

Angle Seat Valve 2/2 Pneumatic Actuator



Features

The 2/2 OMAL angle valves are pneumatically operated and extremely reliable. They guarantee a high number of working cycles as well as bubble tight sealing. They are installed with a self-lubricating and self-adjusting plug-stem set that automatically adjusts itself as it wears. They are also supplied with a scraper to avoid the introduction of foreign bodies in the sliding area. The self-aligning plug, with a seal in PTFE, guarantees tight closure even in the most arduous conditions. The ARES and ATENA valves which are supplied in stainless steel (AISI 316) guarantees high compatibility with most media. The ZEUS product having a bronze body and internal parts in AISI 316 ensure reliability and low acquisition cost running for all those applications that are compatible with bronze RG6 (Ni > 2%). All versions are equipped with an actuator made in engineering resin.

Application

The best results and a long lasting performance are achieved by installing the angle valve according to the following application guidelines :

controlling media

- dry or lubricated compressed air, other gas or neutral media
- temperature between -10 °C (+14 °F) and +60 °C (140 °F) for the model with a standard control head in PA66 ; temperature between +5 °C (+123 °F) and +130 °C (+266 °F) for the model with the control head in PPS (on request).
- pressure between 0.8 bar (11 psi) and 10 bar (145 psi), depending on the model.

Intercepted media

- air, water, oil, petrol, saline solution, steam, etc. (any substance compatible with AISI 316, PTFE or Bronze RGB)
- pressure between 0 and 16 bar (232 psi) (steam pressure between 0 and 10 bar (145 psi)) depending on the chosen model
- temperature between -10 °C (+14 °F) and +180 °C (+356 °F)
- Maximum viscosity : 600 cst (mm²/s) depending on the model
- media direction : see table attached.

Installation

There are different versions of the OMAL angle valve, depending on the operative mode, the chosen valve combination and the preferred flow direction. For this reason it is necessary to read carefully all the information reported on the label. In particular : temperature of media, pressure (both controlling and intercepting pressure) and direction of entry for the intercepted media. Before beginning to install the valve it is best to de-pressurise the pipes, clean them carefully from any residue, dribble or welding residue to avoid any damage to the seal. Then connect the pipes according to the reference points (flow direction) found on the mainbody. Depending on the kind of employment, slightly lubricate the male end of the threaded pipe ; do not lubricate the threading on the female end of the pipe. In order to tighten it, do not use the valve as a support. Do not over tighten. Angle valves can be installed in any positions because the adjustable control head that can turn 360 degrees clockwise to facilitate access to the control ports. The connection to such ports (power supply and discharge) depends on the valve model (whether it is normally closed or open, or double acting) and must be carried out following the appropriate procedure for each version. Installation must be carried out by qualified staff.

Maintenance

Before carrying out any kind of intervention :

- Ascertain that the nature of the media within the valve is not corrosive, flammable, polluting or in any ways dangerous.
- Before taking the valve apart, make sure that there is no pressure in the system, both before and after the position of the valve. It is best to isolate the valve during maintenance.
- Before starting any procedure :
 - Put on the protective eyewear
 - Put on overalls, gloves and helmet
 - Ensure that there is running water available nearby
 - Position the correct fire extinguisher (depending on the nature of the media) nearby, if the media contained in the valve is flammable.

The maintenance of each valve depends on the conditions of its employment. Valves should be cleaned and serviced regularly. During each procedure, it is necessary also to check the state of each component to make sure that they are not worn out. Intervention is essential when one of the following happens : unusual noises, dripping, reduced flow rate under normal pressure or increased pressure drop. When this happens, the body of the valve must be taken apart, the inside carefully cleaned and any damaged part replaced.

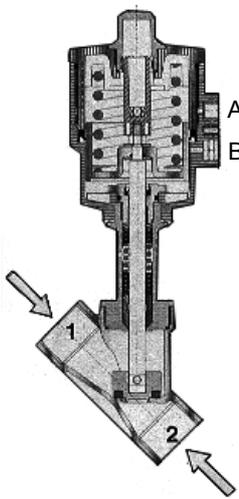
Preventive maintenance

- test the valve at least once a month to verify that it opens and closes correctly
- regularly verify the state of all connections for both incoming and outgoing media.

