



Keeping the World Flowing
for Future Generations

Solenoid Valves



alcon
SOLENOID VALVES

A rotork® Brand

m&m
international

A rotork® Brand

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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 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 24	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	
D248/249	2/2 N/C	Brass	1/8" & 1/4"	0 to 25	0.09 to 0.27	DA	
D237/238/239	2/2 N/C	Brass	1/4" to 1/2"	0 to 17	0.51 to 1.50	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	
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	1/4" 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	
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	1/4" 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	
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	2nd Service 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	
RD201	2/2 N/O	Brass	Flanged	0 to 55	0.08 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	

Solenoid Valve Selection (cont'd)

	General Purpose	Potable Water	Automation	High Pressure	Compressed Air	Chemical Industry/ Aggressive Fluids	Steam	Vacuum	Combustion	Cryogenic	Actuation	Dry Armature	Atex	Page
●						●								8
●						●								10
●														12
●					●									14
●			●											16
●					●									18
●														20
●														22
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				●										82
				●										84
				●										86
				●										88
●					●									90
●					●									92

Solenoid Valve Selection (cont'd)

Series	Function	Body Material	Pipe Size	OPD ¹	Kv (m ³ /hr)	Type ²	
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	
ACPX	2/2 N/C	See datasheet for options	1/2" to 2"	0.3 to 8.6	4.2 to 21	PO	
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	
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	
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	
67 Series	3/2 Univ	Stainless Steel	1/4" to 1/2"	0 to 10 bar	3 to 4.7	DA	
NAMUR	3/2, 5/2	Aluminium	1/4"	2.5 to 10	0 to 1.2	-	
21 Series Ex	2/2 N/C	See datasheet for options	1/4"	0 to 40	0.10 to 0.60	DA	
ACD Ex	2/2 N/C	See datasheet for options	3/8" to 2"	0 to 14	3 to 26	assisted lift	
ACDN Ex	2/2 N/O	See datasheet for options	3/8" to 2"	0 to 10	3 to 26	assisted lift	
ACP Ex	2/2 N/C	See datasheet for options	1/2" to 2"	0.3 to 10.3	4.2 to 21	PO	
31/33 Series Ex	3/2 N/C / Univ	See datasheet for options	1/4"	0 to 10.6	0.10 to 0.30	-	
NAMUR Ex	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

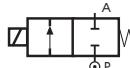
2 DA Direct Acting PO Pilot Operated MR Manual Reset

EH Electro-hydraulic

Solenoid Valve Selection (cont'd)

General Purpose	Potable Water	Automation	High Pressure	Compressed Air	Chemical Industry/ Aggressive Fluids	Steam	Vacuum	Combustion	Cryogenic	Actuation	Dry Armature	Atex	Page
				●									94
				●									96
						●							98
						●							100
						●							102
						●							104
						●							106
						●							108
						●							110
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									●				132
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				●						●			136
											●		138
											●		140
											●		142
											●		144
											●		146
											●		148

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

Specifications	
Function	 Flow direction overset 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 Tube¹	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
- Manufactured 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 (m³/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	B298DV_C
1/8"	0.13	0.11	0 - 18	0 - 8	2.0	FKM	B298DV_E
1/8"	0.19	0.16	0 - 13	0 - 2.5	2.5	FKM	B298DV_G
1/8"	0.25	0.21	0 - 8	0 - 1	3.0	FKM	B298DV_H
1/8"	0.09	0.08	0 - 24	0 - 24	1.5	KALREZ®	B298DK_C
1/8"	0.13	0.11	0 - 18	0 - 15	2.0	KALREZ®	B298DK_E
1/8"	0.19	0.16	0 - 15	0 - 3	2.5	KALREZ®	B298DK_G

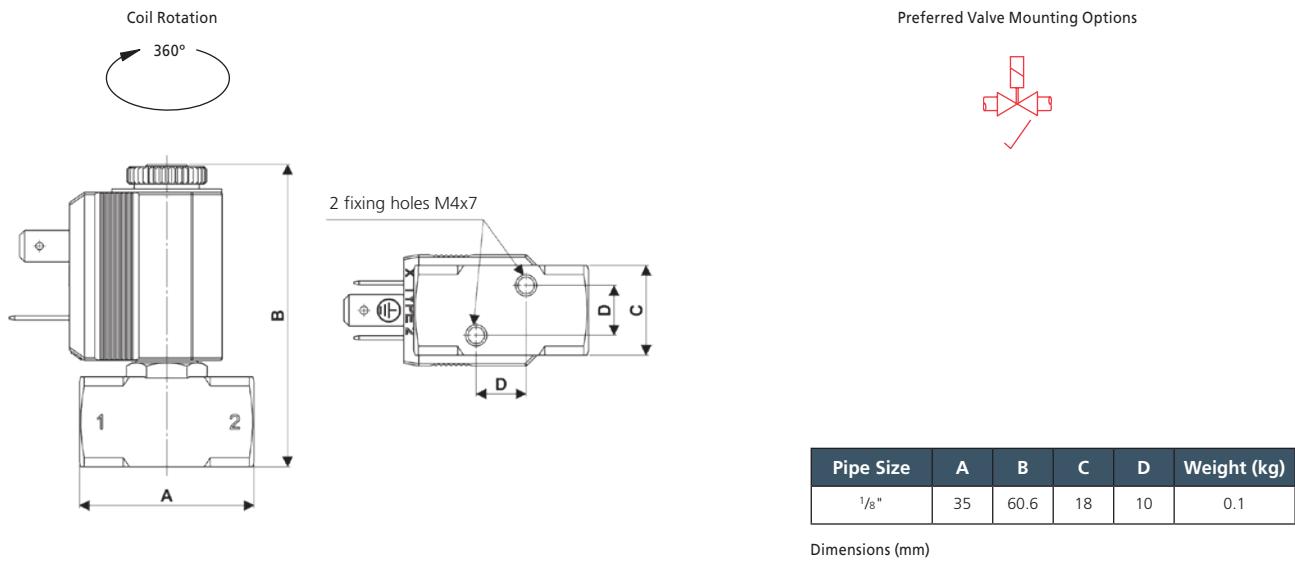
Options Available

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 compatibility.

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



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.

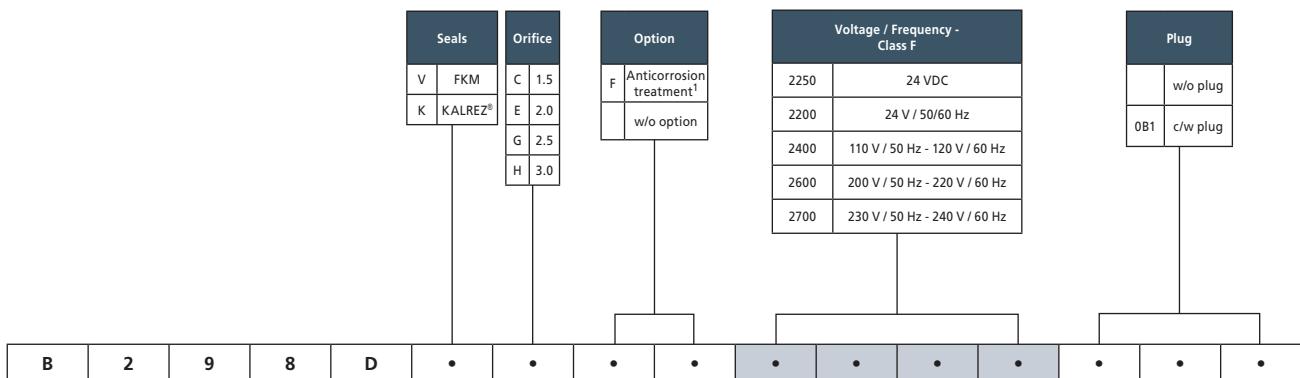
Type 600 001- Plug

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

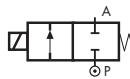


¹ Recommended with aggressive fluids.

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 overset 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Wide range of available orifices
- Response time 5 to 25 ms



Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.08	0.07	0 - 24	0 - 24	1.5	FKM EPDM	D299D <small>V</small> C D299D <small>E</small> C
1/4"	0.23	0.20	0 - 18	0 - 18	2.5	FKM EPDM	D299D <small>V</small> G D299D <small>E</small> G
1/4"	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D299D <small>V</small> H D299D <small>E</small> H
1/4"	0.42	0.36	0 - 10	0 - 5.5	4.0	FKM EPDM	D299D <small>V</small> L D299D <small>E</small> L
1/4"	0.53	0.45	0 - 5	0 - 2.5	5.0	FKM EPDM	D299D <small>V</small> N D299D <small>E</small> N
1/4"	0.16	0.14	0 - 20	0 - 20	2.0	KALREZ®	D299D <small>K</small> E
1/4"	0.23	0.20	0 - 18	0 - 16	2.5	KALREZ®	D299D <small>K</small> G
1/4"	0.32	0.27	0 - 15	0 - 8	3.0	KALREZ®	D299D <small>K</small> H

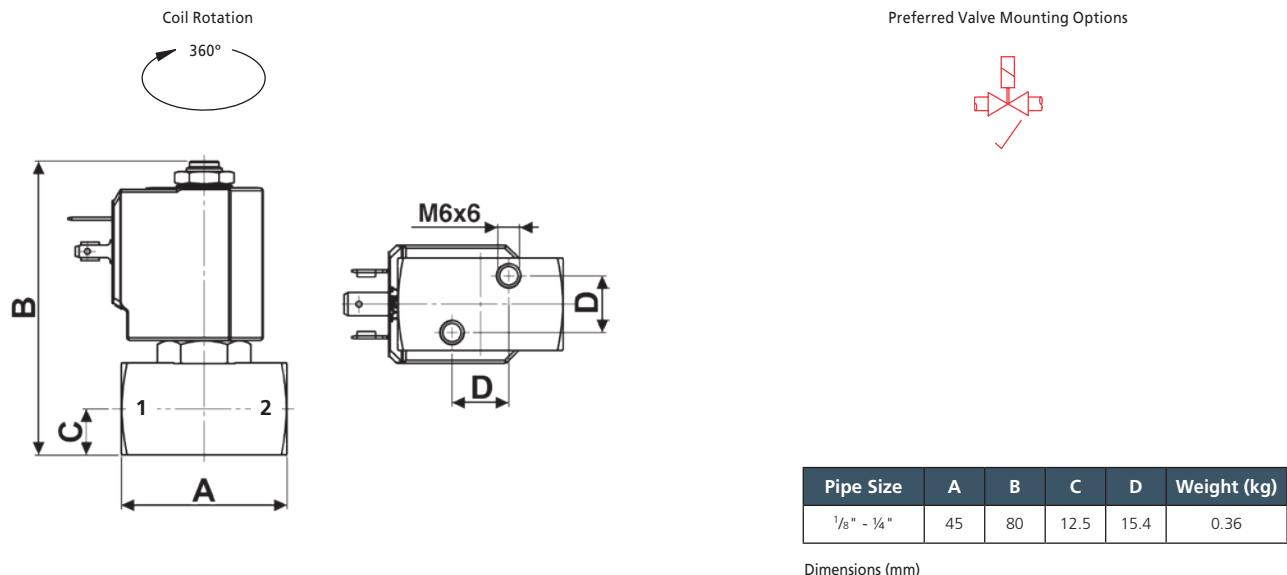
Options Available

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
Kalrez® Spectrum™ (-10 °C to +130 °C)	Chemicals	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.

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



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		Seals		Orifice		Option		Voltage / Frequency - Class F		Plug	
8	1/8"	V	FKM	C	1.5	A	Silver shading ring	7250	24 VDC	0A1	w/o plug
9	1/4"	E	EPDM	E	2.0	F	Anticorrosion treatment ²	7200	24 V / 50/60 Hz		c/w plug
		K	KALREZ®	G	2.5	N	NPT	7400	110 V / 50 Hz - 120 V / 60 Hz		
				H	3.0		w/o option	7600	200 V / 50 Hz - 220 V / 60 Hz		
				L	4.0 ¹			7700	230 V / 50 Hz - 240 V / 60 Hz		
				N	5.0 ¹						
D	2	9	*	D	*	*	*	*	*	*	*

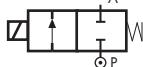
¹ Not available with Kalrez® seals.

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 overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.03	0 - 30	0 - 30	1.0	FKM EPDM	D263DVA D263DEA
1/4"	0.09	0.08	0 - 24	0 - 24	1.5	FKM EPDM	D263DVAC D263DEC
1/4"	0.24	0.20	0 - 18	0 - 16	2.5	FKM EPDM	D263DVAG D263DEG
1/4"	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D263DVWH D263DEH
1/4"	0.42	0.36	0 - 10	0 - 5	4.0	FKM EPDM	D263DVUL ¹ D263DEL ¹
1/4"	0.53	0.45	0 - 5	0 - 2.5	5.0	FKM EPDM	D263DVNL ¹ D263DEN ¹
1/4"	0.56	0.48	0 - 3	0 - 1	6.0	FKM EPDM	D263DVLP 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

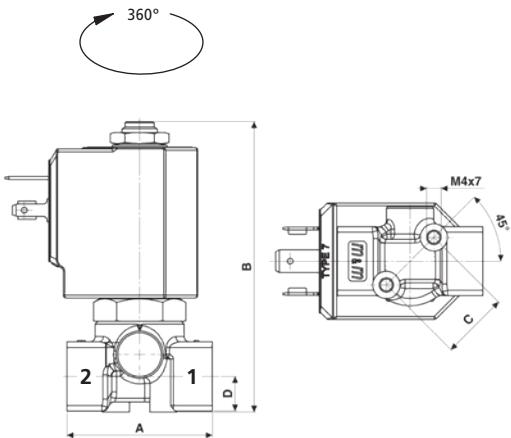
Vacuum Version
See pages 114-115

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 compatibility.

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*



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



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

Coding chart

Main Valve Assembly

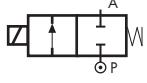
Pipe Size		Seals		Orifice		Option		Voltage / Frequency - Class F		Plug	
2	1/8"	V	FKM	A	1.0	N	NPT	7250	24 VDC	0A1	w/o plug
3	1/4"	E	EPDM	C	1.5	M	Manual Override ¹	7200	24 V / 50/60 Hz		c/w plug
				G	2.5	K	Electroless nickel plating	7400	110 V / 50 Hz - 120 V / 60 Hz		
				H	3.0		w/o option	7600	200 V / 50 Hz - 220 V / 60 Hz		
				L	4.0			7700	230 V / 50 Hz - 240 V / 60 Hz		
				N	5.0						
				P	6.0						
D	2	6	*	D	*	*	*	*	*	*	*

¹ Manual override not available for orifice > 3.0mm.

Product coding example:

D263DVA 7250
 1/4" G, auto operation, brass body, FKM seals, 1.0 mm orifice, 24 VDC, 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.11	0.09	0 - 25	0 - 24	1.7	FKM EPDM	D249DV ¹ D249DED
1/4"	0.17	0.14	0 - 18	0 - 16	2.2	FKM EPDM	D249DV ^F D249DEF
1/4"	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D249DV ^{H¹} D249DEH ¹

¹ Minimum batch may be required.

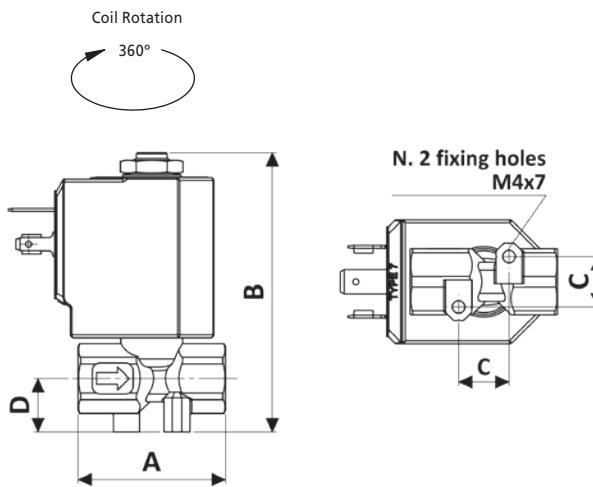
Options Available

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

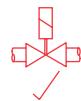
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.

D248/249 Series, Compressed Air – 2/2 Normally Closed



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

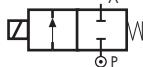
Pipe Size		Seals		Orifice		Option		Voltage / Frequency - Class F		Plug	
8	1/8"	V	FKM	D	1.7	N	NPT	7250	24 VDC	0A1	c/w plug
9	1/4"	E	EPDM	F	2.2		w/o option	7200	24 V / 50/60 Hz		w/o plug
				H	3.0 ¹			7400	110 V / 50 Hz - 120 V / 60 Hz		
								7600	200 V / 50 Hz - 220 V / 60 Hz		
								7700	230 V / 50 Hz - 240 V / 60 Hz		
D	2	4	•	D	•	•	•	•	•	•	•

¹ Minimum batch may be required.

Product coding example:

D249DVF 7700 0A1
 1/4" G, auto operation, brass body, FKM seals, 2.2 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz AC, with plug.

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

Specifications	
Function (single acting)	 Flow direction overset 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 16 - 17).

² Not for D237D-L, D238D-L and D239D-L.

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

Features and Benefits

- Direct Acting
- Robust construction for industrial applications
- Stainless steel AISI 430F operators with low residual magnetism
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.47	1.26	0 - 0.4	0 - 0.2	10.5	FKM EPDM NBR	D237DVU D237DEU D237DBU
5/8"	1.76	1.50	0 - 0.4	0 - 0.2	10.5	FKM EPDM NBR	D238DVU D238DEU D238DBU
1/2"	1.76	1.50	0 - 0.4	0 - 0.2	10.5	FKM EPDM NBR	D239DVU D239DEU D239DBU
3/8"	0.42	0.36	0 - 8	0 - 5	4.0	EPDM NBR	D238DVL ⁴ D238DEL ⁴ D238DBL ⁴
5/8"	0.53	0.45	0 - 5	0 - 2	5.0	FKM EPDM NBR	D238DVN ⁴ D238DEN ⁴ D238DBN ⁴
3/8"	0.60	0.51	0 - 3.5	0 - 1.1	6.0	FKM EPDM NBR	D238DV ^{P4} D238DEP ⁴ D238DBP ⁴
1/2"	0.32	0.27	0 - 17	0 - 12	3.0	FKM EPDM NBR	D239DVH ⁴ D239DEH ⁴ D239DBH ⁴
1/2"	0.42	0.36	0 - 8	0 - 5	4.0	FKM EPDM NBR	D239DVL ⁴ D239DEL ⁴ D239DBL ⁴
1/2"	0.53	0.45	0 - 5	0 - 2	5.0	FKM EPDM NBR	D239DVN ⁴ D239DEN ⁴ D239DBN ⁴
1/2"	0.60	0.51	0 - 3.5	0 - 1.1	6.0	FKM EPDM NBR	D239DV ^{P4} D239DEP ⁴ D239DBP ⁴

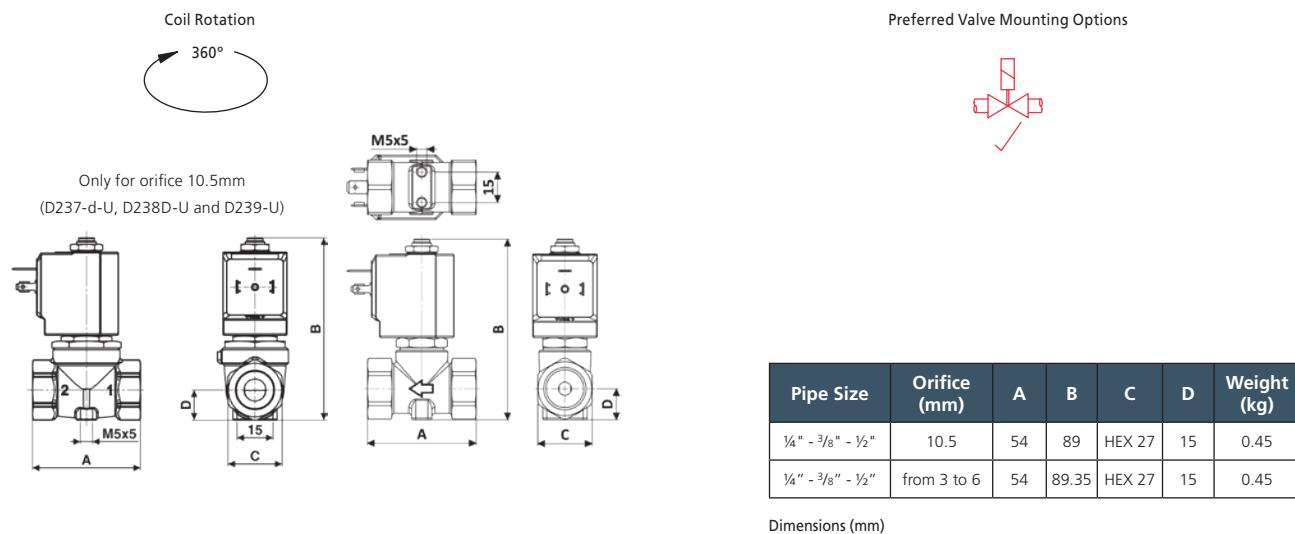
⁴ Same flange tube as D262/263 (on pages 12 - 13) see dimensional drawing on the right.

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 compatibility.

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



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.

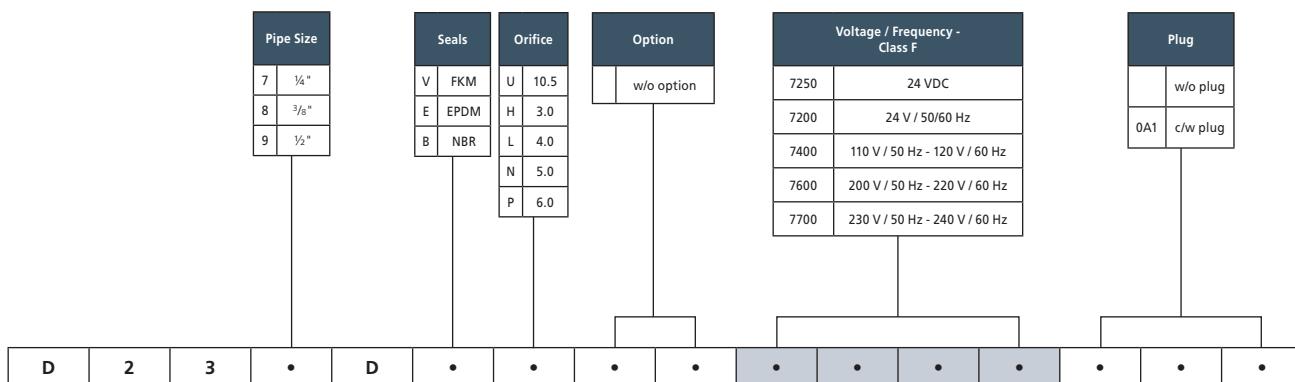
Type 600 011- Plug

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

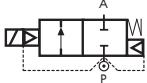
Main Valve Assembly



Product coding example:

D237DVU 7250
1/4" G, auto operation, brass body, FKM seals, 10.5 mm orifice, 24 VDC, without plug.

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

Specifications	
Function (single acting)	 Flow direction overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.47	1.26	0 - 16	0 - 6	10.5	FKM	D884D\u25a1U
3/8"	1.68	1.44				FKM	D885D\u25a1U
1/2"	1.76	1.50				FKM	D886D\u25a1U

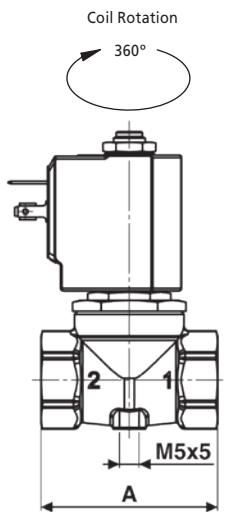
Options Available

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 compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/4"	54	89	HEX 27	15	0.45
3/8" - 1 1/2"	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	1/4"
5	3/8"
6	1/2"

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

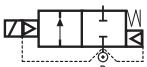
Plug	
	w/o plug
0A1	c/w plug

Product coding example:

D884DVU 7250
 1/4" 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 overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.47	1.26	0.1- 16	0.1- 7	10.5	NBR	D264DBU
3/8"	1.68	1.44				FKM	D264DVU
1/2"	1.76	1.50				EPDM	D264DEU
						NBR	D265DBU
						FKM	D265DVU
						EPDM	D264DEU
						NBR	D266DBU
						FKM	D266DVU
						EPDM	D264DEU

Options Available

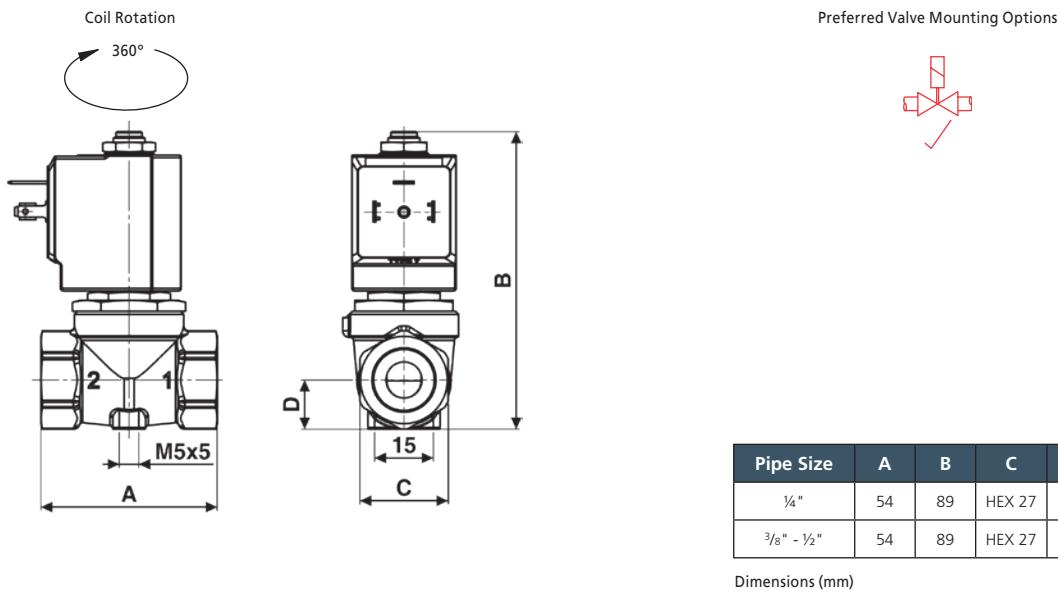
Valve Options (see coding chart)
NPT threads (minimum batch may be required)

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 compatibility.

D264/265/266 Series, General Purpose and Compressed Air

2/2 Normally Closed



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.



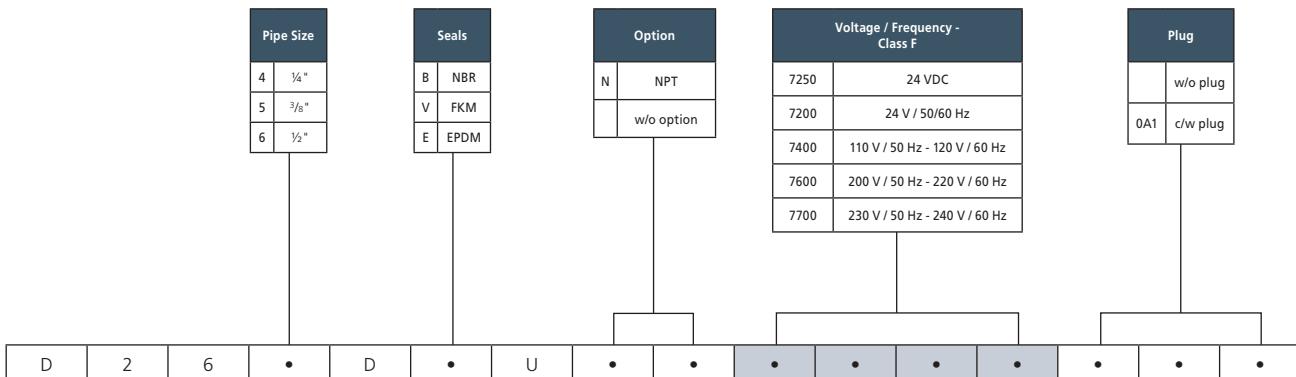
Type 600 011- Plug

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

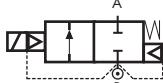
Main Valve Assembly



Product coding example:

D264DBU 7250
 1/4" G, auto operation, brass body, NBR seals, 10.5 mm orifice, 24 VDC, without plug.

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

Specifications	
Function (single acting)	 Flow direction over seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.83	1.56	0.3 - 16	0.3 - 16	13	NBR	B203DBZ
3/8"	3.86	3.30				FKM	B203DVZ
1/2"	4.42	3.78				EPDM	B203DEZ
3/4" compact	7.02	6.00			21	NBR	B205DBZ
3/4"	9.83	8.40			25	FKM	B205DVZ
1"	11.23	9.60				EPDM	B205DEZ

* Non standard, MOQ required.

