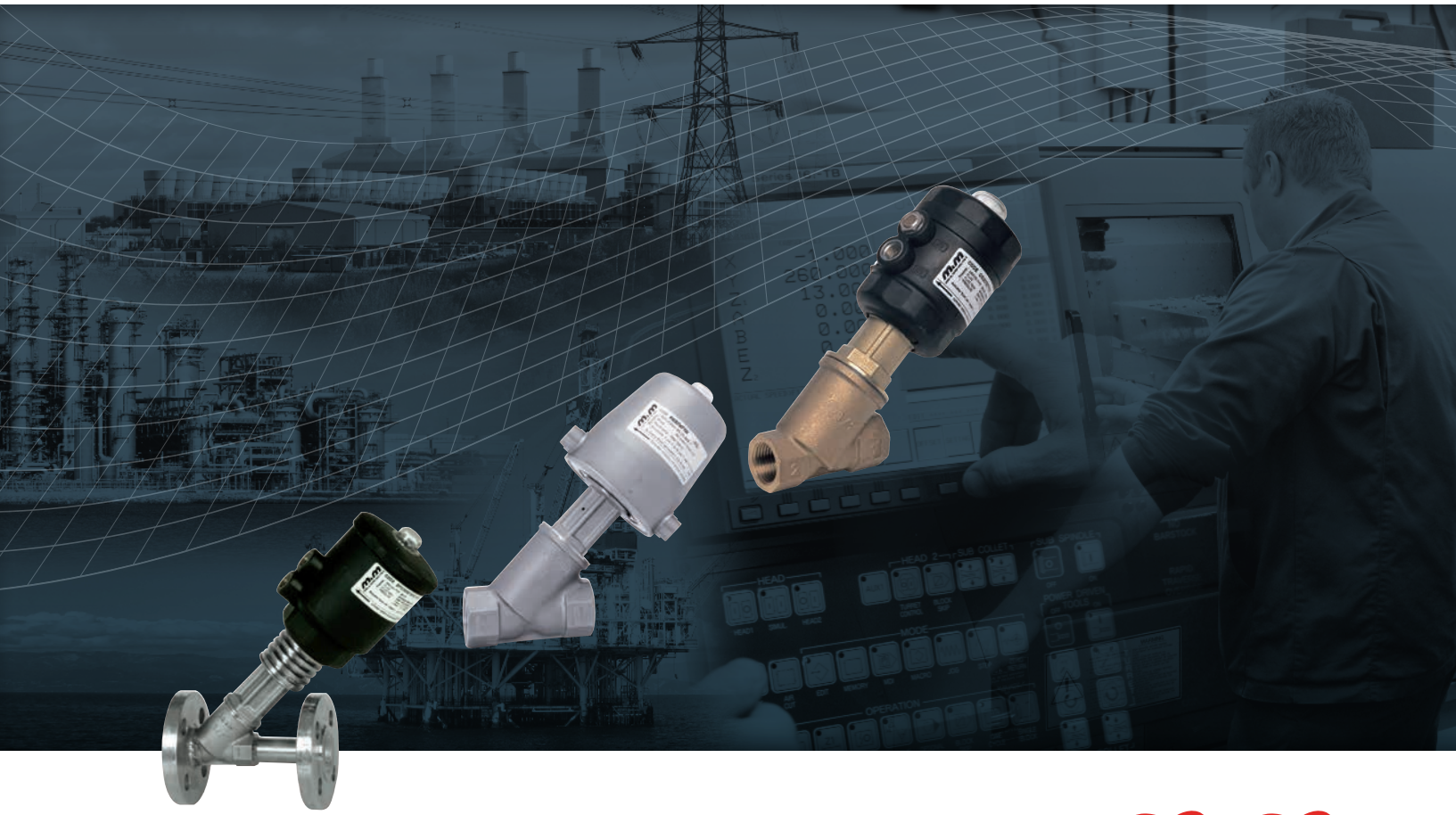
rotork®
Instruments

Piston Actuated Valves Catalogue



M&M international

Keeping the World Flowing

Contents

rotork® Instruments

Rotork is the global market leader in valve automation and flow control. Our products and services are helping organisations around the world to improve efficiency, assure safety and protect the environment.

We strive always for technical excellence, innovation and the highest quality standards in everything we do. As a result, our people and products remain at the forefront of flow control technology.

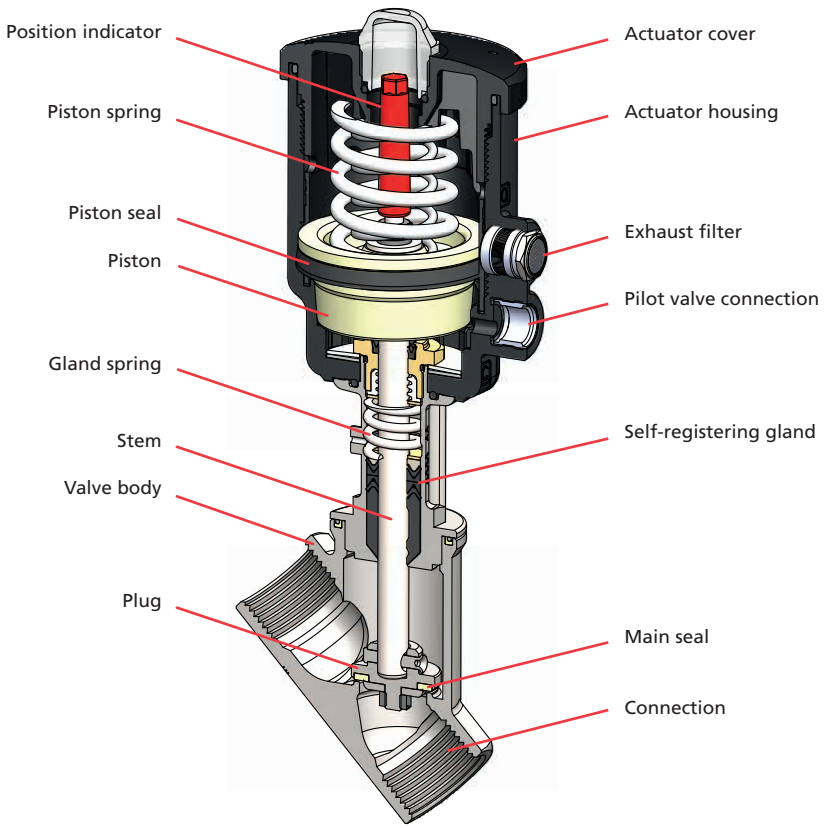
Uncompromising reliability is a feature of our entire product range, from our flagship electric actuator range through to our pneumatic, hydraulic and electro-hydraulic actuators, as well as instruments, gearboxes and valve accessories.

Rotork is committed to providing first class support to each client throughout the whole life of their plant, from initial site surveys to installation, maintenance, audits and repair. From our network of national and international offices, our engineers work around the clock to maintain our position of trust.

Rotork. Keeping the world flowing.

M&M Piston Valves: Features and Benefits

Scheme of Components of M&M International Piston Actuated Valves



Benefits of M&M International Piston Actuated Valves

- **Standard versions with high performing component**
  Covering a wide range of industrial applications with reduced stock
- **Standard seal materials as FKM and PTFE**
  Max compatibility with fluids. Resistance at high temperatures
- **Bi-Directional version**
  Waterhammer-free installation
- **Wide choice of connections**
  Screw, weld, flange, clamp connections
- **Actuator housing rotation 360°**
  Easy and quick installation
- **Position indicator**
  Instantly visible valve position
- **Self-registering gland and chevron packing**
  Longer life
- **Housing with angle seat design**
  High flow rate, low pressure drop
- **Stainless steel valves with universal design**
  Suitable for vacuum applications
- **Universal mounting M&M solenoid pilot valves**
  Max flexibility during installation
- **Actuator with built-in exhaust filter**
  Reduced maintenance, noiseless

Product Index

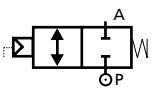
Valve	Code	Type of Connection	Actuator	Page
	**BLG** - (Bi-Directional)	GAS / NPT	Ø 32	6
	**CG**- (Normally Closed) **RCG**- (Normally Open) **BCG**- (Bi-Directional) **DCG**- (Double Acting)	GAS / NPT	Ø 45	7
	**CG**- (Normally Closed) **RCG**- (Normally Open) **BCG**- (Bi-Directional) **DCG**- (Double Acting)	GAS / NPT	Ø 63 Ø 90	8 - 9
	**Manual Operation** **CG**-	GAS / NPT	-	10
	**Manual Operation** **PG**-	GAS / NPT	-	10
	**PG**- (Normally Closed) **RPG**- (Normally Open) **BPG**- (Bi-Directional) **DPG**- (Double Acting)	GAS / NPT	Ø 45	11
	**PG**- (Normally Closed) **RPG**- (Normally Open) **BPG**- (Bi-Directional) **DPG**- (Double Acting)	GAS / NPT	Ø 63 Ø 90	12 - 13
	**PW- / PB-** (Normally Closed) **RPW- / RPB-** (Normally Open) **BPW- / BPB-** (Bi-Directional)	BUTT WELD: DIN 11850-2 pipe ISO 65/ANSI B.36.10 pipe	Ø 45 Ø 63 Ø 90	14 - 15
	**PD- / PA**- (Normally Closed) **RPD- / RPA-** (Normally Open) **BPD- / BPA-** (Bi-Directional)	FLANGED: BS 4504 EN1092 shape B ANSI B16.5 class 150	Ø 63 Ø 90	16 - 17
	**PC- / PP-** (Normally Closed) **RPC- / RPP-** (Normally Open) **BPC- / BPP-** (Bi-Directional)	CLAMP: ISO 2852 ASME BPE	Ø 45 Ø 63 Ø 90	18 - 19
	**High Temperature Version** **PG**- (Normally Closed) **RPG**- (Normally Open) **BPG**- (Bi-Directional)	GAS / NPT / BUTT WELD FLANGED / CLAMP	Ø 63 Ø 90	20 - 21

Product Index

Valve	Code	Type of Connection	Actuator	Page
	**PR**- (Normally Closed) **RPR**- (Normally Open) **BPR**- (Bi-Directional)	THREADED SPIGOTS	Ø 45 Ø 63 Ø 90	22 - 23
	**Atex Piston Actuated Valve** **PG**- (Normally Closed) **RPG**- (Normally Open) **BPG**- (Bi-Directional)	GAS / NPT	Ø 63 Ø 90	24 - 25
	**Control Piston Actuated Valve** **ZPG**- (flow always under seat)	GAS / NPT	Ø 63 Ø 90	26 - 28

Options/Accessories	Code	Description	Page
	E.g. code PG205STWI0 (assembled ex-factory)	Travel Switch Option	29
	E.g. code PG205STWR0 (assembled ex-factory)	Stroke Regulator Option	29
	85703000-/85703100-/85704000- /85704100-	Position Module for Piston Actuated Valve	30
	85701800-	Travel Switch Conversion Kit for Piston Actuated Valve	31
	68000100- / 68000200-	Magnetic Switch For Conversion Kit	31
	B356CVCMK/B326CVCMK/ D326CVEMK	Pilot Solenoid Valves	32
	N326CVEK	Atex Pilot Solenoid Valves	33
-	Various Part Numbers	Seal Kits	34 - 37

2/2 Way Compact Piston Actuated Valve G 3/8" to 1/2" – Brass

Specifications	
Type: BLG NC Bi-directional flow over/under seat 1 → 2 / 2 → 1	
Media	Water, air, inert fluids, inert gases
Media Temperature	-10 °C to +90 °C
Ambient Temperature	-10 °C to +80 °C
Pilot Media	Filtered air
Actuator Body Material	Brass (CW617N EN12165)
Body Material	Brass (CW617N EN12165)
Piston Material	Aluminium
Stem Material	AISI 316l
Seal Material	NBR
Frequency	6 Cycles per minute

Options Available
NPT Connection, minimum batch may be required (e.g code BLN205DBW00)
Electroless nickel plating treatment (e.g. code BLG205DBW0K)

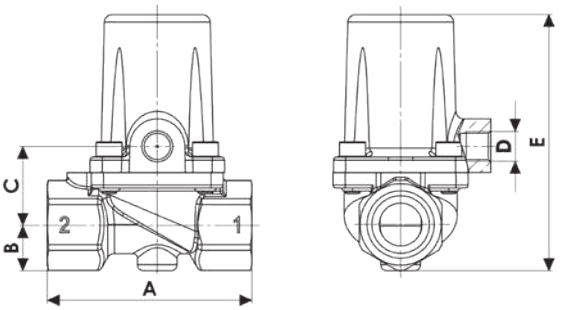
Piston valve with external pneumatic actuation, compact and solid construction.

Suitable for neutral media with particles in suspension, on applications where a standard pilot operated solenoid valve may become clogged.

Features and Benefits

- Waterhammer-free design (with flow direction 2→1)
- Swift installation with banjo bolt pilot solenoid valve B356CVCMK (see page 32)
- Design suitable for vacuum applications up to 10^{-2} mbar

Dimensions & Weights		DN13.5	DN13.5
G connection	[ISO 228]	3/8"	1/2"
A	[mm]	67	67
B	[mm]	15	15
C	[mm]	25.5	25.5
D	[mm]	1/8"	1/8"
E	[mm]	84	84
Weight	[kg]	0.55	0.52



Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure Min.	Working Pressure Max.	Flow Direction	Pilot Pressure Min.	Pilot Pressure Max.	Actuator Ø	Function
Code	[ISO 228G]	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
BLG204DBW00[1]	3/8"	13.5	56 / 45	0	10	1 → 2 / 2 → 1	4.5	10	32	NC bidirectional
BLG205DBW00	1/2"	13.5	70 / 55	0	10	1 → 2 / 2 → 1	4.5	10		

Note

1. Minimum batch may be required

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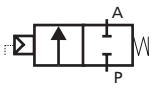
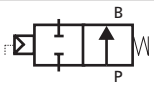
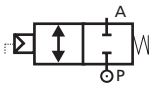
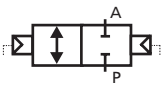
2/2 Way Piston Actuated Valve G 1/2" to 1" to Compact Version – Bronze

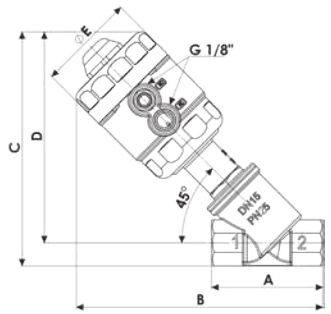
Specifications	
Type: CG NC flow over seat 1 → 2	
Type: RCG NO flow under seat 2 → 1	
Type: BCG NC Bi-directional flow over/under seat 1 → 2 / 2 → 1	
Type: DCG DA flow over/under seat 1 ⇔ 2	
Media	Water, oil, air, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Actuator Body Material	Polyamide PA6 (reinforced fibreglass 30%)
Body Material	Bronze (CB491K EN1982)
Bonnet Material	Brass (CW617N EN12165)
Seal Material	PTFE
Position Indicator	As standard

Features and Benefits

- Waterhammer-free design for BCG - DCG (with flow direction 2→1)
- Actuator housing rotation 360°
- Design suitable for vacuum applications up to 10^{-2} mbar

Options Available	Accessories
NPT Connection (e.g code CN205CTW00)	Position module, travel switch kit, pilot solenoid valves see pages 30/31/32

Dimensions & Weights		DN15	DN20	DN25
Actuator	**[mm]**	**Ø 45**		
A	[mm]	65	75	90
B	[mm]	144	149	168
C	[mm]	136	142	161
D	[mm]	123	126	141
E	[mm]	57	57	57
Weight	[kg]	0.8	0.9	1.1



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
DN15 to DN25 (PN25)	SEP	SEP

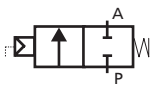
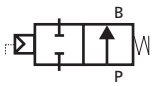
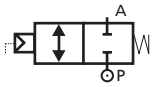
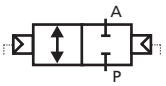
⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	**[ISO 228G]**	**[mm]**	**[l/min]**	**[barg]**	**[barg]**	**—**	**[barg]**	**[barg]**	**[mm]**	**—**
CG205CTW00	1/2"	15	75	0	16	1 → 2	3.8	10	45	NC
CG206CTX00	3/4"	20	133	0	16	1 → 2	5.8	10		
CG207CTY00	1"	25	208	0	16	1 → 2	6.5	10		
RCG205CTW00	1/2"	15	75	0	16	2 → 1	4	10	45	NO
RCG206CTX00	3/4"	20	133	0	16	2 → 1	6.2	10		
RCG207CTY00	1"	25	208	0	16	2 → 1	8.8	10		
BCG205CTW00	1/2"	15	75	0	16 / 16	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BCG206CTX00	3/4"	20	133	0	16 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
BCG207CTY00	1"	25	208	0	16 / 5	1 → 2 / 2 → 1	9.5 / 5	10		
DCG205CTW00	1/2"	15	75	0	16 / 16	1 ⇔ 2	3	10	45	DA
DCG206CTX00	3/4"	20	133	0	16 / 16	1 ⇔ 2	5	10		
DCG207CTY00	1"	25	208	0	16 / 16	1 ⇔ 2	8.5	10		

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts

2/2 Way Piston Actuated Valve G 1/2" to 2", Regular Version – Bronze

Specifications	
Type: CG NC flow over seat 1 → 2	
Type: RCG NO Flow Under Seat 2 → 1	
Type: BCG NC Bi-Directional Flow Over/Under Seat 1 → 2 / 2 → 1	
Type: DCG DA Flow Over/Under Seat 1 ↔ 2	
Media	Water, oil, air, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Actuator Body Material	Polyamide PA6 (reinforced fibreglass 30%)
Body Material	Bronze (CB491K EN1982)
Bonnet Material	Brass (CW617N EN12165)
Seal Material	PTFE
Position Indicator	As standard

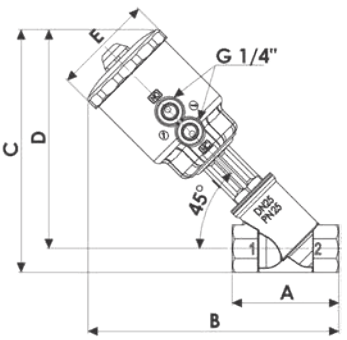
Features and Benefits

- Waterhammer-free design for BCG - DCG (with flow direction 2→1)
- Actuator housing rotation 360°

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code CG205STWR0)
Travel switch assembled ex-factory, see page 29 (e.g. code RCG209STKI0)
NPT connection (e.g. code BCN207LTY00)
Design for vacuum applications up to 10^{-2} mbar (e.g. code DCG210STJ0V)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**						**Ø 90**			
A	[mm]	65	75	90	110	120	150	90	110	120	150
B	[mm]	192	198	212	225	230	248	223	234	239	257
C	[mm]	184	192	205	217	225	241	216	227	235	250
D	[mm]	171	176	185	193	198	207	196	202	207	216
E	[mm]	85	85	85	85	85	85	112	112	112	112
Weight	[kg]	1.2	1.3	1.5	1.9	2.1	2.9	2.0	2.4	2.6	3.3



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
CG - RCG - BCG - DCG	DN15 to DN25 (PN25)	SEP	SEP
	DN32 to DN40 (PN25)	Not suitable	SEP
	DN50 (PN16)	Not suitable	SEP

⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

2/2 Way Piston Actuated Valve G 1/2" to 2", Regular Version – Bronze

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	[ISO 228G]	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
CG205STW00	1/2"	15	87	0	20	1 → 2	3.7	10	63	NC
CG206STX00	3/4"	20	164	0	20	1 → 2	4.4	10		
CG207STY00	1"	25	260	0	20	1 → 2	5	10		
CG208STZ00	1 1/4"	32	410	0	16	1 → 2	5.9	10		
CG209STK00	1 1/2"	40	700	0	16	1 → 2	9	10		
CG210STJ00	2"	50	950	0	11	1 → 2	8	10		
CG207LTY00	1"	25	260	0	20	1 → 2	2	8	90	
CG208LTZ00	1 1/4"	32	410	0	16	1 → 2	3.5	8		
CG209LTK00	1 1/2"	40	700	0	16	1 → 2	4	8		
CG210LTJ00	2"	50	950	0	15	1 → 2	6.5	8		
RCG205STW00	1/2"	15	87	0	16	2 → 1	2.5	10	63	NO
RCG206STX00	3/4"	20	164	0	16	2 → 1	4.3	10		
RCG207STY00	1"	25	260	0	16	2 → 1	5.5	10		
RCG208STZ00	1 1/4"	32	410	0	16	2 → 1	6.5	10		
RCG209STK00	1 1/2"	40	700	0	16	2 → 1	9	10		
RCG210STJ00	2"	50	950	0	12	2 → 1	9.4	10		
RCG207LTY00	1"	25	260	0	16	2 → 1	2	8	90	
RCG208LTZ00	1 1/4"	32	410	0	16	2 → 1	4	8		
RCG209LTK00	1 1/2"	40	700	0	16	2 → 1	5	8		
RCG210LTJ00	2"	50	950	0	16	2 → 1	7	8		
BCG205STW00	1/2"	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	NC bidirectional
BCG206STX00	3/4"	20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BCG207STY00	1"	25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BCG208STZ00	1 1/4"	32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BCG209STK00	1 1/2"	40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BCG210STJ00	2"	50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BCG207LTY00	1"	25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BCG208LTZ00	1 1/4"	32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BCG209LTK00	1 1/2"	40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BCG210LTJ00	2"	50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		
DCG205STW00	1/2"	15	87	0	16	1 ↔ 2	1.8	2	63	DA
DCG206STX00	3/4"	20	164	0	16	1 ↔ 2	2	3.8		
DCG207STY00	1"	25	260	0	16	1 ↔ 2	3	5		
DCG208STZ00	1 1/4"	32	410	0	16	1 ↔ 2	4.5	6		
DCG209STK00	1 1/2"	40	700	0	16	1 ↔ 2	6.5	7		
DCG210STJ00	2"	50	950	0	12	1 ↔ 2	9	10		

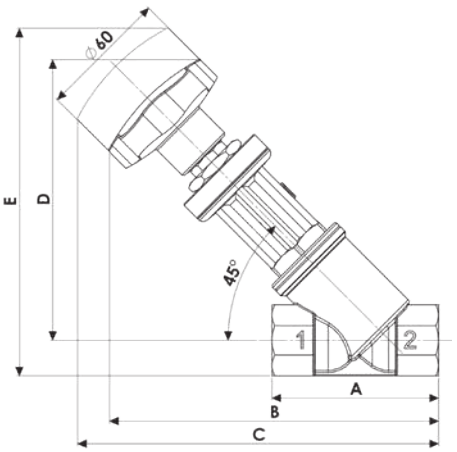
Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts

Manual Angle Seat Valve G 1/2" to 2" – Bronze (CG) & Stainless Steel (PG)

Specifications	
Function Flow over / under seat	Type CG / PG
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Body Material (CG)	Bronze (CB491K EN1982)
Bonnet Material (CG)	Brass (CW617N EN12165)
Body Material (PG)	Cast AISI 316L (CF3M), see page 39
Bonnet Material (PG)	Cast AISI 316L (CF3M), see page 39
Seal Material	PTFE

Options Available
NPT connection (e.g. code PN2070TY00)



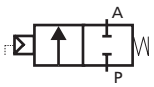
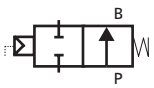
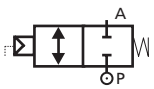
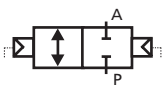
Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
G connection	**[ISO 228]**	**1/2"**	**3/4"**	**1"**	**1 1/4"**	**1 1/2"**	**2"**
A	[mm]	65	75	90	110	120	150
B	[mm]	142	148	163	175	180	198
C	[mm]	150	155	172	188	193	212
D	[mm]	121	126	135	143	148	157
E	[mm]	141	150	165	181	189	205
Weight	[kg]	0.75	0.80	1.20	1.80	2.10	3.10

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction
Code	**[ISO 228G]**	**[mm]**	**[l/min]**	**[barg]**	**[barg]**	**—**
CG2050TW00	1/2"	15	87	0	25	1 ⇔ 2
CG2060TX00	3/4"	20	164	0	25	1 ⇔ 2
CG2070TY00	1"	25	260	0	25	1 ⇔ 2
CG2080TZ00	1 1/4"	32	410	0	25	1 ⇔ 2
CG2090TK00	1 1/2"	40	700	0	25	1 ⇔ 2
CG2100TJ00	2"	50	916	0	16	1 ⇔ 2
PG2050TW00	1/2"	15	87	0	40	1 ⇔ 2
PG2060TX00	3/4"	20	164	0	40	1 ⇔ 2
PG2070TY00	1"	25	260	0	40	1 ⇔ 2
PG2080TZ00	1 1/4"	32	410	0	25	1 ⇔ 2
PG2090TK00	1 1/2"	40	700	0	25	1 ⇔ 2
PG2100TJ00	2"	50	916	0	16	1 ⇔ 2

Note

1. Steam max. working pressure 10 bar (9 barg)

2/2 Way Piston Actuated Valve G 1/2" to 3/4", Compact Version – Stainless Steel

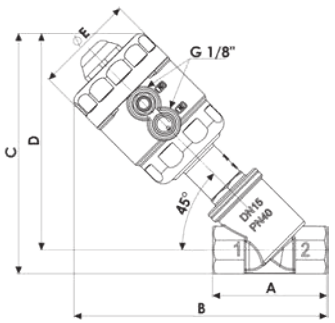
Specifications	
Type: PG NC flow over seat 1 →2	
Type RPG: NO flow under seat 2 → 1	
Type: BPG NC bi-directional flow over/under seat 1 →2 / 2 → 1	
Type: DPG DA flow over/under seat 1 ⇔ 2	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fibreglass 30%)
Seal Material	PTFE
Position Indicator	As standard

Features and Benefits

- Waterhammer-free design for BPG - DPG (with flow direction 2→1)
- Actuator housing rotation 360°
- Design suitable for vacuum applications up to 10^{-2} mbar

Options Available	Accessories
NPT connection (e.g. code PN205CTW00)	Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/33

Dimensions & Weights		DN15	DN20
Actuator	**[mm]**	**Ø 45**	
A	[mm]	65	75
B	[mm]	144	149
C	[mm]	136	142
D	[mm]	123	126
E	[mm]	57	57
Weight	[kg]	0.8	0.9



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
DN15 to DN20 (PN40)	SEP	SEP

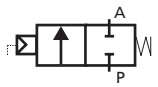
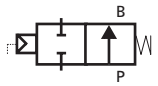
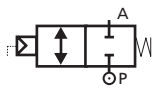
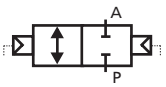
⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	**[ISO 228G]**	**[mm]**	**[l/min]**	**[barg]**	**[barg]**	**—**	**[barg]**	**[barg]**	**[mm]**	**—**
PG205CTW00	1/2"	15	75	0	16	1 → 2	3.8	10	45	NC
PG206CTX00	3/4"	20	133	0	16	1 → 2	5.8	10		
RPG205CTW00	1/2"	15	75	0	16	2 → 1	4	10	45	NO
RPG206CTX00	3/4"	20	133	0	16	2 → 1	6.2	10		
BPG205CTW00	1/2"	15	75	0	16 / 16	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BPG206CTX00	3/4"	20	133	0	16 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
DPG205CTW00	1/2"	15	75	0	16 / 16	1 ⇔ 2	3	10	45	DA
DPG206CTX00	3/4"	20	133	0	16 / 16	1 ⇔ 2	5	10		

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts

2/2 Way Piston Actuated Valve G 1/2" to 2", Regular Version - Stainless Steel

Specifications	
Type: PG NC flow over seat 1 → 2	
Type: RPG NO flow under seat 2 → 1	
Type: BPG NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Type: DPG DA flow over/under seat 1 ↔ 2	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Position Indicator	As standard

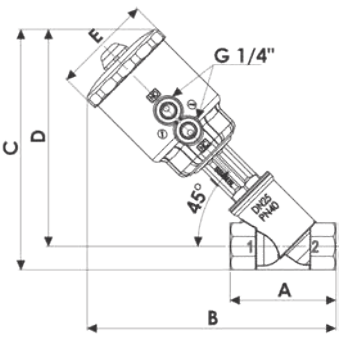
Features and Benefits

- Waterhammer-free design for BPG - DPG (with flow direction 2→1)
- Actuator housing rotation 360°
- Design suitable for vacuum applications up to 10^{-2} mbar

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code RPG210STJR0)
Travel switch assembled ex-factory, see page 29 (e.g. code PG208STZI0)
NPT connection (e.g. code BPN207LTY00)
High temperature version, see pages 20/21 (e.g. code PG205STW0H)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/33

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**						**Ø 90**			
A	[mm]	65	75	90	110	120	150	90	110	120	150
B	[mm]	192	198	212	225	230	248	223	234	239	257
C	[mm]	184	192	205	217	225	241	216	227	235	250
D	[mm]	171	176	185	193	198	207	196	202	207	216
E	[mm]	85	85	85	85	85	85	112	112	112	112
Weight	[kg]	1.2	1.3	1.5	1.9	2.1	2.9	2.0	2.4	2.6	3.3



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PG - RPG - BPG - DPG	DN15 to DN25 (PN40)	SEP	SEP
	DN32 to DN40 (PN25)	Category I	SEP
	DN50 (PN16)	Category I	SEP

⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

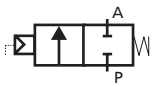
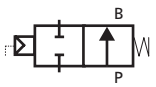
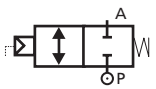
2/2 Way Piston Actuated Valve G 1/2" to 2", Regular Version – Stainless Steel

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	[ISO 228G]	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PG205STW00	1/2"	15	87	0	20	1 → 2	3.7	10	63	NC
PG206STX00	3/4"	20	164	0	20	1 → 2	4.4	10		
PG207STY00	1"	25	260	0	20	1 → 2	5	10		
PG208STZ00	1 1/4"	32	410	0	16	1 → 2	5.9	10		
PG209STK00	1 1/2"	40	700	0	16	1 → 2	9	10		
PG210STJ00	2"	50	950	0	11	1 → 2	8	10		
PG207LTY00	1"	25	260	0	20	1 → 2	2	8	90	
PG208LTZ00	1 1/4"	32	410	0	16	1 → 2	3.5	8		
PG209LTK00	1 1/2"	40	700	0	16	1 → 2	4	8		
PG210LTJ00	2"	50	950	0	15	1 → 2	6.5	8		
RPG205STW00	1/2"	15	87	0	16	2 → 1	2.5	10	63	NO
RPG206STX00	3/4"	20	164	0	16	2 → 1	4.3	10		
RPG207STY00	1"	25	260	0	16	2 → 1	5.5	10		
RPG208STZ00	1 1/4"	32	410	0	16	2 → 1	6.5	10		
RPG209STK00	1 1/2"	40	700	0	16	2 → 1	9	10		
RPG210STJ00	2"	50	950	0	12	2 → 1	9.4	10		
RPG207LTY00	1"	25	260	0	16	2 → 1	2	8	90	
RPG208LTZ00	1 1/4"	32	410	0	16	2 → 1	4	8		
RPG209LTK00	1 1/2"	40	700	0	16	2 → 1	5	8		
RPG210LTJ00	2"	50	950	0	16	2 → 1	7	8		
BPG205STW00	1/2"	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	NC bidirectional
BPG206STX00	3/4"	20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPG207STY00	1"	25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPG208STZ00	1 1/4"	32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPG209STK00	1 1/2"	40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPG210STJ00	2"	50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPG207LTY00	1"	25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPG208LTZ00	1 1/4"	32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPG209LTK00	1 1/2"	40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPG210LTJ00	2"	50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		
DPG205STW00	1/2"	15	87	0	16	1 ↔ 2	1.8	2	63	DA
DPG206STX00	3/4"	20	164	0	16	1 ↔ 2	2	3.8		
DPG207STY00	1"	25	260	0	16	1 ↔ 2	3	5		
DPG208STZ00	1 1/4"	32	410	0	16	1 ↔ 2	4.5	6		
DPG209STK00	1 1/2"	40	700	0	16	1 ↔ 2	6.5	7		
DPG210STJ00	2"	50	950	0	12	1 ↔ 2	9	10		

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts

2/2 Way Piston Actuated Valve Butt Weld Connection – Stainless Steel

Specifications	
Type: PW/PB NC flow over seat 1 → 2	
Type: RPW/RPB NO flow under seat 2 → 1	
Type: BPW/BPB NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Butt Weld Connection	DIN 11850-2 pipe or ISO 65/ANSI B 36.10 pipe
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Position Indicator	As standard

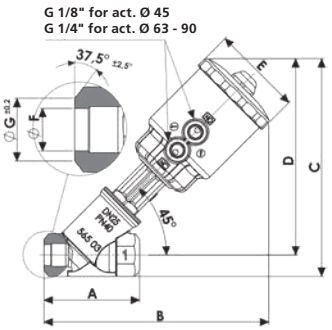
Features and Benefits

- Waterhammer-free design for BPW - BPB (with flow direction 2→1)
- Actuator housing rotation 360°
- Design suitable for vacuum applications up to 10^{-2} mbar

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code RPW210STJR0)
Travel switch assembled ex-factory, see page 29 (e.g. code PB208STZI0)
High temperature version, see pages 20/21 (e.g. code BPW207LTY0H)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/33

Dimensions & Weights		DN15	DN20	DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 45**		**Ø 63**						**Ø 90**			
A	[mm]	65	75	65	75	90	110	120	150	90	110	120	150
B	[mm]	144	149	192	198	212	225	230	248	223	234	239	257
C	[mm]	136	142	184	192	205	217	225	241	216	227	235	250
D	[mm]	123	126	171	176	185	193	198	207	196	202	207	216
E	[mm]	57	57	85	85	85	85	85	85	112	112	112	112
F DIN 11850	[mm]	16	20	16	20	26	32	38	50	26	32	38	50
F ISO 65/ANSI B 36.10	[mm]	17.4	22.8	17.4	22.8	28.3	37.1	42.7	54.8	28.3	37.1	42.7	54.8
G DIN 11850	[mm]	19.2	23.2	19.2	23.2	29.2	36	42	54	29.2	36	42	54
G ISO 65/ANSI B 36.10	[mm]	20.6	26	20.6	26	31.5	41.1	46.7	58.8	31.5	41.1	46.7	58.8
Weight	[kg]	0.8	0.9	1.2	1.3	1.5	1.9	2.1	2.9	2.0	2.4	2.6	3.3



Welded ends complying with ISO 6761

The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PW - RPW - BPW PB - RPB - BPB	DN15 to DN25 (PN40)	SEP	SEP
	DN32 to DN40 (PN25)	Category I	SEP
	DN50 (PN16)	Category I	SEP

⚠ **WARNING!**
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts (for different part numbers: e.g. PW205STW00 please refer to the equivalent part number PG205STW00 for threaded connection)

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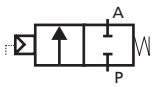
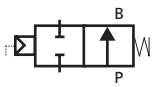
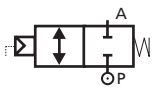
2/2 Way Piston Actuated Valve Butt Weld Connection – Stainless Steel

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	—	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PW205CTW00	butt weld to **DIN 11850-2** pipe	15	75	0	16	1 → 2	3.8	10	45	NC
PW206CTX00		20	133	0	16	1 → 2	5.8	10		
PW205STW00		15	87	0	20	1 → 2	3.7	10	63	
PW206STX00		20	164	0	20	1 → 2	4.4	10		
PW207STY00		25	260	0	20	1 → 2	5	10		
PW208STZ00		32	410	0	16	1 → 2	5.9	10		
PW209STK00		40	700	0	16	1 → 2	9	10		
PW210STJ00		50	950	0	11	1 → 2	8	10		
PW207LTY00		25	260	0	20	1 → 2	2	8	90	
PW208LTZ00		32	410	0	16	1 → 2	3.5	8		
PW209LTK00		40	700	0	16	1 → 2	4	8		
PW210LTJ00		50	950	0	15	1 → 2	6.5	8		
RPW205CTW00	butt weld to **DIN 11850-2** pipe	15	75	0	16	2 → 1	4	10	45	NO
RPW206CTX00		20	133	0	16	2 → 1	6.2	10		
RPW205STW00		15	87	0	16	2 → 1	2.5	10	63	
RPW206STX00		20	164	0	16	2 → 1	4.3	10		
RPW207STY00		25	260	0	16	2 → 1	5.5	10		
RPW208STZ00		32	410	0	16	2 → 1	6.5	10		
RPW209STK00		40	700	0	16	2 → 1	9	10		
RPW210STJ00		50	950	0	12	2 → 1	9.4	10		
RPW207LTY00		25	260	0	16	2 → 1	2	8	90	
RPW208LTZ00		32	410	0	16	2 → 1	4	8		
RPW209LTK00		40	700	0	16	2 → 1	5	8		
RPW210LTJ00		50	950	0	16	2 → 1	7	8		
BPW205CTW00	butt weld to **DIN 11850-2** pipe	15	75	0	16 / 16	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BPW206CTX00		20	133	0	16 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
BPW205STW00		15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	
BPW206STX00		20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPW207STY00		25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPW208STZ00		32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPW209STK00		40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPW210STJ00		50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPW207LTY00		25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPW208LTZ00		32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPW209LTK00		40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPW210LTJ00		50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		
PB205CTW00	butt weld to **ISO 65/ ANSI B 36.10** pipe	15	75	0	16	1 → 2	3.8	10	45	NC
PB206CTX00		20	133	0	16	1 → 2	5.8	10		
PB205STW00		15	87	0	20	1 → 2	3.7	10	63	
PB206STX00		20	164	0	20	1 → 2	4.4	10		
PB207STY00		25	260	0	20	1 → 2	5	10		
PB208STZ00		32	410	0	16	1 → 2	5.9	10		
PB209STK00		40	700	0	16	1 → 2	9	10		
PB210STJ00		50	950	0	11	1 → 2	8	10		
PB207LTY00		25	260	0	20	1 → 2	2	8	90	
PB208LTZ00		32	410	0	16	1 → 2	3.5	8		
PB209LTK00		40	700	0	16	1 → 2	4	8		
PB210LTJ00		50	950	0	15	1 → 2	6.5	8		
RPB205CTW00	butt weld to **ISO 65/ ANSI B 36.10** pipe	15	75	0	16	2 → 1	4	10	45	NO
RPB206CTX00		20	133	0	16	2 → 1	6.2	10		
RPB205STW00		15	87	0	16	2 → 1	2.5	10	63	
RPB206STX00		20	164	0	16	2 → 1	4.3	10		
RPB207STY00		25	260	0	16	2 → 1	5.5	10		
RPB208STZ00		32	410	0	16	2 → 1	6.5	10		
RPB209STK00		40	700	0	16	2 → 1	9	10		
RPB210STJ00		50	950	0	12	2 → 1	9.4	10		
RPB207LTY00		25	260	0	16	2 → 1	2	8	90	
RPB208LTZ00		32	410	0	16	2 → 1	4	8		
RPB209LTK00		40	700	0	16	2 → 1	5	8		
RPB210LTJ00		50	950	0	16	2 → 1	7	8		
BPB205CTW00	butt weld to **ISO 65/ ANSI B 36.10** pipe	15	75	0	16 / 16	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BPB206CTX00		20	133	0	16 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
BPB205STW00		15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	
BPB206STX00		20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPB207STY00		25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPB208STZ00		32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPB209STK00		40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPB210STJ00		50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPB207LTY00		25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPB208LTZ00		32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPB209LTK00		40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPB210LTJ00		50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		

2/2 Way Piston Actuated Valve Flanged – Stainless Steel

Specifications	
Type: PD/PA NC flow over seat 1 → 2	
Type: RPD/RPA NO flow under seat 2 → 1	
Type: BPD/BPA NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Flange Material	cast AISI 316L
Connection	BS 4504 (EN1092, shape B) or ANSI B16.5 class 150
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Position Indicator	As standard

Features and Benefits

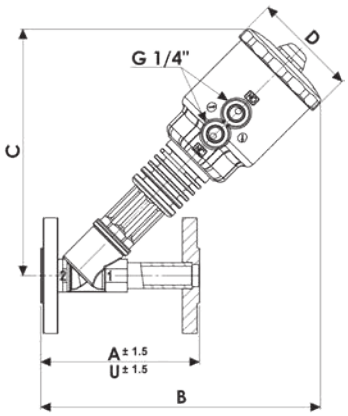
- Waterhammer-free design for BPD - BPA (with flow direction 2→1)
- Actuator housing rotation 360°
- Design for vacuum applications up to 10^{-2} mbar

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code PD210STJR0)
Travel switch assembled ex-factory, see page 29 (e.g. code RPA208LTZI0)
High temperature version, see pages 20/21 (e.g. code PD205STW0H)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/331

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**						**Ø 90**			
A (ANSI)	[mm]	139.7	152.4	165.1	184.2	203.2	228.6	165.1	184.2	203.2	228.6
U (BS/UNI/EN)	[mm]	130	150	160	180	200	230	160	180	200	230
B	[mm]	218	236	239	252	257	275	250	263	268	286
C	[mm]	194	210	208	216	220	230	219	227	232	240
D	[mm]	85	85	85	85	85	85	112	112	112	112
Weight	[kg]	2.6	3.0	3.8	5.6	6.5	8.7	4.4	6.0	6.9	9.1

A = face to face to **ANSI B 16.10**
U = face to face to **EN 558-1**



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PD - RPD - BPD PA - RPA - BPA	DN15 to DN25 (PN40)	SEP	SEP
	DN32 to DN40 (PN25)	Category I	SEP
	DN50 (PN16)	Category I	SEP

⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

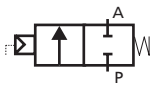
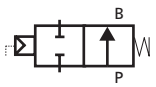
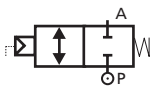
Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts (for different part numbers: e.g. PD205STW00 please refer to the equivalent part number PG205STW00 for threaded connection)

2/2 Way Piston Actuated Valve Flanged – Stainless Steel

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	—	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PD205STW00	flanges to **BS 4504 EN1092 shape B**	15	87	0	20	1 → 2	3.7	10	63	NC
PD206STX00		20	164	0	20	1 → 2	4.4	10		
PD207STY00		25	260	0	20	1 → 2	5	10		
PD208STZ00		32	410	0	16	1 → 2	5.9	10		
PD209STK00		40	700	0	16	1 → 2	9	10		
PD210STJ00		50	950	0	11	1 → 2	8	10		
PD207LTY00		25	260	0	20	1 → 2	2	8	90	
PD208LTZ00		32	410	0	16	1 → 2	3.5	8		
PD209LTK00		40	700	0	16	1 → 2	4	8		
PD210LTJ00		50	950	0	15	1 → 2	6.5	8		
RPD205STW00	flanges to **BS 4504 EN1092 shape B**	15	87	0	16	2 → 1	2.5	10	63	NO
RPD206STX00		20	164	0	16	2 → 1	4.3	10		
RPD207STY00		25	260	0	16	2 → 1	5.5	10		
RPD208STZ00		32	410	0	16	2 → 1	6.5	10		
RPD209STK00		40	700	0	16	2 → 1	9	10		
RPD210STJ00		50	950	0	12	2 → 1	9.4	10		
RPD207LTY00		25	260	0	16	2 → 1	2	8	90	
RPD208LTZ00		32	410	0	16	2 → 1	4	8		
RPD209LTK00		40	700	0	16	2 → 1	5	8		
RPD210LTJ00		50	950	0	16	2 → 1	7	8		
BPD205STW00	flanges to **BS 4504 EN1092 shape B**	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	NC bidirectional
BPD206STX00		20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPD207STY00		25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPD208STZ00		32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPD209STK00		40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPD210STJ00		50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPD207LTY00		25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPD208LTZ00		32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPD209LTK00		40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPD210LTJ00		50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		
PA205STW00	flanges to **ANSI B16.5** class 150	15	87	0	20	1 → 2	3.7	10	63	NC
PA206STX00		20	164	0	20	1 → 2	4.4	10		
PA207STY00		25	260	0	20	1 → 2	5	10		
PA208STZ00		32	410	0	16	1 → 2	5.9	10		
PA209STK00		40	700	0	16	1 → 2	9	10		
PA210STJ00		50	950	0	11	1 → 2	8	10		
PA207LTY00		25	260	0	20	1 → 2	2	8	90	
PA208LTZ00		32	410	0	16	1 → 2	3.5	8		
PA209LTK00		40	700	0	16	1 → 2	4	8		
PA210LTJ00		50	950	0	15	1 → 2	6.5	8		
RPA205STW00	flanges to **ANSI B16.5** class 150	15	87	0	16	2 → 1	2.5	10	63	NO
RPA206STX00		20	164	0	16	2 → 1	4.3	10		
RPA207STY00		25	260	0	16	2 → 1	5.5	10		
RPA208STZ00		32	410	0	16	2 → 1	6.5	10		
RPA209STK00		40	700	0	16	2 → 1	9	10		
RPA210STJ00		50	950	0	12	2 → 1	9.4	10		
RPA207LTY00		25	260	0	16	2 → 1	2	8	90	
RPA208LTZ00		32	410	0	16	2 → 1	4	8		
RPA209LTK00		40	700	0	16	2 → 1	5	8		
RPA210LTJ00		50	950	0	16	2 → 1	7	8		
BPA205STW00	flanges to **ANSI B16.5** class 150	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	NC bidirectional
BPA206STX00		20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPA207STY00		25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPA208STZ00		32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPA209STK00		40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPA210STJ00		50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPA207LTY00		25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPA208LTZ00		32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPA209LTK00		40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPA210LTJ00		50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		

2/2 Way Piston Actuated Valve Clamp – Stainless Steel

Specifications	
Type: PC/PP NC flow over seat 1 → 2	
Type: RPC/RPP NO flow under seat 2 → 1	
Type: BPC/BPP NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Clamp End Material	AISI 316L
Clamp Connection	ISO 2852 or ASME BPE
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Position Indicator	As standard
Gasket and Clamp	Not included

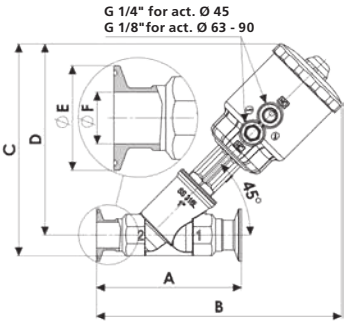
Features and Benefits

- Waterhammer-free design for BPC - BPP (with flow direction 2→1)
- Actuator housing rotation 360°
- Design suitable for vacuum applications up to 10^{-2} mbar

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code PC210STJR0)
Travel switch assembled ex-factory, see page 29 (e.g. code RPC208LTZI0)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/33

Dimensions & Weights		DN15	DN20	DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 45**		**Ø 63**						**Ø 90**			
A - ISO	[mm]	102	114	102	114	140	159	159	190	140	159	159	190
A - ASME	[mm]	102	114	102	114	140	-	159	190	140	-	159	190
B - ISO	[mm]	162	167	210	217	231	240	249	267	243	251	260	279
B - ASME	[mm]	162	167	210	217	231	-	249	267	243	-	260	279
C - ISO	[mm]	140	142	187	193	211	218	229	240	222	230	241	251
C - ASME	[mm]	136	138	183	189	211	-	223	240	222	-	235	251
D	[mm]	123	125	170	176	185	192	197	206	196	204	209	217
E - ISO	[mm]	34	34	34	34	50.5	50.5	64	64	50.5	50.5	64	64
E - ASME	[mm]	25	25	25	25	50.5	-	50.5	64	50.5	-	50.5	64
F - ISO	[mm]	17.2	21.3	17.2	21.3	25	33.7	40	51	25	33.7	40	51
F - ASME	[mm]	9.4	15.75	9.4	15.75	22.1	-	34.8	47.5	22.1	-	34.8	47.5
Weight - ISO	[kg]	0.9	1.1	1.3	1.5	1.8	2.4	2.8	3.6	2.4	2.8	3.2	4.0
Weight - ASME	[kg]	0.9	1.1	1.3	1.5	1.8	-	2.8	3.6	2.4	-	3.2	4.0



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PC - RPC - BPC PP - RPP - BPP	DN15 to DN50 (PN10)	SEP	SEP

⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

Notes

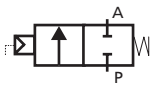
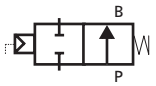
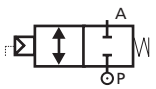
1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts (for different part numbers: e.g. PP205STW00 please refer to the equivalent part number PG205STW00 for threaded connection)

rotork Instruments

2/2 Way Piston Actuated Valve Clamp – Stainless Steel

VALVE	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	—	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PC205CTW00	clamp to ISO 2852	15	65	0	10	1 → 2	3.8	10	45	NC
PC206CTX00		20	120	0	10	1 → 2	5.8	10		
PC205STW00		15	85	0	10	1 → 2	3.7	10	63	
PC206STX00		20	160	0	10	1 → 2	4.4	10		
PC207STY00		25	260	0	10	1 → 2	5.9	10		
PC208STZ00		32	420	0	10	1 → 2	9	10		
PC209STK00		40	700	0	10	1 → 2	9	10		
PC210STJ00		50	810	0	10	1 → 2	8	10		
PC207LTY00		25	260	0	10	1 → 2	2	8	90	
PC208LTZ00		32	420	0	10	1 → 2	3.5	8		
PC209LTK00		40	700	0	10	1 → 2	4	8		
PC210LTJ00		50	810	0	10	1 → 2	6.5	8		
RPC205CTW00	clamp to ISO 2852	15	65	0	10	2 → 1	4	10	45	NO
RPC206CTX00		20	120	0	10	2 → 1	6.2	10		
RPC205STW00		15	85	0	10	2 → 1	2.5	10	63	
RPC206STX00		20	160	0	10	2 → 1	4.3	10		
RPC207STY00		25	260	0	10	2 → 1	5.5	10		
RPC208STZ00		32	420	0	10	2 → 1	6.5	10		
RPC209STK00		40	700	0	10	2 → 1	9	10		
RPC210STJ00		50	810	0	10	2 → 1	9.4	10		
RPC207LTY00		25	260	0	10	2 → 1	3	8	90	
RPC208LTZ00		32	420	0	10	2 → 1	4	8		
RPC209LTK00		40	700	0	10	2 → 1	5	8		
RPC210LTJ00		50	810	0	10	2 → 1	7	8		
BPC205CTW00	clamp to ISO 2852	15	65	0	10 / 10	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BPC206CTX00		20	120	0	10 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
BPC205STW00		15	85	0	10 / 10	1 → 2 / 2 → 1	5.5 / 3.8	10	63	
BPC206STX00		20	160	0	10 / 10	1 → 2 / 2 → 1	6 / 3.8	10		
BPC207STY00		25	260	0	10 / 10	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPC208STZ00		32	420	0	10 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPC209STK00		40	700	0	10 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPC210STJ00		50	810	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPC207LTY00		25	260	0	10 / 10	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPC208LTZ00		32	420	0	10 / 10	1 → 2 / 2 → 1	5 / 3.3	8		
BPC209LTK00		40	700	0	10 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPC210LTJ00		50	810	0	10 / 6	1 → 2 / 2 → 1	8 / 3.3	8		
PP205CTW00	clamp to ASME BPE	15	50	0	10	1 → 2	3.8	10	45	NC
PP206CTX00		20	120	0	10	1 → 2	5.8	10		
PP205STW00		15	50	0	10	1 → 2	3.7	10	63	
PP206STX00		20	135	0	10	1 → 2	4.4	10		
PP207STY00		25	250	0	10	1 → 2	5	10		
PP209STK00		40	640	0	10	1 → 2	9	10		
PP210STJ00		50	730	0	10	1 → 2	8	10		
PP207LTY00		25	250	0	10	1 → 2	2	8	90	
PP209LTK00		40	640	0	10	1 → 2	4	8		
PP210LTJ00		50	730	0	10	1 → 2	6.5	8		
RPP205CTW00	clamp to ASME BPE	15	50	0	10	2 → 1	4	10	45	NO
RPP206CTX00		20	120	0	10	2 → 1	6.2	10		
RPP205STW00		15	50	0	10	2 → 1	2.5	10	63	
RPP206STX00		20	135	0	10	2 → 1	4.3	10		
RPP207STY00		25	250	0	10	2 → 1	5.5	10		
RPP209STK00		40	640	0	10	2 → 1	9	10		
RPP210STJ00		50	730	0	10	2 → 1	9.4	10		
RPP207LTY00		25	250	0	10	2 → 1	2	8	90	
RPP209LTK00		40	640	0	10	2 → 1	5	8		
RPP210LTJ00		50	730	0	10	2 → 1	7	8		
BPP205CTW00	clamp to ASME BPE	15	50	0	10 / 10	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BPP206CTX00		20	120	0	10 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
BPP205STW00		15	50	0	10 / 10	1 → 2 / 2 → 1	5.5 / 3.8	10	63	
BPP206STX00		20	135	0	10 / 10	1 → 2 / 2 → 1	6 / 3.8	10		
BPP207STY00		25	250	0	10 / 10	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPP209STK00		40	640	0	10 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPP210STJ00		50	730	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPP207LTY00		25	250	0	10 / 10	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPP209LTK00		40	640	0	10 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPP210LTJ00		50	730	0	10 / 6	1 → 2 / 2 → 1	8 / 3.3	8		

2/2 Way Piston Actuated Valve G 1/2" to 2", High Temperature Version – Stainless Steel

Specifications	
Type: PG NC flow over seat 1 → 2	
Type: RPG NO flow under seat 2 → 1	
Type: BPG NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +200 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Position Indicator	As standard

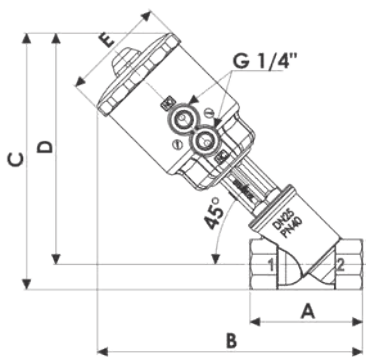
Features and Benefits

- Waterhammer-free design for BPG - DPG (with flow direction 2→1)
- Actuator housing rotation 360°

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code RPG210STJRH)
Travel switch assembled ex-factory, see page 29 (e.g. code PG208STZJH)
NPT connection (e.g. code BPN207LTY0H)
Butt weld connection (e.g. code BPW209LTK0H)
Flanged connection (e.g. code PD205STW0H)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/33

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**			**Ø 90**		
A	[mm]	65	75	90	110	120	150
B	[mm]	192	198	212	234	239	257
C	[mm]	184	192	205	227	235	250
D	[mm]	171	176	185	202	207	216
E	[mm]	85	85	85	112	112	112
Weight	[kg]	1.2	1.3	1.5	2.4	2.6	3.3



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PG - RPG - BPG	DN15 to DN25 (PN40)	SEP	SEP
	DN32 to DN40 (PN25)	Category I	SEP
	DN50 (PN16)	Category I	SEP

⚠ WARNING!
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

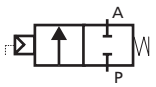
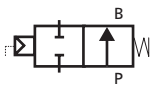
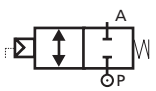
2/2 Way Piston Actuated Valve G 1/2" to 2", High Temperature Version – Stainless Steel

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	[ISO 228G]	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PG205STW0H	1/2"	15	87	0	20	1 → 2	3.7	10	63	NC
PG206STX0H	3/4"	20	164	0	20	1 → 2	4.4	10		
PG207STY0H	1"	25	260	0	20	1 → 2	5	10		
PG208LTZ0H	1 1/4"	32	410	0	16	1 → 2	3.5	8	90	
PG209LTK0H	1 1/2"	40	700	0	16	1 → 2	4	8		
PG210LTJ0H	2"	50	950	0	15	1 → 2	6.5	8		
RPG205STW0H	1/2"	15	87	0	16	2 → 1	2.5	10	63	NO
RPG206STX0H	3/4"	20	164	0	16	2 → 1	4.3	10		
RPG207STY0H	1"	25	260	0	16	2 → 1	5.5	10		
RPG208LTZ0H	1 1/4"	32	410	0	16	2 → 1	4	8	90	
RPG209LTK0H	1 1/2"	40	700	0	16	2 → 1	5	8		
RPG210LTJ0H	2"	50	950	0	16	2 → 1	7	8		
BPG205STW0H	1/2"	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	NC bidirectional
BPG206STX0H	3/4"	20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPG207STY0H	1"	25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPG208LTZ0H	1 1/4"	32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8	90	
BPG209LTK0H	1 1/2"	40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPG210LTJ0H	2"	50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		

Notes

1. Steam max. working pressure 14,5 barg
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts

2/2 Way Piston Actuated Valve G 3/4" to 2 3/8", Threaded Spigots – Stainless Steel

Specifications	
Type: PR NC flow over seat 1 → 2	
Type: RPR NO flow under seat 2 → 1	
Type: BPR NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Ambient Temperature	-10 °C to +60 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Position Indicator	As standard

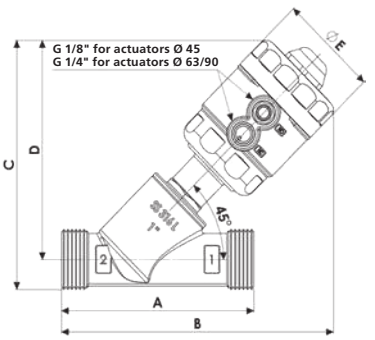
Features and Benefits

- Waterhammer-free design for BPR (with flow direction 2→1)
- Actuator housing rotation 360°
- Design suitable for vacuum applications up to 10^{-2} mbar

Options Available
Stroke regulator assembled ex-factory, see page 29 (e.g. code BPR211STKR0)
Travel switch assembled ex-factory, see page 29 (e.g. code BPR206STWI0)
High temperature version, see pages 20/21 (e.g. code RPR208STY0H)

Accessories
Position module, travel switch kit, pilot solenoid valves see pages 30/31/32/33

Dimensions & Weights		DN15	DN20	DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 45**		**Ø 63**						**Ø 90**			
A	[mm]	90	110	90	110	118	130	140	175	118	130	140	175
B	[mm]	148	156	196	206	217	226	224	246	228	237	235	257
C	[mm]	134	137	181	187	204	212	216	229	215	222	227	240
D	[mm]	121	121	168	171	183	188	189	196	194	199	200	207
E	[mm]	57	57	85	85	85	85	85	85	112	112	112	112
Weight	[kg]	0.9	1.0	1.3	1.4	1.65	2.0	2.2	3.1	2.15	2.5	2.7	3.5



The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PR - RPR - BPR	DN15 to DN25 (PN40)	SEP	SEP
	DN32 to DN40 (PN25)	Category I	SEP
	DN50 (PN16)	Category I	SEP

⚠ **WARNING!**
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

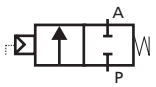
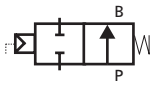
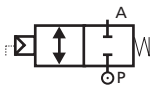
2/2 Way Piston Actuated Valve G 3/4" to 2 3/8", Threaded Spigots – Stainless Steel

Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	[ISO 228G]	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PR206CTW00	3/4"	15	75	0	16	1 → 2	3.8	10	45	NC
PR207CTX00	1"	20	133	0	16	1 → 2	5.8	10		
PR206STW00	3/4"	15	87	0	20	1 → 2	3.7	10	63	
PR207STX00	1"	20	164	0	20	1 → 2	4.4	10		
PR208STY00	1 1/4"	25	260	0	20	1 → 2	5	10		
PR209STZ00	1 1/2"	32	410	0	16	1 → 2	5.9	10		
PR211STK00	1 3/4"	40	700	0	16	1 → 2	9	10		
PR212STJ00	2 3/8" [4]	50	950	0	11	1 → 2	8	10		
PR208LTY00	1 1/4"	25	260	0	20	1 → 2	2	8	90	
PR209LTZ00	1 1/2"	32	410	0	16	1 → 2	3.5	8		
PR211LTK00	1 3/4"	40	700	0	16	1 → 2	4	8		
PR212LTJ00	2 3/8" [4]	50	950	0	15	1 → 2	6.5	8		
RPR206CTW00	3/4"	15	75	0	16	2 → 1	4	10	45	NO
RPR207CTX00	1"	20	133	0	16	2 → 1	6.2	10		
RPR206STW00	3/4"	15	87	0	16	2 → 1	2.5	10	63	
RPR207STX00	1"	20	164	0	16	2 → 1	4.3	10		
RPR208STY00	1 1/4"	25	260	0	16	2 → 1	5.5	10		
RPR209STZ00	1 1/2"	32	410	0	16	2 → 1	6.5	10		
RPR211STK00	1 3/4"	40	700	0	16	2 → 1	9	10		
RPR212STJ00	2 3/8" [4]	50	950	0	12	2 → 1	9.4	10		
RPR208LTY00	1 1/4"	25	260	0	16	2 → 1	3	8	90	
RPR209LTZ00	1 1/2"	32	410	0	16	2 → 1	4	8		
RPR211LTK00	1 3/4"	40	700	0	16	2 → 1	5	8		
RPR212LTJ00	2 3/8" [4]	50	950	0	16	2 → 1	7	8		
BPR206CTW00	3/4"	15	75	0	16 / 16	1 → 2 / 2 → 1	6.2 / 5	10	45	NC bidirectional
BPR207CTX00	1"	20	133	0	16 / 7	1 → 2 / 2 → 1	8.7 / 5	10		
BPR206STW00	3/4"	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	
BPR207STX00	1"	20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPR208STY00	1 1/4"	25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPR209STZ00	1 1/2"	32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPR211STK00	1 3/4"	40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPR212STJ00	2 3/8" [4]	50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPR208LTY00	1 1/4"	25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPR209LTZ00	1 1/2"	32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPR211LTK00	1 3/4"	40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPR212LTJ00	2 3/8" [4]	50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts (for different part numbers: e.g. BPR207STX00 please refer to the equivalent part number BPG207STY00 for threaded connection)
4. According to ISO 338

Piston Actuated Valve Series M and G EXD II 2 GD c TX CLASS

Specifications	
Type: PG NC flow over seat 1 → 2	
Type: RPG NO flow under seat 2 → 1	
Type: BPG NC bi-directional flow over/under seat 1 → 2 / 2 → 1	
Protection Class	II 2 GD c TX
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +200 °C
Ambient Temperature	-10 °C to +80 °C
Pilot Media[2]	Instrument air, inert gases
Body Material	Cast AISI 316L (CF3M), see page 39
Bonnet Material	Cast AISI 316L (CF3M), see page 39
Actuator Body Material	ASTM A 351 CF8 (AISI 304)
Actuator Cover Material	ASTM A 351 CF8 (AISI 304)
Actuator Housing Material	ASTM A 351 CF8 (AISI 304)
Piston Material	Aluminium
Seal Material	FKM
Position Indicator	As standard

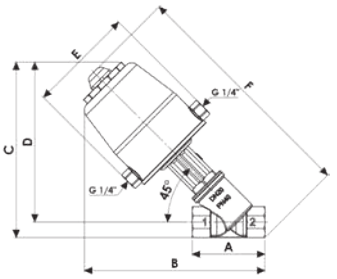
Features and Benefits

- Waterhammer-free design for BPG (with flow direction 2→1)
- Actuator housing rotation 360°
- High resistance to external agents, shocks

Options Available
Atex inductive switch assembled ex-factory (e.g. code PG207MTYX0), with ambient temperature -10 °C to +60 °C

Accessories
Atex pilot solenoid valves type N326CVEK see page 33

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**						**Ø 90**			
A	[mm]	65	75	90	110	120	150	90	110	120	150
B	[mm]	178	184	200	211	216	234	208	221	226	244
C	[mm]	171	178	200	204	212	227	201	213	221	236
D	[mm]	157	162	172	180	184	193	181	189	194	202
E	[mm]	108	108	108	108	108	108	135	135	135	135
F	[mm]	228	239	258	275	284	307	260	278	286	310
Weight	[kg]	2.3	2.4	2.6	3.1	3.4	4.1	3.6	4.1	4.3	5.1



The pilot solenoid valves ports have a G 1/4" thread and are marked with NO/NC (Normally Open/Normally Closed)

The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
PG - RPG - BPG	DN15 to DN25 (PN40)	SEP	SEP
	DN32 to DN40 (PN25)	Category I	SEP
	DN50 (PN16)	Category I	SEP

⚠ **WARNING!**
According to the European Pressure Equipment Directive 97/23/EC, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

Piston Actuated Valve Series M and G EXD II 2 GD c TX CLASS

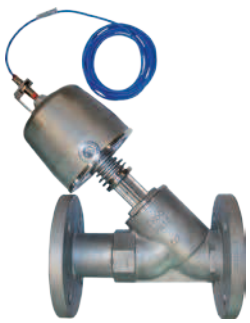
Valve	Body Connection	DN	Flow Rate Kvs	Working Pressure[1] Min.	Working Pressure[1] Max.	Flow Direction	Pilot Pressure[3] Min.	Pilot Pressure[3] Max.	Actuator Ø	Function
Code	[ISO 228G]	[mm]	[l/min]	[barg]	[barg]	—	[barg]	[barg]	[mm]	—
PG205MTW00	1/2"	15	87	0	20	1 → 2	3.7	10	63	NC
PG206MTX00	3/4"	20	164	0	20	1 → 2	4.4	10		
PG207MTY00	1"	25	260	0	20	1 → 2	5	10		
PG208MTZ00	1 1/4"	32	410	0	16	1 → 2	5.9	10		
PG209MTK00	1 1/2"	40	700	0	16	1 → 2	9	10		
PG210MTJ00	2"	50	950	0	11	1 → 2	8	10		
PG207GTY00	1"	25	260	0	20	1 → 2	2	8	90	
PG208GTZ00	1 1/4"	32	410	0	16	1 → 2	3.5	8		
PG209GTK00	1 1/2"	40	700	0	16	1 → 2	4	8		
PG210GTJ00	2"	50	950	0	15	1 → 2	6.5	8		
RPG205MTW00	1/2"	15	87	0	16	2 → 1	2.5	10	63	NO
RPG206MTX00	3/4"	20	164	0	16	2 → 1	4.3	10		
RPG207MTY00	1"	25	260	0	16	2 → 1	5.5	10		
RPG208MTZ00	1 1/4"	32	410	0	16	2 → 1	6.5	10		
RPG209MTK00	1 1/2"	40	700	0	16	2 → 1	9	10		
RPG210MTJ00	2"	50	950	0	12	2 → 1	9.4	10		
RPG207GTY00	1"	25	260	0	16	2 → 1	2	8	90	
RPG208GTZ00	1 1/4"	32	410	0	16	2 → 1	4	8		
RPG209GTK00	1 1/2"	40	700	0	16	2 → 1	5	8		
RPG210GTJ00	2"	50	950	0	16	2 → 1	7	8		
BPG205MTW00	1/2"	15	87	0	16	1 → 2 / 2 → 1	5.5 / 3.8	10	63	NC bidirectional
BPG206MTX00	3/4"	20	164	0	16	1 → 2 / 2 → 1	6 / 3.8	10		
BPG207MTY00	1"	25	260	0	16 / 11	1 → 2 / 2 → 1	6.5 / 3.8	10		
BPG208MTZ00	1 1/4"	32	410	0	16 / 6	1 → 2 / 2 → 1	6.8 / 3.8	10		
BPG209MTK00	1 1/2"	40	700	0	12 / 4	1 → 2 / 2 → 1	9 / 3.8	10		
BPG210MTJ00	2"	50	950	0	8 / 2.5	1 → 2 / 2 → 1	9 / 3.8	10		
BPG207GTY00	1"	25	260	0	16 / 14	1 → 2 / 2 → 1	4 / 3.3	8	90	
BPG208GTZ00	1 1/4"	32	410	0	16 / 12	1 → 2 / 2 → 1	5 / 3.3	8		
BPG209GTK00	1 1/2"	40	700	0	16 / 8	1 → 2 / 2 → 1	6 / 3.3	8		
BPG210GTJ00	2"	50	950	0	14 / 6	1 → 2 / 2 → 1	8 / 3.3	8		

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales Department for other pilot media
3. Minimum pilot pressure at the max. working pressure: for lower working pressures please refer to the comparative charts

Technical Specifications of Inductive Switch

Type of sensor:	in accordance with Namur standards EN 60947-5-6
Switching distance (Sn):	4 mm
Continuous voltage (residual ripple ≤10%):	8,2V
Current absorption at 8,2V in presence of metal:	≤ 1mA
Current absorption at 8,2V in absence of metal:	≥ 3mA
Switching frequency:	2000 Hz
Repeatability (% of Sn):	≤ 3
Housing material:	brass with electroless nickel plating treatment
Cable:	PVC 2x0,25 mm2
Cable length:	3 m
Safety rating:	UI=17V - Ii=17mA - Pi=73mW - Ci=0,25uF - Li=175uH



Control Piston Actuated Valve with Integrated Positioner

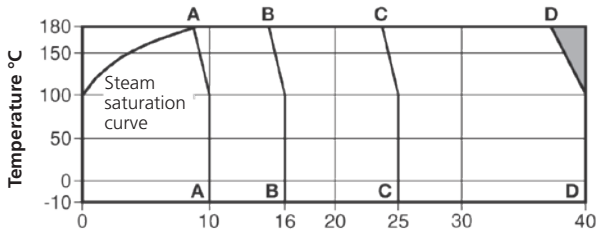
DN15 to DN50 – Stainless Steel

Specifications	
Type: ZP flow always under seat 2 → 1	NC (Direct) / NO (Reverse)
Media	Water, oil, air, aggressive media, steam[1]
Media Temperature	-10 °C to +180 °C
Viscosity	max. 600 cSt (80° E)
Pilot Media	Dry and filtered air (mesh 25 µm)
Actuator Diameter	63 or 90
Body Material	Cast AISI 316L (cF3M), see page 39
Bonnet Material	Cast AISI 316L (cF3M), see page 39
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Seal Material	PTFE
Flow Characteristic	Linear or equal percentage
Electrical Characteristics	
Positioner Enclosure	Anodized aluminium (black)
Set Point Signal	0 to 10V; 4 to 20mA
Electrical Supply	24V DC
Maximum Power Consumption	6W (0,24A)
Set-up Point	Self-adjusting valve
Fail Safe Position	'Closed' or 'maintained'
Electrical Connections	M23 connector, 12 poles
Protection Class	IP65
Hysteresis	< 1% FS
Repeatability	< 0,5% FS
Minimum Set-point:	< 2% FS

Features and Benefits

- Actuator housing rotation 360°
- Connector rotation 360° (90° steps)

Options Available
Seal material in PEEK
Body and shaped plug with hardening treatment
Body connection options: threaded, flanged, butt weld and clamp



A – A PN10
B – B PN16 - ANSI 150
C – C PN25
D – D PN40

The product must not be used in this region or beyond the body design conditions (PN) quoted in the selection chart as damage to the internals will occur!

