1/8 male	2,3(*)	2,1	37(5)	0	15			-			31JPAXPV23-T0(**)		1
G 1/8 male	2,3(*)	2,1	37(5)	0	15			-			31JPAXRV23		1
G 1/8 female	1,2(*)	0,75	12(2)	0	15			-			31JP1XPV12-T0(**)		2
G 1/8 female	1,2(*)	0,75	12(2)	0	15			-			31JP1XRV12		2
G 1/8 female	2,3(*)	2,1	37(5)	0	15			-			31JP1XPV23-T0(**)		2
G 1/8	2,3(*)	2,1	37(5)	0	15			-			31JP1XRV23		2

(*) 3rd way exhaust= Ø 1,7mm
(**) NSF Certified

Note

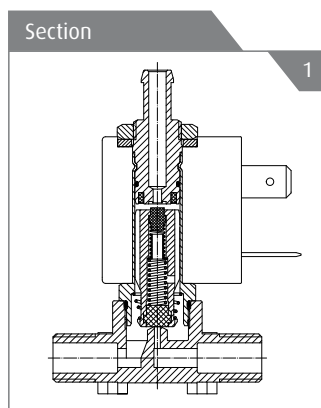
- Max torque for fittings and nut assembly 2Nm
- In case glue is used to seal the fittings, verify the compatibility with body material (PPS)
- For applications, with steam, please consult our Technical Service

TECHNICAL SPECIFICATION

- ▶ **Body material:** PPS
- ▶ **Armature tube (fig.1)** Stainless Steel AISI 300 series
- ▶ **Armature tube (fig.2)** Brass - UNI EN 12165 CW617N
- ▶ **Plungers:** Stainless Steel AISI 400 serie
- ▶ **Spring:** Stainless Steel AISI 300 serie
- ▶ **Media:** air, water, inert gases, steam
- ▶ **Ambient temperature:** See coils catalogue page for its compatibility
- ▶ **Fluid temperature:** -10°C + 140°C with FKM seals
- ▶ **Design pressure PS:** 16 bar
- ▶ **Protection class:** IP 65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

- ▶ NSF approved version



REPAIR KIT

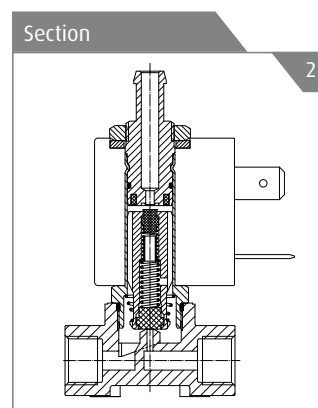
For spare parts please consult our technical department

Coil P/N

RLBA
RLBV

RELATED ITEMS

- ▶ P990307: Electrical plug EN 175301-803 Pg9



REPAIR KIT

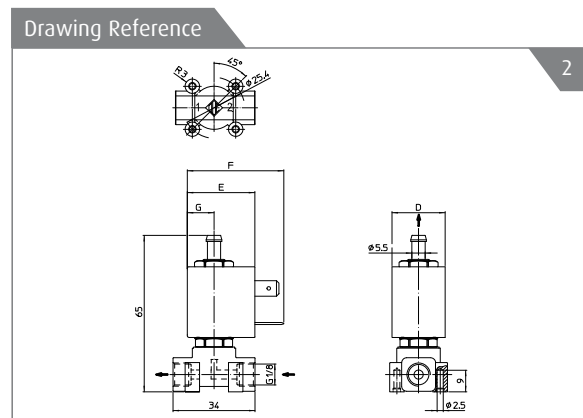
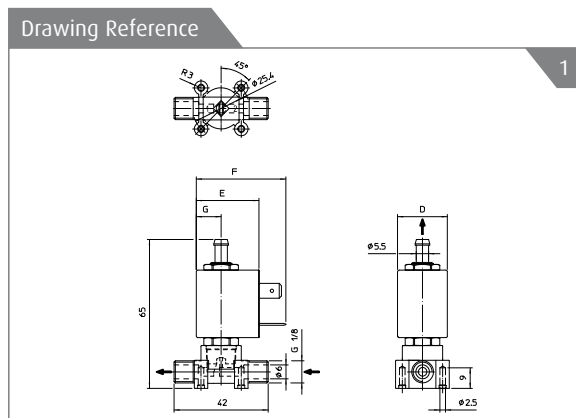
For spare parts please consult our technical department

Coil P/N

RLBA
RLBV

INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Holes and threaded connections for panel fixing
- ▶ Other port connections available on request
- ▶ Maintenance and instruction sheet available in each solenoid valve box



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm	G mm
1-2	L	22	27,5	39,5	11





► 21Z N.C./N.O.

page 78-79

► 31Z N.C.

" 80-81





FEATURES

- Totally separate Valve
- Up to 36 Kg closing force
- Fluid untouched when flowed

CE

21Z	25	B	2	S	65	
Model valve	Body diameter	B= 8W	1= N.C.	S= VMQ	20 25 65 99	Tubing dimension
		M= 4W	2= N.O.			
		U= 12W	3= 3Way			
		G= 14W				

B	D	V	08	024	C	V
B= 30mm Ø 13	D EN 175301-803	V= Class F	08= 8W	024= 24V	C= DC	V= VDE
G	D	A	12	024	C	S
G= 52mm Ø 13	D EN 175301-803	A= Class F	12= 12W	024= 24V	C= DC	S= Without Approval
M	A	A	04	024	C	S
M= 16mm Ø 7	A EN 175301-803	A= Class F	04= 4W	024= 24V	C= DC	S= Without Approval
U	D	A	12	024	C	S
U= 36mm Ø 13	D EN 175301-803	A= Class F	12= 12W	024= 24V	C= DC	S= Without Approval

TUBINGS			GAS CODE	PINCHING FORCE (g)	POWER ABSORPTION [watt]				PRESSURE MAX	WEIGHT (g)	DRAWING REFERENCE
Ø int. (mm)	Ø ext. (mm)	WALL THICKNESS (mm)			COIL TYPE DC						
					M	B	U	G			

Normally Closed

(*) To use in AC, a rectifier bridge will be supplied with the DC coil

0,76	1,65	0,4	21Z16M1S05	180	4					50	1
1,57	3,18	0,8	21Z16M1S20	240	4					50	1
1,98	3,18	0,6	21Z16M1S25	210	4					50	1
3,5	6	-	21Z25B1S65	650		8				220	2
7	12	2,5	21Z30G2S99	2600				14	1	540	2
7	12	2,5	21Z30G2S99-5	2600				14	1(*)	540	2

Normally Open

(*) With tubings hardness 70 ± 3 shore A

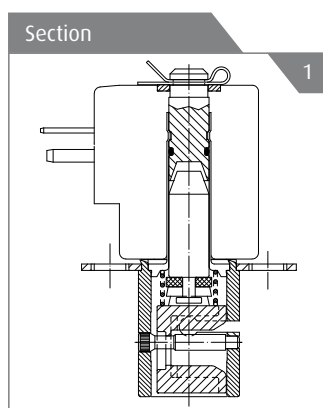
0,76	1,65	0,4	21Z16M2S05	250	4					50	1
1,57	3,18	0,8	21Z16M2S20	900	4					50	1
1,98	3,18	0,6	21Z16M2S25	400	4					50	1
3,5	6	-	21Z25B2S65	1500		8				220	2
3,5	6	-	21Z25B2S65	2100			12(*)			220	2

TECHNICAL SPECIFICATION

- ▶ **Body material:** Anodized Aluminium
- ▶ **Armature tube:** Armature tube: Brass - UNI EN 12164 CW614N
+ Nickel Plated (for 21Z16)
Brass - UNI EN 12164 CW614N (for 21Z25)
- ▶ **Welded Armature tube:** Brass - UNI EN 12164 CW614
+ Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ Pinching device POM C= Acetalic resin
- ▶ **Ambient temperature:** -10°C +40°C
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

- ▶ For different tube diameter or haedress,
please consult our technical department
- ▶ Explosion proof coil Ex nA (see Atex section)



REPAIR KIT

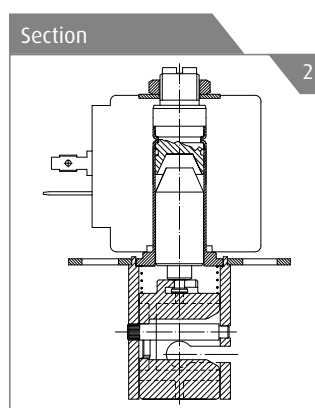
For spare parts please
consult our technical
department

Coil P/N

For 21Z16: RMAA0424CS
For other : Coil B type (08W)
Coil G type (14W)
Coil U type (12W)

RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with
plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch



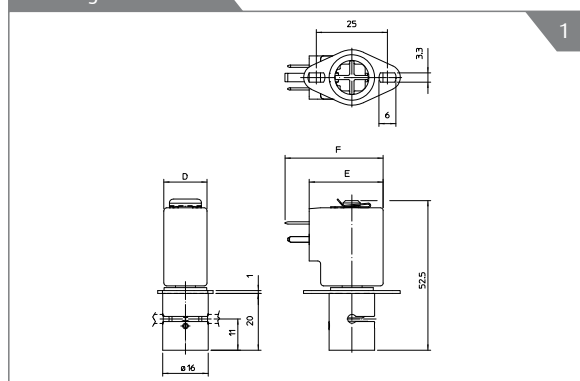
REPAIR KIT

For spare parts please
consult our technical
department

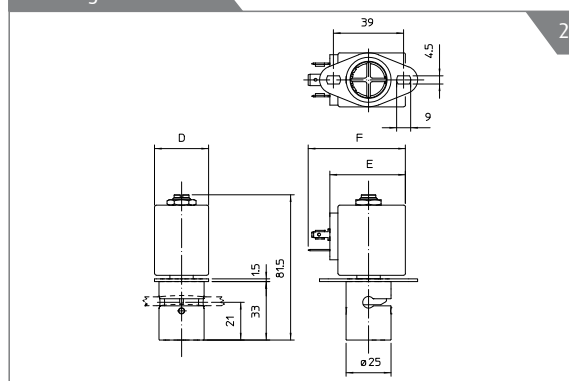
INSTALLATION

- ▶ This S.V. is suitable for soft silicon tubings with hardness 55 ± 3 shore A.
- ▶ Tubing are not included in our supply.
- ▶ When used with less that 2,2mm external diameter pipes,
a pipe holder should be mounted (for 21Z1).
- ▶ The solenoid valves can be mounted in any position
- ▶ Maintenance and instruction sheet available in each solenoid valve box

Drawing Reference



Drawing Reference



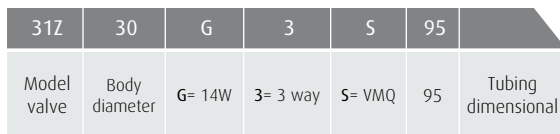
Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	M	16	26	34,5
2	B	30	42	54
	G	52	55	67
	U	36	48	60





- ▶ Totally separate valve
- ▶ Up to 36 Kg closing force
- ▶ Fluid untouched when flowed
- ▶ Bidirectional flow control
- ▶ Suitable for food pharmaceutical and medical application



G	D	H	14	024	C	S
G= 52mm Ø 13	D EN 175301-803	H= Class H	14= 14W	024= 24V	C= DC	S= Without Approval
			14= 14W	012= 12V		
		V= Class H				V= VDE

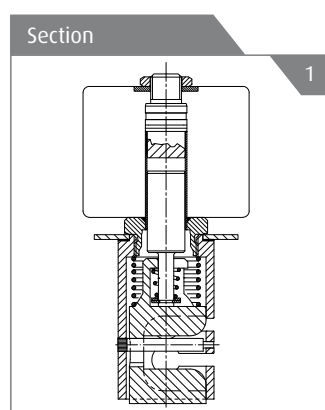
TUBINGS			GAS CODE	PINCHING FORCE (g)	POWER ABSORPTION [watt]					PRESSURE MAX	WEIGHT (g)	DRAWING REFERENCE
Ø int. (mm)	Ø ext. (mm)	WALL THICKNESS (mm)			COIL TYPE DC							
					G							
6,4	9	-	31Z30G3S95	1250	14					1	500	1

TECHNICAL SPECIFICATION

- ▶ **Body material:** Anodized Aluminium
- ▶ **Armature tube:** Brass - UNI EN 12164 CW614N
+ Stainless Steel AISI 300 series
- ▶ **Plungers:** Stainless Steel AISI 400 series
- ▶ **Spring:** Stainless Steel AISI 300 series
- ▶ Pinching device POM C= Acetalic resin
- ▶ **Ambient temperature:** -10°C +40°C
- ▶ **Protection class:** IP65 (complete with electric plug)
- ▶ **Electrical conformity:** IEC 335
- ▶ **Switching time:** 20-40 msec

AVAILABLE ON REQUEST

- ▶ For different tube diameter or haedress,
please consult our technical department
- ▶ Explosion proof coil Ex nA (see Atex section)



REPAIR KIT

For spare parts please
consult our technical
department

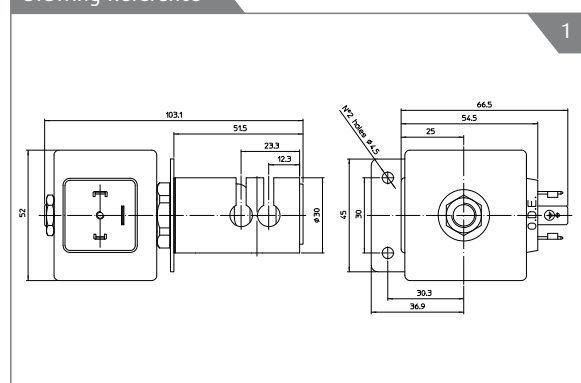
RELATED ITEMS

- ▶ P990305: Electrical plug EN 175301-803 Pg9
- ▶ P990306: Electrical plug EN 175301-803 Pg11
- ▶ P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- ▶ P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- ▶ P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- ▶ R452714: Antihumidity kit (up to IP67 protection together with
plugs P992126, P992127; P992128 & H coils class)
- ▶ P992087: Timer for automatic switch

INSTALLATION

- ▶ This S.V. is suitable for soft silicon tubings with hardness 55 ± 3 shore A.
- ▶ Tubing are not included in our supply.
- ▶ When used with less that 2,2mm external diameter pipes,
a pipe holder should be mounted (for 21Z1).
- ▶ The solenoid valves can be mounted in any position
- ▶ Maintenance and instruction sheet available in each solenoid valve box

Drawing Reference





▶ 21A Ex d & Ex m N.C./N.O.	page 84-85
▶ 21IH Ex d N.C.	" 86-87
▶ 21L Ex m Ex d N.C.	" 88-89
▶ 21W Ex m, Ex d N.C./N.O.	" 90-91
▶ 21X Ex m, Ex d N.C.	" 92-93
▶ 31A2 Ex m, Ex d N.C.	" 94-95
▶ 31L Ex m, Ex d N.C.	" 96-97



21A Ex d & Ex m N.C./N.O.