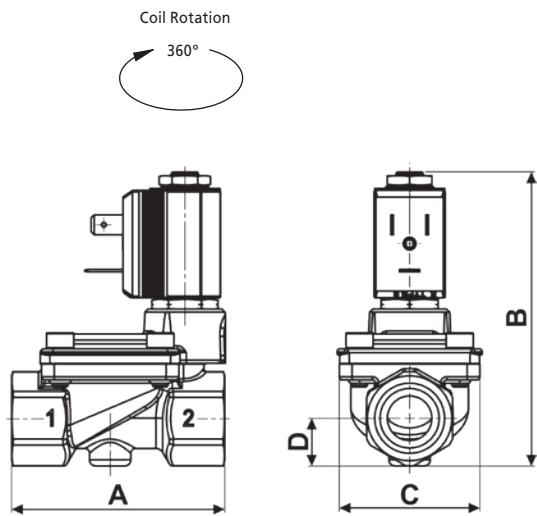
Options Available

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 compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/4" - 3/8" - 1/2"	67	90	45.6	15	0.4
3/4" compact	82	105	51.6	20.25	0.6
3/4" 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

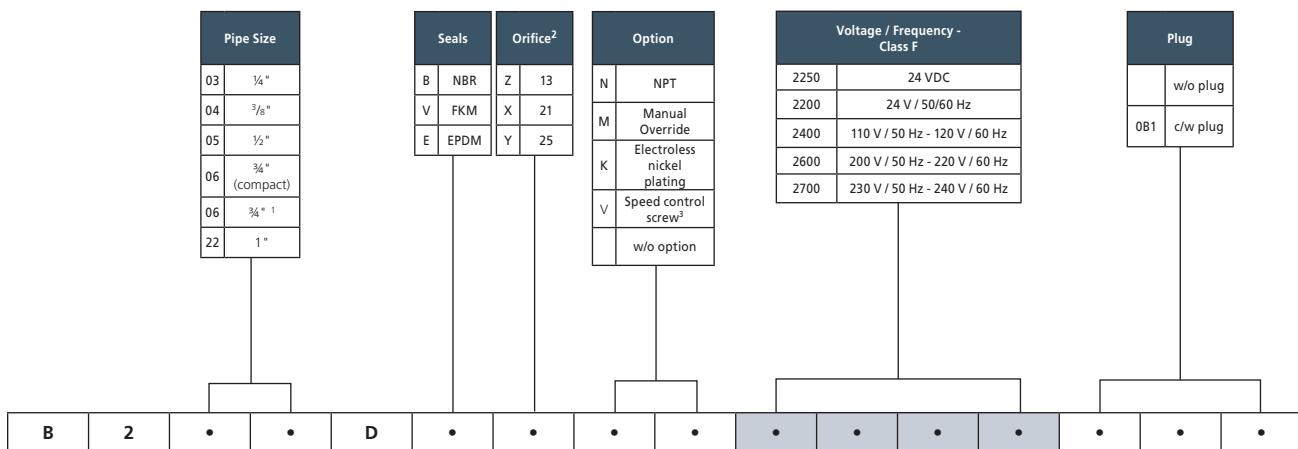
Insulation class: group C- VDE 0110

Housing colour: black

UL approved, file No: E205538

Coding chart

Main Valve Assembly



¹ Non standard, MOQ required.

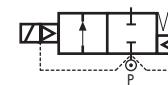
² DN13 only for B203/204/205, DN21 only for B206 compact, DN25 only for B206 and B222.

³ Speed control screw available on B206D-Y and B222D-Y.

Product coding example:

B203DBZ 2250
1/4" 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. 21 cSt (3 °C)
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
 - Manufactured 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 (m³/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 FKM EPDM	D223DBK D223DVK D223DEK
1 ½"	28.08	24.00			40	NBR FKM EPDM	D224DBK D224DVK D224DEK
2"	37.91	32.40			50	NBR FKM EPDM	D225DBJ D225DVJ D225DEJ

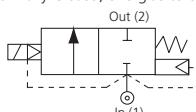
Options Available

Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual override
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 compatibility.

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

Options Available

Exd & Exm Solenoid Enclosure	
Protection Class	Exd T6 (IP67) Exd T4 (IP67) Exm T5 (IP65)

See separate datasheet

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 compatibility.

Features and Benefits

- 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 1" WRAS approved when used with EPDM seals
- Response time 1" 15-60 ms
- Response time 2" 60-120 ms
- EN264 for fuel oils



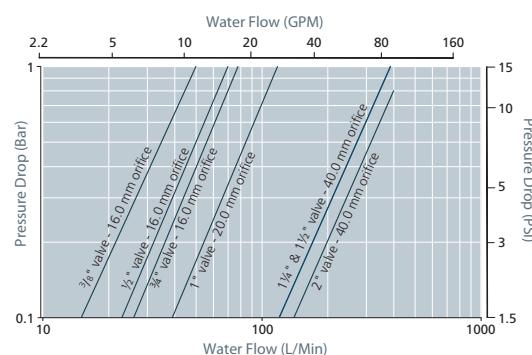
WRAS
Water Regulations Advice Scheme

Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max ³ 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
5/8"	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.

³ P. Max is limited to 46.5 Bar when valve is fitted with an Exd solenoid operator, see separate datasheet.

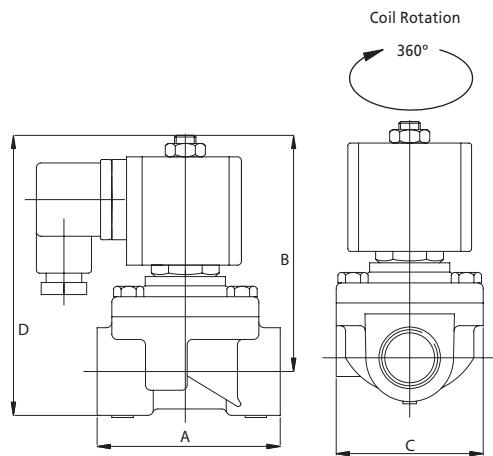
Main Valve Body Options
Stainless Steel 316 (available up to and including 1")
NPT threads
Flanged Option (PN16 Std) for alternative flange options consult Rotork Midland
Manual Override
Oxygen cleaning (consult Rotork Midland for product code)



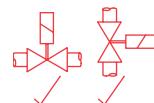
How to use the flow chart

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

ACD Series – 2/2 Normally Closed



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
3/8" - 3/4"	69.5	88	55	104
1"	85	90	55	112
1 1/4" - 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

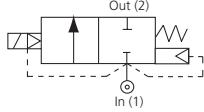
Model		Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style	Enclosure	Voltage / Frequency	Electrical Connection
17	ACD AC VOLTAGE	C 3/8"	1 BS21	1 AUTO	1 Brass (standard on valves up to and including 1")	A NBR	1 Standard	1 Weather proof IP65	A1 230 V / 50 Hz	1 DIN plug 9 mm
18	ACD DC ³ VOLTAGE	D 1/2"	2 BSPG (1 1/4" and above)	2 MANUAL OVERRIDE	2 Bronze (standard on valves above 1")	B EPDM			A2 110 V / 50 Hz & 120 V / 60 Hz	
19	Pressure assisted option 1 1/4" to 2"	E 3/4"	3 NPT		3 316 Stainless Steel (option available up to and inc 1")	C FKM			A3 24 V / 50 Hz	
		F 1"	4 FLANGED (PN16 STD)						A7 220 V / 50 Hz	
		G 1 1/4"							B2 24 VDC	
		H 1 1/2"							B3 12 VDC	
		J 2"							B5 110 VDC	
		*	*	*	*	Z	*	*	1	-
		*	*	*	*		*		1	..
		*	*	*	*		*		1	1

³ '0' pressure rated options are not available in DC voltage above 1".

Product coding example:

17G21Z2A1-1A11 - ACD Series
1 1/4" 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
¾" - 1" Body Material (Std)	Brass CZ122
1¼" - 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



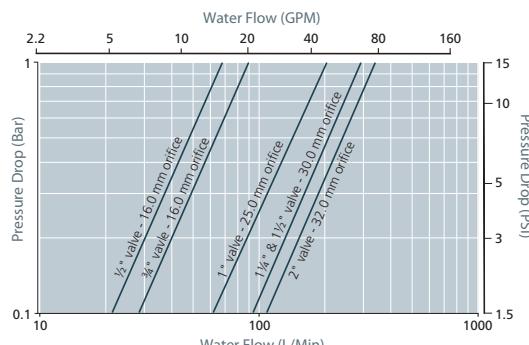
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)	P. Max ² Bar	Orifice mm)	Weight (kg)
½"	4.9	4.2	0.3-10.3	50	16.00	1.4
¾"	6.3	5.4	0.3-10.3		16.00	1.4
1"	14.5	12.5	0.3-10.3		25.00	2.3
1¼"	20.9	18	0.3-10.3		30.00	3.0
1½"	20.9	18	0.3-10.3		30.00	3.0
2"	24.4	21	0.3-10.3		32.00	5.2

² P. Max is limited to 46.5 Bar when valve is fitted with an Exd solenoid operator, see separate datasheet.

Options Available

Exd & Exm Solenoid Enclosure		See separate datasheet	Ambient Temperature Range °C		Main Valve Body Options	
Protection Class			Min	Max	Main Valve Body Options	
Exd T6 (IP67)			-10	50	Stainless steel body 316 (available up to 1")	
Exd T4 (IP67)			-10	50	Oxygen Cleaning (Consult Rotork Midland for product code)	
Exm T5 (IP65)			-10	50	NPT Threads	
					Stainless steel tagging	

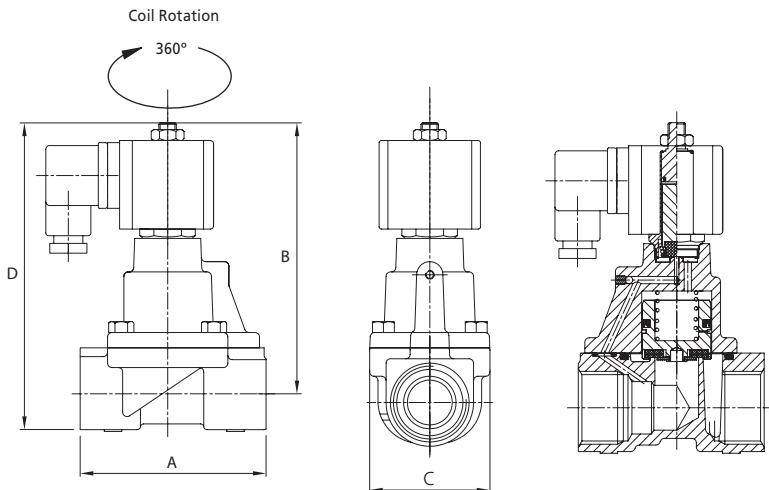
¹ See corrosion reference guide and sealing solutions for material compatibility.



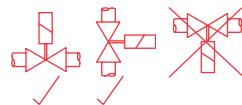
How to use the flow chart

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

ACP Series – 2/2 Normally Closed



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

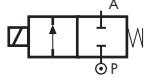
Main Valve Assembly

Model		Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style	Enclosure	Voltage / Frequency	Electrical Connection
22	ACP	D ½"	1 BS21	1 AUTO	1 Brass (standard on valves up to and including 1")	A NBR	1 Standard	1 Weather proof IP65	A1 230 V / 50 Hz	1 Din plug 9 mm
		E ¾"	2 BSP G (1⅛" and above)	2 MANUAL OVERRIDE	2 Bronze (standard on valves above 1")	B EPDM			A2 110 V / 50 Hz & 120 V / 50 Hz	
		F 1"	3 NPT		5 316 Stainless Steel (option available up to and inc 1")	C FKM			A3 24 V / 50 Hz	
		G 1¼"	4 FLANGED (PN16 STD)						A7 220 V / 50 Hz	
		H 1½"							B2 24 VDC	
		J 2"							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 overset 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
- Manufactured 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 (m³/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	D201D _V C D201D _E C
Flanged	0.15	0.13	0 - 20	0 - 20	2.0	FKM EPDM	D201D _V E D201D _E E
Flanged	0.24	0.20	0 - 18	0 - 18	2.5	FKM EPDM	D201D _V G D201D _E G
Flanged	0.32	0.27	0 - 15	0 - 10	3.0	FKM EPDM	D201D _V H D201D _E H

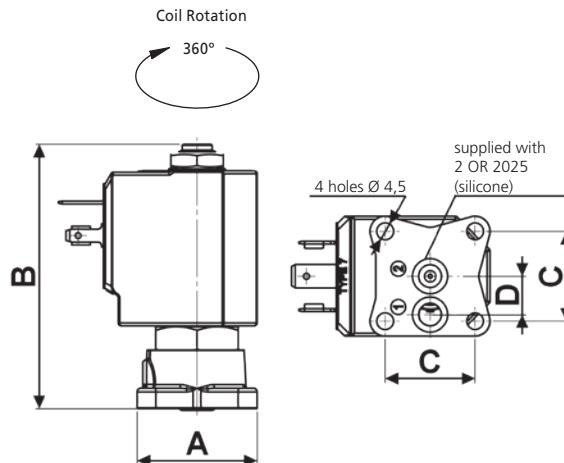
Options Available

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 compatibility.

D201 Series, General Purpose – 2/2 Normally Closed



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.

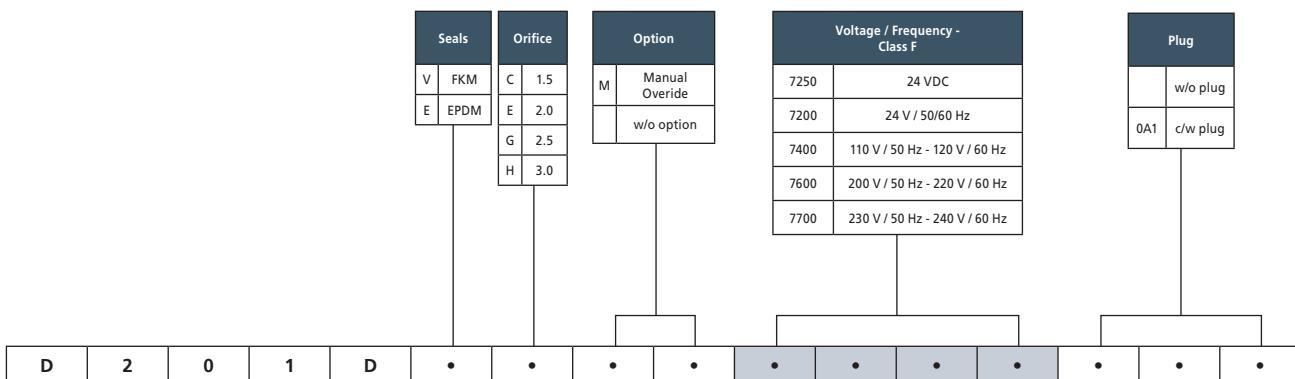
Type 600 011- Plug

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



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 under seat 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
- Manufactured 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 (m³/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	B397CV/A B397CE/A
1/8"	0.05	0.04	0 - 15	0 - 15	1.2	FKM EPDM	B397CV/B B397CE/B
1/8"	0.07	0.06	0 - 10	0 - 10	1.5	FKM EPDM	B397CV/C B397CE/C
1/8"	0.13	0.11	0 - 5	0 - 5	2.0	FKM EPDM	B397CV/E B397CE/E
1/8"	0.25	0.21	0 - 2	0 - 2	3.0	FKM EPDM	B397CV/H B397CE/H

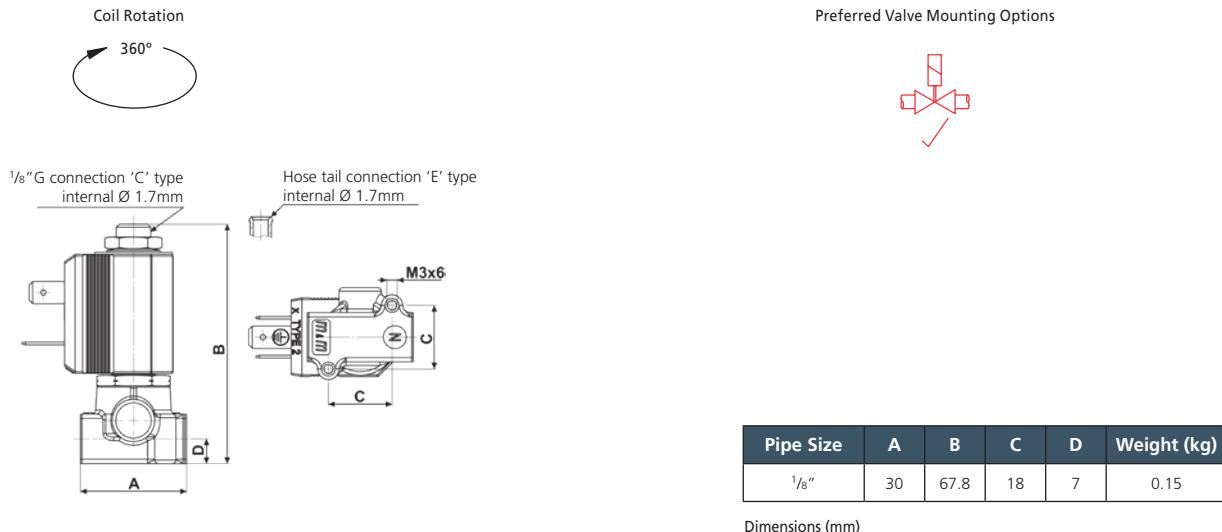
Options Available

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 compatibility.

B397 Series, General Purpose – 3/2 Normally Closed



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		Seals		Orifice		Option	
C	1/8" G	V	FKM	A	1.0	N	NPT
E	Hose tail Ø 6mm	E	EPDM	B	1.2	M	Manual Override
				C	1.5	K	Electroless nickel plating
				E	2.0		w/o option
				H	3.0		

B	3	9	7	•	•	•	•	•	•	•	•	•	•	•
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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
OB1 c/w plug
w/o plug

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 underside 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

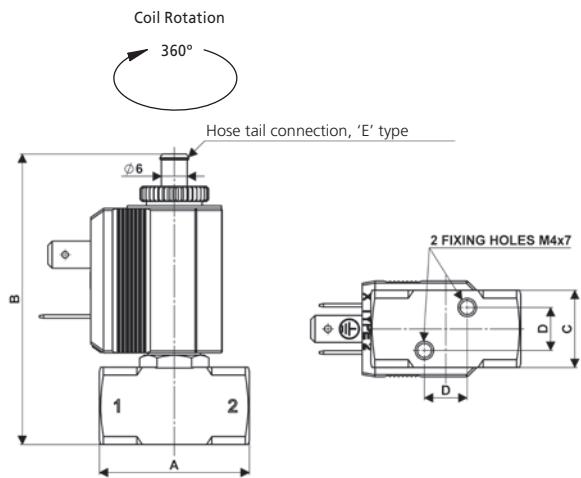


Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/8"	0.05	0.04	0 - 15	0 - 15	1.2	FKM	B398EVB
1/8"	0.07	0.06	0 - 10	0 - 10	1.5	FKM	B398EV/C
1/8"	0.13	0.11	0 - 5	0 - 5	2.0	FKM	B398EV/E
1/8"	0.19	0.16	0 - 3	0 - 3	2.5	FKM	B398EV/G

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

¹ See corrosion reference guide and sealing solutions for material compatibility.

B398 Series, General Purpose – 3/2 Normally Closed



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



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		Option	Voltage / Frequency - Class F		Plug
B	1.2	w/o option	2250	24 VDC	0B1 c/w plug
C	1.5		2200	24 V / 50/60 Hz	
E	2.0		2400	110 V / 50 Hz - 120 V / 60 Hz	
G	2.5		2600	200 V / 50 Hz - 220 V / 60 Hz	
			2700	230 V / 50 Hz - 240 V / 60 Hz	w/o plug

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 under seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4 "	0.09	0.08	0 - 18	0 - 18	1.5	FKM EPDM	D399CV_C D399CE_C
1/4 "	0.15	0.13	0 - 10	0 - 10	2.0	FKM EPDM	D399CV_E D399CEE
1/4 "	0.24	0.20	0 - 7	0 - 7	2.5	FKM EPDM	D399CV_G D399CEG
1/4 "	0.32	0.27	0 - 5	0 - 5	3.0	FKM EPDM	D399CV_H D399CEH

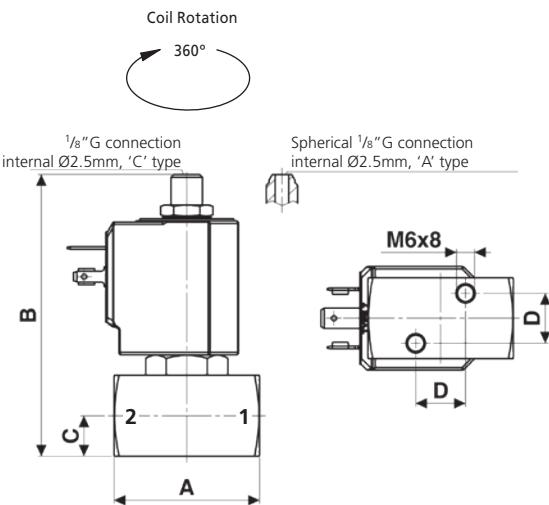
Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Silver shading ring
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, 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 compatibility.

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



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	Top Port Connection	Seals	Orifice	Option	Voltage / Frequency - Class F	Plug
8 1/8"	C 1/8" G	V FKM	C 1.5	A Silver shading ring	7250 24 VDC	0A1 c/w plug
9 1/4"	A Spherical 1/8" G	E EPDM	E 2.0	N NPT	7200 24 V / 50/60 Hz	
			G 2.5	w/o option	7400 110 V / 50 Hz - 120 V / 60 Hz	
			H 3.0		7600 200 V / 50 Hz - 220 V / 60 Hz	
					7700 230 V / 50 Hz - 240 V / 60 Hz	
D	3	9	•	•	•	•

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

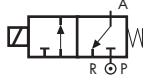
Plug	
0A1	c/w plug
	w/o plug

Product coding example:

D399CECA 7700

1/4" 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 underside seat 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
Coil Voltage DC (=)	24 V
Coil Voltage AC 50 Hz (-)	24 V, 110 V, 230 V
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 (cWus)	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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.09	0.08	0 - 18	0 - 18	1.5	FKM EPDM	D363CYC D363CEC
1/4"	0.15	0.13	0 - 10	0 - 10	2.0	FKM EPDM	D363CYE D363CEE
1/4"	0.24	0.20	0 - 7	0 - 7	2.5	FKM EPDM	D363CVG D363CEG
1/4"	0.32	0.27	0 - 5	0 - 5	3.0	FKM EPDM	D363CVH D363CEH
1/4"	0.42	0.36	0 - 3.5	0 - 3.5	4.0	FKM EPDM	D363CYL ¹ D363CEL ¹
1/4"	0.53	0.45	0 - 2.5	0 - 2.5	5.0	FKM EPDM	D363CYN ¹ D363CEN ¹
1/4"	0.56	0.48	0 - 1.5	0 - 1.5	6.0	FKM EPDM	D363CYP ¹ D363CEP ¹

¹ Manual override not available for orifice > Ø3mm.

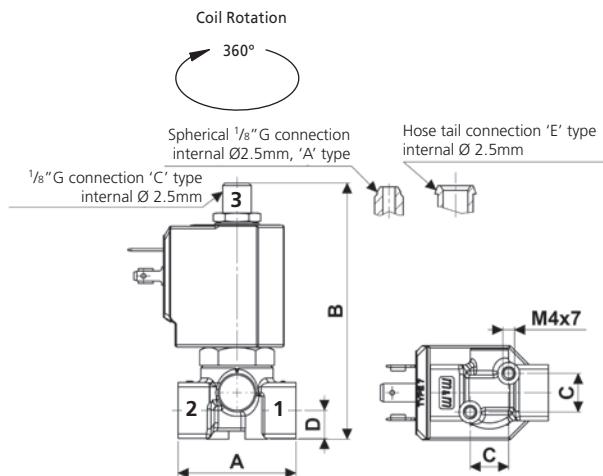
Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
NPT threads (minimum batch may be required)
Manual override
Vacuum Version
See page 116-117

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 compatibility.

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



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 cULus 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*
UL approved, file No: E193928



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

Coding chart

Main Valve Assembly

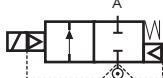
Pipe Size	Top Port Connection		Seals	Orifice	Option	Voltage / Frequency - Class F		Plug			
	C	1/8" G				V	FKM	N	NPT	0A1	w/o plug
2	1/8"	C	1/8" G	E	1.5						
3	1/4"	A	spherical 1/8" G	EPDM	E	2.0		M	Manual Override ¹		
		E	Hose tail Ø 6mm		G	2.5					
					H	3.0					
					L	4.0					
					N	5.0					
					P	6.0					
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 over seat 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 Absorbtion (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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code ¹
			AC Voltages	DC Voltages			
1/4"	1.83	1.56	-	0.3 - 5	13	NBR	LC203DBZ
3/8"	3.86	3.30				FKM	LC203DVZ
1/2"	4.42	3.78				EPDM	LC203DEZ
						NBR	LC204DBZ
						FKM	LC204DVZ
						EPDM	LC204DEZ
						NBR	LC205DBZ
						FKM	LC205DVZ
						EPDM	LC205DEZ

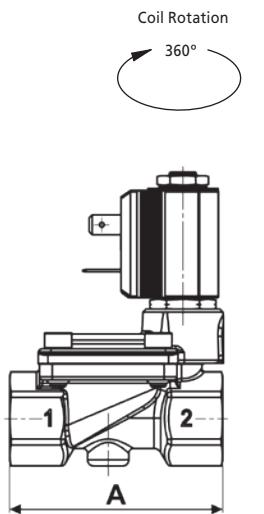
¹ Non standard, MOQ required.

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 compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/4" - 3/8" - 1/2"	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*



Type 600 001- Plug

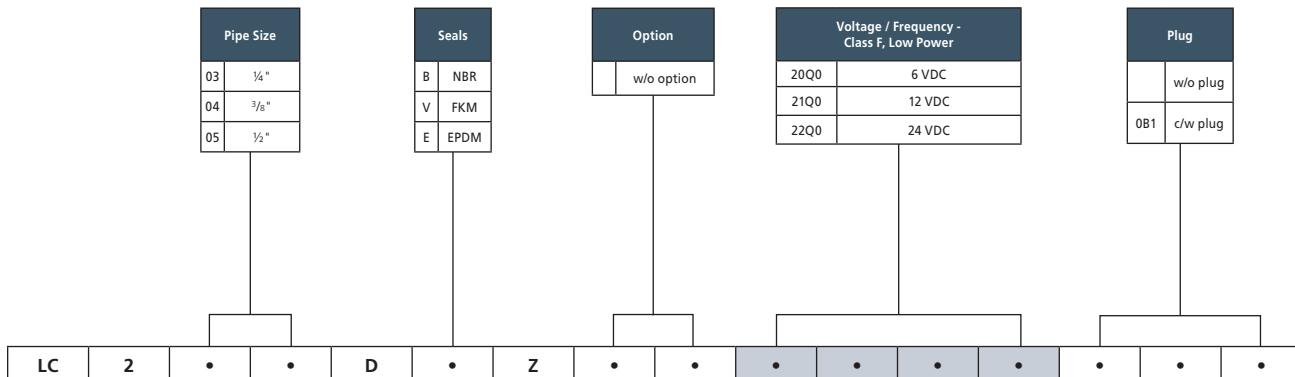
Rated Voltage (max.): 250 VAC / 300 VDC
 Nominal Current: 10A (rated) / 16A (max)
 Wire cross-section: 1.5 mm² max
 Cable Entry: PG9 (6 to 8 mm)
 Enclosure classification: Conforms to IP65 (according to EN 60529)
 with supplied gasket
 Insulation class: group C- VDE 0110
 Housing colour: black
 UL approved,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



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

Coding chart

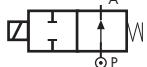
Main Valve Assembly



Product coding example:

LC205DBZ 20Q0
 1/2" G, auto operation, brass body, NBR seals, 13 mm orifice, 6 VDC, without plug.

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

Specifications	
Function (single acting)	 Flow direction overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.04	0 - 30	0 - 30	1.0	FKM EPDM	RD299DVA RD299DEA
1/4"	0.16	0.14	0 - 20	0 - 20	2.0	FKM EPDM	RD299DVAE RD299DDE
1/4"	0.23	0.20	0 - 14	0 - 14	2.5	FKM EPDM	RD299DVVG RD299DEG
1/4"	0.32	0.27	0 - 9	0 - 9	3.0	FKM EPDM	RD299DVH RD299DEH
1/4"	0.04	0.04	0 - 100	0 - 100	1.0	RUBY	RD299DRA**
1/4"	0.05	0.04	0 - 85	0 - 85	1.2	RUBY	RD299DRB**
1/4"	0.08	0.07	0 - 55	0 - 55	1.5	RUBY	RD299DRC**
1/4"	0.16	0.14	0 - 25	0 - 25	2.0	RUBY	RD299DRE**
1/4"	0.23	0.20	0 - 19	0 - 19	2.5	RUBY	RD299DRG**
1/4"	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.