DN	Flow Rate Kvs EQUI% TRIM 1:25	Flow Rate Kvs LINEAR TRIM 1:25	Working Pressure[1] Max.	Flow Direction	Pilot Pressure Min.	Pilot Pressure Max.	Actuator Ø	PN[2]
[mm]	[m³/h]	[m³/h]	[barg]	[2 → 1]	[barg]	[barg]	[mm]	—
15	4.5	4.9	16	only under seat	4.5	8	63	40
20	8.7	8.7	16					40
25	12.7	14.4	14	only under seat	4.5	8	90	40
32	20.4	22.8	12					25
40	29.7	34.2	8					25
50	36.3	39	6					16

Notes

1. Steam max. working pressure 10 bar (9 barg)
2. PN10 for all sizes for clamp

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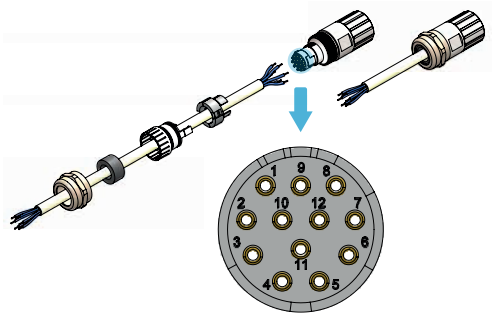
Control Piston Actuated Valve with Integrated Positioner

DN15 to DN50 – Stainless Steel

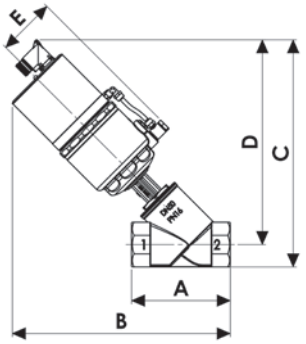
Electrical Connection Pin Connector

PIN No	Function
1	+ 24VDC (supply power)
2	0-10V (+) set-point
3	4-20mA (+) set-point
4	0 (common set-point)
5	Alarm signal: 0V the valve works properly / +24V valve on alarm
6	Test point
7	Auto set-up/remote reset
8	0 (supply power)
9	Earth
10	Pre-set configuration
11	NC
12	Pre-set configuration



GAS - NPT - WELDED ENDS

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**		**Ø 90**			
A	[mm]	64	75	90	110	120	150
B	[mm]	294	301	316	329	334	352
C	[mm]	282.5	290	305	317	325	340
D	[mm]	269	274	285	292.5	297.5	306.5
E	[mm]	75	75	88	88	88	88
Weight	[kg]	2.4	2.5	3.3	3.7	3.9	4.6



FLANGED EN1092-1

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**		**Ø 90**			
A	[mm]	130	150	160	180	200	230
B	[mm]	323	330	344	359	361	384
C	[mm]	339.5	349.5	364.5	386	394	412.5
D	[mm]	292	297	307	316	319	330
E	[mm]	75	75	88	88	88	88
Weight	[kg]	3.8	4.2	5.7	7.3	8.2	10.4

FLANGED ANSI B16.5

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**		**Ø 90**			
A	[mm]	139.7	152.4	165.1	184.2	203.2	228.6
B	[mm]	321	327	343	357	361	384
C	[mm]	336.5	346	361	375	382.5	406
D	[mm]	292	297	307	316	319	330
E	[mm]	75	75	88	88	88	88
Weight	[kg]	3.8	4.2	5.7	7.3	8.2	10.4

CLAMP ISO 2852

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**		**Ø 90**			
A	[mm]	102	114	140	159	159	190
B	[mm]	313	320.5	341	353.5	353.5	372
C	[mm]	286	291	310	318	329.5	340
D	[mm]	269	274	285	292.5	297.5	306.5
E	[mm]	75	75	88	88	88	88
Weight	[kg]	2.5	2.7	3.7	4.1	4.5	5.3

CLAMP ASME BPE

Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
Actuator	**[mm]**	**Ø 63**		**Ø 90**			
A	[mm]	102	114	140	/	159	190
B	[mm]	313	320.5	341	/	353.5	372
C	[mm]	282.5	290	310	/	325	340
D	[mm]	269	274	285	/	297.5	306.5
E	[mm]	75	75	88	/	88	88
Weight	[kg]	2.5	2.7	3.7	/	4.5	5.3

/ = not available

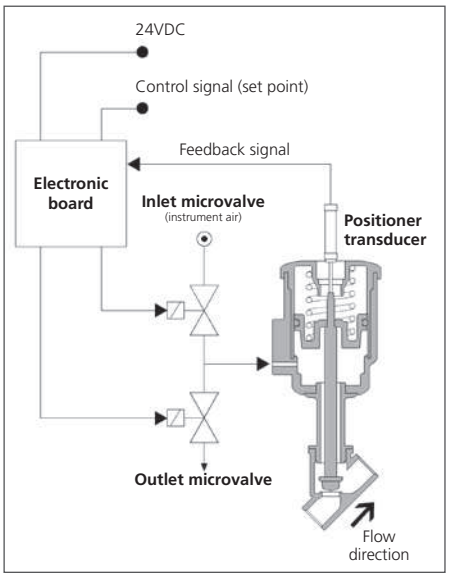
Control Piston Actuated Valve With Integrated Positioner

DN15 to DN50 – Stainless Steel

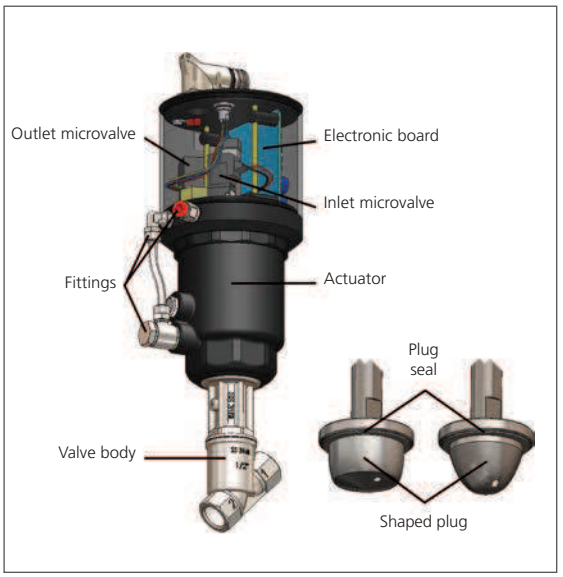
Operating Principles and Description

M&M control piston actuated valves are operated by a compact pneumatic integrated positioner working in a closed loop. Picture A shows the operating layout: the set-point signal (coming from the control panel of the plant) is compared with the internal signal (feed-back) of the position sensor. When the two values don't match, the electronic system inside the valve operates two microvalves (which open or close the pilot air feeding) to change the stroke until both signals match.

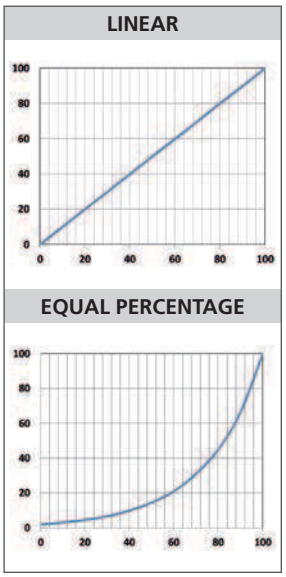
The proportionality between the stroke of the valve and the instantaneous flow is guaranteed by the special plug design: linear plug and equal percentage plug (Picture C) the graphs show an ideal curve, which cannot be reproduced exactly but varies according to the DN of the valve and the specific installation parameters. When fully closed the valve is leakage tight thanks to the soft seal, as in M&M standard on/off piston actuated valves (see Picture B).



Picture A



Picture B



Picture C

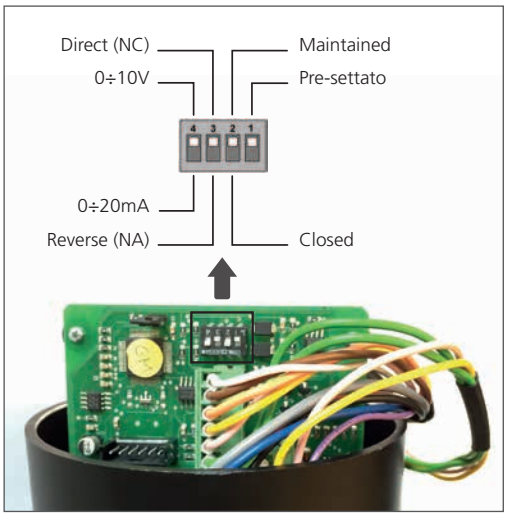
The pneumatic positioner is electronic and not programmable. It accepts the most common set-point signals (4 to 20 mA; 0 to 10 V).

All calibration operations are automatically implemented by pushing a LED button on top of the control box (integrated self-starter).

The pneumatic positioner can be fitted both to M&M Ø 63 and Ø 90 pneumatic actuators (this version must be expressely requested upon order).

Fluid direction always under seat!

Control Piston Actuated Valves with integrated positioner are set up, adjusted and tested by the manufacturer according to Customer's specifications and requests. The relevant parameters are set up by 4 dip-switches (see Picture D).



Picture D

Electronic board:

Contact No. 1 – Pre-set configuration -

Contact No. 2 – Fail Safe Position -

Contact No. 3 – Function Set-up -

Contact No. 4 – Set Point -

Function set-up (contact No. 3)	Set Point	Valve status
Direct (NC)	0V or 4mA	Closed
	10V or 20mA	Open 100%
Reverse (NO)	0V or 4mA	Open 100%
	10V or 20mA	Closed

Travel Switch

Technical Specifications

The travel switch detects the open position of the valve relaying back an electrical signal. The signal is provided by a magnetic sensor with a non contact switch (free NC, NO switch)

Specifications	
Max. Switching Voltage	500V
Max. Switching Current	0,5 A
Max. Switching Power	30 W/VA
Max. Switching Frequency	150 Hz
Contact Actuation Time	4,5 ms
Repeatability	± 0,3 mm
Temperature Limits	25 °C - + 100 °C
Protection Class	IP67
Housing Material	Brass with electroless nickel plating treatment
Plug For Cable	3x0,5 mm^2; Ø 4-6 mm (DIN EN 60947/5/2)

Notes

The option must be expressly requested upon order
It is available for actuators sizes ø63 & ø90 only (e.g. code RPG205TWI0)
It is available only assembled ex-factory

Stroke Regulator

Features and Benefits

With the stroke regulator the flow be can manually adjusted from 0% to 100% integrated position indicator. In normally open valves it can also be used as manual override.

Notes

This option must be expressly requested upon order
It is available for actuators sizes Ø63 & Ø90 only (e.g. code CG205STWR0)
It is available only assembled ex-factory

Position Module for Piston Actuated Valve

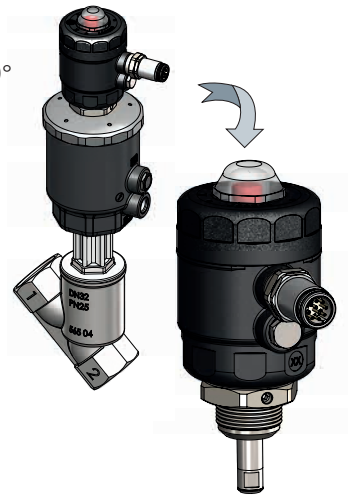
Specifications	
Electrical Position Feedback	Mechanical limit switches or inductive limit switches
Body/Cover Material	Polyamide PA6 (reinforced fiberglass 30%)
Connector Material	Copper-zinc alloy / aluminium alloy / cast zinc – nickel plating treatment
Electrical Connection	Connector M16 – 10 poles / wire Ø 5 - 9 mm
Ambient Temperature:	-10 °C to +60 °C
Protection Class	IP65
Specifications: Mechancial Switches	
Number Of Switches	2
Type of Switch	Change over contacts (NC and / or NO)
Contacts Material	Silver
Maximum Tension	Connector 230VAC with dirt level 2 / 160VAC with dirt level 3
Maximum Current	6A with resistive load - 2A with inductive load
Specifications : Inductive Switches	
Number of Switches	2
Output Version	Normally open contact (PNP)
Power Supply	12 - 24V DC
Maximum Load Current	50mA per output
Power Consumption	13mA max. at 24VDC without load

M&M position modules offer an electrical position feedback for reading the valve position of piston actuated valves open or closed.

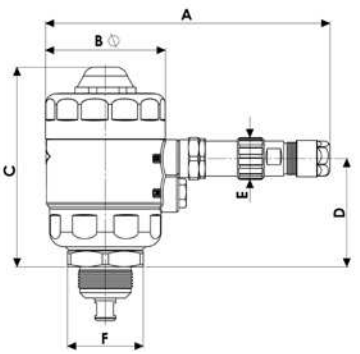
The position detection is carried out through a mechanical or inductive switch that can be fitted to all M&M standard Piston Valves.

Features and Benefits

- Actuator housing rotation 360°

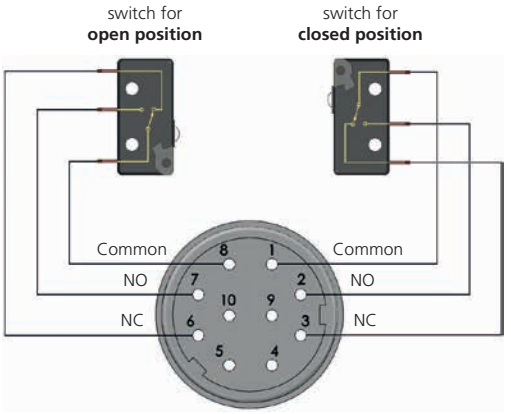


Dimensions & Weights		Position Module
Actuator	**[mm]**	**45/63/90**
A	[mm]	134
B	[mm]	57
C	[mm]	95
D	[mm]	51.5
E	[mm]	20
F	[mm]	Hex 36
Weight	[kg]	0.43



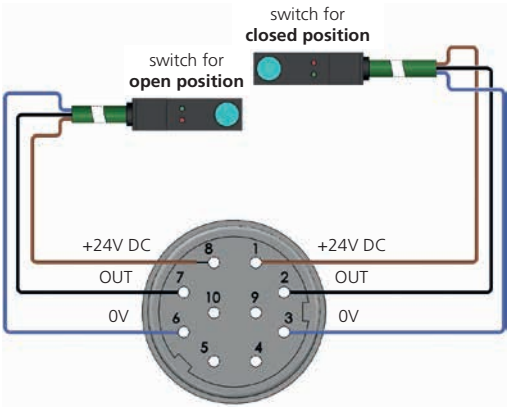
ELECTRICAL CONNECTION SCHEME FOR MECHANICAL SWITCHES

Connector frontal view:



ELECTRICAL CONNECTION SCHEME FOR INDUCTIVE SWITCHES

Connector frontal view:



Position Module	Actuator Ø	Electrical Position Feedback
Code	**[mm]**	—
857 030-	63/90	Mechanical
857 040-	45	
857 031-	63/90	Inductive
857 041-	45	

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Travel Switch Conversion Kit for Piston Actuated Valve

Features and Benefits

Kit suitable for all M&M International pneumatic valves.

It allows the installation of a position sensor on top of the actuator. The sensor can be magnetic or inductive and provides an electrical signal indicating the open position of the valve (this is a function different from the position module, which detects the actual valve position: open or closed).

The sensor is not included.

The kit is recommendable for magnetic or inductive sensors with threaded body having an external diameter size up to 12mm max.

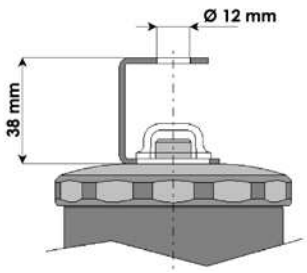
You can install a sensor having a larger diameter (up to 18 mm max.) in this case you shall re-drill the upper hole on the sensor support bracket.

The valve position is visible through the transparent sight dome.

- Simple to retrofit
- Suitable for magnetic or inductive commercial switches with M12 or M8 thread

Code **857 018 00**- includes: support bracket, transparent dome, red position indicator with built-in magnet (switch and plug not included, see below).

CONVERSION KIT code 857 018 00-:



Magnetic Switch for Conversion Kit

M&M offers 2 types (type **A** or type **B** see below) of standard magnetic switches to be purchased in addition to the conversion kit. Other types of switches can be outsourced directly by the customer, provided that they comply with M&M kit mounting specifications.

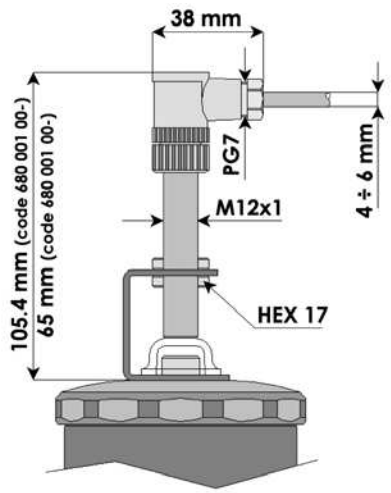
Notes: 2 conversion kits complete with sensors are available:

Code **857 019 00-** includes: support bracket, transparent dome, red position indicator, magnet, connector code 600 012 00- and sensor code 680 001 00-.

Code **857 020 00-** includes: support bracket, transparent dome, red position indicator, magnet, sensor with cable code 680 002 00-.

Technical Specifications		
Magnetic Switches	**• Type A code 680 001 00-**	**• Type B code 680 002 00- 1**
Contact:	Free NC, NO switch	Free NC, NO switch
Repeatability:	± 0,3 mm	± 0,3 mm
Temperature Limits:	- 25° C to + 100° C	- 25° C to + 100° C
Protection Class:	IP 67	IP 67
Max. Switching Voltage:	500 V	150 V
Max. Switching Current:	0,5 A	1 A
Max. Switching Power:	30 W/VA	20 W/VA
Contact Actuation Time:	4,5 ms	2 ms
Connection:	Plug to screw clamp connection DIN IEC 60947/5/2	With moulded cable (5 m)
Cable:	3 x 0,25 mm2	3 x 0,25 mm2

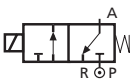
1. Minimum batch may be required



• Type A
CONNECTOR code 600 012 00-
+ SWITCH code 680 001 00-

• Type B
SWITCH AND CABLE (5m)
code 680 002 00-[1]

3/2 Way Direct Acting Pilot Solenoid Valve with Manual Override

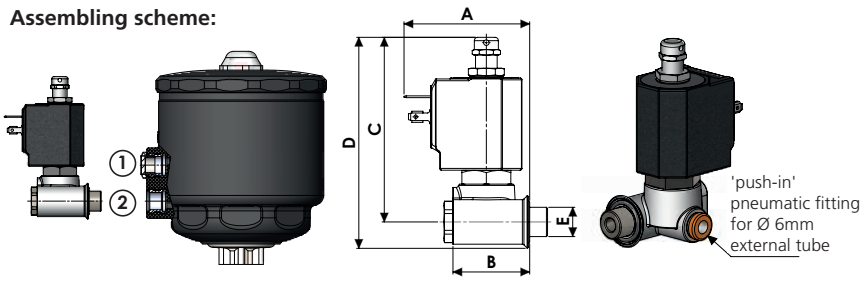
Specifications	
Type: B356/B326/D326 Normally Closed	
Media	Water, inert gases, air
Media Temperature	-10 °C to +60 °C
Ambient Temperature	-10 °C to +60 °C
Body Material	Brass (CW617N EN 12165) with electroless nickel plating treatment
Operator Material	Stainless steel
Seal Material	Foodgrade FKM
Protection Class	IP65 (with connector and gasket)

Features and Benefits

- Expressly designed to pilot M&M Piston Actuated Valves
- Valve rotation 360° around port

Dimensions & Weights		B356	B326	D326
Connection		'Push-in'		
A	[mm]	48	51	56.5
B	[mm]	31	34	34
C	[mm]	67	67	83
D	[mm]	77	79	95
E	[mm]	1/8" G	1/4" G	1/4" G
Weight	[kg]	0.25	0.25	0.30

Assembling scheme:



Screw the pilot valve bolt into the inlet port of the piston valve actuator using a maximum torque level of 5 Nm:

- into hole ① for **NORMALLY OPEN VALVES** (RPG/RCG)
- into hole ② for **NORMALLY CLOSED VALVES** (PG-BPG/CG-BCG)

Valve	DN	Flow rate Kvs	OPD min.	OPD max. AC	OPD max. DC
Code	[mm]	[l/min]	[barg]	[barg]	[barg]
B356CVCMK	1.5	0.7	0	10	10

Coils	
Code	[Volts/Hz]
2250	24v DC
2200	24v 50/60Hz
2400	110v 50Hz - 120v 60Hz
2600	200v 50Hz - 220v 60Hz
2700	230v 50Hz - 240v 60Hz

B356 - FKM seal, for actuator size Ø 45

Connection: to DIN 46244
Coil power: AC 10va (holding)
AC 16va (inrush)
DC 7w

OPTIONS

UL approved coils (e.g. code 225R)
DIN connector code 600 001 00-

Valve	DN	Flow rate Kvs	OPD min.	OPD max. AC	OPD max. DC
Code	[mm]	[l/min]	[barg]	[barg]	[barg]
B326CVCMK	1.5	0.7	0	10	10

Coils	
Code	[Volts/Hz]
2250	24v DC
2200	24v 50/60Hz
2400	110v 50Hz - 120v 60Hz
2600	200v 50Hz - 220v 60Hz
2700	230v 50Hz - 240v 60Hz

B326 - FKM seal, for actuator size Ø 63

Connection: to DIN 46244
Coil power: AC 10va (holding)
AC 16va (inrush)
DC 7w

OPTIONS

UL approved coils (e.g. code 240R)
DIN connector code 600 001 00-

Valve	DN	Flow rate Kvs	OPD min.	OPD max. AC	OPD max. DC
Code	[mm]	[l/min]	[barg]	[barg]	[barg]
D326CVEMK	2.0	1.3	0	10	10

Coils	
Code	[Volts/Hz]
7250	24v DC
7200	24v 50/60Hz
7400	110v 50Hz - 120v 60Hz
7600	200v 50Hz - 220v 60Hz
7700	230v 50Hz - 240v 60Hz

D326 - FKM seal, for actuator size Ø 90

Connection: to DIN EN 175301-803 form A (ex din 43650-a)
Coil power: AC 25va (holding)
AC 50va (inrush)
DC 22w

OPTIONS

UL approved coils (e.g. code 725R)
DIN connector code 600 011 00-

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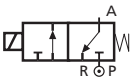
3/2 Way Direct Acting Pilot Solenoid Valve EXD - ATEX II 2 GD

Specifications	
Type: N326 Normally Closed	
Media	Water, inert gases, air
Media Temperature	-10 °C to +60 °C
Ambient Temperature	-20 °C to +50 °C
Body Material	Brass (CW617N EN 12165) with electroless nickel plating treatment
Operator Material	Stainless steel
Seal Material	FKM
Coil Protection Class	EEx m II 2GD T4
Cable Type	H05V2V2-F 3G1
Cable Length	3m

Features and Benefits

- Expressly designed to pilot M&M Piston Actuated Valves
- Valve rotation 360° around port

Notes

The valve is supplied inclusive of coil with a power cable, wired on a non-removable plug
Manual override not available
Spare parts not available

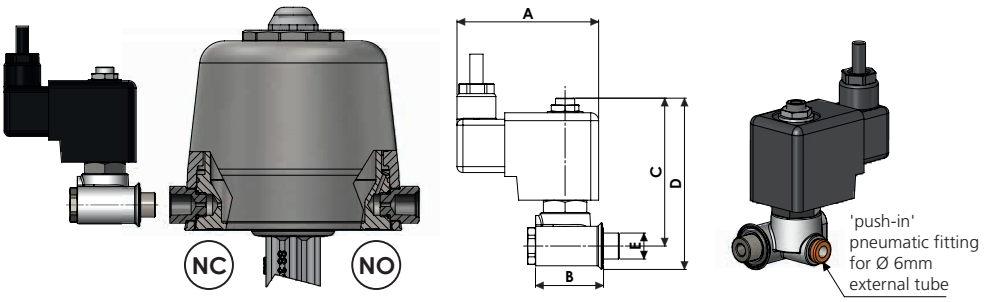
⚠ WARNING!

Valves for potentially explosive atmosphere are available from factory only.

REPLACING THE SOLENOID DOESN'T MAKE A VALVE EXPLOSION-PROOF!

Dimensions & Weights		N326
Connection	'Push-in'	
A	[mm]	72
B	[mm]	34.5
C	[mm]	74
D	[mm]	86
E	[mm]	1/4" G
Weight	[kg]	0.88

Assembling scheme:



Screw the pilot valve bolt into the inlet port of the piston valve actuator using a maximum torque level of 5 Nm:

- into hole marked NO for normally open valves (RPG)
- into hole marked NC for normally closed valves (PG-BPG)

Valve	DN	Flow rate Kvs	OPD Min.	OPD Max. Ac	OPD max. DC	Coils		Power	Fuses[1]
Code	[mm]	[l/min]	[barg]	[barg]	[barg]	Code	[Volts/Hz]	Holding	[m/A]
N326CVEK	2.0	1.3	0	10	10	N253	24V DC	10.1W	800
						N203	24V 50/60Hz	7.2VA	800
						N403	110V 50Hz	9.1VA	200
						NK03	120V 60Hz	8.6VA	200
						N703	230V 50Hz	8.5VA	100

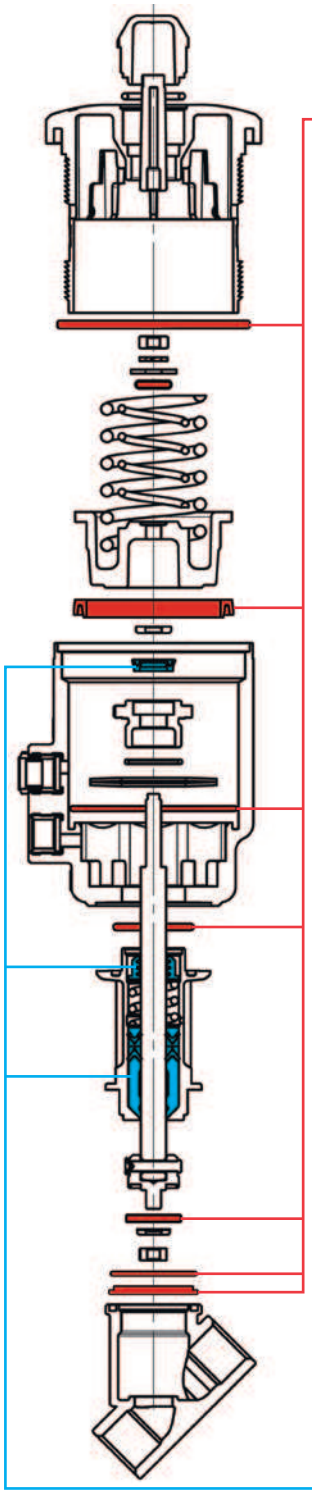
⚠ WARNING

1. A mains fuse or an equivalent means of protection (breaking value shown on table for each coil) shall be installed on the mains supply line. **Absence of mains protection does not conform to safety standards (EC Directives 94/9/EC and 1999/92/EC) and could be a potential risk of explosion.**

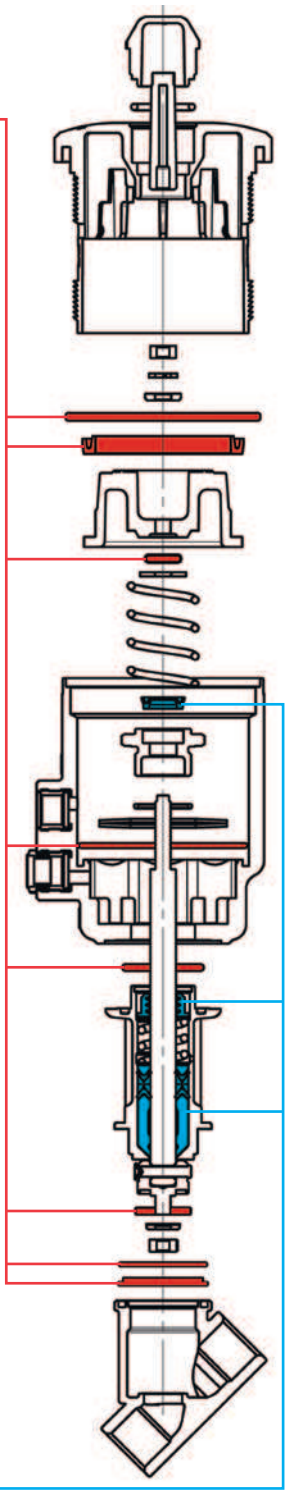
Seal Kit for Stainless Steel Valves Actuator Ø 63/90

Maintenance operations must be carried out by qualified personnel according to manufacturer's instructions.
To replace seals, please refer to the instruction manual provided with the valve.

Normally Closed



Normally Open



SPARE PARTS KIT: Lip seal, o-rings, main seal, body seal			
Kit code	**DN**	**Valve Type[1]**	**Actuator**
856 111 00-	15	PG/RPG/BPG- PN/RPN/BPN- PW/RPW/BPW- PB/RPB/BPB- PD/RPD/BPD- PA/BPA/RPA- PC/RPC/BPC- PP/RPP/BPP- PR/RPR/BPR- High Temperature Version	Ø 63
856 122 00-	20		
856 133 00-	25		
856 144 00-	32		
856 155 00-	40		
856 166 00-	50		
856 611 00-	15	DPG/DPN-	
856 622 00-	20		
856 633 00-	25		
856 644 00-	32		
856 655 00-	40		
856 666 00-	50		
856 313 00-	25	PG/RPG/BPG- PN/RPN/BPN- PW/RPW/BPW- PB/RPB/BPB- PD/RPD/BPD- PA/BPA/RPA- PC/RPC/BPC- PP/RPP/BPP- High Temperature Version	Ø 90
856 314 00-	32		
856 315 00-	40		
856 316 00-	50		

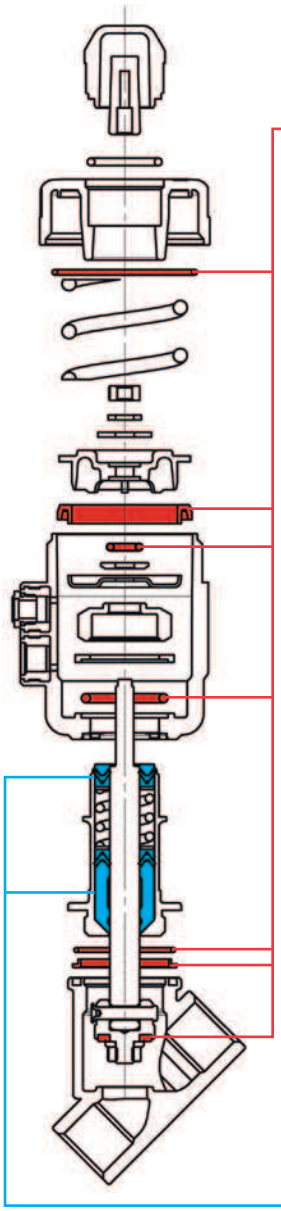
STEM SEALS KIT			
Kit Code	**DN**	**Valve Type[1]**	**Actuator**
856 802 00-	all	PG/RPG/BPG/DPG- PN/RPN/BPN/DPN- PW/RPW/BPW- PB/RPB/BPB- PD/RPD/BPD- PA/BPA/RPA- PC/RPC/BPC- PP/RPP/BPP- PR/RPR/BPR-	Ø 63/90
856 900 00-	15	High Temperature Version	Ø 63
856 901 00-	20		
856 902 00-	25		
856 903 00-	32	High Temperature Version	Ø 90
856 904 00-	40		
856 905 00-	50		

1. Included versions with optional: stroke regulator (e.g. code PW208STZR0) and travel switch version (e.g. code BPG209LTKI0)

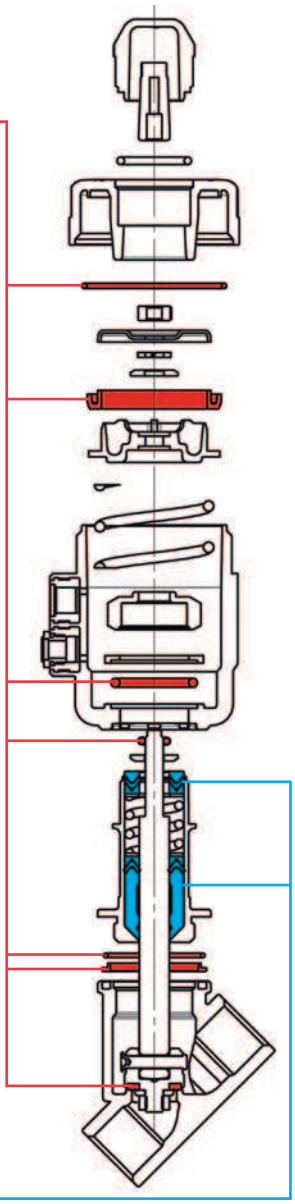
Seal Kit For Stainless Steel Valves Actuator Ø 45

Maintenance operations must be carried out by qualified personnel according to manufacturer's instructions.
To replace seals, please refer to the instruction manual provided with the valve.

Normally Closed



Normally Open



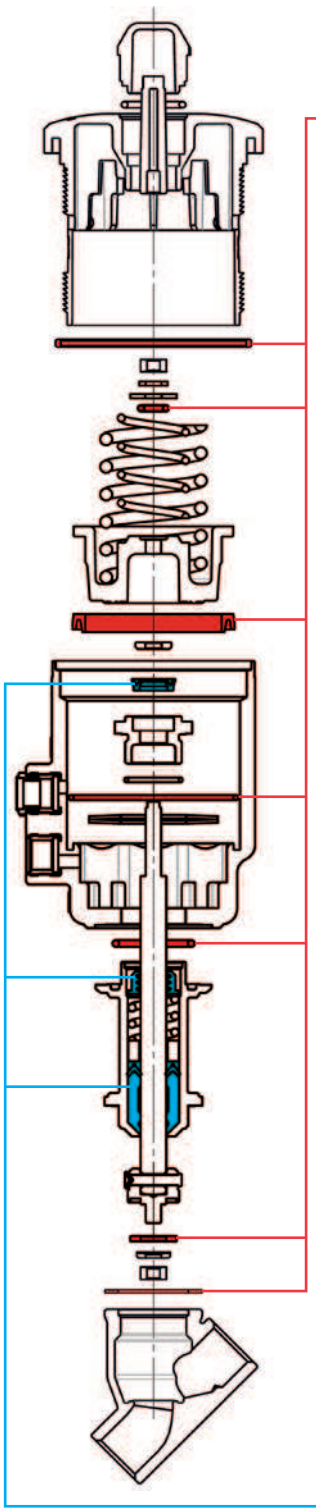
SPARE PARTS KIT: Lip seal, o-rings, main seal, body seal			
Kit Code	**DN**	**Valve Type**	**Actuator**
856 011 00-	15	PG/RPG/BPG- PN/RPN/BPN- PW/RPW/BPW- PB/RPB/BPB- PC/RPC/BPC- PP/RPP/BPP- PR/RPR/BPR	Ø 45
856 012 00-	20		
856 013 00-	15	DPG/DPN-	
856 014 00-	20		

STEM SEALS KIT			
Kit code	**DN**	**Valve Type**	**Actuator**
856 801 00-	all	all	Ø 45

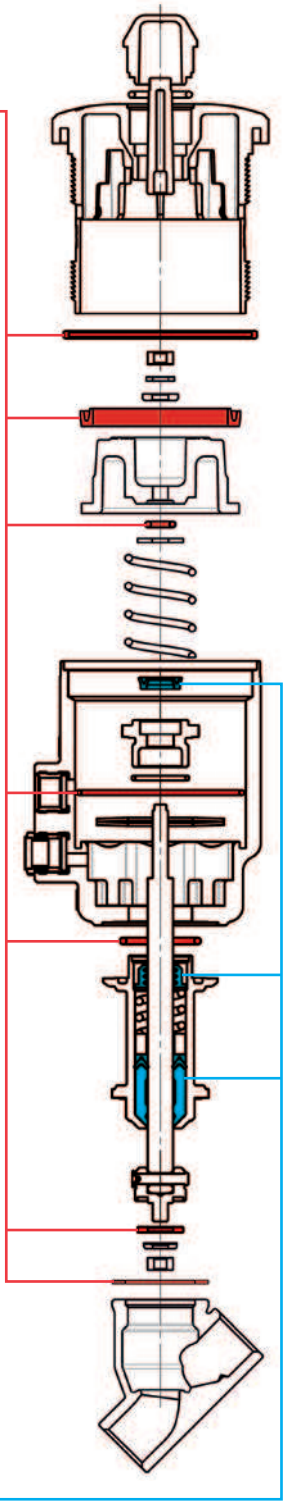
Seal Kit For Bronze Valves Actuator Ø 63/90

Maintenance operations must be carried out by qualified personnel according to manufacturer's instructions.
To replace seals, please refer to the instruction manual provided with the valve.

Normally Closed



Normally Open



SPARE PARTS KIT: Lip seal, o-rings, main seal, flat seal			
Kit Code	**DN**	**Valve Type[1]**	**Actuator**
856 112 00-	15	CG/RCG/BCG-CN/RCN/BCN-	Ø 63
856 123 00-	20		
856 134 00-	25		
856 145 00-	32		
856 156 00-	40		
856 167 00-	50		
856 612 00-	15	DCG/DCN-	
856 623 00-	20		
856 634 00-	25		
856 645 00-	32		
856 656 00-	40		
856 667 00-	50		
856 317 00-	25	CG/RCG/BCG-CN/RCN/BCN-	Ø 90
856 318 00-	32		
856 319 00-	40		
856 320 00-	50		

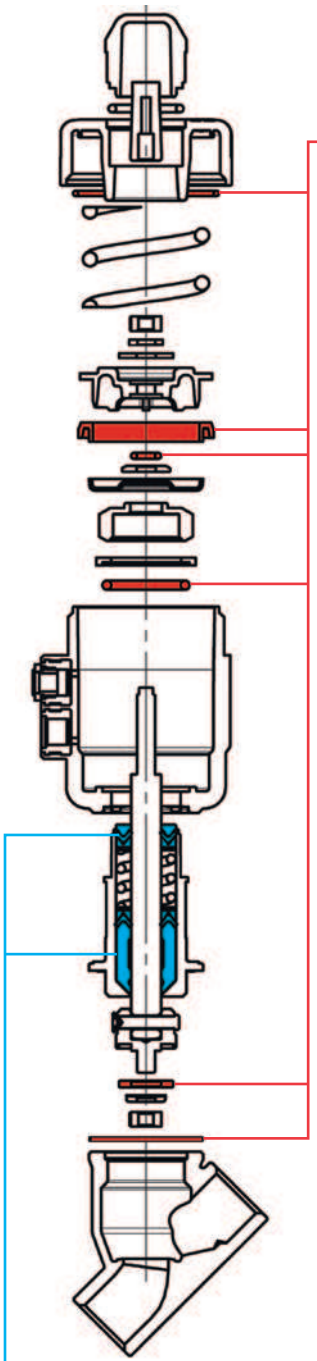
STEM SEALS KIT			
Kit Code	**DN**	**Valve Type[1]**	**Actuator**
856 802 00-	all	CG/RCG/BCG-/DCG-CN/RCN/BCN/DCN-	Ø 63/90

1. Included versions with optional: stroke regulator (e.g. code CG206STXR0) and travel switch version (e.g. code BCG210LTJI0)

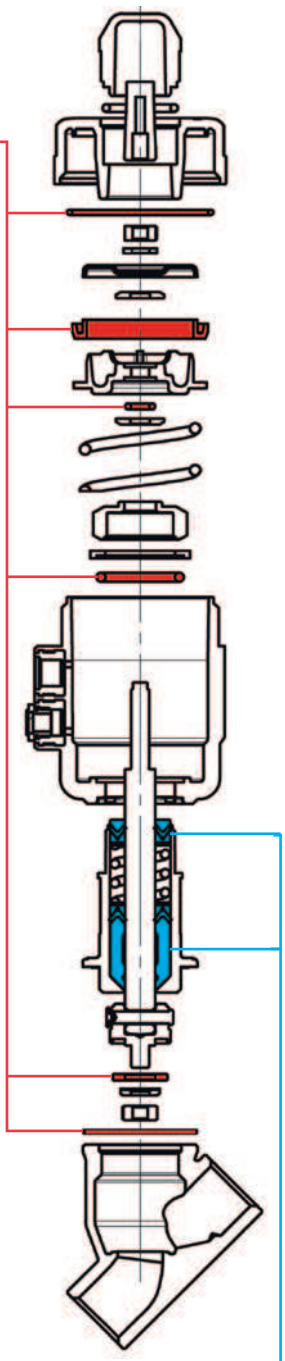
Seal Kit For Bronze Valves Actuator Ø 45

Maintenance operations must be carried out by qualified personnel according to manufacturer's instructions.
To replace seals, please refer to the instruction manual provided with the valve.

Normally Closed



Normally Open



SPARE PARTS KIT: Lip seal, o-rings, main seal, flat seal			
Kit Code	**DN**	**Valve Type**	**Actuator**
856 015 00-	15	CG/RCG/BCG-CN/RCN/BCN-	Ø 45
856 016 00-	20		
856 017 00-	25		
856 018 00-	15	DCG/DCN-	
856 019 00-	20		
856 020 00-	25		

STEM SEALS KIT			
Kit Code	**DN**	**Valve Type**	**Actuator**
856 801 00-	all	all	Ø 45

Valve Selection

Piston actuated valves use an external control medium to pilot the actuator, where a piston is directly connected to the main seal that closes onto the main orifice, thereby controlling the flow of liquids and gases.

They are highly recommended under the following conditions:

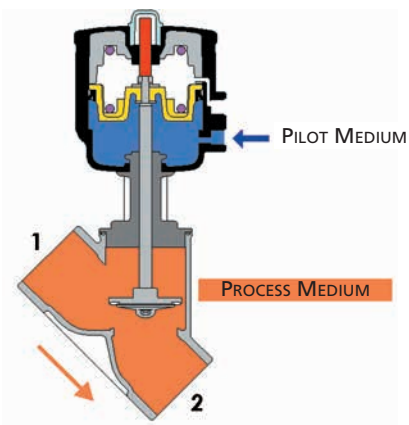
- Media containing dirt particles
- Highly viscous media (up to 600 cST (80°E) - 1 centistoke = 1 mm²/s)
- High flow volumes
- High temperatures
- Damp environments or hazardous locations

Flow values shown in the selection tables are subject to a tolerance of ± 15%.

M&M International Piston Actuated Valve Versions

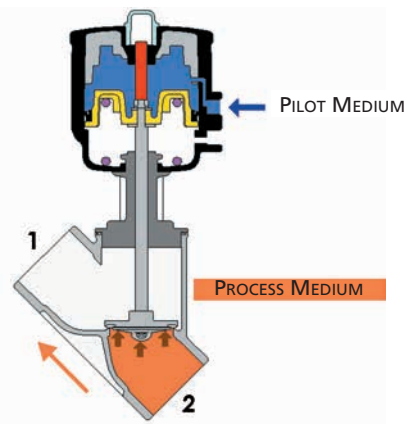
NC Valve – Flow over seat

The pressure of the pilot medium opens the valve, the spring closes it.



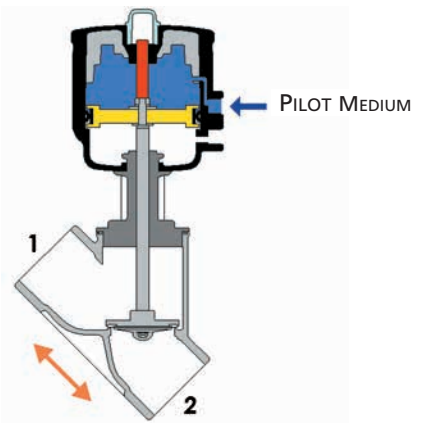
NO Valve – Flow under seat

The pressure of the pilot medium closes the valve, the spring force opens it.



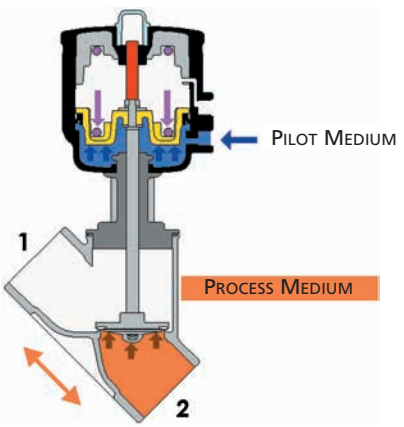
DOUBLE ACTING Valve – Flow over seat or under seat

The pilot medium opens and closes the valve. No springs. Two 3/2 pilot valves required.



BI-DIRECTIONAL NC Valve – Flow over seat or under seat

The pressure of the pilot medium opens the valve, the spring closes it. There are two springs and the valve can be used both over seat and under seat.



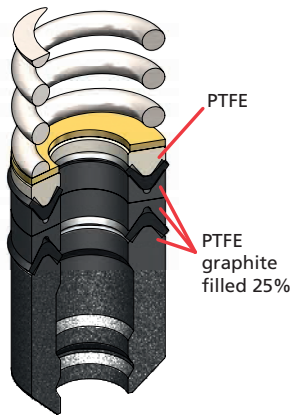
Technical Information

M&M piston actuated valves have been upgraded over the years both by design improvements as well as by using better performing materials. Below you will find some highlights about the outstanding features of M&M piston actuated valves.

Main seal material:

In 2004 standard PTFE was replaced by new modified PTFE and some design changes in the main seal were introduced. Modified PTFE has a better particle fusion, which gives the following improved features in comparison with PTFE:

- Lower porosity and permeability
- Fewer void spaces
- Higher elasticity
- Reduced deformation under load
- Better chemical resistance to controlled media
- Smoother surface and improved design flexibility



Bonnet chevron packing:

Standard bonnet seals consist of 2 'V'-shaped FKM gaskets and a package of 25% graphite-filled PTFE gaskets.

Stainless steel cast parts:

All our stainless steel series are fitted with bodies and bonnets cast specifically to Norm ASME SA351/351M GRADE CF3M, which is the Alloy Casting Institute designation for cast AISI 316L (normally used for wrought materials).

ACI designation is adopted by many standards issuing organizations, such as ASTM (for instance in ASME B 31.3 for stainless steel castings , appendix B and D, concerning recommended selection of materials for valves manufacturing). Our cast AISI 316L has a minimum content of 10% nickel, which gives improved ductility and strength.

This type of stainless steel can be compared to EN 1.4409 with a good approximation.

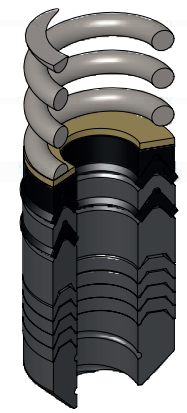
All our stainless steel cast parts bear a heat number identifying the basic material composition. Such details are stated in the casting certificate 3.1b, that can be ordered with the valves at an additional fee.

High temperature piston actuated valves:

M&M has developed a piston actuated valve version that can be used up to 200 ° C, provided that the valve pressure limits are respected.

The main differences as regards materials and design are the following:

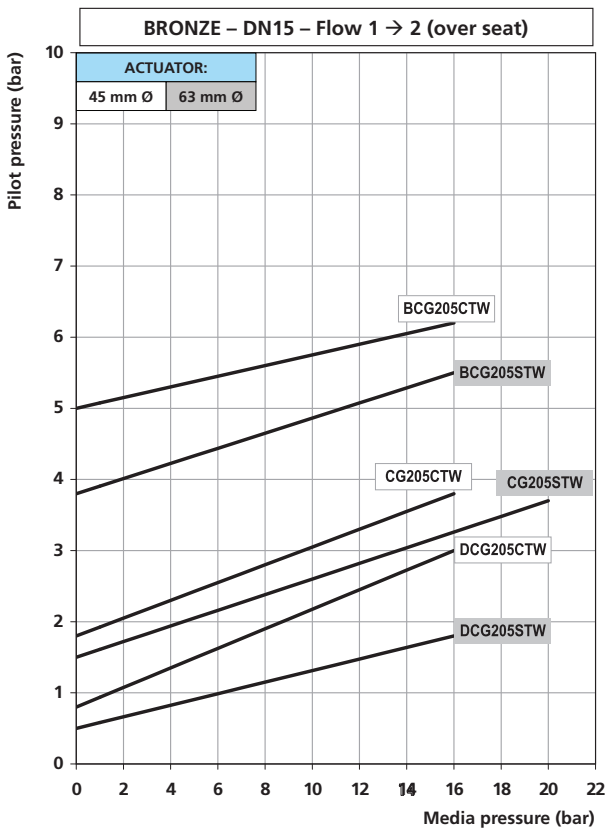
- Change of the actuator material: from standard PA6 to PA66 filled with 30% fibreglass
- All valves with DN > 25 with fixed plug design (to withstand turbulence caused by steam at high speed)
- Special design of bonnet chevrons, all are made of 25% graphite-filled PTFE

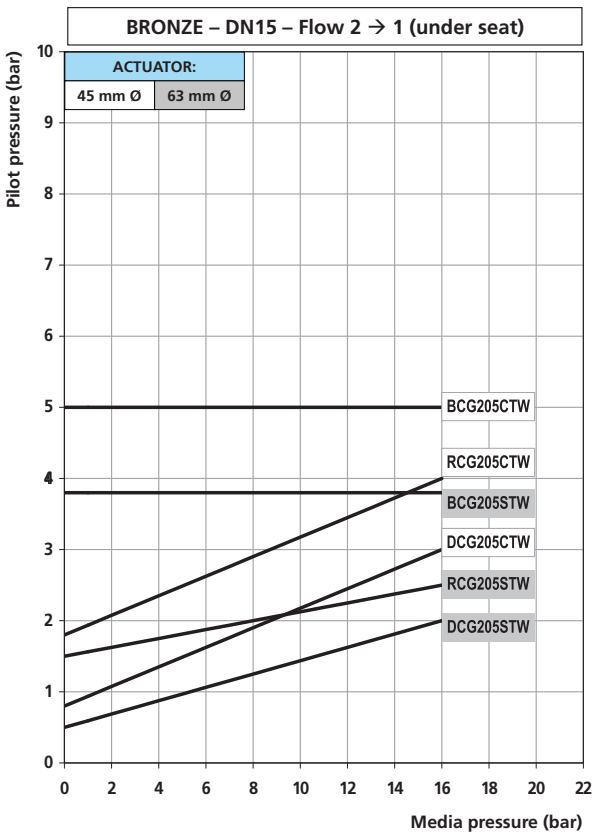


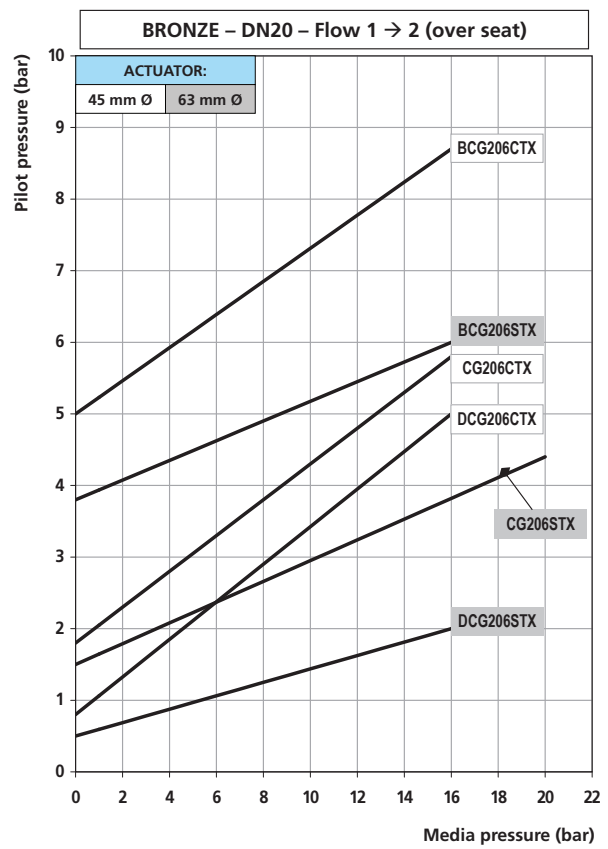
Body Pressure (PN) chart and PED classification:

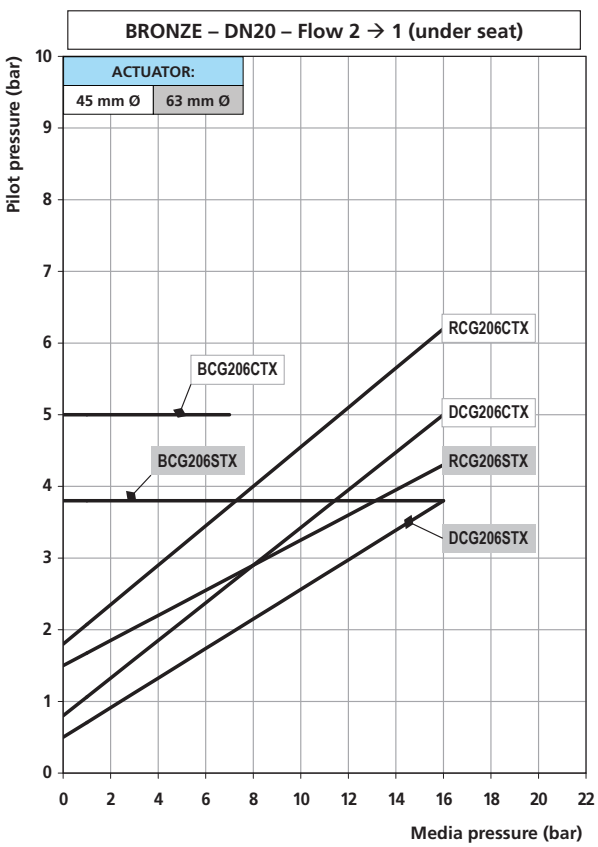
M&M valve bodies bear a PN value which is to be intended as the body design pressure in bar. We use this value as a reference to perform burst tests on the bodies and bonnets upon quality control acceptance. This value is not related to the applicable medium pressure once the valve is in operation. The correct medium pressure is indicated on the valve label and is specific for each valve size and function.