Ex d

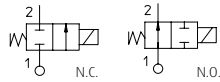


Ex m



FEATURES

- ▶ Wide range of application high flow valves for liquids, gaseous
- ▶ Hazardous environment
- ▶ Small poppet valve for tight shutoff
- ▶ Mountable in any position
- ▶ Dedicated to CPT Market



21A	2	QD	V	15	
Model valve	2= G 1/4	QD= N.C. Ex m	V= FKM	15	Orefice 10 ⁻¹ mm
	3= G 3/8	KI= N.C. Ex d	F= H-NBR	20	
		ZI= N.O. Ex d		25	
				30	
				45	
				55	

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	D= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

(*) Ex d protection class when assembled with Ex housing

T	N	A	4X	024	D	4
T= 36mm Ø 14,5	N 3 cables cm 300	A= Class F	4X= 7,2V	024= 24V	D= AC	4= Ex m T4
			5X= 9,13V	110= 110V		
			05= 7,7V-9,2V	224= 220V-240V		
			10= 10,1W		C= DC	

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	FLOW CURVE
					COIL TYPE								
					AC			DC					
					B	T		B	T				

Normally Closed Ex m

G 1/8	1,5	1,4	12(2)	0	-	16	-	16	-	21A3QDV15	(Part numbering example add "N" at the 4th digit 21AN1Q)	1
	2	2	37(5)		-	16	-	16	-	21A3QDV20		1
	2,5	3,2	53(7)		-	14	-	9	-	21A3QDV25		1
	3	4	53(7)		-	10	-	6	-	21A3QDV30		1
	4,5	6,5	53(7)		-	5	-	2	-	21A3QDV45		1
G 1/4	1,5	1,4	12(2)	0	-	16	-	16	-	21A2QDV15	(Part numbering example add "N" at the 4th digit 21AN2Q)	1
	2	2	37(5)		-	16	-	16	-	21A2QDV20		1
	2,5	3,2	53(7)		-	14	-	9	-	21A2QDV25		1
	3	4	53(7)		-	10	-	6	-	21A2QDV30		1
	4,5	6,5	53(7)		-	5	-	2	-	21A2QDV45		1
	5,5	9	53(7)		-	3	-	1	-	21A2QDV55		1

Normally Closed Ex d

G 1/8	1,5	1,4	12(2)	0	30	-	18	-	21A3KIV15	(Part numbering example add "N" at the 4th digit 21AN1KI)	2
	2	2	37(5)		22	-	16	-	21A3KIV20		2
	2,5	3,2	53(7)		14	-	9	-	21A3KIV25		2
	3	4	53(7)		10	-	6	-	21A3KIV30		2
G 1/4	1,5	1,4	12(2)	0	30	-	18	-	21A2KIV15	(Part numbering example add "N" at the 4th digit 21AN2KI)	2
	2	2	37(5)		22	-	16	-	21A2KIV20		2
	2,5	3,2	53(7)		14	-	9	-	21A2KIV25		2
	3	4	53(7)		10	-	6	-	21A2KIV30		2

Normally Open Ex d

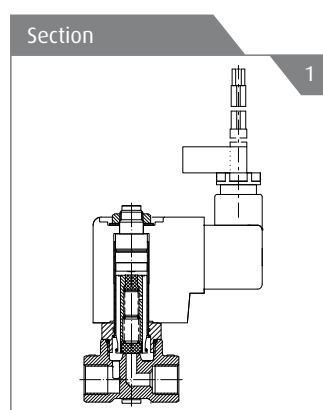
G 1/8	1,5	1,4	12(2)	0	30	-	18	-	21A3ZIV15	(Part numbering example add "N" at the 4th digit 21AN1ZI)	2
	2	2	37(5)		22	-	16	-	21A3ZIV20		2
	2,5	3,2	53(7)		14	-	9	-	21A3ZIV25		2
	3	4	53(7)		10	-	6	-	21A3ZIV30		2
G 1/4	1,5	1,4	12(2)	0	30	-	18	-	21A2ZIV15	(Part numbering example add "N" at the 4th digit 21AN2ZI)	2
	2	2	37(5)		22	-	16	-	21A2ZIV20		2
	2,5	3,2	53(7)		14	-	9	-	21A2ZIV25		2
	3	4	53(7)		10	-	6	-	21A2ZIV30		2

TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12165 CW617N
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Ex d Housing:** in Aluminium die cast
- **Media:** mineral oils, gasoline, diesel, fuel oils, air, inert gases, water, 134 a, R 404a
- **Ex m Ambient temperature:** See coils catalogue page for its compatibility
- **Ex m Fluid temperature:** -10°C +80°C with FKM seals
-30°C + 80°C with H-NBR seals
- **Ex d Housing Ambient temperature:** -40°C +60°C
- **Ex d Fluid temperature:** -10°C +140°C with FKM seals
- **Design pressure PS:** 40 bar
- **Protection class:** Ex m IP65 (complete with electric plug);
Ex d IP65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC 335

- **Switching time:** 20 - 40 msec (depending on pressure conditions)
- (Conforme to Atex Directive 94/9/CE ATEX)
For S.V. 21A3..I
II 2G Ex d IIC T6 o T5 Gb
II 2D Ex tb IIIC T80°C o T90°C Db IP67
(Tamb: -40°C ≤ +60°C)

For S.V. 21A..Q
II 2G Ex mb IIC Gb
II 2D Ex mb IIIC t 130°C Db
IEC Ex m II T4
A21 IP65 T130°C

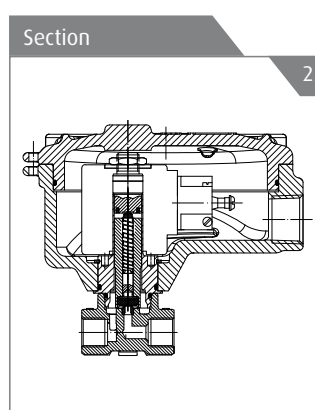


REPAIR KIT

For spare parts please consult our technical department

Coil P/N Ex mb II T 4

RTNA4X024D4
RTNA5X110D4
RTNA05224DA
RTNA10024C4



REPAIR KIT

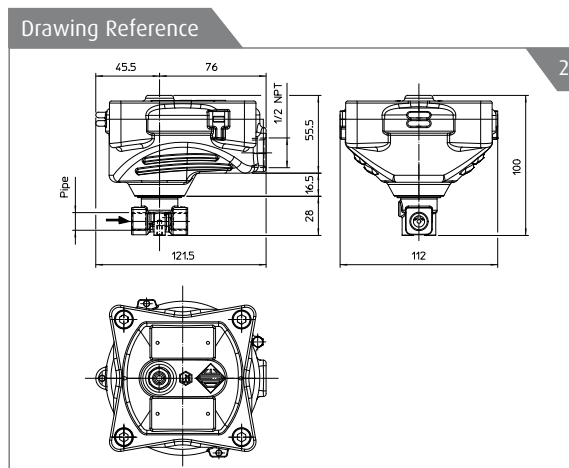
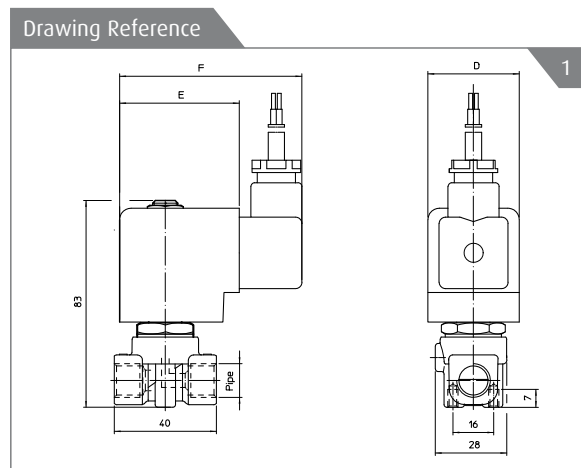
For spare parts please consult our technical department

ACCESSORIES

Code P992219 Cable Gland
(to be ordered separately)

INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Fixing holes
- Holes and threaded connections for panel fixing



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	T	36	47	71

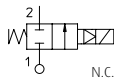


21IH Ex d N.C.



FEATURES

- Wide range of application high flow valves for liquids, gaseous
- Hazardous environment
- Small poppet valve for tight shutoff
- Mountable in any position
- Dedicated to CPT Market



21IH	3	KI	V	150	
Model valve	3= G 3/8 - 3/8 NPT	KI= N.C.	V= FKM	150	Orefice 10 ⁻¹ mm
	4= G 1/2 - 1/2 NPT		B= NBR	160	
	5= G 3/4 - 3/4 NPT			200	
	6= G 1 - 1 NPT			250	

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	D= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

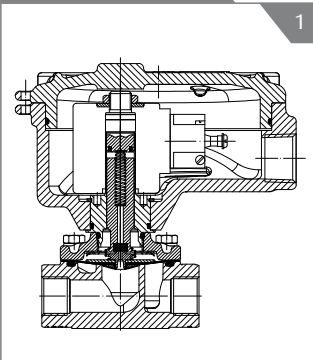
(*) Ex d protection class when assembled with Ex housing

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B			B					
G 3/8 3/8 NPT	15	40	12(2)	0	14			6			21IH3KIV150	21IN3KIV150-IH	1
G 1/2 1/2 NPT	16	50	12(2)		14			6			21IH4KIV160	21IN4KIV160-IH	1
G 3/4 3/4 NPT	20	60	12(2)		14			6			21IH5KIV200	21IN5KIV200-IH	1
G 1 1 NPT	25	140	12(2)		14			3			21IH6KIV250	21IH6KIV250-IH	1

TECHNICAL SPECIFICATION

- **Body material:** Stainless Steel AISI 316
- **Armature tube:** Stainless Steel AISI 316
- **Plungers:** Stainless Steel AISI 400 Series
- **Spring:** Stainless Steel AISI 300 Series
- **Ex d Housing in Aluminium die cast**
- **Media:** air, inert gases, water, mineral oils, gasoline, diesel
- **Housing ambient temperature:** -40°C +60°C
- **Fluid temperature:** -10°C +80°C with NBR seals
-10°C +80°C with FKM seals
- **Design pressure PS:** 16 bar
- **Protection class:** IP65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC335
(Conforme to Atex Directive 94/9/CE ATEX)
II 2G Ex d IIC T6 o T5 Gb
II 2D Ex tb IIIC T80° o T95°C Db IP67
(Tamb: -40°C ≤ +60°C)

Section



REPAIR KIT

For spare parts please consult our technical department

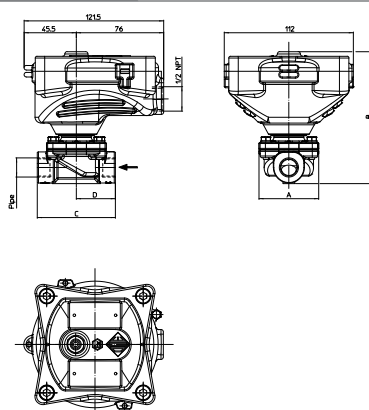
ACCESSORIES

Code P992219 Cable Gland (to be ordered separately)

INSTALLATION

- The solenoid valves can be mounted in any position
- Other port connections available on request
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Availability of repair kit and coils as spares.

Drawing Reference



Dimensionale Table

Figure	Pipe	A mm	B mm	C mm	D mm
1	G 3/8 3/8 NPT	52	114,5	68	34
	G 1/2 1/2 NPT				
	G 3/4 3/4 NPT	58	123	75	37,5
	G 1 1 NPT	65	131	90	45





Ex d



Ex m



FEATURES

- Wide range of applications high flow valves for liquids, gaseous
- Reliable proven design with high flow
- Small poppet valve for tight shutoff
- Mountable in any position



21L	1	QD	V	25	
Model valve	2= G 1/8	QD= N.C.	V= FKM	25	Orefice 10 ⁻¹ mm
	3= G 1/4	KI= N.C.	F= H-NBR	30 45 55	

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	D= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

(*) Ex d protection class when assembled with Ex housing

T	N	A	4X	024	D	4	
T= 36mm Ø 14,5	N 3 cables cm 300	A= Class F	4X= 7,2V	024= 24V	D= AC	4= Ex m T4	
			5X= 9,13V	110= 110V			
			05= 7,7V-9,2V	224= 220V-240V	C= DC		
			10= 10,1W	024= 24V			

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	T		B	T				

Normally Closed Ex m

G 1/8	2,5	3,2	53(7)	0	-	14	-	9	-	21L1QDV25	(Part numbering example add "N" at the 4th digit 21LN1QDV25)	1
	3	4	53(7)		-	10	-	6	-	21L1QDV30		1
	4	5	53(7)		-	6	-	1,7	-	21L1QDV40		1
G 1/4	2,5	3,2	53(7)	0	-	14	-	9	-	21L2QDV25		1
	3	4	53(7)		-	10	-	6	-	21L2QDV30		1
	4	5	53(7)		-	6	-	1,7	-	21L2QDV40		1
	5,5	9	53(7)		-	3,5	-	1	-	21L2QDV55		1

Normally Closed Ex d

G 1/4	2,5	3,2	53(7)	0	14	-	9	-	-	21L2KIV25	(Part numbering example add "N" at the 4th digit 21LN2KIV25)	2
	3	4	53(7)		10	-	6	-	-	21L2KIV30		2
	4	5	53(7)		6	-	1,7	-	-	21L2KIV40		2
	5,5	3,2	53(7)		3,5	-	1	-	-	21L2KIV55		2

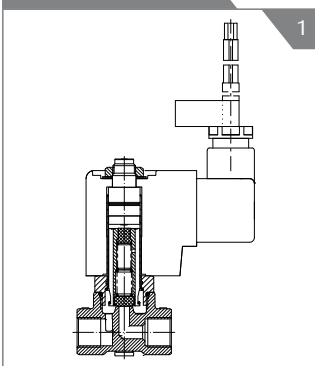
TECHNICAL SPECIFICATION

- **Body material:** Stainless Steel AISI 316
- **Armature tube:** Stainless steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Ex d Housing in Aluminium die cast**
- **Media:** mineral oils, gasoline, diesel, fuel oils, air, water, inert gases, 134 a, R 404a
- **Ex m Ambient temperature:** See coils catalogue page for its compatibility
- **Ex m Fluid temperature:** -10°C +80°C with FKM seals
-30°C +80°C with H-NBR seals
- **Ex d Housing Ambient temperature:** -40°C +60°C
- **Ex d Fluid temperature:** -10 +80°C with FKM seals
- **Design pressure PS:** 40 bar
- **Protection class:** Ex m IP65 (complete with electric plug);
Ex d IP65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC 335

- (Conforme to Atex Directive 94/9/CE ATEX)
For S.V. 21L..I
II 2G Ex d IIC T6 o T5 Gb
II 2D Ex tb IIIC T80°C o T90°C Db IP67
(Tamb: -40°C ≤ +60°C)

- For S.V. 21L..Q
II 2G Ex mb IIC Gb
II 2D Ex tb IIIC t130°C Db

Section



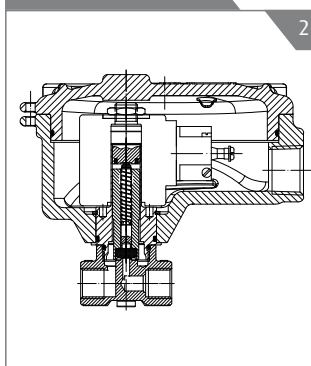
REPAIR KIT

For spare parts please consult our technical department

Coil P/N Ex mb II T 4

RTNA4X024D4
RTNA5X110D4
RTNA05224DA
RTNA10024C4

Section



REPAIR KIT

For spare parts please consult our technical department

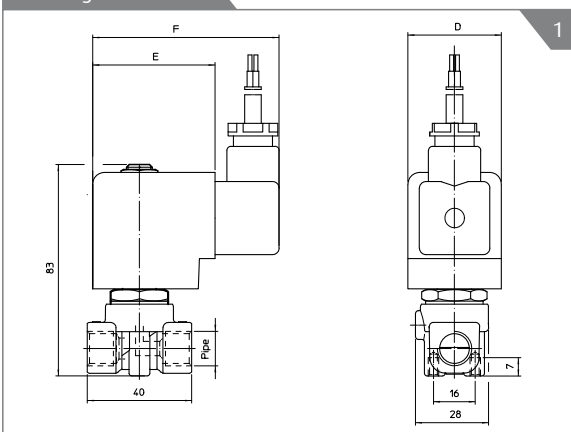
ACCESSORIES

Code P992219 Cable Gland
(to be ordered separately)

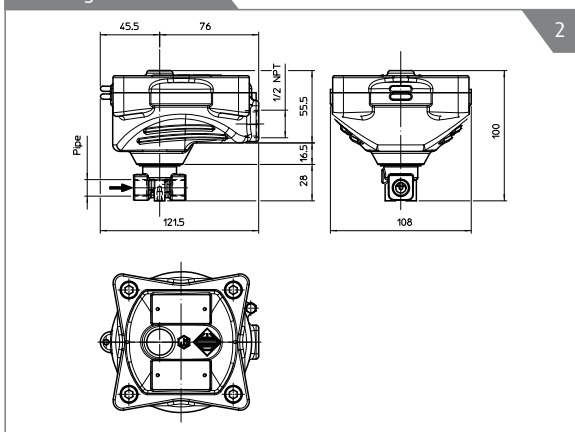
INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Fixing holes
- Holes and threaded connections for panel fixing

Drawing Reference



Drawing Reference



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	T	36	47	71



21W Ex m, Ex d N.C./N.O.