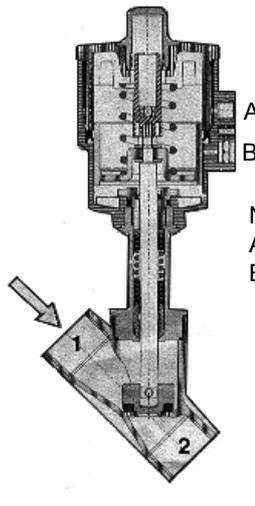
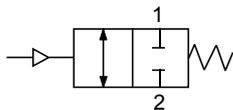
OMAL Spa is not responsible for damages to persons, objects or animals due to improper use of the product and declines any responsibility on repairs carried out by third parties.

OMAL will be free to change all specifications and data included in this catalogue at any time, so as to improve the quality and the performance of its products.

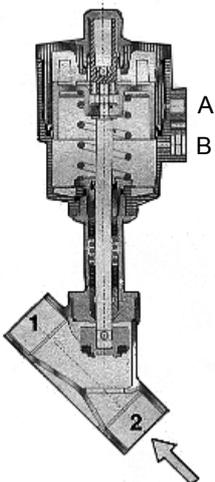
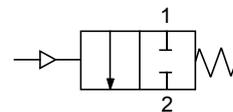
Different models and their working principles



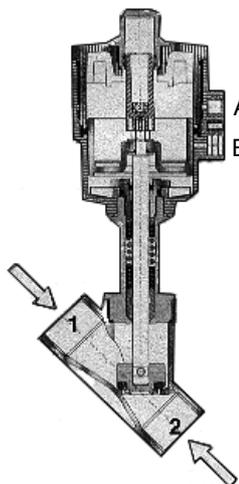
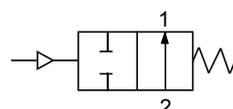
N.C. Normally closed - Two ways
 A = discharge
 B = power
 Water hammer is reduced when the media flows from below the plug



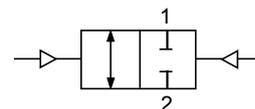
N.C. Normally closed - Above the plug
 A = discharge
 B = power



N.A. Normally open
 A = power
 B = discharge
 Water hammer is reduced when the media flows from below the plug