Bronze Valves Comparative Charts DN15 to DN20





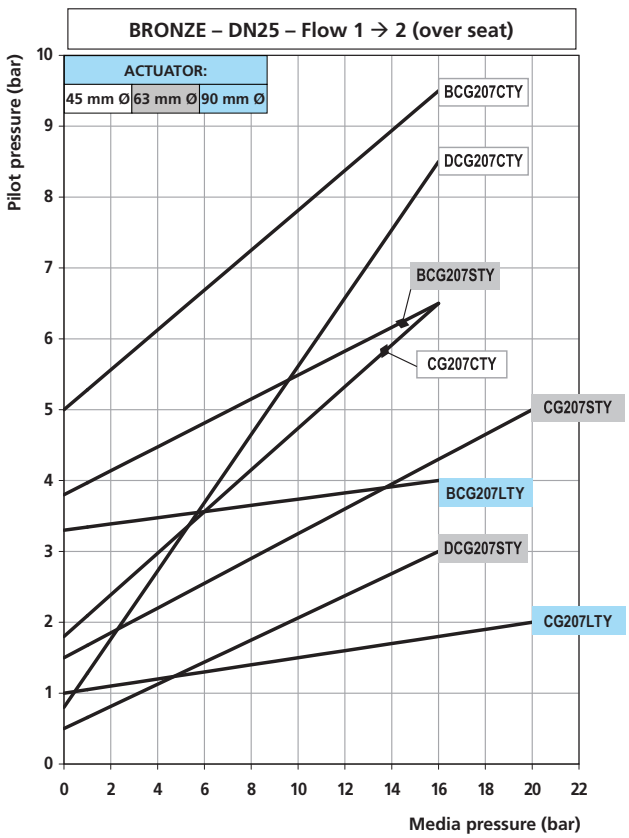


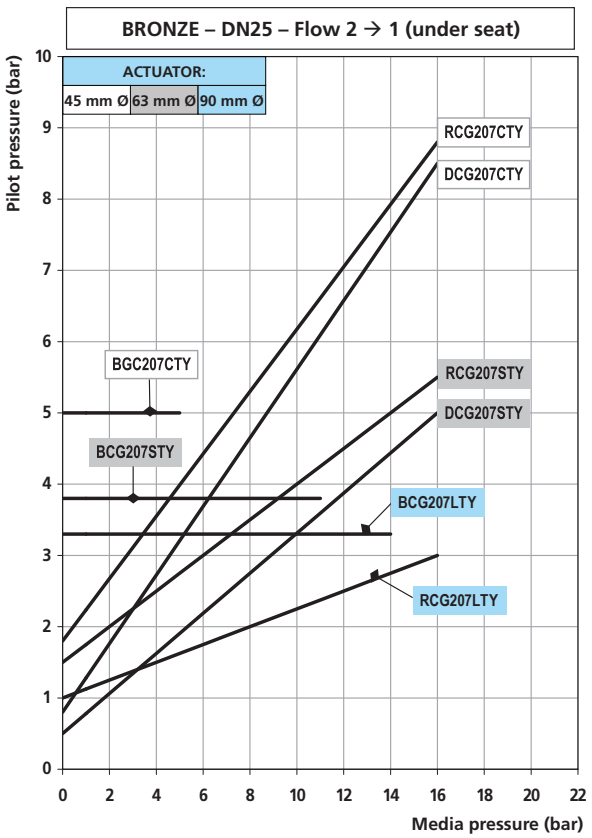


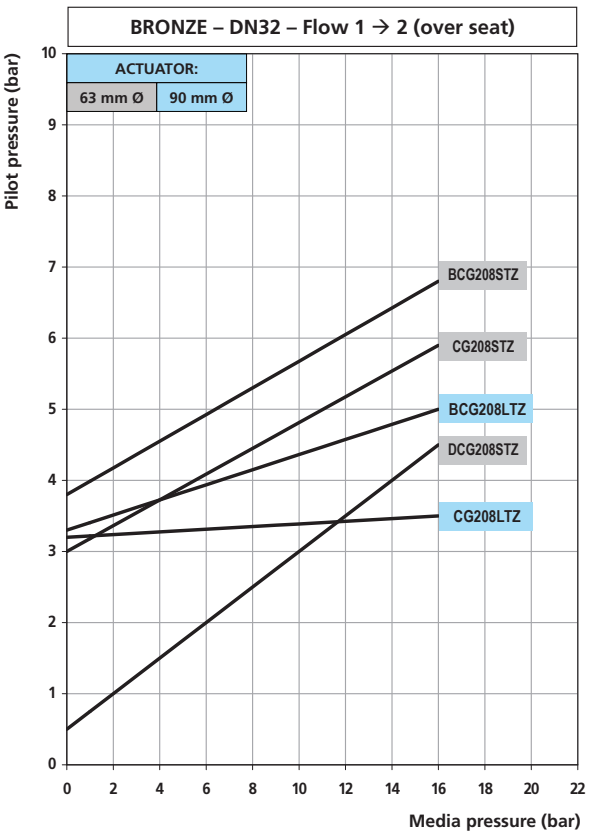
Version: CG = Normally Closed, **BCG** = Normally Closed (anti-waterhammer), **RCG** = Normally Open, **DCG** = Double Acting

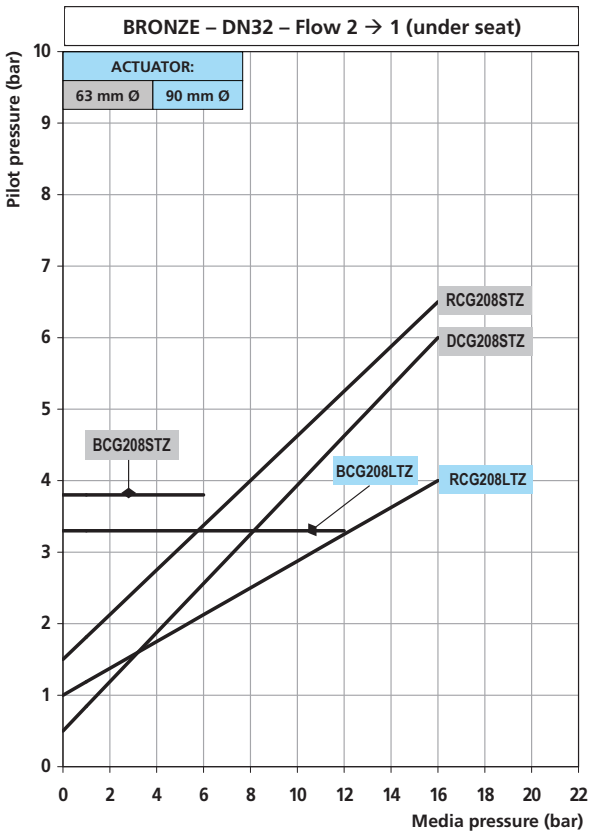
rotork Instruments

Bronze Valves Comparative Charts DN25 to DN32



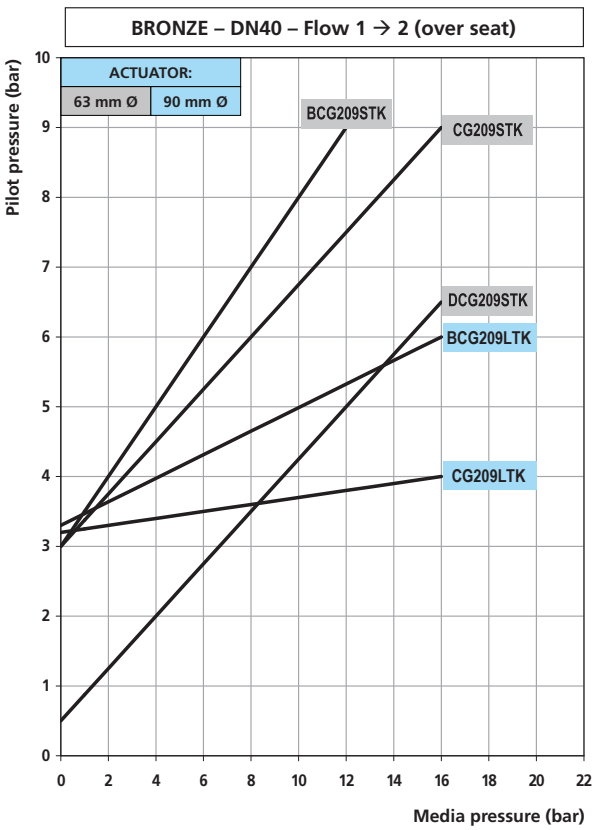


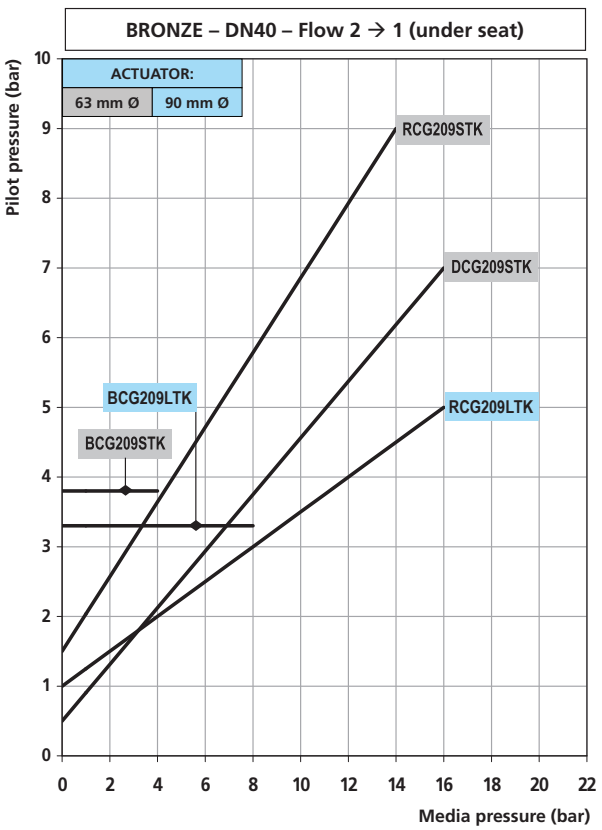


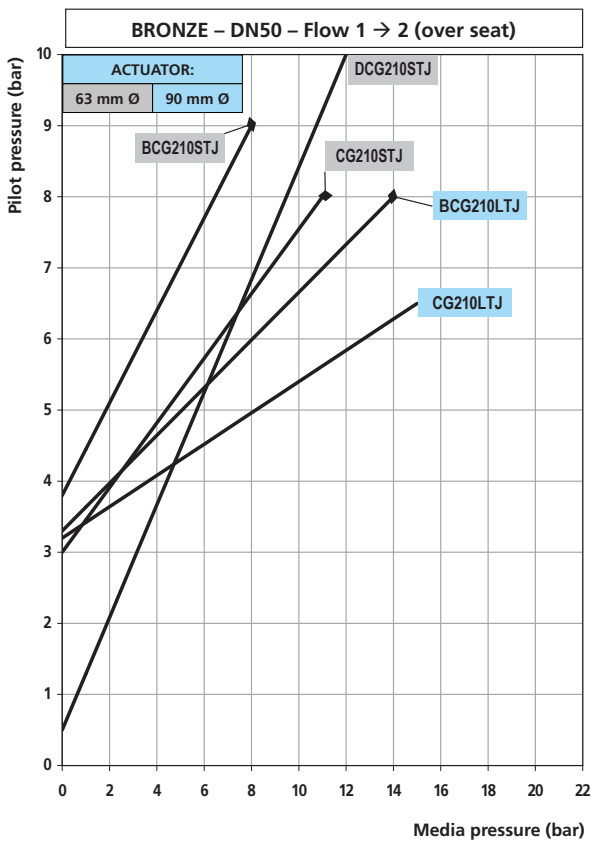


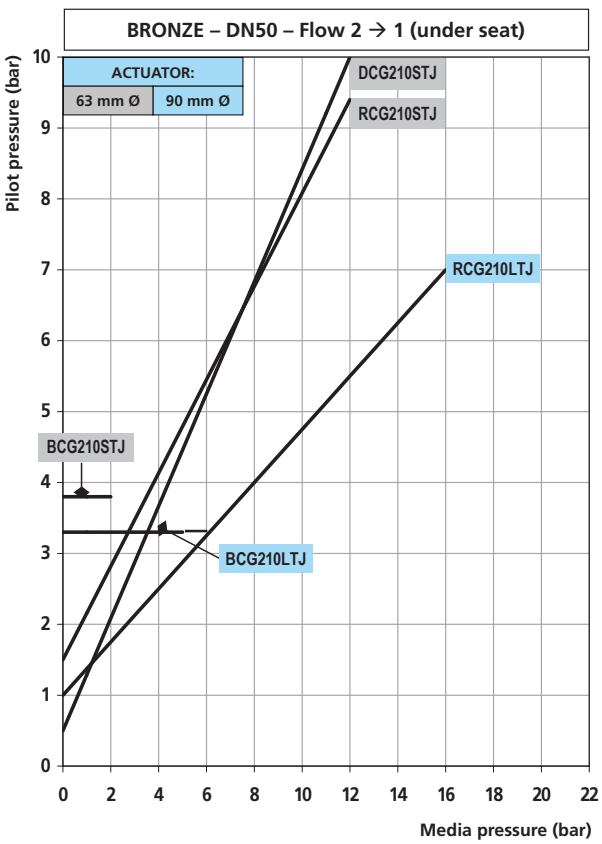
Version: CG = Normally Closed, **BCG** = Normally Closed (anti-waterhammer), **RCG** = Normally Open, **DCG** = Double Acting

Bronze Valves Comparative Charts DN40 to DN50



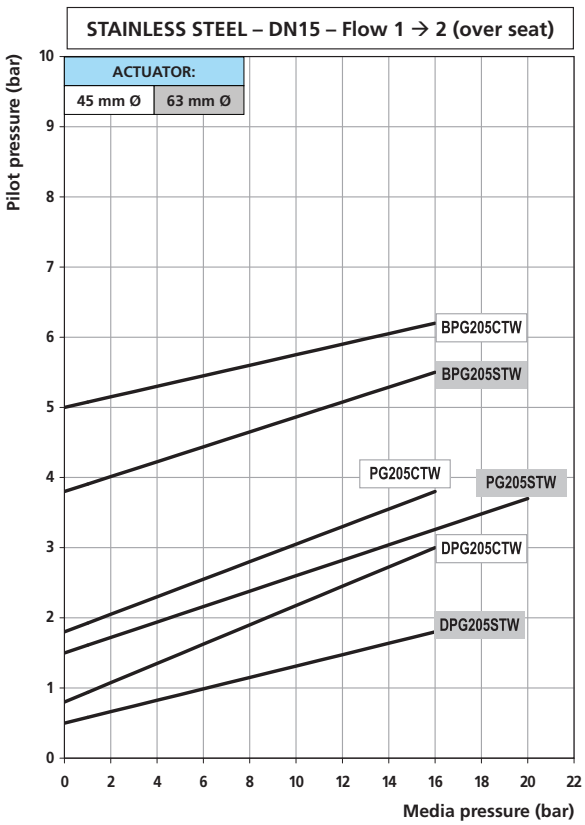


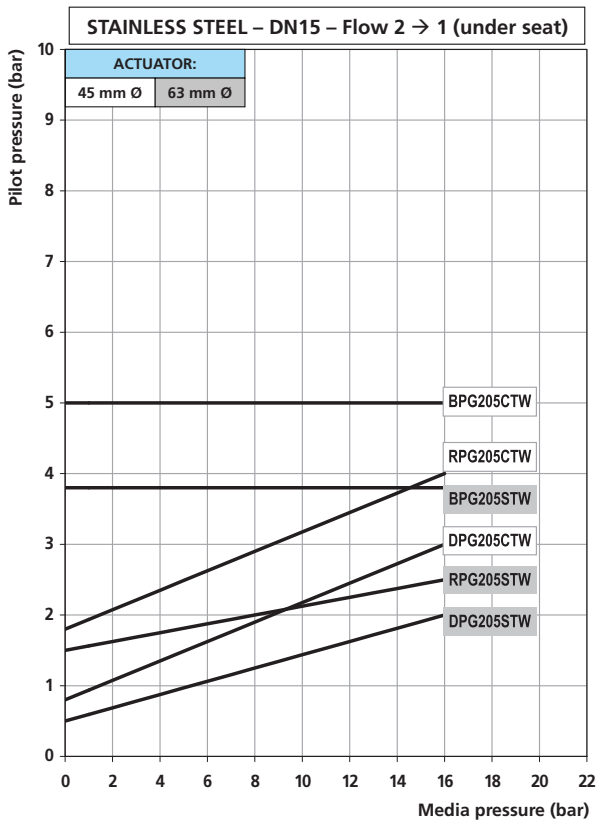


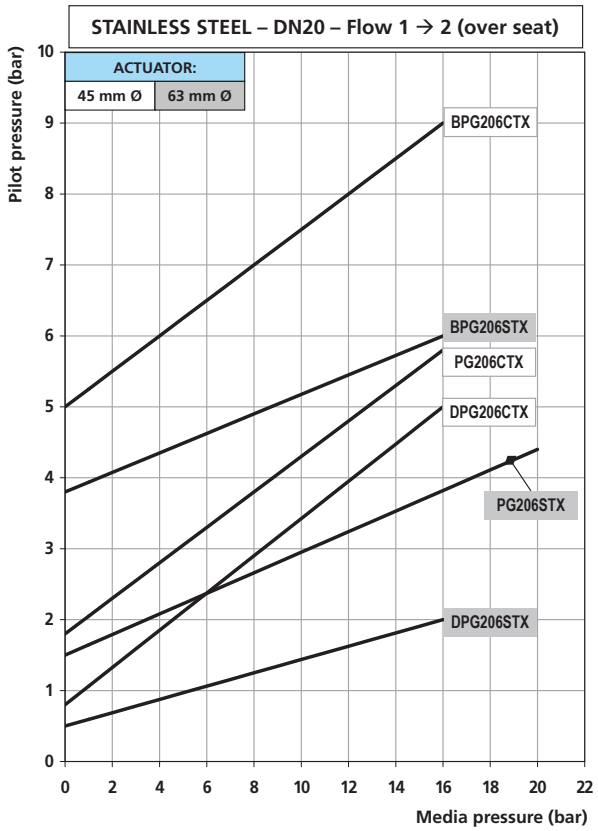


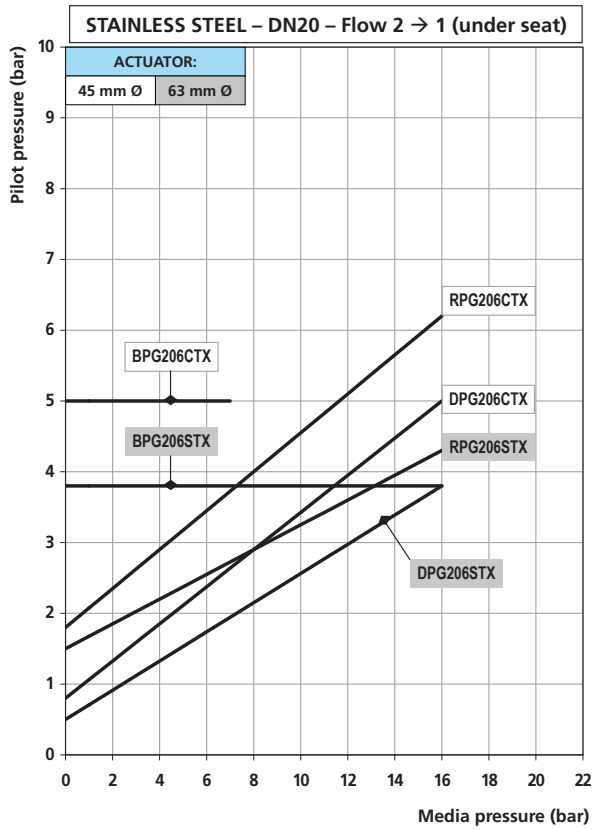
Version: CG = Normally Closed, **BCG** = Normally Closed (anti-waterhammer), **RCG** = Normally Open, **DCG** = Double Acting

Stainless Steel Valves Comparative Charts DN15 to DN20



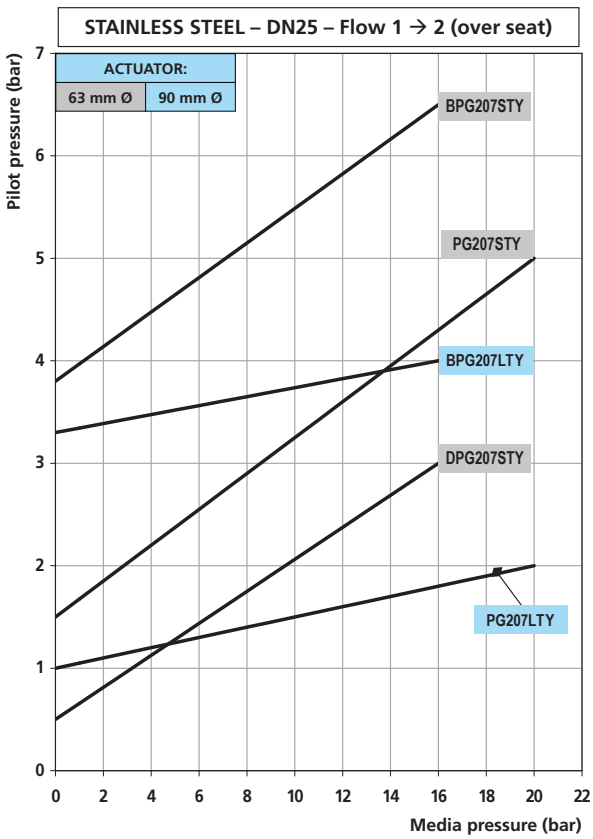


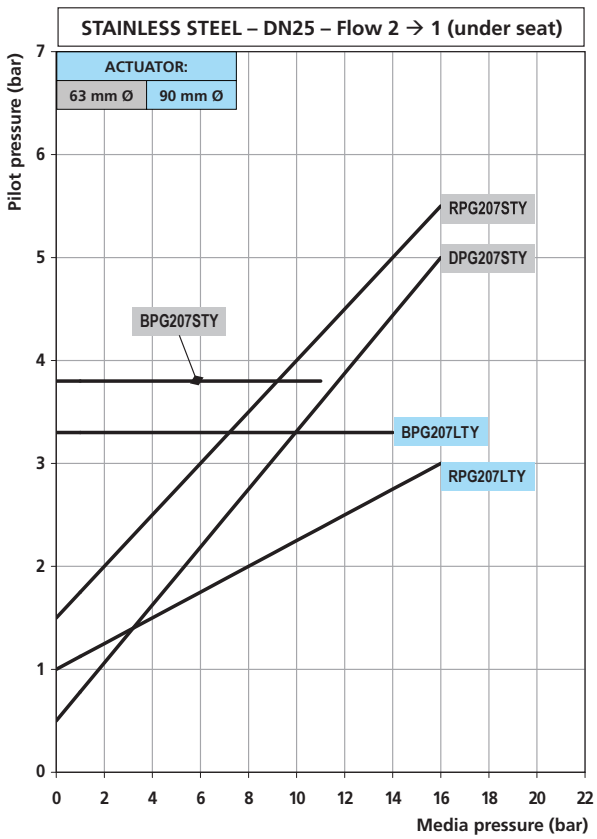


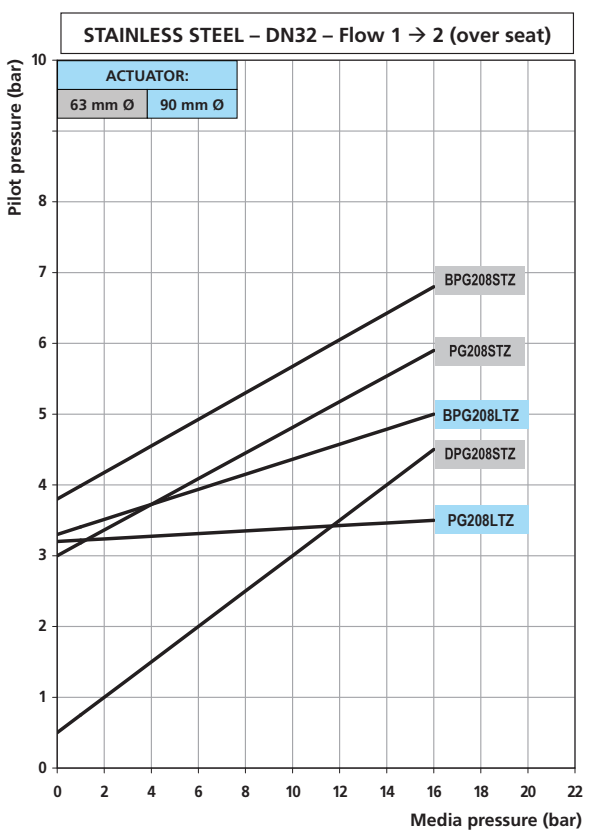


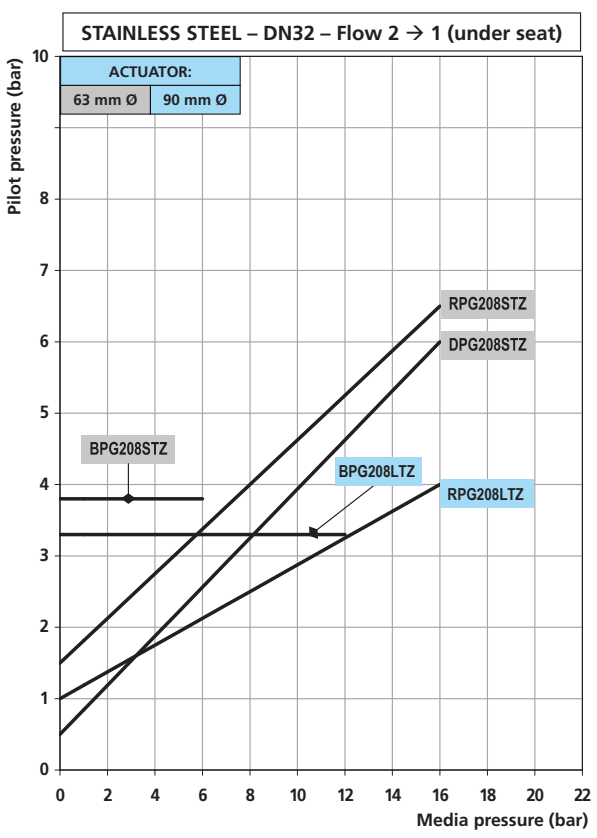
Version: PG = Normally Closed, **BPG** = Normally Closed (anti-waterhammer), **RPG** = Normally Open, **DPG** = Double Acting

Stainless Steel Valves Comparative Charts DN25 to DN32



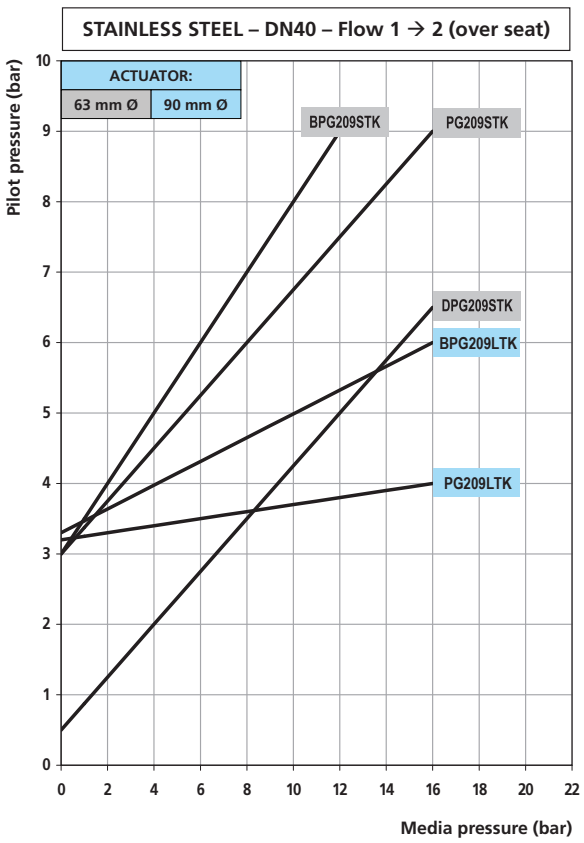


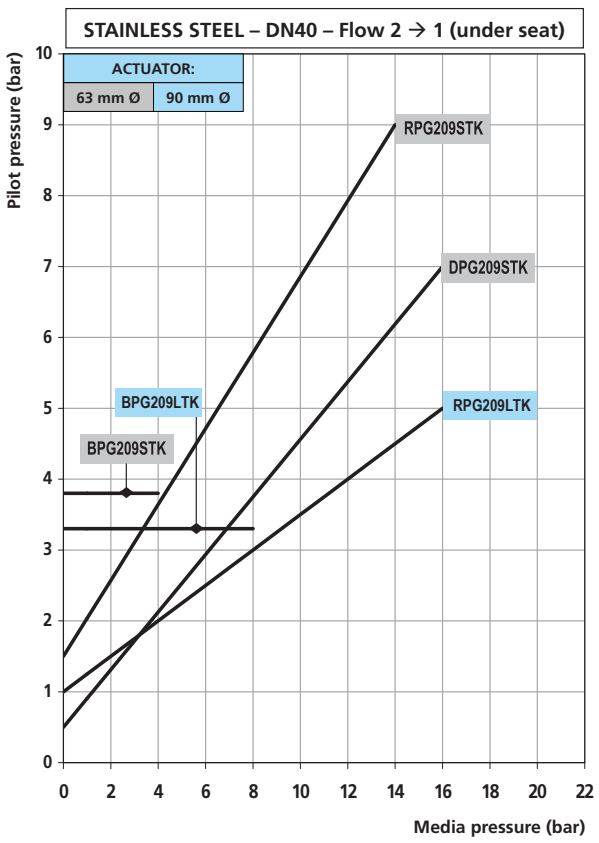


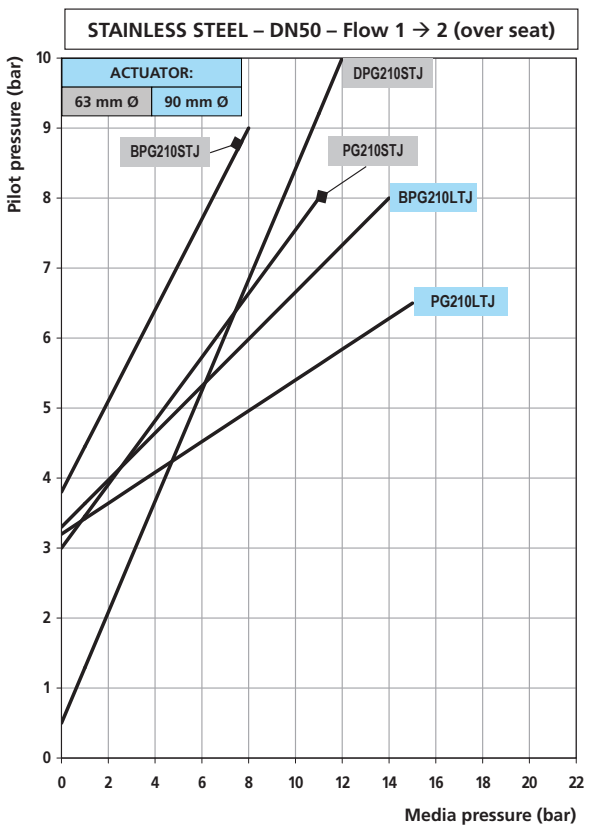


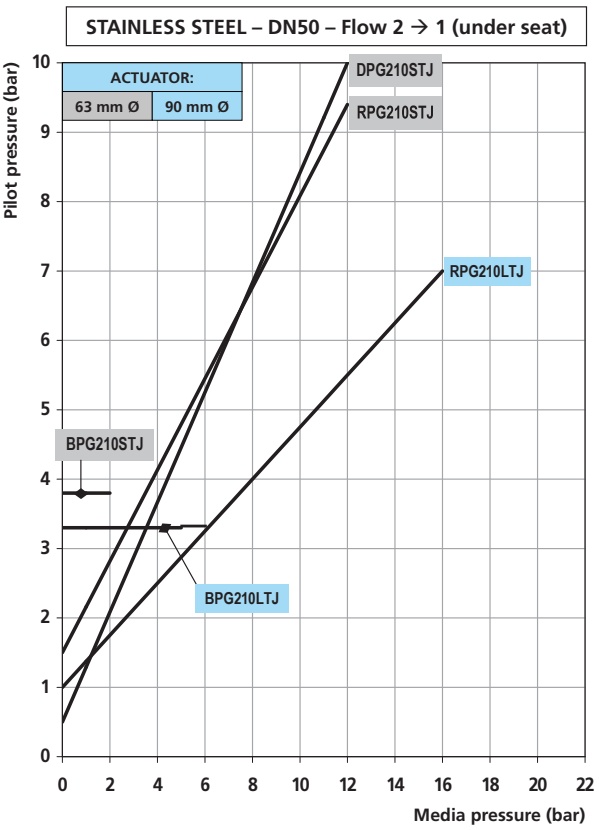
Version: PG = Normally Closed, **BPG** = Normally Closed (anti-waterhammer), **RPG** = Normally Open, **DPG** = Double Acting

Stainless Steel Valves Comparative Charts DN40 to DN50









Version: PG = Normally Closed, **BPG** = Normally Closed (anti-waterhammer), **RPG** = Normally Open, **DPG** = Double Acting

Piston Valves Opening/Closing Time (sec)

NC Version – Flow Direction 1 → 2

DN [mm]	Actuator Ø 45 1,5 mm pilot orifice B356-		Actuator Ø 63 1,5 mm pilot orifice B326-		Actuator Ø 90 2,0 mm pilot orifice D326-	
	NC		NC		NC	
	o	c	o	c	o	c
15	0,09	0,22	0,14	0,3	-	-
20	0,09	0,22	0,2	0,3	-	-
25	-	-	0,32	0,34	0,32	0,34
32	-	-	0,34	0,38	0,36	0,4
40	-	-	0,34	0,38	0,4	0,46
50	-	-	0,36	0,38	0,4	0,46

Notes:

Pilot pressure: 6 bar
Pilot media: AIR
Pressure in body: 0 bar
For Normally Open valves (NO) invert columns o and c

Actuator Volume

Actuator	Air Volume
[mm]	[dm³]
Ø 45 mm	0,036
Ø 63 mm	0,099
Ø 90 mm	0,212

Declaration of Conformity to CE

DECLARATION OF CONFORMITY CE

We, M&M International S.r.l. registered office via A. Appiani 12 – 20121 Milano - Italy, declare under our sole responsibility that the products:

Piston Actuated Valves type PG, PN, CG, CN, PS, PB, PW, PH, PA, PF, PD, PC, PR, PP (sizes DN15 to DN50)

and all derived versions (prefix "B", "R", "D" and "Z")

to which this declaration relates are in conformity with the following standards or other normative documents

No harmonized or other technical standards are applicable to these products

following the provisions of **97/23/EC Pressure Equipment Directive**

Series	Sizes	Requirements met	Module	Notified Body	Certificate No.
CG, CN and derived versions	All sizes	Art. 3.3	N/A	N/A	N/A
PP and derived versions	All sizes	Art. 3.3	N/A	N/A	N/A
PG, PN, PS, PB, PW, PH, PA, PF, PD, PC, PR and derived versions	DN15 to DN25	Art. 3.3	N/A	N/A	N/A
	DN32 to DN50	Category I	A (Internal Production Control)	N/A	N/A

Orio al Serio, Italy, October 2015

The General Manager
Maurizio Forno

ATTENTION!

The attention of the purchaser, installer or user is drawn to special measures and limitations to use that must be observed when the product is used, installed or taken into service. Details of these special measures and limitations to use are available on request and are also contained in the product label and in the Installation, Maintenance and User Instructions provided together with the product.

PISTON ACTUATED VALVE CODING

CODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Function	
– =	NC Normally closed
B =	NC Bidirectional
R =	NO Normally open
D =	DA Double acting
Z =	Control / Modulating

Ways
2

Set-up deep switch parameters (only for Control Piston Valves)

Special Execution	
0 =	Standard
H =	High temperature (SS)
K =	Nickel plated + hardening treatment
V =	Vacuum seal (bronze)

Serial Letter	
P =	Stainless steel type
C =	Bronze / Brass type
L =	Compact brass type

Optional Features	
0 =	NO optional features
A =	Mechanical position module
B =	Inductive position module
E =	Equi% Plug (only control PAV)
L =	Linear Plug (only control PAV)
I =	Travel switch
R =	Stoke regulator
X =	Atex inductive switch (only for ATEX PAV)

Orifice [Ø mm]	
W =	15
X =	20
Y =	25
Z =	32
K =	40
J =	50

Connection Type	
0 =	Operator (w/o body)
A =	Flange (ANSI B16.10 Class 150)
B =	Butt weld (ISO 65 - ANSI B 36.10)
C =	Clamp (ISO 2852)
D =	Flange (EN 1092 shape B)
G =	GAS (ISO 228)
N =	NPT
P =	Clamp connection (ASME BPE)
R =	Threaded spigots
W =	Butt weld (DIN 11850)

Seal Material	
B =	NBR (only for BLG)
P =	PEEK
T =	PTFE

Valve Body ID. Code	
04 =	3/8" (only for BLG)
05 =	1/2"
06 =	3/4"
07 =	1"
08 =	1 – 1/4"
09 =	1 – 1/2"
10 =	2"
11 =	1 3/4"
12 =	2 3/8"

Actuator Type	
0 =	Manual angle seat valve
D =	Ø 32 only for BLG
C =	Ø 45 Polyamide
S =	Ø 63 Polyamide
L =	Ø 90 Polyamide
M =	Ø 63 AISI (for ATEX PAV)
G =	Ø 90 AISI (for ATEX PAV)

rotork®

Keeping the World Flowing

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A full listing of our worldwide sales and service network is available on our website.

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rotork®
Instruments

Solenoid Valves

alcon
SOLENOID VALVES
A rotork Brand

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Keeping the World Flowing

Contents

rotork® Instruments

Rotork is the global market leader in valve automation and flow control. Our products and services are helping organisations around the world to improve efficiency, assure safety and protect the environment.

We strive always for technical excellence, innovation and the highest quality standards in everything we do. As a result, our people and products remain at the forefront of flow control technology.

Uncompromising reliability is a feature of our entire product range, from our flagship electric actuator range through to our pneumatic, hydraulic and electro-hydraulic actuators, as well as instruments, gearboxes and valve accessories.

Rotork is committed to providing first class support to each client throughout the whole life of their plant, from initial site surveys to installation, maintenance, audits and repair. From our network of national and international offices, our engineers work around the clock to maintain our position of trust.

Rotork. Keeping the world flowing.

Introduction

Part of the Rotork Instruments Group, Alcon Solenoid Valves and M&M International are leading manufacturers of combustion, industrial, medical and laboratory gas control solenoid valves. Whether designing solutions for stand-alone valves or a customised OEM installation we have developed an enviable reputation for quality products, reliability and innovation.

With facilities based in the UK, Italy and the USA, and sales offices worldwide, we can provide solenoid valves to function in the most arduous of conditions and extreme temperatures, anywhere in the world.

Our product line covers a full range of valves for general and special-purpose including:

- Air
- Water
- Potable Water
- Steam
- Automation
- Cryogenics
- Gases
- Oil & Fuel
- Actuation
- High Pressure
- Hazardous Area
- Aggressive Media
- Vacuum

Our solenoid valves can be manufactured with increased safety electrical coils and enclosures covered by ATEX, UL, IECEx or CSA approvals, to meet application demands.

The advantages of solenoid valves manufactured by Alcon and M&M include:

- Robust construction for industrial applications featuring stainless steel orifice on most models
- Stainless steel operators with low residual magnetism according to 1.4105 EN 10088 (AISI 430F)
- High quality seal materials
  NBR, FKM, EPDM, PTFE, Sigodur (filled PTFE), Ruby, Kalrez®
- Fully interchangeable coils* with a wide range of AC and DC voltages. Coil orientation possible through 360°
- Coils tested 100% in compliance with the current EC directives compliance to RoHS directive and to relevant international standards upon request
- Development and realisation of special projects

*where applicable

Solenoid Valve Selection

Series	Function	Body Material	Pipe Size	OPD[1]	Kv (m^3/hr)	Type[2]	
B298	2/2 N/C compact	Stainless Steel	1/8"	0 to 22	0.08 to 0.21	DA	
D298/299	2/2 N/C	Stainless Steel	1/8" & 1/4"	0 to 22	0.07 to 0.45	DA	
D262/263	2/2 N/C	Brass	1/8" & 1/4"	0 to 30	0.03 to 0.48	DA	
D884/885/886	2/2 N/C	Brass	1/4" to 1/2"	0 to 16	1.26 to 1.50	assisted lift	
D264/265/266	2/2 N/C	Brass	1/4" to 1/2"	0.1 to 16	1.26 to 1.50	PO	
D187 TO 293 & CD187 TO 293	2/2 N/C	Brass	1/4" to 1"	0 to 16	3.0 to 8.40	linked diaphragm	
B203 TO 222	2/2 N/C	Brass	1/4" to 1"	0.3 to 16	1.56 to 9.60	PO	
D223/224/225	2/2 N/C	Brass	1 1/4" to 1"	0.5 to 16	22.20 to 32.40	PO	
ACD	2/2 N/C	See datasheet for options	3/8" to 2"	0 to 14	3 to 26	assisted lift	
ACP	2/2 N/C	See datasheet for options	1/2" to 2"	0.3 to 10.3	4.2 to 21	PO	
D201	2/2 N/C	Brass	Flanged	0 to 24	0.08 to 0.27	DA	
B397	3/2 N/C	Brass	1/8"	0 to 18	0.03 to 0.21	DA	
B398	3/2 N/C	Stainless Steel	1/8"	0 to 15	0.04 to 0.16	DA	
D398/399	3/2 N/C	Brass	1/8" & 1/4"	0 to 18	0.08 to 0.27	DA	
D362/363	3/2 N/C	Brass	1/8" & 1/4"	0 to 18	0.08 to 0.48	DA	
LC203/204/205	2/2 N/C Latching	Brass	1/4" to 1/2"	0.3 to 5	1.56 to 3.78	PO	
LD266	2/2 N/C Latching	Brass	1/2"	0.1 to 5	0 to 1.50	PO	
RD298/299	2/2 N/O	Stainless Steel	1/8" & 1/4"	0 to 100	0.04 to 0.27	DA	
RD262/263	2/2 N/O	Brass	1/4"	0 to 30	0.03 to 0.27	DA	
RD236	2/2 N/O	Brass	1/4"	0 to 25	0.03 to 0.51	DA	
RB203 TO 222	2/2 N/O	Brass	1/4" to 1"	0.3 to 16	1.56 to 9.60	PO	
ACDN	2/2 N/O	See datasheet for options	3/8" to 2"	0 to 10	3 to 26	-	
RD223/224/225	2/2 N/O	Brass	1 1/4" to 1"	0.5 to 16	22.20 to 32.40	PO	
RD398/399	3/2 N/O	Brass	1/8" & 1/4"	0 to 15	0.08 to 0.27	DA	
RD362/363	3/2 N/O	Brass	1/8" & 1/4"	0 to 16	0.08 to 0.27	DA	
B297	2/2 N/C compact	Brass	1/8"	0 to 30	0.03 to 0.18	DA	
D237/238/239	2/2 N/C	Brass	1/4" to 1/2"	0 to 17	0.51 to 1.26	DA	
D301	2/2 N/C	Brass	Flanged	0 to 18	0.08 to 0.27	DA	
RB297	2/2 N/O compact	Brass	1/8"	0 to 25	0.03 to 0.18	DA	
RD301	2/2 N/O	Brass	Flanged	0 to 15	0.08 to 0.27	DA	
SB397	3/2 N/O compact	Brass	1/8"	0 to 6	0.04 to 0.06	DA	
RB397	3/2 N/O compact	Brass	1/8"	0 to 15	0.03 to 0.21	DA	
GD362/363	Universal 3/2 (N/O)	Brass	1/8" to 1/4"	0 to 8	0 to 0.13	DA	
SD362/363	2nd Service 3/2 (N/O)	Brass	1/8" to 1/4"	0 to 15	0.08 to 0.20	DA	
DD362/363	Diverting 3/2 (N/O	Brass	1/8" to 1/4"	0 to 20	0.08 to 0.13	DA	
D298/299DR-1	2/2 N/C	Stainless Steel	1/8" & 1/4"	0 to 200	0.04 to 0.27	DA	
D262/263DR-1	2/2 N/C	Brass	1/8" & 1/4"	0 to 200	0.04 to 0.27	DA	
D634/635/636DTT1	2/2 N/C	Brass	1/4" to 1/2"	0.3 to 140	1.26 to 1.50	PO	
D232/233/234	2/2 N/C	Brass	3/8" to 3/4"	1 to 50	2.52 to 2.88	PO	
RD232/233/234	2/2 N/C	Brass	3/8" to 3/4"	1 to 50	2.52 to 2.88	PO	
RD236DR-1	2/2 N/O	Brass	1/4"	0 to 180	0.03 to 0.21	DA	

Solenoid Valve Selection (cont'd)

	General Purpose	Potable Water	Automation	High Pressure	Compressed Air	Chemical Indyustry/ Aggressive Fluids	Steam	Vacuum	Combustion	Cryogenice	Actuation	Dry Armature	Atex	Page
	●					●								8 - 9
	●					●								10 - 11
	●													12 - 13
	●													14 - 15
	●				●									16 - 17
	●													18 - 19
	●													20 - 21
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	●	●											●	24 - 25
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	●		●											76 - 77
				●										78 - 79
				●										80 - 81
				●										82 - 83
				●	●									84 - 85
				●										86 - 87
				●										88 - 89

Solenoid Valve Selection (cont'd)

Series	Function	Body Material	Pipe Size	OPD[1]	Kv (m^3/hr)	Type[2]	
RD201	2/2 N/O	Brass	Flanged	0 to 55	0.08 to 0.27	DA	
D248/249	2/2 N/C	Brass	1/8" & 1/4"	0 to 25	0.09 to 0.27	DA	
RB214	2/2 N/O	Brass	1/8"	0 to 14	0 to 0.07	DA	
RD213	2/2 N/O	Brass	1/8"	0 to 16	0 to 0.14	DA	
D204/205/206/222	2/2 N/C	Stainless Steel	3/8" to 1"	0.3 to 16	3.3. to 9.60	PO	
RD204/205/206/222	2/2 N/O	Stainless Steel	3/8" to 1"	0.03 to 16	3.3. to 9.60	PO	
D262/263DL	2/2 N/C	Brass	1/8" to 1/4"	0 to 9	0.03 to 0.27	DA	
D398/399CL	3/2 N/C	Brass	1/8" to 1/4"	0 to 9	0.08 to 0.27	DA	
D238/239DL	2/2 N/C	Brass	3/8" to 1/2"	0 to 9	0.27 to 0.30	DA	
D634/635/636	2/2 N/C	Brass	1/4" to 1/2"	0.3 to 9	1.26 to 1.50	PO	
D887/888/889/890/892	2/2 N/C	Brass	1/4" to 1"	0.3 to 4.5	2.10 to 4.50	PO	
ACPX	2/2 N/C	See datasheet for options	1/2" to 2"	0.3 to 8.6	4.2 to 21	PO	
ACHL	2/2 N/C	See datasheet for options	3/8" to 6"	0 to 8.6	2 to 331	MR	
RD236DL	2/2 N/O	Brass	1/4"	0 to 9	0.03 to 0.21	DA	
D606/622 & RD606/622	2/2 N/O	Brass	3/4" to 1"	1 to 9	to 7.20	DA	
D211	2/2 N/C	Brass	3/8"	0 to 0.2	See flow chart	DA	
246	2/2 N/C	POM/Brass	1/4"G	0 to 0.1	See flow chart	DA	
WB251	2/2 N/C	PSU	Ø 12 x L=35	to 0.07	See flow chart	DA	
D262/263	2/2 N/C	Brass	1/8" to 1/4"	-0.9 to 1	0.03 to 0.48	DA	
D362/363	2/2 N/C	Brass	1/8" to 1/4"	0 to -0.95	0.13 to 0.36	DA	
D203/204/205	2/2 N/C	Brass	1/4" to 1/2"	-0.2 to -0.95	1.56 to 3.78	PO	
D237/238/239 & CD237/238/239	2/2 N/C	Brass	1/4" to 1/2"	0 to -0.95	1.27 to 1.50	DA	
D187/188/189/190/192	2/2 N/C	Brass	1/4" to 1"	0 to -0.95	3.00 to 5.10	PO	
D223/224/225	2/2 N/C	Brass	1 1/4" to 2"	-0.5 to -0.95	22.20 to 32.40	PO	
GB	2/2 N/C	Aluminium	1/4" to 1"	0 to 140 mBar	3.6 to 13.6	DA	
GB	2/2 N/C	Aluminium	1 1/4" to 2"	0 to 50 mBar	0 to 33	PO c/w assisted lift	
HWA	2/2 N/C	Aluminium	1 1/4" to 6"	0 to 345 mBar	46.5 to 365	EH	
FACHL	2/2 N/C	See datasheet for options	1/2" to 6"	0 to 2	3 to 331	MR	
68 Series	2/2 N/C	See datasheet for options	1/4" to 2"	0 to 8.0	0.43 to 18	PO	
NAMUR	3/2, 5/2	Aluminium	1/4"	2.5 to 10	0 to 1.2	-	
N298/299	2/2 N/C	Stainless Steel	1/8" & 1/4"	0 to 12	0.07 to 0.27	DA	
N262/263	2/2 N/C	Brass	1/8" & 1/4"	0 to 12	0.08 to 0.27	DA	
N398/399	2/2 N/C	Stainless Steel	1/8" & 1/4"	0 to 12	0.08 to 0.27	DA	
N362/363	3/2 N/C	Brass	1/8" & 1/4"	0 to 12	0.08 to 0.27	DA	
N204/205/206/222 & N223/224/225	2/2 N/C	Brass	3/8" to 2"	0.3 to 12	3.30 to 32.40	PO	
N204/205/206/222	2/2 N/C	Stainless Steel	3/8" to 1"	0.3 to 12	3.30 to 9.60	PO	
ACD Eex	2/2 N/C	See datasheet for options	3/8" to 2"	0 to 14	3 to 26	assisted lift	
ACDN Eex	2/2 N/O	See datasheet for options	3/8" to 2"	0 to 10	3 to 26	assisted lift	
ACP Eex	2/2 N/C	See datasheet for options	1/2" to 2"	0.3 to 10.3	4.2 to 21	PO	
NAMUR Eex	3/2, 5/2	Aluminium	1/4"	2.5 to 10	0 to 1.2	-	

1 Operating pressure differential is in 'bar' unless stated otherwise
2 **DA** Direct Acting **PO** Pilot Operated **MR** Manual Reset **EH** Electro-hydraulic

Solenoid Valve Selection (cont'd)

	General Purpose	Potable Water	Automation	High Pressure	Compressed Air	Chemical Indyustry/ Aggressive Fluids	Steam	Vacuum	Combustion	Cryogenice	Actuation	Dry Armature	Atex	Page
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	●				●									94 - 95
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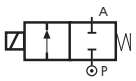
B298 Series, General Purpose & Chemical Industry – 2/2 Normally Closed

Specifications	
Function	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube[1]	Stainless Steel (AISI 303)
Plunger and Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	AC +10% to -15%
	DC +10% to -5%
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7W

[1] With special nut, different from Standard.

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.09	0.08	0 - 22	0 - 18	1.5	FKM	B298DVC
1/8"	0.13	0.11	0 - 18	0 - 8	2.0	FKM	B298DVE
1/8"	0.19	0.16	0 - 13	0 - 2.5	2.5	FKM	B298DVG
1/8"	0.25	0.21	0 - 8	0 - 1	3.0	FKM	B298DVH
1/8"	0.09	0.08	0 - 24	0 - 24	1.5	KALREZ®	B298DKC
1/8"	0.13	0.11	0 - 18	0 - 15	2.0	KALREZ®	B298DKE
1/8"	0.19	0.16	0 - 15	0 - 3	2.5	KALREZ®	B298DKG

Options Available

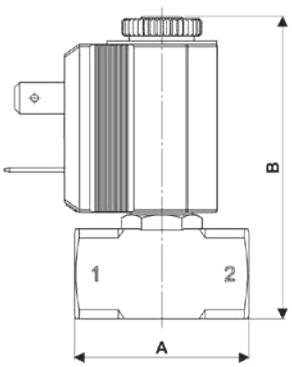
Valve Options (see coding chart)
Anticorrosion treatment recommended with aggressive fluids

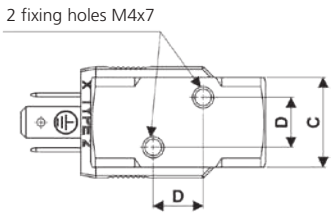
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C
Kalrez® Spectrum™ (-10 °C to 130 °C)	Chemicals	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

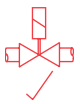
B298 Series, General Purpose & Chemical Industry – 2/2 Normally Closed

Coil Rotation





Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	35	60.6	18	10	0.1

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Seals	
V	FKM
K	KALREZ®

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0

Option	
F	Anticorrosion treatment[1]
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0B1	c/w plug

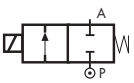
B	2	9	8	D	•	•	•	•	•	•	•	•	•	•	•

[1] Recommended with aggressive fluids.

Product coding example:

B298DKC 2250
1/8" G, auto operation, stainless steel body, Kalrez® seals, 24 VDC, without plug.

D298/299 Series, General Purpose & Chemical Industry – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Wide range of available orifices
- Eex option (see separate datasheet)
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.08	0.07	0 - 24	0 - 24	1.5	FKM EPDM	D299DVC D299DEC
¼"	0.23	0.20	0 - 18	0 - 18	2.5	FKM EPDM	D299DVG D299DEG
¼"	0.32	0.27	0 -15	0 - 10	3.0	FKM EPDM	D299DVH D299DEH
¼"	0.42	0.36	0 - 10	0 - 5.5	4.0	FKM EPDM	D299DVL D299DEL
¼"	0.53	0.45	0 - 5	0 - 2.5	5.0	FKM EPDM	D299DVN D299DEN
¼"	0.16	0.14	0 - 20	0 - 20	2.0	KALREZ®	D299DKE
¼"	0.23	0.20	0 - 18	0 - 16	2.5	KALREZ®	D299DKG
¼"	0.32	0.27	0 - 15	0 - 8	3.0	KALREZ®	D299DKH

Options Available

Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT threads (minimum batch may be required)
Anticorrosion treatment recommended with aggressive fluids
Silver shading ring

EEx T4	
Protection Class	See separate datasheet on page 156 - 157
EEx T4 (IP65)	

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C
Kalrez® Spectrum™ (-10 °C to +130 °C)	Chemicals	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

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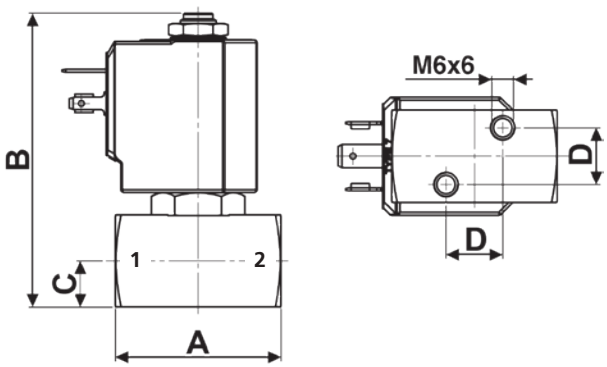
D298/299 Series, General Purpose & Chemical Industry – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	80	12.5	15.4	0.36

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Seals	
V	FKM
E	EPDM
K	KALREZ®

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0
L	4.0[1]
N	5.0[1]

Option	
A	Silver shading ring
F	Anticorrosion treatment[2]
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

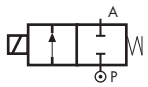
D	2	9	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] Not available with Kalrez® seals.
[2] Recommended with aggressive fluids.

Product coding example:

D298DVC 7250 0A1
1/8" G, auto operation, stainless steel body, FKM seals, 1.5 mm orifice, 24 VDC, with plug.

D262/263 Series, General Purpose – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Eex option (see separate datasheet)
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	0 - 30	0 - 30	1.0	FKM EPDM	D263DVA D263DEA
¼"	0.09	0.08	0 - 24	0 - 24	1.5	FKM EPDM	D263DVC D263DEC
¼"	0.24	0.20	0 - 18	0 - 16	2.5	FKM EPDM	D263DVG D263DEG
¼"	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D263DVH D263DEH
¼"	0.42	0.36	0 - 10	0 - 5	4.0	FKM EPDM	D263DVL[1] D263DEL[1]
¼"	0.53	0.45	0 - 5	0 - 2.5	5.0	FKM EPDM	D263DVN[1] D263DEN[1]
¼"	0.56	0.48	0 - 3	0 - 1	6.0	FKM EPDM	D263DVP[1] D263DEP[1]

[1] Manual override not available for orifice > Ø 3mm.

Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Manual override
Electroless nickel plating

EEx T4	
Protection Class	See separate datasheet on page 158 - 159
EEx T4 (IP65)	

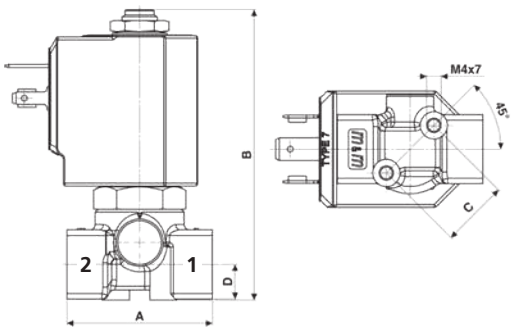
Vacuum Version
See separate datasheet on page 130 - 131

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

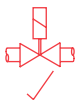
[1] See corrosion reference guide and sealing solutions for material compatability.

D262/263 Series, General Purpose – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	77.5	18.5	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Seals	
V	FKM
E	EPDM

Orifice	
A	1.0
C	1.5
G	2.5
H	3.0
L	4.0
N	5.0
P	6.0

Option	
N	NPT
M	Manual Overide[1]
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

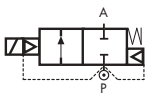
D	2	6	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] Manual override not available for orifice > 3.0mm.

Product coding example:

D263DVA 7250
¼" G, auto operation, brass body, FKM seals, 1.0 mm orifice, 24 VDC, without plug.

D884/885/886 Series, General Purpose – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange[1]	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

[1] This valve carries an additional flange HEX 30 in Brass CW614N (EN 12164) between body and flange tube.

Features and Benefits

- Pilot operated with assisted lift
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.47	1.26	0 - 16	0 - 6	10.5	FKM	D884DVU
⅜"	1.68	1.44				FKM	D885DVU
½"	1.76	1.50				FKM	D886DVU

Options Available

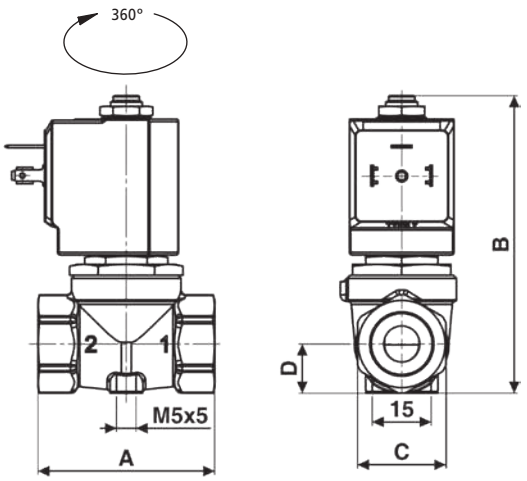
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Silver shading ring

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

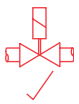
[1] See corrosion reference guide and sealing solutions for material compatability.

D884/885/886 Series, General Purpose – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	54	89	HEX 27	15	0.45
⅜" - 1½"	54	89	HEX 27	15	0.4

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
4	¼"
5	⅜"
6	½"

Option	
N	NPT
A	Silver shading ring
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

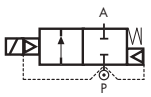
Plug	
	w/o plug
0A1	c/w plug

D	8	8	•	D	V	U	•	•	•	•	•	•	•	•	•

Product coding example:

D884DVU 7250
¼" G, auto operation, brass body, FKM seals, 10.5 mm orifice, 24 VDC, without plug.

D264/265/266 Series, General Purpose and Compressed Air –
2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange[1]	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

[1] This valve carries an additional flange HEX 30 in Brass CW614N (EN 12164) between body and flange tube.

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.47	1.26	0.1- 16	0.1- 7	10.5	NBR	D264DBU
						FKM	D264DVU
						EPDM	D264DEU
⅜"	1.68	1.44				NBR	D265DBU
						FKM	D265DVU
						EPDM	D264DEU
½"	1.76	1.50				NBR	D266DBU
						FKM	D266DVU
						EPDM	D264DEU

Options Available

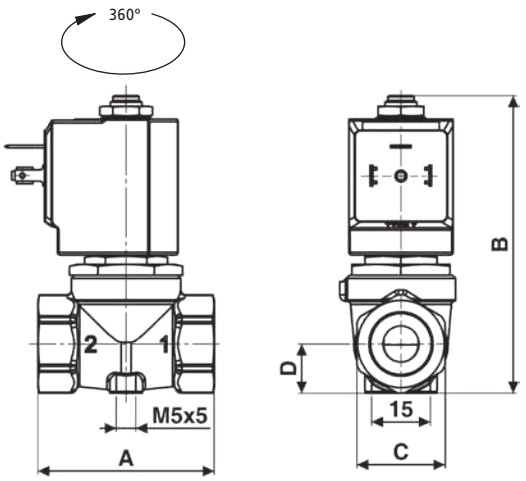
Valve Options (see coding chart)
NPT threads (minimum batch may be required)

Seal Material[2] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

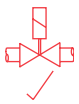
[2] See corrosion reference guide and sealing solutions for material compatability.

D264/265/266 Series, General Purpose and Compressed Air –
2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	54	89	HEX 27	15	0.45
⅜" - ½"	54	89	HEX 27	15	0.4

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
4	¼"
5	⅜"
6	½"

Seals	
B	NBR
V	FKM
E	EPDM

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

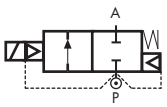
Plug	
	w/o plug
0A1	c/w plug

D	2	6	•	D	•	U	•	•	•	•	•	•	•	•	•

Product coding example:

D264DBU 7250
¼" G, auto operation, brass body, NBR seals, 10.5 mm orifice, 24 VDC, without plug.