Ex d



Ex m

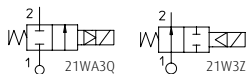


FEATURES

- ▶ Wide range of applications high flow valves for liquids, gaseous
- ▶ Reliable proven design with high flows
- ▶ Small poppet valve for tight shutoff
- ▶ Mountable in any position



(Pressure Equipment Directive 97/23/CE) for S.V. 21WN7÷21WN9 - 21W5÷21W7



21WA	3	QD	V	130	
Model valve	3= G 1/8	QD N.C. Ex m	V= FKM	130	Orefice 10 ⁻¹ mm
	4= G 1/2 T		F= H-NBR	190	
	5= G 3/4			250	
	6= G 1			350	
				400	
				500	

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	D= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

(*) Ex d protection class when assembled with Ex housing

21W3	3	KI	B	190	
Model valve	3= G 1/8 - 3/8 NPT	KI N.C. Ex d	B= NBR	130	Orefice 10 ⁻¹ mm
	4= G 1/2 - 1/2 NPT	ZI N.O. Ex d	E= EPDM	190	
	5= G 3/4 - 3/4 NPT		F= H-NBR	250	
	6= G 1 - 1 NPT		V= FKM	350	
	7= G 1 1/4 - 1 1/4 NPT			400	
	8= G 1 1/2 - 1 1/2 NPT			500	
	9= G 2 - 2 NPT				

T	N	A	4X	024	D	4	
T= 36mm Ø 14,5	N 3 cables cm 300	A= Class F	4X= 7,2V	024= 24V	D= AC	4= Ex m T4	
			5X= 9,13V	110= 110V			
			05= 7,7V-9,2V	224= 220V-240V	C= DC		
			10= 10W	024= 24V			

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	FLOW CURVE
					COIL TYPE								
					AC			DC					
					T	B		T	B				

Normally Closed Ex m

G 3/8	13	60	12(2)	0,2	16	-		16	-		21WA3QDV130		1
G 1/2	13	70	12(2)	0,2	16	-		16	-		21WA4QDV130		1
G 3/4	19	140	12(2)	0,2	16	-		16	-		21W3QDV190		1
G 1	25	190	12(2)	0,2	16	-		16	-		21W4QDV250		1
G 1 1/4	35	400	12(2)	0,2	16	-		16	-		21W5QDV350		1
G 1 1/2	40	520	12(2)	0,2	10	-		10	-		21W6QDV400		1
G 2	50	750	12(2)	0,2	10	-		10	-		21W7QDV500		1

Normally Closed Ex m

3/8"	13	60	12(2)	0,2	-	16		-	16		21WA3KIB130	21WN3KIB130	2
1/2"	13	70	12(2)	0,2	-	16		-	16		21WA4KIB130	21WN4KIB130	2
3/4"	19	140	12(2)	0,2	-	16		-	16		21W3KIB190	21WN5KIB190	2
1"	25	190	12(2)	0,2	-	16		-	16		21W4KIB250	21WN6KIB250	2
1 1/4"	35	400	12(2)	0,2	-	10		-	10		21W5KIB350	21WN7KIB350	2
1 1/2"	40	520	12(2)	0,2	-	10		-	10		21W6KIB400	21WN8KIB400	2
2"	50	750	12(2)	0,2	-	10		-	10		21W7KIB500	21WN9KIB500	2

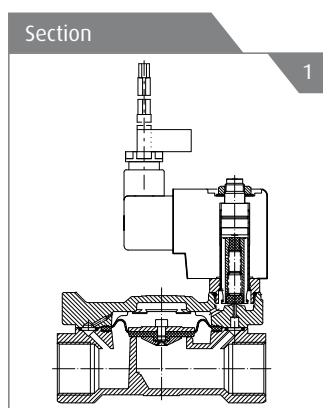
Normally Open Ex m

3/8"	13	60	12(2)	0,2	-	16		-	16		21WA3ZIB130	21WN3ZIB130	2
1/2"	13	70	12(2)	0,2	-	16		-	16		21WA4ZIB130	21WN4ZIB130	2
3/4"	19	140	12(2)	0,2	-	16		-	16		21W3ZIB190	21WN5ZIB190	2
1"	25	190	12(2)	0,2	-	16		-	16		21W4ZIB250	21WN6ZIB250	2
1 1/4"	35	400	12(2)	0,2	-	10		-	10		21W5ZIB350	21WN7ZIB350	2
1 1/2"	40	520	12(2)	0,2	-	10		-	10		21W6ZIB400	21WN8ZIB400	2
2"	50	750	12(2)	0,2	-	10		-	10		21W7ZIB500	21WN9ZIB500	2

TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12165 CW617N
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Ex d Housing in Aluminium die cast**
- **Media:** mineral oils, gasoline, diesel, air, inert gases, water, R 134a, R 404a
- **Ex m Ambient temperature:** See coils catalogue page for its compatibility
- **Ex m Fluid temperature:** -10°C +80°C with FKM seals
-30°C +80°C with H-NBR seals
- **Design pressure PS:** G 3/4 - 1 25 bar
25 bar for 21WA3Q ÷ 21WA4Q
20 bar for 21WA3KI ÷ 21WA4KI
21WA3ZI ÷ 21WA4ZI
- **Ex d Ambient temperature:** -40°C +60°C
- **Ex d Housing Fluid temperature:** -10°C +80°C with FKM seals

- **Protection class:** Ex m IP 65
(complete with electric plug);
Ex IP 65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC335
- **Switching time:** 20-40 msec (depending on pressure conditions)
- (Conforme to Atex Directive 94/9/CE ATEX)
- For S.V. 21W..I
II 2G Ex d IIC T6 o T5 Gb
II 2D Ex tb IIIC T80°C o T90°C Db IP67
(Tamb: -40°C ≤ +60°C)
- For S.V. 21W..Q
II 2G Ex mb IIC Gb
II 2D Ex tb IIIC t130°C Db

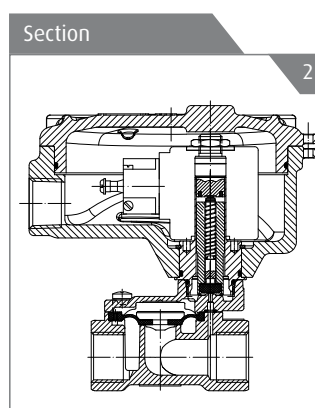


REPAIR KIT

For spare parts please consult our technical department

Coil P/N Ex mb II T 4

RTNA4X024D4
RTNA5X110D4
RTNA05224DA
RTNA10024C4



REPAIR KIT

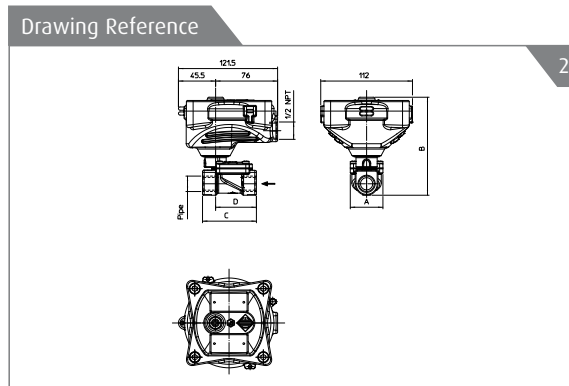
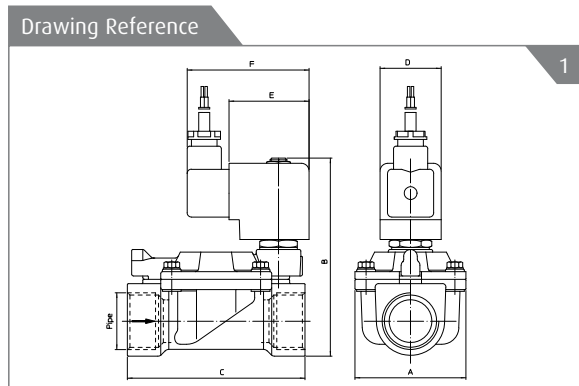
For spare parts please consult our technical department

ACCESSORIES

Code P992219 Cable Gland
(to be ordered separately)

INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Fixing holes
- Holes and threaded connections for panel fixing



Dimensionale Table

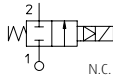
Figure	Pipe	Coil Type	A mm	B mm	C mm	D mm	E mm	F mm
1-2	3/8	B T	40	120 103	60	47 36	- 47	71
	1/2	B T	40	120 103	66	50 36	- 47	71
	3/4	B T	65	128 111	104	89 36	- 47	71
	1	B T	65	136 118	104	89 36	- 47	71
	1 1/4	B T	98	153 131	144	125 36	- 47	71
	1 1/2	B T	98	153 131	144	125 36	- 47	71
	2	B T	118	144 147	172	150 36	- 47	71





FEATURES

- Dedicate to CPT Market
- Explosion proof rate
- Reliable construction



21X	2	QD	V	120	
Model valve	2= G 1/2 4= 1/2 NPT	QD= N.C. Ex m	V= FKM	120 190 250	Orefice 10 ⁻¹ mm
	3= G 3/4 5= 3/4 NPT	KI= N.C. Ex d	F= H-NBR		
	4= G 1 6= 1 NPT				

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	A= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

(*) Ex d protection class when assembled with Ex housing

T	N	A	4X	024	D	4	
T= 36mm Ø 14,5	N 3 cables cm 300	A= Class F	4X= 7,2V	024= 24V	D= AC	4= Ex m T4	
			5X= 9,13V	110= 110V			
			05= 7,7V-9,2V	224= 220V-240V	C= DC		
			10= 10,1W	024= 24V			

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	T		B	T				

Normally Closed Ex m

1/2	12	35	12(2)	0,1	-	16		-	16		21X2QDV120	21XN4QDV120	1
3/4	19	130	12(2)		-	16		-	16		21X3QDV190	21XN5QDV190	1
1	25	160	12(2)		-	16		-	16		21X4QDV250	21XN6QDV250	1

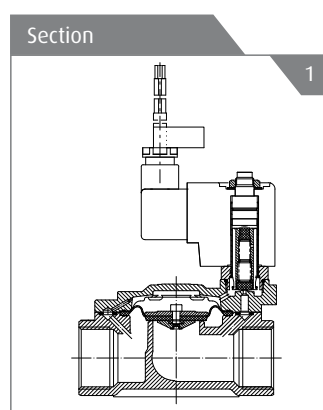
Normally Closed Ex d

1/2	12	35	12(2)	0,1	20	-		20	-		21X2KIV120	21XN2KIV120	2
3/4	19	130	12(2)		16	-		16	-		21X3KIV190	21XN3KIV190	2
1	25	160	12(2)		16	-		16	-		21X4KIV250	21XN4KIV250	2

TECHNICAL SPECIFICATION

- **Body material:** Stainless Steel AISI 316
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Ex d Housing in Aluminium die cast**
- **Media:** mineral oils, gasoline, diesel, fuel oils, air inert gases, water, 134 a, R 404a
- **Ex m Ambient temperature:** See coils catalogue page for its compatibility
- **Ex m Fluid temperature:** -10°C +80°C with FKM seals
- **Ex d Housing Ambient temperature:** -40°C +60°C
- **Ex d Fluid temperature:** -30°C +80°C with H-NBR seals
-10°C +140°C with FKM seals
- **Design pressure PS:** 25 bar
- **Protection class:** Ex m IP65 (complete with electric plug)
Ex d IP 65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC 335

- **Switching time:** 20-40 msec
(depending on pressure conditions)
- (Conforme to Atex Directive 94/9/CE ATEX)
For S.V. 21X2Q..
II 2G Ex mb IIC Gb
II 2D Ex tb IIIC t130°C Db
- For S.V. 21X2KI..
II 2G Ex d IIC t6 o t5 Gb
II 2D Ex bb IIIC T80°C o T95°C Db
(Tamb: -40°C ≤ +60°C)

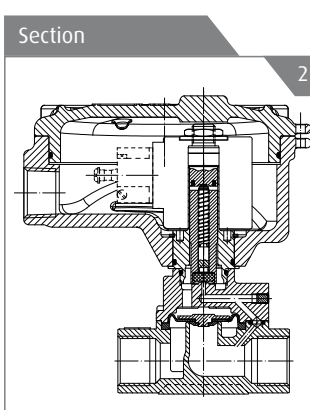


REPAIR KIT

For spare parts please consult our technical department

Coil P/N Ex mb II T 4

RTNA4X024D4
RTNA5X110D4
RTNA05224DA
RTNA10024C4



REPAIR KIT

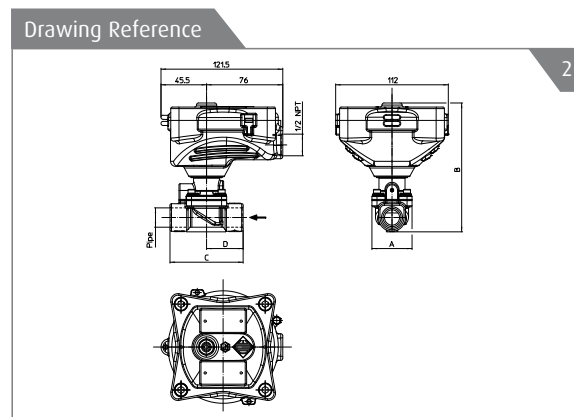
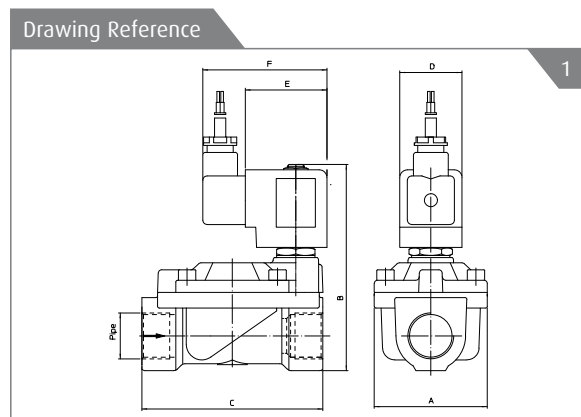
For spare parts please consult our technical department

ACCESSORIES

Code P992219 Cable Gland
(to be ordered separately)

INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Holes and threaded connections for panel fixing



Dimensionale Table

Figure	Pipe	Coil Type	A mm	B mm	C mm	D mm	E mm	F mm
1-2	G 1/2 1/2 NPT	B T	40	120 110	73	36,5 36	- 47	71
	G 3/4 3/4 NPT	B T	65	136 120	104	88,5 36	- 47	71
	G 1 1 NPT	B T	65	136 120	104	88,5 36	- 47	71



31A2 Ex m, Ex d N.C.