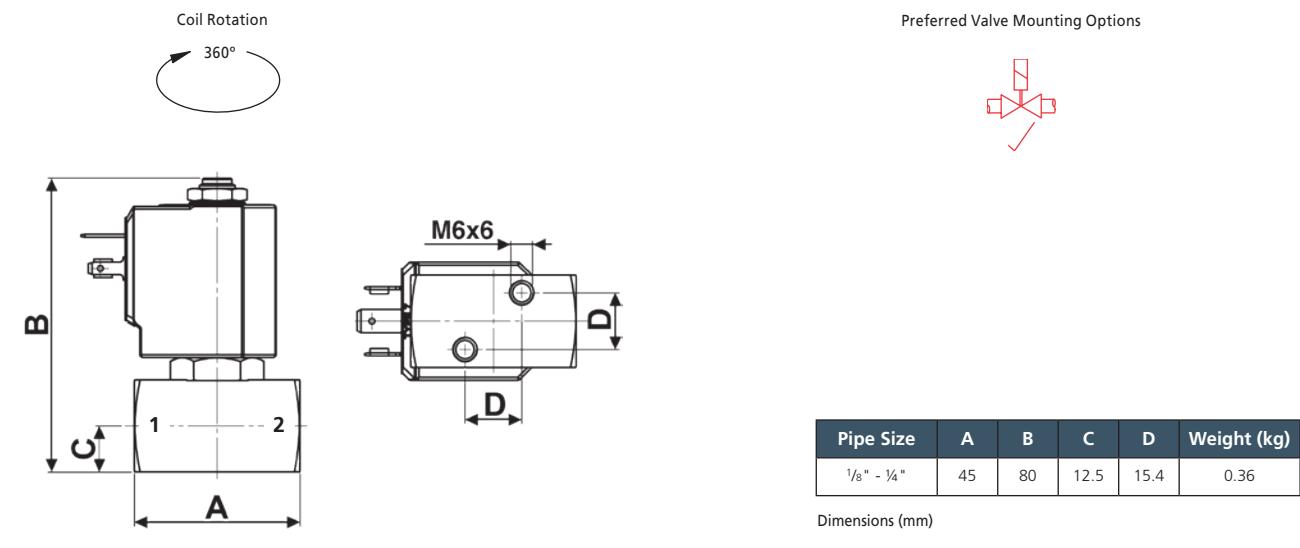
Options Available

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 compatibility.

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



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		Seals		Orifice ¹		Option		Voltage / Frequency - Class H								Plug				
8	1/8"	V	FKM	A	1.0	A	Silver shading ring	7251	24 VDC								w/o plug			
9	1/4"	E	EPDM	B	1.2	F	Anticorrosion treatment ²	7201	24 V / 50/60 Hz								c/w plug			
		R	RUBY	C	1.5	N	NPT	7401	110 V / 50 Hz - 120 V / 60 Hz											
				E	2.0		w/o option	7601	200 V / 50 Hz - 220 V / 60 Hz											
				G	2.5			7701	230 V / 50 Hz - 240 V / 60 Hz											
				H	3.0															
RD	2	9	*	D	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

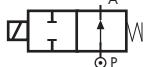
¹ See characteristics table for availability.

² Recommended with aggressive fluids.

Product coding example:

RD299DVA 7251
 1/4" 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 overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.03	0 - 30	0 - 30	1.0	FKM EPDM	RD263DVA RD263DEA
1/4"	0.09	0.08	0 - 24	0 - 24	1.5	FKM EPDM	RD263DYC RD263DEC
1/4"	0.24	0.20	0 - 16	0 - 16	2.5	FKM EPDM	RD263DVG RD263DEG
1/4"	0.32	0.27	0 - 10	0 - 10	3.0	FKM EPDM	RD263DVH RD263DEH

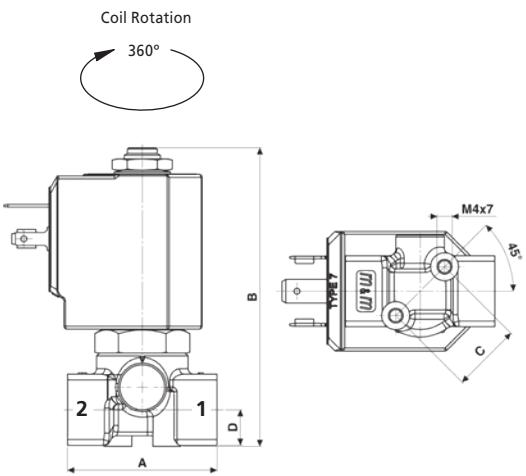
Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
Electroless nickel plating
For steam version with filled PTFE seal see valve model RD236DL pages 108-109
For high pressure version with RUBY seals see valve model RD236DR-1 pages 86-87

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 compatibility.

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



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.

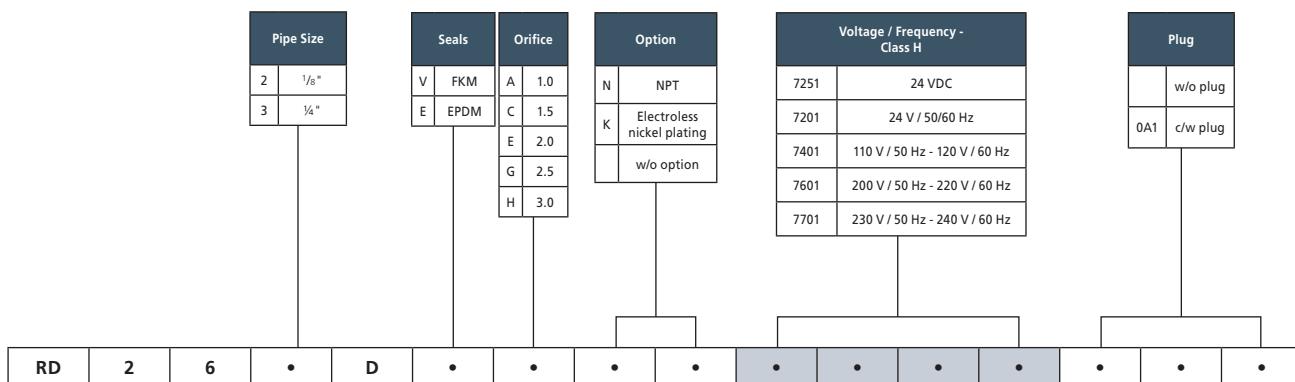
Type 600 011- Plug

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

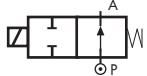
Main Valve Assembly



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
- Manufactured in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms

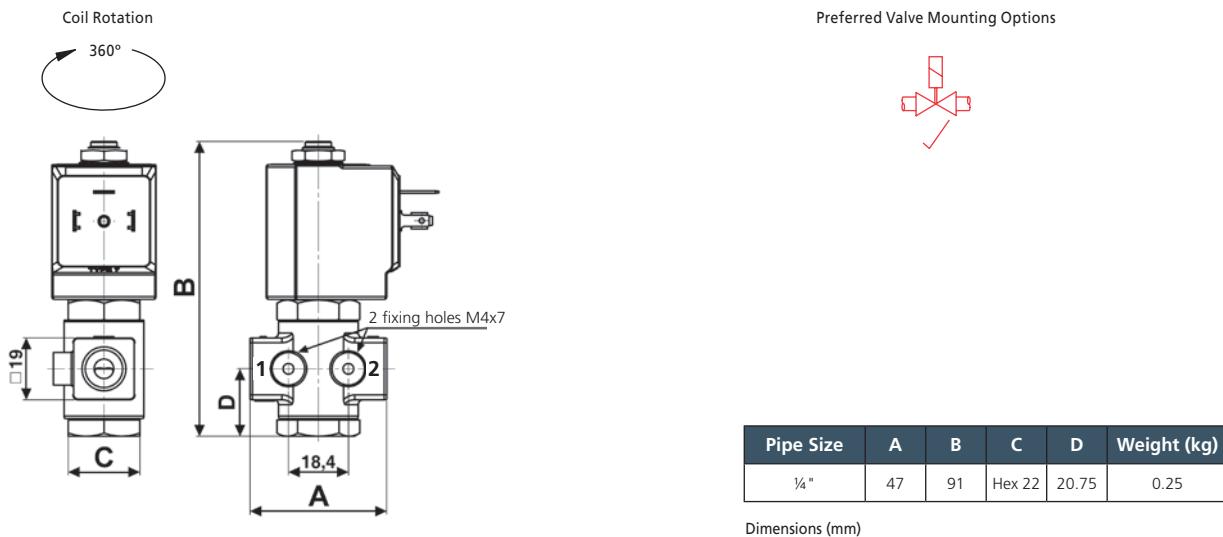


Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4 "	0.04	0.03	0 - 25	0 - 25	1.0	FKM EPDM	RD236DV _A RD236DE _A
1/4 "	0.09	0.08	0 - 20	0 - 20	1.5	FKM EPDM	RD236DV _C RD236DE _C
1/4 "	0.14	0.12	0 - 18	0 - 18	2.0	FKM EPDM	RD236DV _E RD236DE _E
1/4 "	0.20	0.17	0 - 15	0 - 15	2.5	FKM EPDM	RD236DV _G RD236DE _G
1/4 "	0.25	0.21	0 - 12	0 - 12	3.0	FKM EPDM	RD236DV _H RD236DE _H
1/4 "	0.39	0.33	0 - 5	0 - 5	4.5	FKM EPDM	RD236DV _M RD236DE _M
1/4 "	0.60	0.51	0 - 2	0 - 2	6.0	FKM EPDM	RD236DV _P RD236DE _P

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 compatibility.

RD236 Series, General Purpose – 2/2 Normally Open



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

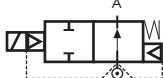
Main Valve Assembly

RD	2	3	6	D	*	*	*	*	*	*	*	*	*	*	*
Seals	V	FKM		Orifice	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											
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	DA1	c/w plug													
		w/o plug													

Product coding example:

RD236DVC 7200 0A1
 1/4" 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 over seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC ³ Voltages			
1/4"	1.83	1.56	0.3 - 16	0.3 - 16	13	NBR	RB203DBZ
3/8"	3.86	3.30				FKM	RB203DVZ
1/2"	4.42	3.78				EPDM	RB203DEZ
3/4" compact	7.02	6.00	0.3 - 16	0.3 - 16	21	NBR	RB204DBZ
3/4"	9.83	8.40				FKM	RB204DVZ
						EPDM	RB204DEZ
1"	11.23	9.60	0.3 - 16	0.3 - 16	25	FNBR	RB206DBY ²
						FKM	RB206DVY ²
						EPDM	RB206DEY ²
						NBR	RB222DBY
						FKM	RB222DVY
						EPDM	RB222DEY

² Non standard, MOQ required.

³ For continuous service in DC we recommend the use of M&M coils 10 Watt, class H (example 24 VDC 10W class H code 22V1, see options on page 163).

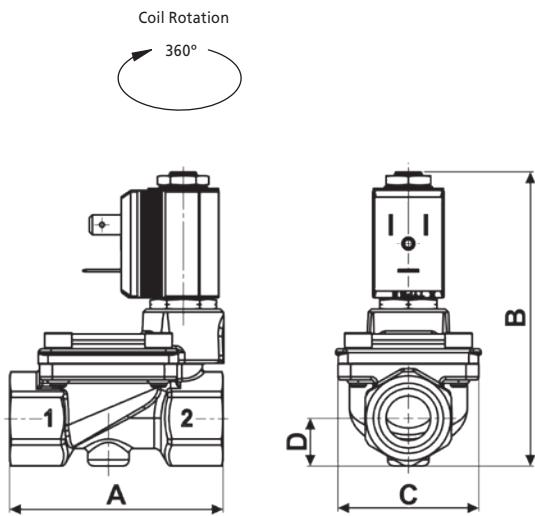
Options Available

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 compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/4" - 3/8" - 1/2"	67	92.5	45.6	15	0.4
3/4" compact	82	107.5	51.6	20.25	0.6
3/4" 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



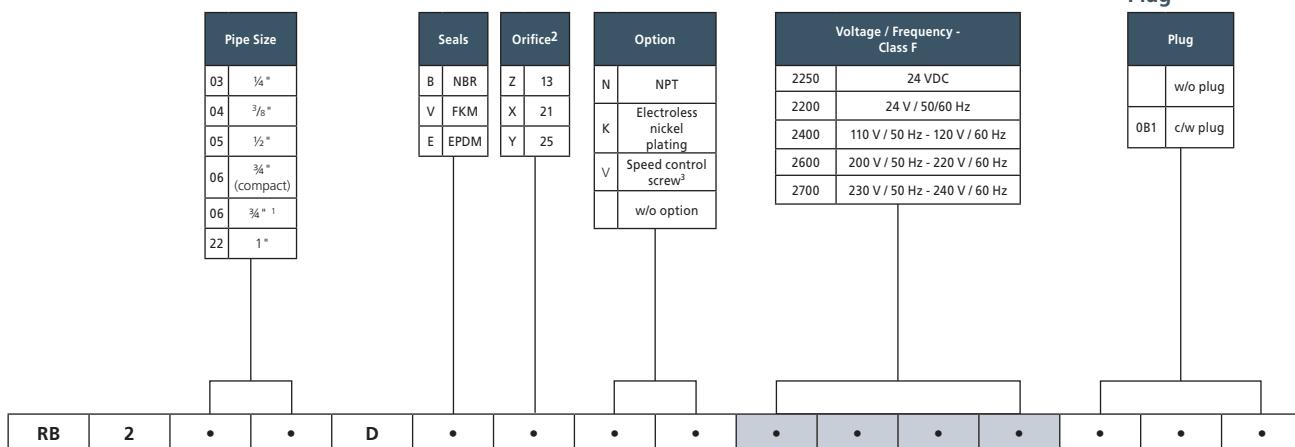
Insulation class: group C- VDE 0110

Housing colour: black

UL approved, file No: E205538

Coding chart

Main Valve Assembly



¹ Non standard, MOQ required.

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

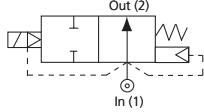
³ Speed control screw available on RB206D-Y and RB222D-Y.

Product coding example:

RB203DBZ 2250

1/4" 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 (m³/h)	OPD (Bar)		P. Max ² 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

² P. Max is limited to 46.5 Bar when valve is fitted with an Exd solenoid operator, see separate datasheet.

Options Available

Exd & Exm Solenoid Enclosure	
Protection Class	
Exd T6 (IP67)	See separate datasheet
Exd T4 (IP67)	
Exm T5 (IP65)	

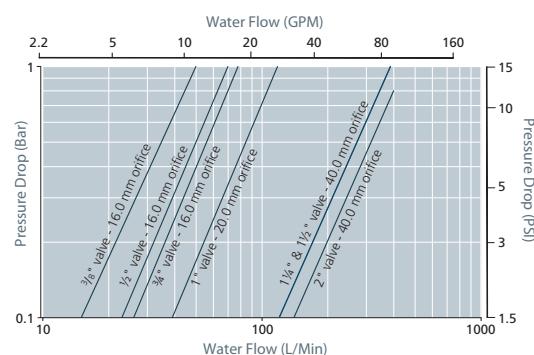
Seal Material ¹ and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50
EPDM (-50 °C to +120 °C)	-10	50
FKM (-20 °C to +150 °C)	-10	50

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)	

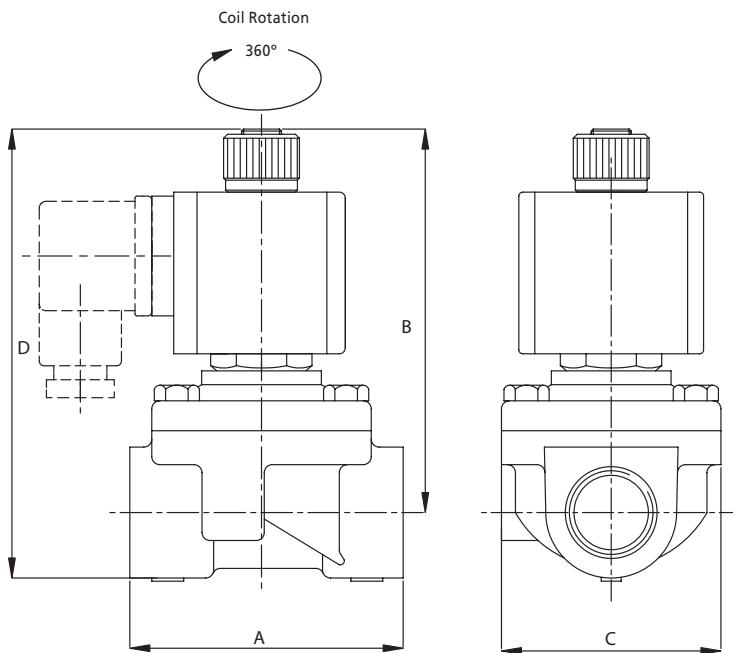
¹ See corrosion reference guide and sealing solutions for material compatibility.

How to use the flow chart

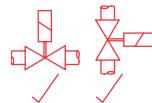
1. Select the required flow.
2. Note the corresponding pressure drop.
3. Based on where the two points intersect select the most appropriate model.



ACDN Series – 2/2 Normally Open



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
1 1/4" - 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

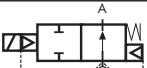
Main Valve Assembly

Model		Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style	Enclosure	Voltage / Frequency	Electrical Connection	Label
27	ACDN (1 1/4" and above)	C 3/8"	1 BS21	1 AUTO	1 Brass (standard on valves up to and including 1")	A NBR	1 Standard	1 Weather proof IP65	A1 230 V / 50 Hz	1 DIN plug 9 mm	48 N/O Module
56	ACDN (3/8"-1")	D 1/2"	2 BSP G (1 1/4" and above)		2 Bronze (standard on valves above 1")	B EPDM		A2 110 V / 50 Hz & 120 V / 60 Hz	A3 24 V / 50 Hz		
		E 3/4"	3 NPT		5 316 Stainless Steel (option available up to and inc 1")	C FKM		A7 220 V / 50 Hz	B2 24 VDC		
		F 1"	4 FLANGED (PN16 STD)					B3 12 VDC	B5 110 VDC		
		G 1 1/4"									
		H 1 1/2"									
		J 2"									
		*	*	*	1	Z	*	*	1	-	1
									..	1	*

Product coding example:

27G21Z2A1-1A1148 - ACDN Series
 N/O 1 1/4" 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 overset 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
- Manufactured 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 (m³/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
1 ½ "	28.08	24.00				FKM	RD223DVK
2 "	37.91	32.40			50	EPDM	RD223DEK
						NBR	RD224DBK
						FKM	RD224DVK
						EPDM	RD224DEK
						NBR	RD225DBJ
						FKM	RD225DVJ
						EPDM	RD225DEJ

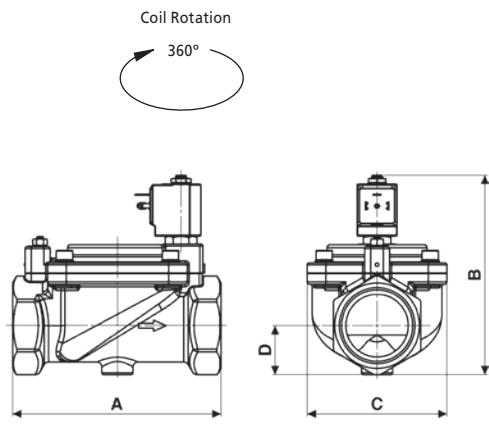
Options Available

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 compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1 1/4" - 1 1/2"	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



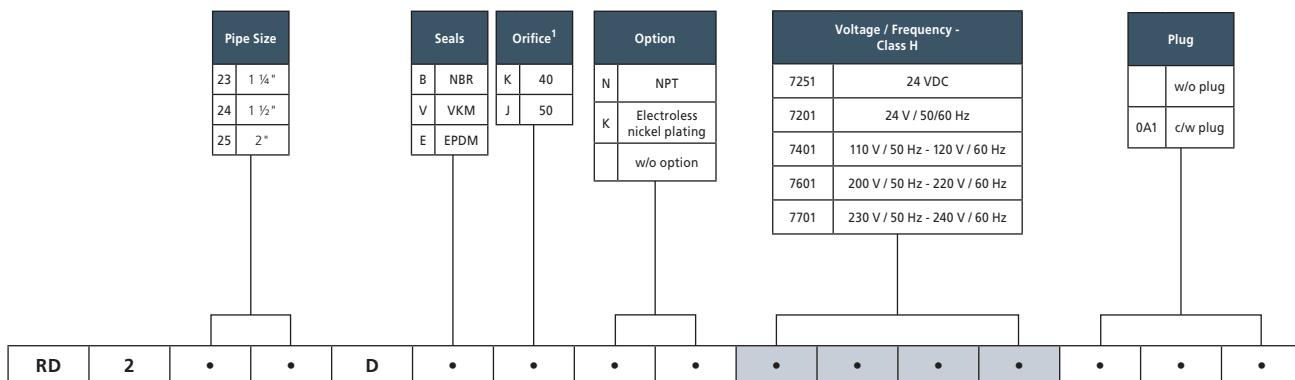
Insulation class: group C - VDE 0110

Housing colour: black

UL approved, file No: E205538

Coding chart

Main Valve Assembly



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

Product coding example:

RD223DBK 7251

1 1/4" G, auto operation, brass body, NBR seals, 40 mm orifice, 24 VDC, without plug.

Plug

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

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

Specifications	
Function (single acting)	 Flow direction under seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.09	0.08	0 - 15	0 - 15	1.5	FKM	RD399CV_C
1/4"	0.15	0.13	0 - 10	0 - 10	2.0	FKM	RD399CV_E
1/4"	0.32	0.27	0 - 4	0 - 4	3.0	FKM	RD399CV_H

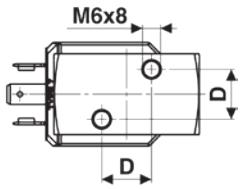
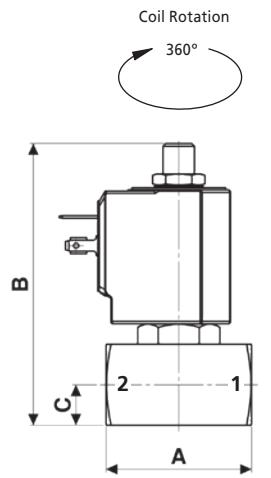
Options Available

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 compatibility.

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



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 IT-85 (B)
with supplied gasket

Insulation class: group

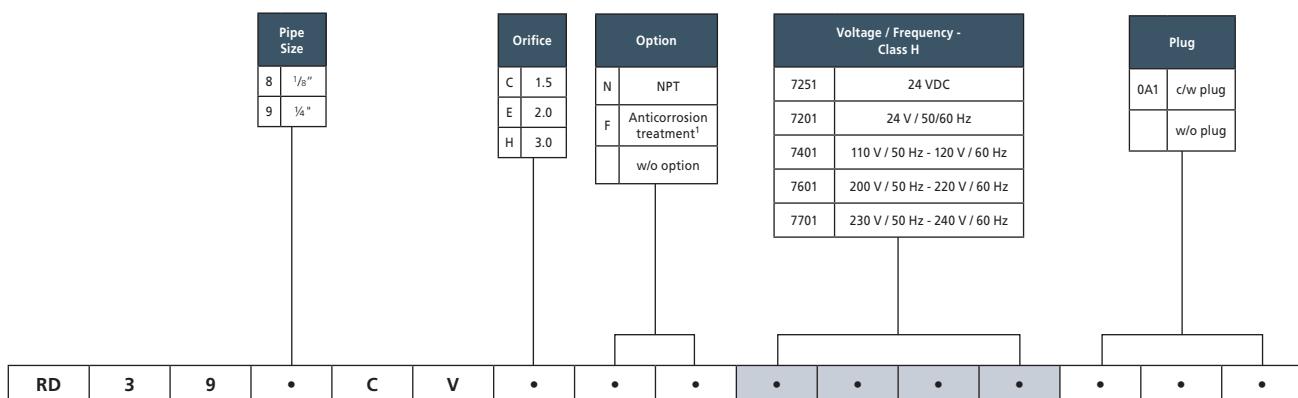
Housing colour: black

UL approved, file No: E205538



Coding chart

Main Valve Assembly



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 underside seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.09	0.08	0 - 16	0 - 13	1.5	FKM	RD363CV_C
1/4"	0.15	0.13	0 - 10	0 - 10	2.0	FKM	RD363CV_E
1/4"	0.24	0.20	0 - 7	0 - 7	2.5	FKM	RD363CV_G
1/4"	0.32	0.27	0 - 4	0 - 4	3.0	FKM	RD363CV_H

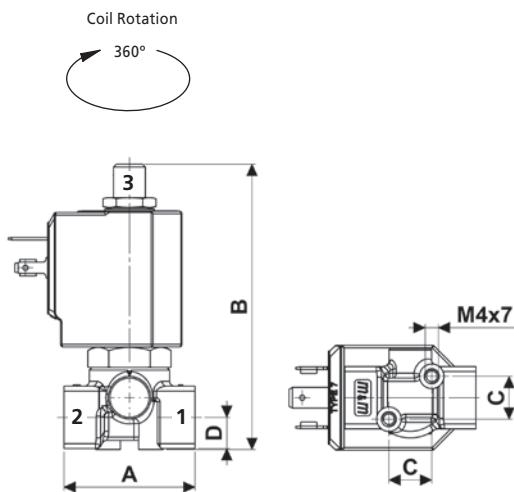
Options Available

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 compatibility.

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



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.



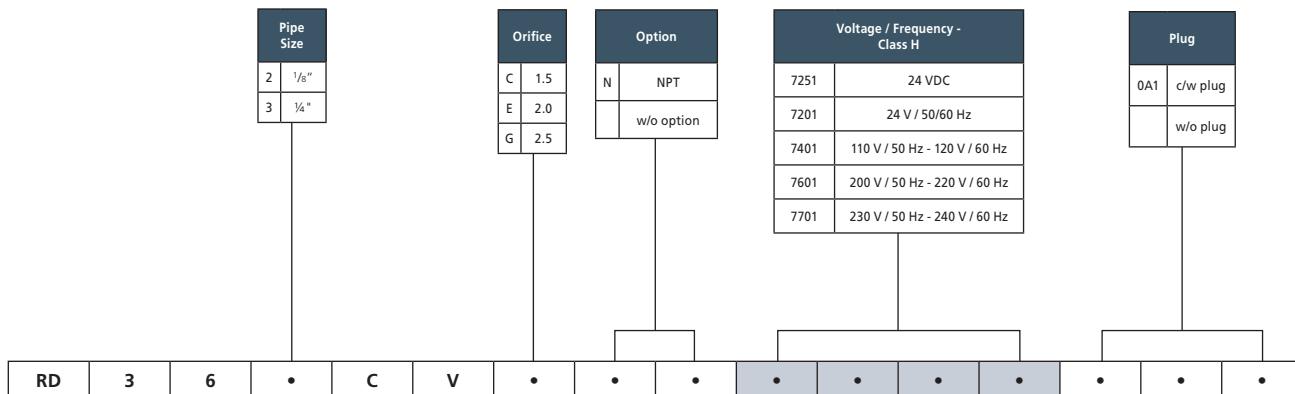
Type 600 011- Plug

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

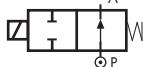
Main Valve Assembly



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 overset 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
- Manufactured 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 (m³/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	B297DWH B297DEH

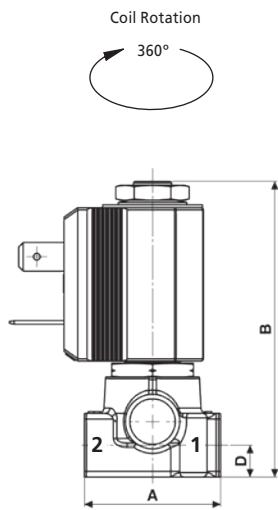
Options Available

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 compatibility.

B297 Series, Automation – 2/2 Normally Closed



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

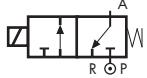
Main Valve Assembly

Seals		Orifice		Option		Voltage / Frequency - Class F		Plug	
V	FKM	A	1.0	N	NPT	2250	24 VDC	w/o plug	
E	EPDM	B	1.2	M	Manual Override	2200	24 V / 50/60 Hz		
		C	1.5	K	Electroless nickel plating	2400	110 V / 50 Hz - 120 V / 60 Hz		
		E	2.0		w/o option	2600	200 V / 50 Hz - 220 V / 60 Hz		
		G	2.5			2700	230 V / 50 Hz - 240 V / 60 Hz		
		H	3.0					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.

D301 Series, Automation – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction underside 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms



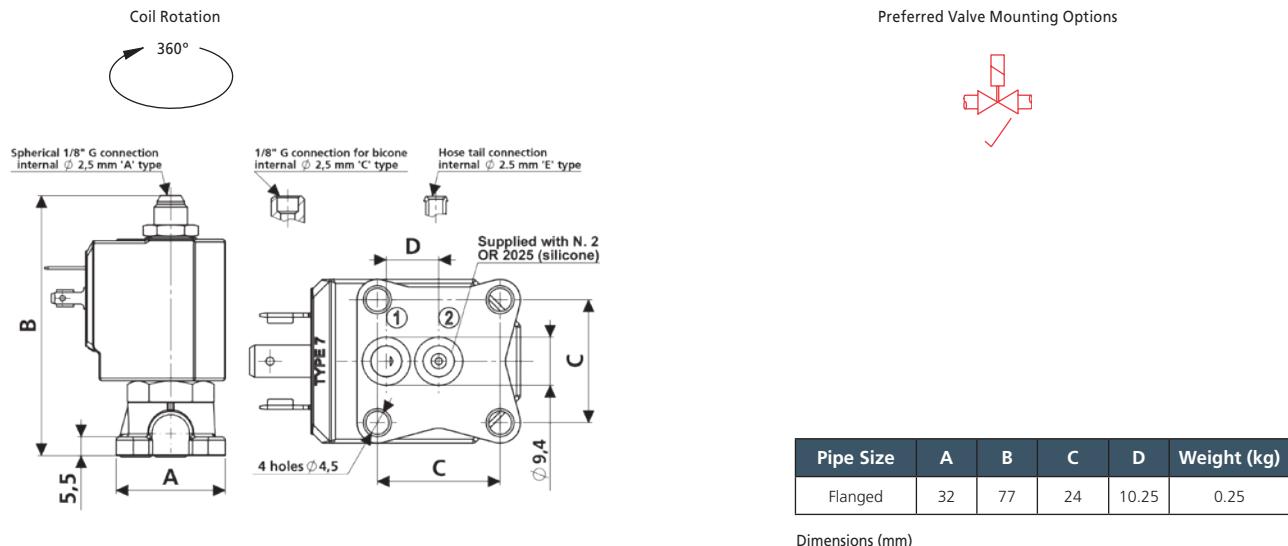
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 18	0 - 18	1.5	FKM	D301CYC
Flanged	0.15	0.13	0 - 10	0 - 10	2.0	FKM	D301CYE
Flanged	0.24	0.20	0 - 7	0 - 7	2.5	FKM	D301CYG
Flanged	0.32	0.27	0 - 5	0 - 5	3.0	FKM	D301CYH

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 compatibility.