D187/188/189/190/192/293 - C D187/188/189/190/192/293 Series, General Purpose – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Pilot operated with linked diaphragm
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Speed control screw as standard for type D293 and C D293
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	3.51	3.00	0 - 16	-	15	NBR FKM EPDM	D187DBW D187DVW D187DEW
⅜"	4.21	3.60			15	NBR FKM EPDM	D188DBW D188DVW D188DEW
½"	4.56	3.90			15	NBR FKM EPDM	D189DBW D189DVW D189DEW
¾"	5.62	4.80			15	NBR FKM EPDM	D190DBW D190DVW D190DEW
1" compact	5.97	5.10			15	NBR FKM EPDM	D192DBW D192DVW D192DEW
1"	9.83	8.40			25	NBR FKM EPDM	D293DBY D293DVY D293DEY
¼"	3.51	3.00	-	0 - 6	15	NBR FKM EPDM	C D187DBW C D187DVW C D187DEW
⅜"	4.21	3.60			15	NBR FKM EPDM	C D188DBW C D188DVW C D188DEW
½"	4.56	3.90			15	NBR FKM EPDM	C D189DBW C D189DVW C D189DEW
¾"	5.62	4.80			15	NBR FKM EPDM	C D190DBW C D190DVW C D190DEW
1" compact	5.97	5.10			15	NBR FKM EPDM	C D192DBW C D192DVW C D192DEW
1"	9.83	8.40	-	0 - 3.5	25	NBR FKM EPDM	C D293DBY C D293DVY C D293DEY

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Electroless nickel plating

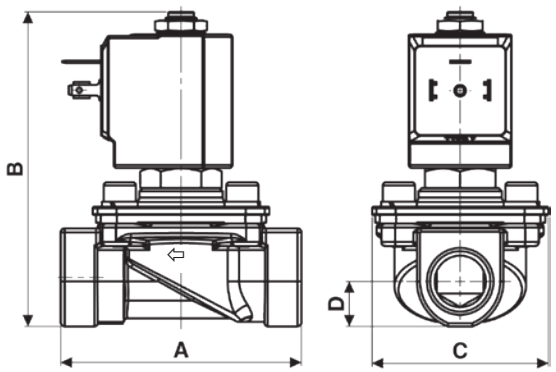
Vacuum version
See separate datasheet on page 138 - 139

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

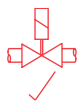
[1] See corrosion reference guide and sealing solutions for material compatability.

D187/188/189/190/192/293 - C D187/188/189/190/192/293 Series, General Purpose – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼" - ½"	75	108	55	14	0.5
¾" - 1" compact	85	108	55	21.5	0.8
1"	100	113	70	21.5	1.2

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Valve Type	
D	AC version
CD	DC version

Pipe Size	
187	¼"
188	⅜"
189	½"
190	¾"
192	1" compact
293	1"

Seals	
B	NBR
V	FKM
E	EPDM

Orifice[1]	
W	15
Y	25

Option	
N	NPT
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
7150	12 VDC
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

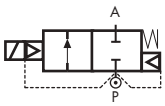
•	•	•	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] DN25 for D293 and C D293 only.

Product coding example:

D188DBW 7200
⅜" G, auto operation, brass body, NBR seals, 15 mm orifice, 24 V / 50/60 Hz, without plug.

B203/204/205/206/222 Series, General Purpose – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger and Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.83	1.56	0.3 - 16	0.3 - 16	13	NBR	B203DBZ
						FKM	B203DVZ
						EPDM	B203DEZ
⅜"	3.86	3.30				NBR	B204DBZ
						FKM	B204DVZ
						EPDM	B204DEZ
½"	4.42	3.78				NBR	B205DBZ
						FKM	B205DVZ
						EPDM	B205DEZ
¾" compact	7.02	6.00			21	NBR	B206DBX
						FKM	B206DVX
						EPDM	B206DEX
¾"	9.83	8.40			25	FNBR	B206DBY[1]
						FKM	B206DVY[1]
						EPDM	B206DEY[1]
1"	11.23	9.60				NBR	B222DBY
						FKM	B222DVY
						EPDM	B222DEY

[1] Non standard, MOQ required.

Options Available

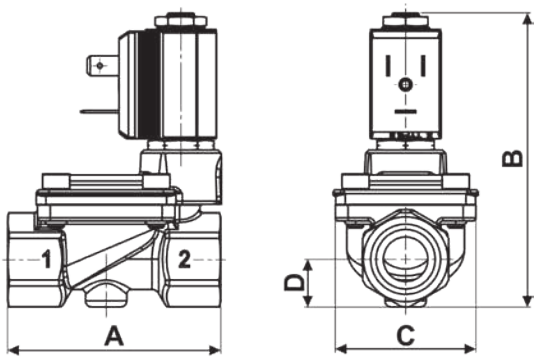
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual override
Electroless nickel plating treatment
Speed control screw (on DN25 only)

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

B203/204/205/206/222 Series, General Purpose – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
¼" - ⅜" - ½"	67	90	45.6	15	0.4
¾" compact	82	105	51.6	20.25	0.6
¾" to 1"	96	115	72	23	1.2

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
03	¼"
04	⅜"
05	½"
06	¾" (compact)
06	¾" [1]
22	1"

Seals		Orifice[2]	
B	NBR	Z	13
V	FKM	X	21
E	EPDM	Y	25

Option	
N	NPT
M	Manual Override
K	Electroless nickel plating
V	Speed control screw[3]
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0B1	c/w plug

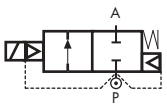
B	2	•	•	D	•	•	•	•	•	•	•	•	•	•	•

1 Non standard, MOQ required.
2 DN13 only for B203/204/205, DN21 only for B206 compact, DN25 only for B206 and B222.
3 Speed control screw available on B206D-Y and B222D-Y.

Product coding example:

B203DBZ 2250
¼" G, auto operation, brass body, NBR seals, 13 mm orifice, 24 VDC, without plug.

D223/224/225 Series, General Purpose – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Speed control screw as standard
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1 ¼"	25.97	22.20	0.5 - 16	0.5 - 16	40	NBR	D223DBK
						FKM	D223DVK
						EPDM	D223DEK
1 ½"	28.08	24.00			40	NBR	D224DBK
						FKM	D224DVK
						EPDM	D224DEK
2"	37.91	32.40			50	NBR	D225DBJ
						FKM	D225DVJ
						EPDM	D225DEJ

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual override
Electroless nickel plating

Vacuum Version
See separate datasheet on page 140 - 141

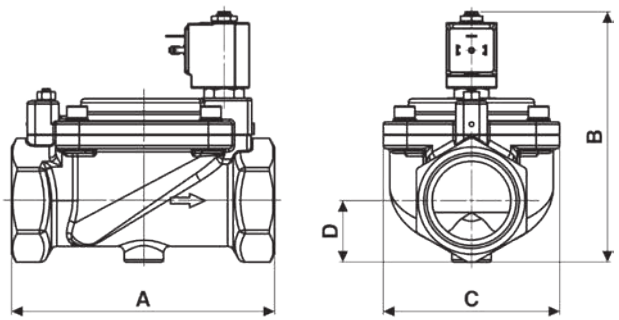
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

D223/224/225 Series, General Purpose – 2/2 Normally Closed

Coil Rotation

Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1 ¼" - 1 ½"	140	140	96	31.5	2.8
2"	167	158	112	39	3.9

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
23	1 ¼"
24	1 ½"
25	2"

Seals	
B	NBR
V	VKM
E	EPDM

Orifice[1]	
K	40
J	50

Option	
N	NPT
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

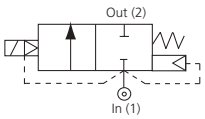
D	2	•	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] DN40 only for D223 and D224, DN50 only for D225.

Product coding example:

D223DBK 7250
1 ¼" G, auto operation, brass body, NBR seals, 40 mm orifice, 24 VDC, without plug.

ACD Series – 2/2 Normally Closed

Specifications	
Function	Normally Closed, energise to open 
Maximum Viscosity	115 SSU
3/8" - 1" Body Material (Std)	Brass CZ122
1 1/4" - 2" Body Material (Std)	Bronze
Flange Tube	Stainless Steel 303
Plunger and Top Stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	14.5 Watts, 19 VA

Features and Benefits

WRAS
Water Regulations Advice Scheme

- Two way shut-off valves for the control of gases and liquids compatible with max viscosity and materials
- Zero bar minimum operating pressure
- Satisfy all relevant EC directives
- Suitable for vacuum applications when fitted with FKM seals (10-3 TORR) 0 rated options only
- Robust Valve Design
- Diaphragm Operation
- Fully Ported Orifices for high flow
- Choice of valve body material and seals
- Sizes 3/8" to 2" WRAS approved when used with EPDM seals
- Response time 1" 15-60 ms
- Response time 2" 60-120 ms
- EN264 for fuel oils

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
3/8"	3.5	3.0	0-14	0-10.3	50	16.00	0.90
1/2"	4.9	4.2	0-14	0-10.3		16.00	0.90
3/4"	5.4	4.7	0-14	0-10.3		16.00	0.90
1"	8.2	7.0	0-14	0-10.3		20.00	1.20
1 1/4"	26.7	23	0-4	-		40.00	3.00-3.20
1 1/2"	26.7	23	0-4	-		40.00	3.00-3.20
2"	30.16	26	0-4	-		40.00	3.00-3.20
1 1/4" [2]	26.7	23	0.3-10	0.3-10		40.00	3.00-3.20
1 1/2" [2]	26.7	23	0.3-10	0.3-10		40.00	3.00-3.20
2" [2]	30.2	26	0.3-10	0.3-10		40.00	3.00-3.20

[2] Pressure assisted to achieve a greater OPD. e.g. code :19G11Z1A1-1A21.

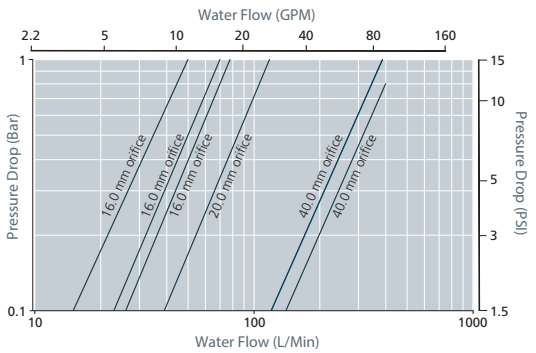
Options Available

Exd & Exm Solenoid Enclosure	
Protection Class	See separate datasheet on page 16-17
EExd T6 (IP67)	
EExd T4 (IP67)	
Exm T5 (IP65)	

Main Valve Body Options
Stainless Steel 316 (available up to and including 1")
NPT threads
Flanged Option (PN16 Std) for alternative flange options consult Rotork Midland
Manual Override
Oxygen cleaning (consult Rotork Midland for product code)

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50
EPDM (-50 °C to +120 °C)	-10	50
FKM (-20 °C to +150 °C)	-10	50

[1] See corrosion reference guide and sealing solutions for material compatability.



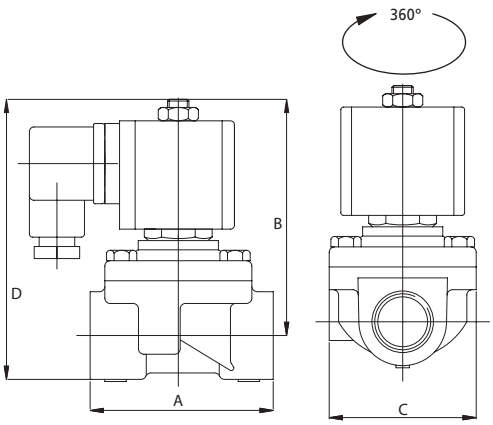
How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

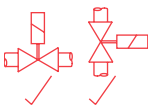
rotork Instruments

ACD Series – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
3/8" - 3/4"	69.5	88	75	104
1"	85	90	75	112
1¼" - 2"	137	103	120	152

Dimensions given in mm
Stainless steel option dimensions vary from table - consult factory.

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied

Coding chart

Main Valve Assembly

Model	
17	ACD AC VOLTAGE
18	ACD DC[3] VOLTAGE
19	Pressure assisted option 1¼" to 2"

Valve Body Conn. Size	
C	3/8"
D	½"
E	¾"
F	1"
G	1¼"
H	1½"
J	2"

Connection Type	
1	BS21
2	BSP G (1 ¼" and above)
3	NPT
4	FLANGED (PN16 STD)

Operation	
1	AUTO
2	MANUAL OVERRIDE

Body Material	
1	Brass (standard on valves up to and including 1")
2	Bronze (standard on valves above 1")
5	316 Stainless Steel (option available up to and inc 1")

Seals	
A	NBR
B	EPDM
C	FKM

Style	
1	Standard

Coil options

Enclosure	
1	Weather proof IP65

Voltage / Frequency	
A1	230 V / 50 Hz
A2	110 V / 50 Hz & 120 V / 60 Hz
A3	24 V / 50 Hz
A7	220 V / 50 Hz
B2	24 VDC
B3	12 VDC
B5	110 VDC

Electrical Connection	
1	DIN plug 9 mm

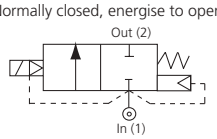
•	•	•	•	Z	•	•	1	-	1	••	1

[3] '0' pressure rated options are not available in DC voltage.

Product coding example:

17G21Z2A1-1A11 - ACD Series
1¼" BSPG, auto operation, bronze body, NBR seals, 230 V / 50 Hz DIN Plug 9 mm.

ACP Series – 2/2 Normally Closed

Specifications	
Function	Normally closed, energise to open 
Maximum Viscosity	115 SSU
3/8" - 1" Body Material (Std)	Brass CZ122
1 1/4" - 2" Body Material (Std)	Bronze
Flange Tube	Stainless Steel 303
Plunger and Top Stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Heavy duty valve design
- Piston operation
- Choice of valve body material and seals
- Wide temperature range capabilities
- Response time up to 1" 40 - 100 ms
- Response time up to 2" 60 - 1000 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)	P. Max Bar	Orifice mm)	Weight (kg)
½"	4.9	4.2	0.3-10.3	50	16.00	1.4
¾"	6.3	5.4	0.3-10.3		16.00	1.4
1"	14.5	12.5	0.3-10.3		25.00	2.3
1¼"	20.9	18	0.3-10.3		30.00	3.0
1½"	20.9	18	0.3-10.3		30.00	3.0
2"	24.4	21	0.3-10.3		32.00	5.2

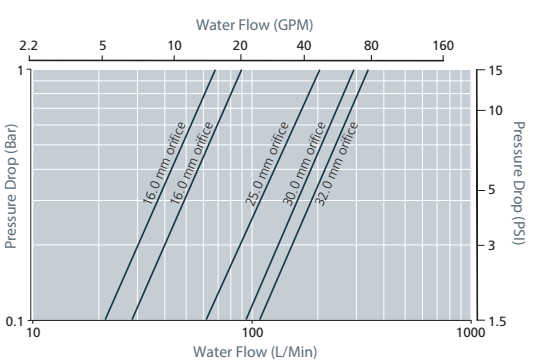
Options Available

Exd & Exm Solenoid Enclosure	
Protection Class	
EExd T6 (IP67)	See separate datasheet on Page 26-27
EExd T4 (IP67)	
Exm T5 (IP65)	

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	**Max**
NBR (-10 °C to +80 °C)	-10	50
EPDM (-50 °C to +120 °C)	-10	50
FKM (-20 °C to +150 °C)	-10	50

Main Valve Body Options
Stainless steel body 316 (available up to 1")
Oxygen Cleaning (Consult Rotork Midland for product code)
NPT Threads
Stainless steel tagging

[1] See corrosion reference guide and sealing solutions for material compatability.



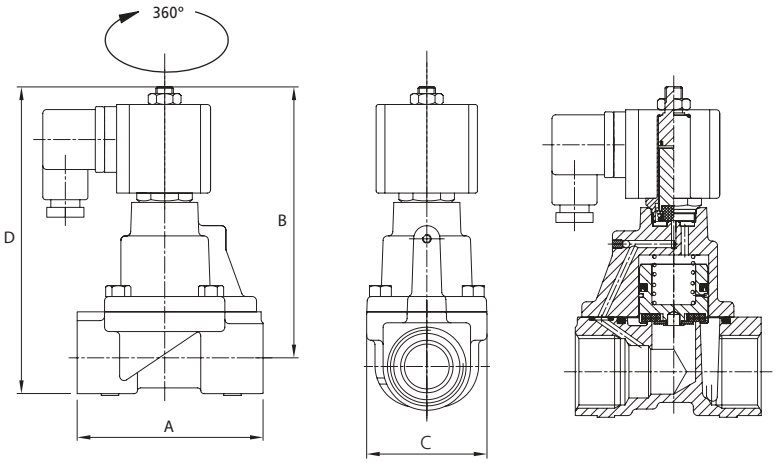
How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

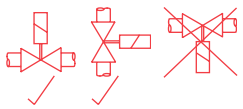
rotork Instruments

ACP Series – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
½"	85	126	75*	150
¾" - 1"	85	135	75 inc. plug	155
1¼" - 1½"	117	133	82	209
2"	146	145	103	209

Dimensions given in mm

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation	
22	ACP	D	½"	1	BS21	1	AUTO
		E	¾"	2	BSP G (1¼" and above)	2	MANUAL OVERRIDE
		F	1"	3	NPT		
		G	1¼"	4	FLANGED (PN16 STD)		
		H	1½"				
		J	2"				

Body Material		Seals		Style	
1	Brass (standard on valves up to and including 1")	A	NBR	1	Standard
2	Bronze (standard on valves above 1")	B	EPDM		
5	316 Stainless Steel (option available up to and inc 1")	C	FKM		

Coil options

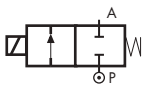
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	A1	230 V / 50 Hz	1	Din plug 9 mm
		A2	110 V / 50 Hz & 120 V / 50 Hz		
		A3	24 V / 50 Hz		
		A7	220 V / 50 Hz		
		B2	24 VDC		
		B3	12 VDC		
		B5	110 VDC		

22	•	•	•	Z	•	•	1	-	1	••	1

Product coding example:

22D11Z1A1-1A11 - ACP Series
½" BS21, auto operation, brass body, NBR seals, 230 V / 50 Hz DIN Plug 9 mm.

D201 Series, General Purpose – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	Flanged 32x32mm
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 24	0 - 24	1.5	FKM EPDM	D201DVC D201DEC
Flanged	0.15	0.13	0 - 20	0 - 20	2.0	FKM EPDM	D201DVE D201DEE
Flanged	0.24	0.20	0 - 18	0 - 18	2.5	FKM EPDM	D201DVG D201DEG
Flanged	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D201DVH D201DEH

Options Available

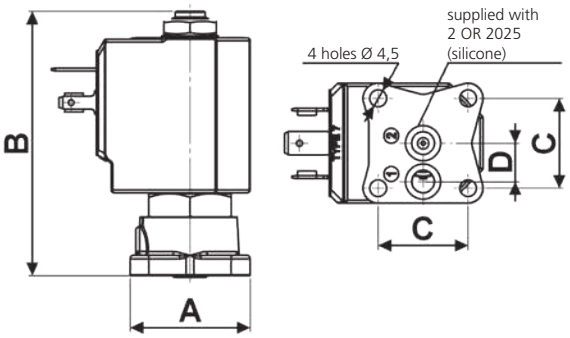
Valve Options (see coding chart)
Manual override

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air,	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

D201 Series, General Purpose – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
Flanged	32	70.6	24	10.25	0.25

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Seals	
V	FKM
E	EPDM

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0

Option	
M	Manual Overide
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

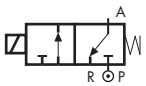
Plug	
	w/o plug
0A1	c/w plug

D	2	0	1	D	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

D201DVC 7700
G, auto operation, brass body, FKM seals, 1.5 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz, without plug.

B397 Series, General Purpose – 3/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Low lead content Brass CW719R (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Valve suitable for contact with food media as per the EEC Directives and Regulations. Please consult supplier for more details
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.04	0.03	0 - 18	0 - 18	1.0	FKM EPDM	B397CVA B397CEA
1/8"	0.05	0.04	0 - 15	0 - 15	1.2	FKM EPDM	B397CVB B397CEB
1/8"	0.07	0.06	0 - 10	0 - 10	1.5	FKM EPDM	B397CVC B397CEC
1/8"	0.13	0.11	0 - 5	0 - 5	2.0	FKM EPDM	B397CVE B397CEE
1/8"	0.25	0.21	0 - 2	0 - 2	3.0	FKM EPDM	B397CVH B397CEH

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual Override
Electroless nickel plating treatment
Top port connection with hose tail Ø 6mm

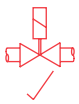
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

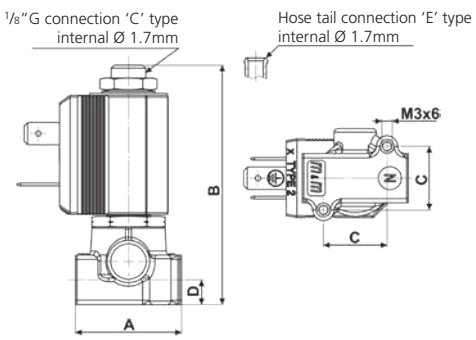
[1] See corrosion reference guide and sealing solutions for material compatability.

B397 Series, General Purpose – 3/2 Normally Closed

Coil Rotation

Preferred Valve Mounting Options





Pipe Size	A	B	C	D	Weight (kg)
1/8"	30	67.8	18	7	0.15

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Top Port Connection	
C	1/8" G
E	Hose tail Ø 6mm

Seals	
V	FKM
E	EPDM

Orifice	
A	1.0
B	1.2
C	1.5
E	2.0
H	3.0

Option	
N	NPT
M	Manual Override
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

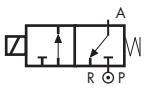
Plug	
0B1	c/w plug
	w/o plug

B	3	9	7	•	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

B397CVAM 2250
1/8" G, auto operation, brass body, FKM seals, 1.0 mm orifice, with manual override, 24 VDC, without plug.

B398 Series, General Purpose – 3/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube[1]	Stainless Steel (AISI 303)
Plunger and Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

[1] With special nut, different from Standard.

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.05	0.04	0 - 15	0 - 15	1.2	FKM	B398EVB
1/8"	0.07	0.06	0 - 10	0 - 10	1.5	FKM	B398EVC
1/8"	0.13	0.11	0 - 5	0 - 5	2.0	FKM	B398EVE
1/8"	0.19	0.16	0 - 3	0 - 3	2.5	FKM	B398EVG

Options Available

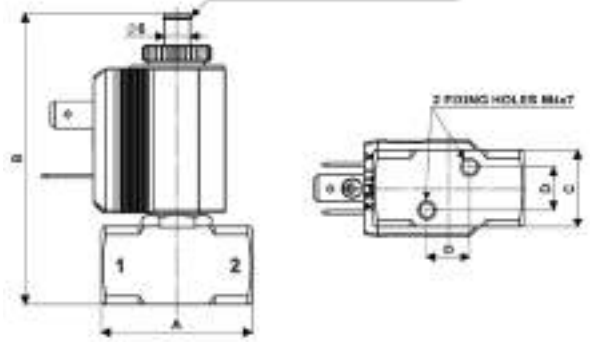
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

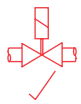
B398 Series, General Purpose – 3/2 Normally Closed

Coil Rotation

Hose tail connection, 'E' type



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	35	68	18	10	0.1

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Orifice	
B	1.2
C	1.5
E	2.0
G	2.5

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

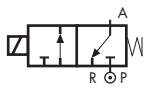
Plug	
0B1	c/w plug
	w/o plug

B	3	9	8	E	V	•	•	•	•	•	•	•	•	•	•

Product coding example:

B398EVB 2250
1/8" G, auto operation, stainless steel body, FKM seals, 1.2 mm orifice, 24 VDC, without plug.

D398/399 Series, General Purpose – 3/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 18	0 - 18	1.5	FKM EPDM	D399CVC D399CEC
¼"	0.15	0.13	0 - 10	0 - 10	2.0	FKM EPDM	D399CVE D399CEE
¼"	0.24	0.20	0 - 7	0 - 7	2.5	FKM EPDM	D399CVG D399CEG
¼"	0.32	0.27	0 - 5	0 - 5	3.0	FKM EPDM	D399CVH D399CEH

Options Available

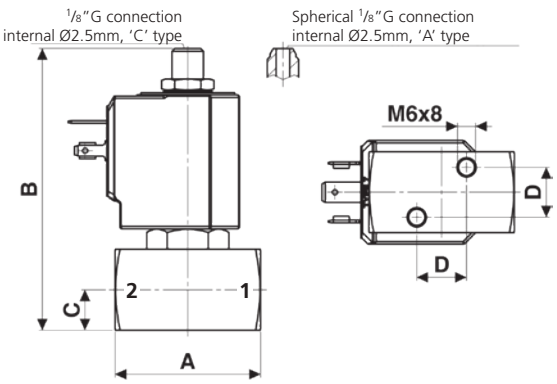
Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT threads (minimum batch may be required)
Silver shading ring
Top port connection with spherical ⅛" G

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

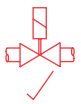
[1] See corrosion reference guide and sealing solutions for material compatability.

D398/399 Series, General Purpose – 3/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	87	12.5	15.4	0.35

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Top Port Connection	
C	1/8" G
A	Spherical 1/8" G

Seals	
V	FKM
E	EPDM

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0

Option	
A	Silver shading ring
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

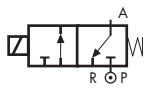
Plug	
0A1	c/w plug
	w/o plug

D	3	9	•	•	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

D399CECA 7700
¼" G, auto operation, stainless steel body, EPDM seals, 1.5 mm orifice, with silver shading ring, 230 V / 50 Hz - 240 V / 60 Hz AC, without plug.

D362/363 Series, General Purpose – 3/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
c UL us Coil Voltage DC (=)	24 V
c UL us Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
c UL us Coil Voltage AC 60 Hz (~)	120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W
Power Rating (c UL us)	AC 15 VA (holding) AC 30 VA (inrush) DC 10 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 18	0 - 18	1.5	FKM EPDM	D363CVC D363CEC
¼"	0.15	0.13	0 - 10	0 - 10	2.0	FKM EPDM	D363CVE D363CEE
¼"	0.24	0.20	0 - 7	0 - 7	2.5	FKM EPDM	D363CVG D363CEG
¼"	0.32	0.27	0 - 5	0 - 5	3.0	FKM EPDM	D363CVH D363CEH
¼"	0.42	0.36	0 - 3.5	0 - 3.5	4.0	FKM EPDM	D363CVL[1] D363CEL[1]
¼"	0.53	0.45	0 - 2.5	0 - 2.5	5.0	FKM EPDM	D363CVN[1] D363CEN[1]
¼"	0.56	0.48	0 - 1.5	0 -1.5	6.0	FKM EPDM	D363CVP[1] D363CEP[1]

[1] Manual override not available for orifice > Ø3mm.

Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Manual override

EEx T4	
Protection Class	See separate datasheet on page 162 - 163
EEx T4 (IP65)	

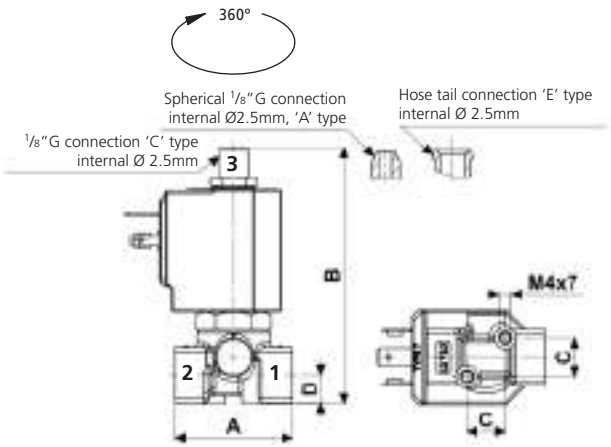
Vacuum Version
See separate datasheet on page 132 - 133

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

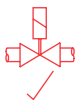
[1] See corrosion reference guide and sealing solutions for material compatability.

D362/363 Series, General Purpose – 3/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	87	13	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

7--R c UL us Type Coil - Insulation class F

Encapsulation material: PET 815ER Rynite®
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (P180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

* Plug and gasket not supplied as standard, must be ordered separately.

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Top Port Connection	
C	1/8" G
A	spherical 1/8" G
E	Hose tail Ø 6mm

Seals	
V	FKM
E	EPDM

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0
L	4.0
N	5.0
P	6.0

Option	
N	NPT
M	Manual Override[1]
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Voltage / Frequency - Class F - c UL us approved	
725R	24 VDC
720R	24 V / 50 Hz
740R	110 V / 50 Hz - 120 V / 60 Hz
770R	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

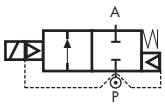
D	3	6	•	•	•	•	•	•	•	•	•	•	•	•	•

[1] Manual override not available for orifice > Ø3mm.

Product coding example:

D363AVC 7250
1/4" G, auto operation, brass body, FKM seals, 1.5 mm orifice, with top port connection spherical 1/8"G, 24 VDC, without plug.

LC203/204/205 Series, General Purpose – 2/2 Normally Closed, Latching

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Brass CW614N (EN 12164)
Magnet	Neodym-Iron-Boron
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Low Power Coil Voltage DC (=)	24 V
Voltage Tolerance	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Low Power)	DC 3 W[1]
Coil Absorbition (20 °C)	500mA for 20Q0 250mA for 21Q0 125mA for 22Q0

Features and Benefits

- Pilot operated, latching
- Special operator with reduced stroke for low power coils
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code[1]
			AC Voltages	DC Voltages			
¼"	1.83	1.56	-	0.3 - 5	13	NBR	LC203DBZ
						FKM	LC203DVZ
						EPDM	LC203DEZ
⅜"	3.86	3.30				NBR	LC204DBZ
						FKM	LC204DVZ
						EPDM	LC204DEZ
½"	4.42	3.78				NBR	LC205DBZ
						FKM	LC205DVZ
						EPDM	LC205DEZ

[1] Non standard, MOQ required.

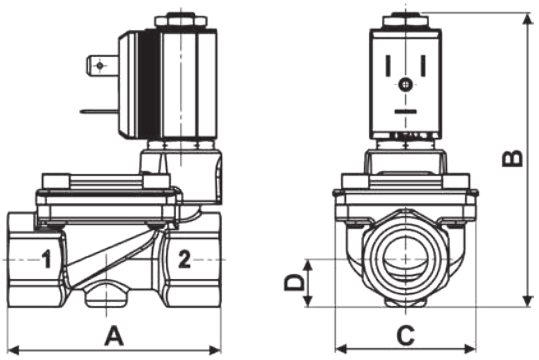
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

LC203/204/205 Series, General Purpose – 2/2 Normally Closed, Latching

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
¼" - ⅜" - ½"	67	90	45.6	15	0.4

Dimensions (mm)

Solenoid enclosures

2-Q0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
03	¼"
04	⅜"
05	½"

Seals	
B	NBR
V	FKM
E	EPDM

Option	
	w/o option

Coil options

Voltage / Frequency - Class F, Low Power	
20Q0	6 VDC
21Q0	12 VDC
22Q0	24 VDC

Plug

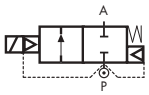
Plug	
	w/o plug
0B1	c/w plug

LC	2	•	•	D	•	Z	•	•	•	•	•	•	•	•	•

Product coding example:

LC205DBZ 20Q0
½" G, auto operation, brass body, NBR seals, 13 mm orifice, 6 VDC, without plug.

LD266 Series, General Purpose – 2/2 Normally Closed, Latching

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange[1]	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Brass CW614N (EN 12164)
Magnet	Neodym-Iron-Boron
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	6 V
Voltage Tolerance	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	DC 6 W[2]

[1] This valve carries an additional flange HEX 30 in Brass CW614N (EN 12164) between body and flange tube.

Features and Benefits

- Pilot operated, latching
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Valve tested with supply set of 8 batteries type AA REACH 28.000 cycles (refer to batteries life time, after that batteries need to be replaced)
- Choice of high quality seal materials
- Pulse time 20 to 50 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code[2]
			AC Voltages	DC Voltages			
½"	1.76	1.50	-	0.1 - 5	10.5	NBR FKM EPDM	LD266DBU LD266DVU LD264DEU

[2] Non standard, MOQ required.

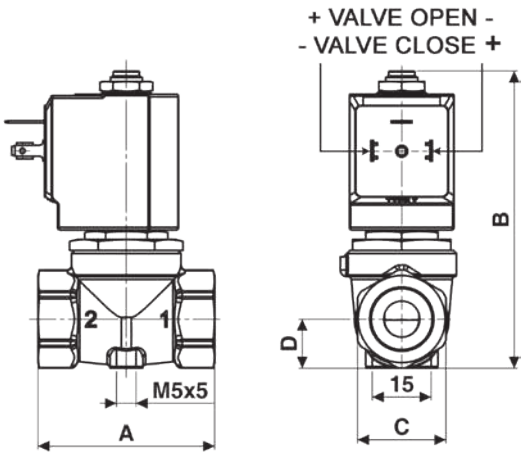
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

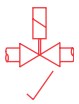
[1] See corrosion reference guide and sealing solutions for material compatability.

LD266 Series, General Purpose – 2/2 Normally Closed, Latching

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
½"	54	89	HEX 27	15	0.4

Dimensions (mm)

Solenoid enclosures

70T1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

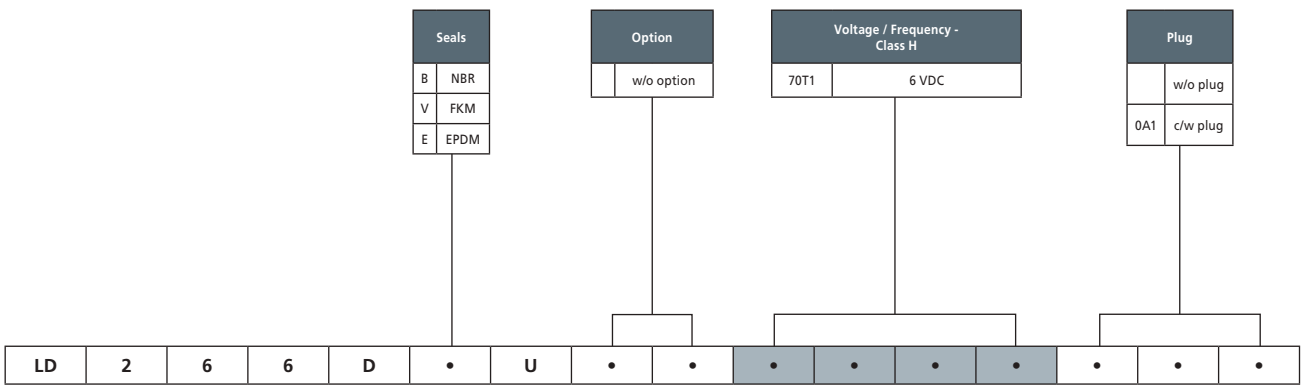
Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Coil options

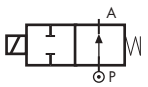
Plug



Product coding example:

LD266DVU 70T1
½" G, auto operation, brass body, FKM seals, 10.5 mm orifice, 6 VDC, without plug.

RD298/299 Series, General Purpose & High Pressure – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Troublefree operation with coils class H
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.04	0 - 30	0 - 30	1.0	FKM EPDM	RD299DVA RD299DEA
¼"	0.16	0.14	0 - 20	0 - 20	2.0	FKM EPDM	RD299DVE RD299DEE
¼"	0.23	0.20	0 - 14	0 - 14	2.5	FKM EPDM	RD299DVG RD299DEG
¼"	0.32	0.27	0 - 9	0 - 9	3.0	FKM EPDM	RD299DVH RD299DEH
¼"	0.04	0.04	0 - 100	0 - 100	1.0	RUBY	RD299DRA**
¼"	0.05	0.04	0 - 85	0 - 85	1.2	RUBY	RD299DRB**
¼"	0.08	0.07	0 - 55	0 - 55	1.5	RUBY	RD299DRC**
¼"	0.16	0.14	0 - 25	0 - 25	2.0	RUBY	RD299DRE**
¼"	0.23	0.20	0 - 19	0 - 19	2.5	RUBY	RD299DRG**
¼"	0.32	0.27	0 - 10	0 - 10	3.0	RUBY	RD299DRH**

** Not 100% leak-proof when used with air/gases. Approx leak rate is 1.5ml/min at max OPD.

Options Available

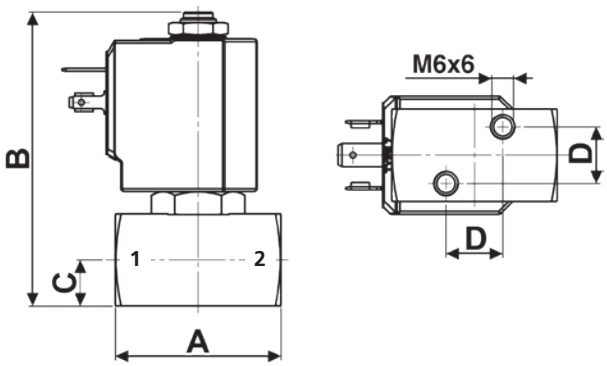
Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Anticorrosion treatment recommended with aggressive fluids
Silver shading ring

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C
RUBY (-10 °C to +130 °C)	Water, liquids	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

RD298/299 Series, General Purpose & High Pressure – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	80	12.5	15.4	0.36

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material:	PPS (glass fiber & mineral filled)
Electrical connection:	DIN EN 175301-803 form A
Winding insulation:	Class H (E180)
Enclosure classification:	Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.):	250 VAC / 300 VDC
Nominal Current:	10A (rated) / 16A (max)
Wire cross-section:	1.5 mm² max
Cable Entry:	PG9 (6 to 8 mm)
Enclosure classification:	Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class:	group C- VDE 0110
Housing colour:	black
UL approved, file No:	E205538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Seals	
V	FKM
E	EPDM
R	RUBY

Orifice[1]	
A	1.0
B	1.2
C	1.5
E	2.0
G	2.5
H	3.0

Option	
A	Silver shading ring
F	Anticorrosion treatment[2]
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

RD	2	9	•	D	•	•	•	•	•	•	•	•	•	•	•

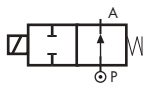
[1] See characteristics table for availability.

[2] Recommended with aggressive fluids.

Product coding example:

RD299DVA 7251
¼" G, auto operation, stainless steel body, FKM seals, 1.0 mm orifice, 24 VDC, without plug.

RD262/263 Series, General Purpose – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass (CW617N EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC) +10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	0 - 30	0 - 30	1.0	FKM EPDM	RD263DVA RD263DEA
¼"	0.09	0.08	0 - 24	0 - 24	1.5	FKM EPDM	RD263DVC RD263DEC
¼"	0.24	0.20	0 - 16	0 - 16	2.5	FKM EPDM	RD263DVG RD263DEG
¼"	0.32	0.27	0 - 10	0 - 10	3.0	FKM EPDM	RD263DVH RD263DEH

Options Available

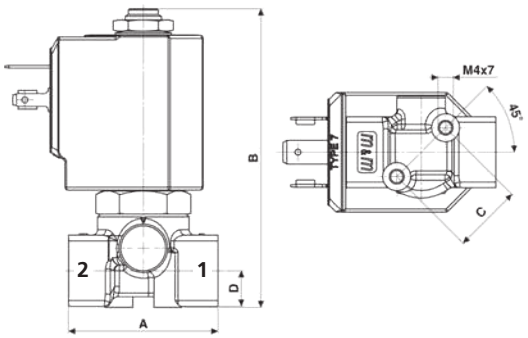
Valve Options (see coding chart)
Body threaded connection G ⅛"
Electroless nickel plating
For steam version with filled PTFE seal see valve model RD236DL-
For high pressure version with RUBY seals see valve model RD236DR-1

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

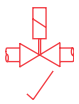
[1] See corrosion reference guide and sealing solutions for material compatability.

RD262/263 Series, General Purpose – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	77.7	18.5	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Seals	
V	FKM
E	EPDM

Orifice	
A	1.0
C	1.5
E	2.0
G	2.5
H	3.0

Option	
N	NPT
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

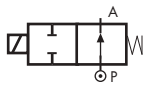
Plug	
	w/o plug
0A1	c/w plug

RD	2	6	•	D	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

RD263DVHK 7251 0A1
1/4" G, auto operation, brass body, FKM seals, 3.0 mm orifice, with electroless nickel plating treatment, 24 VDC, with plug.

RD236 Series, General Purpose – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	0 - 25	0 - 25	1.0	FKM EPDM	RD236DVA RD236DEA
¼"	0.09	0.08	0 - 20	0 - 20	1.5	FKM EPDM	RD236DVC RD236DEC
¼"	0.14	0.12	0 - 18	0 - 18	2.0	FKM EPDM	RD236DVE RD236DEE
¼"	0.20	0.17	0 - 15	0 - 15	2.5	FKM EPDM	RD236DVG RD236DEG
¼"	0.25	0.21	0 - 12	0 - 12	3.0	FKM EPDM	RD236DVH RD236DEH
¼"	0.39	0.33	0 - 5	0 - 5	4.5	FKM EPDM	RD236DVM RD236DEM
¼"	0.60	0.51	0 - 2	0 - 2	6.0	FKM EPDM	RD236DVP RD236DEP

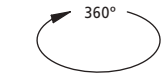
Options Available

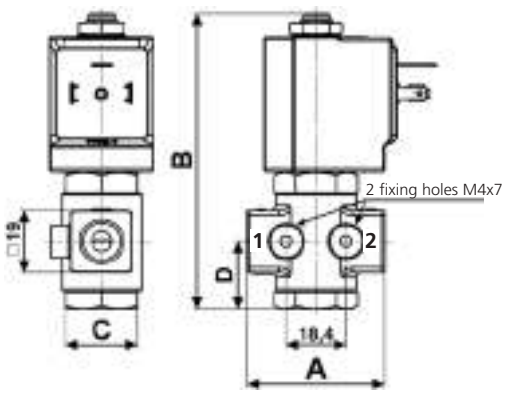
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

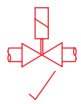
RD236 Series, General Purpose – 2/2 Normally Open

Coil Rotation





Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	47	91	Hex 22	20.75	0.25

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Seals		Orifice	
V	FKM	A	1.0
E	EPDM	C	1.5
		E	2.0
		G	2.5
		H	3.0
		M	4.5
		P	6.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

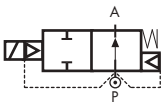
Plug	
0A1	c/w plug
	w/o plug

RD	2	3	6	D	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

RD236DVC 7200 0A1
¼" G, auto operation, brass body, FKM seals, 1.5 mm orifice, 24 V / 50 Hz/60 Hz AC, with plug.

RB203/204/205/206/222 Series, General Purpose – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange Tube[1]	Brass CW614N (EN 12164)
Plunger and Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

[1] With special brass nut for NO operator (different from Standard).

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.83	1.56	0.3 - 16	0.3 - 16	13	NBR	RB203DBZ
						FKM	RB203DVZ
						EPDM	RB203DEZ
⅜"	3.86	3.30				NBR	RB204DBZ
						FKM	RB204DVZ
						EPDM	RB204DEZ
½"	4.42	3.78				NBR	RB205DBZ
						FKM	RB205DVZ
						EPDM	RB205DEZ
¾" compact	7.02	6.00			21	NBR	RB206DBX
						FKM	RB206DVX
						EPDM	RB206DEX
¾"	9.83	8.40			25	FNBR	RB206DBY[2]
						FKM	RB206DVY[2]
						EPDM	RB206DEY[2]
1"	11.23	9.60				NBR	RB222DBY
						FKM	RB222DVY
						EPDM	RB222DEY

[2] Non standard, MOQ required.

Options Available

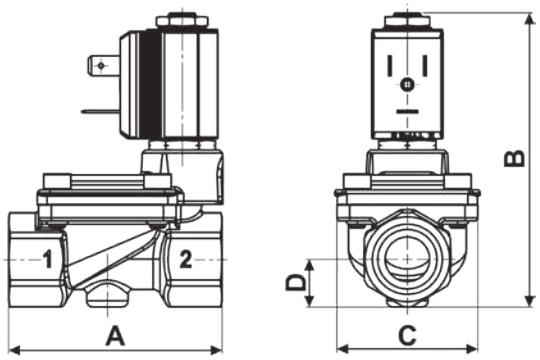
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Electroless nickel plating treatment
Speed control screw

Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

RB203/204/205/206/222 Series, General Purpose – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
¼" - ⅜" - ½"	67	92.5	45.6	15	0.4
¾" compact	82	107.5	51.6	20.25	0.6
¾" to 1"	96	117.5	72	23	1.2

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
03	¼"
04	⅜"
05	½"
06	¾" (compact)
06	¾" [1]
22	1"

Seals	
B	NBR
V	FKM
E	EPDM

Orifice[2]	
Z	13
X	21
Y	25

Option	
N	NPT
K	Electroless nickel plating
V	Speed control screw[3]
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0B1	c/w plug

RB	2	•	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] Non standard, MOQ required.

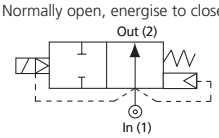
[2] DN13 only for RB203/204/205, DN21 only for RB206 compact, DN25 only for RB206 and RB222.

[3] Speed control screw available on RB206D-Y and RB222D-Y.

Product coding example:

RB203DBZ 2250
¼" G, auto operation, brass body, NBR seals, 13 mm orifice, 24 VDC, without plug.

ACDN Series – 2/2 Normally Open

Specifications	
Function	Normally open, energise to close 
Maximum Viscosity	115 SSU
3/8" - 1" Body Material (Std)	Brass CZ122
1 1/4" - 2" Body Material (Std)	Bronze DIN1705
Flange Tube	Stainless Steel 303
Plunger and Top Stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Robust Valve Design
- Diaphragm Operation
- Fully Ported Orifices for high Kv
- Choice of valve body material and seals
- Sizes 3/8" - 3/4" WRAS approved when used with EPDM seals
- Response time 1" 15-60 ms
- Response time 2" 60-120 ms

WRAS
Water Regulations Advice Scheme

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
3/8"	3.5	3.0	0-10	0-10	50	16.00	0.9
1/2"	4.9	4.2	0-10	0-10		16.00	0.9
3/4"	5.4	4.7	0-10	0-10		16.00	0.9
1"	8.2	7.0	0-10	0-10		20.00	1.2
1 1/4"	26.7	23	0.3-10	0.3-10		40.00	3.0
1 1/2"	26.7	23	0.3-10	0.3-10		40.00	3.0
2"	30.2	26	0.3-10	0.3-10		40.00	3.0

Options Available

Exd & Exm Solenoid Enclosure	
Protection Class	
EExd T6 (IP67)	See separate datasheet on Page 20-21
EExd T4 (IP67)	
Exm T5 (IP65)	

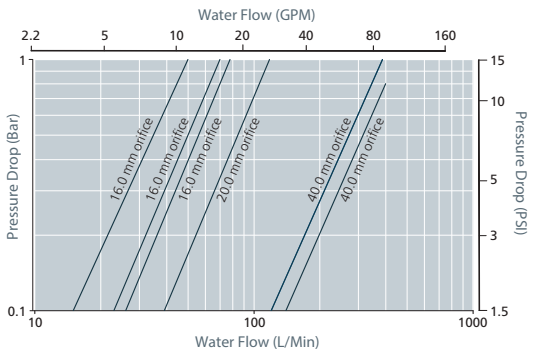
Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50
EPDM (-50 °C to +120 °C)	-10	50
FKM (-20 °C to +150 °C)	-10	50

Main Valve Body Options
Stainless Steel 316 (available up to and including 1")
NPT threads
Flanged Option (PN16 Std) for alternative options consult Rotork Midland
Oxygen cleaning (consult Rotork Midland for product code)

[1] See corrosion reference guide and sealing solutions for material compatability.

How to use the flow chart

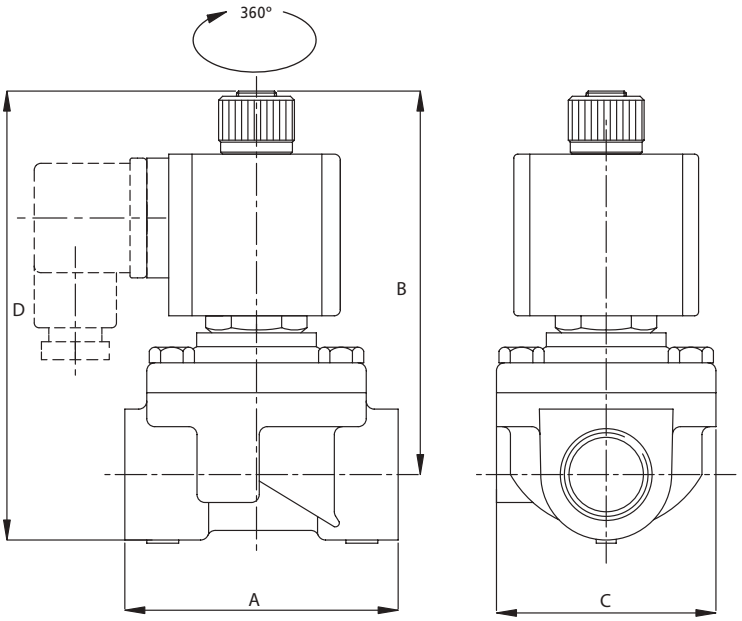
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.



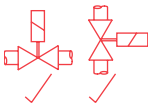
rotork Instruments

ACDN Series – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
3/8" - 3/4"	69.5	80	75	97
1"	85	80	75	126
1¼" - 2"	137	103	120	136

Dimensions given in mm

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied

Coding chart

Main Valve Assembly

Model	
27	ACDN (1¼ and above)
56	ACDN (3/8"-1")

Valve Body Conn. Size	
C	3/8"
D	½"
E	¾"
F	1"
G	1¼"
H	1½"
J	2"

Connection Type	
1	BS21
2	BSP G (1 1/4" and above)
3	NPT
4	FLANGED (PN16 STD)

Operation	
1	AUTO

Body Material	
1	Brass (standard on valves up to and including 1")
2	Bronze (standard on valves above 1")
5	316 Stainless Steel (option available up to and inc 1")

Seals	
A	NBR
B	EPDM
C	FKM

Style	
1	Standard

Coil options

Enclosure	
1	Weather proof IP65

Voltage / Frequency	
A1	230 V / 50 Hz
A2	110 V / 50 Hz & 120 V / 60 Hz
A3	24 V / 50 Hz
A7	220 V / 50 Hz
B2	24 VDC
B3	12 VDC
B5	110 VDC

Electrical Connection	
1	DIN plug 9 mm

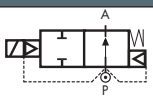
Label	
48	N/O Module

•	•	•	1	Z	•	•	1	-	1	••	1	•

Product coding example:

27G21Z2A1-1A1148 - ACDN Series
N/O 1 ¼" BSPG, auto operation, bronze body, NBR seals, 230 V / 50 Hz DIN Plug 9 mm.

RD223/224/225 Series, General Purpose – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange Tube	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Troublefree operation with coils class H
- Speed control screw as standard
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1 ¼"	25.97	22.20	0.5 - 16	0.5 - 16	40	NBR	RD223DBK
						FKM	RD223DVK
						EPDM	RD223DEK
1 ½"	28.08	24.00			40	NBR	RD224DBK
						FKM	RD224DVK
						EPDM	RD224DEK
2"	37.91	32.40			50	NBR	RD225DBJ
						FKM	RD225DVJ
						EPDM	RD225DEJ

Options Available

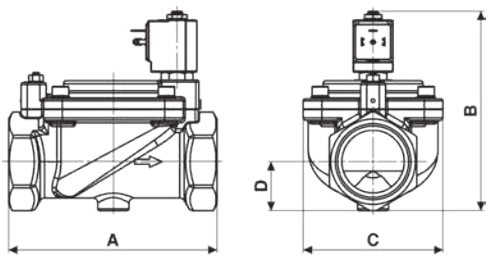
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Electroless nickel plating

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

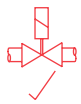
[1] See corrosion reference guide and sealing solutions for material compatability.

RD223/224/225 Series, General Purpose – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1 ¼" - 1 ½"	140	140	96	31.5	2.8
2"	167	158	112	39	3.9

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
23	1 ¼"
24	1 ½"
25	2"

Seals	
B	NBR
V	VKM
E	EPDM

Orifice[1]	
K	40
J	50

Option	
N	NPT
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

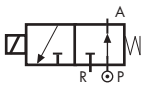
RD	2	•	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] DN40 only for RD223 and RD224 only, DN50 only for RD225.

Product coding example:

RD223DBK 7251
1 ¼" G, auto operation, brass body, NBR seals, 40 mm orifice, 24 VDC, without plug.

RD398/399 Series, General Purpose – 3/2 Normally Open

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4305 EN 10088 (AISI 303)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 15	0 - 15	1.5	FKM	RD399CVC
¼"	0.15	0.13	0 - 10	0 - 10	2.0	FKM	RD399CVE
¼"	0.32	0.27	0 - 4	0 - 4	3.0	FKM	RD399CVH

Options Available

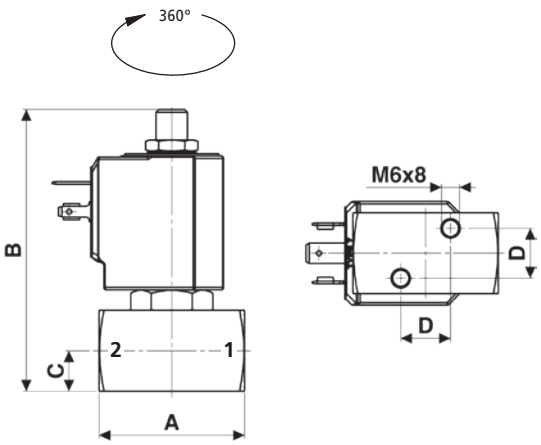
Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Anticorrosion treatment recommended with aggressive fluids

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

RD398/399 Series, General Purpose – 3/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	87	12.5	15.4	0.35

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Orifice	
C	1.5
E	2.0
H	3.0

Option	
N	NPT
F	Anticorrosion treatment[1]
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
0A1	c/w plug
	w/o plug

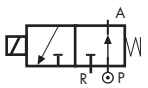
RD	3	9	•	C	V	•	•	•	•	•	•	•	•	•	•

[1] Recommended with aggressive fluids.

Product coding example:

RD399CVE 7251
1/4" G, auto operation, stainless steel body, FKM seals, 2.0 mm orifice, 24 VDC, without plug.

RD362/363 Series, General Purpose – 3/2 Normally Open

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 16	0 - 13	1.5	FKM	RD363CVC
¼"	0.15	0.13	0 - 10	0 - 10	2.0	FKM	RD363CVE
¼"	0.24	0.20	0 - 7	0 - 7	2.5	FKM	RD363CVG
¼"	0.32	0.27	0 - 4	0 - 4	3.0	FKM	RD363CVH

Options Available

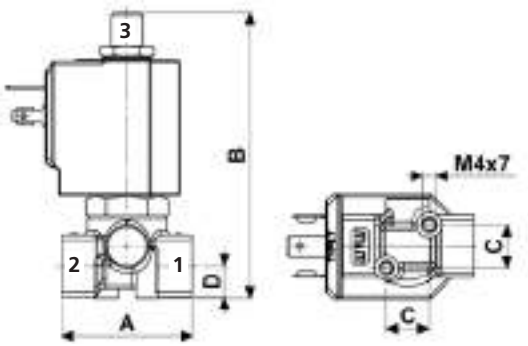
Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

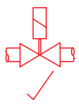
[1] See corrosion reference guide and sealing solutions for material compatability.

RD362/363 Series, General Purpose – 3/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	86.4	13	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
C	1.5
E	2.0
G	2.5

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

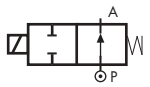
Plug	
0A1	c/w plug
	w/o plug

RD	3	6	•	C	V	•	•	•	•	•	•	•	•	•	•

Product coding example:

RD362CVC 7251
1/8" G, auto operation, brass body, FKM seals, 1.5 mm orifice, 24 VDC, without plug.

B297 Series, Automation – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Low lead content Brass CW719R (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger and Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Valve suitable for contact with food media as per the EEC Directives and Regulations. Please consult supplier for more details
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.04	0.03	0 - 30	0 - 28	1.0	FKM EPDM	B297DVA B297DEA
1/8"	0.05	0.04	0 - 25	0 - 22	1.2	FKM EPDM	B297DVB B297DEB
1/8"	0.07	0.06	0 -22	0 - 18	1.5	FKM EPDM	B297DVC B297DEC
1/8"	0.12	0.10	0 - 18	0 - 9	2.0	FKM EPDM	B297DVE B297DEE
1/8"	0.16	0.14	0 - 13	0 - 3	2.5	FKM EPDM	B297DVG B297DEG
1/8"	0.21	0.18	0 - 8	0 - 1	3.0	FKM EPDM	B297DVH B297DEH

Options Available

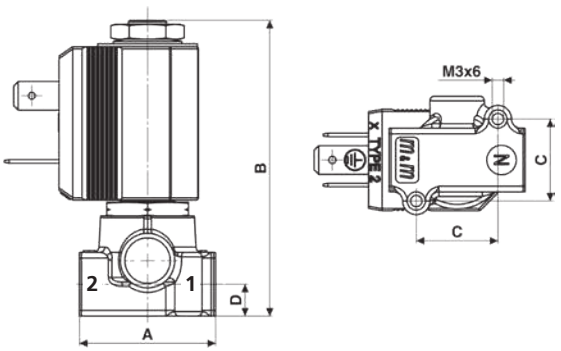
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual Override
Electroless nickel plating treatment

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

B297 Series, Automation – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8"	30	65	18	7	0.15

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Seals	
V	FKM
E	EPDM

Orifice	
A	1.0
B	1.2
C	1.5
E	2.0
G	2.5
H	3.0

Option	
N	NPT
M	Manual Override
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

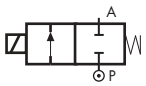
Plug	
	w/o plug
0B1	c/w plug

B	2	9	7	D	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

B297DVAN 2250
1/8" NPT, auto operation, brass body, FKM seals, 1.0 mm orifice, 24 VDC, without plug.

D237/238/239 Series, Automation – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)[1]	Brass CW617N (EN 12165)
Orifice Material[2]	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange[3]	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

[1] Body as D264/265/266 (on pages 20 - 21).

[2] Not for D237D-U, D238D-U and D239D-U.

[3] D237D-U, D238D-U and D239D-U carries an additional flange HEX 30 in Brass CW614N (EN 12164) between body and flange tube, see dimensional drawing on the right (page 65).

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.47	1.26	0 - 0.4	0 - 0.2	10.5	FKM EPDM NBR	D237DVU D237DEU D237DBU
⅜"	1.76	1.50	0 - 0.4	0 - 0.2	10.5	FKM EPDM NBR	D238DVU D238DEU D238DBU
½"	1.76	1.50	0 - 0.4	0 - 0.2	10.5	FKM EPDM NBR	D239DVU D239DEU D239DBU
⅜"	0.42	0.36	0 - 8	0 - 5	4.0	FKM EPDM NBR	D238DVL[4] D238DEL[4] D238DBL[4]
⅜"	0.53	0.45	0 - 5	0 - 2	5.0	FKM EPDM NBR	D238DVN[4] D238DEN[4] D238DBN[4]
⅜"	0.60	0.51	0 - 3.5	0 - 1.1	6.0	FKM EPDM NBR	D238DVP[4] D238DEP[4] D238DBP[4]
½"	0.32	0.27	0 - 17	0 - 12	3.0	FKM EPDM NBR	D239DVH[4] D239DEH[4] D239DBH[4]
½"	0.42	0.36	0 - 8	0 - 5	4.0	FKM EPDM NBR	D239DVL[4] D239DEL[4] D239DBL[4]
½"	0.53	0.45	0 - 5	0 - 2	5.0	FKM EPDM NBR	D239DVN[4] D239DEN[4] D239DBN[4]
½"	0.60	0.51	0 - 3.5	0 - 1.1	6.0	FKM EPDM NBR	D239DVP[4] D239DEP[4] D239DBP[4]

[4] Same flange tube as D262/263 (on pages 16 - 17) see dimensional drawing on the right. (page 65)

Options Available

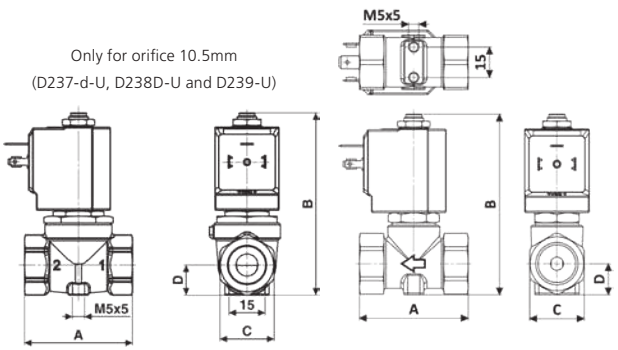
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

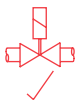
D237/238/239 Series, Automation – 2/2 Normally Closed

Coil Rotation

Only for orifice 10.5mm
(D237-d-U, D238D-U and D239-U)



Preferred Valve Mounting Options



Pipe Size	Orifice (mm)	A	B	C	D	Weight (kg)
¼" - ⅜" - ½"	10.5	54	89	HEX 27	15	0.45
¼" - ⅜" - ½"	from 3 to 6	54	89.35	HEX 27	15	0.45

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E538

Coding chart

Main Valve Assembly

Pipe Size	
7	¼"
8	⅜"
9	½"

Seals	
V	FKM
E	EPDM
B	NBR

Orifice	
U	10.5
H	3.0
L	4.0
N	5.0
P	6.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

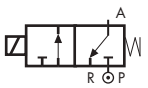
Plug	
	w/o plug
0A1	c/w plug

D	2	3	•	D	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

D237DVU 7250
¼" G, auto operation, brass body, FKM seals, 10.5 mm orifice, 24 VDC, without plug.