FEATURES

- Wide range of applications high flow valves for liquids, gaseous
- Reliable proven design with high flows
- Small poppet valve for tight shutoff
- Mountable in any position



Ex d



Ex m



31A	3	PD	V	15	
Model valve	2= G 1/4	PD= N.C. Ex m	V= FKM	15	Orefice 10 ⁻¹ mm
	3= G 3/8	El= N.C. Ex d	F= H-NBR	20 25 30	

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	A= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

(*) Ex d protection class when assembled with Ex housing

T	N	A	4X	024	D	4	
T= 36mm Ø 14,5	N 3 cables cm 300	A= Class F	4X= 7,2V	024= 24V	D= AC	4= Ex m T4	
			5X= 9,13V	110= 110V			
			05= 7,7V-9,2V	224= 220V-240V	C= DC		
			10= 10,1W	024= 24V			

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	FLOW CURVE
					COIL TYPE								
					AC			DC					
					B	T		B	T				

Normally Closed Ex m

(*) 3rd way exhaust= Ø 3mm

G 1/8	1,5(*)	1,2	12(2)	0	-	15	-	15	-	31A3PDV15	(Part numbering example add "N" at the 4th digit 31AN1PD; 31AN2PD)	1
	2(*)	2	37(5)		-	10	-	10	-	31A3PDV20		1
	2,5(*)	3	53(7)		-	6	-	6	-	31A3PDV25		1
	3(*)	3,5	53(7)		-	5	-	5	-	31A3PDV30		1
G 1/4	1,5(*)	1,2	12(2)	0	-	15	-	15	-	31A2PDV15		1
	2(*)	2	37(5)		-	10	-	10	-	31A2PDV20		1
	2,5(*)	3	53(7)		-	6	-	6	-	31A2PDV25		1
	3(*)	3,5	53(7)		-	5	-	5	-	31A2PDV30		1

Normally Closed Ex d

(*) 3rd way exhaust= Ø 3mm

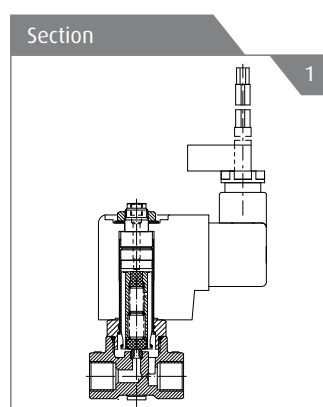
G 1/8	1(*)	0,45	12(2)	0	20	-	20	-	31A3EIV10	(Part numbering example add "N" at the 4th digit 31AN1EI; 31AN2EI)	2
	1,5(*)	1,4	12(2)		15	-	15	-	31A3EIV15		2
	2(*)	2	37(5)		10	-	10	-	31A3EIV20		2
	2,5(*)	3,2	53(7)		6	-	6	-	31A3EIV25		2
	3(*)	4	53(7)		5	-	5	-	31A3EIV35		2
G 1/4	1(*)	0,45	12(2)	0	20	-	20	-	31A2EIV10		2
	1,5(*)	1,4	12(2)		15	-	15	-	31A2EIV15		2
	2(*)	2	37(5)		10	-	10	-	31A2EIV20		2
	2,5(*)	3,2	53(7)		6	-	6	-	31A2EIV25		2
	3(*)	4	53(7)		5	-	5	-	31A2EIV35		2

TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12165 CW617N
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Ex d Housing in Aluminium die cast**
- **Media:** mineral oils, gasoline, diesel, fuel oils, air inert gases, water, 134 a, R 404a
- **Ambient temperature:** See coils catalogue page for its compatibility
- **Ex m Fluid temperature:** -10°C +80°C with FKM seals
-30°C +80°C with H-NBR seals
- **Ex d Housing Ambient temperature:** -40°C +60°C
- **Design pressure PS:** 40 bar
- **Protection class:** Ex m IP 65 (complete with electric plug);
Ex d IP 65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC 335

- **Switching time:** 20-40 msec
(depending on pressure conditions)
- (Conforme to Atex Directive 94/9/CE ATEX)
For S.V. 31A3EI..
II 2G Ex d IIC T6 o T5 Gb
II 2D Ex tb IIIC T80°C o T90°C Db IP67
(Tamb: -40°C ≤ +60°C)

For S.V. 31A3P..
II 2G Ex mb II T4
II 2D Ex td
IEC Ex m II T4
A21 IP65 T130°C

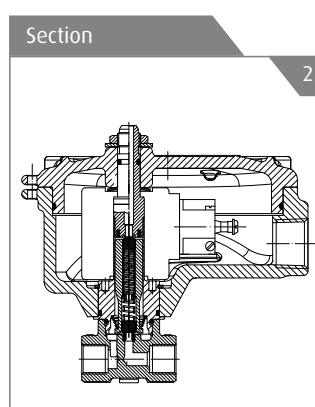


REPAIR KIT

For spare parts please consult our technical department

Coil P/N Ex mb II T 4

RTNA4X024D4
RTNA5X110D4
RTNA05224DA
RTNA10024C4



REPAIR KIT

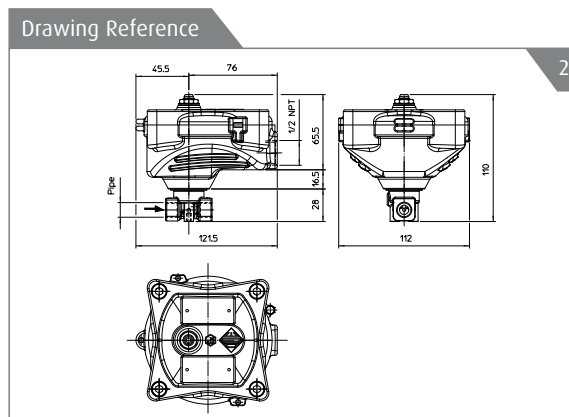
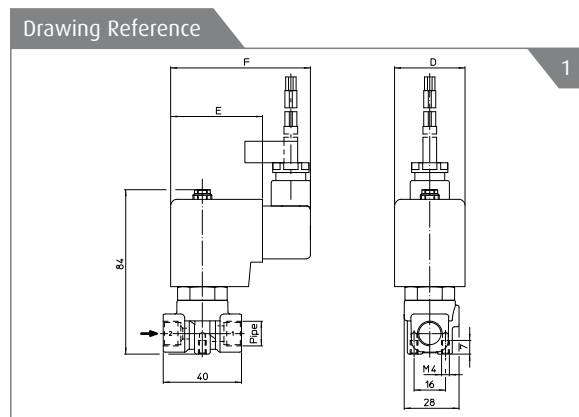
For spare parts please consult our technical department

ACCESSORIES

Code P992219 Cable Gland
(to be ordered separately)

INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Holes and threaded connections for panel fixing



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	T	36	47	71



31L Ex m, Ex d N.C.



Ex d



Ex m



FEATURES

- Ideal for piloting
- High flow rate
- Atex approval

31L	1	PD	V	20	
Model valve	1= G 1/8	PD= N.C. Ex m	V= FKM	20	Orefice 10 ⁻¹ mm
	2= G 1/4	El= N.C. Ex d	F= H-NBR	30	

B	D	A	08	012	C	S
B= 30mm Ø 13	D EN 175301-803	A= Class F	08= 8W	012= 12V	C= DC	S= Without Approval(*)
				024= 24V	D= AC	
				048= 48V		
				110= 110V		
				223= 220V-230V		

(*) Ex d protection class when assembled with Ex housing

T	N	A	4X	024	D	4	
T= 36mm Ø 14,5	N 3 cables cm 300	A= Class F	4X= 7,2V	024= 24V	D= AC	4= Ex m T4	
			5X= 9,13V	110= 110V			
			05= 7,7V-9,2V	224= 220V-240V	C= DC		
			10= 10,1W	024= 24V			

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					B	T		B	T				

Normally Closed Ex m

(*) 3rd way exhaust= Ø 3mm

G 1/8	2(*)	2	37(7)	0	-	10		-	10		(Part numbering example add "N" at the 4th digit 31L1PDV20)	31LN1PDV20	1
G 1/8	2(*)	4	53(7)		-	5		-	5			31LN1PDV30	1
G 1/4	2(*)	2	37(7)		-	10		-	10			31LN2PDV20	1
G 1/4	3(*)	4	53(7)		-	5		-	5			31LN2PDV30	1

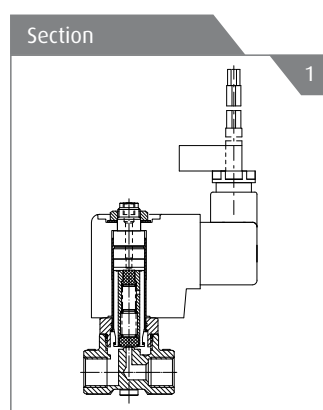
Normally Closed Ex d

(*) 3rd way exhaust= Ø 3mm

G 1/8	2(*)	2	37(7)	0	10	-		10	-		31L1EIV20	31LN1EIV20	2
G 1/8	2(*)	4	53(7)		5	-		5	-		31L1EIV30	31LN1EIV30	2
G 1/4	2(*)	2	37(7)		10	-		10	-		31L2EIV20	31LN2EIV20	2
G 1/4	3(*)	4	53(7)		5	-		5	-		31L2EIV30	31LN2EIV30	2

TECHNICAL SPECIFICATION

- **Body material:** Stainless Steel AISI 316
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Ex d Housing in Aluminium die cast**
- **Media:** mineral oils, gasoline, diesel, fuel oils, air, water, inert gases, 134 a, R 404a
- **Ex m Ambient temperature:** See coils catalogue page for its compatibility
- **Ex m Fluid temperature:** -10°C +80°C with FKM seals
- **Ex d Housing Ambient temperature:** -40°C +60°C
- **Ex d Fluid temperature:** -10°C + 80°C with FKM seals
-30°C +80°C H-NBR
- **Design pressure PS:** 40 bar for Ex d
25 bar for Ex m
- **Protection class:** Ex m IP 65 (complete with electric plug);
Ex d IP 65 (with hosing fitted by cable gland Atex Ex d)
- **Electrical conformity:** IEC 335
- (Conforme to Atex Directive 94/9/CE ATEX)
For S.V. 31L..I
II 2G Ex d IIC T6 o T5 Gb
II 2D Ex tb IIIC T80°C o T90°C Db IP67
(Tamb: -40°C ≤ +60°C)
- For S.V. 31L..P
II 2G Ex mb II T4
II 2D Ex tD
IEC Ex m II T4
A21 IP65 T130°C

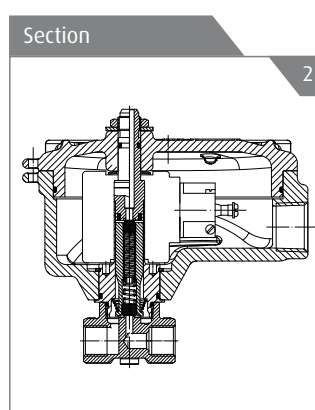


REPAIR KIT

For spare parts please consult our technical department

Coil P/N Ex mb II T 4

RTNA4X024D4
RTNA5X110D4
RTNA05224DA
RTNA10024C4



REPAIR KIT

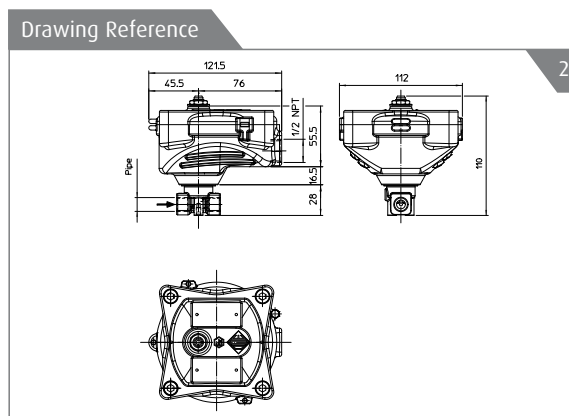
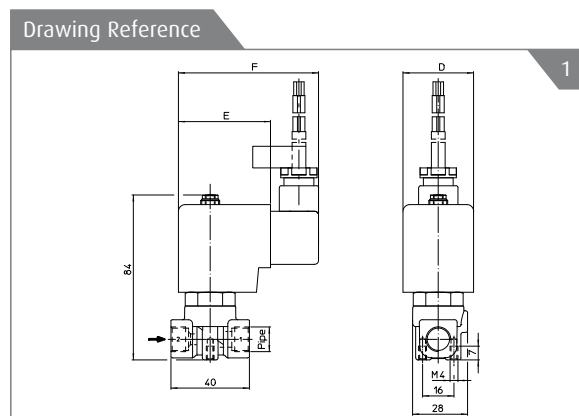
For spare parts please consult our technical department

ACCESSORIES

Code P992219 Cable Gland
(to be ordered separately)

INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Attention: for fuse selection please refer to the "Instruction sheet Atex products" delivered together with the valve
- Fixing holes
- Holes and threaded connections for panel fixing



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1	B	30	42	54



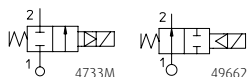






TECHNICAL SPECIFICATION

- **Body material:** Brass UNI EN 12165 CW617N (for 21A1K0R30-TXC; 21A2K0T12-XC; 21AN2K0T12-XC; 21A1ZT11D-GB)
- **Body material:** Brass UNI EN 12164 CW614N (for 4739MZU190; 4731K0T70; 4966K0Q120; 4592MZU190; 4966Z0Q120D)
- **Armature tube:** Stainless Steel AISI 300 series
- **Plungers:** Stainless Steel AISI 400 series
- **Spring:** Stainless Steel AISI 300 series
- **Piston:** POM C (for 4739MZU190; 4592MZU190)
- **Piston ring:** Modified PTFE (for 4739MZU190; 4592MZU190)
- **Main seal:** POM C=Acetalic resin (for 492MZU190; 4739MZU190)
T=PTFE (for 4731K0T70); Q=PBT (for 4966K0Q120; 4966Z0Q120D)
- **Pilot seal:** TPU=Polyurethane resin (for 4739MZU190; 4592MZU190; 4966Z0Q120D); PTFE modified (for 4731K0T70; 4966K0Q120)
- **Seal:** RUBY (for 21A1K0R30-TXC); PTFE (for 21A1ZT11D-GB; 21A2K0T12-XC; 21AN2K0T12-XC)



Suffix description: ...(code)...-TXC

-TXC	Version with PTFE, rectified bridge
-TC	Version with rectified bridge
-GB	Version with dampness-proof

21A	1	K0	R	30		**
Model valve	1 SUBPLATE MOUNTING	K= N.C.	R= RUBY			
	2= G 1/4	Z= N.O.	U= POM C	3 7 11 12 19	Orefice 10 ⁻¹ mm	D for coil 8W
	3= G 3/8		T= PTFE			
	4= G 1/2		Q= PTB			
	5= G 3/4					

B	D	A	08	223	D	S
B= 30 mm Ø 13	D EN 175301-803	A= Class F	08= 8W	223= 220V-230V	D= AC	S= Without Approval
U= 36 mm Ø 13		V= Class H	12= 12W	112= 110V-120V	A= AC	Y= UL, CSA, VDE
G= 52 mm Ø 13			14= 14W	024= 24V	C= DC	

PIPE	Ø (mm)	Kv (l/min)	MAX VISCOSITY cSt (°E)	PRESSURE min	PRESSURE MAX MOPD (bar)						GAS CODE	NPT CODE	DRAWING REFERENCE
					COIL TYPE								
					AC			DC					
					R	U	G	R	U	G			

Normally Closed

SUBPLATE MOUNTING	3	4	53(7)	0	25	-	-	8	-	-	21A1K0R30-TXC		-
	19	-	-	1	-	-	-	-	-	50	4739MZU190 ⁽³⁾		1
G 1/4	1,2	1	12(2)	0	100	100	-	90	100	-	21A2K0T12-XC	21AN2K0T12-XC	-
G 3/8	7	14	12(2)	0,7 ⁽¹⁾	90	100	100	40	90	100	4731K0T70		3
G 1/2	12	60	12(2)	3	100	100	-	90	100	-	4966K0Q120		-
G 3/4	19	110	-	1	-	-	-	-	-	50	4592MZU190 ⁽³⁾		4

Normally Open

SUBPLATE MOUNTING	1,1	0,7	12(2)	0	90	-	-	90	-	-	21A1ZT11D-GB ⁽²⁾		-
G 1/2	12	60	12(2)	3	50	-	-	50	-	-	4966Z0Q120D		2

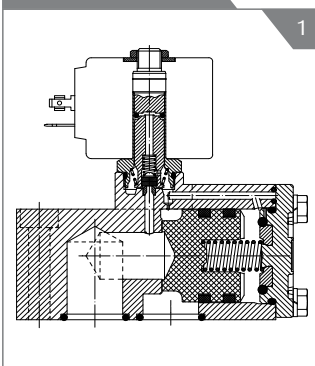
Note

- Pressure with mono frequency coil
- For dampness-proof cup see catalogue page
- Maximum allowed drop at 1 bar

- **Media:** water, steam, mineral oils, gas oil, fuel oils (for 21A1K0R30-TXC); air, inert gases (for 4739MZU190; 4592MZU190); air, water (for 21A2K0T12-XC; 21AN2K0T12-XC; 4731K0T70; 4966Z0Q120D; 4966K0Q120); air, water, steam, mineral oils (for 21A1ZT11D-GB)
- **Ambient temperature:** See coils catalogue page for its compatibility
- **Fluid temperature:** -40°C +180°C with RUBY, PTFE seals (for 21A1K0R30-TXC; 21A2K0T12-XC; 21AN2K0T12-XC)
-10°C +100°C with POM C seals (for 4739MZU190; 4592MZU190)
-40°C +98°C with PTFE seals (for 4731K0T70);
-20°C +95°C with PBT seals (for 4966K0Q120; 4966Z0Q120D)
- **Design pressure PS:** 40 bar (for 21A1K0R30-TXC);
PS: 50 bar (for 4739MZU190; 4592MZU190);
PS: 100 bar (for 21A2K0T12-XC; 21AN2K0T12-XC; 4966K0Q120; 21A1ZT11D-GB);
PS: 150 bar (for 4731K0T70);
PS: 80 bar (for 4966Z0Q120D)
- **Protection class:** IP65 (complete with electric plug);
IP67 (for 21AZT11D-GB);

- **Electrical conformity:** IEC 335
- **Switching time:** 20-40 msec (depending on pressure conditions)