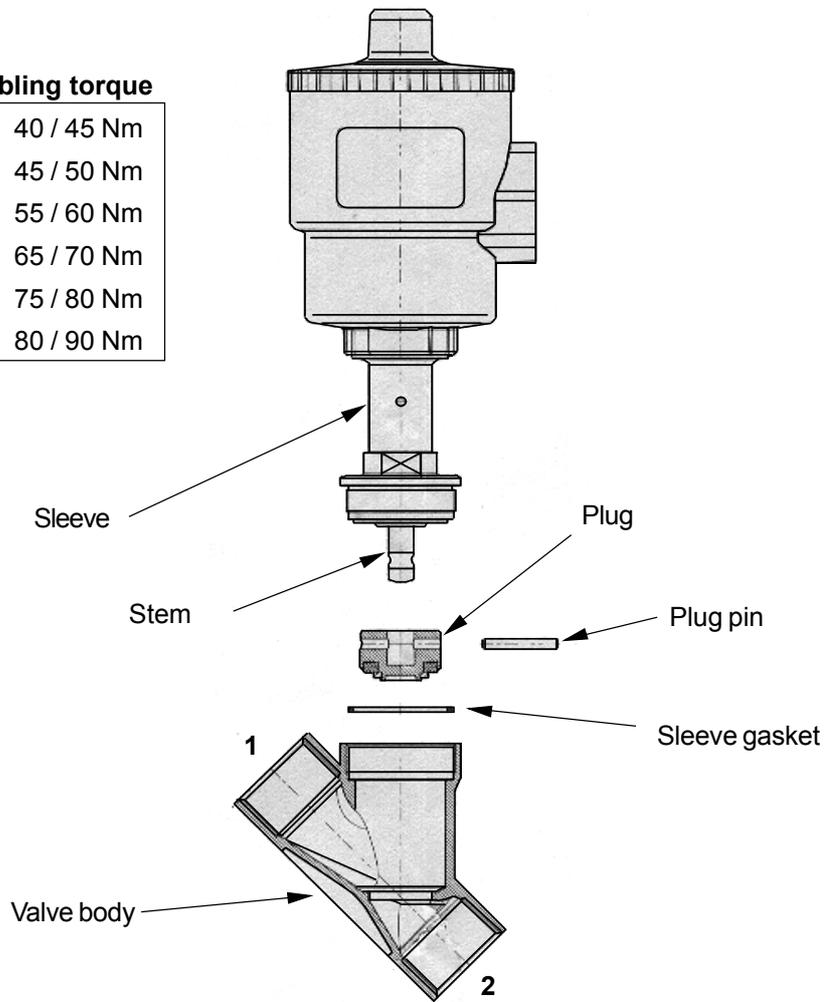


D.A. Double acting
 A = discharge / power
 B = power / discharge
 Water hammer is reduced when the media flows from below the plug



Sleeve assembling torque

3/8" - 1/2"	40 / 45 Nm
3/4"	45 / 50 Nm
1"	55 / 60 Nm
1-1/4"	65 / 70 Nm
1-1/2"	75 / 80 Nm
2"	80 / 90 Nm



Valve Body

Set code	Valve	valve measurement	head diameter
KGJP1003	ARES	3/8"	DN50
KGJP1004	ARES	1/2"	DN50
KGJP1005	ARES	3/4"	DN50
KGJP1006	ARES	1"	DN50 ; DN63
KGJP1007	ARES	1-1/4"	DN63
KGJP1008	ARES	1-1/2"	DN63
KGJP1009	ARES	2"	DN63
KGJP1106	ARES	1"	DN63
KGJP1107	ARES	1-1/4"	DN90
KGJP1108	ARES	1-1/2"	DN90
KGJP1109	ARES	2"	DN90 ; DN110
KGJP1303	ATENA	3/8"	DN90 ; DN110
KGJP1304	ATENA	1/2"	DN40
KGJP1305	ATENA	3/4"	DN40
KGJP2003	ZEUS	3/8"	DN40
KGJP2004	ZEUS	1/2"	DN50
KGJP2005	ZEUS	3/4"	DN50
KGJP2006	ZEUS	1"	DN50 ; DN63
KGJP2007	ZEUS	1-1/4"	DN63
KGJP2008	ZEUS	1-1/2"	DN63
KGJP2009	ZEUS	2"	DN63
KGJP2106	ZEUS	1"	DN63
KGJP2107	ZEUS	1-1/4"	DN90
KGJP2108	ZEUS	1-1/2"	DN90 ; DN110
KGJP2109	ZEUS	2"	DN90 ; DN110
KGJP2303	ZEUS	3/8"	DN40
KGJP2304	ZEUS	1/2"	DN40
KGJP2305	ZEUS	3/4"	DN40

Valve codes

1°	2°	3°	4°	5°	6° 7°	8° 9°
J	4	D	P	G	14	03 ÷ 09
	9	A	R	N	16	43 ÷ 49
		C			18	
		S			21	
					23	

1°	J	series
2°	4	AISI 316
	9	Bronze
3°	D	two way
	A	normally open
	C	normally closed (inlet 1)
	S	normally closed (inlet 1 or 2)
4°	P	PA66 Material of actuator body
	R	PPS
5°	G	ISO 228/1 e 7/1 Rp (GAS)
		Threads of actuator
	N	NPT
6°	14 = DN 40; 16 = DN 50; 18 = DN 63; 21 = DN90;	
7°	23 = DN 110	
		Actuator size
8°	0 = ISO 228/1 e 7/1 Rp (GAS); 4 = NPT	valve thread
9°	3 = 3/8"; 4 = 1/2"; 5 = 3/4"; 6 = 1"; 7 = 1-1/4";	
	8 = 1-1/2"; 9 = 2"	

Spare parts and their replacement

The essential spare parts for all OMAL angle valves are supplied with a replacement kit. It comprises a spare quill seal, plug and plug pin. The replacement can be carried out even without taking the valve apart:

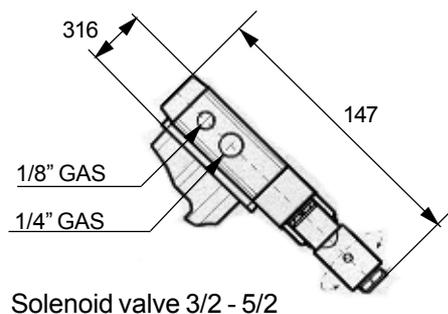
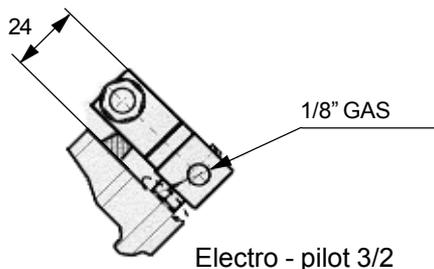
- 1) unscrew the valve body off the quill
- 2) take the plug pin out
- 3) extract the plug from the stem and clean all accessible parts
- 4) change the plug
- 5) replace the plug pin, caulking it
- 6) change the quill seal
- 7) screw thr valve back on the quill

Check that there is no internal or external leaking and that valve is functioning correctly before employing it again.

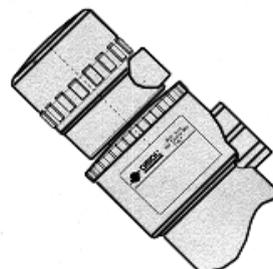
OMAL S.P.A Declines any responsibility and guarantee on products repaired by thirds parties.

Control solenoid valves

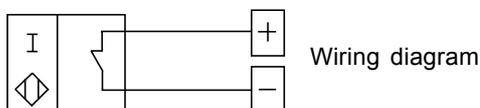
Electro-pilot	EP415024	EP415110	EP415220	EP412010	EP412024
Voltage	24 Vac	115 Vac	230 Vac	12 Vdc	24 Vdc
Solenoid valve	EL71800				
Coil	BBL31024	BBL31110	BBL31200	BBL32012	BBL32024
Voltage	24 Vac	115 Vac	230 Vac	12 Vdc	24 Vdc



LIMIT SWITCH BOX (KS....)

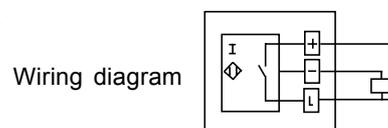


Inductive limit switches NAMUR EExia



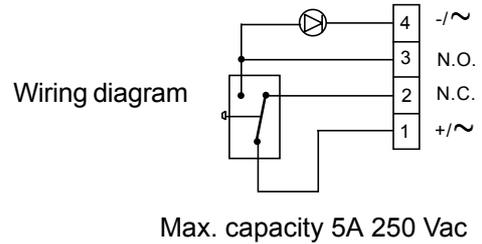
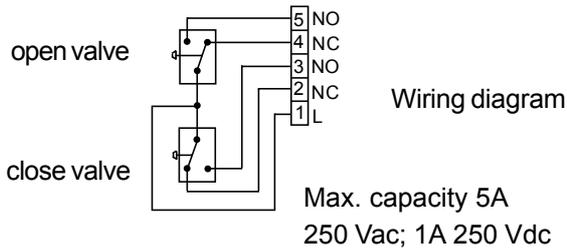
Nominal voltage : 8 V dc
Consumes ; working 1 mA ; resting 3 mA
Working temperature : from -25 °C to +100 °C

PNP Inductive limit switches



Nominal voltage : 1~3 V dc
Consumes ; 100 mAmps max.
Working temperature : from -25 °C to +70 °C

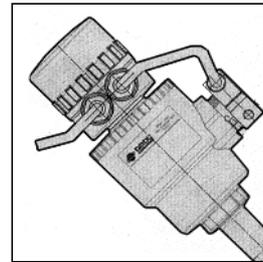
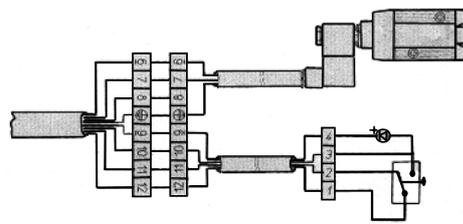
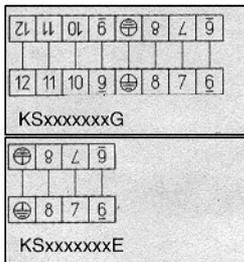
Configuration	Code NAMUR	Code PNP
1 Limit switch at the top : open valve	KSINxA0xx	KSI0xA0xx
1 Limit switch at the bottom : close valve	KSINxC0xx	KSI0xC0xx
2 Limit switch open and close valve	KSINx20xx	KSI0x20xx