D301 Series, Automation – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2→ 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	Flanged 26x26 mm
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Zero pressure rated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 18	0 - 18	1.5	FKM	D301CVC
Flanged	0.15	0.13	0 - 10	0 - 10	2.0	FKM	D301CVE
Flanged	0.24	0.20	0 - 7	0 - 7	2.5	FKM	D301CVG
Flanged	0.32	0.27	0 - 5	0 - 5	3.0	FKM	D301CVH

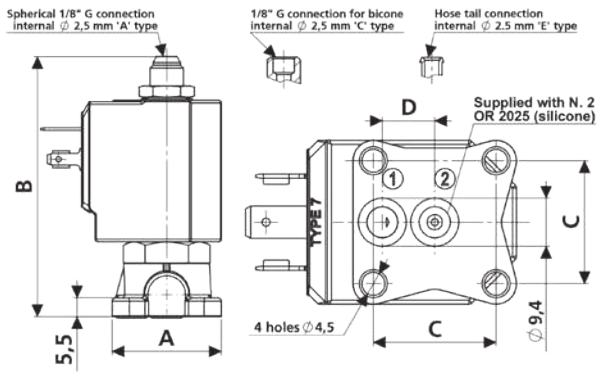
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

D301 Series, Automation – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
Flanged	32	77	24	10.25	0.25

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Top Port	
C	G 1/8" conn
A	spherical G 1/8"
E	with hose tail

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

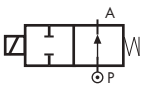
Plug	
	w/o plug
0A1	c/w plug

D	3	0	1	•	v	•	•	•	•	•	•	•	•	•	•

Product coding example:

D301CVC 7250
Flanged, auto operation, brass body, FKM seals, 1.5 mm orifice, 24 VDC, without plug.

RB297 Series, Automation – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Low lead content Brass CW719R (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube[1]	Brass CW614N (EN 12164)
Plinger and Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7W

[1] With special nut for NO operator (different from Standard).

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.04	0.03	0 - 25	0 - 25	1.0	FKM EPDM	RB297DVA RB297DEA
1/8"	0.05	0.04	0 - 20	0 - 20	1.2	FKM EPDM	RB297DVB RB297DEB
1/8"	0.07	0.06	0 - 15	0 - 15	1.5	FKM EPDM	RB297DVC RB297DEC
1/8"	0.12	0.10	0 - 10	0 - 10	2.0	FKM EPDM	RB297DVE RB297DEE
1/8"	0.16	0.14	0 - 5	0 - 5	2.5	FKM EPDM	RB297DVG RB297DEG
1/8"	0.21	0.18	0 - 4.5	0 - 4.5	3.0	FKM EPDM	RB297DVH RB297DEH

Options Available

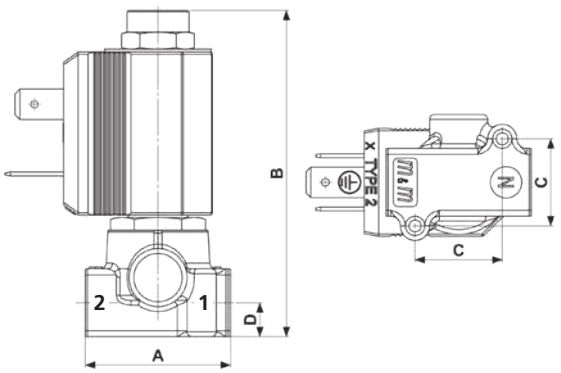
Valve Options
NPT threads (minimum batch may be required)
Electroless nickel plating treatment

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

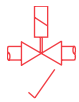
[1] See corrosion reference guide and sealing solutions for material compatability.

RB297 Series, Automation – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	30	67.5	18	7	0.15

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Seals	
V	FKM
E	EPDM

Orifice	
A	1.0
B	1.2
C	1.5
E	2.0
G	2.5
H	3.0

Option	
N	NPT
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

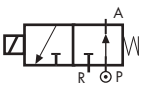
Plug	
	w/o plug
0B1	c/w plug

RB	2	9	7	D	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

RB297DEE 2250
1/8" G, auto operation, brass body, EPDM seals, 2.0 mm orifice, 24 VDC, without plug.

RD301 Series, Automation – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction underseat 2→ 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material	Foodgrade FKM
Connection Type (Std)	Flanged 26x26 mm
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Zero pressure rated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 15	0 - 15	1.5	FKM	RD301CVC
Flanged	0.15	0.13	0 - 10	0 - 10	2.0	FKM	RD301CVE
Flanged	0.32	0.27	0 - 4	0 - 4	3.0	FKM	RD301CVH

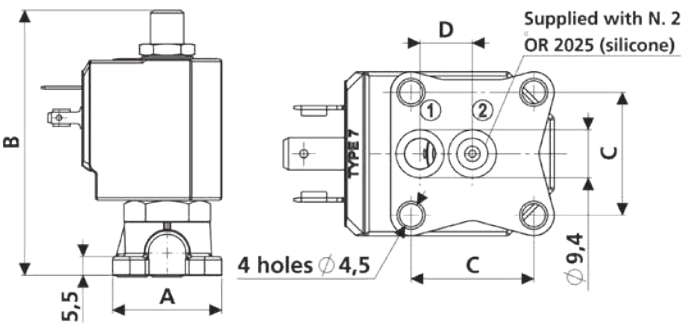
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

RD301 Series, Automation – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
Flanged	32	77.7	24	10.25	0.26

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Coil options

Plug

Orifice	
C	1.5
E	2.0
H	3.0

Option	
	w/o option

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

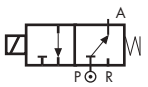
Plug	
	w/o plug
0A1	c/w plug

RD	3	0	1	C	V	•	•	•	•	•	•	•	•	•	•

Product coding example:

RD301CVC 7251
Flanged, auto operation, brass body, FKM seals, 1.5 mm orifice, 24 VDC, without plug.

SB397 Series, Automation – 3/2 Normally Open

Specifications	
Function (single acting)	 Flow direction OFF 3 → 1 - ON 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Low lead content Brass CW719R (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Valve suitable for contact with food media as per the EEC Directives and Regulations. Please consult supplier for more details
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)		Seal Material	Valve Code
			AC Voltages	DC Voltages	1→2	1→3		
1/8"	0.05	0.04	0 - 6	0 - 3	1.2	1.7	FKM	SB397CVB
1/8"	0.07	0.06	0 - 4.5	0 - 2	1.5	1.7	FKM	SB397CVC

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual Override
Electroless nickel plating treatment

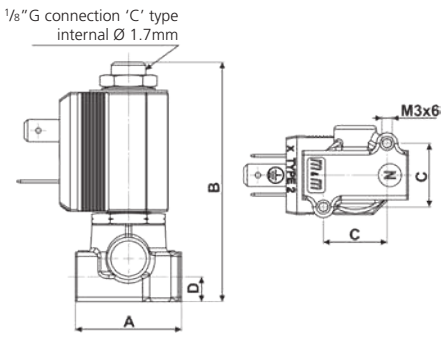
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

SB397 Series, Automation – 3/2 Normally Open

Coil Rotation

Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	30	67.8	18	7	0.15

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 vAC / 300 vDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Coil options

Plug

Orifice	
B	1.2
C	1.5

Option	
N	NPT
M	Manual Override
K	Electroless nickel plating
	w/o option

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

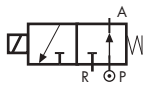
Plug	
0B1	c/w plug
	w/o plug

SB	3	9	7	C	V	•	•	•	•	•	•	•	•	•	•

Product coding example:

SB397CVB 2250
1/8" G, auto operation, brass body, FKM seals, 1.2 mm orifice, with manual override, 24 VDC, without plug.

RB397 Series, Automation – 3/2 Normally Open

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Low lead content Brass CW719R (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Valve suitable for contact with food media as per the EEC Directives and Regulations. Please consult supplier for more details
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.04	0.03	0 - 15	0 - 12	1.0	FKM EPDM	RB397CVA RB397CEA
1/8"	0.05	0.04	0 - 15	0 - 12	1.2	FKM EPDM	RB397CVB RB397CEB
1/8"	0.07	0.06	0 - 10	0 - 8	1.5	FKM EPDM	RB397CVC RB397CEC
1/8"	0.13	0.11	0 - 8	0 - 6	2.0	FKM EPDM	RB397CVE RB397CEE
1/8"	0.18	0.15	0 - 4	0 - 4	2.5	FKM EPDM	RB397CVG RB397CEG
1/8"	0.25	0.21	0 - 3.5	0 - 3.5	3.0	FKM EPDM	RB397CVH RB397CEH

Options Available

Valve Options (see coding chart)
Electroless nickel plating treatment

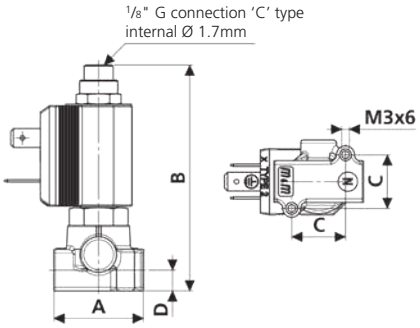
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

RB397 Series, Automation – 3/2 Normally Open

Coil Rotation

Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	30	75.9	18	7	0.15

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Seals	
V	FKM
E	EPDM

Orifice	
A	1.0
B	1.2
C	1.5
E	2.0
G	2.5
H	3.0

Option	
K	Electroless nickel plating
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

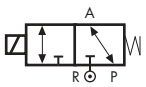
Plug	
0B1	c/w plug
	w/o plug

RB	3	9	7	C	•	•	•	•	•	•	•	•	•	•	•

Product coding example:

RB397CVB 2400
1/8" G, auto operation, brass body, FKM seals, 1.2 mm orifice, 110 V / 50 Hz - 120 V / 60 Hz, without plug.

GD362/363 Series, Automation – Universal Service 3/2 (Normally Open)

Specifications	
Function (single acting)	 Pressure can be connected to any port
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)		Seal Material	Valve Code
			AC Voltages	DC Voltages	1→2	1→3		
¼"	0.15	0.13	0 - 8	0 - 7	2.0	2.0	FKM	GD363CVE

Options Available

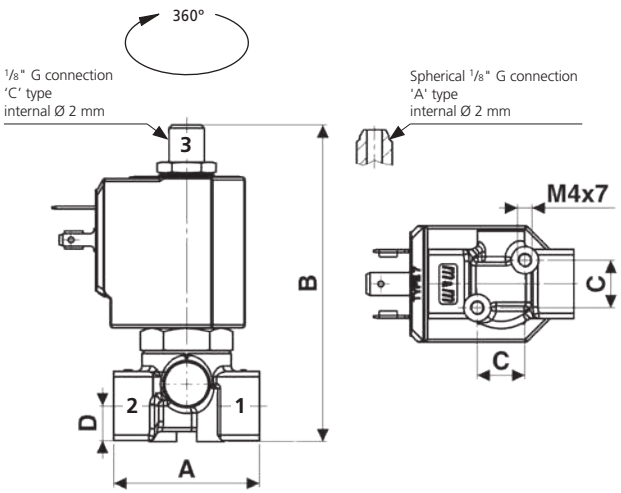
Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT threads (minimum batch may be required)

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

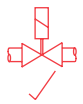
[1] See corrosion reference guide and sealing solutions for material compatability.

GD362/363 Series, Automation – Universal Service 3/2 (Normally Open)

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	87	13	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Top Port Connection	
C	1/8" G
A	spherical 1/8" G

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

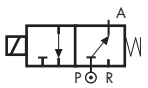
Plug	
0A1	c/w plug
	w/o plug

GD	3	6	•	•	V	E	•	•	•	•	•	•	•	•	•

Product coding example:

SD363CVE 7250
1/4" G, auto operation, universal, brass body, FKM seals, 2.0 mm orifice, with top port connection 1/8"G, 24 VDC, without plug.

SD362/363 Series, Automation – 2nd Service 3/2 (Normally Open)

Specifications	
Function (single acting)	 Flow direction OFF 3 → 1 - ON 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)		Seal Material	Valve Code
			AC Voltages	DC Voltages	1→2	1→3		
¼"	0.09	0.08	0 - 15	0 - 15	1.5	1.5	FKM	SD363C<u>V</u>C
¼"	0.15	0.13	0 - 15	0 - 15	2.0	2.0	FKM	SD363C<u>V</u>E
¼"	0.24	0.20	0 - 13	0 - 13	2.5	2.5	FKM	SD363C<u>V</u>G

Options Available

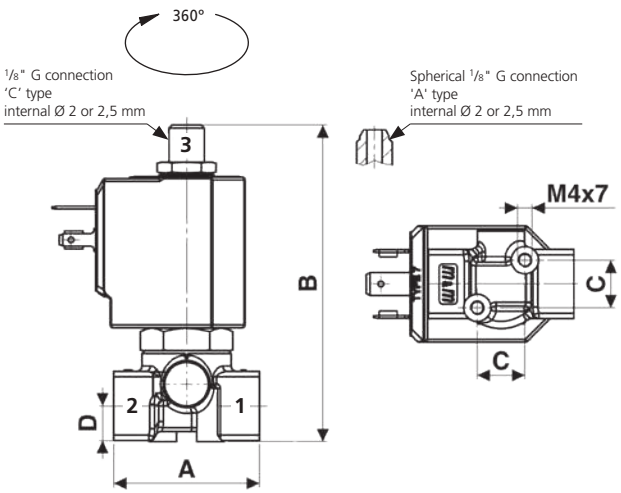
Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Manual Override

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

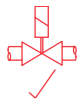
[1] See corrosion reference guide and sealing solutions for material compatability.

SD362/363 Series, Automation – 2nd Service 3/2 (Normally Open)

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	87	13	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Top port connection	
C	1/8" G
A	spherical 1/8" G

Orifice	
C	1.5
E	2.0
G	2.5

Option	
N	NPT
M	Manual Override
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

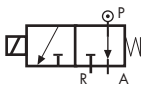
Plug	
0A1	c/w plug
	w/o plug

SD	3	6	•	•	V	•	•	•	•	•	•	•	•	•	•

Product coding example:

SD362AVG 7400
1/8" G, auto operation, 2nd service, brass body, FKM seals, 2.5 mm orifice, with top port connection spherical 1/8"G, 110 V / 50 Hz - 120 V / 60 Hz, without plug.

DD362/363 Series, Automation – Diverting 3/2 (Normally Open)

Specifications	
Function (single acting)	 Flow direction OFF 1 → 3 - ON 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)		Seal Material	Valve Code
			AC Voltages	DC Voltages	1→2	1→3		
¼"	0.09	0.08	0 - 20	0 - 20	1.5	2.5	FKM	DD363CVC
¼"	0.15	0.13	0 - 20	0 - 20	2.0	2.5	FKM	DD363CVE

Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Manual Override

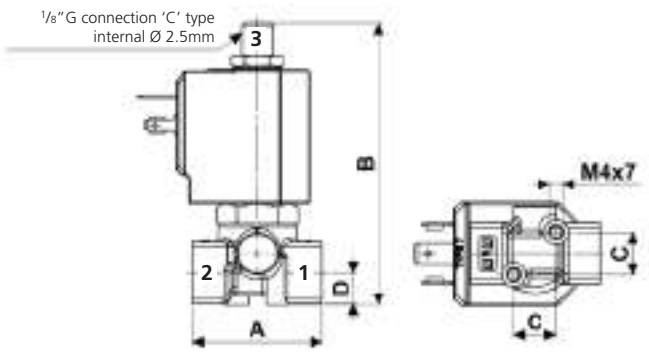
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

DD362/363 Series, Automation – Diverting 3/2 (Normally Open)

Coil Rotation

Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	87	13	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
C	1.5
E	2.0

Option	
N	NPT
M	Manual Override
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

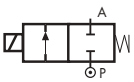
Plug	
0A1	c/w plug
	w/o plug

DD	3	6	•	C	V	•	•	•	•	•	•	•	•	•	•

Product coding example:

DD362CVE 7250
1/8" G, auto operation, diverting, brass body, FKM seals, 2.0 mm orifice, 24 VDC, without plug.

D298/299 Series, High Pressure – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Ruby
Standard Connection Type	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
High Power Coil Voltage DC (=)	24 V
High Power Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
High Power Coil Voltage AC 60 Hz (~)	24 V, 120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (High Power)	AC 25 VA (holding) AC 50 VA (inrush) DC 22 Watts

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Wide range of available orifices
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code[1]
			AC Voltages	DC Voltages			
¼"	0.05	0.04	0 - 200	0 - 110	1.2	RUBY	D299DRB1
¼"	0.08	0.07	0 - 200	0 - 80	1.5	RUBY	D299DRC1
¼"	0.16	0.14	0 - 140	0 - 30	2.0	RUBY	D299DRE1
¼"	0.23	0.20	0 - 90	0 - 23	2.5	RUBY	D299DRG1
¼"	0.32	0.27	0 - 50	0 - 14	3.0	RUBY	D299DRH1

NOTE: Not 100% leak-proof when used with air/gases. Approx leak rate is 1.5ml/min at max OPD.

[1] **ATTENTION:** when high pressure valves are supplied without a coil, their nameplates display the max OPD of the valve when equipped with an AC (25VA) and DC(22W) coil. If fitting coils with a different power rating OPD will vary, please consult supplier for more details.

Options Available

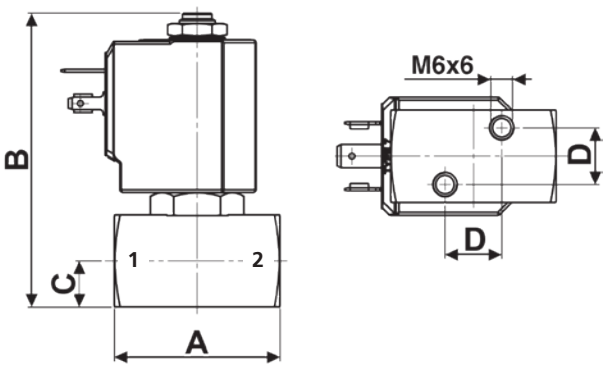
Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT Threads (minimum batch may be required)
Anticorrosion treatment recommended with aggressive fluids
Silver shading ring

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
RUBY (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C

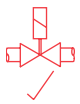
[1] See corrosion reference guide and sealing solutions for material compatability.

D298/299 Series, High Pressure – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	80	12.5	15.4	0.36

Dimensions (mm)

Solenoid enclosures

7-K1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Orifice	
B	1.2
C	1.5
E	2.0
G	2.5
H	3.0

Option	
A	Silver shading ring
F	Anticorrosion treatment[1]
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H, High Power	
72Z1	24 VDC
72K1	24 V / 50/60 Hz
74K1	110 V / 50 Hz - 120 V / 60 Hz
77K1	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

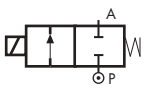
D	2	9	•	D	R	•	•	1	•	•	•	•	•	•	•

[1] Recommended with aggressive fluids.

Product coding example:

D298DRC1 72Z1 0A1
1/8" G, auto operation, stainless steel body, RUBY seals, 1.5 mm orifice, 24 VDC, with plug.

D262DR-1/263DR-1 Series, High Pressure – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	RUBY
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
High Power Coil Voltage DC (=)	24 V
High Power Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
High Power Coil Voltage AC 60 Hz (~)	24 V, 120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (High Power)	AC 25 VA (holding) AC 50 VA (inrush) DC 22W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.05	0.04	0 - 200	0 - 60	1.2	RUBY	D263DRB1
¼"	0.09	0.08	0 - 200	0 - 35	1.5	RUBY	D263DRC1
¼"	0.15	0.13	0 - 120	0 - 25	2.0	RUBY	D263DRE1
¼"	0.32	0.27	0 - 50	0 - 11	3.0	RUBY	D263DRH1

NOTE: Not 100% leak-proof when used with air/gases. Approx leak rate is 1.5ml/min at max OPD.

ATTENTION: when high pressure valves are supplied without a coil, their nameplates display the max OPD of the valve when equipped with an AC (25VA) and DC(22W) coil. If fitting coils with a different power rating OPD will vary, please consult supplier for more details.

Options Available

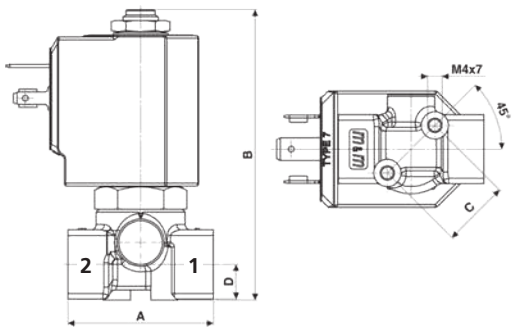
Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
RUBY (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C

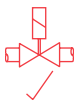
[1] See corrosion reference guide and sealing solutions for material compatability.

D262DR-1/263DR-1 Series, High Pressure – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	77.5	18.5	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7-K1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
B	1.2
C	1.5
E	2.0
H	3.0

Option	
N	NPT
M	Manual override
	w/o option

Coil options

Voltage / Frequency - Class H, High Power	
72Z1	24 VDC
72K1	24 V / 50/60 Hz
74K1	110 V / 50 Hz - 120 V / 60 Hz
77K1	230 V / 50 Hz - 240 V / 60 Hz

Plug

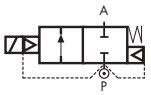
Plug	
	w/o plug
0A1	c/w plug

D	2	6	•	D	R	•	•	1	•	•	•	•	•	•	•

Product coding example:

D263DRB1 72Z1 0A1
1/4" G, auto operation, brass body, RUBY seals, 1.2 mm orifice, 24 VDC, with plug.

D634/635/636DTT1 Series, High Pressure – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Piston Material	Brass CW614N (EN 12164)
Springs	Stainless Steel AISI 302
Seal Material (Std)	PTFE
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
High Power Coil Voltage DC (=)	24 V
High Power Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
High Power Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC) +10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (High Power)	AC 25 VA (holding) AC 50 VA (inrush) DC 22 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.47	1.26	0.3 - 140	0.3 - 35	10	PTFE	D634DIT1
⅜"	1.68	1.44	0.3 - 140	0 .3 - 35	10	PTFE	D635DIT1
½"	1.76	1.50	0.3 - 140	0 .3 - 35	10	PTFE	D636DIT1

NOTE: Not 100% leak-proof when used with air/gases. Approx leak rate is 1.5ml/min at max OPD.

ATTENTION: when high pressure valves are supplied without a coil, their nameplates display the max OPD of the valve when equipped with an AC (25VA) and DC(22W) coil. If fitting coils with a different power rating OPD will vary, please consult supplier for more details.

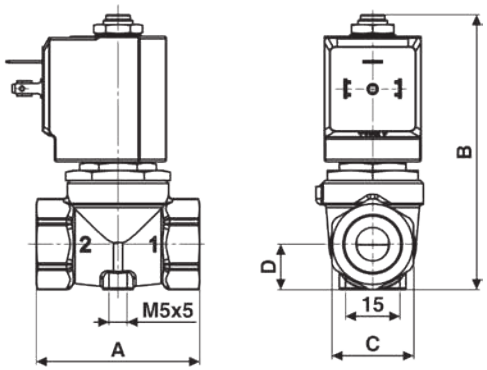
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
PTFE (-10 °C to +130 °C)	Water, oil, liquids	-10 °C	+50 °C

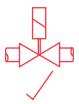
[1] See corrosion reference guide and sealing solutions for material compatability.

D634/635/636DTT1 Series, High Pressure – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	54	100	HEX 27	15	0.5
⅜" to ½"	54	100	HEX 27	15	0.45

Dimensions (mm)

Solenoid enclosures

7-K1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
4	¼"
5	⅜"
6	½"

Option	
	w/o option

Coil options

Voltage / Frequency - Class H, High Power	
72Z1	24 VDC
72K1	24 V / 50/60 Hz
74K1	110 V / 50 Hz - 120 V / 60 Hz
77K1	230 V / 50 Hz - 240 V / 60 Hz

Plug

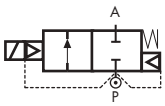
Plug	
	w/o plug
0A1	c/w plug

D	6	3	•	D	T	T	1	•	•	•	•	•	•	•	•

Product coding example:

D634DTT1 72Z1
¼" G, auto operation, brass body, PTFE seals, 10 mm orifice, 24 VDC, without plug.

D232/233/234 Series, High Pressure & Compressed Air – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Operator Seal Material[1]	RUBY
Diaphragm Material	FKM
Main Seal Material[1]	PTFE
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

[1] For D23-DVW operator seal material is foodgrade FKM and main seal material is FKM.

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	2.95	2.52	1 - 50	1 - 50	16	PTFE	D232DTW[2]
1/2"	3.23	2.76	1 - 50	1 - 50	16	PTFE	D233DTW[2]
3/4"	3.37	2.88	1 - 50	1 - 50	16	PTFE	D234DTW[2]
3/8"	2.95	2.52	1 - 25	1 - 25	16	FKM	D232DVW[3]
1/2"	3.23	2.76	1 - 25	1 - 25	16	FKM	D233DVW[3]
3/4"	3.37	2.88	1 - 25	1 - 25	16	FKM	D234DVW[3]

[2] Not 100% leak-proof when used with air/gases. Approximate leak rate is 1,5 ml/min at max. OPD.

[3] Non standard, MOQ required.

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)

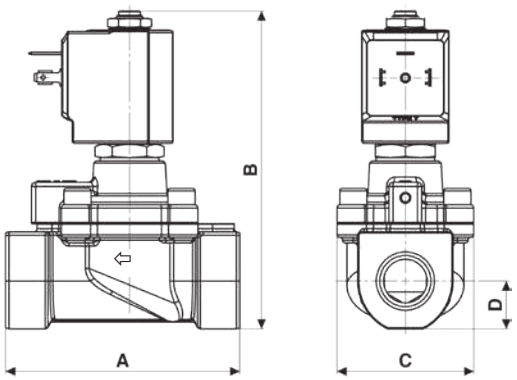
Seal Material[4] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
PTFE (-10 °C to +130 °C)	Water[5], oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water[5], oil, air	-10 °C	+50 °C

[4] See corrosion reference guide and sealing solutions for material compatability.

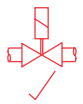
[5] When using liquid fluids waterhammer and pressures higher than 20 barg can cause the diaphragm to tear.

D232/233/234 Series, High Pressure & Compressed Air – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8"	86	116.5	50.2	17.5	1
½" - ¾"	86	116.5	50.2	17.5	0.9

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	3/8"
3	½"
4	¾"

Seals	
T	PTFE
V	FKM

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

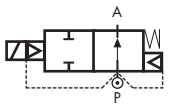
Plug	
	w/o plug
0A1	c/w plug

D	2	3	•	D	•	W	•	•	•	•	•	•	•	•	•

Product coding example:

D232DTW 7200
3/8" G, auto operation, brass body, PTFE main seal, 16 mm orifice, 24 V / 50/60 Hz, without plug.

RD232/233/234 Series, High Pressure – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Operator Seal Material[1]	RUBY
Diaphragm Material	FKM
Main Seal Material[1]	PTFE
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC) +10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

[1] For RD23-DVW operator seal material is foodgrade FKM and main seal material is FKM.

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	2.95	2.52	1 - 50	1 - 50	16	PTFE	RD232DIW[2]
½"	3.23	2.76	1 - 50	1 - 50	16	PTFE	RD233DIW[2]
¾"	3.37	2.88	1 - 50	1 - 50	16	PTFE	RD234DIW[2]
3/8"	2.95	2.52	1 - 25	1 - 25	16	FKM	RD232DVW[3]
½"	3.23	2.76	1 - 25	1 - 25	16	FKM	RD233DVW[3]
¾"	3.37	2.88	1 - 25	1 - 25	16	FKM	RD234DVW[3]

[2] Not 100% leak-proof when used with air/gases. Approximate leak rate is 1,5 ml/min at max. OPD.

[3] Non standard, MOQ required.

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)

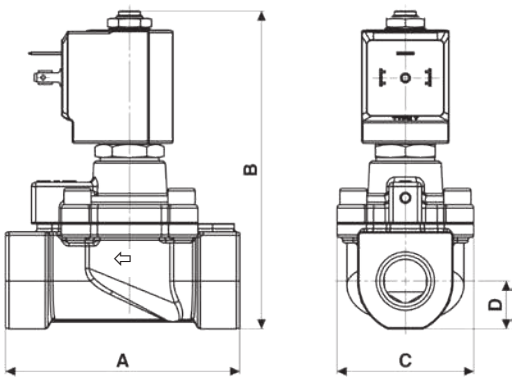
Seal Material[4] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
PTFE (-10 °C to +130 °C)	Water[5], oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water[5], oil, air	-10 °C	+50 °C

[4] See corrosion reference guide and sealing solutions for material compatability.

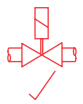
[5] When using liquid fluids waterhammer and pressures higher than 20 barg can cause the diaphragm to tear.

RD232/233/234 Series, High Pressure – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8"	86	116.5	50.2	17.5	1
½" - ¾"	86	116.5	50.2	17.5	0.9

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	3/8"
3	½"
4	¾"

Seals	
T	PTFE
V	FKM

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

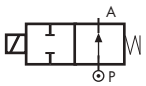
Plug	
	w/o plug
0A1	c/w plug

RD	2	3	•	D	•	W	•	•	•	•	•	•	•	•	•

Product coding example:

RD233DTW 7701 0A1
½" G, auto operation, brass body, PTFE seals, 16.5 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz, with plug.

RD236DR-1 Series, High Pressure – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Ruby
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
High Power Coil Voltage DC (=)	24 V
High Power Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
High Power Coil Voltage AC 60 Hz (~)	24 V, 120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (High Power)	AC 25 VA (holding) AC 50 VA (inrush) DC 22 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	0 - 180	0 - 180	1.0	RUBY	RD236DRA1
¼"	0.09	0.08	0 - 150	0 - 150	1.5	RUBY	RD236DRC1
¼"	0.14	0.12	0 - 60	0 - 60	2.0	RUBY	RD236DRE1
¼"	0.20	0.17	0 - 37	0 - 37	2.5	RUBY	RD236DRG1
¼"	0.25	0.21	0 - 28	0 - 28	3.0	RUBY	RD236DRH1

NOTE: Not 100% leak-proof when used with air/gases. Approx leak rate is 1.5ml/min at max OPD.

ATTENTION: when high pressure valves are supplied without a coil, their nameplates display the max OPD of the valve when equipped with an AC (25VA) and DC(22W) coil. If fitting coils with a different power rating OPD will vary, please consult supplier for more details.

Options Available

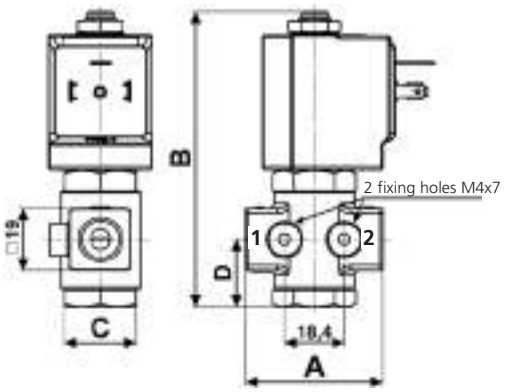
Valve Options (see coding chart)
Coils with additional protection by impregnation with Loctite® Resinol RTC for humid environments

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
RUBY (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

RD236DR-1 Series, High Pressure – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
¼"	47	91	Hex 22	20.75	0.25

Dimensions (mm)

Solenoid enclosures

7-K1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Orifice	
A	1.0
C	1.5
E	2.0
G	2.5
H	3.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class H, High Power	
72Z1	24 VDC
72K1	24 V / 50/60 Hz
74K1	110 V / 50 Hz - 120 V / 60 Hz
77K1	230 V / 50 Hz - 240 V / 60 Hz

Voltage / Frequency - Class H, High Power, Impregnated	
D2Z1	24 VDC
D2K1	24 V / 50/60 Hz
D4K1	110 V / 50 Hz - 120 V / 60 Hz
D7K1	230 V / 50 Hz - 240 V / 60 Hz

Plug

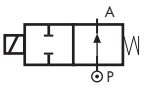
Plug	
0A1	c/w plug
	w/o plug

RD	2	3	6	D	R	•	1	•	•	•	•	•	•	•	•	•

Product coding example:

RD236DRC1 72K1
¼" G, auto operation, brass body, RUBY seals, 1.5 mm orifice, 24 VDC, without plug.

RD201 Series High Pressure – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Ruby
Connection Type (Std)	Flanged 32x32mm
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 55	0 - 55	1.5	Ruby	RD201DRC
Flanged	0.24	0.20	0 - 25	0 - 25	2.0	Ruby	RD201DRE
Flanged	0.32	0.27	0 - 10	0 - 10	3.0	Ruby	RD201DRH

NOTE: Not 100% leak-proof when used with air/gases. Approx leak rate is 1.5ml/min at max OPD.

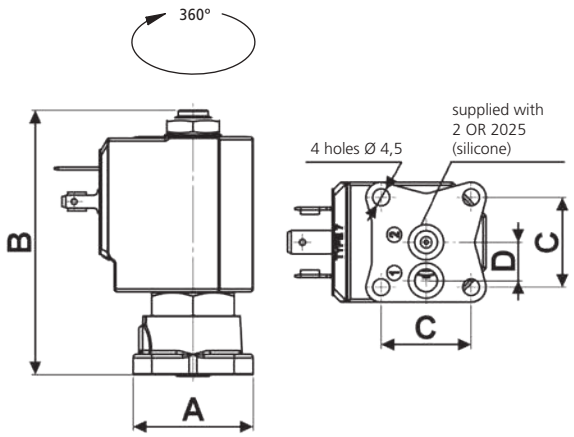
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
RUBY (-10 °C to +130 °C)	Water, oil, liquids	-10 °C	+50 °C

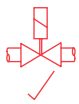
[1] See corrosion reference guide and sealing solutions for material compatability.

RD201 Series High Pressure – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
Flanged	32	68.4	24	10.25	0.3

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Orifice	
C	1.5
E	2.0
H	3.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

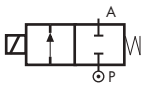
Plug	
	w/o plug
0A1	c/w plug

RD	2	0	1	D	R	•	•	•	•	•	•	•	•	•	•

Product coding example:

RD201DRC 7201
Flanged connection, auto operation, brass body, RUBY seals, 1.5 mm orifice, 24 V / 50 Hz/60 Hz, without plug.

D248/249 Series, Compressed Air – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.11	0.09	0 - 25	0 - 24	1.7	FKM EPDM	D249DVD D249DED
¼"	0.17	0.14	0 - 18	0 - 16	2.2	FKM EPDM	D249DVF D249DEF
¼"	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D249DVH[1] D249DEH[1]

[1] Minimum batch may be required.

Options Available

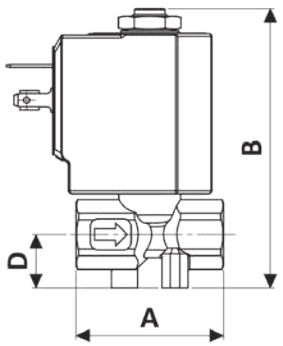
Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)

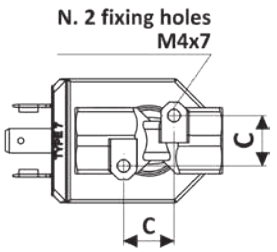
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

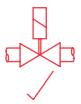
D248/249 Series, Compressed Air – 2/2 Normally Closed

Coil Rotation





Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	38	72.1	13	13.8	0.18

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Seals	
V	FKM
E	EPDM

Orifice	
D	1.7
F	2.2
H	3.0[1]

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
0A1	c/w plug
	w/o plug

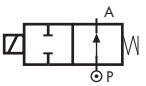
D	2	4	•	D	•	•	•	•	•	•	•	•	•	•	•

[1] Minimum batch may be required.

Product coding example:

D249DVF 7700 0A1
¼" G, auto operation, brass body, FKM seals, 2.2 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz AC, with plug.

RB214 Series, Compressed Air – 2/2 Normally Open

Specifications	
Function (single acting)	
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW614N (EN 12164)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 7 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.08	0.07	0 - 14	0 - 14	1.7	FKM EPDM	RB214CVD RB214CED

Options Available

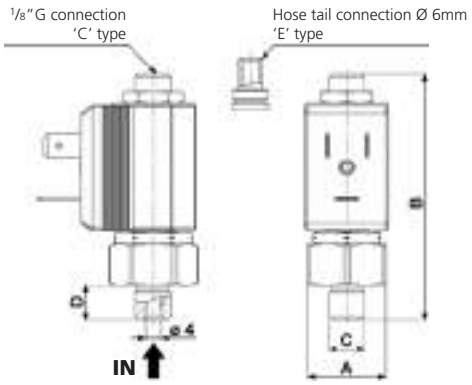
Valve Options (see coding chart)
Top port connection with hose tail Ø 6 mm

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

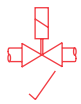
[1] See corrosion reference guide and sealing solutions for material compatability.

RB214 Series, Compressed Air – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	21	72.1	1/8"	9.5	0.06

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Top Port Connection	
C	1/8" G
E	Hose tail Ø 6mm

Seals	
V	FKM
E	EPDM

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
2250	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

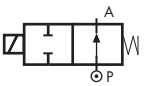
Plug	
0B1	c/w plug
	w/o plug

RB	2	1	4	•	•	D	•	•	•	•	•	•	•	•	•

Product coding example:

RB214CVD 2250
1/8" G, auto operation, brass body, FKM seals, 1.7 mm orifice, 24 VDC, without plug.

RD213 Series, Compressed Air – 2/2 Normally Open

Specifications	
Function (single acting)	
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW614N (EN 12164)
Tube	Stainless Steel AISI 304
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.17	0.14	0 - 16	0 - 16	2.5	FKM EPDM	RD213CVG RD213CEG

Options Available

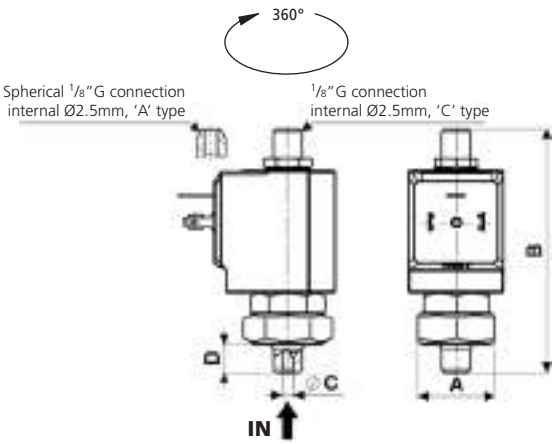
Valve Options (see coding chart)
Top port connection with spherical 1/8" G

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

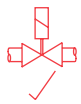
[1] See corrosion reference guide and sealing solutions for material compatability.

RD213 Series, Compressed Air – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8"	Hex 26	82.5	4	9.5	0.1

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Top Port Connection	
C	1/8" G
A	Spherical 1/8" G

Seals	
V	FKM
E	EPDM

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

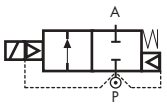
Plug	
0A1	c/w plug
	w/o plug

RD	2	1	3	•	•	G	•	•	•	•	•	•	•	•	•

Product coding example:

RD213CVG 7700 0A1
1/8" G, auto operation, brass body, FKM seals, 2.5 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz AC, with plug.

D204/205/206/222 Series, Aggressive Fluids, Stainless Steel –
2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless steel AISI 316L (ASME SA351/351M GRADE CF3M
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Silver
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Speed control screw as standard
- Eex option (see separate datasheet)
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	3.86	3.30	0.3 - 16	0.3 - 16	13	FKM	D204DVZI
						NBR	D204DBZI
						EPDM	D204DEZI
1/2"	4.42	3.78			13	FKM	D205DVZI
						NBR	D205DBZI
						EPDM	D205DEZI
3/4"	9.83	8.40			25	FKM	D206DVYI
						NBR	D206DBYI
						EPDM	D206DEYI
1"	11.23	9.60			25	FKM	D222DVYI
						NBR	D222DBYI
						EPDM	D222DEYI

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual override
Anticorrosion treatment recommended with aggressive fluids

Vacuum Version
See separate datasheet on page 134

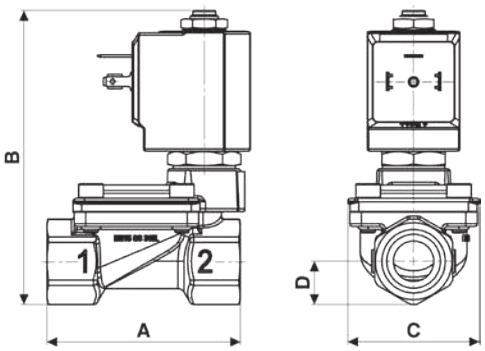
EEx T4	
Protection Class	See separate datasheet on page 166 - 167
EEx T4 (IP65)	

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

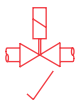
[1] See corrosion reference guide and sealing solutions for material compatability.

D204/205/206/222 Series, Aggressive Fluids, Stainless Steel –
2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
⅜" - ½"	67	102	45.6	15	0.49
¾" - 1"	96	125	72	23	1.1

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
04	⅜"
05	½"
06	¾"
22	1"

Seals	
V	VKM
E	EPDM
B	NBR

Orifice[1]	
Z	13
Y	25

Option	
N	NPT
F	Anticorrosion treatment
M	Manual override
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

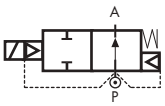
D	2	•	•	D	•	•	I	•	•	•	•	•	•	•	•

[1] DN13 for D204 and D205, DN25 for D206 and D222.

Product coding example:

D204DVZI 7250
⅜" G, auto operation, stainless steel body, FKM seals, 13 mm orifice, 24 VDC, without plug.

RD204/205/206/222 Series, Aggressive Fluids, Stainless Steel –
2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless steel AISI 316L (ASME SA351/351M GRADE CF3M
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Silver
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Speed control screw as standard
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
⅜"	3.86	3.30	0.3 - 16	0.3 - 16	13	FKM	RD204DVZI
						NBR	RD204DBZI
						EPDM	RD204DEZI
½"	4.42	3.78			13	FKM	RD205DVZI
						NBR	RD205DBZI
						EPDM	RD205DEZI
¾"	9.83	8.40			25	FKM	RD206DVYI
						NBR	RD206DBYI
						EPDM	RD206DEYI
1"	11.23	9.60			25	FKM	RD222DVYI
						NBR	RD222DBYI
						EPDM	RD222DEYI

Options Available

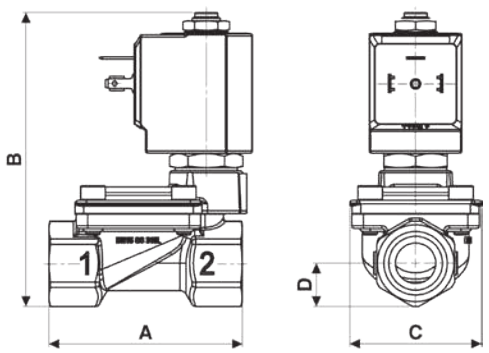
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Anticorrosion treatment recommended with aggressive fluids

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
FKM (-10 °C to +130 °C)	Water, oil, air, aggressive fluids	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

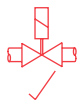
[1] See corrosion reference guide and sealing solutions for material compatability.

RD204/205/206/222 Series, Aggressive Fluids, Stainless Steel –
2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
⅜" - ½"	67	100	45.6	15	0.49
¾" - 1"	96	123	72	23	1.1

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
04	⅜"
05	½"
06	¾"
22	1"

Seals	
V	VKM
E	EPDM
B	NBR

Orifice[1]	
Z	13
Y	25

Option	
N	NPT
F	Anticorrosion treatment
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

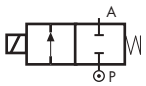
RD	2	•	•	D	•	•	I	•	•	•	•	•	•	•	•

[1] DN13 for RD204 and RD205, DN25 for RD206 and RD222.

Product coding example:

RD204DVZI 7250 ⅜" G, auto operation, stainless steel body, FKM seals, 13 mm orifice, 24 VDC, without plug.

D262DL/263DL Series, Steam – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Sigodur (filled PTFE)
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	0 - 9	0 - 9	1.0	Filled PTFE	D263DLA
¼"	0.09	0.08	0 - 9	0 - 9	1.5	Filled PTFE	D263DLC
¼"	0.24	0.20	0 - 9	0 - 8	2.5	Filled PTFE	D263DLG
¼"	0.32	0.27	0 - 9	0 - 5	3.0	Filled PTFE	D263DLH

Options Available

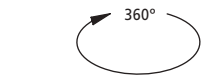
Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT threads (minimum batch may be required)
Manual override

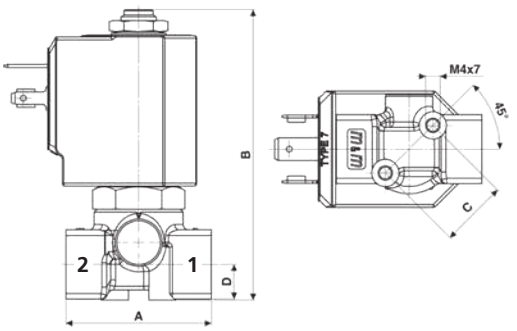
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Filled PTFE (-10 °C to +180 °C)	Steam	-10 °C	+70 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

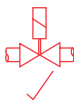
D262DL/263DL Series, Steam – 2/2 Normally Closed

Coil Rotation





Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	77.5	18.5	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
A	1.0
C	1.5
G	2.5
H	3.0

Option	
N	NPT
M	Manual override
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

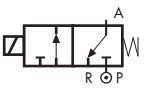
Plug	
	w/o plug
0A1	c/w plug

D	2	6	•	D	L	•	•	•	•	•	•	•	•	•	•

Product coding example:

D263DLA 7251
¼" G, auto operation, brass body, filled PTFE seals, 1.0 mm orifice, 24 VDC, without plug.

D398/399CL Series, Steam – 3/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Sigodur (filled PTFE)
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 9	0 - 9	1.5	filled PTFE	D399CLC
¼"	0.15	0.13	0 - 9	0 - 9	2.0	filled PTFE	D399CLE
¼"	0.32	0.27	0 - 5	0 - 5	3.0	filled PTFE	D399CLH

Options Available

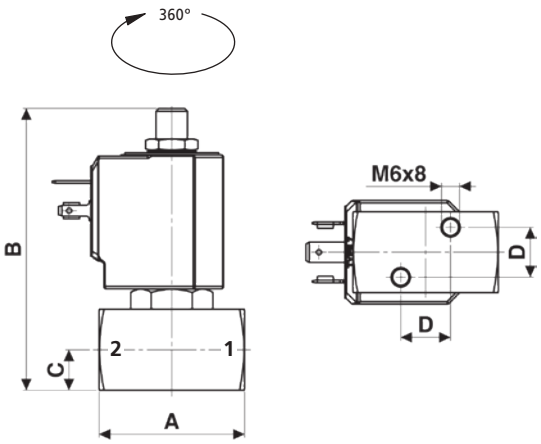
Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT threads (minimum batch may be required)
Silver shading ring

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Filled PTFE (-10 °C to +180 °C)	Steam	-10 °C	+70 °C

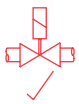
[1] See corrosion reference guide and sealing solutions for material compatability.

D398/399CL Series, Steam – 3/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	87	12.5	15.4	0.35

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Orifice	
C	1.5
E	2.0
H	3.0

Option	
A	Silver shading ring
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

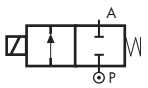
Plug	
0A1	c/w plug
	w/o plug

D	3	9	•	C	L	•	•	•	•	•	•	•	•	•	•

Product coding example:

D398CLE 7251
1/8" G, auto operation, stainless steel body, filled PTFE seals, 2.0 mm orifice, 24 VDC, without plug.

D238/239 Series, Steam – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Sigodur (filled PTFE)
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	0.32	0.27	0 - 9	0 - 8	3.0	Filled PTFE	D238DLH
3/8"	0.53	0.45	0 - 5	0 - 2	5.0	Filled PTFE	D238DLN
½"	0.35	0.30	0 - 9	0 - 5	3.5	Filled PTFE	D239DLI

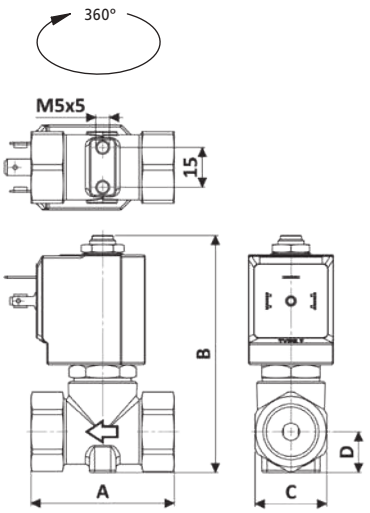
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Filled PTFE (-10 °C to +180 °C)	Steam	-10 °C	+70 °C

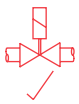
[1] See corrosion reference guide and sealing solutions for material compatability.

D238/239 Series, Steam – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8" - 1/2"	54	89.35	HEX 27	15	0.45

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
8	3/8"
9	1/2"

Orifice	
H	3.0
I	3.5
N	5.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

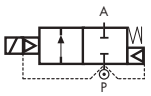
Plug	
	w/o plug
0A1	c/w plug

D	2	3	•	D	L	•	•	•	•	•	•	•	•	•	•

Product coding example:

D238DLH 7251
3/8" G, auto operation, brass body, filled PTFE seals, 3.0 mm orifice, 24 VDC, without plug.

D634/635/636 Series, Steam – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Piston Material	Brass CW614N (EN 12164)
Springs	Stainless Steel AISI 302
Seal Material (Std)	PTFE
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC) +10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)*	AC 18 VA (holding) AC 36 VA (inrush) DC 22 W

* For DC only High power coil mandatory.

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.47	1.26	0.3 - 9	0.3 - 9	10	PTFE	D634DIT
⅜"	1.68	1.44			10	PTFE	D635DIT
½"	1.76	1.50			10	PTFE	D636DIT

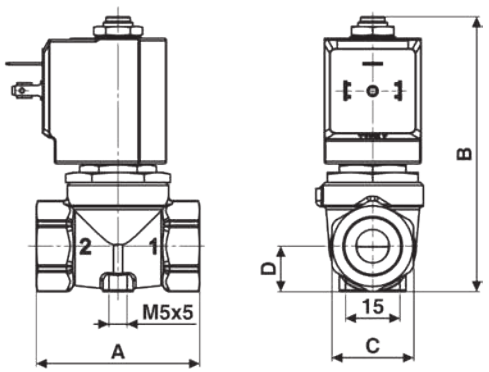
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
PTFE (+80 °C [2] to +180 °C)	Steam	-10 °C	+70 °C

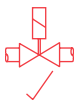
[1] See corrosion reference guide and sealing solutions for material compatability.
[2] For correct funtioning, the minimum working temperature of the solenoid valve cannot be below 80 °C.

D634/635/636 Series, Steam – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	54	100	HEX 27	15	0.5
⅜" to ½"	54	100	HEX 27	15	0.45

Dimensions (mm)

Solenoid enclosures

7--1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
4	¼"
5	⅜"
6	½"

Option	
	w/o option

Coil options

Voltage / Frequency - Class H (High Power DC only)	
72Z1	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

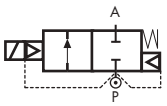
Plug	
	w/o plug
0A1	c/w plug

D	6	3	•	D	T	T	•	•	•	•	•	•	•	•	•

Product coding example:

D634DTT 72Z1
¼" G, auto operation, brass body, PTFE seals, 10 mm orifice, 24 VDC, without plug.

D887/888/889/890/892 Series, Steam – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Operator Seal Material	EPM PX 70/80
Diaphragm Material	PTFE
Main Seal Material	EPM PX 70/80
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 22 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	2.46	2.10	0.3 - 4.5	0.3 - 4.5	11.5	EPM PX	D887DPV
⅜"	3.51	3.00	0.3 - 4.5	0.3 - 4.5	11.5	EPM PX	D888DPV
½"	3.86	3.30	0.3 - 4.5	0.3 - 4.5	11.5	EPM PX	D889DPV
¾"	4.91	4.20	0.3 - 4.5	0.3 - 4.5	11.5	EPM PX	D890DPV
1"	5.27	4.50	0.3 - 4.5	0.3 - 4.5	11.5	EPM PX	D890DPV

Options Available

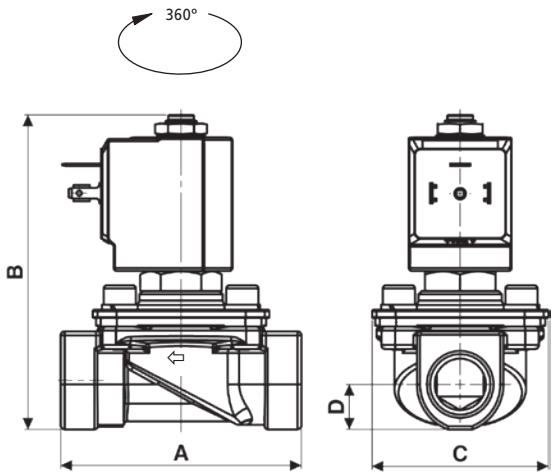
Valve Options (see coding chart)
NPT threads (minimum batch may be required)

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
EPM PX (-10 °C to +150 °C)	Hot water and steam	-10 °C	+70 °C

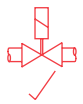
[1] See corrosion reference guide and sealing solutions for material compatability.

D887/888/889/890/892 Series, Steam – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	75	108	55	14	0.55
⅜"	75	108	55	14	0.5
½"	75	108	55	14	0.5
¾"	85	108	55	21.5	0.8
1"	82	108	55	21.5	0.8

Dimensions (mm)

Solenoid enclosures

7--1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
87	¼"
88	⅜"
89	½"
90	¾"
92	1"

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H (High Power DC only)	
72Z1	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

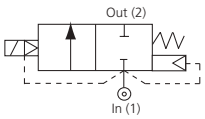
Plug	
	w/o plug
0A1	c/w plug

D	8	•	•	D	P	V	•	•	•	•	•	•	•	•	•

Product coding example:

D889DPV 7201
½" G, auto operation, brass body, EPM PX seals, 11.5 mm orifice, 24 V / 50/60 Hz, without plug.

ACPX Series: Steam – 2/2 Normally Closed

Specifications	
Function	Normally closed, energise to open 
Maximum Viscosity	115 SSU
½" - 1" Body Material (Std)	Brass CZ122
1¼" - 2" Body Material (Std)	Bronze DIN 1705
Flange Tube	Stainless Steel 303
Plunger and Top Stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	PTFE
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Heavy Duty Valve Design
- Piston Operation
- Wide temperature range capabilities
- Choice of valve body material seals

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
½"	4.9	4.2	0.3-8.6	0.3-4.8	50	16.00	1.3
¾"	6.3	5.4	0.3-8.6	0.3-4.8		16.00	1.3
1"	8.2	7.1	0.3-8.6	0.3-4.8		25.00	2.3
1¼"	21.0	18	0.3-8.6	0.3-4.8		30.00	3.0
1½"	21.0	18	0.3-8.6	0.3-4.8		30.00	3.0
2"	24.4	21	0.3-8.6	0.3-4.8		32.00	5.2

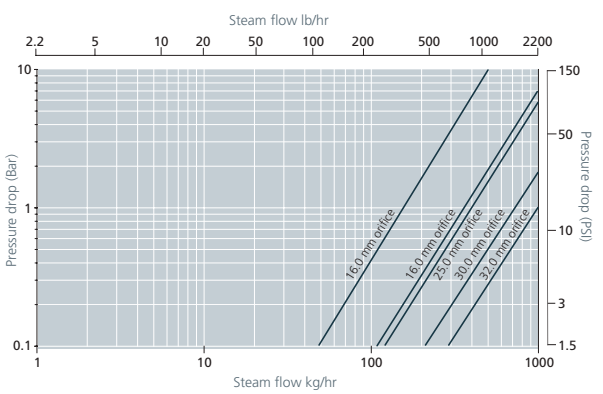
Options Available

Solenoid Enclosure	
Protection Class	
EExd T6 (IP67)	Consult Rotork Midland for product codes
EExd T4 (IP67)	

Main Valve Assembly Options
Stainless steel body 316 (available up to 1")
Oxygen Cleaning (Consult Rotork Midland for product code)
NPT Threads
Stainless steel tagging

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
PTFE (-200 °C to +180 °C)	-10	50

[1] See corrosion reference guide and sealing solutions for material compatability.

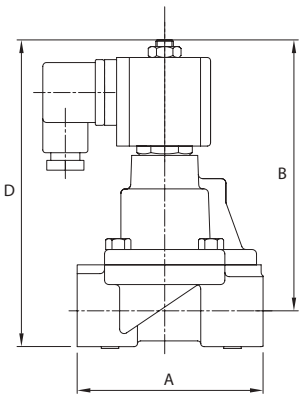


Flow shown is with steam at 4.0 bar

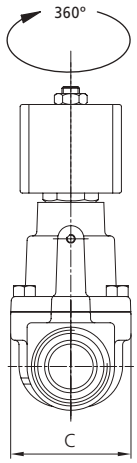
How to use the flow chart

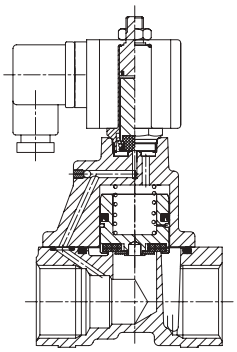
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

ACPX Series: Steam – 2/2 Normally Closed

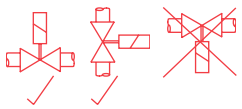


Coil Rotation





Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
½"	85	126	75 inc. plug	150
¾" - 1"	85	135	75 inc. plug	155
1¼" - 1½"	117	133	82	209
2"	146	145	103	209

Dimensions given in mm

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation		Body Material		Seals		Style	
22	ACPX	D	½"	1	BS21	1	AUTO	1	Brass (standard on valves up to and including 1")	E	PTFE	1	Standard
		E	¾"	2	BSP G	2	MANUAL OVERRIDE	2	Bronze (standard on valves above 1")				
		F	1"	3	NPT			5	316 Stainless Steel (option available up to and inc 1")				
		G	1¼"	4	FLANGED (PN16 STD)								
		H	1½"										
		J	2"										

Coil options

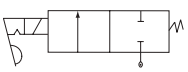
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	A1	230 V / 50 Hz	1	Din plug 9 mm
		A2	110 V / 50 Hz & 120 V / 50 Hz		
		A3	24 V / 50 Hz		
		A7	220 V / 50 Hz		
		B2	24 VDC		
		B3	12 VDC		
		B5	110 VDC		

22	•	•	•	Z	•	E	1	-	1	••	1

Product coding example:

22D11Z1E1-1A11 - ACPX Series
[1]/2" BS21, auto operation, brass body, PTFE seals, 230 V / 50 Hz DIN Plug 9 mm.

ACHL Series – 2/2 Normally closed

Specifications	
Function	Normally closed, energise to open, 
Maximum Viscosity	115 SSU
Body Material (Std)	Bronze
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	Metal
Connection Type (Std)	BS21
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	14.5 Watts, 22 Watts

Features and Benefits

- Heavy Duty Valve Design
- Manual Lever reset operation
- No Voltage Release Safety Feature
- AC version fitted with DC internal Rectifier

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)	P. Max Bar	Orifice (mm)	Weight (kg)
3/8"	2.32	2	0-8.6	16	16	1.40
½"	3.48	3	0-8.6		16	1.40
¾"	9.30	8	0-8.6		19	1.90
1"	11.02	9.5	0-8.6		22	1.90
1¼"	26.68	23	0-8.6		38	3.10
1½"	26.68	23	0-3.0		38	3.10
2"	54.52	47	0-3.0		51	3.70
2½	74.24	64	0-1.0		76	7.80
3"	89.32	77	0-1.0		76	7.80
4"[2]	193.72	167	0-0.8		102	40.50
6"[2]	383.96	331	0-0.3		152	70.50

[2] These valves are flanged connections as standard PN10/16.

Options Available

Solenoid Enclosure	
Protection Class	
EExd T6 (IP67) up to 1"	Consult Rotork Midland for product codes
EExd T4 (IP67) up to 1"	
Exm T5 (IP65) up to 1" (24 VDC only)	

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50
EPDM (-50 °C to +120 °C)	-10	50
FKM (-20 °C to +150 °C)	-10	50

Main Valve Body Options
Oxygen Cleaning (Consult Rotork Midland for product code)
NPT Threads
Stainless steel tagging

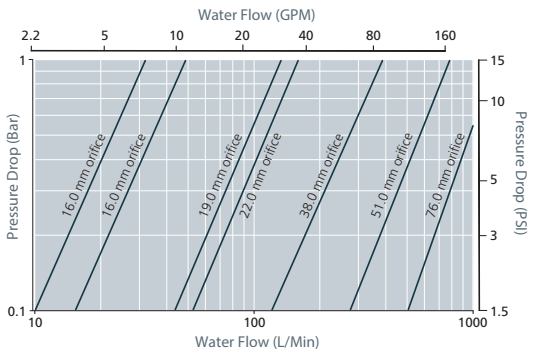
[1] See corrosion reference guide and sealing solutions for material compatibility

Notes

- If the inlet pressure on the seat area exceeds 18kg the inlet pressure must be exhausted to open the valve.
- Consult factory for flow figures for valves above 2½" Max 180 °C.