Section

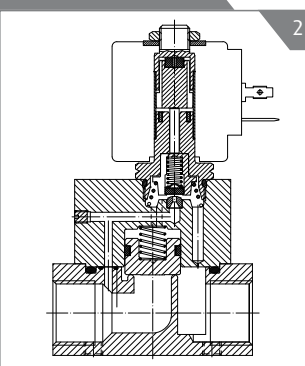


REPAIR KIT

Normally Closed
Coil B type (8W)

KT130KR30-AP (for 21A1K0R30-TC)
KT130KT30-AP (for 21A2K0T12-XC;
21AN2K0T12-XC; 4731K0T70;
for 4966K0Q120)

Section



REPAIR KIT

Normally Open

KT130ZT30-FGB (for 21A1ZT11D-GB)
KT130ZT30-F (for 4966Z0Q120D)

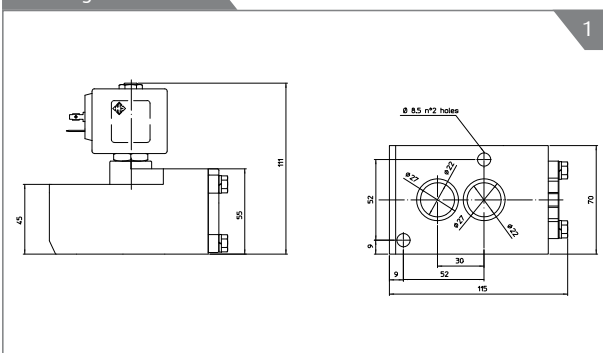
RELATED ITEMS

- P990305: Electrical plug EN 175301-803 Pg9
- P990306: Electrical plug EN 175301-803 Pg11
- P992126: Electrical plug EN 175301-803 Pg9 (with OR screw)
- P992127: Electrical plug EN 175301-803 Pg11 (with OR screw)
- P992128: Electrical plug EN 175301-803 cable 2 wires, 53cm
- R452714: Antihumidity kit (up to IP67 protection together with plugs P992126, P992127; P992128 & H coils class)
- P992087: Timer for automatic switch

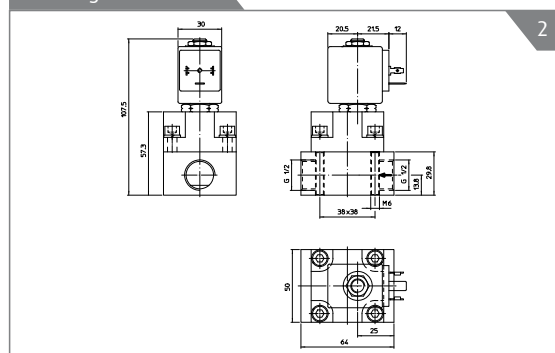
INSTALLATION

- The solenoid valves can be mounted in any position
- Maintenance and instruction sheet available in each solenoid valve box
- Repair kit and coils available as spares

Drawing Reference

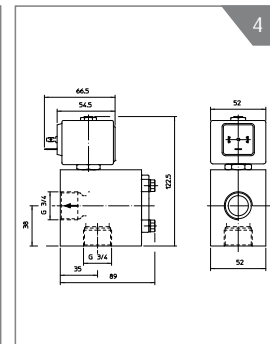
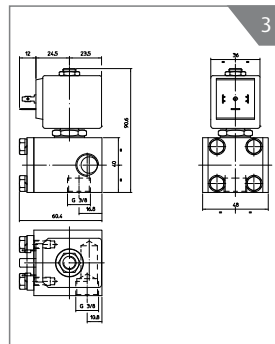


Drawing Reference



Dimensionale Table

Figure	Coil Type	D mm	E mm	F mm
1-2-3-4	B	30	42	54
	U	36	48	60
	G	52	55	67





▶ 21IA N.O.	page 104-105
▶ 21IA N.C.	" 106-107
▶ 21IA-5 N.C.	" 108-109



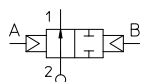


FEATURES

- ▶ Angle seat for high flow rate configuration
- ▶ Long life cycles
- ▶ N.C. and N.O. convertible after the delivery
- ▶ Flow below and above the piston
- ▶ Service free solution
- ▶ Ari water hammer



(Pressure Equipment Directive 97/23/CE) for valve 211A7 ÷ 211A9



211A	4	T	15		G	A	2
Model valve	5= G 3/4 - NPT 3/4	T= PTFE	15 20 25 32 40 50	Orefice 10 ⁻¹ mm	G= GAS N= NPT	A= N.O.	Actuator connection
	6= G 1 - NPT 1						
	5= G 1 1/4 - NPT 1 1/4						
	6= G 1 1/2 - NPT 1 1/2						
	9= G 2 - NPT 2						

PIPE	Ø (mm)	Kv (l/min)	ACTUATOR PILOT PRESSURE (bar)		DIFFERENTIAL PRESSURE (bar)		MAX ALLOWABLE PRESSURE PS (bar)	GAS CODE	NPT CODE	WEIGHT	DRAWING REFERENCE
			min	max	min	max				kg	

Normally Open Ex m

1/2"	15	80	1,5	10	0	(See graphic n. 1)	40	211A4T15GA2	211A4T15NA2	1,2	1
3/4"	20	150	1,5	10	0		40	211A5T20GA2	211A5T20NA2	1,3	1
1"	25	190	1,5	10	0		40	211A6T25GA2	211A6T25NA2	1,6	1
1/4"	32	340	1,5	10	0		25	211A7T32GA2	211A7T32NA2	2,2	1
1/2"	40	430	1,5	10	0		25	211A8T40GA2	211A8T40NA2	2,5	1
2"	50	620	1,5	10	0		16	211A9T50GA2	211A9T50NA2	3,7	1

Normally Open with electrical position indicators

1/2"	15	80	1,5	10	0	(See graphic n. 1)	40	211A4T15GA2-IP1	211A4T15NA2-IP1	1,2	2
3/4"	20	150	1,5	10	0		40	211A5T20GA2-IP1	211A5T20NA2-IP1	1,3	2
1"	25	190	1,5	10	0		40	211A6T25GA2-IP1	211A6T25NA2-IP1	1,6	2
1/4"	32	340	1,5	10	0		25	211A7T32GA2-IP1	211A7T32NA2-IP1	2,2	2
1/2"	40	430	1,5	10	0		25	211A8T40GA2-IP1	211A8T40NA2-IP1	2,5	2
2"	50	620	1,5	10	0		16	211A9T50GA2-IP1	211A9T50NA2-IP1	3,7	2

Valve 2/2 Way - Flow Direction Below The Seat - Angle Seat Pilot Valve Pneumatically Actuated

TECHNICAL SPECIFICATION

▶ VALVE FEATURES

Fluid Temperature: -10°C +180°C

Environment temperature: -10°C +60°C

Material: Stainless Steel AISI 316 series

Seal: PTFE

Packing gland: PTFE, FKM

▶ PILOT ACTUATOR FEATURES

Media: Dry Air or lubricated, gas and neutral fluids

Fluid Temperature: max +60°C

Body: Polyamide 66 with 30% glass fibre

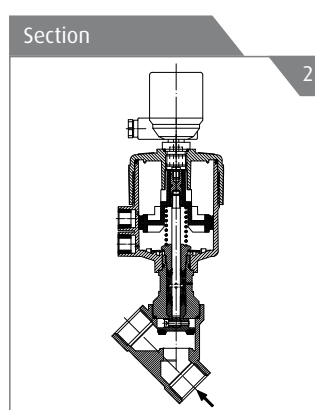
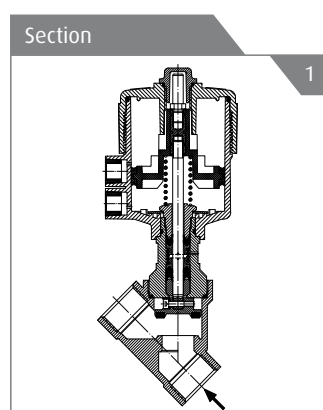
NBR Gaskets

Actuator Ø 70

Self adjusting Teflon seat

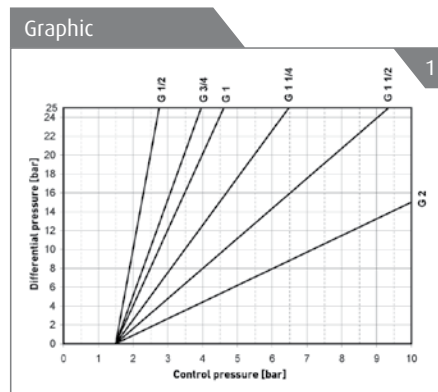
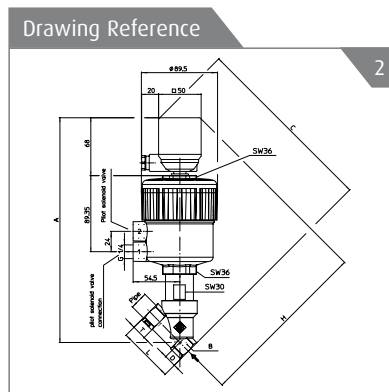
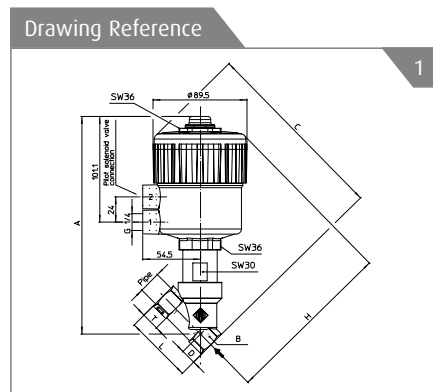
AVAILABLE ON REQUEST

- ▶ Pilot Valve 31A2AV20+BDA (see 31A catalogue page)
- ▶ Together with male thread nipple male 1/4"-1/4"
- ▶ Position indicator
- ▶ Water piloting system

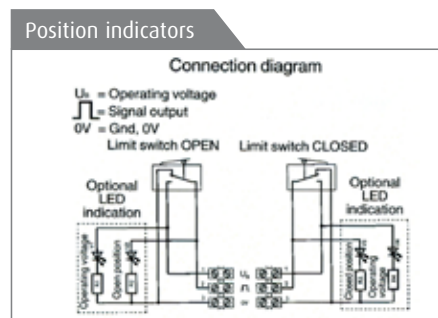


INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Maintenance and instruction sheet available in each solenoid valve box



Dimensionale Table								
Figure	Pipe	A mm	B mm	C mm	D mm	H mm	L mm	T mm
1-2	1/2"	206,8	SW 27	178,7	15,4	163,3	65	17
	3/4"	211,7	SW 32	188,6	21,9	166,7	75,5	19
	1"	220,1	SW 41	197,8	25,1	172,7	90	21
	1 1/4"	235,9	SW 50	212,3	28,5	183,8	110	24
	1 1/2"	238,9	SW 55	217,0	31,0	186	122	25,2
	2"	247,8	SW 70	229,7	37,5	192,2	151	28,5



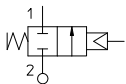


FEATURES

- ▶ Angle seat for high flow rate configuration
- ▶ Long life cycles
- ▶ N.C. and N.O. convertible after the delivery
- ▶ Flow below and above the piston
- ▶ Service free solution
- ▶ Water hammer



(Pressure Equipment Directive 97/23/CE) for valve 21IA7 ÷ 21IA9



21IA	4	T	15		G	C	2
Model valve	5= G 3/4 - NPT 3/4	T= PTFE	15 20 25 32 40 50	Orifice 10 ⁻¹ mm	G= GAS N= NPT	C= N.C. D= Double Effect	Actuator connection
	6= G 1 - NPT 1						
	5= G 1 1/4 - NPT 1 1/4						
	6= G 1 1/2 - NPT 1 1/2						
	9= G 2 - NPT 2						

PIPE	Ø (mm)	Kv (l/min)	ACTUATOR PILOT PRESSURE (bar)		DIFFERENTIAL PRESSURE (bar)		MAX ALLOWABLE PRESSURE PS (bar)	GAS CODE	NPT CODE	WEIGHT	DRAWING REFERENCE
			min	max	min	max				kg	

Normally Closed

1/2"	15	80	4	10	0	16	40	21IA4T15GC2	21IA4T15NC2	1,4	1
3/4"	20	150	4	10	0	10	40	21IA5T20GC2	21IA5T20NC2	1,5	1
1"	25	190	4	10	0	10	40	21IA6T25GC2	21IA6T25NC2	1,8	1
1/4"	32	340	4	10	0	7	25	21IA7T32GC2	21IA7T32NC2	2,4	1
1/2"	40	430	4	10	0	4,5	25	21IA8T40GC2	21IA8T40NC2	2,7	1
2"	50	620	4	10	0	3	16	21IA9T50GC2	21IA9T50NC2	3,9	1

Normally Closed high pressure

1/2"	15	80	5	10	0	35	40	21IA4T15GC2-H	21IA4T15NC2-H	1,4	1
3/4"	20	150	5	10	0	25	40	21IA5T20GC2-H	21IA5T20NC2-H	1,5	1
1"	25	190	5	10	0	20	40	21IA6T25GC2-H	21IA6T25NC2-H	1,8	1
1/4"	32	340	5	10	0	13	25	21IA7T32GC2-H	21IA7T32NC2-H	2,4	1
1/2"	40	430	5	10	0	8	25	21IA8T40GC2-H	21IA8T40NC2-H	2,7	1
2"	50	620	5	10	0	5,5	16	21IA9T50GC2-H	21IA9T50NC2-H	3,9	1

Normally Closed high pressure with electrical position indicators

1/2"	15	80	4	10	0	35	40	21IA4T15GC2-HIP1	21IA4T15NC2-HIP1	1,4	2
3/4"	20	150	4	10	0	25	40	21IA5T20GC2-HIP1	21IA5T20NC2-HIP1	1,5	2
1"	25	190	4	10	0	20	40	21IA6T25GC2-HIP1	21IA6T25NC2-HIP1	1,8	2
1/4"	32	340	4	10	0	13	25	21IA7T32GC2-HIP1	21IA7T32NC2-HIP1	2,4	2
1/2"	40	430	4	10	0	8	25	21IA8T40GC2-HIP1	21IA8T40NC2-HIP1	2,7	2
2"	50	620	4	10	0	5,5	16	21IA9T50GC2-HIP1	21IA9T50NC2-HIP1	3,9	2

Normally Closed with electrical position indicators

1/2"	15	80	4	10	0	16	40	21IA4T15GC2-IP1	21IA4T15NC2-IP1	1,4	2
3/4"	20	150	4	10	0	10	40	21IA5T20GC2-IP1	21IA5T20NC2-IP1	1,5	2
1"	25	190	4	10	0	10	40	21IA6T25GC2-IP1	21IA6T25NC2-IP1	1,8	2
1/4"	32	340	4	10	0	7	25	21IA7T32GC2-IP1	21IA7T32NC2-IP1	2,4	2
1/2"	40	430	4	10	0	4,5	25	21IA8T40GC2-IP1	21IA8T40NC2-IP1	2,7	2
2"	50	620	4	10	0	3	16	21IA9T50GC2-IP1	21IA9T50NC2-IP1	3,9	2

Valve 2/2 Way - Flow Direction Below The Seat - Angle Seat Pilot Valve Pneumatically Actuated