D301 Series, Automation – 2/2 Normally Closed



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.



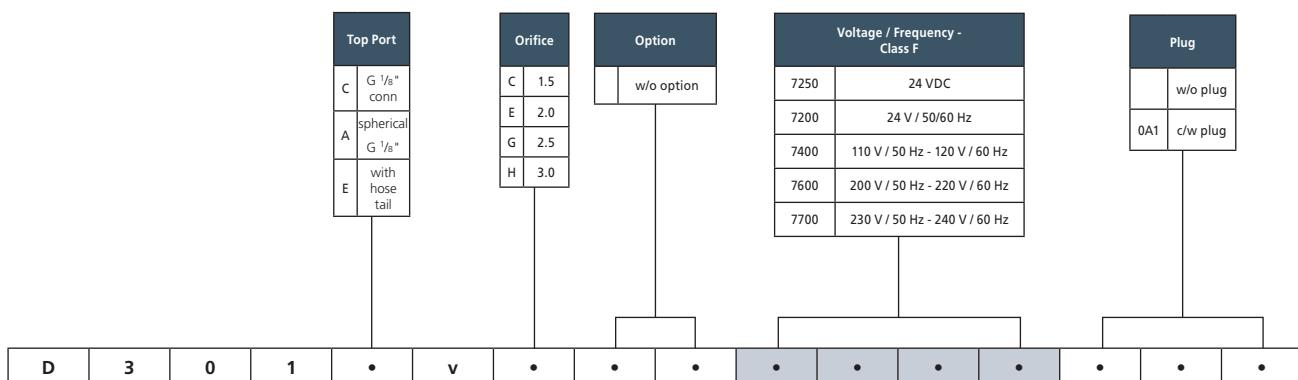
Type 600 011- Plug

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

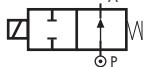
Main Valve Assembly



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 overset 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)
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

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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms
- Valve suitable for contact with food media as per EEC Directives and Regulations.
Please consult supplier for more details.



Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC ² Voltages			
1/8"	0.04	0.03	0 - 25	0 - 25	1.0	FKM EPDM	RB297DV/A RB297DE/A
1/8"	0.05	0.04	0 - 20	0 - 20	1.2	FKM EPDM	RB297DV/B RB297DE/B
1/8"	0.07	0.06	0 - 15	0 - 15	1.5	FKM EPDM	RB297DV/C RB297DEC
1/8"	0.12	0.10	0 - 10	0 - 10	2.0	FKM EPDM	RB297DV/E RB297DE/E
1/8"	0.16	0.14	0 - 5	0 - 5	2.5	FKM EPDM	RB297DV/G RB297DE/G
1/8"	0.21	0.18	0 - 4.5	0 - 4.5	3.0	FKM EPDM	RB297DV/H RB297DE/H

² For continuous service in DC we recommend the use of M&M coils 10 Watt, class H (example 24 VDC 10W class H code 22V1, see options on page 163).

Options Available

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

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
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

³ See corrosion reference guide and sealing solutions for material compatibility.

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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms



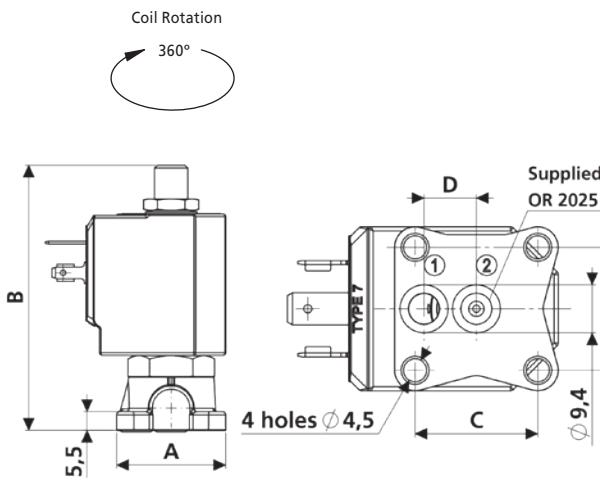
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 15	0 - 15	1.5	FKM	RD301CV_C
Flanged	0.15	0.13	0 - 10	0 - 10	2.0	FKM	RD301CV_E
Flanged	0.32	0.27	0 - 4	0 - 4	3.0	FKM	RD301CV_H

Options Available

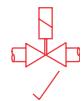
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.

RD301 Series, Automation – 2/2 Normally Open



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

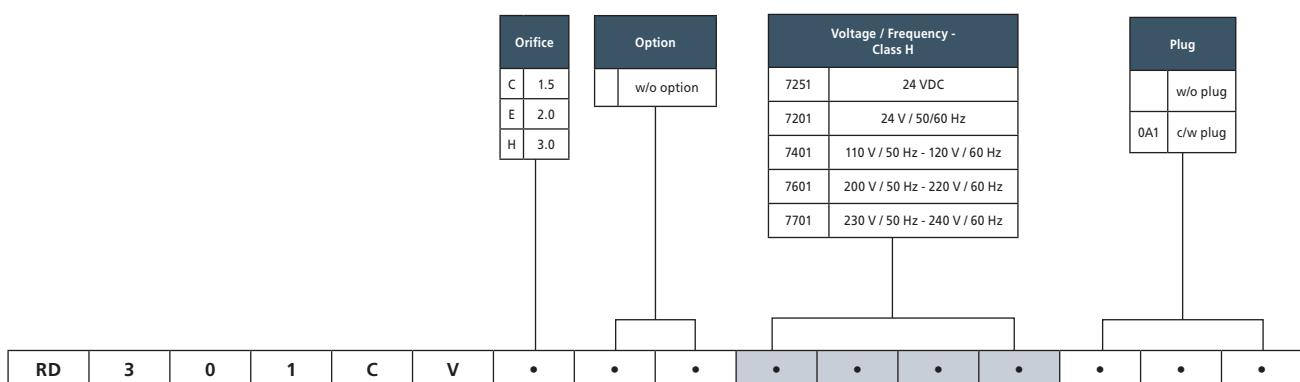
III approved file No: E30E

UH approved file No: E205538



Coding chart

Main Valve Assembly

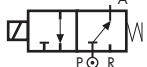


Product coding example:

RD301CVC 7251

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

SB397 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)	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
- Manufactured 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 (m³/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

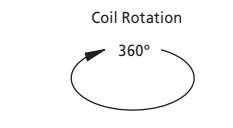
Options Available

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 compatibility.

SB397 Series, Automation – 2nd Service 3/2 Normally Open



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 E with plug and gasket correctly fit)



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

Orifice		Option		Voltage / Frequency - Class F		Plug	
B	1.2	N	NPT	2250	24 VDC	OB1	c/w plug
C	1.5	M	Manual Override	2200	24 V / 50/60 Hz		w/o plug
		K	Electroless nickel plating	2400	110 V / 50 Hz - 120 V / 60 Hz		
			w/o option	2600	200 V / 50 Hz - 220 V / 60 Hz		
				2700	230 V / 50 Hz - 240 V / 60 Hz		

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 underside 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
- Manufactured 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 (m³/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

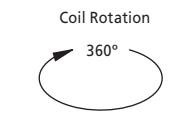
Options Available

Valve Options (see coding chart)
Electroless nickel plating treatment

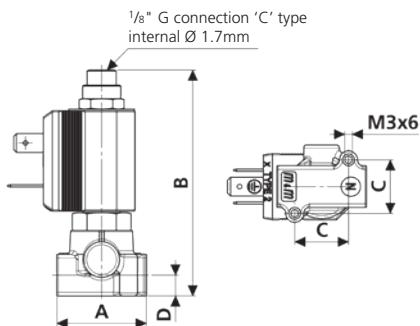
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.

RB397 Series, Automation – 3/2 Normally Open



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 ENEC)
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



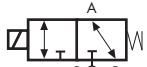
Coding chart

Main Valve Assembly

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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm) 1→2 1→3	Seal Material	Valve Code	
			AC Voltages	DC Voltages				
1/4"	0.15	0.13	0 - 8	0 - 7	2.0	2.0	FKM	GD363CV/E

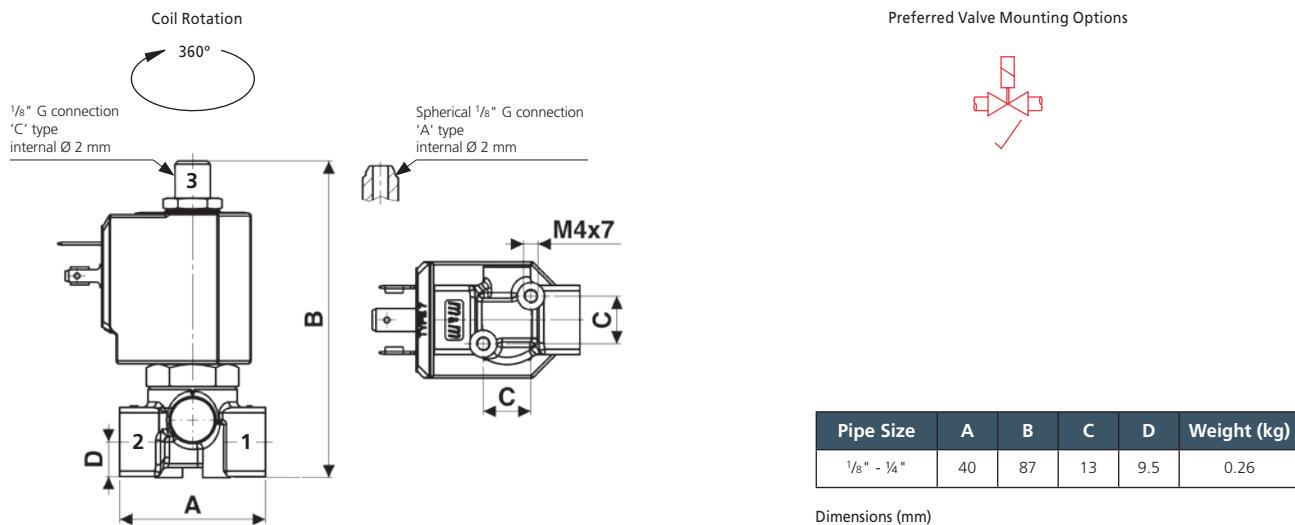
Options Available

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 compatibility.

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



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		Top Port Connection	
2	1/8"	C	1/8" G
3	1/4"	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

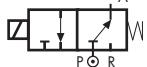
Plug	
0A1	c/w plug
	w/o plug

GD	3	6	.	.	V	E
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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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm) 1→2 1→3		Seal Material	Valve Code
			AC Voltages	DC Voltages	1.5	1.5		
1/4"	0.09	0.08	0 - 15	0 - 15	1.5	1.5	FKM	SD363CV_C
1/4"	0.15	0.13	0 - 15	0 - 15	2.0	2.0	FKM	SD363CV_E
1/4"	0.24	0.20	0 - 13	0 - 13	2.5	2.5	FKM	SD363CV_G

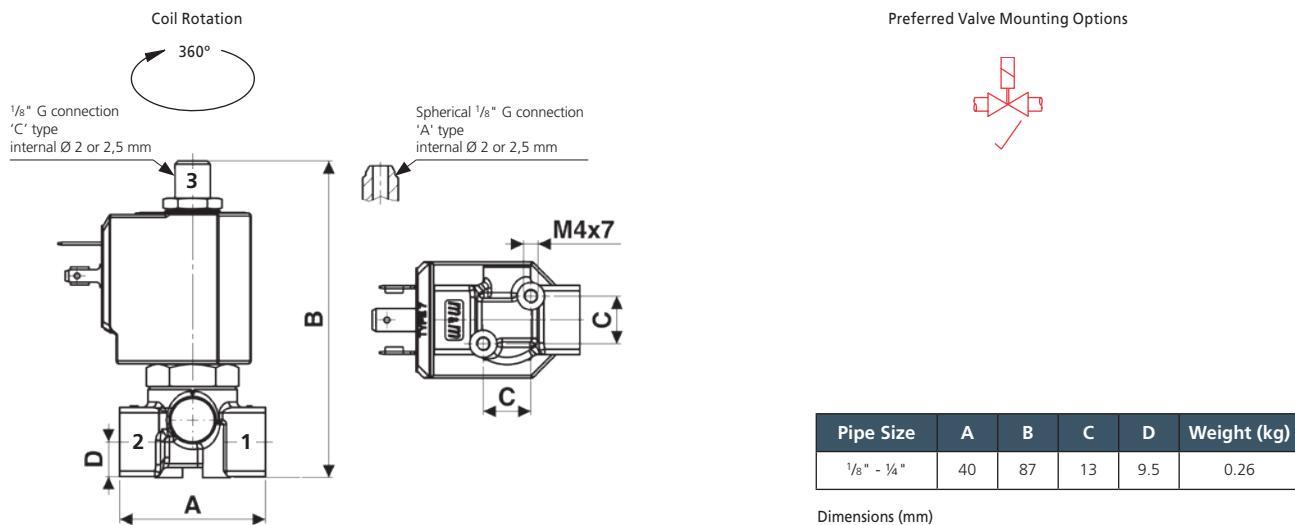
Options Available

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 compatibility.

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



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	Top port connection
2 1/8"	C 1/8" G
3 1/4"	A spherical 1/8" G

Orifice	Option
C 1.5	N PNT
E 2.0	M Manual Override
G 2.5	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
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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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)		Seal Material	Valve Code
			AC Voltages	DC Voltages	1→2	1→3		
1/4"	0.09	0.08	0 - 20	0 - 20	1.5	2.5	FKM	DD363CV_C
1/4"	0.15	0.13	0 - 20	0 - 20	2.0	2.5	FKM	DD363CV_E

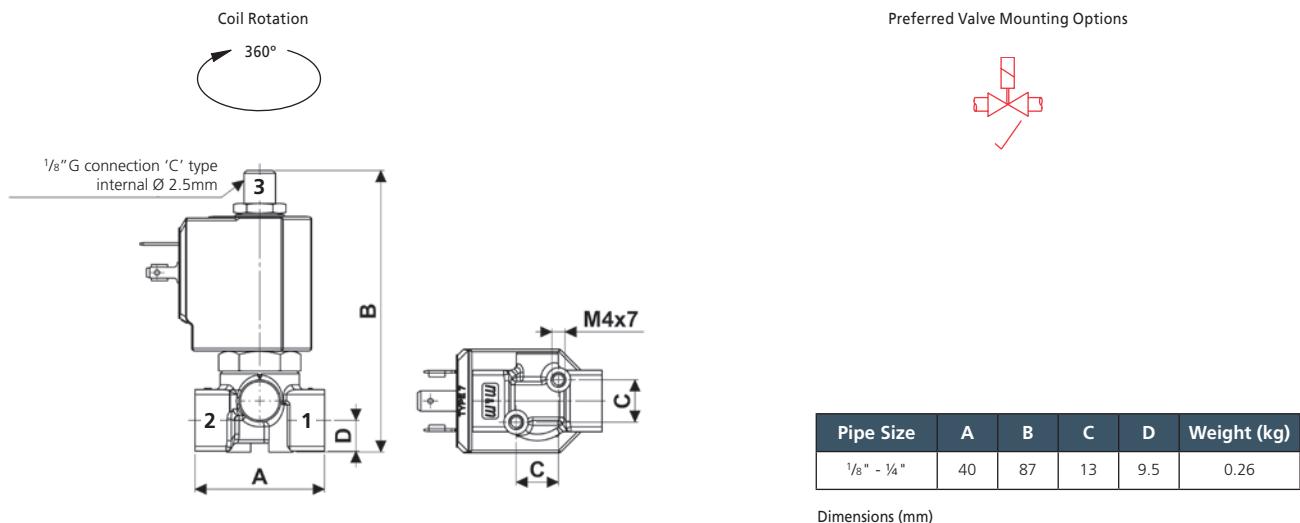
Options Available

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 compatibility.

DD362/363 Series, Automation – Diverting 3/2 (Normally Open)



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

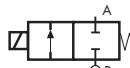
Main Valve Assembly

Pipe Size	Orifice	Option	Voltage / Frequency - Class F	Plug
2 1/8"	C 1.5	N NPT	7250 24 VDC	0A1 c/w plug
3 1/4"	E 2.0	M Manual Override	7200 24 V / 50/60 Hz	w/o plug
		w/o option	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	
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 overheat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code ¹
			AC Voltages	DC Voltages			
1/4"	0.05	0.04	0 - 200	0 - 110	1.2	RUBY	D299DRB1
1/4"	0.08	0.07	0 - 200	0 - 80	1.5	RUBY	D299DRB1
1/4"	0.16	0.14	0 - 140	0 - 30	2.0	RUBY	D299DRE1
1/4"	0.23	0.20	0 - 90	0 - 23	2.5	RUBY	D299DRG1
1/4"	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.

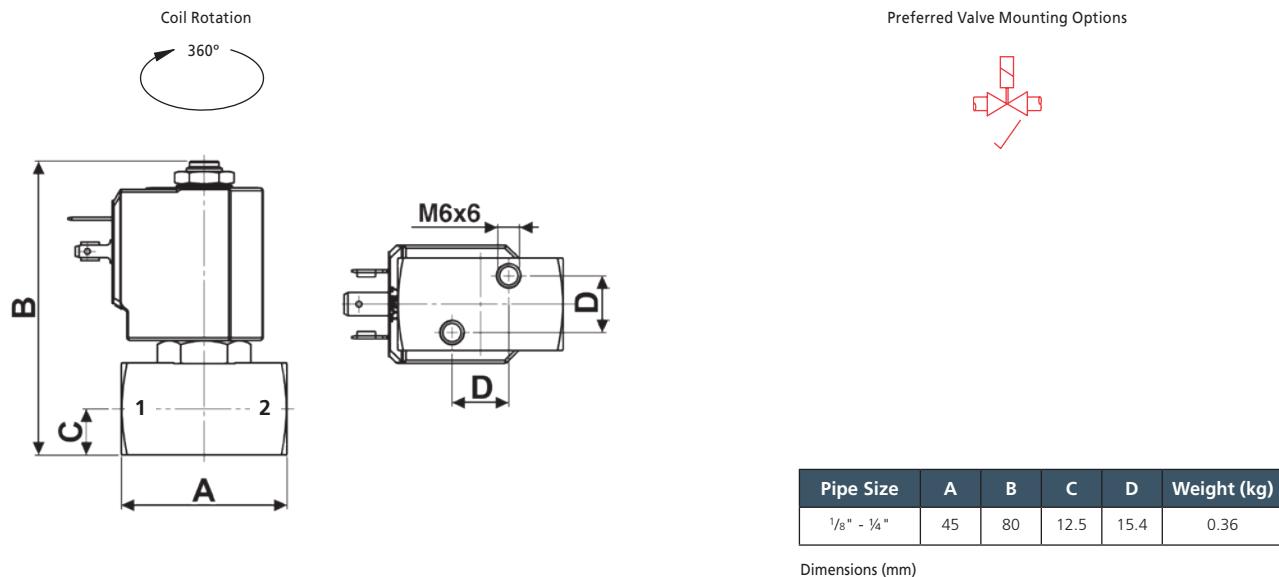
Options Available

Valve Options (see coding chart)
Body threaded connection G 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
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 compatibility.

D298/299 Series, High Pressure – 2/2 Normally Closed



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



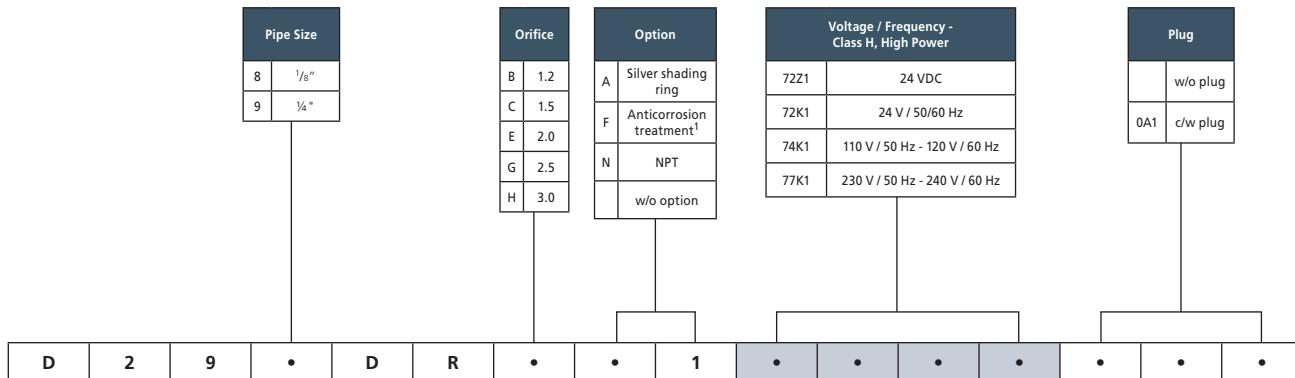
Insulation class: group C- VDE 0110

Housing colour: black

UL approved, file No: E205538

Coding chart

Main Valve Assembly

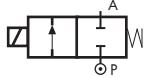


¹ Recommended with aggressive fluids.

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 overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.05	0.04	0 - 200	0 - 60	1.2	RUBY	D263DRB1
1/4"	0.09	0.08	0 - 200	0 - 35	1.5	RUBY	D263DRC1
1/4"	0.15	0.13	0 - 120	0 - 25	2.0	RUBY	D263DRE1
1/4"	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.

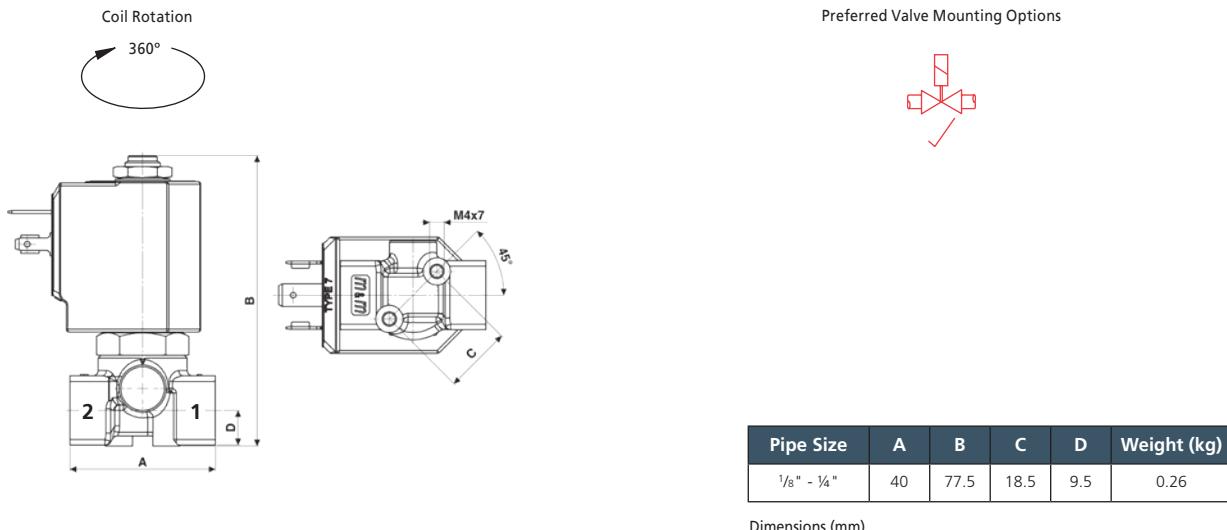
Options Available

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 compatibility.

D262DR-1/263DR-1 Series, High Pressure – 2/2 Normally Closed



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.



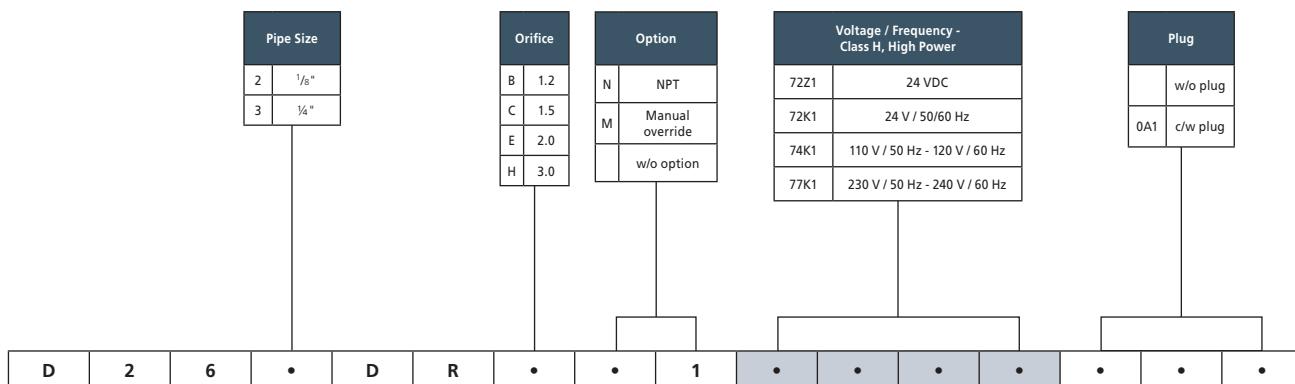
Type 600 011- Plug

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

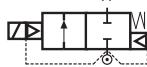
Main Valve Assembly



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 over seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.47	1.26	0.3 - 140	0.3 - 35	10	PTFE	D634DTT1
3/8"	1.68	1.44	0.3 - 140	0.3 - 35	10	PTFE	D635DTT1
1/2"	1.76	1.50	0.3 - 140	0.3 - 35	10	PTFE	D636DTT1

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

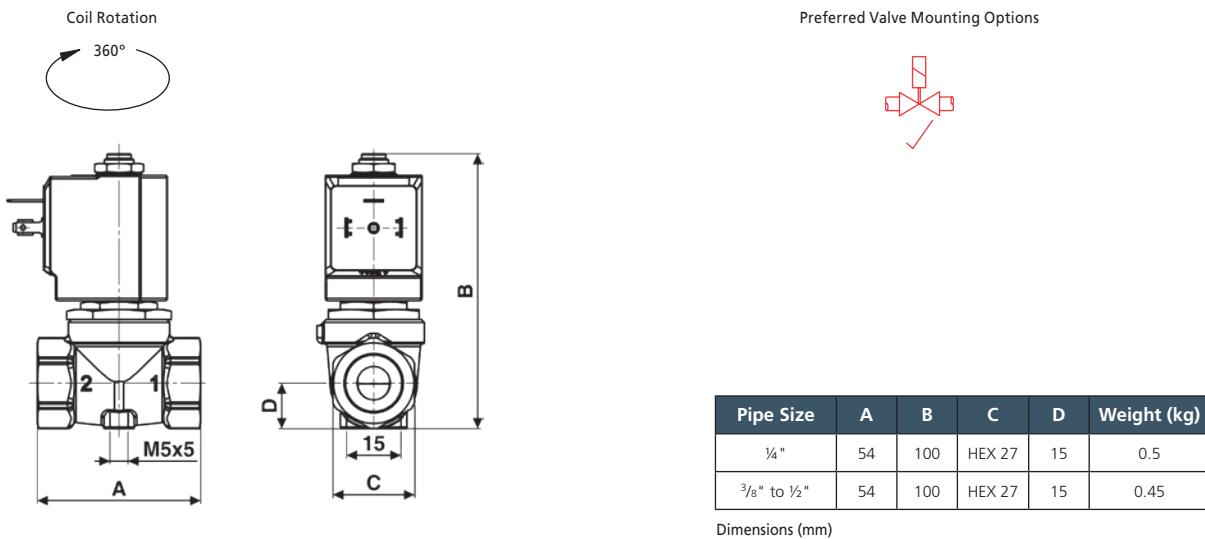
ATTENTION: when high pressure valves are supplied without a coil, their nameplates display the max OPD of the valve when equipped with an AC (25VA) and DC(22W) coil. If fitting coils with a different power rating OPD will vary, please consult supplier for more details.

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 compatibility.

D634/635/636DTT1 Series, High Pressure – 2/2 Normally Closed



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.