How to use the flow chart

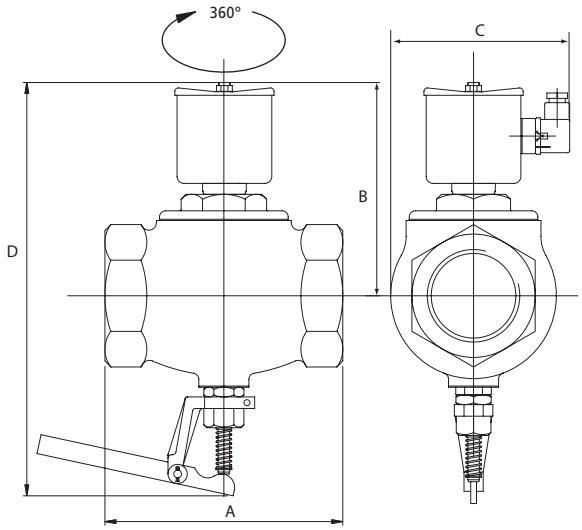
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.



rotork Instruments

ACHL Series – 2/2 Normally closed

Coil Rotation



Preferred Valve Mounting Option

Dimensions

Pipe Size	A	B	C	D
⅜" - ½"	70	100	75 inc plug	184
¾" - 1"	44	70	75 inc plug	196
1¼"	148	122	75 inc plug	256
1½"	122	122	75 inc plug	256
2"	63	76	75 inc plug	233
2½"	260	137	75 inc plug	273
3"	197	137	75 inc plug	273
4"	292	285	190	577
6"	356	330	260	686

Dimensions given in mm

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied

Used on ACHL valves up and including to 1"

S50 enclosure protection class IP65

External material: Pressed steel
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted

Used on ACHL valves 1¼" and above

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation		Body Material		Seals		Style	
15	ACHL	C	⅜"	2	BSP G	3	Manual reset	1	Brass (standard on valves ⅜" to ½")	A	NBR	1	Standard
		D	½"	3	NPT			2	Bronze (standard on valves ¾" to 3"	B	EPDM		
		E	¾"	4	FLANGE (PN16 STD)			4	Cast Iron (4"and above)	C	FKM		
		F	1"							H	Metal		
		G	1¼"										
		H	1½"										
		J	2"										
		K	2½"										
		L	3"										
		M	4"										
		N	6"										

Coil options

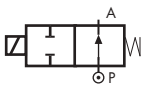
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	B1	230 V / 50 Hz	1	Din plug 9 mm (DC Only)
		B4	110 V / 50 Hz		
		B2	24 V / DC	3	Din plug 9 mm PR 1 220/240 110/120
		L1	230 V / 50 Hz 1¼" and above		
		L9	110 V / 50 Hz (1¼" and above)		
		L6	24 VDC (1¼" and above)		

15	•	•	3	Z	•	•	1	-	1	••	•

Product coding example:

15J23Z2H1-1L13 - ACHL Series
2" BSP, manual reset, bronze body, metal seals, 230 V / 50 Hz DIN Plug 9 mm.

RD236DL Series, Steam – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Sigodur (filled PTFE)
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	0 - 9	0 - 9	1.0	filled PTFE	RD236DLA
¼"	0.09	0.08	0 - 9	0 - 9	1.5	filled PTFE	RD236DLC
¼"	0.14	0.12	0 - 9	0 - 9	2.0	filled PTFE	RD236DLE
¼"	0.25	0.21	0 - 9	0 - 9	3.0	filled PTFE	RD236DLH

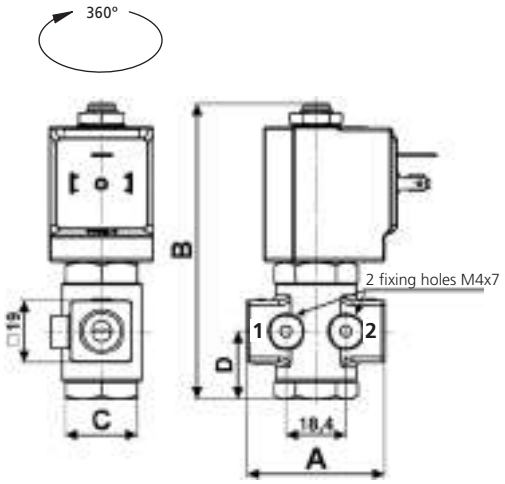
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Filled PTFE (-10 °C to +180 °C)	Steam	-10 °C	+70 °C

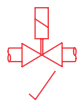
[1] See corrosion reference guide and sealing solutions for material compatability.

RD236DL Series, Steam – 2/2 Normally Open

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼"	47	91	Hex 22	20.75	0.25

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Orifice	
A	1.0
C	1.5
E	2.0
H	3.0

Option	
	w/o option

Coil options

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

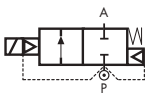
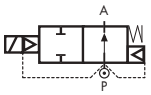
Plug	
0A1	c/w plug
	w/o plug

RD	2	3	6	D	L	•	•	•	•	•	•	•	•	•	•

Product coding example:

RD236DLE 7251
¼" G, auto operation, brass body, filled PTFE seals, 2.0 mm orifice, 24 VDC, without plug.

D606/622 Series, Steam – 2/2 NC & RD606/622 Series, Steam – 2/2 NO

Specifications	
Function NC (single acting)	 Flow direction overseat 1 → 2
Function NO (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	PTFE
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	12V, 24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal material
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¾"	8.42	7.20	1 - 9	1 - 9	24	PTFE	D606DIY
¾"	8.42	7.20	1 - 9	1 - 9	24	PTFE	D622DIY
1"	8.42	7.20	1 - 9	1 - 9	24	PTFE	RD606DIY
1"	8.42	7.20	1 - 9	1 - 9	24	PTFE	RD622DIY

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)

Seal Material[1] and Media Temperature Range	Media[2]	Ambient Temperature Range	
		Min	Max
Filled PTFE (+80 °C[3] to +180 °C)	Steam	-10 °C	+70 °C

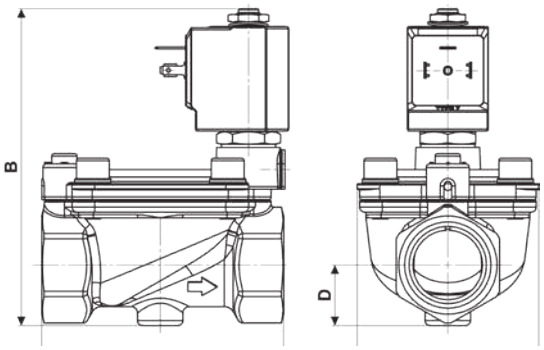
[1] See corrosion reference guide and sealing solutions for material compatability.

[2] Water and high content of condensate can damage the diaphragm.

[3] For a correct functioning, the minimum working temperature of the solenoid valve cannot be below +80 °C.

D606/622 Series, Steam – 2/2 NC & RD606/622 Series, Steam – 2/2 NO

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
¾" - 1"	96	126	72	24	1.3

Dimensions (mm)

Solenoid enclosures

7--1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Valve Type	
D	NC
RD	NO

Pipe Size	
06	¾"
22	1"

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class H	
7151	12 VDC
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Plug

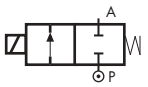
Plug	
0A1	c/w plug
	w/o plug

•	6	•	•	D	T	Y	•	•	•	•	•	•	•	•	•

Product coding example:

D606DTY 7251
¾" G, auto operation, brass body, PTFE seals, 1.5 mm orifice, 24 VDC, without plug.

D211 Series, Dry Armature – 2/2 Normally Closed

Specifications	
Function (single acting)	
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange Tube (Seamless)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Silicone FDA compliant
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal material
- Total separation between internal parts and medium
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	see flow chart		0 - 0.3	-	10.5	Silicone FDA	D211DSU
3/8"			-	0 - 0.2	10.5	Silicone FDA	CD211DSU

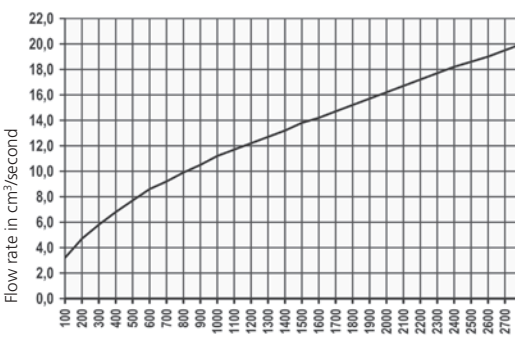
Options Available

Valve Options (see coding chart)
Electroless nickel plating

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Silicone FDA compliant (-10 °C to +95 °C)	Water and beverages	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

Flow chart

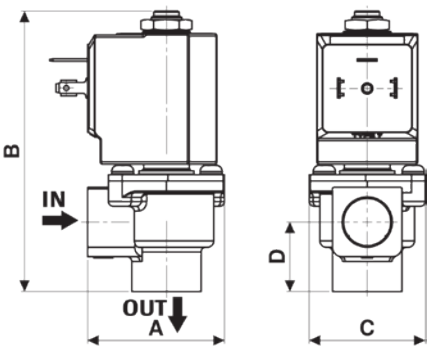


How to use the flow chart

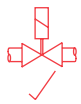
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

D211 Series, Dry Armature – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8"	43.4	88.8	36	22	0.34

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Valve Type	
D	AC
CD	DC

Coil options

Option	
K	Electroless nickel plating
	w/o option

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

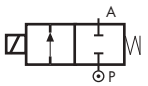
Plug	
0A1	c/w plug
	w/o plug

•	2	1	1	D	S	U	•	•	•	•	•	•	•	•	•

Product coding example:

D211DSU 7250
3/8" G, auto operation, brass body, silicone FDA seals, 10.5 mm orifice, 24 VDC, without plug.

246 Series, Dry Armature – 2/2 Normally Closed

Specifications	
Function (single acting)	
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (DSR)	Brass CW617N (EN 12165)
Body Material (DSQ)	POM (Natural hostaform C13021)
Tube	Stainless Steel AISI 304
Flange	POM
Plunger	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Silicone FDA compliant
Vent pipe length (Std)	85mm
Connection Type (Std)	see table
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 10 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal material
- Total separation between internal parts and medium
- Flow regulation screw as standard
- Response time 5 to 25 ms

Body Material	Connection Type		OPD (bar)		Seal Material	Valve Code[2]
	Left Hole	Right Hole	AC Voltages	DC Voltages		
Brass	cap	¼" G	0 - 0.2	0 - 0.1	Silicone	246DSRE0
	¼" G	cap				246DSR0E
	¼" G	¼" G				246DSR00
POM	closed	¼" G				246DSQG0
	¼" G	closed				246DSQ0G
	¼" G	¼" G				246DSQ00

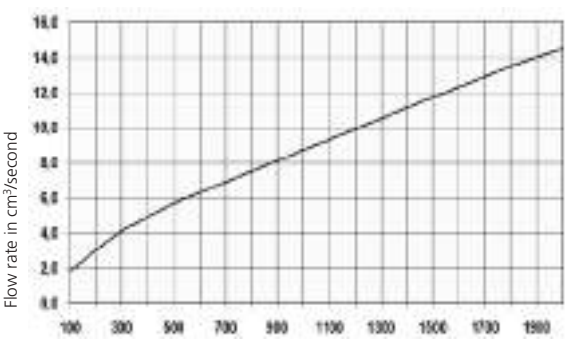
[2] Product subject to phase-out, please contact sales office for availability.

Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Silicone FDA compliant (-10 °C to +130 °C)	Water, food and beverages	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

Flow chart

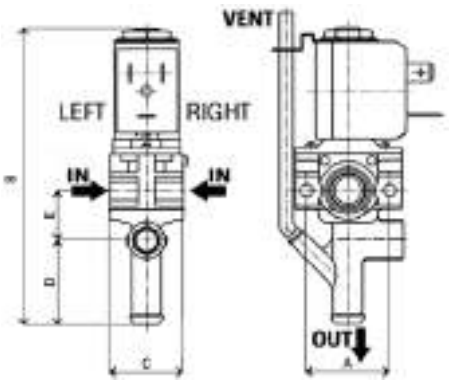


How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

246 Series, Dry Armature – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Valve Type	A	B	C	D	E	Weight (kg)
246DSR--	28	101	25	29	17	0.2
246DSQ--	28	101	25	29	17	0.125

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Body Material	
R	Brass
Q	POM

Option Brass Body Left hole - right hole	
E0	cap - ¼"G
0E	¼"G - cap
00	¼" G - ¼"G

Option POM body Left hole - right hole	
G0	closed - ¼" G
0G	¼" G - closed
00	¼" G - ¼" G

Coil options

Voltage / Frequency - Class F (High Power DC only)	
22V0	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

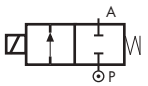
Plug	
0B1	c/w plug
	w/o plug

2	4	6	D	S	•	•	•	•	•	•	•	•	•	•

Product coding example:

246DSR0E 2700
Brass body ¼" G - cap, auto operation, silicone seals, 230 V / 50 Hz - 240 V / 60 Hz, without plug.

WB251 Series, Dry Armature – 2/2 Normally Closed

Specifications	
Function (single acting)	
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Natural polysulphone FDA compliant (PSU)
Tube	Stainless Steel AISI 304
Flange	POM
Plunger	Stainless Steel 1.4105 EN 10088 (AISI 430F) or equivalent
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Silicone FDA compliant
Connection Type (Std)	See table
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to industrial form B
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 10 VA (holding) AC 16 VA (inrush) DC 10 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal material
- Total separation between internal parts and medium
- Flow regulation screw as standard
- Flat gacket included (see drawing)
- Response time 5 to 25 ms

Connection Type	OPD (bar)		Orifice (mm)	Seal Material	Valve Code[2]
	AC Voltages	DC Voltages			
Ø 12 x L=35	0 - 0.07	0 - 0.05	9	Silicone	WB251DSS
	0 - 0.07	0 - 0.05	9	Silicone	WB251DSS1

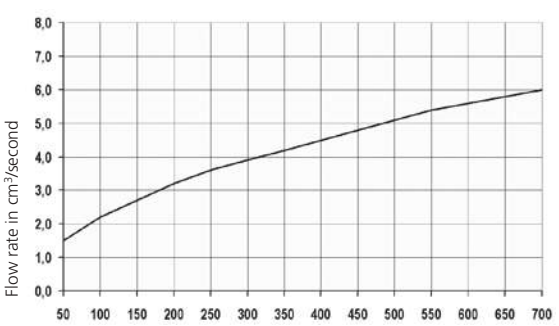
[2] Product subject to phase-out, please contact sales office for availability.

NOTE: Vent pipe length for WB251DSS is 130 mm - vent pipe length for WB251DSS1 is 270 mm.

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
Silicone FDA compliant (-10 °C to +95 °C)	Water and beverages	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability.

Flow chart



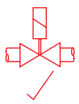
How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

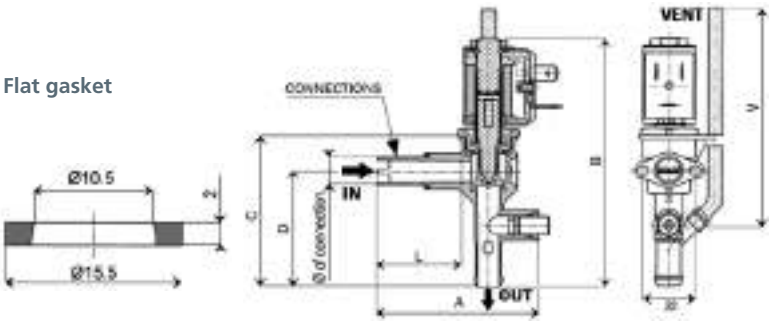
WB251 Series, Dry Armature – 2/2 Normally Closed

Coil Rotation

Preferred Valve Mounting Options



Flat gasket



Valve Type	A	B	C	D	E	Weight (kg)
WB251DSS	70	108	65.5	50.2	95	0.175
WB251DSS1	70	108	65.5	50.2	235	0.175

Dimensions (mm)

Solenoid enclosures

2--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: Industrial form B
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 001- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Coil options

Option	
-	tube 6 x 4 x 130mm
1	tube 6 x 4 x 270 mm

Voltage / Frequency - Class F (High Power DC only)	
22V0	24 VDC
2200	24 V / 50/60 Hz
2400	110 V / 50 Hz - 120 V / 60 Hz
2600	200 V / 50 Hz - 220 V / 60 Hz
2700	230 V / 50 Hz - 240 V / 60 Hz

Plug

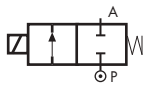
Plug	
0B1	c/w plug
	w/o plug

WB	2	5	1	D	S	S	•	•	•	•	•	•	•	•	•

Product coding example:

WB251DSS 22V0
PSU body with vent pipe lenght 130 mm, auto operation, silicone seals, 24 VDC, without plug.

D262/263 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Configuration suitable for vacuum
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.04	0.03	-0.9 to 1	-0.9 to 1	1.0	FKM	D263DVAL
						NBR	D263DBAL
¼"	0.09	0.08	-0.9 to 1	-0.9 to 1	1.5	FKM	D263DVCL
						NBR	D263DBCL
¼"	0.24	0.20	-0.9 to 1	-0.9 to 1	2.5	FKM	D263DVGL
						NBR	D263DBGL
¼"	0.32	0.27	-0.9 to 1	-0.9 to 1	3.0	FKM	D263DVHL
						NBR	D263DBHL
¼"	0.42	0.36	-0.9 to 1	-0.9 to 1	4.0	FKM	D263DVLL
						NBR	D263DBLL
¼"	0.53	0.45	-0.9 to 1	-0.9 to 1	5.0	FKM	D263DVNL
						NBR	D263DBNL
¼"	0.56	0.48	-0.9 to 1	-0.9 to 1	6.0	FKM	D263DVPL
						NBR	D263DBPL

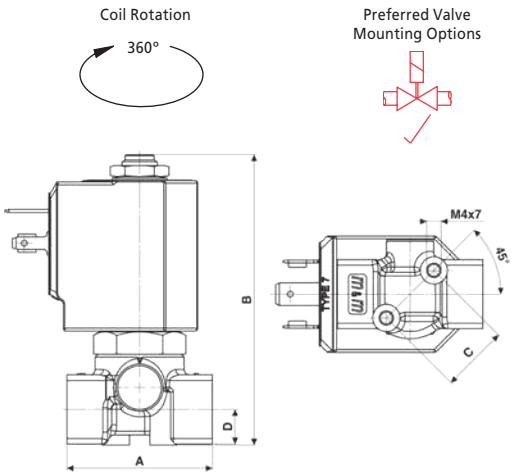
Options Available

Valve Options (see coding chart)
Body threaded connection G ⅛"

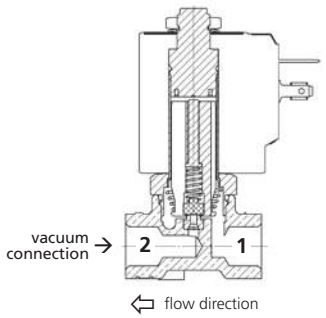
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability. Other seals material on request.

D262/263 Series, Vacuum – 2/2 Normally Closed



Connection scheme



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	77.5	18.5	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Seals	
V	FKM
B	NBR

Orifice	
A	1.0
C	1.5
G	2.5
H	3.0
L	4.0
N	5.0
P	6.0

Coil options

Option	
	w/o option

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

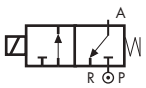
Plug	
	w/o plug
0A1	c/w plug

D	2	6	•	D	•	•	L	•	•	•	•	•	•	•	•

Product coding example:

D263DBPL 7700
1/4" G, auto operation, brass body, FKM seals, 6.0 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz, without plug.

D362/363 Series, Vacuum – 3/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	Foodgrade FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard and Class H Coil Voltage DC (=)	24 V
Standard and Class H Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard and Class H Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
c RL us Coil Voltage DC (=)	24 V
c RL us Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
c RL us Coil Voltage AC 60 Hz (~)	120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard and Class H)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W
Power Rating (c RL us)	AC 15 VA (holding) AC 30 VA (inrush) DC 10 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Configuration suitable for vacuum
- Zero pressure rated
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.15	0.13	0 to -0.95	0 to -0.95	2.0	FKM	D363CVEL
¼"	0.24	0.20	0 to -0.95	0 to -0.95	2.5	FKM	D363CVGL
¼"	0.32	0.27	0 to -0.95	0 to -0.95	3.0	FKM	D363CVHL
¼"	0.42	0.36	0 to -0.95	0 to -0.95	4.0	FKM	D363CVLL

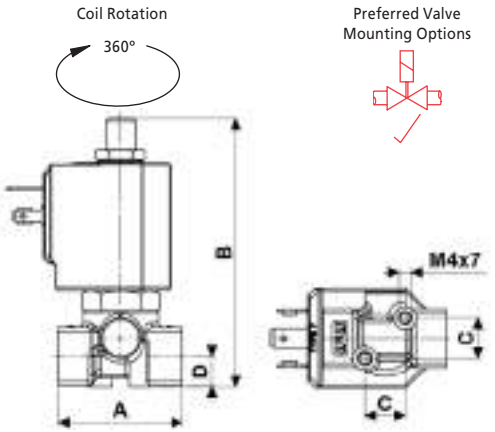
Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"

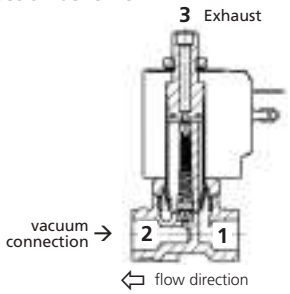
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability. Other seals material on request.

D362/363 Series, Vacuum – 3/2 Normally Closed



Connection scheme



Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	87	13	9.5	0.26

Dimensions (mm)

Solenoid enclosures

7--0 & 7--1 Type Coil - Insulation class F & H

External material (7--0): PBT (reinforced fiberglass 30%)
External material (7--1): PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

7--R c UL us Type Coil - Insulation class F

Encapsulation material: PET 815ER Rynite®
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (P180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
E	2.0
G	2.5
H	3.0
L	4.0

Coil options

Option	
	w/o option

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Voltage / Frequency - Class H	
7251	24 VDC
7201	24 V / 50/60 Hz
7401	110 V / 50 Hz - 120 V / 60 Hz
7601	200 V / 50 Hz - 220 V / 60 Hz
7701	230 V / 50 Hz - 240 V / 60 Hz

Voltage / Frequency - Class F - c UL us approved	
725R	24 VDC
720R	24 V / 50 Hz
740R	110 V / 50 Hz - 120 V / 60 Hz
770R	230 V / 50 Hz - 240 V / 60 Hz

Plug

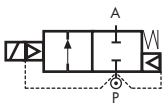
Plug	
	w/o plug
0A1	c/w plug

D	3	6	•	C	V	•	L	•	•	•	•	•	•	•	•

Product coding example:

D362CVGL 7250
1/8" G, auto operation, brass body, FKM seals, 2.5 mm orifice, 24 VDC, without plug.

D203/204/205 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
c UL us Coil Voltage DC (=)	24 V
c UL us Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
c UL us Coil Voltage AC 60 Hz (~)	120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W
Power Rating (c UL us)	AC 15 VA (holding) AC 30 VA (inrush) DC 10 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Configuration suitable for vacuum
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

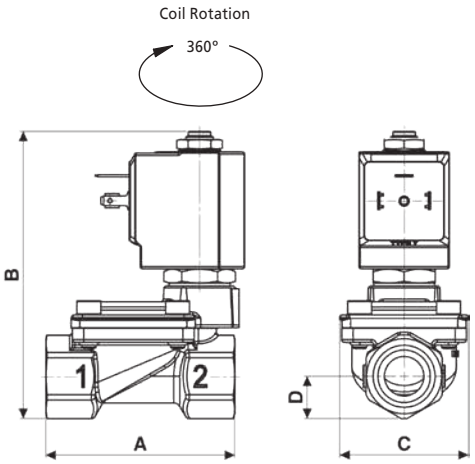
Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.83	1.56	-0.2 to -0.95	-0.2 to -0.95	13	NBR	D203DBZL
⅜"	3.86	3.30			13	NBR	D204DBZL
½"	4.42	3.78			13	NBR	D205DBZL

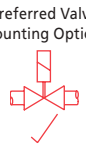
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

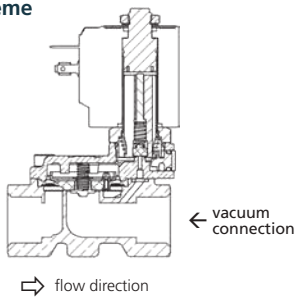
[1] See corrosion reference guide and sealing solutions for material compatability. Other seals material on request.

D203/204/205 Series, Vacuum – 2/2 Normally Closed





Connection scheme



Pipe Size	A	B	C	D	Weight (kg)
¼" to ½"	67	102	45.6	15	0.49

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

7--R c UL us Type Coil - Insulation class F

Encapsulation material: PET 815ER Rynite®
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (P180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
203	¼"
204	⅜"
205	½"

Coil options

Option	
	w/o option

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz
Voltage / Frequency - Class F - c UL us approved	
725R	24 VDC
720R	24 V / 50 Hz
740R	110 V / 50 Hz - 120 V / 60 Hz
770R	230 V / 50 Hz - 240 V / 60 Hz

Plug

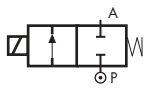
Plug	
	w/o plug
0A1	c/w plug

D	•	•	•	D	B	Z	L	•	•	•	•	•	•	•	•

Product coding example:

D205DBZL 725R
½" G, auto operation, brass body, NBR seals, 13 mm orifice, 24 V / 50/60 Hz c UL us approved, without plug.

D237/238/239 & CD237/238/239 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Additional Flange (HEX 30)	Brass CW614N (EN 12164)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
High Power Coil Voltage DC (=)	24 V
High Power Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
High Power Coil Voltage AC 60 Hz (~)	24 V, 120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class H 180 °C
Power Rating (High Power)	AC 25 VA (holding) AC 50 VA (inrush) DC 22 W

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Configuration suitable for vacuum
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	1.49	1.27	0 to -0.95	-	10.5	NBR EPDM	D237DBU1 D237DEU1
⅜"	1.68	1.44	0 to -0.95	-	10.5	NBR EPDM	D238DBU1 D238DEU1
½"	1.76	1.50	0 to -0.95	-	10.5	NBR EPDM	D239DBU1 D239DEU1
¼"	1.49	1.27	-	0 to -0.95	10.5	NBR EPDM	C D237DBU1 C D237DEU1
⅜"	1.68	1.44	-	0 to -0.95	10.5	NBR EPDM	C D238DBU1 C D238DEU1
½"	1.76	1.50	-	0 to -0.95	10.5	NBR EPDM	C D239DBU1 C D239DEU1

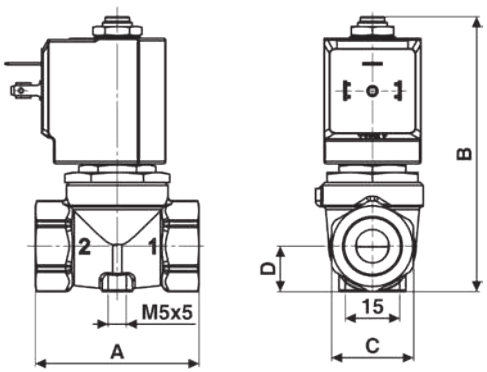
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR 60 shore (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

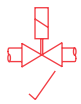
[1] See corrosion reference guide and sealing solutions for material compatability. Other seals material on request.

D237/238/239 & CD237/238/239 Series, Vacuum – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
¼" - ⅜" - ½"	54	89	HEX 27	15	0.45

Dimensions (mm)

Solenoid enclosures

7-K1 & 7-Z1 Type Coil - Insulation class H

External material: PPS (glass fiber & mineral filled)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Valve Type	
D	AC version
CD	DC version

Pipe Size	
7	¼"
8	⅜"
9	½"

Seals	
E	EPDM
B	NBR

Option	
	w/o option

Coil options

Voltage / Frequency - Class H, High Power	
72Z1	24 VDC
72K1	24 V / 50/60 Hz
74K1	110 V / 50 Hz - 120 V / 60 Hz
77K1	230 V / 50 Hz - 240 V / 60 Hz

Plug

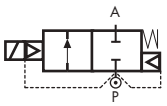
Plug	
	w/o plug
0A1	c/w plug

•	2	3	•	D	•	U	1	•	•	•	•	•	•	•	•	•

Product coding example:

D238DEU1 77K1
⅜" G, auto operation, brass body, EPDM seals, 10.5 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz, without plug.

D187/188/189/190/192 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
c UL us Coil Voltage DC (=)	24 V
c UL us Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
c UL us Coil Voltage AC 60 Hz (~)	120 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W
Power Rating (c UL us)	AC 15 VA (holding) AC 30 VA (inrush) DC 10 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Configuration suitable for vacuum
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	3.51	3.00	0 to -0.95	0 to -0.95	15	NBR	D187DBWL
⅜"	4.21	3.60			15	NBR	D188DBWL
½"	4.56	3.90			15	NBR	D189DBWL
¾"	5.62	4.80			15	NBR	D190DBWL
1"	5.97	5.10			15	NBR	D192DBWL

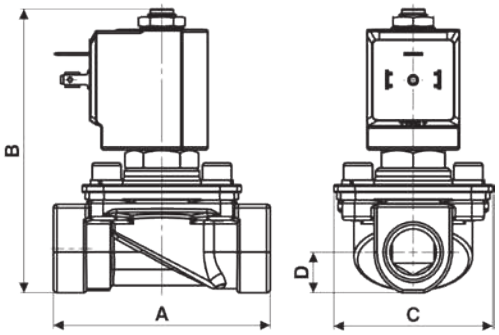
Options Available

Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability. Other seals material on request.

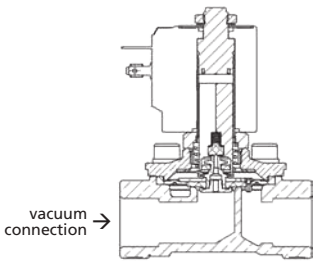
D187/188/189/190/192 Series, Vacuum – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Connection scheme



Pipe Size	A	B	C	D	Weight (kg)
¼" - ½"	75	108	55	14	0.5
¾" - 1"	85	108	55	21.5	0.8

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

7--R c UL us Type Coil - Insulation class F

Encapsulation material: PET 815ER Rynite®
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (P180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
187	¼"
188	⅜"
189	½"
190	¾"
192	1"

Coil options

Option	
	w/o option

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Voltage / Frequency - Class F - c UL us approved	
725R	24 VDC
720R	24 V / 50 Hz
740R	110 V / 50 Hz - 120 V / 60 Hz
770R	230 V / 50 Hz - 240 V / 60 Hz

Plug

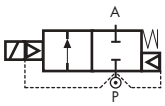
Plug	
	w/o plug
0A1	c/w plug

D	•	•	•	D	B	W	L	•	•	•	•	•	•	•	•

Product coding example:

D189DBWL 7200
½" G, auto operation, brass body, NBR seals, 15 mm orifice, 24 V / 50/60 Hz, without plug.

D223/224/225 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel AISI 302
Seal Material (Std)	NBR
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC)
	+10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Configuration suitable for vacuum
- Stainless steel AISI 430F operators with low residual magnetism
- Coils tested 100% in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Speed control screw as standard
- Response time 50 to 500 ms

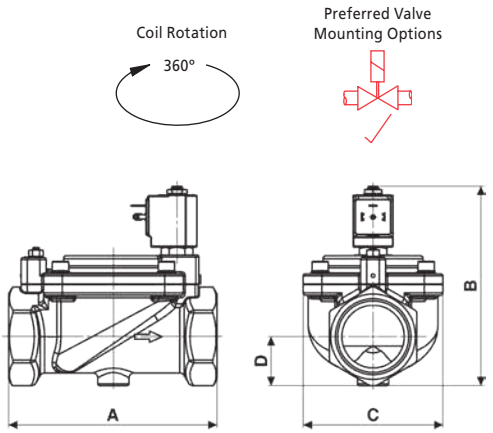
Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1 ¼"	25.97	22.20	-0.5 to -0.95	-0.5 to -0.95	40	NBR	D223DBKL
1 ½"	28.08	24.00			40	NBR	D224DBKL
2"	37.91	32.40			50	NBR	D225DBJL

Options Available

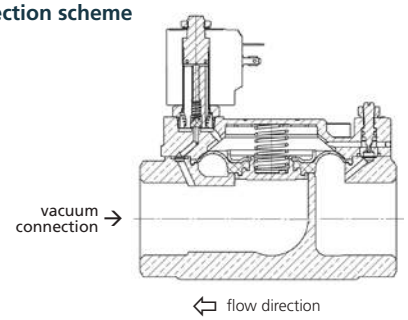
Seal Material[1] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

[1] See corrosion reference guide and sealing solutions for material compatability. Other seals material on request.

D223/224/225 Series, Vacuum – 2/2 Normally Closed



Connection scheme



Pipe Size	A	B	C	D	Weight (kg)
1 ¼" - 1 ½"	140	140	96	31	2.8
2"	168	158	112	39	3.9

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

Coding chart

Main Valve Assembly

Pipe Size	
23	1 ¼"
24	1 ½"
25	2"

Orifice[1]	
K	40
J	50

Option	
	w/o option

Coil options

Voltage / Frequency - Class F	
7250	24 VDC
7200	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug	
	w/o plug
0A1	c/w plug

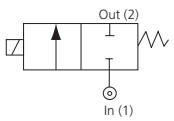
D	2	•	•	D	B	•	L	•	•	•	•	•	•	•	•	•

[1] DN40 for D223 and D224; DN50 for D225.

Product coding example:

D225DBJL 7250
2" G, auto operation, brass body, NBR seals, 50 mm orifice, 24 VDC, without plug.

GB Series: ¼" to 1" – 2/2 Normally Closed

Specifications	
Function	Normally closed, energise to open 
Body Material (Std)	Aluminium
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120v, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	¼" - ½" (19 VA /14 watt) ¾" - 1" (32 VA / 22 watt) ¼" - 1" (24 VDC) (14 watt)

Features and Benefits

- Approved for mains gas safety shut off
- Suitable for automatic burners
- Suitable for fire protection systems
- Ideal for low pressure Natural gas
- Approved to EN161
- Compliant with Gas Appliance directive
- Fully ported orifices for high flow
- Zero pressure rated
- Optional pressure test points
- Suitable for 1st, 2nd and 3rd family gases
- Suitable for LPG
- Response time up to ½" 15 - 25 ms
- Response time up to 1" 20 - 40 ms
- Panic buttons & electro thermal links available for controlling valve

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (mBar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
¼"	4.2	3.6	0 -140	0 - 50	1	12.70	0.23
⅜"	5.8	5	0 -140	0 - 50		12.70	0.23
½"	6.3	5.4	0 -140	0 - 50		12.70	0.23
¾"	15.0	12.9	0 -100	0 - 50		19.00	0.27
1"	15.7	13.6	0 -100	0 - 50		19.00	0.32

Kv = Flow rate measured with differential pressure at 2.5 mbar

Options Available

Solenoid Enclosure	
Protection Class	
Exm T5 (IP65) (up to ½")	Consult Rotork Midland for product codes

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	0	60

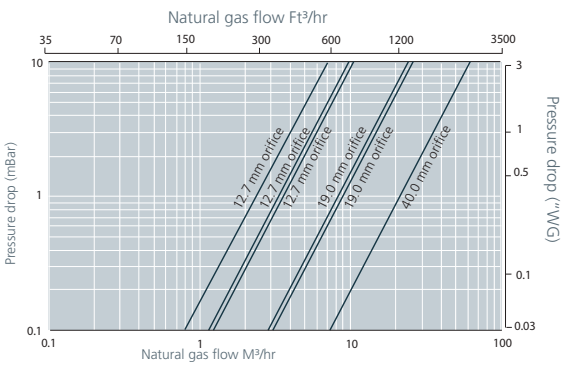
Main Valve Assembly Options
NPT Threads
Stainless steel tagging

See solenoid enclosures for specific details.

[1] See corrosion reference guide and sealing solutions for material compatability.

How to use the flow chart

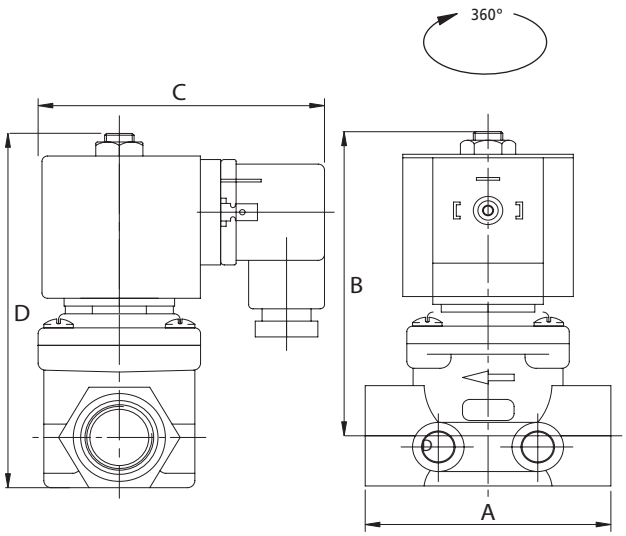
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.



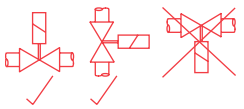
rotork Instruments

GB Series: ¼" to 1" – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
¼"	57	87	56	101
⅜"	67	87	56	101
½"	67	87	56	101
¾"	86	90	56	107
1"	106	93	56	115

Dimensions given in mm

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation		Body Material		Seals		Style		DC Option	
34	GB	B	½"	1	BS21	1	AUTO	3	Aluminium	A	NBR	1	Standard	65	use for DC option only
		C	⅜"	3	NPT										
		D	½"												
		E	¾"												
		F	1"												

Coil options

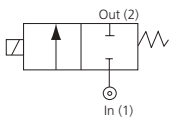
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	A1	230 V / 50 Hz (19 VA / 14 Watt) ¼" - ½" valves only	1	Din plug 9 mm
		A2	110 V / 50 Hz & 120 V / 50 Hz (19 VA / 14 Watt) ¼" - ½" valves only		
		A8	230 V / 50 Hz (32 VA / 22 Watt) ¾" - 1" valves only		
		A9	110 V / 50 Hz (32 VA / 22 Watt) ¾" - 1" valves only		
		B2	24 VDC (14 Watt) ¼" - 1" valves only		

34	•	•	1	Z	3	A	1	•	-	1	••	•

Product coding example:

34F11Z3A1-1A81 - GB Series
1" BS21, auto operation, aluminium, NBR seals, 230 V / 50 Hz DIN Plug 9 mm.

GB Series: 1¼" to 2" – 2/2 Normally Closed

Specifications	
Function	Normally closed, energise to open 
Body Material (Std)	Aluminium
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120v, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	1 ¼" - 2" (34 watt)

Features and Benefits

- Approved for mains gas safety shut off
- Suitable for automatic burners
- Suitable for fire protection systems
- Ideal for low pressure Natural gas
- Approved to EN161
- Compliant with Gas Appliance directive
- Fully ported orifices for high flow
- Zero pressure rated
- Optional pressure test points
- Suitable for 1st, 2nd and 3rd family gases
- Suitable for LPG
- Response time up to 1¼" 60-120 ms
- Panic buttons & electro thermal links available for controlling valve

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (mBar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
1¼"	38.3	33	0 -50	0 - 50	1	40.00	0.68
1½"	38.3	33	0-50	0 - 50		40.00	0.68
2"	38.3	33	0-50	0 - 50		40.00	0.68

Options Available

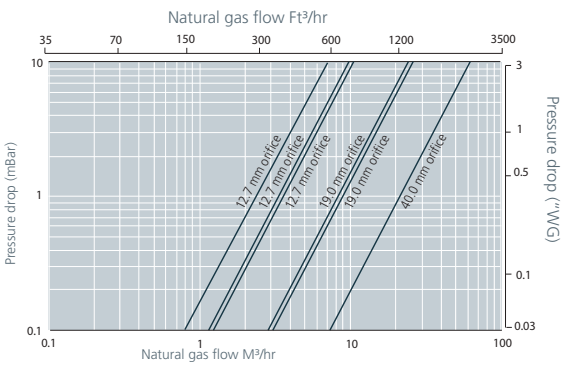
Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	0	60

[1] See corrosion reference guide and sealing solutions for material compatability.

Main Valve Assembly Options
NPT Threads
Stainless steel tagging

How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.



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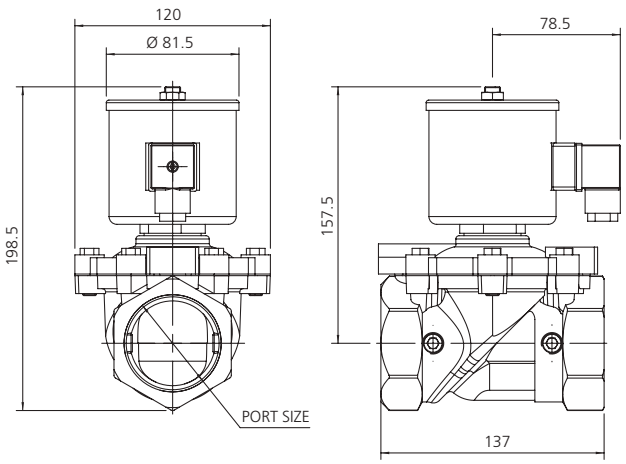
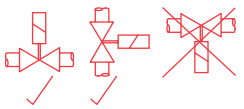
GB Series: 1¼" to 2" – 2/2 Normally Closed



Preferred Valve Mounting Options



Dimensions given in mm

Solenoid enclosures

S50 enclosure protection class IP65

External material: Pressed steel
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation		Body Material		Seals		Style		DC Option	
34	GB	G	1¼"	1	BS21	1	AUTO	3	Aluminium	A	NBR	1	Standard	65	use for DC option only
		H	1½"	3	NPT										
		J	2"												

Coil options

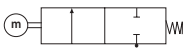
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	N1	230 V / 50 Hz	1	Din plug 9 mm DC Voltage
		N2	110 V / 50 Hz	3	PR1 AC Voltage
		N4	24 VDC		

34	•	•	1	Z	3	A	1	•	-	1	••	•

Product coding example:

34H11Z3A1-1N13 - GB Series
1½" BS21, auto operation, aluminium, NBR seals, 230 V / 50 Hz PR1.

HWA Series – 2/2 Normally Closed

Specifications	
Function	Normally Closed, energise to open 
Body Material up to 3":	Aluminium
Body Material above 3":	Cast Iron
Closing TIme:	Less than 1 second
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21 & flanged PN16
Electrical Characteristics	
Coil Voltage AC 50 Hz (~)	110 V, 230 V
Voltage Tolerance	+10% or -10%
Protection Class (Std)	IP50 (BS EN 60529)
Electrical Connection (Std)	Suitable for M20 Conduit

Features and Benefits

- Approved for mains gas safety shut off
- Suitable for automatic burners
- Suitable for fire protection systems
- Ideal for low pressure Natural gas
- Approved to EN161
- Compliant with Gas Appliance directive
- Fully ported orifices for high flow
- Zero pressure rated
- Slow opening
- Open and closed position volt free contacts available
- Fitted with pressure test points as standard
- Visual position indication as standard
- First, second and third family gases

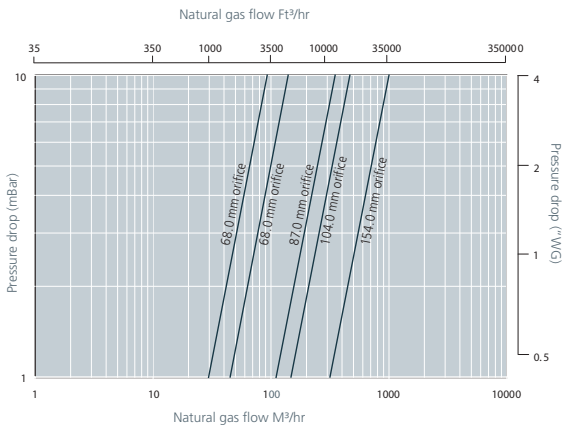
Pipe Size	Connection Type	Cv (gpm)	Kv (m^3/h)	OPD (mBar)	P. Max Bar	Hold VA	Orifice (mm)	Weight (kg)
1¼"	BS21	54	46.5	0-345	5	10	68.00	9.60
1½"	BS21	54	46.5	0-345			68.00	9.60
2"	BS21	95	82	0-345			68.00	9.60
2"	Flanged	95	82	0-345			68.00	11.60
2½"	BS21	157	135	0-345			87.00	10.5
2½"	Flanged	157	135	0-345			87.00	13.1
3"	BS21	188	162	0-345			87.00	10.5
4"	Flanged	226	195	0-345			104.00	38.4
6"	Flanged	423	365	0-200			154.00	62.4

Options Available

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	0	60
FKM (-20 °C to +150 °C)	0	60

[1] See corrosion reference guide and sealing solutions for material compatability.

Main Valve Assembly Options
Hand reset box
Open Position Indicator Consult Rotork Midland for Product Codes



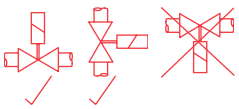
How to use the flow chart

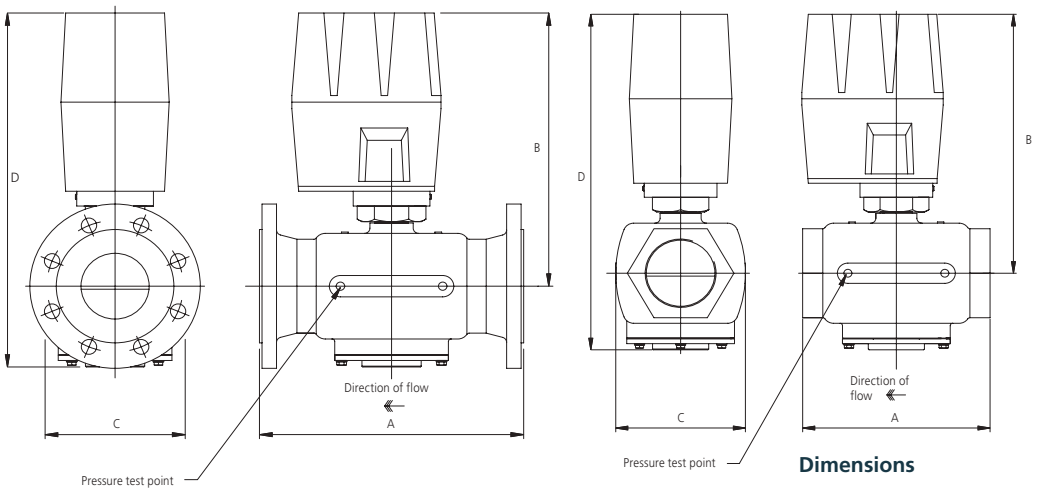
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

rotork Instruments

HWA Series – 2/2 Normally Closed

Preferred Valve Mounting Options





Dimensions

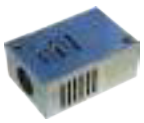
Pipe Size	A	B	C	D
1¼"	149	294	127	368
1½"	149	294	127	368
2"	178	294	127	368
2" Flanged	230	314	127	392
2½"	238	324	159	419
2½" Flanged	290	328	159	423
3"	238	324	159	419
4"	292	352	120	508
6"	356	380	178	560

Standard Flange Size PN16 all others screwed BS21
Dimensions given in mm

HWA Control Box

The hand reset control box is designed to be fitted to our HWA range of valves although it can easily be adapted for use with most valves. The control box features a push button used to activate the valve and a neon indicator that shows when the valve is latched open. The unit may be used as a stand-alone controller or together with a remote reset and indicator.

Alcon also offer a range of Electro-Thermal links that can be wired into the power supply to the HWA series valve offering shut down in the event of a fire.



Part Number	Description
6763L/110	Hand Reset box 110 V / 50 Hz
6763L/240	Hand Reset Box 230 V / 50 Hz
10904209	Electro-thermal link 73 °C

Main Valve Assembly

Model	
49	HWA

Valve Body Conn. Size[2]	
G	1¼"
H	1½"
J	2"
K	2½
L	3"
M	4"
N	6"

Connection Type	
1	BS21
4	FLANGED (PN16 STD)

Operation	
1	AUTO

Body Material	
3	Aluminium
4	Cast Iron (4" and above)

Seals	
A	NBR
C	FKM

Style	
1	Standard

Coil options

Enclosure	
7	Motorised

Voltage / Frequency	
S1	110 V / 50 Hz
S2	110 V / 50 Hz inc. Closed Position Incicator
S5	230 V / 50 Hz
S6	230 V / 50 Hz inc. Closed Position Indicator
T1	110 V / 50 Hz
T2	110 V / 50 Hz inc. Closed Position Indicator
T5	230 V / 50 Hz
T6	230 V / 50 Hz inc. Closed Position Incicator

Electrical Connection	
0	No Connector

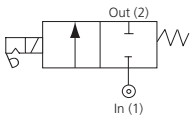
49	•	•	1	Z	•	•	1	-	7	••	0

[2] See Features chart for available Connection Types.

Product coding example:

49M41Z4A1-7T50 - HWA Series
4" Flanged, auto operation, cast iron, NBR seals, 230 V / 50 Hz.

FACHL Series – 2/2 Normally Closed (Manual Reset)

Specifications	
Function	Normally closed, energise to open 
Maximum Viscosity	115 SSU
½" - 1" Body Material (Std)	Brass CZ122
1¼" - 2½" Body Material (Std)	Bronze DIN 1705
3"+	Cast Iron Coated
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120v, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	G9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C (E5/S50 Type)
Power Rating	14.5 Watts, 22 Watts, 19 VA

Features and Benefits

- Heavy Duty Valve design
- For use with fire protection systems
- Manual Lever reset operation
- No voltage release safety feature
- AC version fitted with DC internal Rectifier
- Designed for Gas, Oil and Liquids
- Suitable for 1st, 2nd and 3rd gas families

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)	P. Max Bar	Power (Watts)	Orifice (mm)	Weight (kg)
½"	3	3	0-2.0	16	14.5	16	1.40
¾"	9	8	0-2.0		14.5	19	1.90
1"	11	9.5	0-2.0		14.5	22	1.90
1¼"	27	23	0-0.35		14.5	38	3.10
1½"	27	23	0-0.35		14.5	38	3.10
2"	55	47	0-0.35		14.5	51	3.70
2½"	74	64	0-0.2		14.5	76	7.80
3"	89	77	0-0.2		14.5	76	7.80
4"[2]	194	167	0-0.8		22	102	40.50
6"[2]	384	331	0-0.3		22	152	70.50

[2] These valves are all flanged connections as standard PN10/16.

Options Available

Solenoid Enclosure	
Protection Class	
EExd T6 (IP67) up to 3"	Consult Rotork Midland for product codes
EExd T4 (IP67) up to 3"	
Exm T5 (IP65) up to 3" (24 VDC only)	

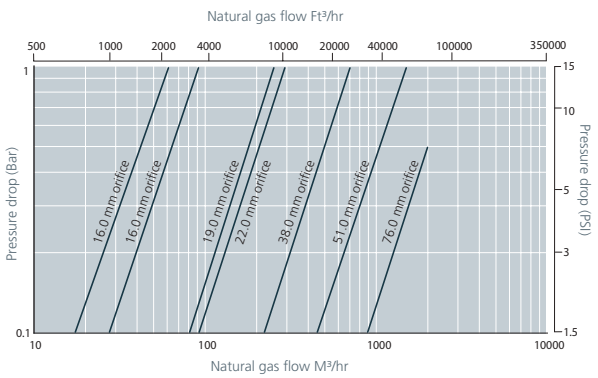
Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50
EPDM (-50 °C to +120 °C)	-10	50
FKM (-20 °C to +150 °C)	-10	50

Main Valve Assembly Options
Oxygen Cleaning (Consult Rotork Midland for product code)
NPT Threads
Stainless steel tagging

[1] See corrosion reference guide and sealing solutions for material compatability.

Notes

- If the inlet pressure on the seat area exceeds 18kg the inlet pressure must be exhausted to open the valve.
- Consult factory for flow figures for valves above 2½".



How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

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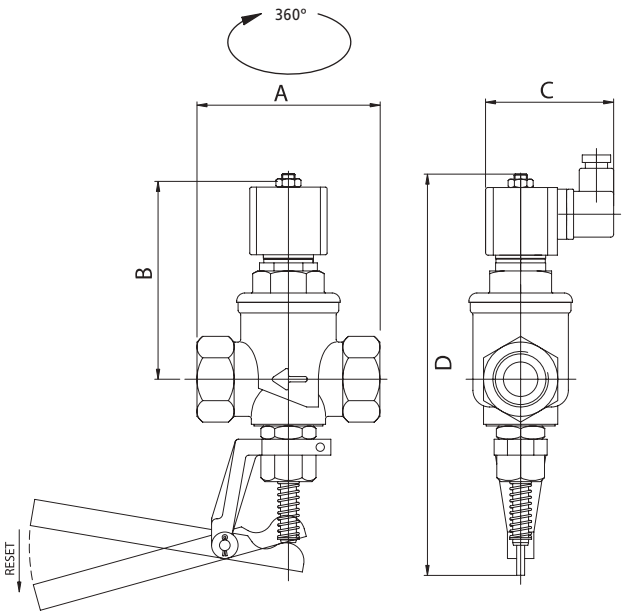
FACHL Series – 2/2 Normally Closed (Manual Reset)

Coil Rotation



Preferred Valve Mounting Options

Dimensions

Pipe Size	A	B	C	D
½"	70	100	75 inc plug	184
¾"-1"	109	116	75 inc plug	246
1½"	122	122	75 inc plug	258
2"	140	132	75 inc plug	233
2½"	260	137	75 inc plug	273
3"	197	137	75 inc plug	273
4"	292	285	190	577
6"	356	330	260	686

Dimensions given in mm

Solenoid enclosures

E5 Type enclosure protection class IP65

External material: Glass reinforced nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted as supplied
Used on FACHL valves up to and including 3"

S50 enclosure protection class IP65

External material: Pressed steel
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class H
Enclosure: Conforms to IP65 when correct plug gasket is fitted
Used on FACHL valves 4" and above

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation	
41	FACHL	D	½"	2	BSP G	3	MANUAL RESET
		E	¾"	3	NPT		
		F	1"	4	FLANGED (PN16 STD)		
		G	1¼"				
		H	1½"				
		J	2"				
		K	2 ½"				
		L	3"				
		M	4"				
		N	6"				

Body Material		Seals		Style	
2	Bronze	A	NBR	1	Standard
4	Cast Iron (4"and above)	B	EPDM		
		C	FKM		

Coil options

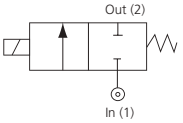
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	B1	230 V / 50 Hz	1	Din plug 9 mm (For DC only)
		B4	110 V / 50 Hz	3	Din plug 9 mm PR1 220/240 110/120
		B2	24 VDC		
		L1	230 V / 50 Hz (4" and above)		
		L9	110 V / 50 Hz (4" and above)		
		L6	24 VDC (4" and above)		

41	•	•	3	Z	•	•	1	-	1	••	•

Product coding example:

41H23Z2A1-1B21 - FACHL Series
1 1/2" BSPG, manual reset, bronze body, NBR seals, 24 VDC DIN Plug 9 mm.

68 Series: Cryogenic – 2/2 Normally Closed

Specifications	
Function	Normally Closed, energise to open, Out (2)  In (1)
Maximum Viscosity	65cST
1/4" - 1" Body Material	Brass (CZ122)
1 1/4" - 2" Body Material	Bronze
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	PTFE
Connection Type (Std)	BS21
Shading Ring	Copper (Std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class H (BS EN 60085) 180 °C
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Controls Cryogenic Media down to -196 °C
- Larger Porting for High Kv
- Teflon® - PTFE seals
- Choice of Brass or Stainless steel valve body

Special Features

- Oxygen Degreased and individually packed for use on liquids down to -196 °C

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
1/4"	0.52	0.43	0-8.0	0-6	50	4.50	0.35
1/4"	0.60	0.52	0-8.6	0-6		6.0	0.35
3/8"	3.5	3.0	0.3-8.6	0.3-6		16.00	1.20
1/2"	4.9	4.2	0.3-8.6	0.3-6		16.00	1.20
3/4"	6.3	5.4	0.3-8.6	0.3-6		16.00	1.20-2.30
1"	8.24	7.1	0.3-8.6	0.3-6		25.00	1.20-2.30
1 1/4"	20.9	18	0.3-8.6	0.3-6		32.00	3.10
1 1/2"	20.9	18	0.3-8.6	0.3-6		32.00	3.10
2"	20.9	18	0.3-8.6	0.3-6		32.00	5.20

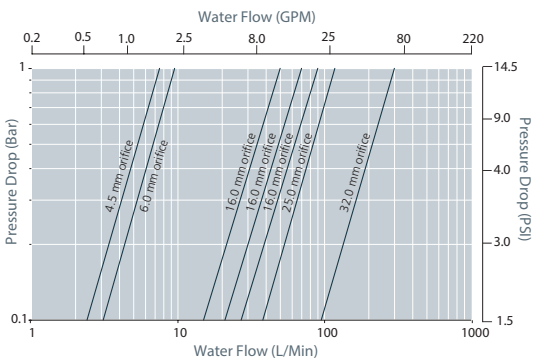
Options Available

Exd Solenoid Enclosure	
Protection Class	Consult Rotork Midland for product codes
EExd T6 (IP67)	

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
PTFE (-200 °C to +180 °C)	-10	50

Main Valve Body Options
Stainless Steel body 316 (available up to and including 1 inch)
NPT Threads
Stainless Steel Tagging (consult factory for product code)

[1] See corrosion reference guide and sealing solutions for material compatability.



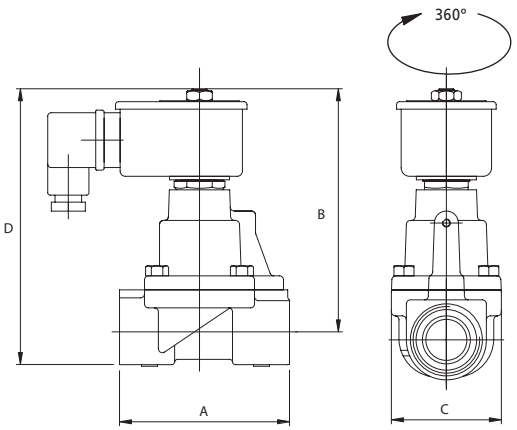
How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

rotork Instruments

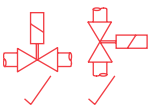
68 Series: Cryogenic – 2/2 Normally Closed

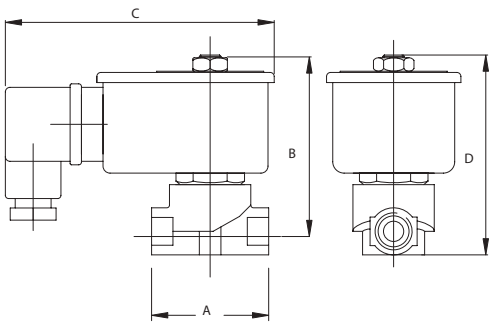
Coil Rotation



Pipe Size	A	B	C	D
3/8" - 1/2"	85	105	105*	122
3/4"-1"	85	135	105*	155
1¼"-1½"	117	133	82.5	209
2"	146	145	103	209

Preferred Valve Mounting Options





Pipe Size	A	B	C	D
¼"	44	70	105	78

Dimensions given in mm

* Dimensions including Din Plug

Solenoid enclosures

S4 Type enclosure protection class IP50

External material: Pressed steel powder coated

Electrical entry: Conduit boss 20 mm or ½" NPT

Electrical connection: Screwed terminals or 0.5 mm flying leads, or DIN connector for cryogenic applications

Winding insulation: Class H

Coding chart

Main Valve Assembly

Model	Valve Body Conn. Size	Connection Type	Operation	Orifice (mm)	Body Material	Seals	Style
37 68 Series	B ¼"	1 BS21	1 AUTO	H 4.5	1 Brass (standard on valves up to and including 1")	E PTFE	1 Standard
	C 3/8"	2 BSP G (1 ¼" and above)		J 6.0	2 Bronze (standard on valves above 1")		
	D ½"	3 NPT		Z Default	5 316 Stainless Steel (option available up to and inc 1")		
	E ¾"						
	F 1"						
	G 1¼"						
	H 1½"						
	J 2"						

Coil options

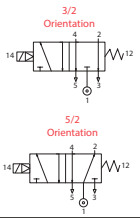
Enclosure	Voltage / Frequency	Electrical Connection
2 S4 type enclosure metal can	E2 230 V / 50 Hz	1 DIN plug 9 mm
	H2 110 V / 50 Hz & 120 V / 60 Hz	
	F1 24 VDC	

37	•	•	1	•	•	E	1	-	2	••	1

Product coding example:

37C11Z1E1-2E21 - 68 Series cryogenic
3/8" BS21, auto operation, brass body, PTFE seals, S4 enclosure 230 V / 50 Hz DIN Plug 9 mm.

Namur Series – 3/2 or 5/2 Universal

Specifications	
Function	
Media	Air
Maximum Viscosity	115 SSU
Body Material (Std)	Anodised Aluminium
Flange Tube	Brass
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Std)	IP65 (BS EN 60529) (plug supplied as standard)
Electrical Connection (Std)	PG9 Din Connector DIN 43650/ISO 4400 (EN 175301-803) Form 'A'
Coil Insulation	Class F (BS EN 60085) 155 °C (E5 type)
Power Rating	5 watts

Features and Benefits

- Ideal for in-line system service and repair
- Choice of valve body material seals
- Manual Overide
- Low power LED Light
- Dual Coil option
- Exd, Exia and Exm compatible
- Max cycle frequency 5/sec

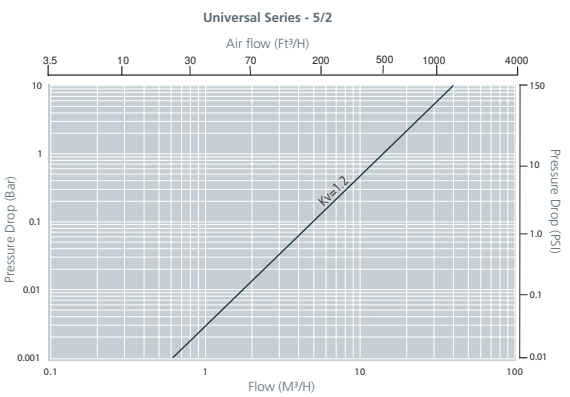
Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)	P. Max Bar	Weight
¼"	1.4	1.2	2.5-10	10	0.50

Options Available

Exd & Exm Solenoid Enclosure	
Protection Class	
EExd T6 (IP67)	See separate datasheet on Page 40-41
EExd T4 (IP67)	
Exm	
Exia	

Seal Material[1] and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50

[1] See corrosion reference guide and sealing solutions for material compatability.