TECHNICAL SPECIFICATION

▶ VALVE FEATURES

Fluid Temperature: -10°C +180°C

Environment temperature: -10°C +60°C

Material: Stainless Steel AISI 316 series

Seal: PTFE

Packing gland: PTFE, FKM

▶ PILOT ACTUATOR FEATURES

Media: Dry Air or lubricated, gas and neutral fluids

Fluid Temperature: max +60°C

Body: Polyamide 66 with 30% glass fibre

NBR Gaskets

Actuator Ø 70

Self adjusting Teflon seat

AVAILABLE ON REQUEST

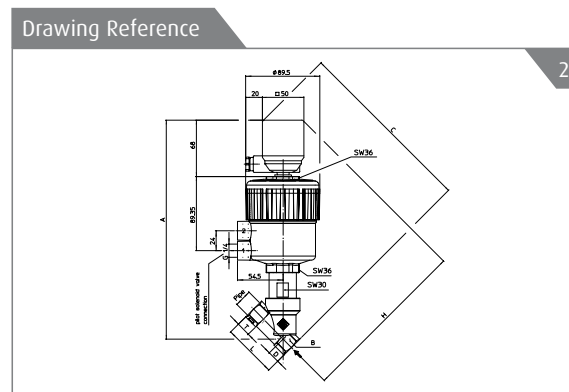
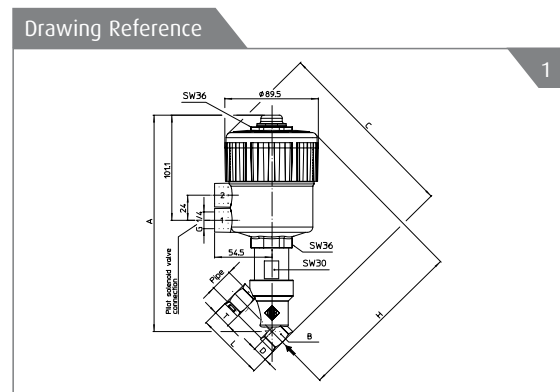
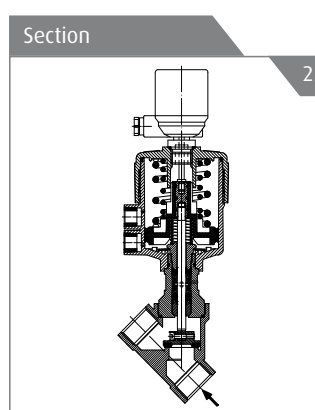
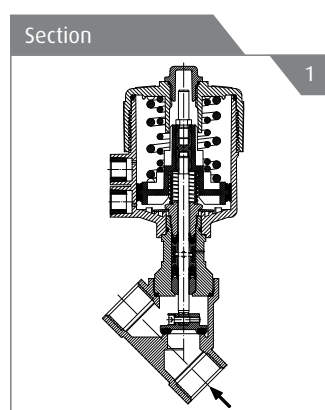
▶ Pilot Valve 31A2AV20+BDA (see 31A catalogue page)

▶ Together with male thread nipple male 1/4"-1/4"

▶ Position indicator

▶ Double Effect

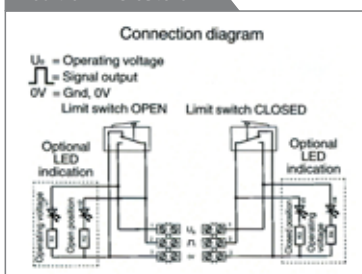
▶ Water piloting system



Dimensionale Table

Figure	Pipe	A mm	B mm	C mm	D mm	H mm	L mm	T mm
1-2	1/2"	206,8	SW 27	178,7	15,4	163,3	65	17
	3/4"	211,7	SW 32	188,6	21,9	166,7	75,5	19
	1"	220,1	SW 41	197,8	25,1	172,7	90	21
	1 1/4"	235,9	SW 50	212,3	28,5	183,8	110	24
	1 1/2"	238,9	SW 55	217,0	31,0	186	122	25,2
	2"	247,8	SW 70	229,7	37,5	192,2	151	28,5

Position indicators



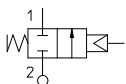
21IA-5 N.C.



FEATURES

- ▶ Angle seat for high flow rate configuration
- ▶ Long life cycles
- ▶ Flow below and above the the piston
- ▶ Service free solution
- ▶ Water hammer

CE



21IA	4	T	15		G	C	1	-5
Model valve	4= G 1/2		15 20 25	Orefice 10·1mm	G= GAS	C= N.C.	Actuator connection	Pilot version Ø 50
	5= G 3/4	T= PTFE						
	6= G 1							

PIPE	Ø (mm)	Kv (l/min)	ACTUATOR PILOT PRESSURE (bar)		DIFFERENTIAL PRESSURE (bar)		MAX ALLOWABLE PRESSURE PS (bar)	GAS CODE	WEIGHT	DRAWING REFERENCE
			min	max	min	max			kg	
G 1/2	15	80	5	8	0	25	40	21IA4T15GC1-5	1,6	1
G 3/4	20	150	5	8	0	15	40	21IA5T20GC1-5	1,7	1
G 1	25	190	5	8	0	10	40	21IA6T25GC1-5	2,1	1

TECHNICAL SPECIFICATION

▶ VALVE FEATURES

Fluid Temperature: -10°C +180°C

Environment temperature: -10°C +60°C

Material: Stainless Steel AISI 316 series

Seal: PTFE

Packing gland: PTFE, FKM

▶ PILOT ACTUATOR FEATURES

Media: Dry Air or lubricated, gas and neutral fluids

Fluid Temperature: max +60°C

Body: Aisi 316

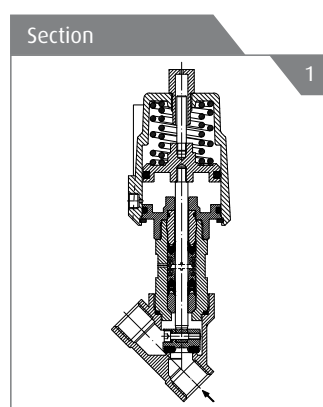
NBR Gaskets

Actuator Ø 50

Self adjusting Teflon seat

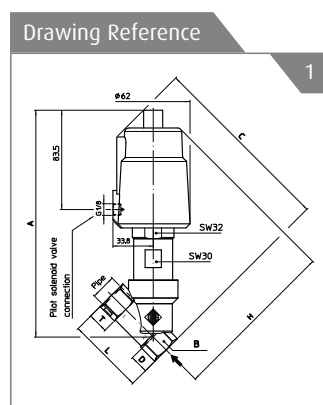
AVAILABLE ON REQUEST

- ▶ Pilot Valve 31A3AV20+BDA (see 31A catalogue page)
- ▶ Together with male thread nipple male 1/4"-1/4"
- ▶ Position indicator
- ▶ Water piloting system



INSTALLATION

- ▶ The solenoid valves can be mounted in any position
- ▶ Maintenance and instruction sheet available in each solenoid valve box



Dimensionale Table

Figure	Pipe	A mm	B mm	C mm	D mm	H mm	L mm	T mm
1-2	G 1/2	190,6	SW 27	156	15,4	139,7	65	17
	G 3/4	190,8	SW 32	162	21,4	139,8	75	19
	G 1	200,3	SW 41	168	25	146,6	90	20,5





▶ P992087	page 112
▶ P992219	" 113
▶ P990305-P992257	" 114-115





FEATURES

The condensate removal timer is a plug-on controller specially design for drain valves. The unit offers an easy time cycle programming. The draining time can be set with the "ON" trimmer between 0.5 and 10 seconds. The "OFF" trimmer allows to adjust the delay time between two draining cycles from 0.5 to 45 minutes. The unit is ready to control the valve as soon as the power is switched on. The ON/OFF sequence will be repeated so long as the unit is fed. Two LEDs indicate the output status. A "TEST" button is provided to check the cycle settings and to restart the control sequence from the output status "ON".

USE

- ▶ Condensate drainage system
- ▶ Timed systems

TECHNICAL SPECIFICATION

- ▶ **Supply voltage:** 24 to 240V AC/DC $\pm$ 10% 50/60Hz
- ▶ **Output voltage:** same as supply voltage
- ▶ **Load current:** max.1A
- ▶ **Standby current:** 8mA max
- ▶ **Operating temp. range:** -40°C to +60°C
- ▶ **Connector:** EN 175301-803 / ISO 4400
- ▶ **Environmental protection:** IP65 (assembled with delivered gaskets)
- ▶ **Housing dimensions:** 69 x 43 x 21mm
- ▶ **On time:** 0.5 to 10 seconds
- ▶ **Off time:** 0.5 to 45 minutes
- ▶ **Scale accuracy:** $\pm$ 10%
- ▶ **Indicators:** Green LED – On phase;
Red LED – Off phase.

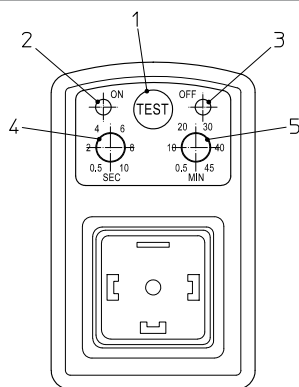
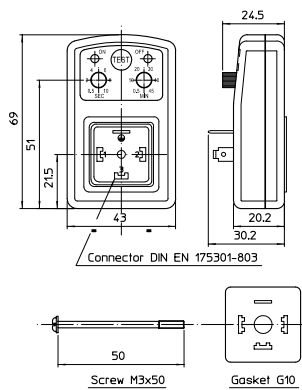
MATERIALS

- ▶ **Shell:** ABS-PA 765
- ▶ **Gasket:** NBR (nitrile)
- ▶ **Description:**
 1. Push-button TEST
 2. Green Led not supplied: output power present (ON)
 3. Red Led load supplied: output power absent (OFF)
 4. Trimmer "ON": regulation time "ON"
 5. Trimmer "OFF": pause time regulation "OFF"

AVAILABLE ON REQUEST

- ▶ Connectors for SV (to be order separately)
- ▶ Pg 9 (6÷8mm) or Pg 11(8÷10mm)
- ▶ In the near future available also with UL approval.
- ▶ In accordance with RoHS.

Drawing Reference





FEATURES

Cable glands for unarmoured cable, outer seal
The sealing ring seals and blocks cable on the outer sheath
Ambient temperature

Seal E =EPDM - 40°C + 100°C
S=VMQ - 70°C + 220°C

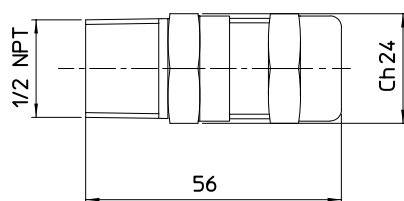
Protection degree IP 66/68

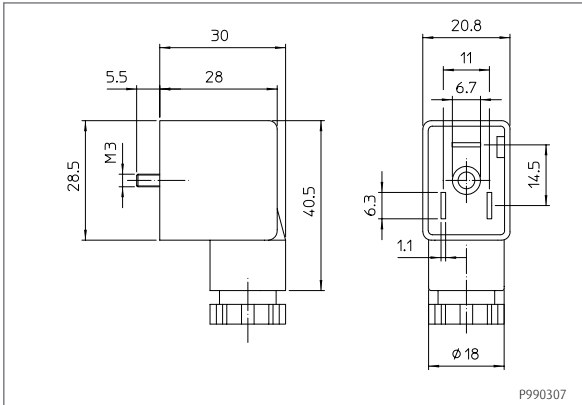
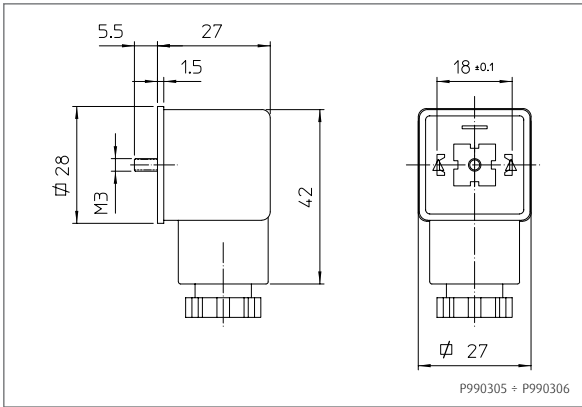
For indoor and outdoor applications
Group II, category 2D, Zone 21, 22
presence of combustible dust zone
Group II, category 2D, Zone 1, 2
presence of explosive gas atmospheres

(Conforme to Atex Directive 94/9/CE ATEX)
I M2 / II 2 GD IIC



Drawing Reference





On demand also available with UL approval and for quantity



CODE P990305 ÷ P990306
 COMPATIBLE COILS: BD.. - GD.. - UD
 CODE P990307
 COMPATIBLE COILS: LB..

SPARE PARTS:
 Standard: EN 175301-803
 Number of contacts: 2 +

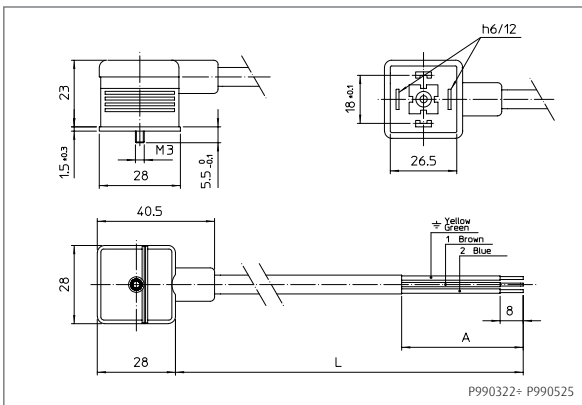
Supply voltage: AC max 250V
 DC max 300V

Operating current: 10 A
 Max current: 16 A
 Contact resistance: ≤4 mOhm

Max conductor section: 1,5 mm²
 Housing: PA (Polyamide)

Cable entry:
 Code P990305 Pg 09
 Code P990307 Pg 09
 Code P990306 Pg 11
 Cable diameter: Pg 09 (6÷8 mm)
 Pg 11 (8÷10 mm)

Protection class: IP 65 EN 60529
 Insulation class: VDE 0110-1/89
 Sealing: NBR -40°C +90°C



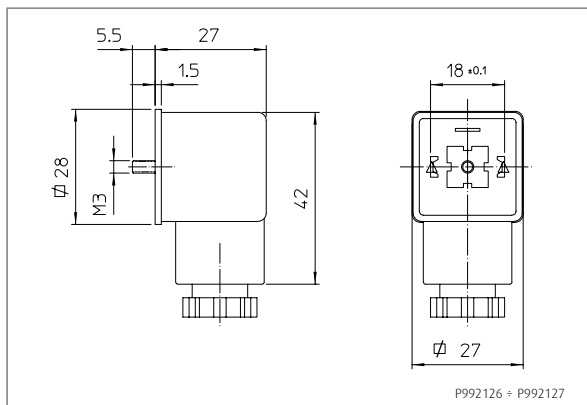
CODE 990322 ÷ P990525
 COMPATIBLE COILS: BD.. - GD.. - HD.. - UD..

SPARE PARTS:
 Standard: EN 175301-803
 Number of contacts: 2 +

Max voltage: Max 250V
 Housing: PP (Polypropylene)
 Max current: 5A
 Contact resistance: ≤4 mOhm
 Max conductor section: 1,5 mm²
 Protection class: IP 65 EN 60529
 Insulation class: VDE 0110 -1/89



Figure	Cable Length (L)	A cm
P990322	53	5
P990481	65	5
P990407	75	5
P990525	105	18
P990420	110	7,5
P990403	150	5
P990408	210	5
P990463	250	5



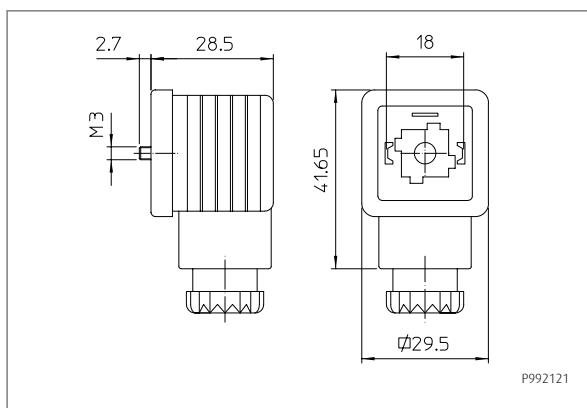
CODE 992126 ÷ P992127
COMPATIBLE COILS: BD.. - GD.. - UD

SPARE PARTS:
Standard: EN 175301-803
Number of contacts: 2 +

Supply voltage: AC max 250V
 DC max 300V

Operating current: 10 A
Max current: 16 A
Contact resistance: ≤4 mOhm
Max conductor section: 1,5 mm²
Housing: PA (Polyamide)
Cable entry: Pg 09
Code. P992126 Pg 11
Code. P992127 Pg 11
Cable diameter: Pg 09 (6÷8 mm)
 Pg 11 (8÷10 mm)

Protection class: IP 67 EN 60529
Insulation class: VDE 0110-1/89
Sealing: NBR -40°C +90°C



CODE 992121
COMPATIBLE COILS: BD.. - GD..