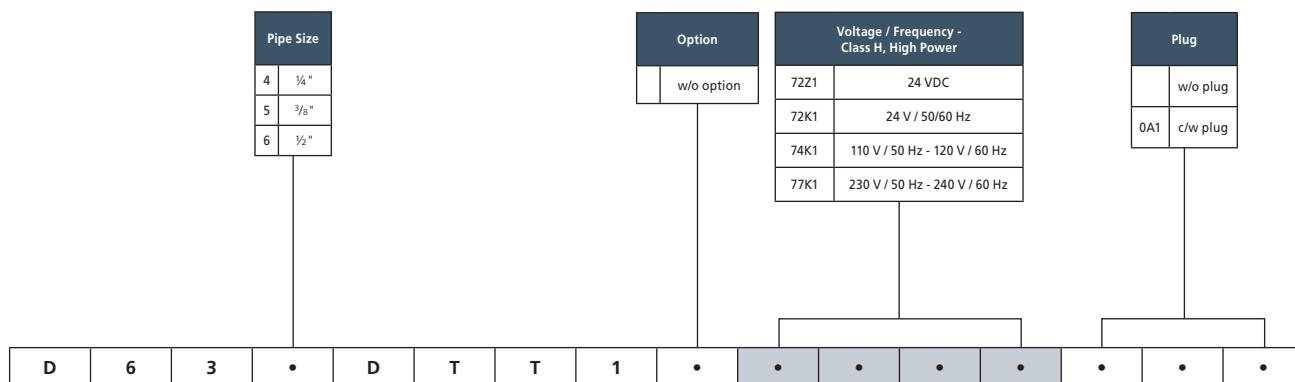
Type 600 011- Plug

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

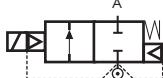
Main Valve Assembly



Product coding example:

D634DTT1 72Z1
 1/4" 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 overset 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-D\u00d7W 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
- Manufactured 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 (m³/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	D232D\u00d7W ²
1/2"	3.23	2.76	1 - 50	1 - 50	16	PTFE	D233D\u00d7W ²
3/4"	3.37	2.88	1 - 50	1 - 50	16	PTFE	D234D\u00d7W ²
3/8"	2.95	2.52	1 - 25	1 - 25	16	FKM	D232D\u00d7W ³
1/2"	3.23	2.76	1 - 25	1 - 25	16	FKM	D233D\u00d7W ³
3/4"	3.37	2.88	1 - 25	1 - 25	16	FKM	D234D\u00d7W 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

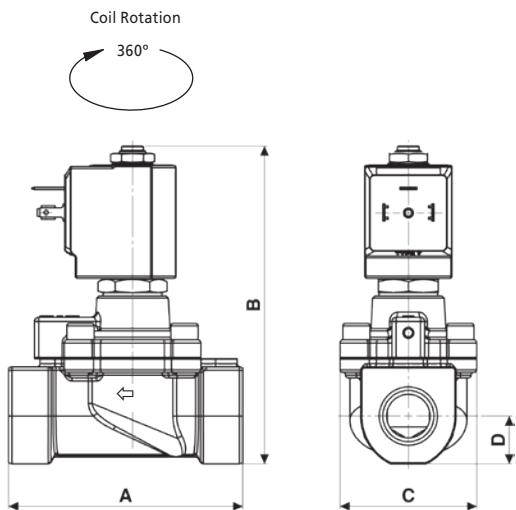
Valve Options (see coding chart)
NPT threads (minimum batch may be required)

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

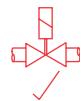
⁴ See corrosion reference guide and sealing solutions for material compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8"	86	116.5	50.2	17.5	1
1/2" - 3/4"	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



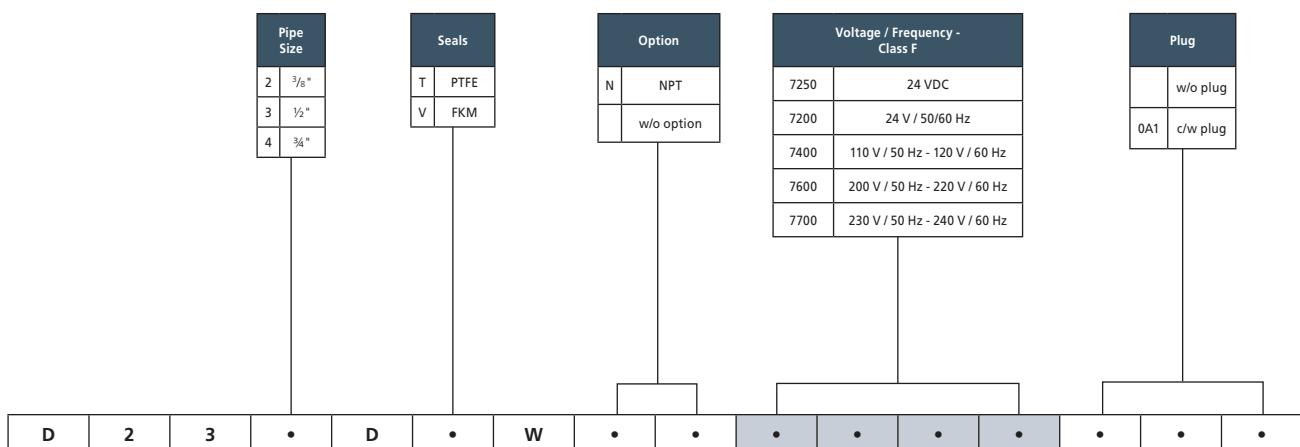
Insulation class: group C- VDE 0110

Housing colour: black

UL approved, file No: E205538

Coding chart

Main Valve Assembly



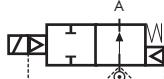
Product coding example:

D232DTW 7200
3/8" G, auto operation, brass body, PTFE main seal, 16 mm orifice, 24 V / 50/60 Hz, without plug.

Plug

Plug
w/o plug
c/w plug

RD232/233/234 Series, High Pressure – 2/2 Normally Open

Specifications	
Function (single acting)	 Flow direction over seat 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-D\u2022W 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
- Manufactured 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 (m³/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	RD232DTW ²
1/2"	3.23	2.76	1 - 50	1 - 50	16	PTFE	RD233DTW ²
3/4"	3.37	2.88	1 - 50	1 - 50	16	PTFE	RD234DTW ²
3/8"	2.95	2.52	1 - 25	1 - 25	16	FKM	RD232DW ³ W ³
1/2"	3.23	2.76	1 - 25	1 - 25	16	FKM	RD233DW ³ W ³
3/4"	3.37	2.88	1 - 25	1 - 25	16	FKM	RD234DW ³ W 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

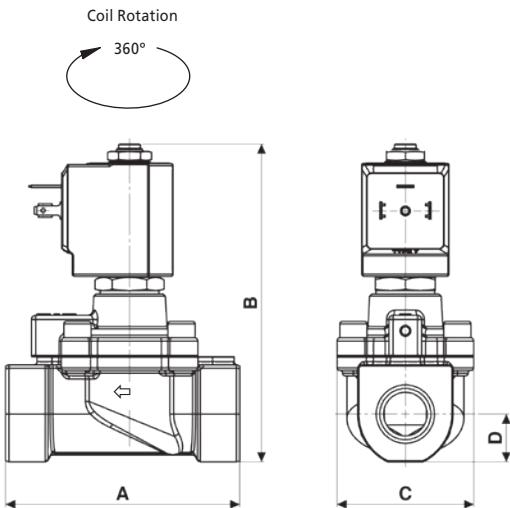
Valve Options (see coding chart)
NPT threads (minimum batch may be required)

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 compatibility.

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



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8"	86	116.5	50.2	17.5	1
1/2" - 3/4"	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

Housing colour: black



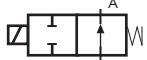
Coding chart

Main Valve Assembly

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 overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.03	0 - 180	0 - 180	1.0	RUBY	RD236DR-A1
1/4"	0.09	0.08	0 - 150	0 - 150	1.5	RUBY	RD236DR-C1
1/4"	0.14	0.12	0 - 60	0 - 60	2.0	RUBY	RD236DR-E1
1/4"	0.20	0.17	0 - 37	0 - 37	2.5	RUBY	RD236DR-G1
1/4"	0.25	0.21	0 - 28	0 - 28	3.0	RUBY	RD236DR-H1

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.

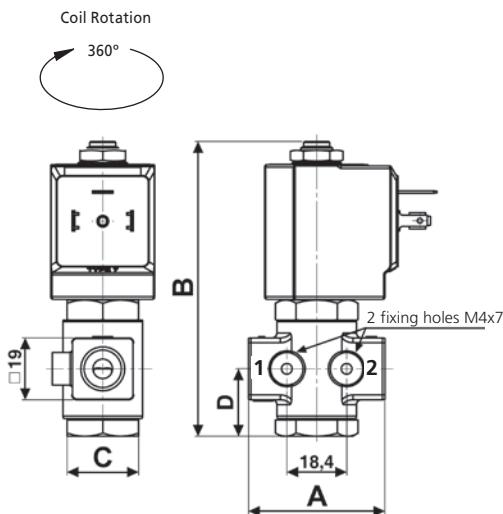
Options Available

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 compatibility.

RD236DR-1 Series, High Pressure – 2/2 Normally Open



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/4"	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



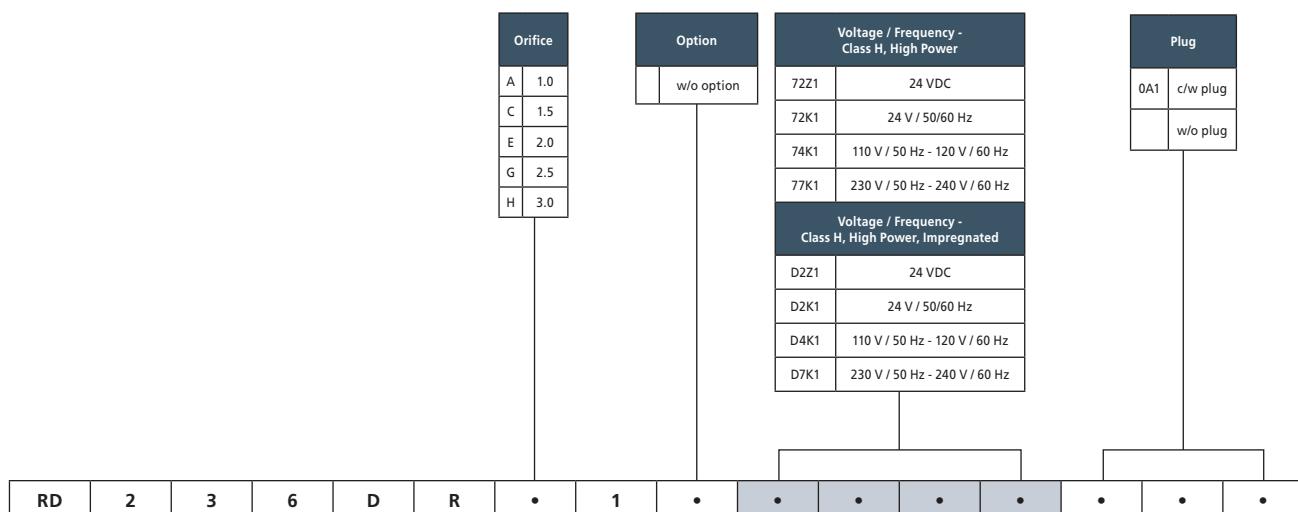
Insulation class: group C - VDE 0110

Housing colour: black

UL approved, file No: E205538

Coding chart

Main Valve Assembly



Product coding example:

RD236DRC1 72K1
1/4" 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 overset 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms



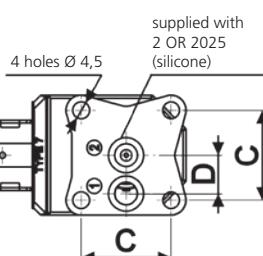
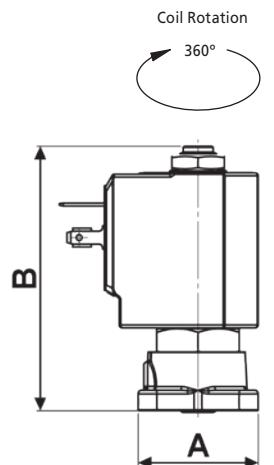
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
Flanged	0.09	0.08	0 - 55	0 - 55	1.5	Ruby	RD201DRC
Flanged	0.24	0.20	0 - 25	0 - 25	2.0	Ruby	RD201DRE
Flanged	0.32	0.27	0 - 10	0 - 10	3.0	Ruby	RD201DRH

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

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 compatibility.

RD201 Series High Pressure – 2/2 Normally Open



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	Option	Voltage / Frequency - Class H	Plug
C 1.5	w/o option	7251 24 VDC	
E 2.0		7201 24 V / 50/60 Hz	w/o plug
H 3.0		7401 110 V / 50 Hz - 120 V / 60 Hz	
		7601 200 V / 50 Hz - 220 V / 60 Hz	c/w plug
		7701 230 V / 50 Hz - 240 V / 60 Hz	
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.

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
- Manufactured 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 (m³/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	RB214CV RB214CED

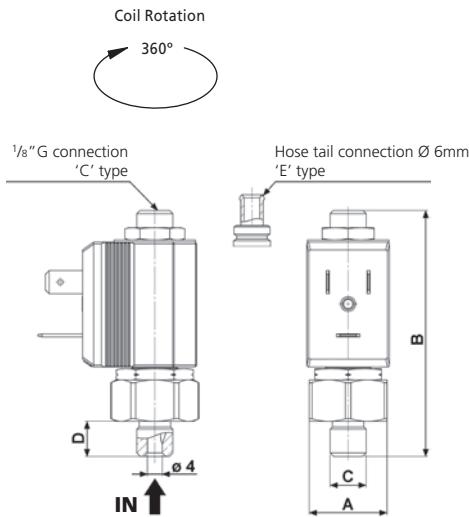
Options Available

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 compatibility.

RB214 Series, Compressed Air – 2/2 Normally Open



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 ENEC)
with plug and gasket correctly fitted



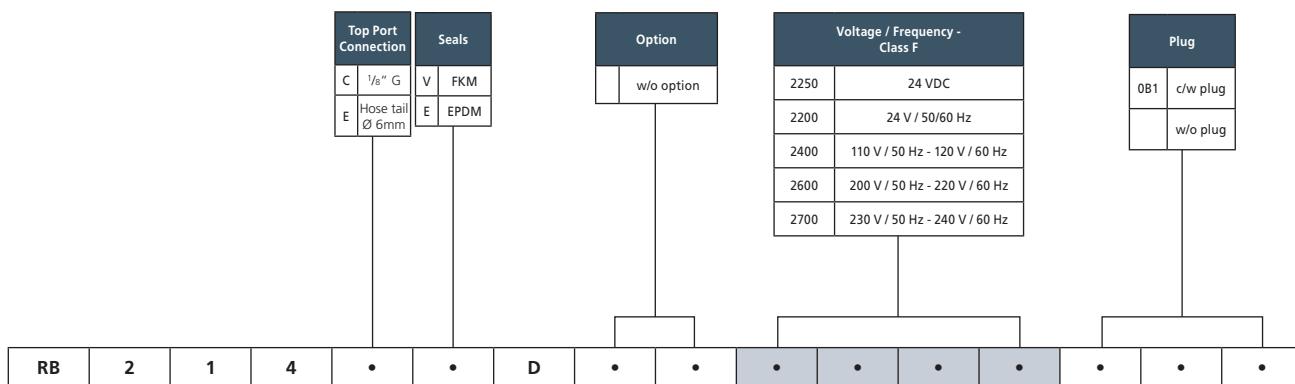
Type 600 001- Plug

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

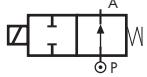
Main Valve Assembly



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
- Manufactured 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 (m³/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

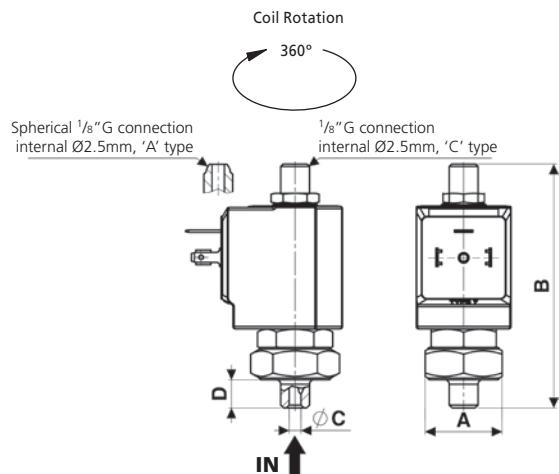
Options Available

Valve Options (see coding chart)
Top port connection with spherical 1/8" G

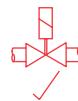
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C
EPDM (-10 °C to +120 °C)	Water, hot water	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.

RD213 Series, Compressed Air – 2/2 Normally Open



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.

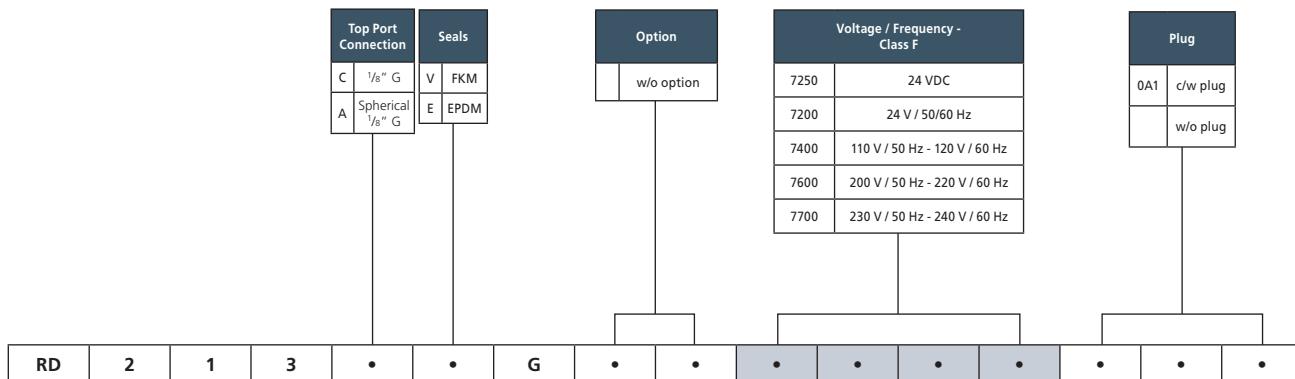
Type 600 011- Plug

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

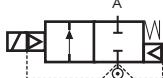


Product coding example:

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
- Manufactured 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 (m³/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 NBR EPDM	D204DVZI D204DBZI D204DEZI
1/2"	4.42	3.78			13	FKM NBR EPDM	D205DVZI D205DBZI D205DEZI
3/4"	9.83	8.40			25	FKM NBR EPDM	D206DVYI D206DBYI D206DEYI
1"	11.23	9.60			25	FKM NBR EPDM	D222DVYI D222DBYI D222DEYI

Options Available

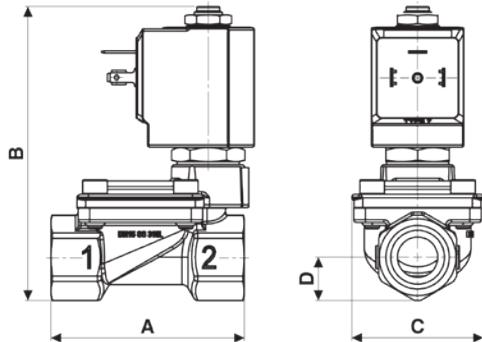
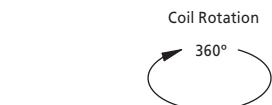
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Manual override
Anticorrosion treatment recommended with aggressive fluids

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

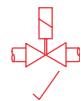
¹ See corrosion reference guide and sealing solutions for material compatibility.

D204/205/206/222 Series, Aggressive Fluids, Stainless Steel –

2/2 Normally Closed



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8" - 1/2"	67	102	45.6	15	0.49
3/4" - 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*



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

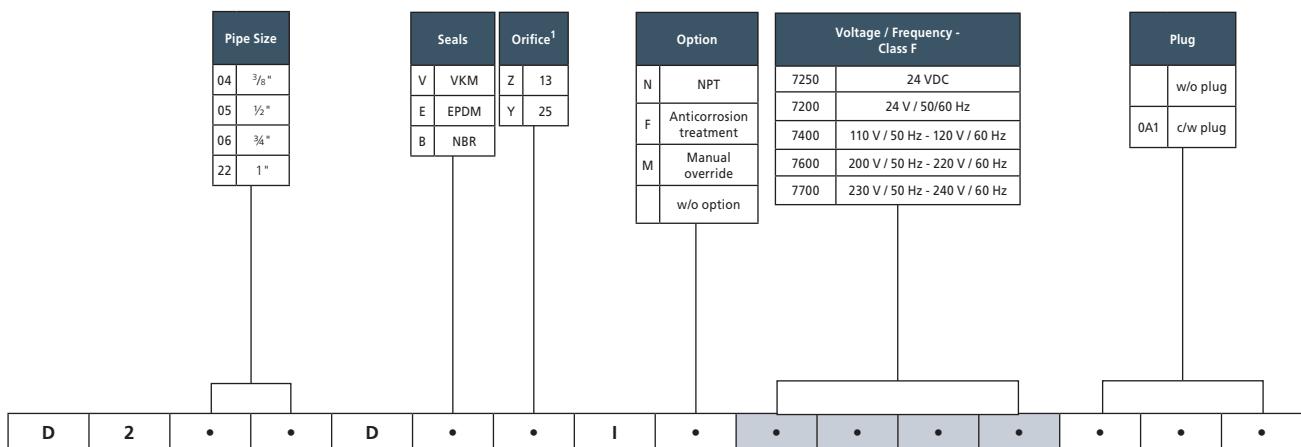
Housing colour: black

UL approved, file No: E205538

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

Coding chart

Main Valve Assembly



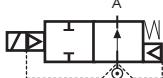
¹ DN13 for D204 and D205, DN25 for D206 and D222.

Product coding example:

D204DVZI 7250

3/8" 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
- Manufactured 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 (m³/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	RD204DVZI		
						NBR	RD204DBZI		
1/2"	4.42	3.78			13	EPDM	RD204DEZI		
						FKM	RD205DVZI		
3/4"	9.83	8.40			25	NBR	RD205DBZI		
						EPDM	RD205DEZI		
1"	11.23	9.60			25	FKM	RD206DVYI		
						NBR	RD206DBYI		
						EPDM	RD206DEYI		
						FKM	RD222DVYI		
						NBR	RD222DBYI		
						EPDM	RD222DEYI		

Options Available

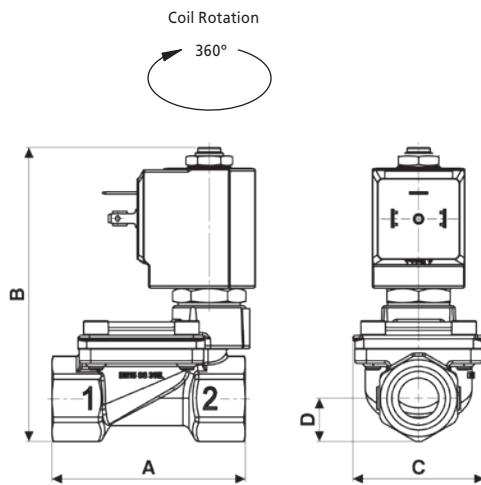
Valve Options (see coding chart)
NPT threads (minimum batch may be required)
Anticorrosion treatment recommended with aggressive fluids

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

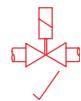
¹ See corrosion reference guide and sealing solutions for material compatibility.

RD204/205/206/222 Series, Aggressive Fluids, Stainless Steel –

2/2 Normally Open



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
3/8" - 1/2"	67	100	45.6	15	0.49
3/4" - 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.

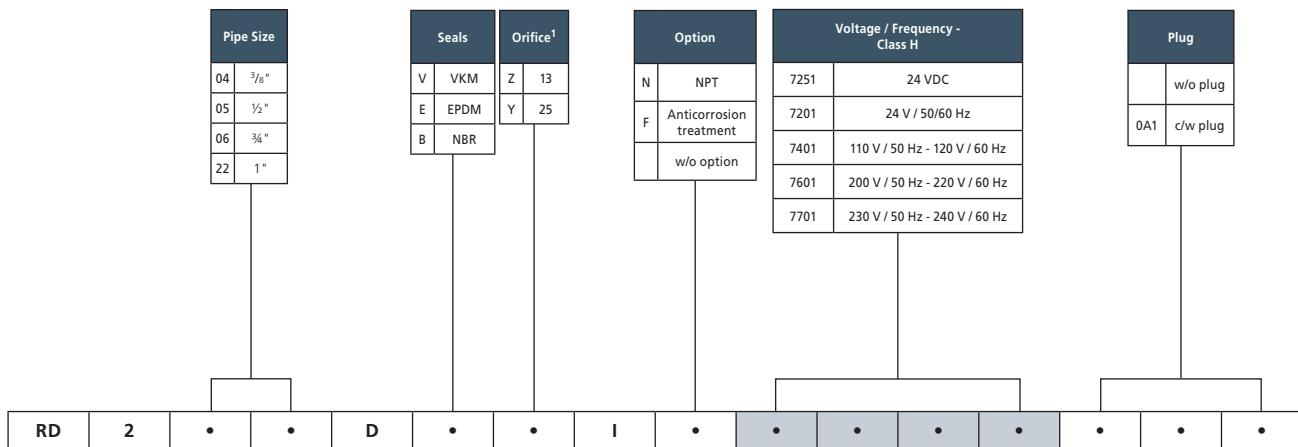
Type 600 011- Plug

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

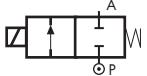


¹ DN13 for RD204 and RD205, DN25 for RD206 and RD222.

Product coding example:

RD204DVZI 7250 3/8" 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 overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.03	0 - 9	0 - 9	1.0	Filled PTFE	D263DLA
1/4"	0.09	0.08	0 - 9	0 - 9	1.5	Filled PTFE	D263DLC
1/4"	0.24	0.20	0 - 9	0 - 8	2.5	Filled PTFE	D263DLG
1/4"	0.32	0.27	0 - 9	0 - 5	3.0	Filled PTFE	D263DLH

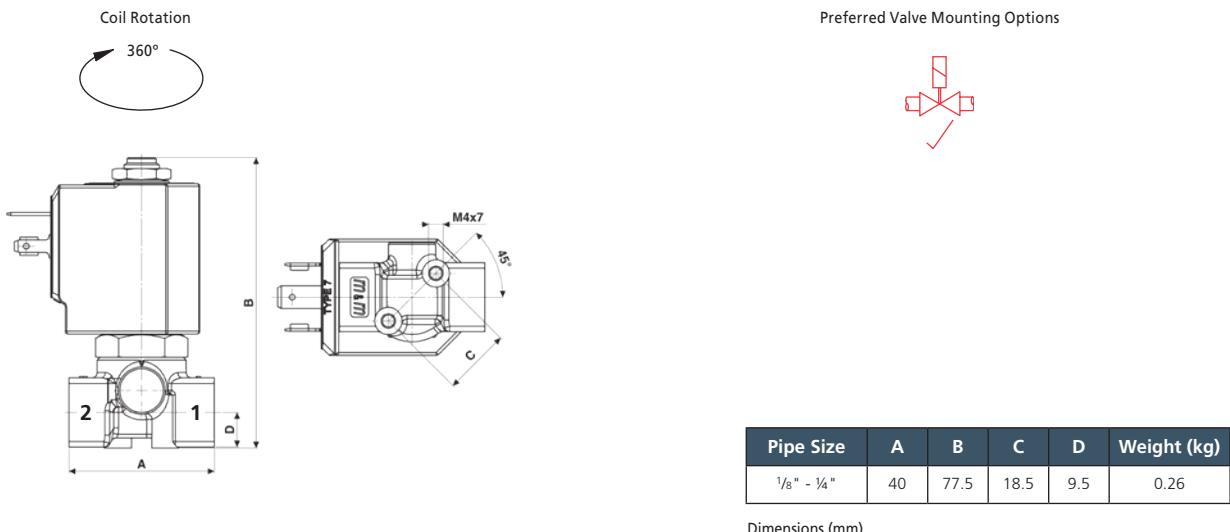
Options Available

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
Filled PTFE (-10 °C to +180 °C)	Steam	-10 °C	+70 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.

D262DL/263DL Series, Steam – 2/2 Normally Closed



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

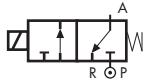
Main Valve Assembly

Pipe Size		Orifice		Option		Voltage / Frequency - Class H		Plug	
2	1/8"	A	1.0	N	NPT	7251	24 VDC	0A1	w/o plug
3	1/4"	C	1.5	M	Manual override	7201	24 V / 50/60 Hz		c/w plug
		G	2.5		w/o option	7401	110 V / 50 Hz - 120 V / 60 Hz		
		H	3.0			7601	200 V / 50 Hz - 220 V / 60 Hz		
D	2	6	•	D	L	7701	230 V / 50 Hz - 240 V / 60 Hz	•	•

Product coding example:

D263DLA 7251
 1/4" 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 under seat 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.09	0.08	0 - 9	0 - 9	1.5	filled PTFE	D399CLC
1/4"	0.15	0.13	0 - 9	0 - 9	2.0	filled PTFE	D399CLE
1/4"	0.32	0.27	0 - 5	0 - 5	3.0	filled PTFE	D399CLH

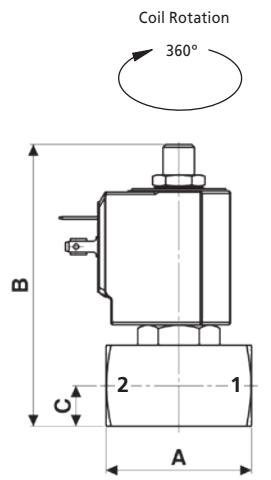
Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"
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 compatibility.