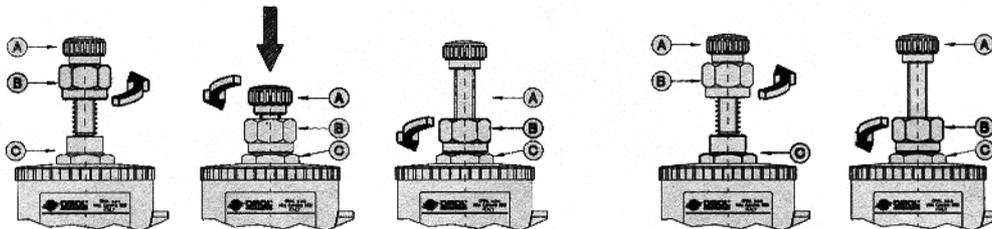
Configuration	Code	
	led 24 V(ad-dc)	led 48 V(ad-dc)
1 Limit switch at the top : open valve	---- KSMLxA0xx	KSMLxA1xx
1 Limit switch at the bottom : close valve	---- KSMLxC0xx	KSMLxC1xx
2 Limit switch open and close valve	KSM0x2xxx KSMLx20xx	KSMLx21xx

Card for solenoid valve connection

V max : 250 Vac ; I max : 10 Amps



Manual emergency commands



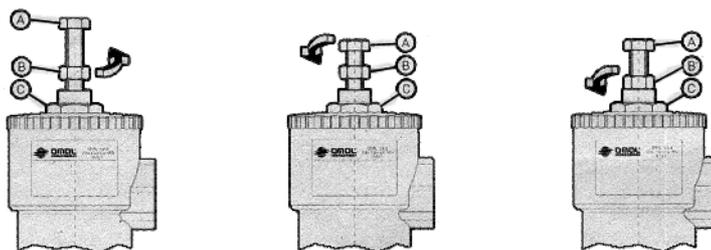
Opening the valve

- 1) Unscrew part B until it rests on part A.
- 2) Press part A while screwing it on, so that it hooks onto the valve stem.
- 3) Screw part B on until the valve is completely open (use a 30 mm spanner).

Closing the valve

- 1) Unscrew part B closing the valve completely in the N.C. version (using a 30 mm spanner). Please note : part A must not move.
- 2) Unscrew part A releasing it from the valve' stem.
- 3) Carefully screw part B on until the valve is completely open (using a 30 mm spanner).

Limit switch



- 1) Unscrew nut B in order to release the stem.
- 2) Adjust the height for the limit switch by screwing or unscrewing nut A.
- 3) Screw nut B on to fix the stem.

Please note : part C must not move during the above operations.

N.C. Normally Closed bidirectional. With the flow coming from below the plug you avoid water hammering.

With the flow from below the plug

Code AISI316	Code Bronze	Threading	DN	Kv m ³ /h	Control head	P control bar min max	P operating P max.bar	Weight kg. AISI316	Weight Kg. AISI316
J4SPG1403	J9SPG1403	3/8"	15	4.5	40	4.2 10	16	1	1.1
J4SPG1603	J9SPG1603	3/8"	15	4.9	50	4 10	16	1.1	1.1
J4SPG1404	J9SPG1404	1/2"	15	5.3	40	4.2 10	16	1	1
J4SPG1604	J9SPG1604	1/2"	15	5.7	50	4 10	16	1	1
J4SPG1405	-----	3/4"	20	9.2	40	4.2 10	8	1.2	---
J4SPG1605	J9SPG1605	3/4"	20	10.5	50	4 10	10	1.2	1.2
J4SPG1805	J9SPG1805	3/4"	20	10.8	63	4 10	16	1.2	1.2
J4SPG1806	J9SPG1806	1"	25	20	63	4 10	11	1.6	1.6
J4SPG2106	J9SPG2106	1"	25	20	90	4 8	16	1.7	1.7
J4SPG2107	J9SPG2107	1-1/4"	32	29	90	4 8	14	3	3
J4SPG2108	J9SPG2108	1-1/2"	40	46	90	4 8	11	3.4	3.4
J4SPG2308	J9SPG2308	1-1/2"	40	46.5	110	4 8	16	4	4
J4SPG2309	J9SPG2309	2"	50	67	110	4 8	10	5.8	5.8

With the flow above the plug see diagrams below

In the diagrams, the dash lines indicate versions available on request