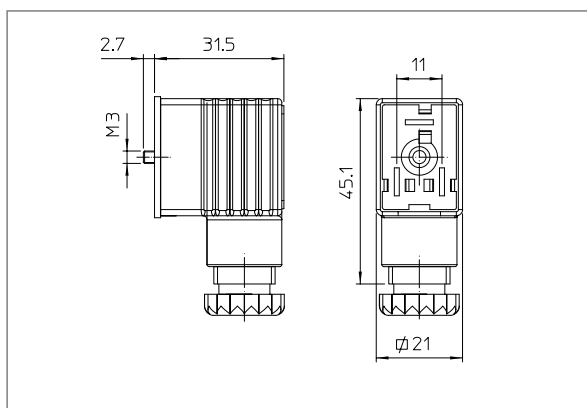
SPARE PARTS:
Standard: EN 175301-803
Number of contacts: 2 +

Supply voltage: Max 250V
Operating current: 10 A
Max current: 16 A
Contact resistance: ≤4 mOhm
Max conductor section: 1,5 mm²
Housing: PA (Polyamide)
Cable entry: Pg 09 - Pg 11
Cable diameter: 6÷10 mm
Protection class: IP 65 EN 60529
Sealing: NBR -40°C +90°C



Ex d

(Conforme to Atex Directive 94/9/CE ATEX)
 I I 3GD



CODE 992257
COMPATIBLE COILS: LB..

SPARE PARTS:
Standard: EN 175301-803
Number of contacts: 2 +

Supply voltage: Max 250V
Operating current: 10 A
Max current: 16 A
Contact resistance: ≤4 mOhm
Max conductor section: 1,5 mm²
Housing: PA (Polyamide)
Cable entry: Pg 09
Cable diameter: 6÷10 mm
Protection class: IP 65 EN 60529
Sealing: WMQ -40°C +90°C



Ex d

(Conforme to Atex Directive 94/9/CE ATEX)
 I I 3GD



▶ BDA-BDV-BSA-BVA	page 118-119
▶ BDV08024C3 ÷ BDV08230A3	" 120
▶ GDH-GDV	" 121
▶ GDV14024C3 ÷ GDV14230A3	" 122
▶ LBA-LBF-LBV	" 123
▶ LBV05024A3 ÷ LBV05230A3	" 124
▶ UDA-UDV	" 125
▶ TNA4X024D4 ÷ TNA10024C4	" 126-127



BDA-BDV-BSA-BVA



BDA Coil housing material: PA - Black polyamide - class F (155°C)
BDV Housing material: PET - Black polyethylene - class H (180°C)
Winding: In class H
Electrical connections: With connector EN 175301-803 paragraph 5.3.1
Protection degree IP 65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%

BSA With cm 100 cable PA - Black Polyamide - class F (155°C)

BVA With cm 50 cable

Winding: In class H

Electrical connections: Cables

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%



CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

AC Coils

BDA08012AS	14,5	25	12 ~	50	100	-10°C +40°C	CE	1
BDA08024DS	14,5	25	24 ~	50/60	100	-10°C +40°C	CE	1
BDA08110DS	14,5	25	110 ~	50/60	100	-10°C +40°C	CE	1
BDA08223DS	14,5	25	220/230 ~	50/60	100	-10°C +40°C	CE	1
BDA08380DS	14,5	25	380 ~	50/60	100	-10°C +40°C	CE	1
BDV08024DY	17	25	24 ~	50/60	100	-20°C +60°C	CE - UL - CSA - VDE	1
BDV08110AY	15	25	110 ~ 120 ~	50 60	100	-20°C +60°C	CE - UL - CSA - VDE	1
BDV08230AY	16	25	230 ~ 240 ~	50 60	100	-20°C +40°C	CE - UL - CSA - VDE	1
BSA08223DS	14,5	25	220/230 ~	50/60	100	-10°C +40°C	CE	2
BVA08223DS	14,5	25	220/230 ~	50/60	100	-10°C +40°C	CE	2

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

BDA08012CS	8	12 =	100	-10°C +40°C	CE	1
BDA08024CS	8	24 =	100	-10°C +40°C	CE	1
BDV08024CY	11	24 =	100	-20°C +60°C	CE - UL - CSA - VDE	1

Latching Coils

BDA1X004LS	1,5	4,5 =	-	-10°C +40°C	-	3
BDA2X006LS	2,5	6 =	-	-10°C +40°C	-	3
BDA05009LS	5	9 =	-	-10°C +40°C	-	3
BDA1X006LS	1,5	6 =	-	-10°C +40°C	-	3
BDA2X009LS	2,5	9 =	-	-10°C +40°C	-	3
BDA05012LS	5	12 =	-	-10°C +40°C	-	3
BDA1Z009LS	1,5	9 =	-	-10°C +40°C	-	3
BDA2X012LS	2,5	12 =	-	-10°C +40°C	-	3
BDA10024LS	10	14 =	-	-10°C +40°C	-	3
BDA1X012LS	1,5	12 =	-	-10°C +40°C	-	3
BDA05024LS	5	24 =	-	-10°C +40°C	-	3
BDV08012CY	11	12 =	100	-20°C +60°C	CE - UL - CSA - VDE	1

Other voltages and power absorptions available on demand and for quantities.

Latching coils**BDA** Coil housing material: Black polyamide - class F (155°C)

Winding: In class H

Electrical connections: With connector EN 175301-803 paragraph 5.3.1
Protection degree IP 65 EN 60529 (DIN 40050)

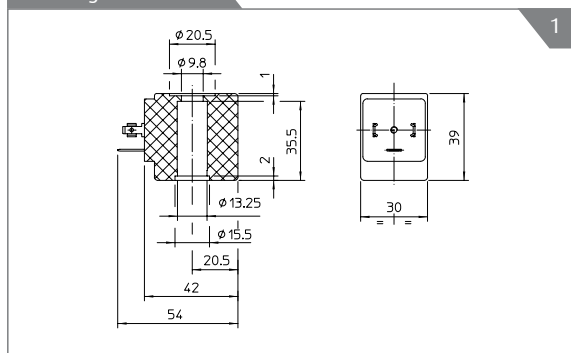
NOMINAL VOLTAGES TOLERANCES: DC +10% -5%

TECHNICAL OPERATING DATA:

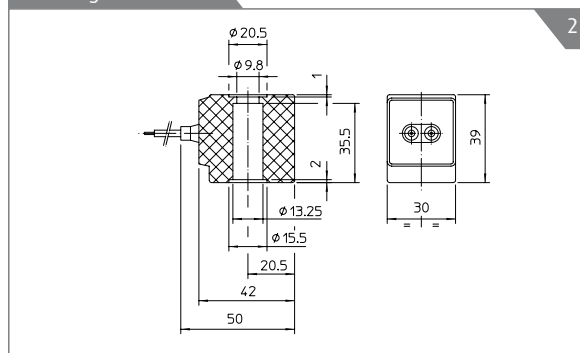
- Impulse feed from 4,5 to 24 Volts for a period lasting from 20 to 100 ms (see fig.3a).

NOTE: To ensure correct operation the fluid should be filtered to eliminate all traces of impurity subject to magnetic attraction, which would inevitably deposit on the cores of the solenoid valve, which are always magnetized, causing the formation of oxide as well as contact problem.

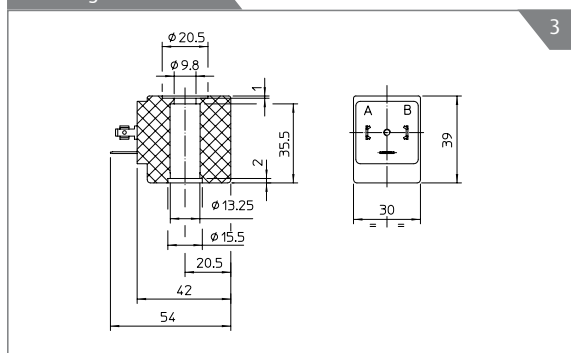
Drawing Reference



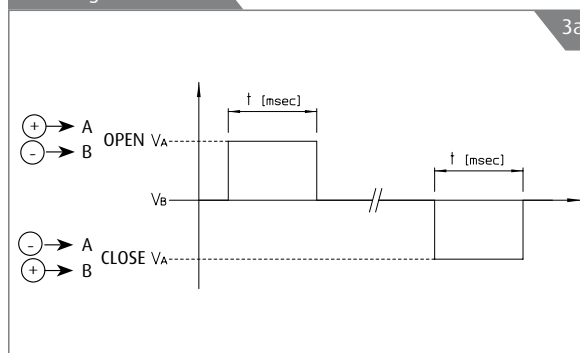
Drawing Reference



Drawing Reference



Drawing Reference





BDV Coil housing material: PET - Black polyethylene - class H (180°C)
Winding: In class H
Electrical connections: With connector EN 175301-803 paragraph 5.3.1
Protection degree IP65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%

(According to Directive 94/9/CE ATEX)
II 3G Ex nA IIC T3 Gc
II 3D Ex tc IHC T200°C Dc IP65

CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

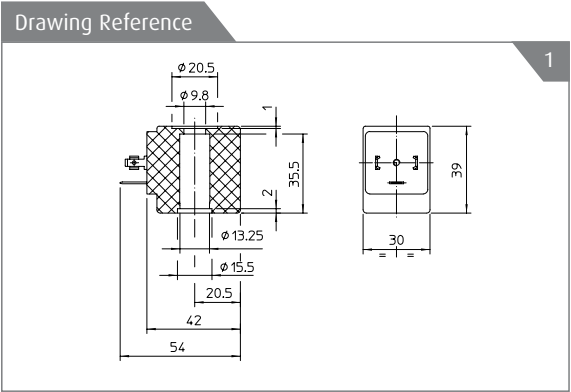
AC Coils

BDV08024D3	14,5	25	24 ~	50/60	100	-20°C +80°C°	-	1
BDV08110A3	14,5	25	110 ~ 120 ~	50 60	100	-20°C +80°C°	-	1
BDV08240A3	14,5	25	220 ~ 230 ~	50 60	100	-20°C +80°C°	-	1

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

BDV08024C3	8	24 =	100	-20°C +80°C°	-	1
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Note
The coil to comply Atex protection category mentioned above will be supplied only with connector ATEX type Ex II 3GD IP65.
ODE code has to be ordered separately: 992221
Available on request and with minimum quantities.



GDH Coil housing material: EP - Black epoxy resin - class H (180°C)

GDV Housing material: PET - Black Polyethylene - class H (180°C)

Winding: In class H

Electrical connections: With connector EN 175301-803 paragraph 5.3.1
Protection degree IP 65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC + 10% - 5% ; AC + 10% - 15%



CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

AC Coils

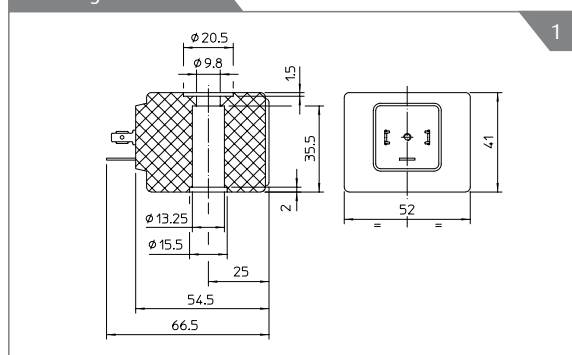
GDH14024DS	27	43	24 ~	50/60	100	-20°C +40°C	CE	1
GDH14110DS	27	43	110 ~	50/60	100	-20°C +40°C	CE	1
GDH14223DS	27	43	220/230 ~	50/60	100	-20°C +40°C	CE	1
GDV14024DY	26	43	24 ~	50/60	100	-20°C +60°C	CE - UL - CSA - VDE	1
GDV14110AY	23	43	110 ~ 120 ~	50 60	100	-20°C +60°C	CE - UL - CSA - VDE	1
GDV14230AY	27	43	220 ~ 240 ~	50 60	100	-20°C +60°C	CE - UL - CSA - VDE	1

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

GDH14024CS	14	24	100	-20°C +40°C	CE	1
GDV14024CY	14	24	100	-20°C +60°C	CE - UL - CSA - VDE	1

Drawing Reference





GDV Coil housing material: PET - Black polyethylene - class H (180°C)
Winding: In class H
Electrical connections: With connector EN 175301-803 paragraph 5.3.1
Protection degree IP65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%

(According to Directive 94/9/CE ATEX)
II 3G Ex nA IIC T3 Gc
II 3D Ex tc IHC T200°C Dc IP65

CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

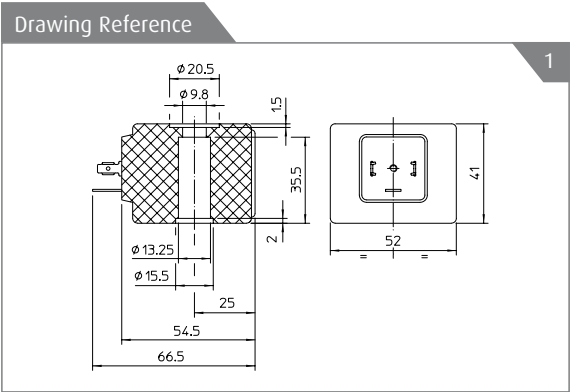
AC Coils

GDV14024D3	27	43	24 ~	50/60	100	-20°C +80°C°	-	1
GDV14110A3	27	43	110 ~ 120 ~	50 60	100	-20°C +80°C°	-	1
GDV14230A3	27	43	230 ~ 240 ~	50 60	100	-20°C +80°C°	-	1

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

GDV14024C3	14	24 =	100	-20°C +80°C°	-	1
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Note
The coil to comply Atex protection category mentioned above will be supplied only with connector ATEX type Ex II 3GD IP65.
ODE code has to be ordered separately: 992221
Available on request and with minimum quantities.



LBA Coil housing material: PA - Black polyamide - class F (155°C)
LBF Coil housing material: PPS - Black polyphenylsulphide - class H (180°C)
LBV Coil housing material: PET - Black Polyethylene - class H (180°C)
 Winding: In class H
 Electrical connections: With connector EN 175301-803 wheelbase 11
 Protection degree IP 65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%



CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

AC Coils

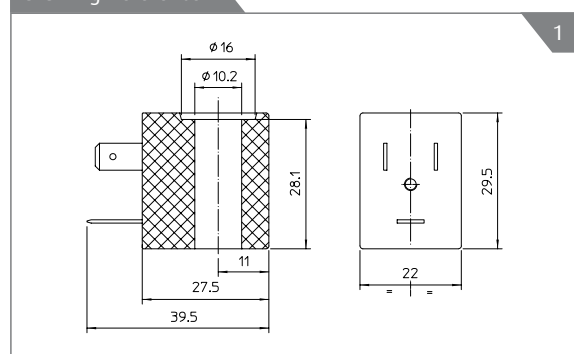
LBA05024AS	10	15	24 ~	50	100	-10°C +40°C	CE	1
LBA05230AS	10	15	230 ~	50	100	-10°C +40°C	CE	1
LBF05024BU	10	15	24 ~	60	100	-10°C +40°C	CE - UL	1
LBV05024AV	11,5	15	24 ~	50	100	-20°C +60°C	CE - VDE	1
LBV05024BW	12,5	15	24 ~	60	100	-20°C +60°C	CE - UL - CSA	1
LBV05110AY	10	15	100 ~ 120 ~	50 60	100	-20°C +60°C	CE - UL - CSA - VDE	1
LBV05110BU	13,5	15	110 ~	60	100	-20°C +40°C	CE - UL	1
LBV05220BU	13,5	15	220 ~	60	100	-20°C +40°C	CE - UL	1
LBV05230AY	11,5	15	230 ~ 240 ~	50 60	100	-20°C +60°C	CE - UL - CSA - VDE	2

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

LBA050024CS	5	24 ~	100	-10°C +40°C	CE	1
LBV05024CY	7	24 ~	100	-20°C +60°C	CE - UL - CSA - VDE	1
LBV08024HU	10	24 ~	50 (1)	-20°C +40°C	CE - UL	1

Drawing Reference



(1) Standard cycle time 1 minute, for different requirements please contact our Customer Service.
 Other voltages and power absorptions available on demand and for quantities.