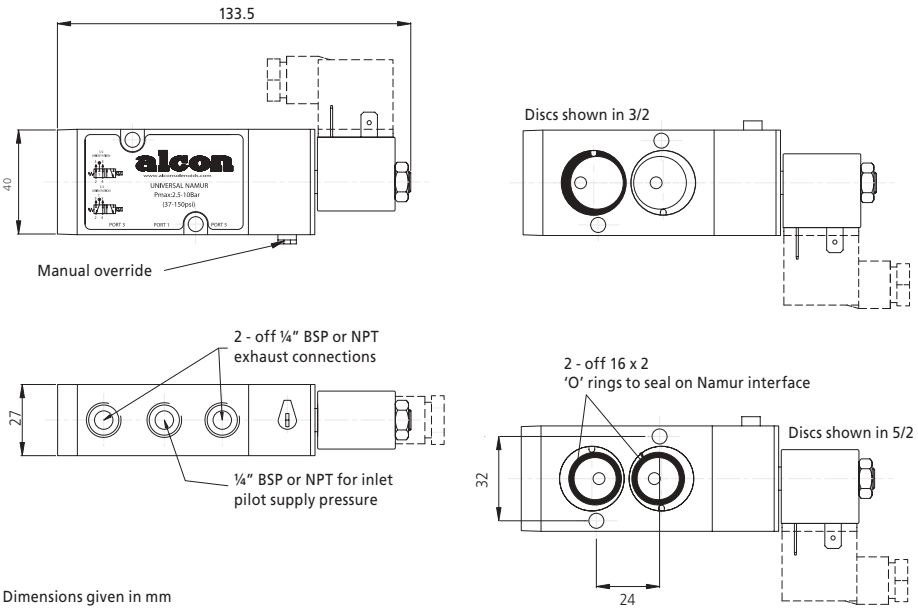


How to use the flow chart

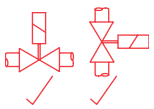
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

rotork Instruments

Namur Series – 3/2 or 5/2 Universal



Preferred Valve Mounting Options



Dimensions given in mm

Solenoid enclosures

S7 enclosure protection class IP65

External material: Nylon
Electrical connection: DIN Plug to ISO 4400
Winding insulation: Class F
Conforms to IP65 when correct plug seal gasket is fitted

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation		Body Material		Seals		Style	
65	Namur	B	¼"	3	NPT	2	MANUAL OVERRIDE	3	Aluminium	A	NBR	1	Standard

Coil options

Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather Proof IP65	R5	230 V / 50 Hz	1	Din Plug 9 mm
		QY	110 V / 50 Hz 120 V / 60 Hz		
		R1	24 VDC		

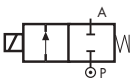
65	B	3	2	Z	3	A	1	-	1	••	1

Product coding example:

65B32Z3A1-1R51 - Namur Series
1/4" NPT, manual override, aluminium, NBR seals, 230 V / 50 Hz DIN Plug 9 mm.

N298/299 Series, Eex – 2/2 Normally Closed

ATEX

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Armature Tube	Stainless Steel solenoid grade
Plunger and Top Stop	Stainless Steel solenoid grade
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Coil Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V
Voltage Tolerance	+10% to -10% (AC/ DC)
Duty Cycle	100% ED
Protection Class	EEx m II 2GD T4 (IP65 - EN 60529)
Cable Type	H05V2V2-F 3G1
Coil Insulation	Class F to EN 60730

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Fitted with explosion-proof operator and coil class EEx m II 2GD T4
- The valve are supplied with a 3 m power cable entry, wired on a non-removable plug
- Wide range of available orifices (max. Ø3 mm)

⚠ WARNING

The Ex approval is only valid for complete solenoid valves supplied ex factory (replacing the solenoid doesn't make a valve explosion-proof!).

Repairs may be performed by the manufacturer only, spare parts are not available (a valve is a closed system according to Directive 2014/34/UE).

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.08	0.07	0 - 12	0 - 12	1.5	FKM	N299DVC
¼"	0.23	0.20	0 - 12	0 - 12	2.5	FKM	N299DVG
¼"	0.32	0.27	0 -12	0 - 10	3.0	FKM	N299DVH

Options Available

Valve Options (see coding chart)
Body threaded connection G ⅛"
NPT threads (minimum batch may be required)

Solenoid Enclosure		
Coil	**Voltage - Power**	**Fuse[2]**
N253	24 VDC - 10,1 W	800
N203[1]	24 V / 50/60 Hz - AC 7,2 VA	800
N403[1]	110 V / 50 Hz - AC 9,1 VA	200
NK03[1]	120 V / 60 Hz - AC 8,6 VA	200
N703	230 V / 50 Hz - AC 8,5 VA	100

[1] MOQ required.

⚠ SAFETY WARNING

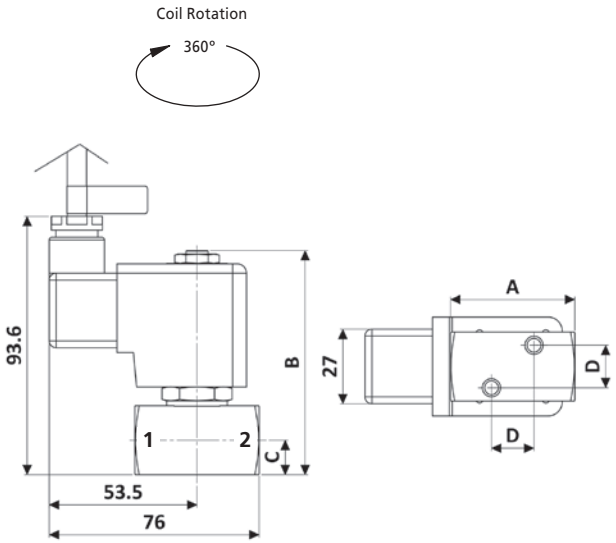
[2] A mains fuse or equivalent means of protection (breaking value shown on the table above for each coil type) must be installed on the mains supply line. Absence of mains protection is a non conformity to safety standards (EC Directives 2014/34/UE and 1999/92/EC) and could be a potential risk of explosion.

Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-20 °C to +80 °C)	Water, oil, air, aggressive fluids	-20 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

N298/299 Series, Eex – 2/2 Normally Closed

ATEX



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	81.2	12.5	15.4	-

Dimensions (mm)

Solenoid enclosures

N--- Type Coil - Insulation class F

External material:	thermoplastic
Connection type:	3 m wired cable, with ferrules
Enclosure classification:	conforms to IP65 (according to EN 60529)
Type examination certificates:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Orifice	
C	1.5
G	2.5
H	3.0

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
N253	24 VDC
N203	24 V / 50/60 Hz
N403	110 V / 50 Hz
NK03	120 V / 60 Hz
N703	230 V / 50 Hz

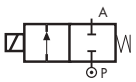
N	2	9	•	D	V	•	•	•	•	•	•	•

Product coding example:

N298DVH N253
1/8" G, Ex m solenoid operator, stainless steel body, FKM seals, 3.0 mm orifice, 24 VDC.

N262/263 Series, Eex – 2/2 Normally Closed

ATEX

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Armature Tube	Stainless Steel solenoid grade
Plunger and Top Stop	Stainless Steel solenoid grade
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Coil Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V
Voltage Tolerance	+10% to -10% (AC/ DC)
Duty Cycle	100% ED
Protection Class	EEx m II 2GD T4 (IP65 - EN 60529)
Cable type	H05V2V2-F 3G1
Coil Insulation	Class F to EN 60730

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Fitted with explosion-proof operator and coil class EEx m II 2GD T4
- The valve are supplied with a 3 m power cable entry, wired on a non-removable plug
- Wide range of available orifices (max. Ø3 mm)

⚠ WARNING

The Ex approval is only valid for complete solenoid valves supplied ex factory (replacing the solenoid doesn't make a valve explosion-proof!).

Repairs may be performed by the manufacturer only, spare parts are not available (a valve is a closed system according to Directive 2014/34/UE).

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 12	0 - 12	1.5	FKM	N263DVC
¼"	0.24	0.20	0 - 12	0 - 12	2.5	FKM	N263DVG
¼"	0.32	0.27	0 -12	0 - 10	3.0	FKM	N263DVH

Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)

Solenoid Enclosure		
Coil	**Voltage - Power**	**Fuse[2]**
N253	24 VDC - 10,1 W	800
N203[1]	24 V / 50/60 Hz - AC 7,2 VA	800
N403[1]	110 V / 50 Hz - AC 9,1 VA	200
NK03[1]	120 V / 60 Hz - AC 8,6 VA	200
N703	230 V / 50 Hz - AC 8,5 VA	100

[1] MOQ required.

⚠ SAFETY WARNING

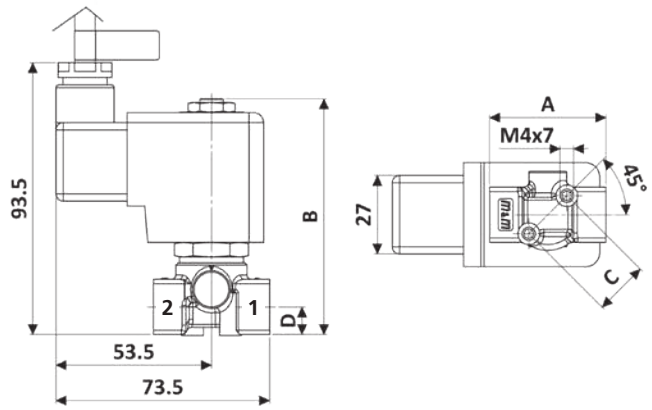
[2] A mains fuse or equivalent means of protection (breaking value shown on the table above for each coil type) must be installed on the mains supply line. Absence of mains protection is a non conformity to safety standards (EC Directives 2014/34/UE and 1999/92/EC) and could be a potential risk of explosion.

Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-20 °C to +80 °C)	Water, oil, air	-20 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

N262/263 Series, Eex – 2/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	81.1	18.5	9.5	-

Dimensions (mm)

Solenoid enclosures

N--- Type Coil - Insulation class F

External material:	thermoplastic
Connection type:	3 m wired cable, with ferrules
Enclosure classification:	conforms to IP65 (according to EN 60529)
Type examination certificates:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
C	1.5
G	2.5
H	3.0

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
N253	24 VDC
N203	24 V / 50/60 Hz
N403	110 V / 50 Hz
NK03	120 V / 60 Hz
N703	230 V / 50 Hz

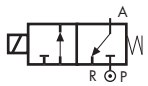
N	2	6	•	D	V	•	•	•	•	•	•	•

Product coding example:

N262DVH N253
1/8" G, Ex m solenoid operator, brass body, FKM seals, 3.0 mm orifice, 24 VDC.

N398/399 Series, Eex – 3/2 Normally Closed

ATEX

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless Steel 1.4305 EN 10088 (AISI 303)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Armature Tube	Stainless Steel solenoid grade
Plunger and Top Stop	Stainless Steel solenoid grade
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Coil Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V
Voltage Tolerance	+10% to -10% (AC/ DC)
Duty Cycle	100% ED
Protection Class	EEx m II 2GD T4 (IP65 - EN 60529)
Cable Type	H05V2V2-F 3G1
Coil Insulation	Class F to EN 60730

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Fitted with explosion-proof operator and coil class EEx m II 2GD T4
- The valve are supplied with a 3 m power cable entry, wired on a non-removable plug
- Wide range of available orifices (max. Ø3 mm)

⚠ WARNING

The Ex approval is only valid for complete solenoid valves supplied ex factory (replacing the solenoid doesn't make a valve explosion-proof!).

Repairs may be performed by the manufacturer only, spare parts are not available (a valve is a closed system according to Directive 2014/34/UE).

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 12	0 - 12	1.5	FKM	N399CVC
¼"	0.24	0.20	0 - 7	0 - 7	2.5	FKM	N399CVG
¼"	0.32	0.27	0 -7	0 - 7	3.0	FKM	N399CVH

Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)

Solenoid Enclosure		
Coil	**Voltage - Power**	**Fuse[2]**
N253	24 VDC - 10,1 W	800
N203[1]	24 V / 50/60 Hz - AC 7,2 VA	800
N403[1]	110 V / 50 Hz - AC 9,1 VA	200
NK03[1]	120 V / 60 Hz - AC 8,6 VA	200
N703	230 V / 50 Hz - AC 8,5 VA	100

[1] MOQ required.

⚠ SAFETY WARNING

[2] A mains fuse or equivalent means of protection (breaking value shown on the table above for each coil type) must be installed on the mains supply line. Absence of mains protection is a non conformity to safety standards (EC Directives 2014/34/UE and 1999/92/EC) and could be a potential risk of explosion.

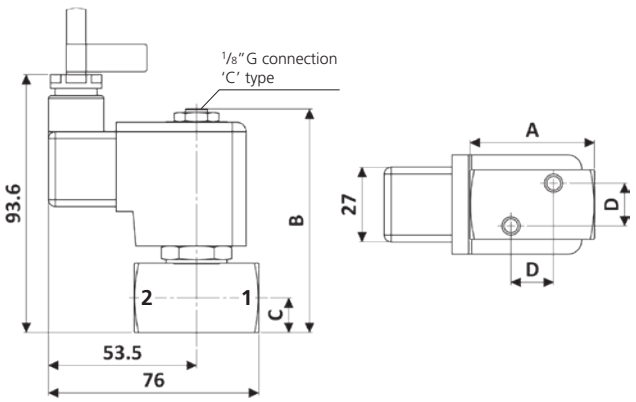
Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-20 °C to +80 °C)	Water, oil, air, aggressive fluids	-20 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

N398/399 Series, Eex – 3/2 Normally Closed

ATEX

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	45	80.6	12.5	15.4	

Dimensions (mm)

Solenoid enclosures

N--- Type Coil - Insulation class F

External material:	thermoplastic
Connection type:	3 m wired cable, with ferrules
Enclosure classification:	conforms to IP65 (according to EN 60529)
Type examination certificates:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Coding chart

Main Valve Assembly

Pipe Size	
8	1/8"
9	1/4"

Orifice	
C	1.5
G	2.5
H	3.0

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
N253	24 VDC
N203	24 V / 50/60 Hz
N403	110 V / 50 Hz
NK03	120 V / 60 Hz
N703	230 V / 50 Hz

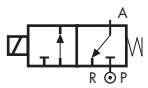
N	3	9	•	C	V	•	•	•	•	•	•	•

Product coding example:

N398CVH N253
1/8" G, Ex m solenoid operator, stainless steel body, FKM seals, 3.0 mm orifice, 24 VDC.

N362/363 Series, Eex – 3/2 Normally Closed

ATEX

Specifications	
Function (single acting)	 Flow direction underseat 2 → 1
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Armature Tube	Stainless Steel solenoid grade
Plunger and Top Stop	Stainless Steel solenoid grade
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Coil Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V
Voltage Tolerance	+10% to -10% (AC/ DC)
Duty Cycle	100% ED
Protection Class	EEx m II 2GD T4 (IP65 - EN 60529)
Cable Type	H05V2V2-F 3G1
Coil Insulation	Class F to EN 60730

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Fitted with explosion-proof operator and coil class EEx m II 2GD T4
- The valve are supplied with a 3 m power cable entry, wired on a non-removable plug
- Wide range of available orifices (max. Ø3 mm)

⚠ WARNING

The Ex approval is only valid for complete solenoid valves supplied ex factory (replacing the solenoid doesn't make a valve explosion-proof!).

Repairs may be performed by the manufacturer only, spare parts are not available (a valve is a closed system according to Directive 2014/34/UE).

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
¼"	0.09	0.08	0 - 12	0 - 12	1.5	FKM	N363CVC
¼"	0.15	0.13	0 - 10	0 - 10	2.0	FKM	N363CVE
¼"	0.24	0.20	0 - 7	0 - 7	2.5	FKM	N363CVG
¼"	0.32	0.27	0 -5	0 - 5	3.0	FKM	N363CVH

Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)

Solenoid Enclosure		
Coil	Voltage - Power	Fuse[2]
N253	24 VDC - 10,1 W	800
N203[1]	24 V / 50/60 Hz - AC 7,2 VA	800
N403[1]	110 V / 50 Hz - AC 9,1 VA	200
NK03[1]	120 V / 60 Hz - AC 8,6 VA	200
N703	230 V / 50 Hz - AC 8,5 VA	100

[1] MOQ required.

⚠ SAFETY WARNING

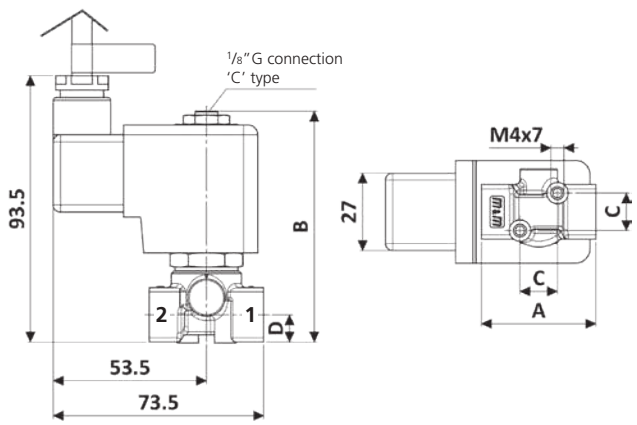
[2] A mains fuse or equivalent means of protection (breaking value shown on the table above for each coil type) must be installed on the mains supply line. Absence of mains protection is a non conformity to safety standards (EC Directives 2014/34/UE and 1999/92/EC) and could be a potential risk of explosion.

Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-20 °C to +80 °C)	Water, oil, air	-20 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

N362/363 Series, Eex – 3/2 Normally Closed

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
1/8" - 1/4"	40	80.5	13	9.5	-

Dimensions (mm)

Solenoid enclosures

N--- Type Coil - Insulation class F

External material:	thermoplastic
Connection type:	3 m wired cable, with ferrules
Enclosure classification:	conforms to IP65 (according to EN 60529)
Type examination certificates:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Coding chart

Main Valve Assembly

Pipe Size	
2	1/8"
3	1/4"

Orifice	
C	1.5
E	2.0
G	2.5
H	3.0

Option	
	w/o option

Coil options

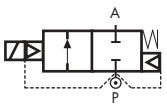
Voltage / Frequency - Class F	
N253	24 VDC
N203	24 V / 50/60 Hz
N403	110 V / 50 Hz
NK03	120 V / 60 Hz
N703	230 V / 50 Hz

N	3	6	•	C	V	•	•	•	•	•	•	•

Product coding example:

N363CVG N703
1/4" G, Ex m solenoid operator, brass body, FKM seals, 2.5 mm orifice, 230 V / 50 Hz.

N204/205/206/222 & N223/224/225 Series, Eex – 2/2 Normally Closed ATEX

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Armature Tube	Stainless Steel solenoid grade
Plunger and Top Stop	Stainless Steel solenoid grade
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Coil Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V
Voltage Tolerance	+10% to -10% (AC/ DC)
Duty Cycle	100% ED
Protection Class	EEx m II 2GD T4 (IP65 - EN 60529)
Cable Type	H05V2V2-F 3G1
Coil Insulation	Class F to EN 60730

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Fitted with explosion-proof operator and coil class EEx m II 2GD T4
- The valve are supplied with a 3 m power cable entry, wired on a non-removable plug

⚠ WARNING

The Ex approval is only valid for complete solenoid valves supplied ex factory (replacing the solenoid doesn't make a valve explosion-proof!).

Repairs may be performed by the manufacturer only, spare parts are not available (a valve is a closed system according to Directive 2014/34/UE).

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	3.86	3.30	0.3 - 12	0.3 - 12	13	FKM	N204DVZ
½"	4.42	3.78			13	FKM	N205DVZ
¾" compact	7.02	6.00			21	FKM	N206DVX
¾"	9.83	8.40			25	FKM	N206DVZ
1"	11.23	9.60			25	FKM	N222DVZ
1 ¼"	25.97	22.20	0.5 - 12	0.5 - 12	40	FKM	N223DVK
1 ½"	28.08	24.00			40	FKM	N224DVK
2"	37.91	32.40			50	FKM	N225DVJ

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)

Solenoid Enclosure		
Coil	Voltage - Power	Fuse[2]
N253	24 VDC - 10,1 W	800
N203[1]	24 V / 50/60 Hz - AC 7,2 VA	800
N403[1]	110 V / 50 Hz - AC 9,1 VA	200
NK03[1]	120 V / 60 Hz - AC 8,6 VA	200
N703	230 V / 50 Hz - AC 8,5 VA	100

[1] MOQ required.

⚠ SAFETY WARNING

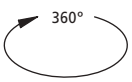
[2] A mains fuse or equivalent means of protection (breaking value shown on the table above for each coil type) must be installed on the mains supply line. Absence of mains protection is a non conformity to safety standards (EC Directives 2014/34/UE and 1999/92/EC) and could be a potential risk of explosion.

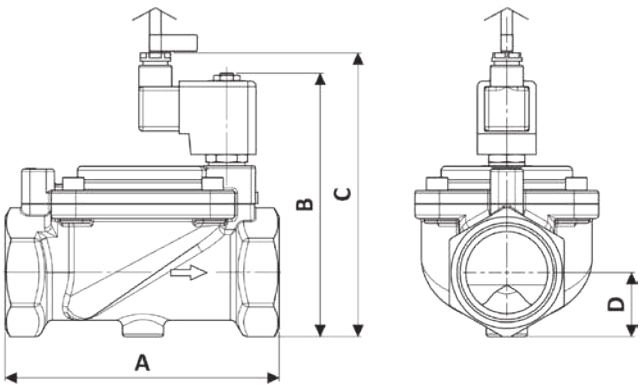
Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-20 °C to +80 °C)	Water, oil, air	-20 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

N204/205/206/222 & N223/224/225 Series, Eex – 2/2 Normally Closed ATEX

Coil Rotation





Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
⅜" - ½"	67	103.3	115.7	15	-
¾" compact	82	119	131.5	20.25	-
¾" - 1"	96	125.5	137.9	23	-
1 ¼" - 1 ½"	140	143.4	155.8	31.5	-
2"	167	160.4	172.8	39	-

Dimensions (mm)

Solenoid enclosures

N--- Type Coil - Insulation class F

External material:	thermoplastic
Connection type:	3 m wired cable, with ferrules
Enclosure classification:	conforms to IP65 (according to EN 60529)
Type examination certificates:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Coding chart

Main Valve Assembly

Pipe Size	
04	⅜"
05	½"
06	¾" (compact)
06	¾"
22	1"
23	1 ¾"
24	1 ½"
25	2"

Orifice[1]	
Z	13
Y	21
Y	25
K	40
J	50

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
N253	24 VDC
N203	24 V / 50/60 Hz
N403	110 V / 50 Hz
NK03	120 V / 60 Hz
N703	230 V / 50 Hz

N	2	•	•	D	V	•	•	•	•	•	•	•

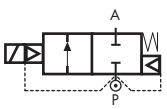
[1] DN13 only for N204 and N205, DN21 only for N206 compact, DN25 only for N206 and N222, DN40 only for N223 and N224, DN50 only for N225.

Product coding example:

N205DVZ N253
½" G, Ex m solenoid operator, brass body, FKM seals, 13 mm orifice, 24 VDC.

N204/205/206/222 Series, Stainless Steel, Eex – 2/2 Normally Closed

ATEX

Specifications	
Function (single acting)	 Flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Stainless steel AISI 316L (ASME SA351/351M GRADE CF3M
Orifice Material	Stainless Steel 1.4305 EN 10088 (AISI 303)
Armature Tube	Stainless Steel solenoid grade
Plunger and Top Stop	Stainless Steel solenoid grade
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Coil Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V
Voltage Tolerance	+10% to -10% (AC/ DC)
Duty Cycle	100% ED
Protection Class	EEx m II 2GD T4 (IP65 - EN 60529)
Cable Type	H05V2V2-F 3G1
Coil Insulation	Class F to EN 60730

Features and Benefits

- Pilot operated
- Robust construction for industrial applications
- Fitted with explosion-proof operator and coil class EEx m II 2GD T4
- The valve are supplied with a 3 m power cable entry, wired on a non-removable plug

⚠ WARNING

The Ex approval is only valid for complete solenoid valves supplied ex factory (replacing the solenoid doesn't make a valve explosion-proof!).

Repairs may be performed by the manufacturer only, spare parts are not available (a valve is a closed system according to Directive 2014/34/UE).

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
⅜"	3.86	3.30	0.3 - 12	0.3 - 12	13	FKM	N204DVZI
½"	4.42	3.78			13	FKM	N205DVZI
¾"	9.83	8.40			25	FKM	N206DVZI
1"	11.23	9.60			25	FKM	N222DVZI

Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)

Solenoid Enclosure		
Coil	**Voltage - Power**	**Fuse[2]**
N253	24 VDC - 10,1 W	800
N203[1]	24 V / 50/60 Hz - AC 7,2 VA	800
N403[1]	110 V / 50 Hz - AC 9,1 VA	200
NK03[1]	120 V / 60 Hz - AC 8,6 VA	200
N703	230 V / 50 Hz - AC 8,5 VA	100

[1] MOQ required.

⚠ SAFETY WARNING

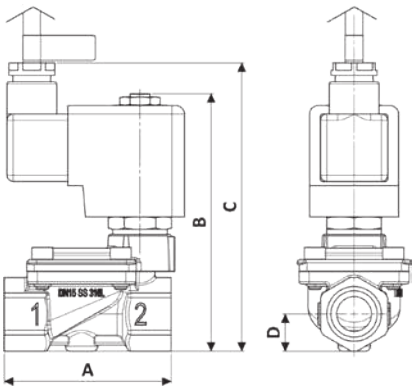
[2] A mains fuse or equivalent means of protection (breaking value shown on the table above for each coil type) must be installed on the mains supply line. Absence of mains protection is a non conformity to safety standards (EC Directives 2014/34/UE and 1999/92/EC) and could be a potential risk of explosion.

Seal Material[3] and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-20 °C to +80 °C)	Water, oil, air aggressive fluids	-20 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

N204/205/206/222 Series, Stainless Steel, Eex – 2/2 Normally Closed ATEX

Coil Rotation



Preferred Valve Mounting Options

Pipe Size	A	B	C	D	Weight (kg)
3/8" - 1/2"	67	103.4	115.8	15	-
3/4" - 1"	96	125.6	138	23	-

Dimensions (mm)

Solenoid enclosures

N--- Type Coil - Insulation class F

External material:	thermoplastic
Connection type:	3 m wired cable, with ferrules
Enclosure classification:	conforms to IP65 (according to EN 60529)
Type examination certificates:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Coding chart

Main Valve Assembly

Pipe Size	
04	3/8"
05	1/2"
06	3/4"
22	1"

Orifice[1]	
Z	13
Y	25

Option	
N	NPT
	w/o option

Coil options

Voltage / Frequency - Class F	
N253	24 VDC
N203	24 V / 50/60 Hz
N403	110 V / 50 Hz
NK03	120 V / 60 Hz
N703	230 V / 50 Hz

N	2	•	•	D	V	•	I	•	•	•	•	•

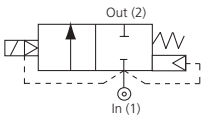
[1] DN13 only for N204 and N205, DN25 only for N206 and N222.

Product coding example:

N205DVZI N253
1/2" G, Ex m solenoid operator, stainless steel body, FKM seals, 13 mm orifice, 24 VDC.

ACD Series Exd & Exm – 2/2 Normally Closed

ATEX

Specifications	
Function	Normally Closed, energise to open 
Maximum Viscosity	115 SSU
3/8" - 1" Body Material (Std)	Brass CZ122
1 1/4" - 2" Body Material (Std)	Bronze DIN 1705
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	24 V, 110 V
Coil Voltage AC 50 Hz (~)	110 V, 230 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Exd)	Exd IIC T6 (-50 °C to +40 °C) (IP67 BS EN 60529)
Protection Class (Exm)	Exm II 2 G T5 (-20 °C to +40 °C) (IP65 BS EN 60529)
Electrical Connection (Exd)	Via terminal block (max wire diameter 1.6 mm)
Electrical Connection (Exm)	2 metre lead 3 core
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 type)
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Robust Valve Design
- Diaphragm Operation
- Fully Ported orifices for high Kv
- Choice of valve body material seals
- Response time up to 1" 15 - 60 ms
- Response time up to 2" 60 - 120 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages				
3/8"	3.5	3.0	0-14	0-10.3	50	16.00	Exd T6	0.9
1/2"	4.9	4.2	0-14	0-10.3		16.00		
3/4"	5.4	4.7	0-14	0-10.3		16.00		
1"	8.2	7.0	0-14	0-10.3		20.00		1.2
1 1/4"	26.7	23	0-4	-		40.00		3.0-3.2
1 1/2"	26.7	23	0-4	-		40.00		
2"	30.2	26	0-4	-		40.00		
1 1/4"[2]	26.7	23	0.3-10	0.3-10		40.00		
1 1/2"[2]	26.7	23	0.3-10	0.3-10		40.00		
2"[2]	30.2	26	0.3-10	0.3-10		40.00		
3/8"	3.5	3.0	0-14	0-10.3		16.00	Exm T5	0.9
1/2"	4.9	4.2	0-14	0-10.3		16.00		
3/4"	5.4	4.7	0-14	0-10.3		16.00		
1"	8.2	7.0	0-14	0-10.3		20.00		1.2
1 1/4"	26.7	23	0-4	-		40.00		3.0-3.2
1 1/2"	26.7	23	0-4	-		40.00		
2"	30.2	26	0-4	-		40.00		
1 1/4"[2]	26.7	23	0.3-10	0.3-10		40.00		
1 1/2"[2]	26.7	23	0.3-10	0.3-10		40.00		
2"[2]	30.2	26	0.3-10	0.3-10		40.00		

Options Available

Solenoid Enclosure		
Protection Class	**Electrical Entry**	**Enclosure Material**
EExd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional
EExd T4 (IP67)		
Exm T5 (IP65)	M16 x 1.5 male flying lead	Powder coated metal

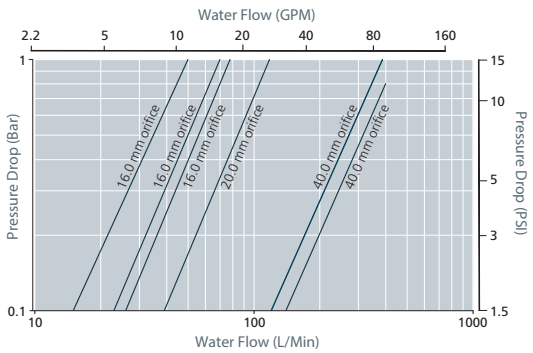
Main Valve Body Options
Stainless Steel 316 (available up to and including 1")
NPT threads
Flanged Option (PN16 Std) for alternative options consult Rotork Midland
Manual Override

Seal Material[1] and Media Temp. Range	EXD			EXM	
	Ambient Temperature Range °C			Ambient Temperature Range °C	
	Min	Max (T6)	Max (T4)	Min	Max (Exm)
NBR (-10 °C to +80 °C)	-10	40	70	-10	40
EPDM (-50 °C to +120 °C)	-50	40	70	-20	40
FKM (-20 °C to +150 °C)	-20	40	70	-20	40

[1] See corrosion reference guide and sealing solutions for material compatability.
[2] Pressure assisted to achieve a greater OPD. e.g. code :19G11Z5C3-6H299.

How to use the flow chart

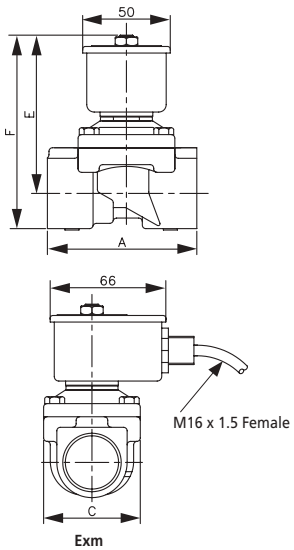
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.



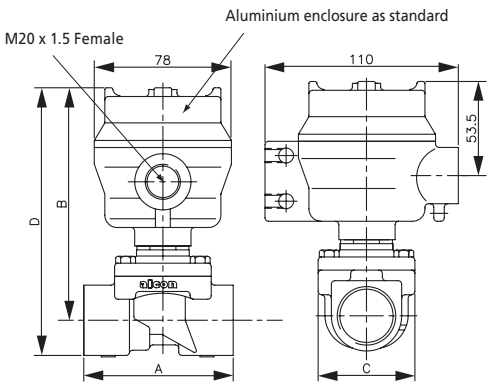
rotork Instruments

ACD Series Exd & Exm – 2/2 Normally Closed

Coil Rotation

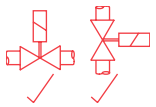


Exm



Exd

Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D	E	F
3/8" - 3/4"	69.5	123	75	140	80	97
1"	69.5	123	75	140	80	97
1¼" - 2"	137	147	120	180	103	136

Dimensions given in mm

Solenoid enclosures

S4 Type enclosure

Power consumption:	Holding 19 VA, 12 V to 230 V 50 / 60 Hz. 14.5 W 12 V to 212 VDC
External material:	Powder coated aluminium or 316 st.st. enclosure with st.st. nameplate
Electrical entry:	M20 x 1.5 or ½" NPT conduit entry
Protection Class:	II 2 G Exd IIC T6 for ambient temp -50 °C to +40 °C
Optional:	II 2 G Exd IIC T4 for ambient temp -50 °C to +70 °C
Additional Weight	0.8 kg - Aluminium or 1.5 kg - Stainless Steel

S4 Type enclosure

Power consumption:	Holding 16 VA, 12 V to 230 V 50 / 60 Hz. 10 W 12, 24 VDC
External material:	powder coated metal enclosure with st.st. nameplate
Electrical entry:	2 metre length of approved 3 core cable with M16 conduit male winding insulation class
Protection Class:	II 2 G Exm II T5 for ambient temperatures -20 °C to +40 °C
Additional weight:	0.5 kg

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Conn. Type		Operation		Body Material		Seals		Style	
17	ACD AC VOLTAGE	C	3/8"	1	BS21	1	AUTO	1	Brass (standard on valves up to and including 1"	A	NBR	1	Standard (inc.Exm)
18	ACD DC[3] VOLTAGE	D	½"	2	BSP G (1¼" and above)	2	MANUAL OVERIDE	2	Bronze (standard on valves above 1")	B	EPDM	3	Exd (S4)
19	Pressure assisted option 1¼" to 2"	E	¾"	3	NPT			5	316 Stainless Steel (option available up to and inc 1")	C	FKM		
		F	1"	4	FLANGED (PN16 STD)								
		G	1¼"										
		H	1½"										
		J	2"										

•	•	•	•	Z	•	•	•	-

[3] '0' pressure rated options are not available in DC voltage.

Coil options

Enclosure		Voltage / Frequency		Electrical Connection		Approval	
5	Exd Aluminium	E2	230 V / 50 Hz	5	M20 x 1.5	9	Atex T6
6	Exd Stainless Steel	H2	110 V / 50 Hz & 120 V / 60 Hz	9	½" NPT	949	Atex T4
		F1	24 VDC				

•	••	•	•

4	••	E

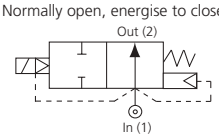
Enclosure		Voltage / Frequency		Electrical Connection	
4	Exm	M1	230 V / 50 Hz	E	3 meter lead M16 Exm option only
		M2	110 V / 50 Hz		
		M4	24 VDC		

Product coding example:

17F31Z1C3-5H259 - ACD Series
1" NPT, auto operation, brass body, FKM seals, Exd T6 Aluminium Housing 110 V / 50 Hz M20 x 1.5.

ACDN Series Exd & Exm – 2/2 Normally Open

ATEX

Specifications	
Function	Normally open, energise to close 
Maximum Viscosity	115 SSU
3/8" - 1" Body Material (Std)	Brass CZ122
1 1/4" - 2" Body Material (Std)	Bronze DIN 1705
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	24 V, 110 V
Coil Voltage AC 50 Hz (~)	110 V, 230 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Exd)	Exd IIC T6 (-50 °C to +40 °C) (IP67 BS EN 60529)
Protection Class (Exm)	Exm II 2 G T5 (-20 °C to +40 °C) (IP65 BS EN 60529)
Electrical Connection (Exd)	Via terminal block (max wire diameter 1.6 mm)
Electrical Connection (Exm)	2 metre lead 3 core
Coil Insulation	Class H (BS EN 60085) 180 °C
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Robust Valve Design
- Diaphragm Operation
- Fully Ported orifices for high Kv
- Choice of valve body material seals
- Sizes 3/8" - 1" Advantica approved to BS EN 60730-2-8 for household use
- Response time up to 1" 15-60 ms
- Response time up to 2" 60-120 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages				
3/8"	3.5	3.0	0-10	0-10	50	16.00	Exd T6	0.9
1/2"	4.9	4.2	0-10	0-10		16.00		
3/4"	5.4	4.7	0-10	0-10		16.00		
1"	8.2	7.0	0-10	0-10		20.00		1.2
1 1/4"	26.7	23	0.3-10	0.3-10		40.00		3.0
1 1/2"	26.7	23	0.3-10	0.3-10		40.00		
2"	30.2	26	0.3-10	0.3-10		40.00		
3/8"	3.5	3.0	0-10	0-10		16.00	Exm T5	0.9
1/2"	4.9	4.2	0-10	0-10		16.00		
3/4"	5.4	4.7	0-10	0-10		16.00		
1"	8.2	7.0	0-10	0-10		20.00		1.2
1 1/4"	26.7	23	0.3-10	0.3-10		40.00		3.0
1 1/2"	26.7	23	0.3-10	0.3-10		40.00		
2"	30.2	26	0.3-10	0.3-10		40.00		

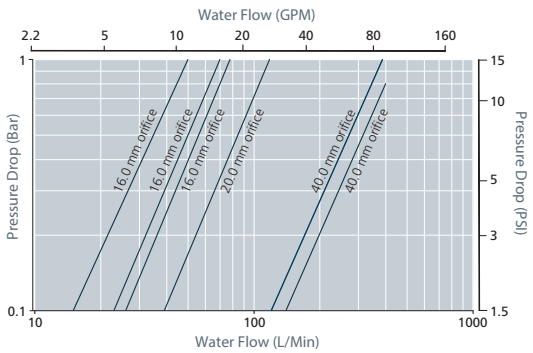
Options Available

Solenoid Enclosure		
Protection Class	Electrical Entry	Enclosure Material
EExd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional
EExd T4 (IP67)		
Exm T5 (IP65)	M16 x 1.5 male flying lead	Powder coated metal

Main valve body options
Stainless Steel 316 (available up to and including 1")
NPT threads
Flanged Option (PN16 Std) for alternative options consult Rotork Midland

Seal Material[1] and Media Temp. Range	EXD			EXM	
	Ambient Temperature Range °C			Ambient Temperature Range °C	
	Min	Max (T6)	Max (T4)	Min	Max (Exm)
NBR (-10 °C to +80 °C)	-10	40	70	-10	40
EPDM (-50 °C to +120 °C)	-50	40	70	-20	40
FKM (-20 °C to +150 °C)	-20	40	70	-20	40

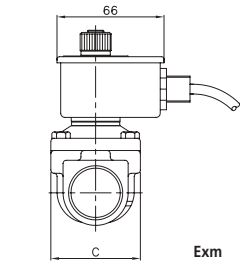
[1] See corrosion reference guide and sealing solutions for material compatability.



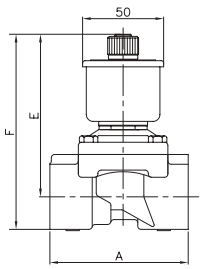
How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

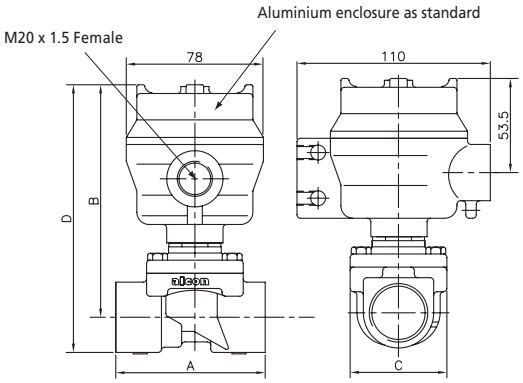
ACDN Series Exd & Exm – 2/2 Normally Open



Exm

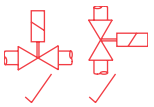


Coil Rotation



Exd

Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D	E	F
⅜" - ¾"	69.5	123	75	140	88	105
1"	69.5	123	75	140	88	105
1¼" - 2"	137	103	120	180	127	143

Dimensions given in mm

Solenoid enclosures

S4 Type enclosure

Power consumption:	Holding 19 VA, 12 V to 230 V, 50 / 60 Hz. 14.5 W, 12 V to 212 VDC
External material:	Powder coated aluminium or 316 st.st. enclosure with st.st. nameplate
Electrical entry:	M20 x 1.5 or ½" NPT conduit entry
Protection Class:	II 2 G Exd IIC T6 for ambient temp -50 °C to +40 °C
Optional:	II 2 G Exd IIC T4 for ambient temp -50 °C to +70 °C
Additional Weight	0.8 kg - Aluminium or 1.5 kg - Stainless Steel

S4 Type enclosure

Power consumption:	Holding 16 VA, 12 V to 230 V, 50 / 60 Hz. 10 W 12, 24 VDC
External material:	powder coated metal enclosure with st.st. nameplate
Electrical entry:	2 metre length of approved 3 core cable with M16 conduit male winding insulation class
Protection Class:	II 2 G Exm II T5 for ambient temperatures -20 °C to +40 °C
Additional weight:	0.5 kg

Coding chart

Main Valve Assembly

Model	
27	ACDN (1¼ and above)
56	ACDN (⅜"-1")

Valve Body Conn. Size	
C	⅜"
D	½"
E	¾"
F	1"
G	1¼"
H	1½"
J	2"

Connection Type	
1	BS21
2	BSP G (1¼" and above)
3	NPT
4	FLANGED (PN16 STD)

Operation	
1	AUTO

Body Material	
1	Brass (standard on valves up to and including 1")
2	Bronze (standard on valves above 1")
5	316 Stainless Steel (option available up to and inc 1")

Seals	
A	NBR
B	EPDM
C	FKM

Style	
1	Standard (inc. Exm)
3	Exd (S4)

•	•	•	1	Z	•	•	•	-

Coil options

Enclosure	
D	N/O Exd Aluminium
E	N/O Exd Stainless Steel

Voltage / Frequency	
E2	230 V / 50 Hz
H2	110 V / 50 Hz & 120 V / 60 Hz
F1	24 VDC

Electrical Connection	
5	M20 x 1.5
9	½" NPT

Approval	
9	Atex T6
949	Atex T4

•	••	•	•

4	••	E	48

Enclosure	
4	Exm

Voltage / Frequency	
M1	230 V / 50 Hz
M2	110 V / 50 Hz
M4	24 VDC

Electrical Connection	
E	3 metre lead M16 EXM

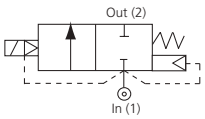
Solenoid Label	
48	N/O module

Product coding example:

56E11Z1A3-DF159 - ACDN Series
N/O ¾" BS21, auto operation, bronze body, NBR seals, Exd T6 Aluminium 24 VDC M20 x 1.5.

ACP Series Exd & Exm – 2/2 Normally Closed

ATEX

Specifications	
Function	Normally closed, energise to open 
Maximum Viscosity	115 SSU
½" - 1" Body Material (Std)	Brass CZ122
1¼" - 2" Body Material (Std)	Bronze DIN 1705
Flange Tube	Stainless Steel 303
Plunger and top stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Connection Type (Std)	BS21
Shading Ring	Copper (std), Silver (stainless steel option)
Electrical Characteristics	
Coil Voltage DC (=)	24 V, 110 V
Coil Voltage AC 50 Hz (~)	110 V, 230 V
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Exd)	Exd IIC T6 (-50 °C to +40 °C) (IP67 BS EN 60529)
Protection Class (Exm)	Exm II 2 G T5 (-20 °C to +40 °C) (IP65 BS EN 60529)
Electrical Connection (Exd)	Via terminal block (max wire diameter 1.6 mm)
Electrical Connection (Exm)	2 metre lead 3 core
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 Type)
Power Rating	14.5 Watts, 19 VA

Features and Benefits

- Heavy duty valve design
- Piston Operation
- Wide temperature range capabilities
- Choice of valve body material seals
- ATEX approved
- Response time up to 1" 40-100 ms
- Response time up to 2" 60-1000 ms

Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)	P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
½"	4.9	4.2	0.3-10.3	50	16.00	Exd T6	1.4
¾"	6.3	5.4	0.3-10.3		16.00		
1"	14.5	12.5	0.3-10.3		25.00		2.3
1¼"	20.9	18	0.3-10.3		30.00		3.0
1½"	20.9	18	0.3-10.3		30.00		
2"	24.4	21	0.3-10.3		32.00		5.2
½"	4.9	4.2	0.3-10.3		16.00	Exm T5	1.4
¾"	6.3	5.4	0.3-10.3		16.00		
1"	14.5	12.5	0.3-10.3		25.00		2.3
1¼"	20.9	18	0.3-10.3		30.00		3.0
1½"	20.9	18	0.3-10.3		30.00		
2"	24.4	21	0.3-10.3		32.00		5.2

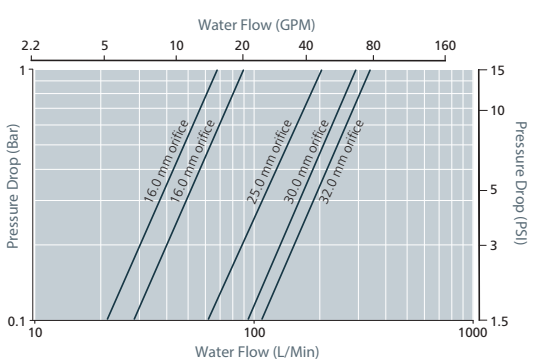
Options Available

Solenoid Enclosure		
Protection Class	**Electrical Entry**	**Enclosure Material**
EExd T6 (IP67)	M20 x 1.5 Female (Std) (½" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional
EExd T4 (IP67)		
Exm T5 (IP65)	M16 x 1.5 male flying lead	Powder coated metal

Main Valve Body Options
Stainless steel body 316 (available up to 1")
Oxygen Cleaning (Consult Rotork Midland for product code)
NPT Threads
Stainless steel tagging

[1] See corrosion reference guide and sealing solutions for material compatability.

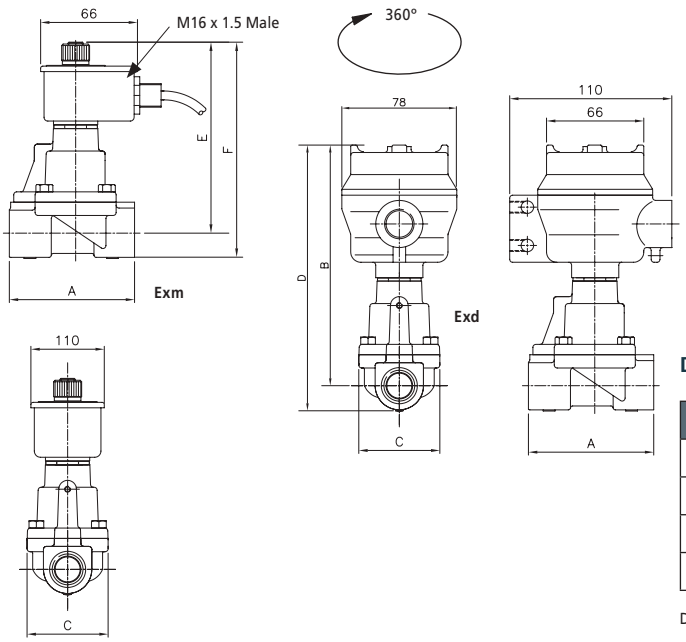
Seal Material[1] and Media Temp. Range	EXD			EXM	
	Ambient Temperature Range °C			Ambient Temperature Range °C	
	Min	Max (T6)	Max (T4)	Min	Max (Exm)
NBR (-10 °C to +80 °C)	-10	40	70	-10	40
EPDM (-50 °C to +120 °C)	-50	40	70	-20	40
FKM (-20 °C to +150 °C)	-20	40	70	-20	40



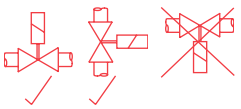
How to use the flow chart

1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

ACP Series Exd & Exm – 2/2 Normally Closed



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D	E	F
3/8" - 3/4"	85	149	75	165	105	122
1"	85	179	75	198	135	155
1¼" - 1½"	117	177	83	252	133	209
2"	146	189	103	252	145	209

Dimensions given in mm

Solenoid enclosures

S4 Exd enclosure

Power consumption:	Holding 19 VA, 12 V to 230 V, 50 / 60 Hz. 14.5 W, 12 V to 212 VDC
External material:	Powder coated aluminium or 316 st.st. enclosure with st.st. nameplate
Electrical entry:	M20 x 1.5 or ½" NPT conduit entry
Protection Class:	II 2 G Exd IIC T6 for ambient temp -50 °C to +40 °C
Optional:	II 2 G Exd IIC T4 for ambient temp -50 °C to +70 °C
Additional Weight	0.8 kg - Aluminium or 1.5 kg - Stainless Steel

S4 Exm enclosure

Power consumption:	Holding 16 VA, 12 V to 230 V, 50 / 60 Hz. 10 W 12, 24 VDC
External material:	powder coated metal enclosure with st.st. nameplate
Electrical entry:	2 metre length of approved 3 core cable with M16 conduit male winding insulation class
Protection Class:	II 2 G Exm II T5 for ambient temperatures -20 °C to +40 °C
Additional weight:	0.5 kg

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size		Connection Type		Operation		Body Material		Seals		Style	
22	ACP Exd	D	½"	1	BS21	1	AUTO	1	Brass (standard on valves up to and including 1")	A	NBR	1	Standard (Inc Exm)
		E	¾"	2	BSP G	2	MANUAL OVERRIDE	2	Bronze (standard on valves above 1")	B	EPDM	3	Exd
		F	1"	3	NPT			5	316 Stainless Steel (option available up to and inc 1")	C	FKM		
		G	1¼"	4	FLANGED (PN16 STD)								
		H	1½"										
		J	2"										

22	•	•	•	Z	•	•	1	-

Coil options

Enclosure		Voltage / Frequency		Electrical Connection		Approval	
5	Exd Aluminium	E2	230 V / 50 Hz	5	M20 x 1.5	9	Atex T6
6	Exd Stainless Steel	H2	110 V / 50 Hz & 120 V / 60 Hz	9	½" NPT	949	Atex T4
		F1	24 VDC				

•	••	•	9

4	••	E

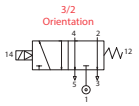
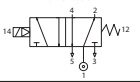
Enclosure		Voltage / Frequency		Electrical Connection	
4	Exm	M1	230 V / 50 Hz	E	3 metre lead M16 EXM
		M2	110 V / 50 Hz		
		M4	24 VDC		

Product coding example:

22H21Z2A3-5E259 - ACP Series
1½" BSPG, auto operation, bronze body, NBR seals, Exd Aluminium 230 V / 50 Hz M20 x 1.5.

Namur Series Exd, Exm & Exia Series – 3/2 or 5/2 Universal

ATEX

Specifications	
Function	3/2 or 5/2 3/2 Orientation  5/2 Orientation 
Media	Air
Maximum Viscosity	115 SSU
Body Material (Std)	Anodised Aluminium
Flange Tube	Brass
Plunger and Top Stop	Stainless Steel 430FR
Springs	Stainless Steel 302
Seal Material (Std)	NBR
Electrical Characteristics	
Coil Voltage DC (=)	12 V, 24 V, 110 V
Coil Voltage AC 50 Hz (~)	24 V, 110 V, 120 V, 230 V
Coil Voltage AC 60 Hz (~)	24 V, 110 V, 120 V, 220v
Voltage Tolerance	+10% or -10%
Duty Cycle	100% ED
Protection Class (Exd)	Exd IIC T6 (-50 °C to +40 °C) (IP67 BS EN 60529)
Protection Class (Exm)	Exm II 2 G T5 (-20 °C to +40 °C) (IP65 BS EN 60529)
Protection Class (Exia)	Exia IIC T6 (-40 °C to +50 °C)
Electrical Connection (Exd)	Via terminal block (max wire diameter 1.6 mm)
Electrical Connection (Exm)	2 metre lead 3 core
Electrical Connection (Exia)	PG9 via DIN plug connector DIN 43650-A
Coil Insulation (Exd & Exm)	Class H (BS EN 60085) 180 °C
Coil Insulation (Exia)	Class F (BS EN 60085) 155 °C
Power Rating	5 watts

Features and Benefits

- Ideal for in-line system service and repair
- Choice of valve body material seals
- Manual Overide
- Low power LED Light
- Dual Coil option
- Exd, Exia and Exm compatible
- Max cycle frequency 5/sec

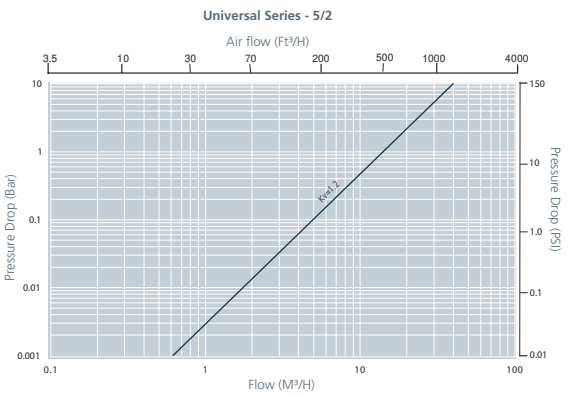
Pipe Size	Cv (gpm)	Kv (m^3/h)	OPD (Bar)		P. Max Bar	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages		
¼"	1.4	1.2	2.5-10	2.5-10	10	0.5

Options Available

Solenoid Enclosure	
Protection Class	**Electrical Entry**
EExd T6 (IP67)	M20 x 1.5 Female (Std) (½" NPT conduit entry option)
EExd T4 (IP67)	
Exm	M16 x 1.5 Male flying lead
Exia	PG9 via Din Plug Connector Din 43650-A

Seal Material[1] and Media Temp. Range	EXD			EXM	
	Ambient Temperature Range °C			Ambient Temperature Range °C	
	Min	Max (T6)	Max (T4)	Min	Max (Exm)
NBR (-10 °C to +80 °C)	-10	40	70	-10	40

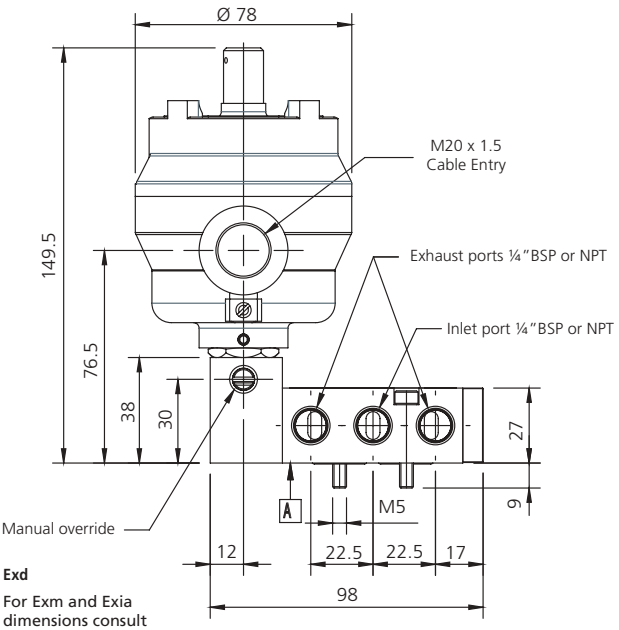
[1] See corrosion reference guide and sealing solutions for material compatability.



How to use the flow chart

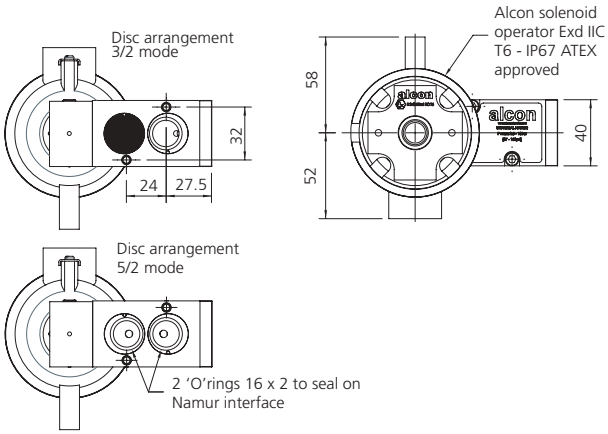
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.

Namur Series Exd, Exm & Exia Series – 3/2 or 5/2 Universal



Exd

For Exm and Exia dimensions consult customer services



For Exia option use product code 65B32Z3A5-1QJ1.
For all other coding options see below:

Solenoid enclosures

Intrinsically safe enclosure (ATEX approved)

External material:	Thermoset resin
Electrical connection:	PG9 via DIN plug connector Din 43650-A
Max power:	consumption Exia 1.6 watts DC.
Winding:	insulation Class F
Protection class:	Exia IIC T6, ATEX approved for ambient temperatures -40 °C to + 50 °C

Maximum valve media temperature of 70 °C. Weatherproof to IP65

Exd enclosure

Power consumption:	Holding 19 VA, 12 V to 230 V, 50 / 60 Hz. 14.5 W, 12 V to 212 VDC
External material:	Powder coated aluminium or 316 st.st. enclosure with st.st. nameplate
Electrical entry:	M20 x 1.5 or ½" NPT conduit entry
Protection Class:	II 2 G Exd IIC T6 for ambient temp -50 °C to +40 °C
Optional:	II 2 G Exd IIC T4 for ambient temp -50 °C to +70 °C
Additional Weight	0.8 kg - Aluminium or 1.5 kg - Stainless Steel

Exm enclosure

Power consumption:	Holding 16 VA, 12 V to 230 V, 50 / 60 Hz. 10 W 12, 24 VDC
External material:	powder coated metal enclosure with st.st. nameplate
Electrical entry:	2 metre length of approved 3 core cable with M16 conduit male winding insulation class.
Protection Class:	II 2 G Exm II T5 for ambient temperatures -20 °C to +40 °C
Additional weight:	0.5 kg

Main Valve Assembly

Model	Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style
65 Namur	B ¼"	3 NPT	2 MANUAL OVERRIDE	3 Aluminium	A NBR	1 Exm 3 Exd

65	B	3	2	Z	3	A	•	-

Coil options

Enclosure	Voltage / Frequency	Electrical Connection	Approval
9 Exd Aluminium	E2 230 V / 50 Hz H2 110 V / 50 Hz & 120 V / 60 Hz F1 24 VDC	5 M20 x 1.5 9 ½" NPT	9 ATEX T6 K ATEX T4

9	••	•	•

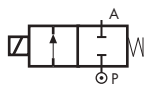
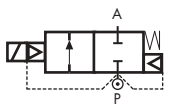
Enclosure	Voltage / Frequency	Electrical Connection
4 Exm	M1 230 V / 50 Hz M2 110 V / 50 Hz M4 24 VDC	E 3 metre lead M16 EXM

4	••	E

Product coding example:

65B32Z3A3-9E259 - Namur Series
¼" NPT, manual override, aluminium, NBR seals, Exd T6 Aluminium 230 V / 50 Hz M20 x 1.5.

ADV Series, Compressed Air – with Solenoid Valves

Specifications[1]	
Function (single acting)	 Direct ACting flow direction overseat 1 → 2  Pilot Operated flow direction overseat 1 → 2
Maximum Viscosity	Max. 21cST (3 °E)
Body Material (Std)	Brass CW617N (EN 12165)
Flange	Stainless Steel 1.4305 EN 10088 (AISI 303)
Tube	Stainless Steel AISI 304
Plunger	Stainless Steel 1.4106 EN 10088 (AISI 430F)
Top Stop	Stainless Steel 1.4105 EN 10088 (AISI 430F)
Springs	Stainless Steel 302
Seal Material (Std)	FKM
Connection Type (Std)	G parallel thread (ISO 228-1)
Shading Ring	Copper
Electrical Characteristics	
Standard Coil Voltage DC (=)	24 V
Standard Coil Voltage AC 50 Hz (~)	24 V, 110 V, 200 V, 230 V
Standard Coil Voltage AC 60 Hz (~)	24 V, 120 V, 220 V, 240 V
Voltage Tolerance	+10% to -15% (AC) +10% to -5% (DC)
Duty Cycle	100% ED
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Electrical Connection	to EN 175301 - 803 - A (ex DIN 43650)
Coil Insulation	Class F 155 °C
Power Rating (Standard)	AC 18 VA (holding) AC 36 VA (inrush) DC 14 W

[1] For more information about detailed solenoid valve and timer please refer to each single datasheet.

Features and Benefits

- Preassembled systems consisting of solenoid valve, timer and connector
- Application: time adjusted condensate discharge of tanks with compressed air, separators, mains drainage, dryers and filters
- Direct acting and pilot operated valve
- Adjustable to suit your system requirements
- Indoor / outdoor installations
- Reliable, long life
- Cost effective
- Visual indication of operation
- Manual override - test button
- Discharge time (timer ON): from 0.5 to 10 s
- Interval time (timer OFF): from 30 s to 45 minutes

Pipe Size	OPD (bar)		Orifice (mm)	Valve Code	Conn. Code	Timer Code	Coil code	ADV Code[2]
	AC Volt	DC Volt						
With Direct Acting Solenoid Valves								
¼"	0 - 18	-	2.2	D249DVF	600 011-	AT2000C02I	7400	888 120 00-
¼"	0 - 18	-	2.2	D249DVF	600 011-	AT2000C02I	7700	888 121 00-
¼"	-	0 - 16	2.2	D249DVF	600 011-	AT2000C02I	7250	888 122 00-
With Pilot Operated Solenoid Valves								
¼"	0.1 - 16	-	10.5	D264DVU	600 011-	AT2000C02I	7400	888 123 00-
¼"	0.1 - 16	-	10.5	D264DVU	600 011-	AT2000C02I	7700	888 124 00-
¼"	-	0.1 - 7	10.5	D264DVU	600 011-	AT2000C02I	7250	888 125 00-
⅜"	0.1 - 16	-	10.5	D265DVU	600 011-	AT2000C02I	7400	888 126 00-
⅜"	0.1 - 16	-	10.5	D265DVU	600 011-	AT2000C02I	7700	888 127 00-
⅜"	-	0.1 - 7	10.5	D265DVU	600 011-	AT2000C02I	7250	888 128 00-
½"	0.1 - 16	-	10.5	D266DVU	600 011-	AT2000C02I	7400	888 129 00-
½"	0.1 - 16	-	10.5	D266DVU	600 011-	AT2000C02I	7700	888 130 00-
½"	-	0.1 - 7	10.5	D266DVU	600 011-	AT2000C02I	7250	888 131 00-

Options Available

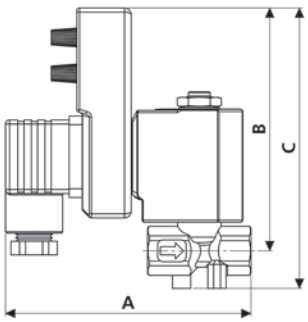
ADV Options[2]
Strainers, NPT thread, impregnated coils with additional protection by impregnation with Loctite® Resinol RTC for humid environments

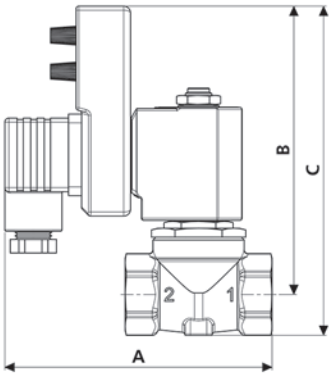
[2] ADV code changes depending on the required options codes in the selection table refer to the listed combination of components only.