D398/399CL Series, Steam – 3/2 Normally Closed



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.



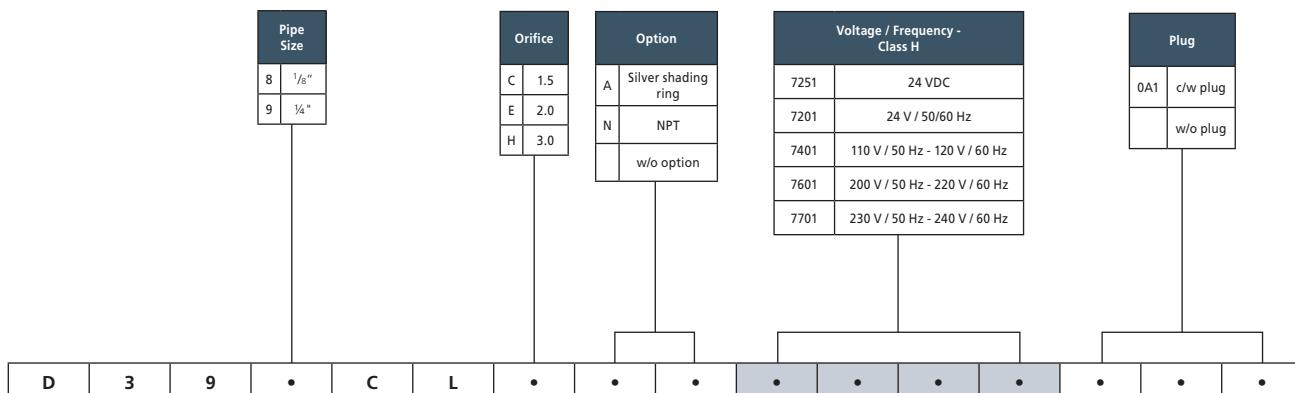
Type 600 011- Plug

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

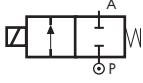
Main Valve Assembly



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 over seat 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

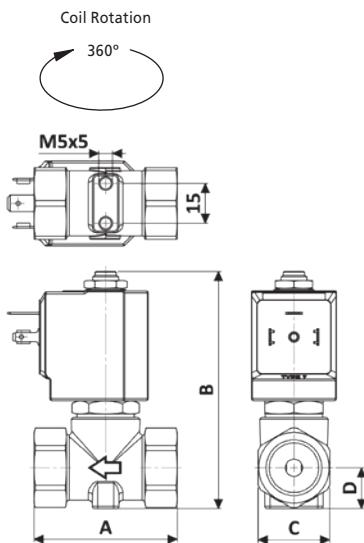


Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
3/8"	0.32	0.27	0 - 9	0 - 8	3.0	Filled PTFE	D238DLH
3/8"	0.53	0.45	0 - 5	0 - 2	5.0	Filled PTFE	D238DLN
1/2"	0.35	0.30	0 - 9	0 - 5	3.5	Filled PTFE	D239DLI

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 compatibility.

D238/239 Series, Steam – 2/2 Normally Closed



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.



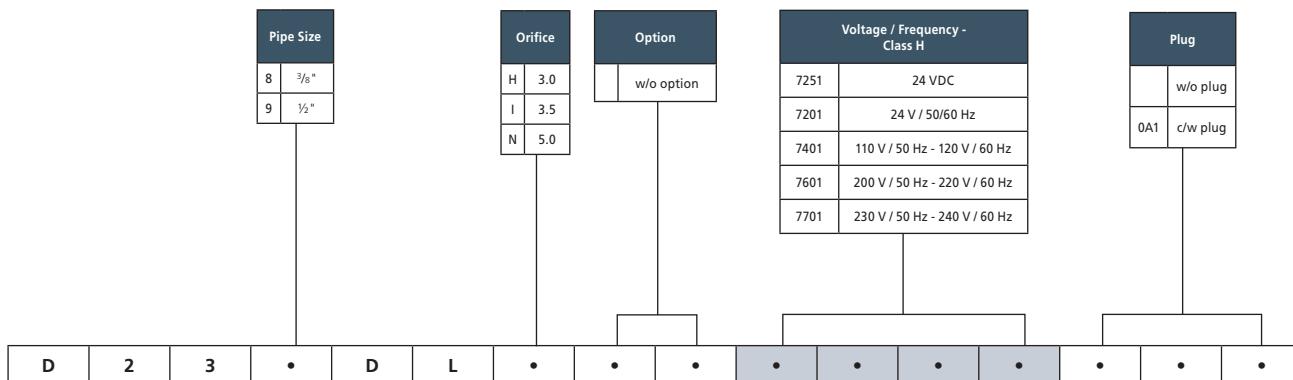
Type 600 011- Plug

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

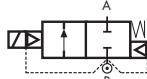
Main Valve Assembly



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 overset 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms



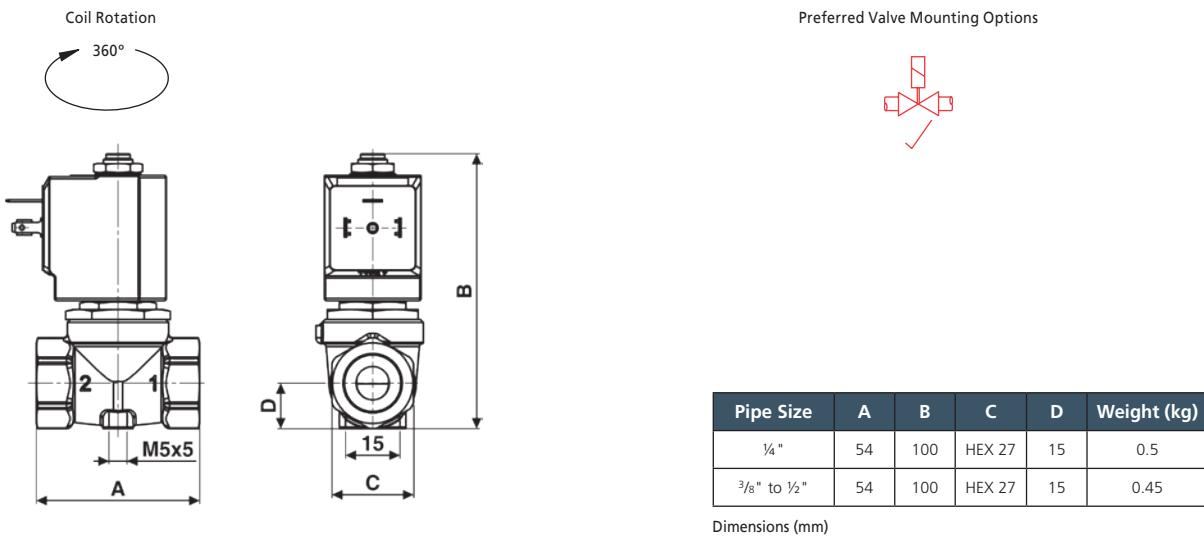
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.47	1.26	0.3 - 9	0.3 - 9	10	PTFE	D634DIT
3/8"	1.68	1.44			10	PTFE	D635DIT
1/2"	1.76	1.50			10	PTFE	D636DIT

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 compatibility.

² For correct functioning, the minimum working temperature of the solenoid valve cannot be below 80 °C.

D634/635/636 Series, Steam – 2/2 Normally Closed



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.

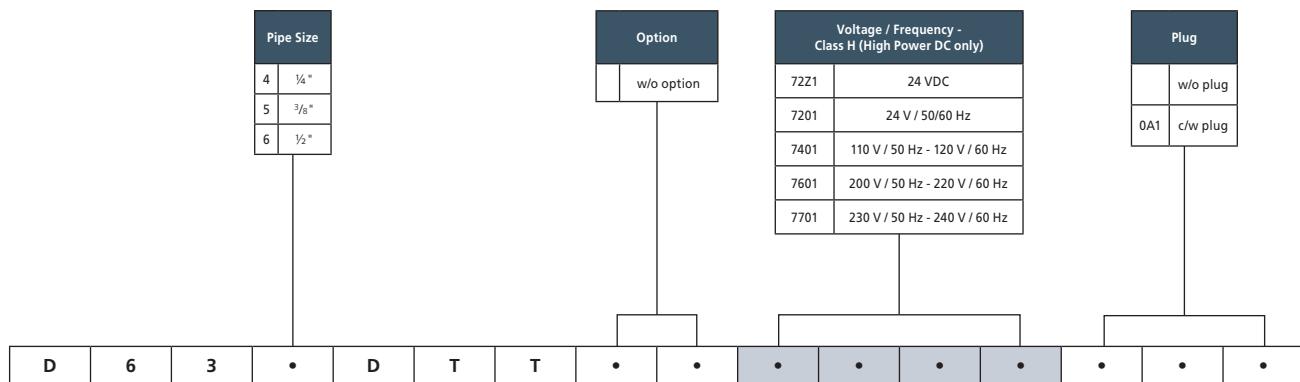
Type 600 011- Plug

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



Product coding example:

D634DTT 72Z1
 1/4" G, auto operation, brass body, PTFE seals, 10 mm orifice, 24 VDC, 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



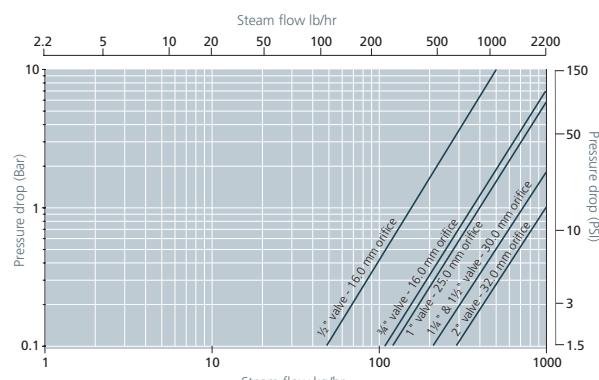
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
½"	4.9	4.2	0.3-8.6	0.3-4.8	50	16.00	1.3
¾"	6.3	5.4	0.3-8.6	0.3-4.8		16.00	1.3
1"	8.2	7.1	0.3-8.6	0.3-4.8		25.00	2.3
1¼"	20.9	18	0.3-8.6	0.3-4.8		30.00	3.0
1½"	20.9	18	0.3-8.6	0.3-4.8		30.00	3.0
2"	24.4	21	0.3-8.6	0.3-4.8		32.00	5.2

Options Available

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 compatibility.

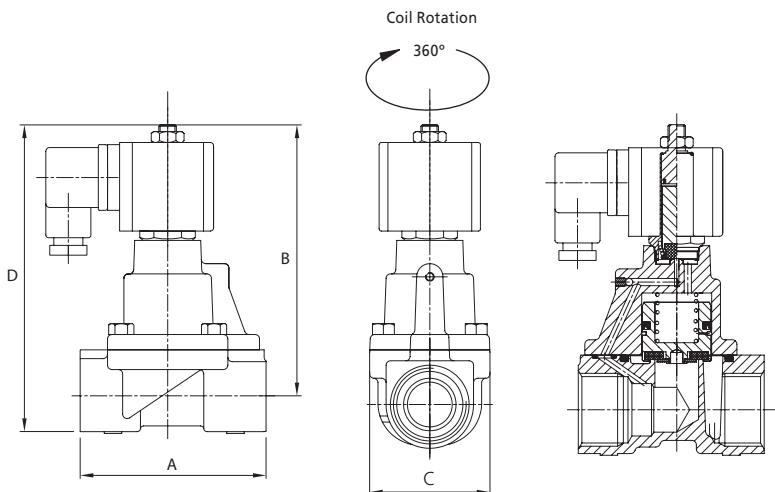
Main Valve Assembly Options
Stainless steel body 316 (available up to 1")
NPT Threads
Stainless steel tagging



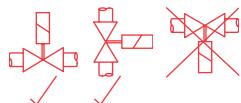
How to use the flow chart

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

ACPX Series: Steam – 2/2 Normally Closed



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	Enclosure	Voltage / Frequency	Electrical Connection
22 ACPX	D ½"	1 BS21	1 AUTO	1 Brass (standard on valves up to and including 1")	E PTFE	1 Standard		A1 230 V / 50 Hz	1 Din plug 9 mm
	E ¾"	2 BSP G	2 MANUAL OVERRIDE	2 Bronze (standard on valves above 1")				A2 110 V / 50 Hz & 120 V / 50 Hz	
	F 1"	3 NPT		5 316 Stainless Steel (option available up to and inc 1")				A3 24 V / 50 Hz	
	G 1¼"	4 FLANGED (PN16 STD)						A7 220 V / 50 Hz	
	H 1½"							B2 24 VDC	
	J 2"							B3 12 VDC	
								B5 110 VDC	
22	*	*	*	Z	*	E	1	-	1
								..	1

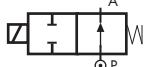
Product coding example:

22D11Z1E1-1A11 - ACPX Series
½" BS21, auto operation, brass body, PTFE seals, 230 V / 50 Hz DIN Plug 9 mm.

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	

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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 5 to 25 ms

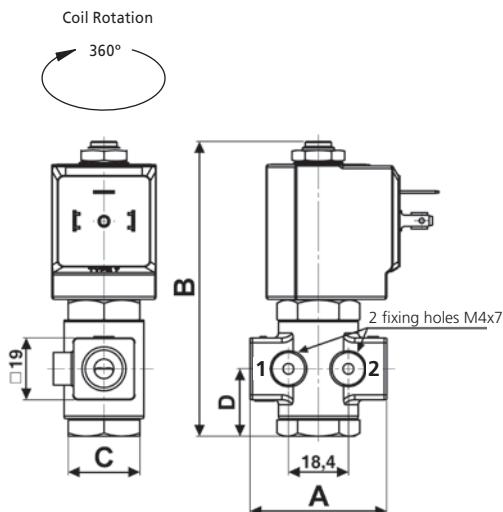


Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.03	0 - 9	0 - 9	1.0	filled PTFE	RD236DLA
1/4"	0.09	0.08	0 - 9	0 - 9	1.5	filled PTFE	RD236DLC
1/4"	0.14	0.12	0 - 9	0 - 9	2.0	filled PTFE	RD236DLE
1/4"	0.25	0.21	0 - 9	0 - 9	3.0	filled PTFE	RD236DLH

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 compatibility.

RD236DL Series, Steam – 2/2 Normally Open



Preferred Valve Mounting Options



Pipe Size	A	B	C	D	Weight (kg)
1/4"	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

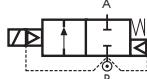
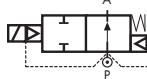
Main Valve Assembly

RD	2	3	6	D	L	•	Orifice		Option		Voltage / Frequency - Class H					Plug									
							A	1.0	C	1.5	E	2.0	H	3.0	w/o option	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
RD	2	3	6	D	L	•																			

Product coding example:

RD236DLE 7251
 1/4" 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)	 <p>Flow direction overseat 1 → 2</p>
Function NO (single acting)	 <p>Flow direction overseat 1 → 2</p>
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
- Manufactured 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 (m³/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 compatibility.

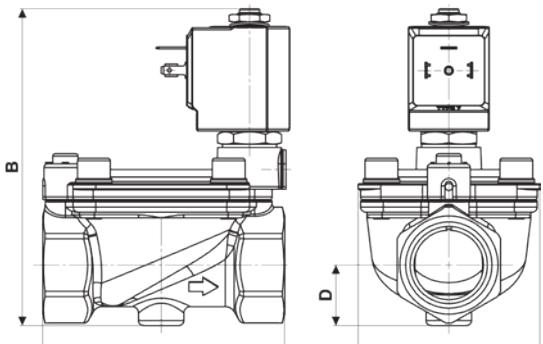
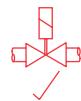
² Water and high content of condensate can damage the diaphragm.

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



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.

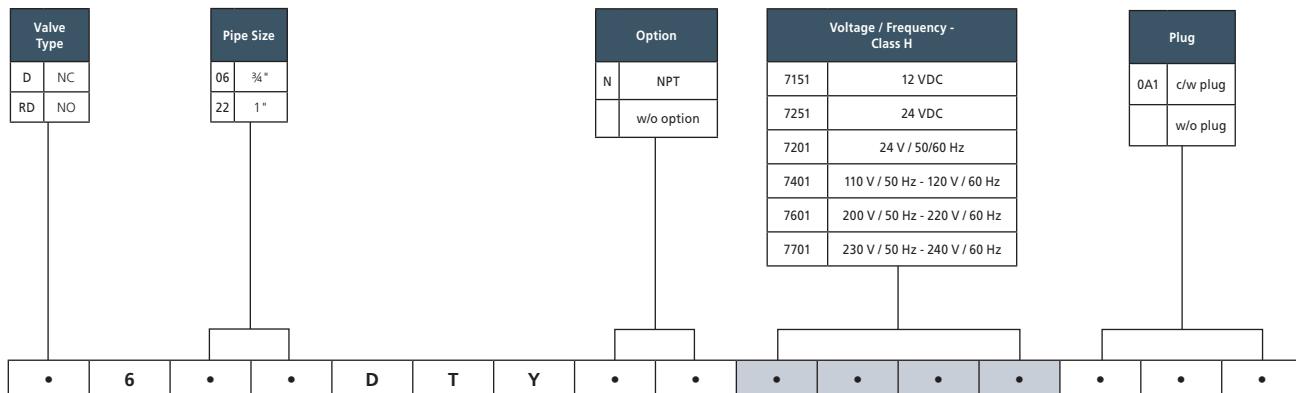
Type 600 011- Plug

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



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
- Manufactured 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) (m³/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

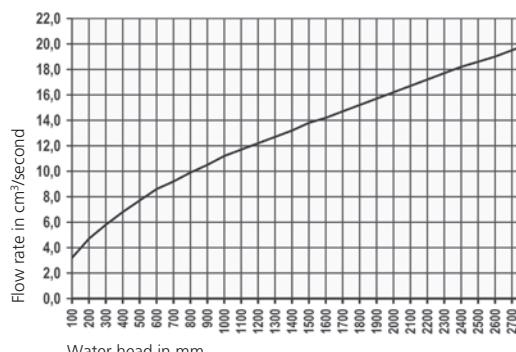
Options Available

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 compatibility.

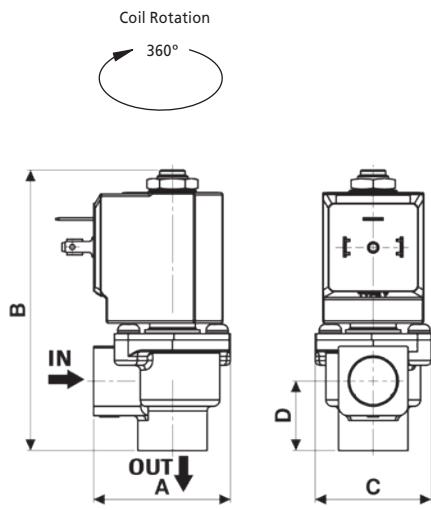
Flow chart



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



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.

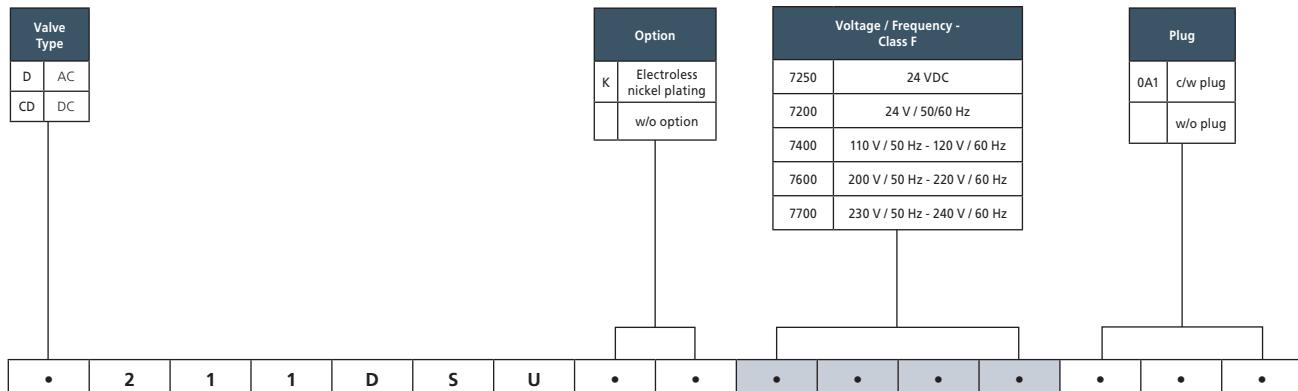
Type 600 011- Plug

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

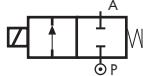
Main Valve Assembly



Product coding example:

D211DSU 7250
 3/8" G, auto operation, brass body, silicone FDA seals, 10.5 mm orifice, 24 VDC, without plug.

D262/263 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overset 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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.04	0.03	-0.9 to 1	-0.9 to 1	1.0	FKM NBR	D263DV _A L D263DB _A L
1/4"	0.09	0.08	-0.9 to 1	-0.9 to 1	1.5	FKM NBR	D263DV _A L D263DB _A L
1/4"	0.24	0.20	-0.9 to 1	-0.9 to 1	2.5	FKM NBR	D263DV _B GL D263DB _B GL
1/4"	0.32	0.27	-0.9 to 1	-0.9 to 1	3.0	FKM NBR	D263DV _B H D263DB _B H
1/4"	0.42	0.36	-0.9 to 1	-0.9 to 1	4.0	FKM NBR	D263DV _B LL D263DB _B LL
1/4"	0.53	0.45	-0.9 to 1	-0.9 to 1	5.0	FKM NBR	D263DV _B NL D263DB _B NL
1/4"	0.56	0.48	-0.9 to 1	-0.9 to 1	6.0	FKM NBR	D263DV _B PL D263DB _B PL

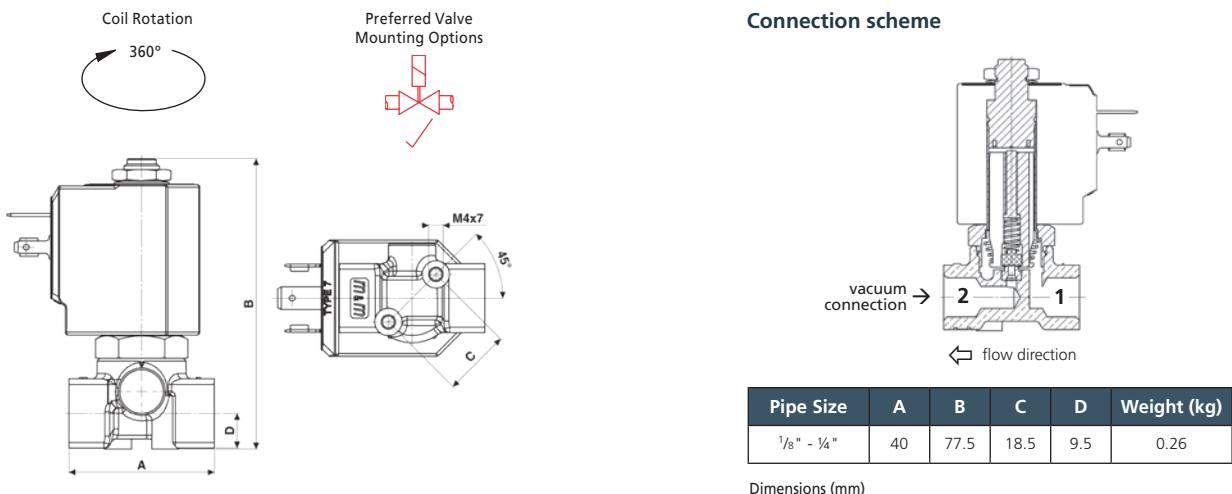
Options Available

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
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.
Other seals material on request.

D262/263 Series, Vacuum – 2/2 Normally Closed



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.

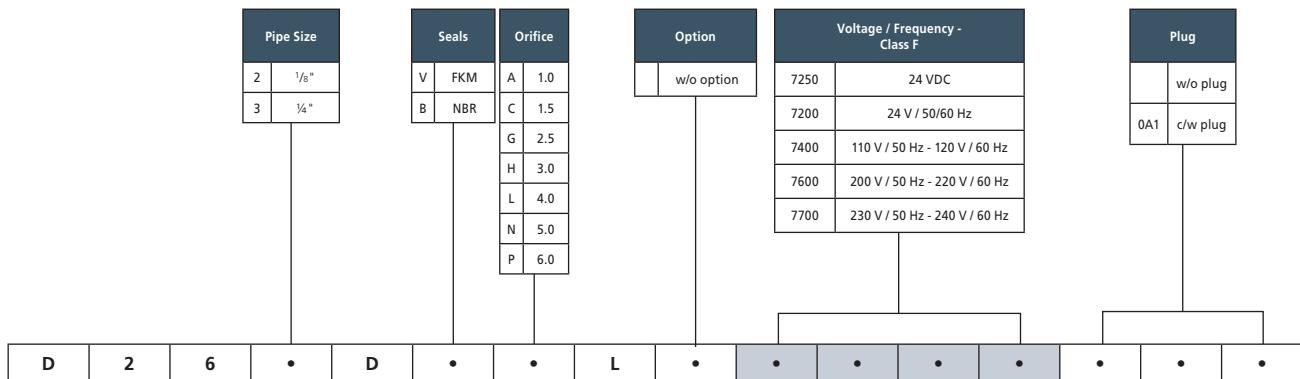
Type 600 011- Plug

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

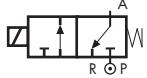
Main Valve Assembly



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 underside 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  us Coil Voltage DC (=)	24 V
c  us Coil Voltage AC 50 Hz (-)	24 V, 110 V, 230 V
c  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  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
- Manufactured 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 (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	0.15	0.13	0 to -0.95	0 to -0.95	2.0	FKM	D363CVEL
1/4"	0.24	0.20	0 to -0.95	0 to -0.95	2.5	FKM	D363CVGL
1/4"	0.32	0.27	0 to -0.95	0 to -0.95	3.0	FKM	D363CVHL
1/4"	0.42	0.36	0 to -0.95	0 to -0.95	4.0	FKM	D363CVLL

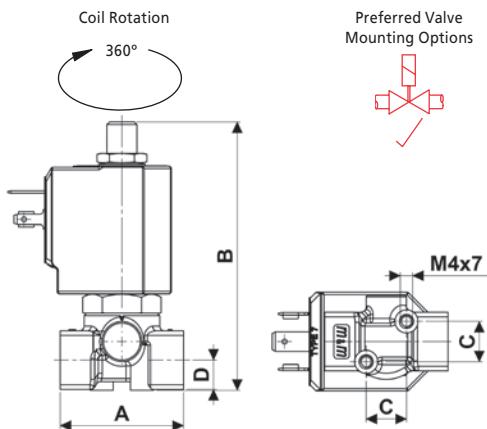
Options Available

Valve Options (see coding chart)
Body threaded connection G 1/8"

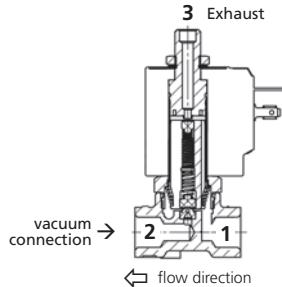
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
FKM (-10 °C to +130 °C)	Water, oil, air	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.
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 cULus 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*



UL approved, file No: E193928

* 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		Orifice			
2	1/8"	E		2.0	
3	1/4"	G		2.5	
		H		3.0	
		L		4.0	

Coil options

Option	Voltage / Frequency - Class F		Voltage / Frequency - Class H	
	w/o option			
7250	24 VDC		7251	24 VDC
7200	24 V / 50/60 Hz		7201	24 V / 50/60 Hz
7400	110 V / 50 Hz - 120 V / 60 Hz		7401	110 V / 50 Hz - 120 V / 60 Hz
7600	200 V / 50 Hz - 220 V / 60 Hz		7601	200 V / 50 Hz - 220 V / 60 Hz
7700	230 V / 50 Hz - 240 V / 60 Hz		7701	230 V / 50 Hz - 240 V / 60 Hz
Voltage / Frequency - Class F - cULus 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

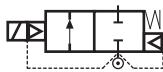
D	3	6	*	C	V	*	L	*	*	*	*	*	*	*	*
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Product coding example:

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 under seat 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
Coil Voltage DC (=)	24 V
Coil Voltage AC 50 Hz (-)	24 V, 110 V, 230 V
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 ^W)	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
- Manufactured in compliance to RoHS directive and to relevant international standards
- High quality seal materials
- Response time 50 to 500 ms



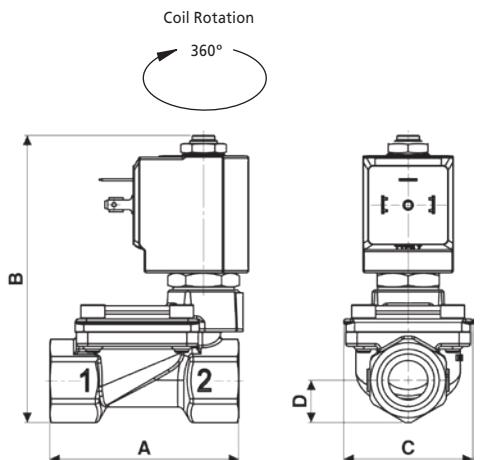
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.83	1.56	-0.2 to -0.95	-0.2 to -0.95	13	NBR	D203DBZL
3/8"	3.86	3.30			13	NBR	D204DBZL
1/2"	4.42	3.78			13	NBR	D205DBZL

Options Available

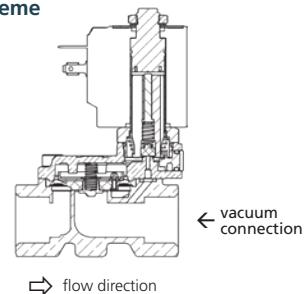
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.
Other seals material on request.