LBV Coil housing material: PET - Black polyethylene - class H (180°C)
Winding: In class H
Electrical connections: With connector EN 175301-803 whellbase 11
Protection degree IP65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%

(According to Directive 94/9/CE ATEX)
II 3G Ex nA IIC T3 Gc
II 3D Ex tc IHC T200°C Dc IP65

CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

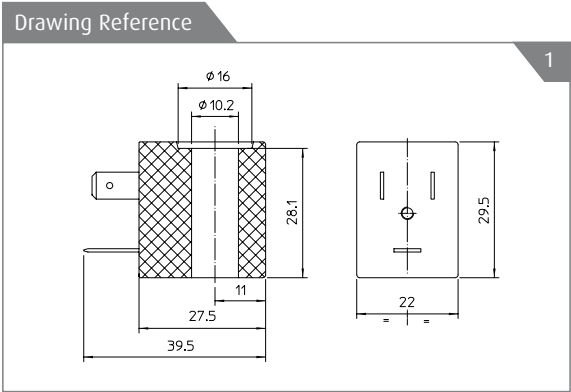
AC Coils

LBV05024A3	10	15	24 ~	50	100	-20°C +80°C	-	1
LBV05204B3	10	15	24 ~	60	100	-20°C +80°C	-	1
LBV05110A3	10	15	110 ~ 120 ~	50 60	100	-20°C +80°C	-	1
LBV05230A3	10	15	230 ~ 240 ~	50 60	100	-20°C +80°C	-	1

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

LBV05024C3	5	24 ==	100	-20°C +80°C	-	1
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Note
The coil to comply Atex protection category mentioned above will be supplied only with connector ATEX type Ex II 3GD IP65.
ODE code has to be ordered separately: 992257
Available on request and with minimum quantities.



UDA Coil housing material: PA - Black polyamide - class F (155°C)
UDV Coil housing material: PET - Black Polyethylene - class H (180°C)
 Winding: In class H
 Electrical connections: With connector EN 175301-803 paragraph 5.3.1
 Protection degree IP 65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: DC +10% -5%; AC +10% -15%



CODE	POWER [VA]		VOLTAGE [V]	FREQUENCY [Hz]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
	Inrush	Holding						

AC Coils

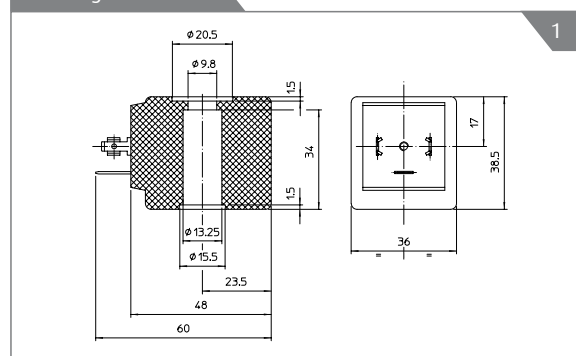
UDA12024AS	23	35	24 ~	50	100	-20°C +40°C	CE	1
UDA12110DS	23	35	110 ~	50/60	100	-20°C +40°C	CE	1
UDA12230AS	23	35	230 ~	50	100	-20°C +40°C	CE	1
UDA12112DW	23	35	110/120 ~	50/60	100	-20°C +40°C	CE - UL - CSA	1
UDA12230DW	25	35	230 ~	50/60	100	-20°C +40°C	CE - UL - CSA	1

CODE	POWER [W]	VOLTAGE [V]	ED [%]	AMBIENT TEMPERATURE	APPROVALS	DRAWING REFERENCE
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DC Coils

UDA12024CS	12	24 =	100	-20°C +40°C	CE	1
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Drawing Reference



TNA4X024D4 ÷ TNA10024C4



TNA Coil housing material: PPS - Black polyphenylsulphide - class H (180°C)
Winding: In class H
Electrical connections: Three-pole cable Ø 1,5 lenght cm 300 PTB 03 ATEX 2086 X
 Protection degree IP 65 EN 60529 (DIN 40050)

NOMINAL VOLTAGES TOLERANCES: ±10%

(According to Directive 94/9/CE ATEX)
 II 2G Ex mb IIC Gb
 II 2D Ex mb tb IIIC t130°C Db

Ex nA



CODE	POWER [VA]	VOLTAGE [V]	FREQUENCY [Hz]	RATE CURRENT FUSE	DRAWING REFERENCE
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AC Coils

TNA4X024D4	7,2	24 ~	50/60	315 mA	1
TNA5X110D4	9,13	100 ~	50/60	83 mA	1
TNA05224D4	7,7 - 9,24	220-240 ~	50/60	35-39 mA	1

CODE	POWER [W]	VOLTAGE [V]	RATE CURRENT FUSE	DRAWING REFERENCE
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DC Coils

TNA10024C4	10,1	24 =	421 mA	1
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ELECTROMAGNET 36 mm x Ø 14,5 mm for potentially explosive construction Ex mb II T4

The coils must be protected with an external fuse that has characteristics as per table.

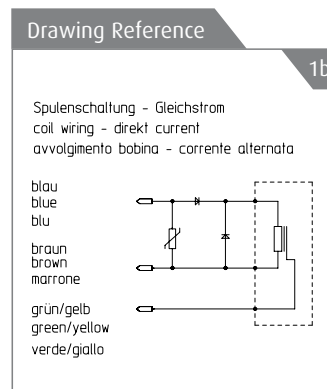
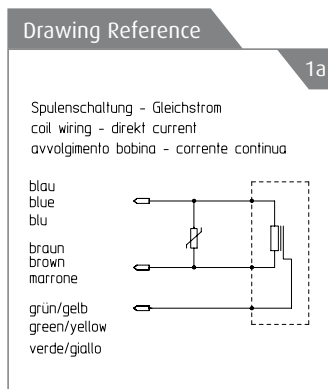
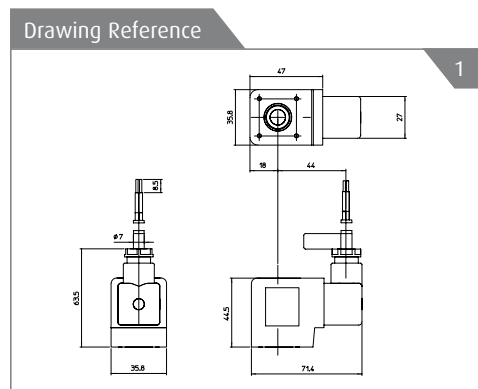
AMBIENT TEMPERATURE: -20°C +50°C

FLUID MAX TEMPERATURE: +80°C

TYPE	TNA					
CURRENT	AC			DC		
AMBIENT TEMPERATURE SIGLE ASSEMBLY MANIFOLD ASSEMBLY	-20°C... +50°C -20°C... +50°C			-20°C... +50°C -20°C... +50°C		
MAX. MEDIA TEMPERATURE	80°C			80°C		
MANIFOLD ASSEMBLY MIN. DISTANCE	YES 0 mm			YES 0 mm		
RATED VOLTAGE U_N [V]	RATED CURRENT ¹⁾ I_N [mA]	RATED POWER P_N [VA]	FUSE ²⁾ [mA]	RATED CURRENT ¹⁾ I_N [mA]	RATED POWER P_N [W]	FUSE ²⁾ [mA]
24	315	7,2	800	421	10,1	800
110	83	9,1	200	76	8,4	160
115	70	8,1	200	-	-	-
120	72	8,6	200	-	-	-
220	35	7,7	100	43	9,5	100
230	37	8,5	100	-	-	-
240	39	9,2	100	-	-	-

1) Current dimension

2) Each solenoid operator has to be protected by a fuse according to the rated current (max. 3x rated current accord. DIN 41571 or IEC 60127-2-1) resp. Motor protection switch short circuit and fast thermal tripping protection. The fuse can be accommodated in the associated device or must be added separately. The fuse voltage has to be equal or higher than the rated solenoid voltage. The shutdown capability has to be equal or higher than the max. assumed short-circuit current at the installation point (usually 1500A).

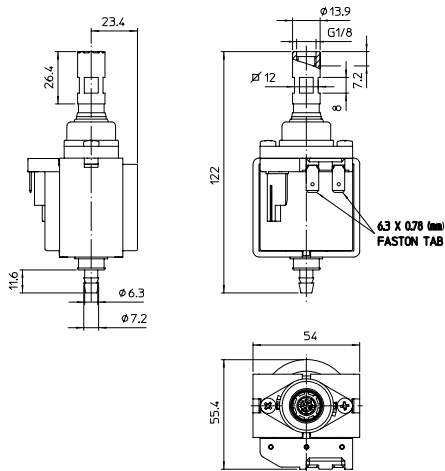






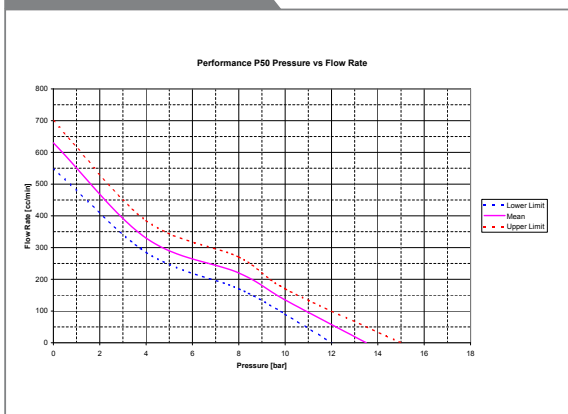


Drawing Reference



Note: Continuous dry-run would damage the unit permanently

Flow Curve



APPLICATION

- ▶ Coffee Machines
- ▶ Floor Cleaning Machines
- ▶ Steam Ironing Stations

SPECIFICATION

- | | |
|-----------------------------------|---|
| ▶ Outlet | G 1/8 |
| ▶ Pressure | 15 bar |
| ▶ Fluids | Tap Water/Distilled Water |
| ▶ Max Ambient Temperature | 35°C |
| ▶ Max Fluid Temperature | 35°C |
| ▶ Dead Head Pressure | See Performance Chart |
| ▶ Free Flow Rate | See Performance Chart |
| ▶ Power Consumption (max.) | 53W |
| ▶ Operating Voltage | 100Vac 50Hz/60Hz (JET)
120Vac 60Hz (UL)
230Vac/50Hz (VDE) |
| ▶ Working cycle | 1.0 min ON, 1 min OFF |
| ▶ Not require External Type Diode | |
| ▶ Coil Insulation | Class F (155°C)
Class H (180°C)
depending on voltage |
| ▶ Terminals | 6.3mm x 0.8mm Faston type |
| ▶ Endurance | 18.000 cycles (at 8-10 bar)
(base on 1 min ON, 1 min OFF) |
| ▶ Coil Encapsulation | 750°C GWI |

MATERIALS

- | | |
|-------------------|---------------------|
| ▶ Plunger | Stainless Steel |
| ▶ Spring | Stainless Steel |
| ▶ No return valve | Sintetic Rubber |
| ▶ Seal | NBR or equivalent |
| ▶ Plastic parts | PA66 Based Plastics |

CERTIFIED BY

- ▶ CE
- ▶ NSF
- ▶ UL 778
- ▶ VDE (IEC 60335-1, 60335-2-41)

Proven sealing system for reliable and long life application

Ordering part number:
P992124-AP (230V 50Hz)
P992182-AP (120V 60Hz)



ISO 9001:2008 Quality Management System Certification

ISO 9001 identifies a series of norms and guidelines developed by ISO to provide a system of process quality control, aimed to improving effectiveness and efficiency of the organization with the goal of customer satisfaction. Bureau Veritas certified that the ODE Management System has been audited and found to be in accordance with the requirements of the management system standards of ISO 9001. This certification has been obtained by ODE since September 1997. The ISO 9001:2008 certification is available on website.



ISO 14001:2004 Environment Management System Certification

ISO 14001 provides practical tools for companies and organizations looking to identify and control their environmental impact and constantly improve their environmental performance. Bureau Veritas certified that the ODE Management System has been audited and found to be in accordance with the requirements of the management system standards of ISO 14001. The ISO 14001:2004 certification is available on website.



OHSAS 18001:2007 Health and Safety Management System Certification

OHSAS 18001 is an international standard that ensures organizations to define their occupational health and safety policies and objectives. It enables better control of hazards from normal operations and unusual situations. Bureau Veritas certified that the ODE Management System has been audited and found to be in accordance with the requirements of the management system standards of OHSAS 18001. The OHSAS 18001:2007 is available on website.



WMT Laboratory Certification

The authorization to operate in WMT (Witnessed Manufacturer's Testing), it allows to perform tests valid for the product certification, under the IMQ inspectors supervision. With this new certification the ODE laboratory is authorized to perform product test under the IMQ supervision, greatly accelerating the product development process in order to obtain an additional advantage for the end user. The WMT certification is available on website.



UL - UL CSA Component Approval

The Component Mark UL "Recognised" is used for components that are part of a larger assembly or installation. The ODE solenoid valve range includes coils approved both UL and UL CSA for Canadian market. The UL - UL CSA Approval is available on website.



NSF Product Approval

The NSF certification mark on a product means that the product complies with all standard requirements for food safety. The ODE range includes solenoid valves approved NSF for food grade fluids compatibility. The NSF product approval is available on website.



PED 97/23/CE Declaration

PED (Pressure Equipment Directive) is applied to the design, manufacturing, inspection and testing of pressure equipment. In this statement ODE declares, under its own responsibility, that its solenoid valves are designed, constructed, inspected and tested in accordance with Directive 97/23/CE.



VDE Approval

The Verband Deutscher Elektrotechniker is the Association for Electrical, Electronic and Information Technologies and their related sciences, technologies and applications. The ODE solenoid valve range includes coils VDE certificated. VDE approval is available on VDE website to the link reported in the certifications webpage of download area.



REACH Declaration

The new REACH (Registration, Evaluation and Authorization of Chemicals) is aimed to regulate companies that handle more than 1 ton/year of chemical substances (raw material and end product, such as cosmetics, household products, etc...) in Europe. This regulation will have a significant impact on importers and manufacturers. In this declaration ODE informs that such products defined as "Articles" are in accordance with the European Regulation n. 2006/1907/EC. For the REACH declaration please contact our Customer Service at sales@ode.it.



RoHS Directive

European Directive 2011/65/UE (Restriction of Hazardous Substances Directive) adopted since February 2003. The directive is aimed to restrict the use of certain hazardous substances in electrical and electronic equipment. In this statement it declares that the solenoid valves and the components supplied by ODE are in accordance to the EU Directive 2011/65/EU. For the RoHS declaration please contact our Customer Service at sales@ode.it.



ATEX Directive

ODE solenoid valve range also includes some product lines and their protective system with ATEX certification, intended for use in potentially explosive atmospheres as per Directive 94/9/EC. The Atex Ex d and Ex m certificates and the Ode declaration for Ex nA type of protection are available on website in the certifications webpage of download area.



CE Declaration of Conformity

In this declaration ODE informs that all its coils for solenoid valves comply with the Standards and Directives:

EN 60730-1, EN 60335-1
Low Tension Directive 2006/95/CE
European Directive 2011/65/CE.

Moreover it declares that the solenoid valves whose coil code starts with (series identification) L-B-G-H-I-M-T-U, characterized by the following supply voltages: from 6V to 24V DC, from 6V to 240V AC 50-60Hz, comply with the European Directive 2004/108/CE (EMC)

and with the requirements described in the following standards:

EN 61000-6-2 : 2005-08, EN 61000-6-3 : 2007-11
EN 61000-3-2 : 2006-04, EN 61000-3-3 : 2008-09

limited to what is considered applicable to this kind of product. The CE Declaration of Conformity is available on website in the certifications webpage of download area.



По вопросам продаж и поддержки обращайтесь:

Архангельск (8182)63-90-72	Краснодар (861)203-40-90	Санкт-Петербург (812)309-46-40
Астана (7172)727-132	Красноярск (391)204-63-61	Саратов (845)249-38-78
Астрахань (8512)99-46-04	Курск (4712)77-13-04	Севастополь (8692)22-31-93
Барнаул (3852)73-04-60	Липецк (4742)52-20-81	Симферополь (3652)67-13-56
Белгород (4722)40-23-64	Магнитогорск (3519)55-03-13	Смоленск (4812)29-41-54
Брянск (4832)59-03-52	Москва (495)268-04-70	Сочи (862)225-72-31
Владивосток (423)249-28-31	Мурманск (8152)59-64-93	Ставрополь (8652)20-65-13
Волгоград (844)278-03-48	Набережные Челны (8552)20-53-41	Сургут (3462)77-98-35
Вологда (8172)26-41-59	Нижний Новгород (831)429-08-12	Тверь (4822)63-31-35
Воронеж (473)204-51-73	Новокузнецк (3843)20-46-81	Томск (3822)98-41-53
Екатеринбург (343)384-55-89	Новосибирск (383)227-86-73	Тула (4872)74-02-29
Иваново (4932)77-34-06	Омск (3812)21-46-40	Тюмень (3452)66-21-18
Ижевск (3412)26-03-58	Орел (4862)44-53-42	Ульяновск (8422)24-23-59
Казань (843)206-01-48	Оренбург (3532)37-68-04	Уфа (347)229-48-12
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Калуга (4842)92-23-67	Пермь (342)205-81-47	Челябинск (351)202-03-61
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