Seal Material[3] and media temperature range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

[3] See corrosion reference guide and sealing solutions for material compatability.

ADV Series, Compressed Air – with Solenoid Valves





Valve Series	A	B	C	Weight (kg)
D248/249	90	89	103	-
D264/265/266	98	106	121	-

Dimensions (mm)

Solenoid enclosures

7--0 Type Coil - Insulation class F

External material: PBT (reinforced fiberglass 30%)
Electrical connection: DIN EN 175301-803 form A
Winding insulation: Class H (E180)
Enclosure classification: Conforms to IP65 (according to EN 60529) with plug and gasket correctly fitted*

* Plug and gasket not supplied as standard, must be ordered separately.

Type 600 011- Plug

Rated Voltage (max.): 250 VAC / 300 VDC
Nominal Current: 10A (rated) / 16A (max)
Wire cross-section: 1.5 mm² max
Cable Entry: PG9 (6 to 8 mm)
Enclosure classification: Conforms to IP65 (according to EN 60529) with supplied gasket
Insulation class: group C- VDE 0110
Housing colour: black
UL approved, file No: E205538

AT2000, Analog Electronic Timer

Specifications	
Operation Temperature	-10°C to +50°C
Timing Temperature Coefficient	± 0.005% - °C
Time ON	from 0.5 to 10 seconds
Time OFF	from 30 seconds to 45 minutes
Set/reset/test	membrane key
Indicators	green LED for 'power ON'
	red LED for 'valve open'
Manual Override	test
Electrical Characteristics	
Supply Voltage (AC/DC)	from 120 V to 240 V - 50/60 Hz (**UL**)
	from 24 V to 240 V - 50/60 Hz (**CE**)
Switch Holding Voltage	400 V max.
Switch Capacity	1A
Inrush Current	10A for 10 ms
Absorbition	4 mA max.
Duty Cycle	100% ED
Switch Life	$3 \bullet 10^8$
Repeat Accuracy	±1%
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Circuit	UL 94 V0

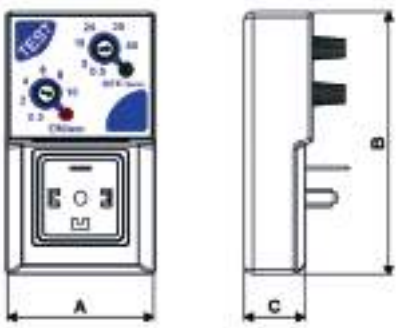
Features and Benefits

- Ideal for: automatic drain valve, sampling valves, lubrication system, air dryers
- Black colour
- UL file number: E200580

Notes

In case of DC supply, polarity should be reversed: left fast-on positive (+), right fast-on negative (-). Please refer to product instructions for use.

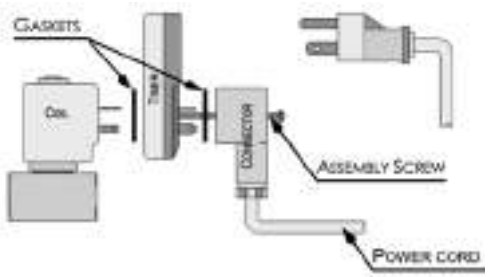
Supplied in single boxes with two squared gaskets and M3x50 fixing screw (see assembling scheme)



Valve Series	A	B	C	Weight (kg)
AT2000C02I	44	77	20	0.077

Dimensions (mm)

Assembling scheme



Customized Products

Rotork Instruments is constantly evolving and developing new products, enabling us to remain competitive in an ever changing market and keeping at the forefront of technological advances. For many years Rotork Instruments has operated in the most diverse industrial sectors and therefore acquired vast experience with a multitude of specialist applications. Our experience enables us to understand, design and manufacture to our customers' specific requirements.

We can develop new customised solenoid valve solutions according to the customers' technical requirements and needs, concentrating on increasing functionality, optimising space and reducing costs of existing systems.

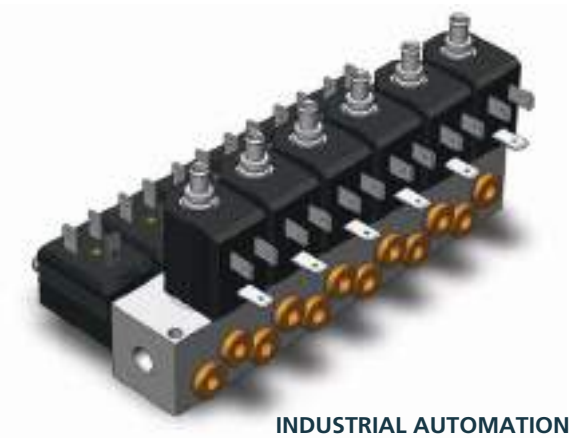
Please find below some examples:

CAR AIR CONDITIONING REFILLER

COMPRESSED AIR TREATMENT

STERILIZERS

PACKAGING WITH VACUUM SYSTEMS FOR INDUSTRY



INDUSTRIAL AUTOMATION

COOLING SYSTEM

FIREFIGHTING SYSTEMS

Technical Information

The following points should be considered to ensure a correct choice of valve:

Connections and Nominal Diameters

Threaded connections are either "G"- inches (ISO 228) or metric. Nominal diameters (DN) are expressed in millimetres and correspond to the diameter of the valve's main orifice.

Performances (OPD)

Pressure values shown in this catalogue are the max values expressed in relative bar with no pressure at outlet.

For 3/2 way solenoid valves the pressure range can vary when used in other functions or systems.

The maximum pressure (PN) that the valve can tolerate is tested to 1.5 times the maximum value of the operating pressure differential (OPD).

Pressure (units of measurement)

The SI unit of pressure is the pascal (Pa), defined as 1 newton of force per square metre (1 N/m2).

As Pa is such a small unit, the kPa (1 kilonewton/m2) or MPa (1 Meganewton/m2) tend to be more appropriate to fluid engineering.

However, the most popular metric unit used to measure the pressure in fluid engineering field is the bar, which is equal to 105 N/ m2, and approximates to 1 atmosphere. This unit is used throughout this publication.

Other units often used include lb/in2 (PSI), kg/cm2, atm in H2O (atmosphere) and mm Hg. Conversion factors are readily available from many sources.

Absolute pressure (bar a)

This is the pressure measured from the datum of a perfect vacuum: i.e. a perfect vacuum has a pressure of 0 bar a.

Gauge pressure (bar g)

This is the pressure measured from the datum of the atmospheric pressure. Although in reality the atmospheric pressure will depend upon the climate and the height above sea level, a generally accepted value of 1.013 bar a (1 atm) is often used. This is the average pressure exerted by the air of the earth's atmosphere at sea level.

Gauge pressure = Absolute pressure - Atmospheric pressure

Pressure above atmospheric will always yield a positive gauge pressure. Conversely a vacuum or negative pressure is the pressure below that of the atmosphere. A pressure of -1 bar g corresponds closely to a perfect vacuum.

Differential pressure

This is simply the difference between two pressures. When specifying a differential pressure, it is not necessary to use the suffixes 'g' or 'a' to denote either gauge pressure or absolute pressure respectively, as the pressure datum point becomes irrelevant. Therefore the difference between two pressures will have the same value whether these pressures are measured in gauge pressure or absolute pressure, as long as the two pressures are measured from the same datum.

Flow

The flow is the quantity of fluid that passes through the valve's main orifice which has the nominal diameter (DN) shown in the tables.

The flow is given with a constant Kv value (according to VDI/ VDE 2173) that shows how many cubic meters of water, at a temperature of 20 °C, flow through the valve in one hour with a pressure difference of one bar across the valve.

To determine the flow at higher pressures, multiply the Kv value by the square root of the differential pressure. Flow values shown in the selection tables are subject to a tolerance of ± 15%.

Viscosity

Viscosity of a fluid (liquid or gas) is its resistance to flow freely in a duct.

This phenomenon is also called internal friction and depends on existing cohesion forces among the fluid molecules. The viscosity of liquids decreases as the temperature rises; the viscosity of gases grows if the volume does not change.

According to the International System of Units (SI), the physical quantities are: force **F** ⇨ in Newton **N**, distance **h** ⇨ in meters **m**, area **A** ⇨ in square meters **m2**, speed **u** ⇨ in meters per second **m/s**, the unit of measurement of the **dynamic viscosity** is Pascal per second (Pa•s) or Newton multiplied by second per square meter (N•s/m2).

Dividing the dynamic viscosity of the liquid by its density, you can obtain the **kinematic viscosity**. Its unit of measurement is expressed in square meter per second (m2/s). Since the given numerical values are too small, the most common used unit is 10.000 times smaller: the stokes (stox) **St,**

$$1\ St = 1 \bullet 10\text{-}4\ m2/s \text{ or } 10.000\ St = 1\ m2/s$$

as well as the additional unit centistokes **cSt**

$$1\ cSt = 1 \bullet 10\text{-}2\ St$$

Coil power supply

It is important that the exact voltage and frequency of the coil is used for the valve to operate correctly. Provided the coil is fitted correctly on the operator and that the armature is not obstructed, the valve can be operated for an indefinite time within the temperature limitations indicated. All solenoid valves have a copper shading ring to reduce vibrations caused by alternating currents. **Remark: The same valve fitted with coils of different power may have different pressure ratings than standard combinations indicated in each datasheet in this catalogue.**

Media and Ambient Temperatures

Temperature limits for the media in the datasheets and should be used as a guide to valve selection. Normally the maximum ambient temperature can reach +50 °C for

solenoid valves with coils in class "F", +70 °C for class "H". For applications outside these limits please contact our Technical Department.

General purpose solenoid valves

Solenoid valves shown in this catalogue, either normally open or normally closed, are intended to control the flow of fluids and cannot be used as safety valves.

Valve Installation

To ensure proper valve function please observe following instructions:

Water hammer or fluid hammer

Water hammer (or, more generally, fluid hammer) is a pressure surge or wave resulting when a fluid (usually a liquid but sometimes also a gas) in motion is forced to stop or change direction suddenly (momentum change).

Water hammer commonly occurs when a valve is closed suddenly at an end of a pipeline system, and a pressure wave propagates in the pipe. It may also be known as hydraulic shock.

When using liquid fluids water-hammer can occur at pressure of 6 relative bar or higher.

This pressure wave can cause major problems, from noise and vibration to pipe collapse. It is possible to reduce the effects of the water hammer pulses with accumulators and other features.

Mitigating measures:

– **Air vessels** typically have an air cushion above the fluid level, which may be regulated or separated by a bladder. Sizes of air vessels may be up to hundreds of cubic meters on large pipelines. They come in many shapes, sizes and configurations. Such vessels often are called accumulators or expansion tanks.

– **Water Hammer** Arrestors are hydropneumatic devices similar to shock absorbers that can be installed between the water pipe and the machine to absorb the shock and stop the banging.

Safety

This product is not a safety device and must not be used as sole device to prevent the over-pressure of some parts of the plant or the containment of dangerous fluids.

Always connect the coil's earth terminal to ground to ensure the safety of the user and installation. The coil provides the basic insulation only. Install the product in a protected place to prevent electric shocks.

The coil should not be energized if it is not fitted onto a valve or without a plunger inside the valve, as it would overheat and get damaged. Do not touch the energized coil: risk of high temperature.

Do not use the tubes for conveying fluid to ground electrical devices.

Before disconnecting or disassembling the valve, make sure that there is no pressure inside the tubing or the valve itself. Accidental shocks due to fall or collision may damage the operator and/or the integrity of the coil encapsulation thus causing malfunctions such as loss of insulation, seizure of the moving parts and overheating.

Installation

Check for the operating conditions on product label and on the technical documents.

Check for compatibility between medium and valve materials. In case of doubt, please contact the manufacturer.

Keep the valve operator in a vertical position, facing upwards. This prevents limescale or dirt particles in the operator tube which could restrict the armature or create excessive noise whilst operating.

Whilst tightening or unscrewing the valve must be held or revolved only and exclusively by the hexagon or the frame set (in order to avoid damage to its components such as coil, armature tube, etc.).

The recommended **tightening torque of the coil nut is 0,5 Nm maximum**, a higher torque may cause damage to the valve armature tube.

The recommended **tightening torque of the connector screw is 0,5 Nm maximum**, a higher torque may cause an excessive yield stress with consequent damages to the coil rivet and/or plastic encapsulation.

Connections

To ensure that the solenoid valve works properly, do not connect to pipework with an internal diameter less than the nominal diameter (DN) of the valve. Clean all pipework before connection to the solenoid valve: care should be taken to prevent foreign bodies – dirt or material chips – from entering the valve during the assembly phase.

Use suitable seal material on the valve threads. Where liquid sealants are used, it is important to prevent them from entering the valve and block the movement.

Flow Direction

Respect the direction of flow across the valve, shown with an arrow or by numbers on the valve body, depending on the model type.

Filtration

If the fluid contains dirt particles it is necessary to install a filter upstream of the solenoid valve. Dirt is the most frequent cause of malfunction.

Environment

Coils fitted with suitable connectors have a protection class of IP65. However, it is advisable not to use the solenoid valve outside or in very damp conditions without adequate protection. Provide sufficient ventilation for the solenoid valve. **During continuous service the coil of the solenoid valve becomes hot and should not be touched.**

Sealing Solutions

NBR (BunaN)

Trade Names:
Chemigum Hycar (Zeo (Goodyear)n Chemical), Ny Syn (Copolymer), Paracril (Uniroyal), Krynac (Polysar), PerNitrilen (Mobay)

This is the most widely used O-Ring elastomer. It has excellent resistance to petroleum products. Excellent compression set, tear and abrasion resistance. Suitable for air, oil, water, acetylene, kerosene, lime solutions, liquefied petroleum gases and turpentine.

- NBR/ BunaN is Alcon's preferred sealing solution unless otherwise stated.
- Please note NBR (BunaN) is not recommended for highly aromatic petroleum / gasoline's or acids.

EPDM (EPR or EPDM) EPDM (EPR)

Excellent resistance to weathering and ozone, water and steam, with good performance in castor and some phosphate ester based fluids and poor on petroleum / gasoline. It's low and high temperature capabilities are good, having excellent resistance to set with good resilience, this low compression set provides a suitable solution for steam sealing. EPDM is suitable for temperatures above the NBR range. Ethylene-propylene is generally suitable for most photographic solutions as well as numerous chemical solutions. EPDM has served to replace the formerly used butyl.

- Please note EPDM should NEVER be used in contact with mineral based fluids or DI ester based lubricants, due to excessive swell and deterioration. When lubrication is required silicone grease or fluids should be used.

FKM (FPM FLUORELASTOMER)

It has high temperature capabilities, excellent resistance to hydraulic oils, petrol and many other chemicals. FKM O-Rings are used in automobile and other mechanical devices requiring maximum resistance to elevated temperature and to many functional fluids. FKM is a fluorocarbon elastomer. Primarily developed for handling hydrocarbons such as jet fuels, gasoline's, solvent, etc., which normally caused detrimental swelling to NBR. FKM has a high temperature range similar to ethylene propylene but is more resistant to "dry heat". FKM has a rather wide range of chemical compatibility.

*PTFE / Teflon®

PTFE is a fluorocarbon resin known as a disc sealing material solution where all other synthetic materials have failed. Rulon is a form of Teflon® having fillers which have been added for improved mechanical properties. Teflon® with fillers are considered more of a plastic than a resilient-type material. They are virtually unattacked by any fluid. PTFE provides sealing solutions for cryogenic and steam applications.

*Teflon® is a registered trademark of Du-Pont. It must be noted that PTFE sealing will allow slight let-by.

Silicone

This elastomer provides high and low temperature solutions under certain conditions for numerous applications (it must be noted that silicone is not suitable for steam applications). It can handle hydrogen peroxide and some acid solutions. Silicone's retention of properties at high temperatures is superior to other elastic materials.

It must be noted that Silicone has poor tensile strength, tear resistance and abrasion resistance.

Neoprene

Neoprene is commonly used for refrigeration systems sealing as an external seal. Suitable for alcohol, mild acids, water, air, ammonia, argon gas and other gases.

Sigodur (filled PTFE) & Ruby

Stiff materials particularly suitable for heavy duty applications.

KALREZ® Spectrum™ 6345)

KALREZ® SpectrumTM6375 is a compound specifically designed for the chemical process industry. This compound has excellent broad chemical resistance, good mechanical properties, and outstanding hot-air aging properties. Kalrez®6375 is well suited for use in mixed process streams because of its excellent resistance to acids, bases and amines. It is also recommended for use in hot water, steam, pure ethylene oxide and propylene oxide.

Metals

Ag (silver)

Silver is a soft, malleable metal with a characteristic sheen. It has the highest thermal and electrical conductivity of all metals. Alcon provide shading coil material for stainless steel valves in silver.

Al (aluminium)

Derived from the Latin ALUMEN for ALUM (Potassium aluminium sulphate). A lightweight material that offers high strength and rigidity along with good corrosion resistance and heat dissipation. Alcon provide die-cast bodies, solenoid enclosures and shading coils made from aluminium.

Cu (copper)

Copper is an important engineering material since it is widely used in its pure state and also in alloys with other metals. In its pure state it is the most important material in the electrical industry. It has high electrical conductivity and corrosion resistance and is easy to fabricate. It has reasonable tensile strength, controllable annealing properties and general soldering and joining characteristics. Alcon provide as standard shading rings produced from Copper.

CU Sn (bronze)

Bronze alloys consist of copper and tin primarily and these can be known as "tin bronzes". Since phosphorus is usually added to these alloys as a deoxidising agent during casting, the tin bronzes are commercially known as "phosphor bronzes". These alloys possess desirable properties such as high strength, wear resistance, and good sea water resistance. Alcon provide bodies from bronze.

Cu Zu (brass)

Brass is probably the best known of the “yellow metals” and it is produced in a wide variety of forms with many different characteristics and attributes. It is a basic alloy of copper and zinc and it finds many engineering applications. Alcon provide forged bodies from brass this forging brass has a composition of 58% copper, 2% lead and 40% zinc.

Fe CrNi 300 Series Stainless Steel (18-8) Austenitic

303 Stainless Steel is essentially low-carbon steel to which chromium has been added. It is the addition of chromium, in amounts of 18%, that adds strength and gives stainless steel its unique 'stainless', corrosion-resisting properties. The corrosion resistance, as well as other useful properties of the steel, is enhanced by the addition of other elements such as 8% nickel. Alcon provide flange tubes, bodies & springs in 300 series stainless steel.

316 Stainless Steel

316 Stainless Steel is essentially low-carbon steel to which chromium has been added. It is the addition of chromium, in amounts of 18%, that adds strength and gives stainless steel its unique ‘stainless’, corrosion-resisting properties. The corrosion resistance, as well as other useful properties of the steel, is enhanced by the addition of other elements such as 12% nickel. Alcon provide valve bodies flange tubes and coil enclosures in 316 series stainless steel.

430F & 430FR Magnetic Stainless Steel

Type 430F is a solenoid grade stainless steel that has the best magnetic properties and lowest residual magnetism. Type 430FR stainless, used for corrosive service for many years, also offers improved wear resistance, higher electrical resistivity and increased hardness. Alcon’s plunger and top stop materials are produced using the 430F series. Basic composition 18% chromium, remainder iron.

Modes of Operation

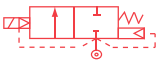
Valve Selection

A solenoid valve should be chosen whenever the following conditions are met:

- ✓ Media without dirt particles
- ✓ Moderate flow volumes
- ✓ Average differential pressures
- ✓ High speed in operation
- ✓ Media with a viscosity not higher than 21 cST(3°E)

2/2 N/C Normally Closed

Solenoid Operated
Direct Acting



Solenoid
Pilot Operated

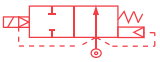
2 way, normally closed, energise to open, on/off operation (de-energise to close), with one inlet and one outlet connection. There are 2 types of valve operation – Direct Acting and Pilot Operated.

a) Direct Acting – The coil supplies all the power to open the valve and the valve will operate from zero pressure.

b) Pilot Operated – this can either be diaphragm or piston operated. These valves have a pilot hole which is opened/closed by the coil acting upon a plunger and diaphragm or piston used to control the main orifice. The operation relies on the media pressure difference between the inlet and outlet and a minimum operating pressure is required to operate these valves unless stated as zero.

2/2 N/O Normally Open

Solenoid
Direct Acting



Solenoid
Pilot Operated

2 way, normally open, energise to close, de-energise to open, with one inlet and one outlet connection. Can be either direct acting or pilot operated.

3/2 N/C Normally Closed

Valve open when energised, closed when de-energised. This valve operates on the same principle as the 2/2 N/C version except the valve has 3 connections, 2 orifices, one permanently open, one permanently closed. The use of these are for operation of actuators for large valves where single cylinder spring return system is employed.

3/2 N/O Normally Open

Valve open when de-energised, closed when energised.

3/2 UNI Universal

Valve may be used as normally closed, normally open or diversion/selector valve.

5/2

These valves are available in 2 forms;

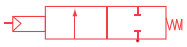
a) Single Solenoid – 2 position, spool and sleeve type, which is based on an air pilot return mechanism. When de-energised, the valve allows one inlet and one outlet to be connected, exhausting the other inlet/outlet connection through an exhaust port. On energisation, the action reverses.

b) Dual Solenoid Valves – these spool and sleeve type solenoid valves are momentary contact type. When one coil is energised, one inlet is connected to one outlet, with the other inlet/outlet connection connected to an exhaust port, when the coil is de-energised and other coil energised, the action is reversed.

These valves are for use on double acting cylinder applications.

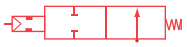
Modes of Operation

2/2 N/C Normally Closed Pneumatic



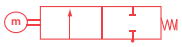
2 way, normally closed, pressurise to open, de-pressurise to close with the aid of a return spring, having one inlet and one outlet connection. Can be direct acting air operated against a return spring. Note: These valves are operated via a 3 way solenoid valve which is always required.

2/2 N/O Normally Open Pneumatic



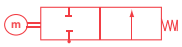
2 way, normally open, pressurise to close, de-pressurise to open with the aid of a return spring, having one inlet and one outlet connection. Can be direct acting air operated against a return spring. Note: These valves are operated via a 3 way solenoid valve which is always required

2/2 N/C Normally Closed Motorised



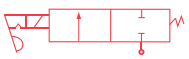
2 way, normally closed, energise to open – (slow opening) de-energise to close – (quick closing) with one inlet and one outlet connection. Motor driven against a return spring.

2/2 N/O Normally Open Motorised



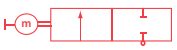
2 way, normally open, energise to close – (slow closing) de-energise to open – (quick opening).

2/2 N/C Normally Closed Manual Reset (Solenoid)



These valves operate on the same principle as 2/2 N.C direct acting version except – once the coil is energised the valve will not open until manually opened by either a lever or push reset device.

2/2 N/C Normally Closed Manual Reset (Motorised)



The operation is similar to 2/2 N/C Normally Closed Manual Reset (Solenoid) except, once the motor is energised the valve will not open till a manual reset/relay button is operated, either remote or integral to the actuator. General use is for both manual reset or safety systems where knowledge of an electrical failure is required.

Optional Features

Manual Override

Normally closed direct acting and pilot operated solenoid valves (only versions specified in each datasheet) can be supplied with a manual override which allows the valve to be opened independently of electrical current.

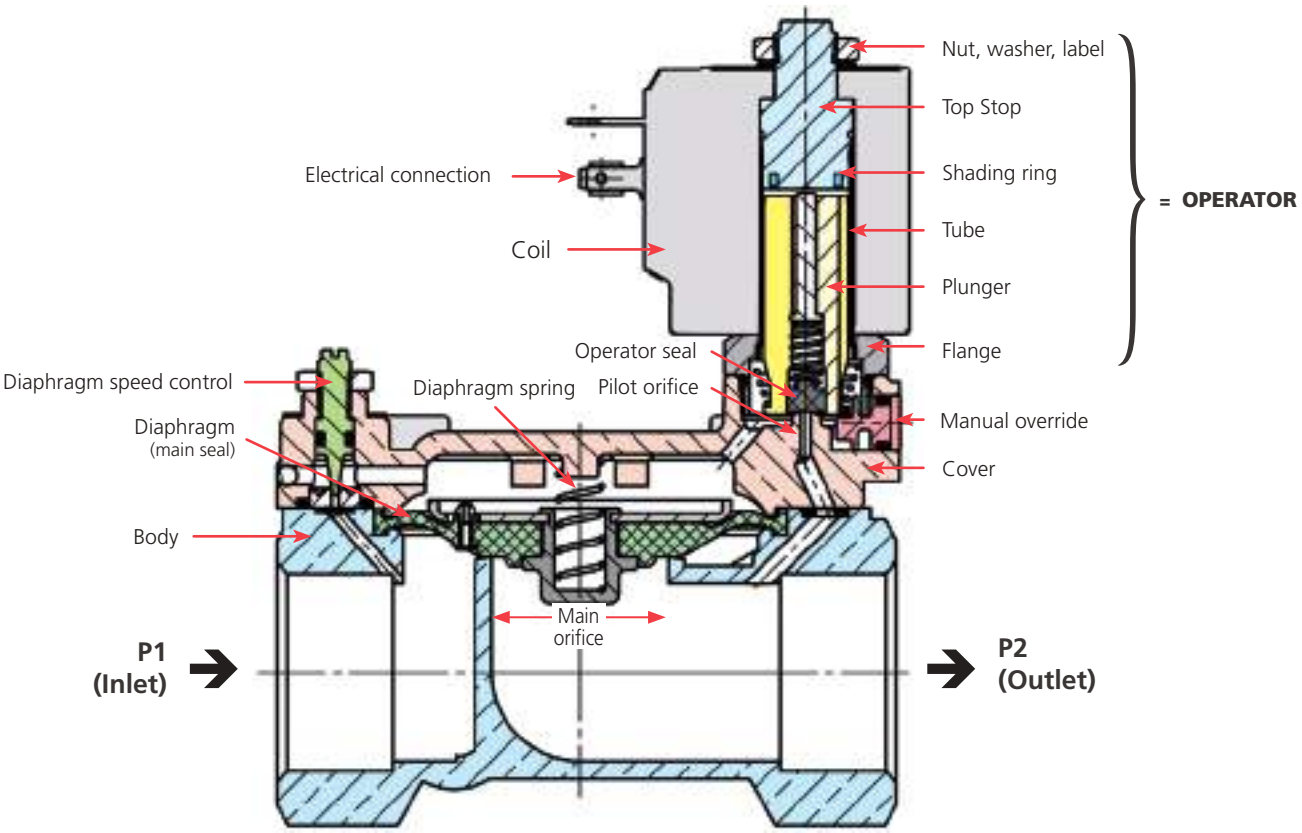
Waterhammer Control

Pilot operated solenoid valves (only versions specified in each datasheet) can be supplied with a system that regulates the closing speed of the diaphragm in order to control waterhammer.

The seal closing speed is operated by the adjusting screw: by screwing it clockwise (in the "+" direction) when using liquid, the valve will close slower reducing any waterhammer effect that may occur in the solenoid valve and the upstream pipes.

In the case of larger valves (1¼", 1½" and 2"), please adjust the anti-waterhammer screw to ensure that that valve closes as slowly as possible in order to avoid causing any damage that may affect the functioning of the equipment and valve due to the waterhammer effect.

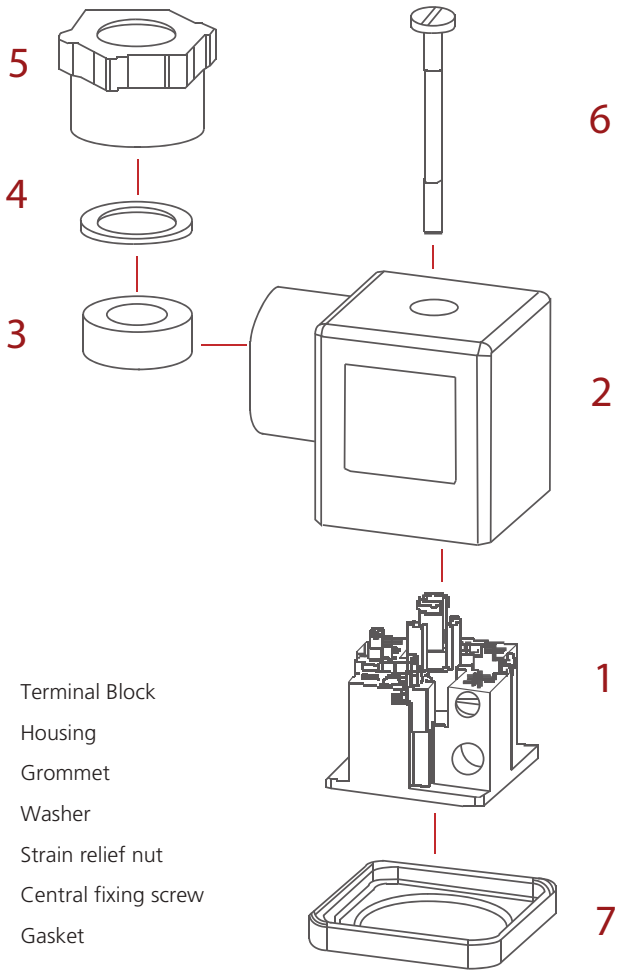
Scheme of Components of Solenoid Valves



Din Plug Connectors

Features

- Dust and splash proof protected (IEC60529-IP65)
- Impact resistant plastic housing.
- Easy to install cable harness.
- Optional integrated electronic circuit, optional indicator LED with or without rectifiers etc.
- Retained central fixing screw.
- Special versions on request.



1. Terminal Block
2. Housing
3. Grommet
4. Washer
5. Strain relief nut
6. Central fixing screw
7. Gasket

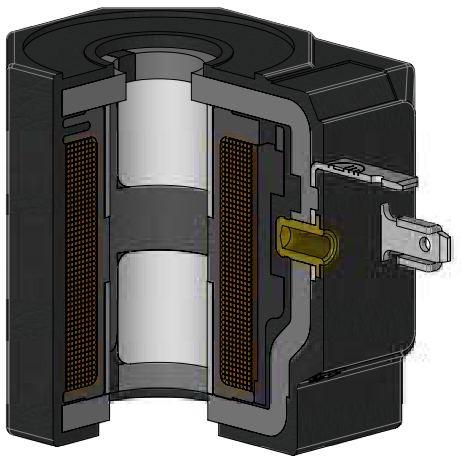
Copper Winding Temperature Classification

Insulation systems are arranged in order of their insulation level and classified by a letter symbol or by a numerical value.

The numerical value relates to the temperature classification of the insulation system.

The temperature classification indicates the maximum (hotspot) temperature at which the insulation system can be operated for normal expected service life.

In general, all materials used in a given insulation system should be rated for temperatures equal to, or exceeding, the temperature classification of the system.



Insulation Systems*	Temperature Classification
Class A Class 105	105 °C 221 °F
Class E** Class 120	120 °C 248 °F
Class B Class 130	130 °C 266 °F
Class F Class 155	155 °C 311 °F
Class H Class 180	180 °C 356 °F
Class N Class 200	200 °C 392 °F

* IEEE Std.117.

** Used in European equipment.

Solenoid Enclosures (Safe Area)

Series 2000 & 7000

Coils manufactured by Rotork Instruments are designed for continuous duty in conformity to the EN 60730 safety standards. They are encapsulated in a self-extinguishing synthetic material and offer high mechanical protection and excellent thermal dissipation. They are fully interchangeable on all Rotork Instruments solenoid valves, thereby reducing warehouse inventories.

SERIES: 2000

SERIES: 7000

Common Features

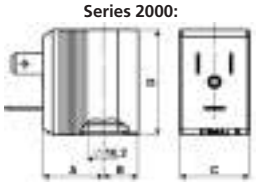
Electrical connection: fast on connection 6,3x0,8
Protection class: IP 65 (according to EN60529) - NEMA 4 (UL 50) with connector and gasket
Operation: continuous (ED 100%)
Voltage tolerance: AC +10% ÷ -15%
DC +10% ÷ -5%

Notes

All coils manufactured by Rotork Instruments with the RoHS Directive (2011/65/EU)
Insulation class according to EN 60730-1 see the below table
All windings are realised with class 'H' wires (180 °C)
Custom voltages and low power consumption available: please contact Sales Department
Minimum batch quantity required for some voltage ratings

Dimensions & Weights		Series 2000	Series 7000
A	(mm)	19.5	25
B	(mm)	11.2	16
C	(mm)	22.3	32
D	(mm)	33.7	41.4
Weight	(kg)	0.060	0.146

Series 2000:



Series 7000:

Coils	Voltage	Power		Class	Ambient Temperature		Media Temperature[1]		
Code	-	Holding	Inrush	-	Min.	Max.	Min.	Max.	
215<u>0</u>	12 VDC	7 W	—	F 155 °C	-10 °C	+50 °C	-10 °C	+130 °C	**Series 2000 - Standard** Connection: to DIN 46244
225<u>0</u>	24 VDC	7 W	—						
275<u>0</u>	230 VDC	7 W	—						
210<u>0</u>	12 V / 50/60 Hz	10 VA	16 VA						
220<u>0</u>	24 V / 50/60 Hz	10 VA	16 VA						
230<u>0</u>	48 V / 50/60 Hz	10 VA	16 VA						
240<u>0</u>	110 V / 50 Hz - 120 V / 60 Hz	10 VA	16 VA						
260<u>0</u>	200 V / 50 Hz - 220 V / 60 Hz	10 VA	16 VA						
270<u>0</u>	230 V / 50 Hz - 240 V / 60 Hz	10 VA	16 VA						
215<u>R</u>	12 VDC	6 W	—	F 155 °C	-10 °C	+60 °C	-10 °C	+130 °C	**Series 200<u>R</u> - UL approved** UL approved coils recognized component, file number E193928
225<u>R</u>	24 VDC	6 W	—						
220<u>R</u>	24 V / 50 Hz	9 VA	14 VA						
226<u>R</u>	24 V / 60 Hz	9 VA	14 VA						
240<u>R</u>	110 V / 50 Hz - 120 V / 60 Hz	9 VA	14 VA						
270<u>R</u>	230 V / 50 Hz - 240 V / 60 Hz	9 VA	14 VA						
<u>B</u>150	12 VDC	7 W	—	F 155 °C	-10 °C	+50 °C	-10 °C	+130 °C	**Series B000 - Impregnated** Impregnated coils for humid environments (e.g code B400)
<u>B</u>250	24 VDC	7 W	—						
<u>B</u>200	24 V / 50/60 Hz	10 VA	16 VA						
<u>B</u>400	110 V / 50 Hz - 120 V / 60 Hz	10 VA	16 VA						
<u>B</u>700	230 V / 50 Hz - 240 V / 60 Hz	10 VA	16 VA						
21V<u>1</u>	12 VDC	10 W	—	H 180 °C	-10 °C	+70 °C	-10 °C	+130 °C	**Series 2001 - Class 'H'**
22V<u>1</u>	24 VDC	10 W	—						

[1] Some valve configurations allow a max. fluid temperature up to 180 °C, please check valve datasheets.

Solenoid Enclosures (Safe Area)

Coils	Voltage	Power		Class	Ambient Temperature		Media Temperature[1]	
Code	-	Holding	Inrush	-	Min.	Max.	Min.	Max.
715Q	12 VDC	14 W	—	F 155 °C	-10 °C	+50 °C	-10 °C	+130 °C
725Q	24 VDC	14 W	—					
775Q	230 VDC	14 W	—					
710Q	12 V / 50/60 Hz	18 VA	36 VA					
720Q	24 V / 50/60 Hz	18 VA	36 VA					
730Q	48 V / 50/60 Hz	18 VA	36 VA					
740Q	110 V / 50 Hz - 120 V / 60 Hz	18 VA	36 VA					
760Q	200 V / 50 Hz - 220 V / 60 Hz	18 VA	36 VA					
770Q	230 V / 50 Hz - 240 V / 60 Hz	18 VA	36 VA					
725R	24 VDC	10 W	—	F 155 °C	-10 °C	+60 °C	-10 °C	+130 °C
720R	24 V / 50 Hz	15 VA	30 VA					
740R	110 V / 50 Hz - 120 V / 60 Hz	15 VA	30 VA					
770R	230 V / 50 Hz - 240 V / 60 Hz	15 VA	30 VA					
7251	24 VDC	14 W	—	H 180 °C	-10 °C	+70 °C	-10 °C	+130 °C
7201	24 V / 50/60 Hz	18 VA	36 VA					
7401	110 V / 50 Hz - 120 V / 60 Hz	18 VA	36 VA					
7701	230 V / 50 Hz - 24 V / 60 Hz	18 VA	36 VA					
71Z1	12 VDC	22 W	—	H 180 °C	-10 °C	+70 °C	-10 °C	+130 °C
72Z1	24 VDC	22 W	—					
72K1	24 V / 50/60 Hz	25 VA	50 VA					
74K1	110 V / 50 Hz - 120 V / 60 Hz	25 VA	50 VA					
77K1	230 V / 50 Hz - 240 V / 60 Hz	25 VA	50 VA					

[1] Some valve configurations allow a max. fluid temperature up to 180 °C, please check valve datasheets.

Series 7000 - Standard

Connection: to DIN EN 175301-803 form A (ex DIN 43650-A)

OPTIONS

Impregnated coils for humid environments (e.g. code D400)

Series 700R - UL approved

UL approved coils recognized component, file number E193928

Series 7001 - Class 'H'

OPTIONS

Impregnated coils for humid environments (e.g. code D701)

Series 7000 - High Power

OPTIONS

Impregnated coils for humid environments (e.g. code D7K1)

Solenoid Enclosures (Safe Area)

Type : E5, S50, S4, S7

E5 Type Enclosure **Protection Class IP65** External Material: Glass reinforced nylon Electrical Connection: DIN Plug to ISO 4400 Winding insulation Class H Enclosure conforms to IP65 when correct plug gasket is fitted as supplied. Standard enclosure for most popular Alcon valves.	
S50 Type Enclosure **Protection Class IP65** Material: Pressed steel Electrical Connection: DIN Plug to ISO 4400 Winding insulation Class H This enclosure conforms to IP65 when correct plug seal gasket is fitted Enclosure for the following types: ACHL, FACHL, GB8.	
S4 Type Enclosure **Protection Class IP50** External Material: Pressed steel Powder Coated Electrical Entry: Conduit boss 20 mm or ½" NPT Electrical Connection: Screwed terminals or 0.5 mm flying leads, or DIN connector for cryogenic applications Winding insulation Class H Optional enclosure for the following types: ACD, ACDN, GB.	
S7 Type Enclosure **Protection Class IP65** Material: Nylon Electrical Connection: DIN Plug to ISO 4400 Standard Enclosure for Universal Namur Valves Winding insulation Class F This enclosure conforms to IP65 when correct plug seal gasket is fitted as supplied.	

Solenoid Enclosures (Hazardous Area)

Explosion-proof / Weatherproof

Enclosure S4 Type Exd ATEX or IECEx / CSA / cCSAus approved.

Intended for use in potentially explosive atmospheres Directive 2014/34/EU.

Compliance with essential health and safety requirements EN60529 (IP67), EN60079-1 and EN60079-0

Features

- Special purpose solenoid valves are used for controlling gases or liquids where a potentially explosive gas/air mixture is present in the atmosphere for long periods or likely to occur in normal operation
- Alcon flameproof enclosures are suitable for hazardous areas Zone 1 and Zone 2, for the control of Group IIA, IIB, IIC gases.

Application

- Valves configured for Hazardous Areas
- User to consult all applicable codes, such as N.E.C., EU directive 99/92/EC, for definitions, performance and safety requirements associated with Hazardous Area Classification, Apparatus Group, Zones, Division and Temperature Classification

Protection Class:	II 2 G Exd IIC T6 for ambient temperatures -50 °C to +40 °C
Optional:	II 2 G Exd IIC T4 for ambient temperatures -50 °C to +70 °C
Certificate No:	Sira 03ATEX1319 (ATEX) IECEx CSA 07.0002 1676463 (CSA cCSAus)

Weatherproof to IP67

Technical Specification

Power Consumption:	Holding – 19 VA, 12 V to 230 V 50 / 60 Hz. 14.5 W 12 V to 212 VDC
Material:	Powder coated Aluminium or 316 St. St enclosure with St. St nameplate
Electrical Entry:	M20 x 1.5 or ½"NPT Conduit Entry
	Applicable to the following types: ACD, ACP, GB, FACHL, NAMUR

Explosion-proof / Weatherproof

Enclosure S4 Type Exd ATEX or IECEx approved

Intended for use in potentially explosive atmospheres Directive 2014/34/EU

Compliance with essential health and safety requirements EN60079-0 and EN60079-18

Features

- Special purpose solenoid valves are used for controlling gases or liquids where a potentially explosive gas/air mixture is present in the atmosphere for long periods or likely to occur in normal operation
- Alcon flameproof enclosures are suitable for hazardous areas Zone 1 and Zone 2, for the control of Group II gases.

Application

- Valves configured for Hazardous Areas
- User to consult all applicable codes, such as N.E.C., EU directive 99/92/EC, for definitions, performance and safety requirements associated with Hazardous Area Classification, Apparatus Group, Zones, Division and Temperature Classification
- Applicable to all catalogue valves except HWA.

Protection Class:	II 2 G Exm II T5 for ambient temperatures -20 °C to +40 °C

Hazardous area certificates:

Baseefa06ATEX0302X (ATEX)

IECEx BAS06.0080X

Weatherproof to IP65

Technical Specification

Power Consumption:	Holding – 16 VA, 12 V to 230 V 50 / 60 Hz. 10 W, 12, 24 VDC
Material:	Powder coated metal enclosure with stainless steel nameplate
Electrical Entry:	2 metre length of approved 3 Core cable with M16 conduit male winding insulation class.
	Applicable to the following types: ACD, ACP, GB, FACHL (24 VDC)

Solenoid Enclosures (Hazardous Area)

Intrinsically Safe Enclosures (ATEX approved)

Complies with EN60079-0 and EN60079-11

Protection Class:	Exia IIC T6, ATEX approved for ambient temperatures -40 °C to + 50 °C

Maximum valve media temperature of 70 °C

Certificate No:	PTB 02 ATEX 2154

Weatherproof to IP65

Technical Specification

Winding insulation:	Class F
Rated Voltage:	24 VDC with typical 300 ohm zener barrier
Max Power Consumption:	Exia 1.6 watts DC
Material:	Thermoset resin
Electrical Entry:	PG9 via Din Plug Connector Din 43650-A

Applicable to the following types: UNIVERSAL NAMUR

Explosion-proof / Weatherproof

Protection Class:	EEx m II 2GD T4
Certificate No:	PTB 03 ATEX 2086 X, IECEx PTB 05.0005X

Weatherproof to IP65

Technical Specification

Winding insulation:	Class F
Material:	Thermoplastic
Electrical Entry:	3 m wired cable, with ferrules.

Applicable to the following valve types: N2, N3.

Protection Class, IP Ratings & Hazardous Areas

Enclosure Protection - Non Hazardous locations, Comparison of American Nema classification & European CENELEC IP classification

Nema type & relevant tests	Description	Equivalent degree of protection
1	General purpose - indoor	IP30
2	Drip proof - indoor	IP32
3	Dust and rain tight - outdoor	IP54
3R	Rain proof - outdoor	IP54
4	Water tight and dust tight - indoor and outdoor	IP65
4X	Water tight, dust tight and corrosion resistant - indoor and outdoor	IP65
6	Submersible, water tight and dust tight - indoor and outdoor	IP67
12	Industrial use, dust tight and drip proof - indoor	IP52
13	Oil tight and dust tight - indoor	IP55

IP No.	First number - protection again solids	Second number - protection against liquids
0	No protection	No protection
1	Protected against solid objects over 50 mm Ø	Protected against vertically falling drops of water
2	Protected against solid objects over 12 mm Ø	Protected against direct sprays up to 15° from vertical
3	Protected against solid objects over 2.5 mm Ø	Protected against direct sprays up to 60° from vertical
4	Protected against solid objects over 1 mm Ø	Protected against direct sprays from all directions limited ingress permitted.
5	Protected against dust - limited ingress permitted	Protected against low pressure jets from all directions limited ingress permitted
6	Totally protected against dust	Protected against strong jets from all directions limited ingress permitted
7		Protected against effects of immersion from 15 cm - 1m
8		Protected against long periods of immersion under pressure

International Standards - Temperature classification

IEC 79-8 & CENELEC		Amercian NEC	
Class	Max. surface temp (°C)	Class	Max. surface temp (°C)
T1	450	T1	450
T2	300	T2	300
		T2A	280
		T2B	260
		T2C	230
		T2D	215
T3	200	T3	200
		T3B	165
		T3C	160
T4	135	T4	135
		T4A	120
T5	100	T5	100
T6	85	T6	85

Zones & divisions - Define the likelihood of the hazard being present in potentially explosive concentrations

UK / CENELEC / IEC		USA & CANADA	
Hazard continuously present (>1000 hrs / year)	Zone 0	Division 1	Hazard likely to be present: N.B. where the hazard is continuously present, electrcial apparatus is avoided if possible.
Hazard likely to be present	Zone 1		
Hazard unlikely to be present: typically only for short periods or under fault conditions (<10 Hrs/year)	Zone 2	Division 2	Hazard unlikely to be present - likely to be confined. An area adjacent to a Division 1 area.
Fully defined in BS5345 and IEC 79-10 (Guideline figures)			Fully described in Article 500 of the National Electrical Code.

Conversions

Capacity & flow rate

Multiply number of / by / to obtain	m^3/h	l/s	l/m	m^3/s (cumec)	UK gpm	US gpm	ft^3/s (cusec)	Water	
								UK ton/h	tonne/h
1 m^3/h	1	0.278	16.66	0.000278	3.666	4.4	0.00981	0.982	1
1 l/s	3.6	1	60	0.001	13.2	15.83	0.00353	3.528	3.6
1 l/m	0.06	0.0167	1	1.66 x 10-5	0.2199	0.264	0.000588	0.059	0.06
1 m^3/s	3600	1000	60,000	1	13,200	15,800	35,315	3532	3600
1 UK gpm	0.272	0.0757	4.546	0.000757	1	1.2	0.002267	0.268	0.272
1 US gpm	0.227	0.0632	3.785	0.000063	0.833	1	0.00223	0.223	0.227
1 ft^3/s	101.9	28.32	1698	0.0283	374	449	1	100	101.9
1 UK ton/h	1.02	0.283	17	0.000283	3.73	4.48	0.01	1	1.02
1 tonne/h	1.005	0.278	16.7	0.000278	3.666	4.41	0.0098	0.98	1

Volumetric rate of flow

Multiply number of / by / to obtain	Litres per sec	Litres per minute	Cubic metres per hour	Cubic Ft per hour	Cubic Ft per min	Imperial Gallons per min	U.S. Gallons per min	U.S. Barrels per day
Litres per sec	1	60	3.6	127.1	21.19	13.2	15.85	543.4
Litres per min	0.1667	1	0.06	2.119	0.03532	0.22	0.2642	9.057
Cubic metres per hour	0.2778	16.67	1	35.31	0.5886	3.666	4.403	150.9
Cubic Feet per hour	0.007865	0.4719	0.02832	1	0.01667	0.1038	0.1247	4.275
Cubic Feet per min	0.4719	28.32	1.6999	60	1	6.229	7.481	256.5
Imperial Gallons per min	0.07577	4.546	0.2727	9.633	0.1606	1	1.201	41.17
U.S. Gallons per min	0.06309	3.785	0.2271	8.021	0.1337	0.8327	1	34.29
U.S. Barrels per day	0.00184	0.1104	0.0006624	0.2339	0.0003899	0.02428	0.02917	1

1 MGD = 189.4 m^3/h 1 scfm = 1.699 Nm^3/h

Temperature

To convert from	To Fahrenheit	To Celcius	To Kelvin
Fahrenheit (F)	F	(F-32) * 5/9	(F-32) * 5/9 + 273.15
Celcius (C)	(C*9/5) + 32	C	C + 273.16
Kelvin (K)	(K - 273.15) * 9/5 + 32	K - 273.15	K

Pressure

Multiply number of / by / to obtain	bar	Psi (lbf/in^2)	Cm water (39.2 °F, 4 °C)	Inch of water (39.2 °F, 4 °C)	Foot of water (39.2 °F, 4 °C)	Kilopascal (kPa)
Bar	1	14.503 77	1019.74	401.474	33.456 2	100
Psi (lbf/in2)	0.068 947 57	1	70.308 9	27.680 7	2.306 73	6.894 757
Cm water (39.2 °F, 4 °C)	0.000 980 638	0.014 223 0	1	0.393 701	0.032 808 4	0.098 063 8
Inch of water (39.2 °F, 4 °C)	0.002 490 82	0.036 123 3	2.54	1	0.083 333 4	0.249 082
Foot of water (39.2 °F, 4 °C)	0.029 889 8	0.433 515	30.48	12.021 3	1	2988 98
Kilopascal (kPa)	0.01	0.145 037 7	10.197 4	4.014 74	0.334 562	1

Corrosion Reference Guide

This chart is for general recommendation only. When ordering valves for corrosive duty application details are to be given, particularly media, % concentration, temperature and ambient temperature. For additional support please contact us.

	Valve Body					Seals				Notes
Material	Alum	Brass	Brz	CI	Stainless	NBR	EPDM	FKM	PTFE	
Acetic Acid 10%	NR	NR	NR	NR	•	NR	•	NR	•	1
Acetone	•	•	•	•	•	NR	•	NR	•	
Acetylene	NR	•	•	NR	•	NR	•	•	•	1
Air	•	•	•	•	•	•	•	•	•	
Ammonia Gas Anhydrous 20%	NR	NR	NR	•	•	NR	•	NR	•	
Argon Gas	•	•	•	NR	•	NR	•	•	•	
Beer	NR	NR	NR	NR	•	•	•	•	NR	
Benzene	•	•	•	NR	•	NR	NR	•	•	
Bromine (Liquid)	NR	NR	NR	NR	NR	NR	NR	•	NR	1
Butane	•	•	•	•	•	•	NR	•	•	
Carbon Dioxide (Gas)	•.	•.	•	•	•	•	•	•	•	
Carbon Dioxide (Liquid)	NR	NR	NR	NR	•	NR	NR	NR	•	
Carbon Tetrachloride (Dry)	NR	•	•	NR	•	NR	NR	•	•	
Carbonated Water	NR	NR	NR	NR	•	•	•	NR	•	
Caustic Soda 30%	NR	NR	NR	NR	•	NR	•	NR	•	
Chrome Acid 20% - 20C	NR	NR	NR	NR	•	NR	NR	•	•	
Chlorine Gas (Dry)	NR	NR	NR	NR	NR	NR	NR	•	•	1
Chlorine Liquid	NR	NR	NR	NR	NR	NR	NR	•	•	1
Chlorine in Water	NR	•	•	NR	•	•	•	NR	•	2
Coke Oven Gas	•	NR	NR	•	•	•	NR	NR	•	
Coolant	NR	•	•	NR	•	•	NR	•	•	
Creosote	•	NR	NR	NR	•	NR	NR	•	•	
Crude Oil	•	NR	NR	NR	•	•	NR	•	•	
De-ionized Water	NR	NR	NR	NR	•	•	•	•	•	
De-mineralised Water	NR	NR	NR	NR	•	•	•	•	•	
Detergents	NR	•	•	NR	•	•	•	•	•	
Diesel Oil	•	•	•	.	•	•	NR	•	•	
Distilled Water	NR	•	•	NR	•	•	•	•	•	
Ethyl Alchohol	NR	•	•	NR	•	•	•	•	•	
Ethylene Glycol	•	•	•	NR	•	•.	•	•	•	
Ethylene Oxide	NR	NR	NR	NR	•	NR	NR	NR	NR	1
Food Products	NR	NR	NR	NR	•	•	NR	•	NR	
Freon 12	NR	•	•	•	•	NR	NR	NR	•	
Freon 22	NR	NR	NR	NR	•	NR	NR	NR	•	
Freon Solvents	NR	•	•	NR	•	•	NR	NR	•	
Fuel Oil	•	•	•	NR	•	•	NR	•	•	
Gasoline	NR	•	•	NR	•	NR	NR	•	•	
Helium	•	•	•	NR	•	•	•	•	•	
Hydraulic Fluids	NR	•	•	NR	•	NR	NR	•	•	
Hydrochloric Acid	NR	NR	NR	NR	NR	NR	NR	NR	•	1
Hydrogen Gas	•	•	•	•	•	•	•	•	•	3
Hydrogen Sulphide (dry)	NR	NR	NR	NR	•	NR	•	•	•	
Jet Fuel	•	NR	NR	NR	•	•	NR	•	•	
Kerosene	•	•	•	•	•	•	NR	•	•	

Notes:

1. Non-standard materials of construction are required.
2. Chlorine must not exceed 5 parts per million.
3. We are required to provide industry standard degreasing, cleaning and individual packaging with appropriate label.

• = Recommended
NR = Not Recommended

Corrosion Reference Guide

This chart is for general recommendation only. When ordering valves for corrosive duty application details are to be given, particularly media, % concentration, temperature and ambient temperature. For additional support please contact us.

	Valve Body					Seals				Notes
Material	Alum	Brass	Brz	CI	Stainless	NBR	EPDM	FKM	PTFE	
LPG	•	•	•	NR	•	•	NR	•	•	
Lubricating Oil	•	•	•	•	•	NR	•	•	•	
Methane Gas	•	•	•	•	•	•	NR	•	•	
Methyl Alcohol	NR	•	•	•	•	•	•	•	•	
Mineral Oil	•	•	•	•	•	•	NR	•	•	
Natural Gas	•	•	•	•	•	•	•	•	•	
Natural Gas Liquid	NR	•	•	NR	•	NR	NR	NR	•	3
Nitric Acid 50% 20C	NR	NR	NR	NR	•	NR	NR	•	•	
Nitrogen gas	•	•	•	•	•	•	•	•	•	
Nitrogen Liquid	NR	•	•	NR	•	NR	NR	NR	•	3
Nitrous Oxide	NR	NR	NR	NR	•	NR	•	NR	•	
Oxygen Gas	NR	•	•	NR	•	NR	NR	•	•	3
Oxygen Liquid	•	•	•	NR	•	NR	NR	NR	•	3
Paraffin	•	•	•	NR	•	•	•	•	•	
Perchlcrenthylene 20C	NR	•	•	NR	•	NR	NR	•	•	
Phosperic Acid 30%	NR	NR	NR	•	NR	NR	•	•	•	1
Photographic solution	NR	NR	NR	NR	NR	NR	NR	NR	•	1
Potable water	NR	•	•	NR	•	•	•	•	•	
Potassium Sulphate	NR	NR	NR	•	•	•	•	•	•	
Propane	•	•	•	NR	•	•	NR	•	•	
Salt Water	NR	NR	•	NR	•	•	•	•	•	1
Sea Water	NR	NR	•	NR	•	•	•	•	•	1
Soapy Water	NR	•	•	NR	•	•	NR	•	•	
Sodium Hydroxide 70%	NR	NR	NR	NR	•	NR	•	•	•	
Sodium Hypochorite 5%	NR	NR	NR	NR	•	NR	•	•	•	
Steam 0 - 50 psi	NR	•	•	NR	•	NR	•	NR	•	
Steam 0 - 125 psi	NR	•	•	NR	•	NR	NR	NR	•	
Steam Condensate	NR	•	•	NR	•	NR	•	NR	•	
Sulphur Dioxide	NR	NR	NR	NR	•	NR	•	NR	•	
Sulphuric Acid 40%	NR	NR	NR	NR	NR	•	•	•	•	1
Sulphurous Acid 5% - 20C	NR	NR	NR	NR	NR	NR	NR	•	•	1
Toluene	•	•	•	NR	•	NR	NR	NR	•	
Town Gas	•	•	•	•	•	•	NR	•	•	
Trichlorethylene (Dry)	NR	NR	NR	NR	•	NR	NR	•	•	
Turpentine	•	•	•	NR	•	•	NR	•	•	
Vegetable Oil	NR	NR	NR	NR	•	•	NR	•	•	
Vinegar	NR	NR	NR	NR	•	NR	•	NR	•	1
Water (mains)	NR	•	•	•	•	•	•	•	•	
Water 80 - 120 °C	NR	•	•	NR	•	NR	•	•	•	
Water 120 - 150 °C	NR	•	•	NR	•	NR	NR	•	•	
Water 150 - 180 °C	NR	•	•	NR	•	NR	NR	NR	•	
Water boiler feed	NR	NR	NR	NR	•	•	•	NR	•	
Water/Glycol Solutions	NR	•	•	NR	•	NR	•	•	•	
White Spirit	•	•	•	•	•	NR	NR	•	•	

Notes:

1. Non-standard materials of construction are required.
2. Chlorine must not exceed 5 parts per million.
3. We are required to provide industry standard degreasing, cleaning and individual packaging with appropriate label.

• = Recommended
NR = Not Recommended

Viscosity Reference Guide

Redwood 1 (Seconds)	Redwood 11 (Seconds)	Saybolt Universal SSU (Seconds)	Saybolt Fural (Seconds)	Engler (Degrees)	Kinematic (Centistrokes)
30	-	-	-	1.05	1.5
32	-	34	-	1.15	2.5
34	-	37	-	1.25	3.4
36	-	40	-	1.3	4.2
38	-	42	-	1.4	5
40	-	45	-	1.45	5.7
45	-	50	-	1.6	7.5
50	-	57	-	1.8	9.4
55	-	62	-	1.9	11
60	-	68	-	2.1	12.6
65	-	74	-	2.2	14.2
70	-	79	-	2.4	15.5
75	-	85	-	2.6	17
80	-	92	-	2.7	18.6
85	-	98	-	2.9	20
90	-	103	-	3	21.3
95	-	109	-	3.2	22.8
100	-	115	15	3.4	24.1
110	-	125	16	3.7	26.7
120	-	137	17	4	29.2
130	-	148	18	4.3	31.7
140	-	160	20	4.6	34.2
150	-	171	21	4.9	36.8
160	-	183	22	5.2	39
180	-	205	24	5.9	44
200	-	228	26	6.5	49
225	-	256	28	7.3	55
250	-	285	31	8.1	62
275	-	313	34	8.9	68
300	-	342	37	9.8	74
325	34	370	40	10.6	80
350	36	399	42	11.4	86
375	38	428	45	12.2	93
400	41	456	48	13	99
450	46	513	53	14.7	111
500	51	570	59	16.3	124
550	56	628	65	17.9	136
600	61	684	71	19.5	148
700	71	799	82	22.8	173
800	81	912	94	26.1	198
900	91	1025	105	29.3	222
1000	100	1142	117	32.6	247
1100	110	1257	128	35.9	272
1200	120	1368	140	39	296
1400	140	1599	163	46	346
1600	160	1825	186	52	395

Viscosity Reference Guide

Redwood 1 (Seconds)	Redwood 11 (Seconds)	Saybolt Universal SSU (Seconds)	Saybolt Fural (Seconds)	Engler (Degrees)	Kinematic (Centistrokes)
1800	180	2050	209	59	444
2000	200	2280	232	65	493
2200	220	2510	255	72	534
2400	240	2735	278	78	592
2600	260	2965	302	85	642
2800	280	3190	325	91	691
3000	300	3420	348	98	741
3500	350	3990	406	114	864
4000	400	4560	464	130	987
4500	450	5140	522	147	1112
5000	500	5700	580	163	1235
5500	550	6280	639	179	1359
6000	600	6840	696	195	1482
6500	650	7415	754	212	1605
7000	700	7990	814	228	1730
7500	750	8550	869	244	1850
8000	800	9120	928	261	1957

Quality Standards

Rotork Instruments has a management system certified to ISO 9001, ISO 14001 & OHSAS 18001.

Certifications and approvals

The Ex mark signifies that a product complies with the ATEX Directive 94/9/EC (applicable up to 20th April 2016 but already implemented by Directive 2014/34/EU, effective from 18th April 2014).

The ATEX Directive sets the safety requirements of protection equipment and systems to be used in an environment with a potentially explosive atmosphere.

The Ex mark on a product enables its free movement within the European market (EEA).

Underwriters Laboratories Quality Certificate

The UL Listing mark on a product signifies that the product meets UL's Standards for Safety. The UL Listing mark appears on products and components suitable for factory and field installation.

All of the products carrying a UL Listing mark are covered by UL's Follow-up services program to verify that the products continue to be manufactured in compliance with UL's Safety Requirements.

We manufacture and resell valve coils and timers complying with UL 429 and 746C.

The cURus Listing mark on the products indicates that the compliance is accepted both in USA and Canada.

RoHS

The Restriction of Hazardous Substances Directive (RoHS) 2011/65/EU regards the restriction of the use of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Cr6+), Polybrominated biphenyls (PBB) and Polybrominated diphenyl ether (PBDE) in electrical and electronic equipment sold in the European Union.

RoHs is meant to prevent the release of these substances into the environment and protect the human, animal and environmental health, especially during the waste treatment. The CE mark on a product guarantees the compliance with the RoHS Directive.

European Community Conformity

The CE marking was introduced in 1993 upon establishment of the European Economic Area. It regulates the entire life cycle of a product: design, manufacturing, placing on the market, disposal and enables its free movement within the European market (EEA).

CE marking signifies that the product conforms with the essential applicable EC requirements, such as safety, public health, consumer protection, and gives the product the presumption of conformity.

By affixing the CE mark on a product, manufacturers and importers are declaring, at their sole responsibility, conformity with all of the legal requirements of the Directive. EC directives that apply to our products are:

Machinery directive

EMC Directive

Low Voltage Directive (2006/95/EC)

The directive 97/23/EC concerns safety of pressure bearing equipment.

The directive 2011/65/EU (RoHS) limits the use of dangerous substances in electrical and electronic equipment.

Miscellaneous

Upon request (to be specified at the time of the Purchase Order) we can provide the following inspection documents, which are also related to requirements of the PED Directive 2014/68/EC as additional evidence of the technical requirements of supplies:

For metal parts in stainless steel AISI 316L or 304L the inspection certificate 3.1 according to the standard EN 10204 (this certificate is mandatory only for products in categories above I, see PED 2014/68/EC ANNEX I, art. 4.3).

For all products the Test Report 2.2 according to the standard EN 10204, is relevant for products in category I or SEP.

Notes

rotork®

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A full listing of our worldwide sales and service network is available on our website.

Rotork is a corporate member of the Institute of Asset Management

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