D203/204/205 Series, Vacuum – 2/2 Normally Closed



Connection scheme



Pipe Size	A	B	C	D	Weight (kg)
1/4" to 1/2"	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 cULus 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*
 UL approved, file No: E193928



* 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	1/4"
204	3/8"
205	1/2"

Product coding example:

D205DBZL 725R
 1/2" G, auto operation, brass body, NBR seals, 13 mm orifice, 24 V / 50/60 Hz cULus approved, without plug.

Coil options

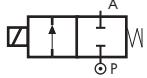
Option		Voltage / Frequency - Class F
w/o option		7250 24 VDC
		7200 24 V / 50/60 Hz
		7400 110 V / 50 Hz - 120 V / 60 Hz
		7600 200 V / 50 Hz - 220 V / 60 Hz
		7700 230 V / 50 Hz - 240 V / 60 Hz
Voltage / Frequency - Class F - cULus approved		
725R		24 VDC
720R		24 V / 50 Hz
740R		110 V / 50 Hz - 120 V / 60 Hz
770R		230 V / 50 Hz - 240 V / 60 Hz

Plug

Plug
w/o plug
OA1 c/w plug



D237/238/239 & CD237/238/239 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction overset 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
- Manufactured in compliance to RoHS directive and to relevant international standards
- Choice of high quality seal materials
- Response time 5 to 25 ms



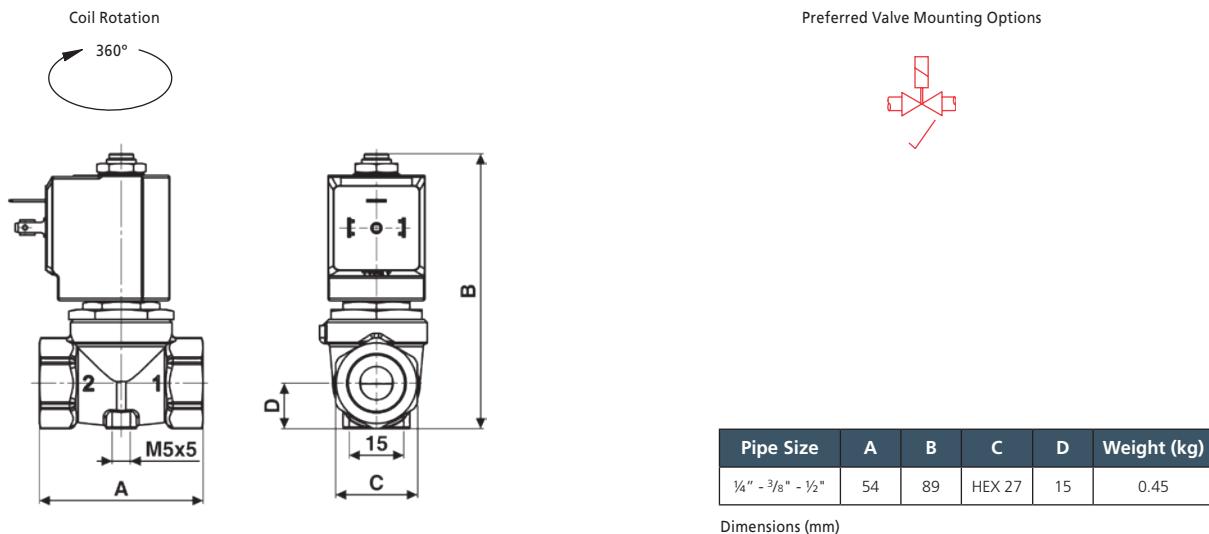
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1/4"	1.49	1.27	0 to -0.95	-	10.5	NBR EPDM	D237DBU1 D237DEU1
3/8"	1.68	1.44	0 to -0.95	-	10.5	NBR EPDM	D238DBU1 D238DEU1
1/2"	1.76	1.50	0 to -0.95	-	10.5	NBR EPDM	D239DBU1 D239DEU1
1/4"	1.49	1.27	-	0 to -0.95	10.5	NBR EPDM	C D237DBU1 C D237DEU1
3/8"	1.68	1.44	-	0 to -0.95	10.5	NBR EPDM	C D238DBU1 C D238DEU1
1/2"	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 compatibility.
Other seals material on request.

D237/238/239 & CD237/238/239 Series, Vacuum – 2/2 Normally Closed



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.



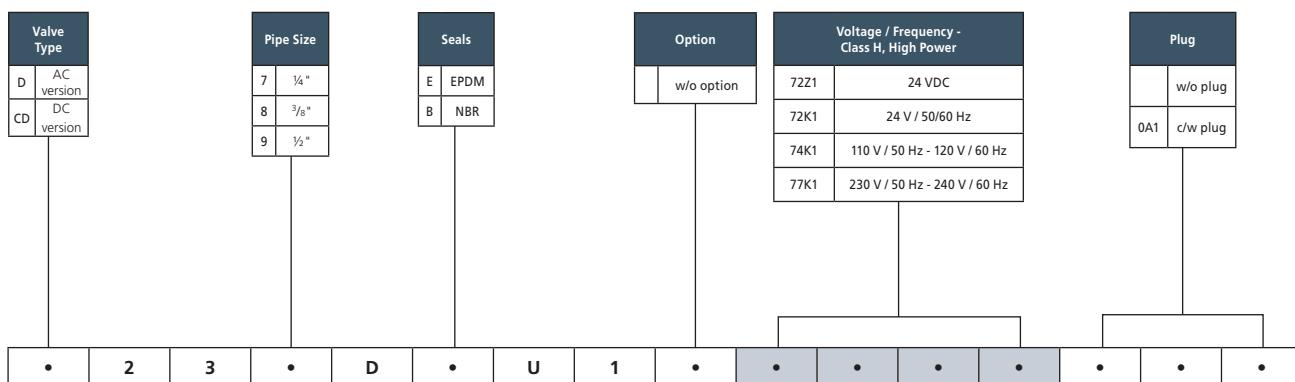
Type 600 011- Plug

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

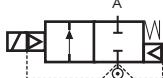
Main Valve Assembly



Product coding example:

D238DEU1 77K1
 3/8" G, auto operation, brass body, EPDM seals, 10.5 mm orifice, 230 V / 50 Hz - 240 V / 60 Hz, without plug.

D223/224/225 Series, Vacuum – 2/2 Normally Closed

Specifications	
Function (single acting)	 Flow direction under seat 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
- Manufactured 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



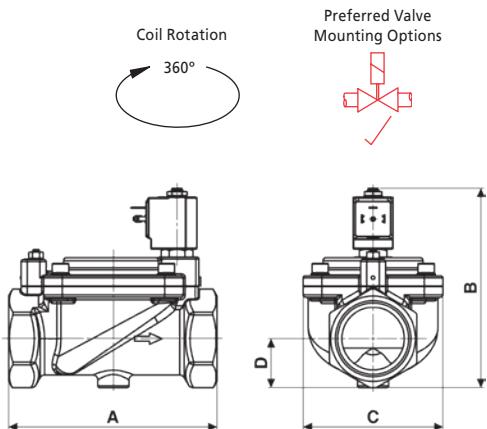
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (bar)		Orifice (mm)	Seal Material	Valve Code
			AC Voltages	DC Voltages			
1 ¼ "	25.97	22.20	-0.5	-0.5	40	NBR	D223DBKL
1 ½ "	28.08	24.00	to -0.95	to -0.95	40	NBR	D224DBKL
2 "	37.91	32.40			50	NBR	D225DBJL

Options Available

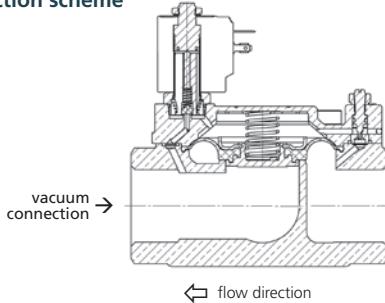
Seal Material ¹ and Media Temperature Range	Media	Ambient Temperature Range	
		Min	Max
NBR (-10 °C to +90 °C)	Water, oil, air	-10 °C	+50 °C

¹ See corrosion reference guide and sealing solutions for material compatibility.
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*



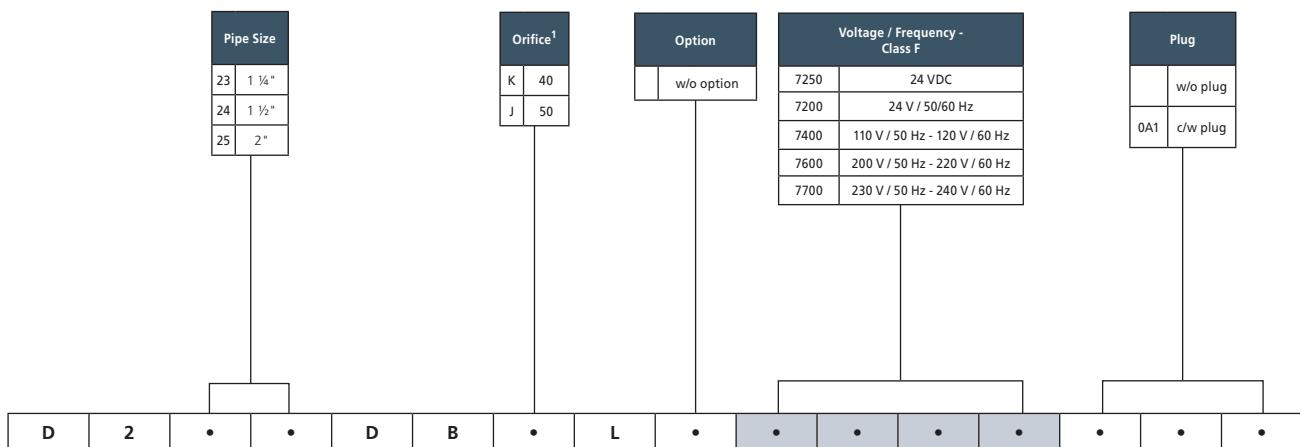
Type 600 011- Plug

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



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: 1/4" 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, 120V, 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	1/4" - 1/2" (19 VA /14 watt) 3/4" - 1" (32 VA / 22 watt) 1/4" - 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 when fitted with a standard E5 type enclosure
- Compliant with Gas Appliance Regulation
- 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 1/2" 15 - 25 ms
- Response time up to 1" 20 - 40 ms
- Panic buttons & electro thermal links available for controlling valve
- Classification: Group 2 controls (BS EN 13611)



Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (mBar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
1/4"	4.2	3.6	0 -140	0 - 50	1	12.70	0.23
3/8"	5.8	5	0 -140	0 - 50		12.70	0.23
1/2"	6.3	5.4	0 -140	0 - 50		12.70	0.23
3/4"	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

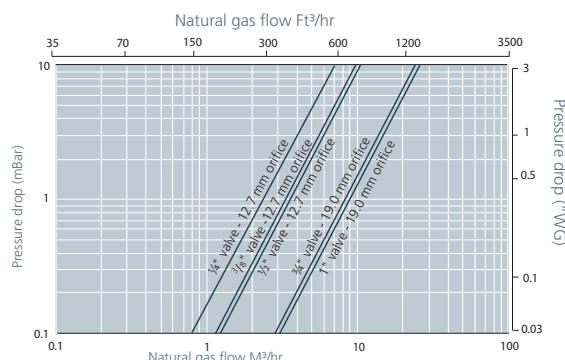
Solenoid Enclosure		Seal Material ¹ and Media Temp. Range	Ambient Temperature Range °C		Main Valve Assembly Options
Protection Class			Min	Max	
Exm T5 (IP65) (up to 1/2")	Consult Rotork Midland for product codes	NBR (-10 °C to +80 °C)	0	60	NPT Threads Stainless steel tagging

See solenoid enclosures for specific details.

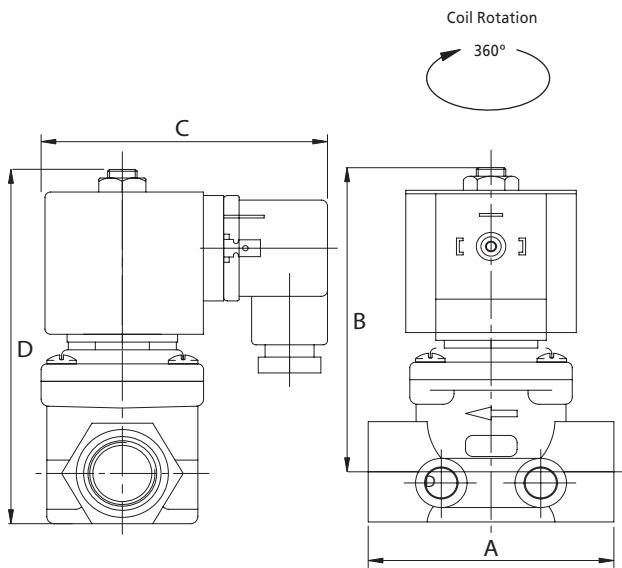
¹ See corrosion reference guide and sealing solutions for material compatibility.

How to use the flow chart

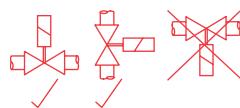
- Select the required flow.
- Note the corresponding pressure drop.
- Based on where the two points intersect select the most appropriate model.



GB Series: 1/4" to 1" – 2/2 Normally Closed



Preferred Valve Mounting Options



Dimensions

Pipe Size	A	B	C	D
1/4"	57	87	56	101
3/8"	67	87	56	101
1/2"	67	87	56	101
3/4"	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	Enclosure	Voltage / Frequency	Electrical Connection
34 GB	B 1/4"	1 BS21	1 AUTO	3 Aluminium	A NBR	1 Standard	1 Weather proof IP65	230 V / 50 Hz (19 VA / 14 Watt) 1/4" - 1/2" valves only	1 Din plug 9 mm
	C 3/8"	3 NPT						110 V / 50 Hz & 120 V / 50 Hz (19 VA / 14 Watt) 1/4" - 1/2" valves only	
	D 1/2"							230 V / 50 Hz (32 VA / 22 Watt) 1/4" - 1" valves only	
	E 3/4"							110 V / 50 Hz (32 VA / 22 Watt) 3/4" - 1" valves only	
	F 1"							24 VDC (14 Watt) 1/4" - 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: 1½" 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, 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	1 ½" - 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 Regulation
- 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 1 ¼" 60-120 ms
- Panic buttons & electro thermal links available for controlling valve
- Classification: Group 2 controls (BS EN 13611)



Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (mBar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
1 ¼"	38.3	33	0 -50	0 - 50	1	40.00	3.08
1 ½"	38.3	33	0-50	0 - 50		40.00	3.08
2"	38.3	33	0-50	0 - 50		40.00	3.08

Options Available

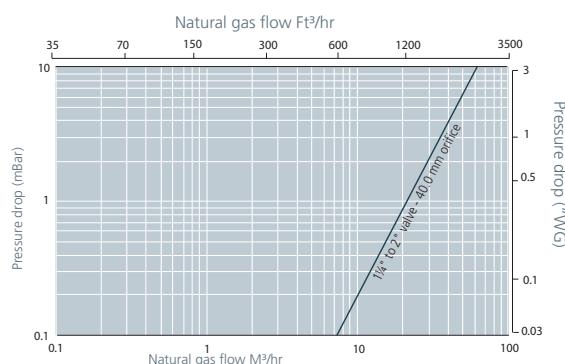
Seal Material ¹ and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	0	60

Main Valve Assembly Options
NPT Threads
Stainless steel tagging

¹ See corrosion reference guide and sealing solutions for material compatibility.

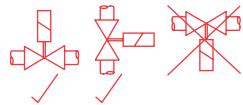
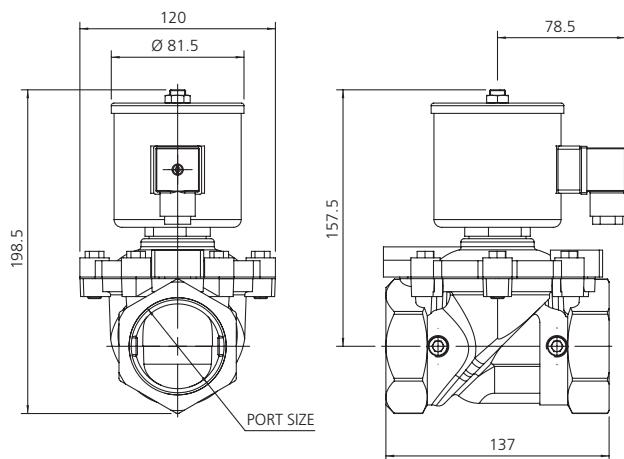
How to use the flow chart

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



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

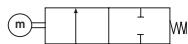
Model	Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style	Enclosure	Voltage/Frequency/Electrical Connection
34 GB	G 1¼"	1 BS21	1 AUTO	3 Aluminium	A NBR	1 Standard	1 Weather proof IP65	N13 230 V / 50 Hz / PR1 AC Voltage
	H 1½"	3 NPT						N23 110 V / 50 Hz / PR1 AC Voltage
	J 2"							N41 24 VDC / Din plug 9mm DC Voltage
34	*	*	1	Z	3	A	-	1
								...

Coil options

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 & 316
Seal Material (Std)	NBR
Connection Type (Std)	BS21 & flanged PN16
Electrical Characteristics	
Coil Voltage AC 50 Hz (~)	110 V, 230 V
Voltage Tolerance	+10% / -15%
Protection Class (Std)	IP5X (BS EN 60529)
Electrical Connection (Std)	Suitable for M20 Conduit
Power Rating (Std)	90 VA, 50 W (Inrush), 9 VA, 9 W (Hold)

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 compatibility.

Electro-Thermal Links

Rotork also offers a range of electro-thermal links that can be wired into the power supply of the HWA series valve offering shut down in the event of a fire.



Part Number	Description
10904209	Electro-thermal link 73 °C

Features and Benefits

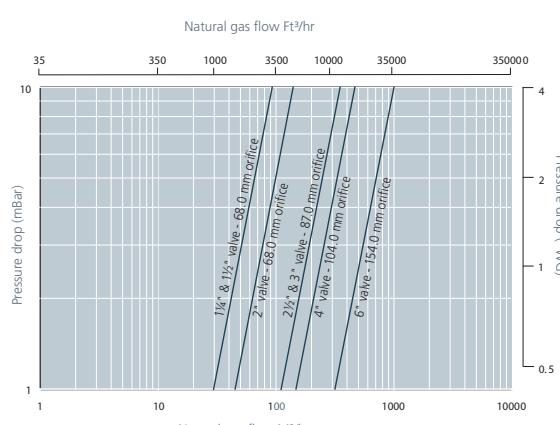
- Approved for mains gas safety shut off
- Suitable for automatic burners
- Suitable for fire protection systems
- Ideal for low pressure natural gas
- Fully ported orifices for high flow
- Zero pressure rated
- Slow opening
- Closed position volt free contacts available
- Fitted with pressure test points as standard
- First, second and third family gases
- Approved to EN161
- Compliant with Gas Appliance Regulation (EU) 2016/426 (GAR)
- Classification: Group 2 controls (BS EN 13611)



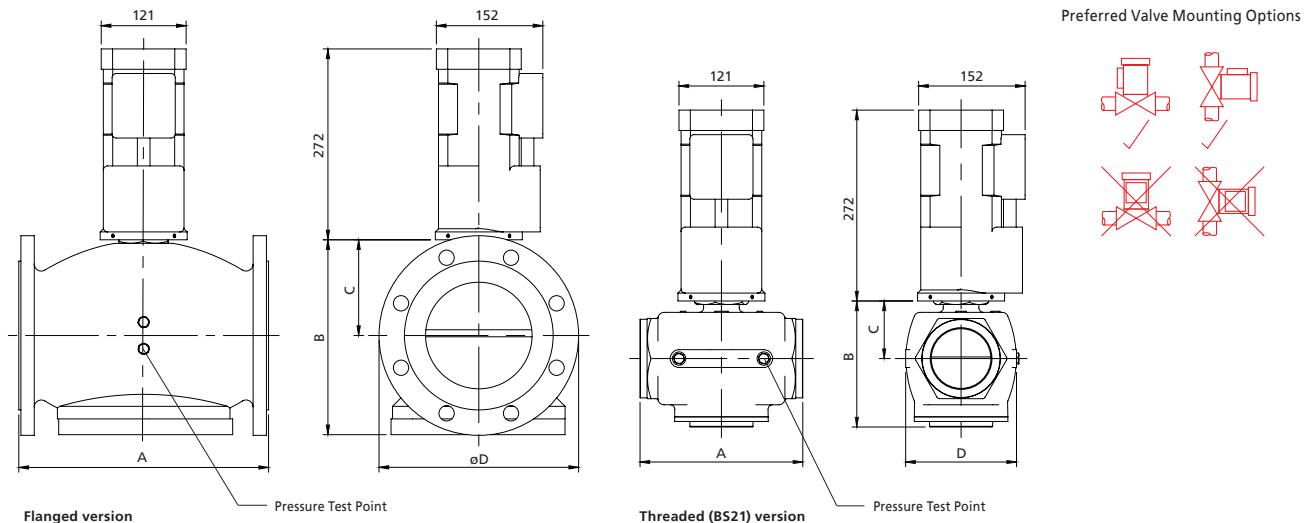
Pipe Size	Connection Type	Cv (gpm)	Kv (m³/h)	OPD (mBar)	P. Max Bar	Hold VA	Orifice (mm)	Weight (kg)
1¼"	BS21	54	46.5	0-345	5	9	68.00	9.6
1½"		54	46.5	0-345			68.00	9.6
2"		95	82	0-345			68.00	9.6
2"		95	82	0-345			68.00	11.6
2½"		157	135	0-345			87.00	10.5
2½"		157	135	0-345			87.00	13.1
3"		188	162	0-345			87.00	10.5
4"		226	195	0-345			104.00	38.4
6"		423	365	0-200			154.00	62.4

How to use the flow chart

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



HWA Series – 2/2 Normally Closed



Dimensions

Pipe Size	A	B (without CPI)	B (with CPI)	C (without CPI)	C (with CPI)	D
1¼" BS21	177.5	150.3	185.7	70.9	106.3	123.1
1½" BS21	177.5	150.3	185.7	70.9	106.3	123.1
2" BS21	177.5	150.3	185.7	70.9	106.3	123.1
2" Flanged	210	150.3	185.7	70.9	106.3	165
2½" BS21	232	180.5	215.9	83.7	119.1	158

Pipe Size	A	B (without CPI)	B (with CPI)	C (without CPI)	C (with CPI)	D
2½" Flanged	290	180.5	215.9	83.7	119.1	185
3" BS21	232	180.5	215.9	83.7	119.1	158
4" Flanged	292	227.8	263.2	94.3	129.7	220
6" Flanged	356	277.8	313.2	136.4	171.8	285

Standard flange size PN16 all others screwed BS21
Dimensions given in mm

Coding chart

Main Valve Assembly

Model		Valve Body Conn. Size ¹	Connection Type	Operation	Body Material	Seals	Style	Enclosure	Voltage / Frequency	Electrical Connection
49	HWA	G 1¼"	1 BS21	1 AUTO	3 Aluminium (up to and including 3")	A NBR	1 Standard	7 Motorised	K1 110 V / 50 Hz	0 M20 Conduit
		H 1½"	4 FLANGED (PN16 STD)		4 Cast Iron (4" and above)				K2 110 V / 50 Hz inc. Closed Position Indicator	
		J 2"							K5 230 V / 50 Hz	
		K 2½							K6 230 V / 50 Hz inc. Closed Position Indicator	
		L 3"								
		M 4"								
		N 6"								
49		*	*	1	Z	*	1	-	7	**
										0

¹ See features chart for available connection types.

Product coding example:

49M41Z4A1-7K60 - HWA Series
4" Flanged, closed position indicator, auto operation,
cast iron, NBR seals, 230 V / 50 Hz.

Coil options

Enclosure	Voltage / Frequency	Electrical Connection
7 Motorised	K1 110 V / 50 Hz	0 M20 Conduit
	K2 110 V / 50 Hz inc. Closed Position Indicator	
	K5 230 V / 50 Hz	
	K6 230 V / 50 Hz inc. Closed Position Indicator	

Spares

Part Number	Description
7K10SA	110 V / 50 Hz actuator (without closed position indicator)
7K20SA	110 V / 50 Hz actuator (with closed position indicator)
7K50SA	230 V / 50 Hz actuator (without closed position indicator)
7K60SA	230 V / 50 Hz actuator (with closed position indicator)

Important Note: The new HWA actuator is not compatible with pre-1995 models, identified by an alpha-numeric date code on the valve body. The digits indicate the year and the letter indicates the month i.e. A = January, B = February, etc with M = December - (note the letter 'I' is not used). For example 94J = September 1994. In addition, pre-1995 valves have a flanged centre boss that is fitted to the body with 4 socket head screws, valves post 1995 have a centre boss with a screw in post.

FACHL Series – 2/2 Normally Closed (Manual Reset)

Specifications	
Function	Normally closed, energise to open
Maximum Viscosity	115 SSU
Body Material (Std)	Brass CZ122
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 (m³/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

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
NPT Threads
Stainless steel tagging

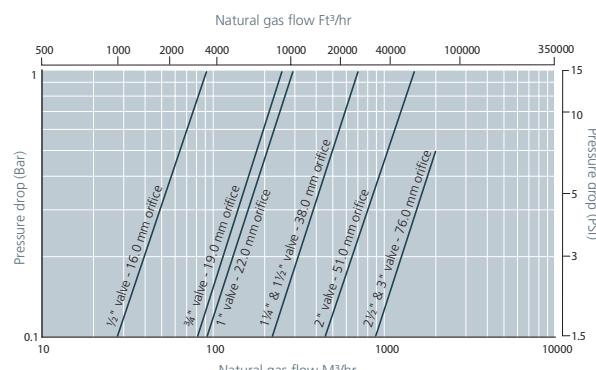
¹ See corrosion reference guide and sealing solutions for material compatibility.

Notes

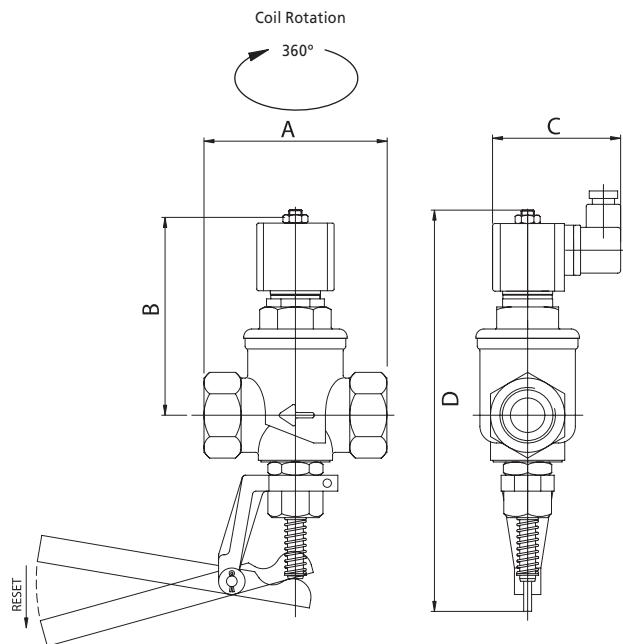
- If the inlet pressure on the seat area exceeds 18kg the inlet pressure must be exhausted to open the valve.
- Consult factory for flow figures for valves above 2½".

How to use the flow chart

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



FACHL Series – 2/2 Normally Closed (Manual Reset)



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

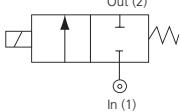
Main Valve Assembly

Model	Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style	Enclosure	Voltage / Frequency	Electrical Connection
41 FACHL	D ½"	2 BSP G	3 MANUAL RESET	2 Bronze	A NBR	1 Standard		B1 230 V / 50 Hz	
	E ¾"	3 NPT		4 Cast Iron (4" and above)	B EPDM		1 Weather proof IP65	B4 110 V / 50 Hz	1 Din plug 9 mm (For DC only)
	F 1"				C FKM			B2 24 VDC	
	G 1¼"	4 FLANGED (PN16 STD)						L1 230 V / 50 Hz (4" and above)	3 Din plug 9 mm PR1 220/240 110/120
	H 1½"							L9 110 V / 50 Hz (4" and above)	
	J 2"							L6 24 VDC (4" and above)	
	K 2 ½"								
	L 3"								
	M 4"								
	N 6"								
41	*	*	3	Z	*	*	1	-	1
									•
									*

Product coding example:

41H23Z2A1-1B21 - FACHL Series
 1½" 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) 
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

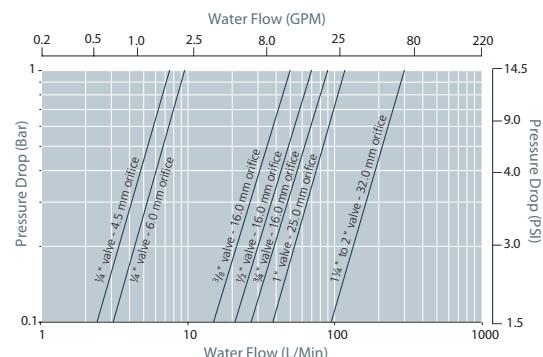
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max ² Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
1/4"	0.52	0.43	0-8.3	0-8.3	50	4.50	0.35
1/4"	0.60	0.52	0-8	0-8		6.0	0.35
3/8"	3.5	3.0	0.3-8.6	0.3-8.6		16.00	1.20
1/2"	4.9	4.2	0.3-8.6	0.3-8.6		16.00	1.20
3/4"	6.3	5.4	0.3-8.6	0.3-8.6		16.00	1.20-2.30
1"	8.24	7.1	0.3-8.6	0.3-8.6		25.00	1.20-2.30
1 1/4"	20.9	18	0.3-8.6	0.3-8.6		32.00	3.10
1 1/2"	20.9	18	0.3-8.6	0.3-8.6		32.00	3.10
2"	20.9	18	0.3-8.6	0.3-8.6		32.00	5.20

² P. Max is limited to 46.5 Bar when valve is fitted with an Exd solenoid operator.

Options Available

Exd Solenoid Enclosure		Seal Material ¹ and Media Temp. Range	Ambient Temperature Range °C		Main Valve Body Options		
Protection Class	Consult Rotork Midland for product codes		Min	Max	Stainless Steel body 316 (available up to and including 1 inch)		
Exd T6 (IP67)	PTFE (-196 °C to +180 °C)	-10	50		NPT Threads		
					Stainless Steel Tagging (consult factory for product code)		

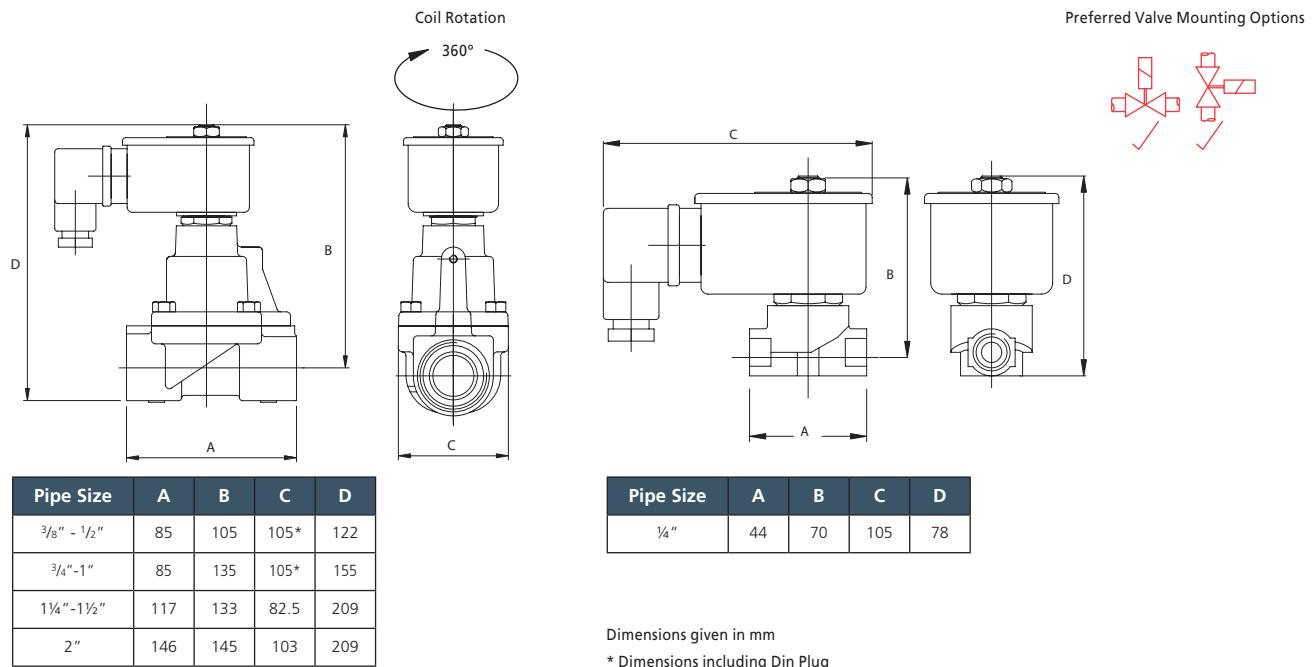
¹ See corrosion reference guide and sealing solutions for material compatibility.



How to use the flow chart

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

68 Series: Cryogenic – 2/2 Normally Closed



Solenoid enclosures



S4 Type enclosure protection class IP55

External material: Pressed steel powder coated
 Electrical entry: Conduit boss 20 mm or 1/2" 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 1/4"	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 1/4" and above)		J 6.0			
	D 1/2"			Z Default			
	E 3/4"				2 Bronze (standard on valves above 1")		
	F 1"				5 316 Stainless Steel (option available up to and inc 1")		
	G 1 1/4"						
	H 1 1/2"						
	J 2"						

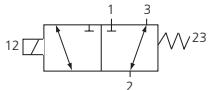
Coil options

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	

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.

67 Series – 3/2 Universal

Specifications	
Function	Normally Closed, energise to open 
Maximum Viscosity	115 SSU
Body Material (Std)	Stainless Steel 316L
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	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

- 316L stainless steel body construction
- Manual override option
- Satisfy all relevant EC directives
- Normally open, normally closed and diverting (universal)
- Diaphragm Operation
- Compact unit
- Response time 1" 75-100 ms



Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Weight (kg)
			AC Voltages	DC Voltages			
1/4"	3.5	3.0	0-10	0-10	20	8.80	0.90
3/8"	4.9	4.2	0-10	0-10		8.80	0.90
1/2"	5.4	4.7	0-10	0-10		8.80	0.90

Options Available

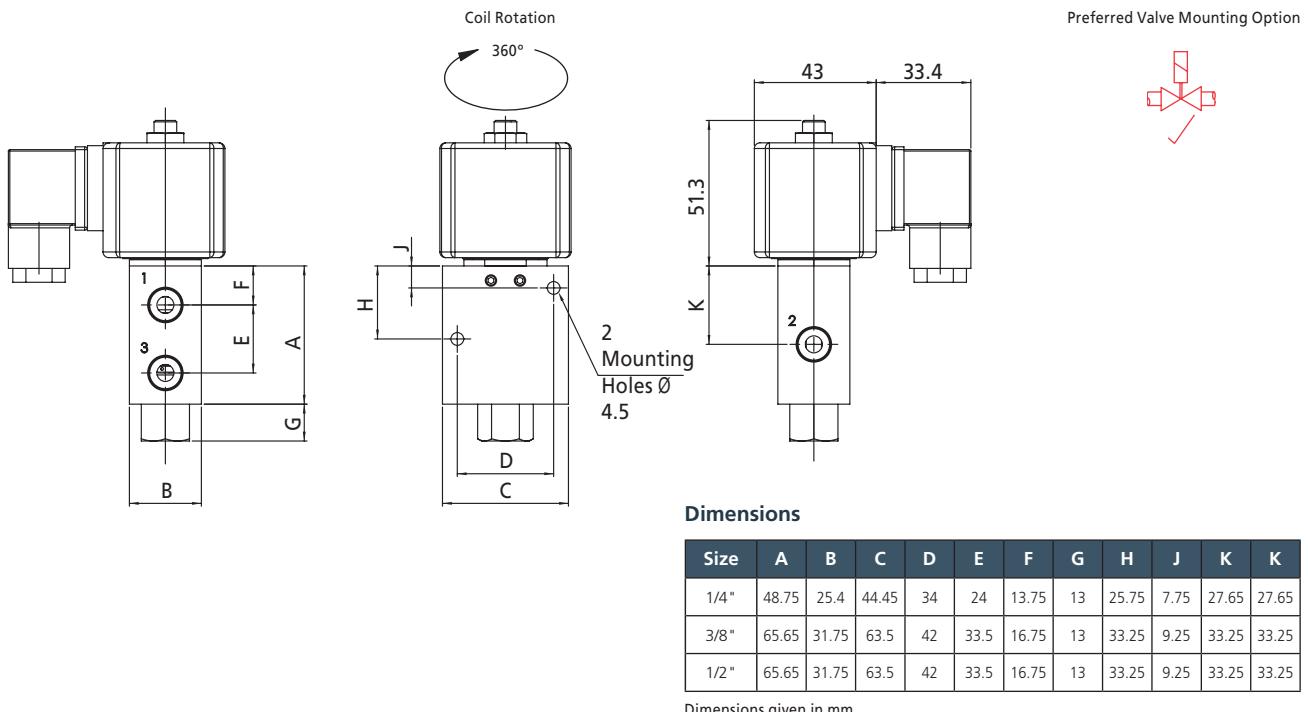
Exd Solenoid Enclosure	
Protection Class	See PUB117-011-00
Exd T6 (IP67)	
Exd T4 (IP67)	
Exm T5 (IP65)	

Main Valve Body Options	
NPT threads	
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 compatibility.

67 Series – 3/2 Universal



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	
33	67 Series 3/2	B	1/4"	1	BS21	1	AUTO
		C	3/8"	3	NPT		
		D	1/2"			2	MANUAL OVERRIDE

Body Material		Seals		Style	
5	316 Stainless Steel	A	NBR	1	Standard
		B	EPDM		
		C	FKM		

Coil options

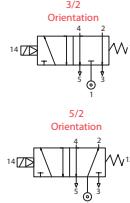
Enclosure		Voltage / Frequency		Electrical Connection	
1	Weather proof IP65	B1	230 V / 50 Hz	1	DIN plug 9 mm
		B4	110 V / 50 Hz & 120 V / 60 Hz		
		B2	24 V / 50 Hz		
		B2	24 VDC		
		B3	12 VDC		
		B5	110 VDC		
				3 ²	Plug Rectified A/C

¹ DC only
² AC only

Product coding example:

33B31Z5A1-1B13 - 67 Series
 1/4" NPT, auto operation, stainless steel body, NBR seals, 230 V / 50 Hz PR 1220/240.

Namur Series – 3/2 or 5/2 Universal

Specifications	
Function	 <p>3/2 Orientation 5/2 Orientation</p>
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 (m³/h)	OPD (Bar)	P. Max Bar	Weight
1/4"	1.4	1.2	2.5-10	10	0.50

Options Available

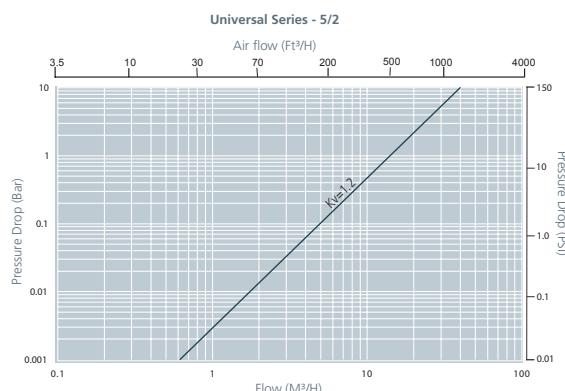
Exd & Exm Solenoid Enclosure	
Protection Class	
Exd T6 (IP67)	
Exd T4 (IP67)	
Exm	See separate datasheet
Exia	

Seal Material ¹ and Media Temp. Range	Ambient Temperature Range °C	
	Min	Max
NBR (-10 °C to +80 °C)	-10	50

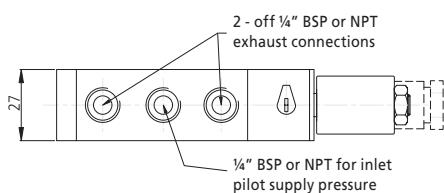
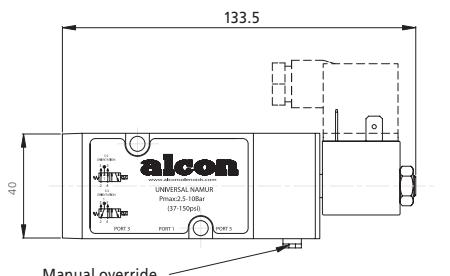
¹ See corrosion reference guide and sealing solutions for material compatibility.

How to use the flow chart

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

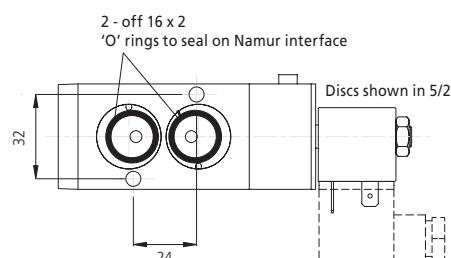
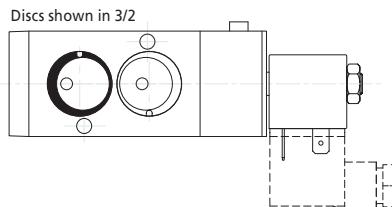
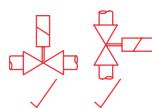


Namur Series – 3/2 or 5/2 Universal



Dimensions given in mm

Preferred Valve Mounting Options



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
65	Namur	B	1/4"
		3	NPT
		2	MANUAL OVERRIDE
65	B	3	2
		Z	
		3	
		A	
		1	
		-	
		1	
		..	
		1	

Body Material	Seals	Style
3	Aluminium	A NBR 1 Standard

Coil options

Enclosure	Voltage / Frequency	Electrical Connection
1 Weather Proof IP65	R5 230 V / 50 Hz QY 110 V / 50 Hz 120 V / 60 Hz R1 24 VDC	1 Din Plug 9 mm

Product coding example:

65B32Z3A1-1R51 - Namur Series
1/4" NPT, manual override, aluminium, NBR seals, 230 V / 50 Hz DIN Plug 9 mm.

Specifications	
Function	Normally Closed, energise to open, Out (2)
Maximum Viscosity	115 SSU
Body Material (Std)	Brass CZ122
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 (-)	24 V, 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	19 VA ,14.5 Watts

Features and Benefits

- Compact valve design
- Zero pressure rated
- Wide range of available orifices
- Choice of valve body material and seals
- Exd and Exm options
- Choice of electrical connections
- ATEX approved
- Response time 5-25 ms



Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages				
1/4"	0.12	0.10	0-45	0-40	46.5	1.6	Exd T6	0.4
1/4"	0.24	0.21	0-20	0-20		2.4	Exd T6	
1/4"	0.35	0.30	0-15	0-10		3.0	Exd T6	
1/4"	0.53	0.46	0-7.0	0-5.5		4.5	Exd T6	
1/4"	0.70	0.60	0-4.0	0-2.7		6.0	Exd T6	
1/4"	0.12	0.10	0-45	0-40		1.6	Exm T5	
1/4"	0.24	0.21	0-20	0-20	60	2.4	Exm T5	0.4
1/4"	0.35	0.30	0-15	0-10		3.0	Exm T5	
1/4"	0.53	0.46	0-7.0	0-5.5		4.5	Exm T5	
1/4"	0.70	0.60	0-4.0	0-2.7		6.0	Exm T5	

Options Available

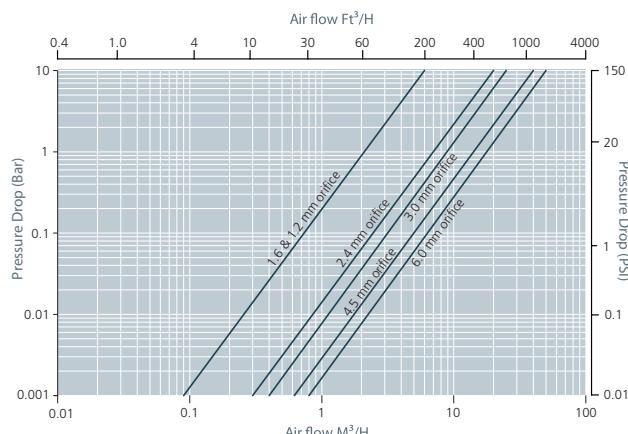
Solenoid Enclosure			Seal Material ¹ and Media Temp. Range	EXD			EXM			
Protection Class	Electrical Entry	Enclosure Material		Ambient Temperature Range °C	Min	Max (T6)	Max (T4)	Ambient Temperature Range °C	Min	Max (Exm)
Exd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional	NBR (-10 °C to +80 °C)	-10	40	70				
Exd T4 (IP67)			EPDM (-50° to +120 °C)	-50	40	70				
Exm T5 (IP65)	M16 x 1.5 male flying lead	Powder coated metal	FKM (-20 °C to +150 °C)	-20	40	70				
			PTFE (-200 °C to +180 °C)	-50	40	70				

Main valve body options
Stainless Steel 316
Manual Override
NPT Threads
Stainless Steel Tagging (consult factory for product code)

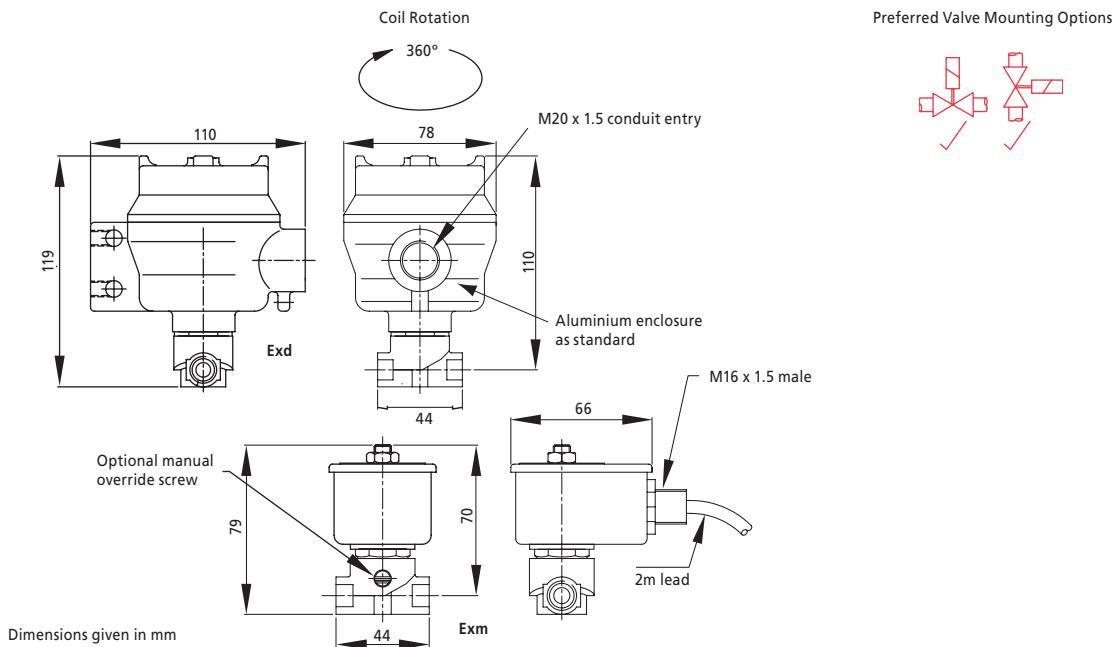
1 See corrosion reference guide and sealing solutions for material compatibility.

How to use the flow chart

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



21 Series Exd & Exm – 2/2 Normally Closed



Solenoid enclosures



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 1/2" 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.
10W 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

Protection Class: II 2 G Exm II T5 for ambient temperatures
-20 °C to +40 °C

Additional weight: 0.5 kg

Coding chart

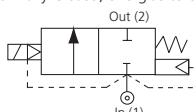
Main Valve Assembly

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	1/2" NPT	949	Atex T4	
		F1	24 V / DC					
		*	••	*	*			
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 V / DC					

Product coding example:

11B11E5A3-6E259 - 21 Series

1/4" BS21, auto operation, 2.4 mm orifice stainless steel body, NBR seals, Exd T6, stainless steel housing 230 V / 50 Hz M20 x 1.5.

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



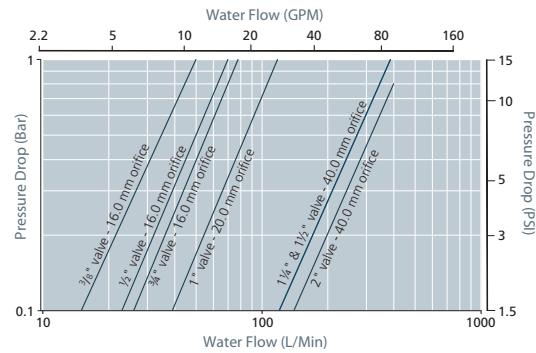
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages				
3/8"	3.5	3.0	0-14	0-10.3	46.5	16.00	Exd T6	0.9
1/2"	4.9	4.2	0-14	0-10.3		16.00		
5/8"	5.4	4.7	0-14	0-10.3		16.00		
1"	8.2	7.0	0-14	0-10.3		20.00		
1 1/4"	26.7	23	0-4	-		40.00		
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	50	16.00	Exm T5	1.2
1/2"	4.9	4.2	0-14	0-10.3		16.00		
5/8"	5.4	4.7	0-14	0-10.3		16.00		
1"	8.2	7.0	0-14	0-10.3		20.00		
1 1/4"	26.7	23	0-4	-		40.00		
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
Exd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional
Exd 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		

¹ See corrosion reference guide and sealing solutions for material compatibility.² Pressure assisted to achieve a greater OPD. e.g. code :19G11ZC3-6H299.

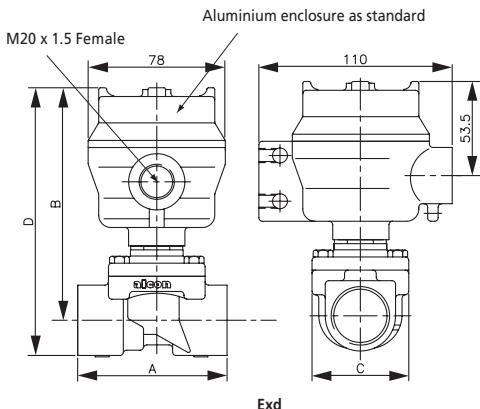
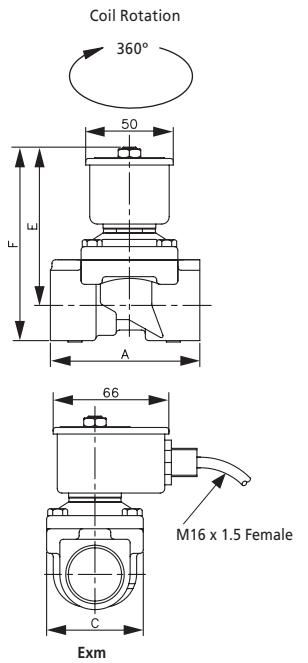
Seal Material ¹ and Media Temp. Range	EXD			EXM	
	Ambient Temperature Range °C			Ambient Temperature Range °C	
	Min	Max (T6)	Max (T4)	Min	Max (Exm)
NBR (-10 °C to +80 °C)	-10	40	70	-10	40
EPDM (-50 °C to +120 °C)	-50	40	70	-20	40
FKM (-20 °C to +150 °C)	-20	40	70	-20	40



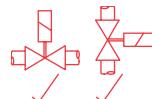
How to use the flow chart

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

ACD Series Exd & Exm – 2/2 Normally Closed



Preferred Valve Mounting Options



Dimensions Brass

Pipe Size	A	B	C	D	E	F
3/8" - 3/4"	68	125	55	141	74	90
1"	85	131	55	152	79	98

Dimensions Stainless Steel

Pipe Size	A	B	C	D	E	F
$\frac{3}{8}'' - \frac{3}{4}''$	85	126	55	141	74	90
1"	85	131	55	152	79	98

Dimensions Bronze

Pipe Size	A	B	C	D	E	F
1 1/4" - 2"	137	147	120	184	94	132

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 1/2" 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
17	ACD AC VOLTAGE	C $\frac{3}{8}$ "	1 BS21	1 AUTO
	ACD DC VOLTAGE	D $\frac{1}{2}$ "	2 BSP G (1 $\frac{1}{4}$ " and above)	
18	ACD DC VOLTAGE	E $\frac{3}{4}$ "	3 NPT	2 MANUAL OVERRIDE
	Pressure assisted option	F 1"		
19	1 $\frac{1}{4}$ " to 2"	G $\frac{1}{4}$ "	4 FLANGED (PN16 STD)	
		H $\frac{1}{2}$ "		
		J 2"		

Body Material		Seals		Style	
1	Brass (standard on valves up to and including 1")	A	NBR	1	Standard (inc.Exm)
	Bronze (standard on valves above 1")	B	EPDM	3	Exd (S4)
	316 Stainless Steel (option available up to and inc 1")	C	FKM		
2					
5					

Enclosure		Voltage / Frequency		Electrical Connection		Approval	
5	Exd Aluminium	E2	230 V / 50 Hz	5	M20 x 1.5	9	Atex T6
		H2	110 V / 50 Hz & 120 V / 60 Hz	9	½" NPT	949	Atex T4
6	Exd Stainless						

	•	••	•	•
	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			

³ '0' pressure rated options are not available in DC voltage above 1".

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.

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

Options Available

Solenoid Enclosure		
Protection Class	Electrical Entry	Enclosure Material
Exd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional
Exd 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		

How to use the flow chart

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

Features and Benefits

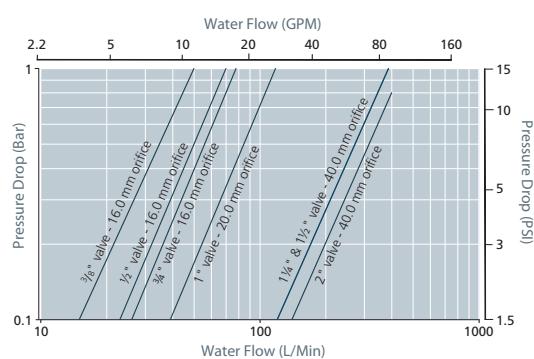
- Robust Valve Design
- Diaphragm Operation
- Fully Ported orifices for high Kv
- Choice of valve body material seals
- Sizes 3/8" - 1" Advantica approved to BS EN 60730-2-8 for household use
- Response time up to 1" 15-60 ms
- Response time up to 2" 60-120 ms



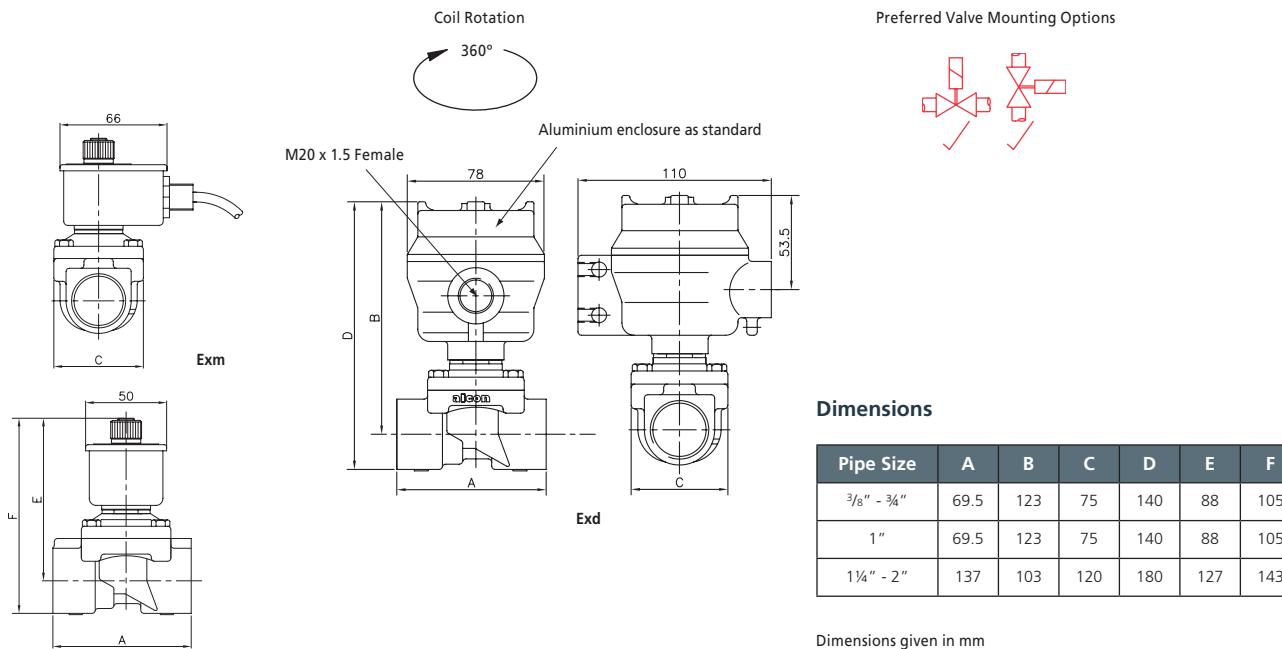
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages				
3/8"	3.5	3.0	0-10	0-10	46.5	16.00	Exd T6	0.9
1/2"	4.9	4.2	0-10	0-10		16.00		
3/4"	5.4	4.7	0-10	0-10		16.00		
1"	8.2	7.0	0-10	0-10		20.00		
1 1/4"	26.7	23	0.3-10	0.3-10		40.00		
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	50	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 1/4"	26.7	23	0.3-10	0.3-10		40.00		
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		

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 compatibility.



ACDN Series Exd & Exm – 2/2 Normally Open



Dimensions

Pipe Size	A	B	C	D	E	F
3/8" - 3/4"	69.5	123	75	140	88	105
1"	69.5	123	75	140	88	105
1 1/4" - 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 1/2" 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	Connection Type	Operation	Body Material	Seals	Style
27	ACDN (1 1/4 and above)	C 3/8"	1 BS21	1 AUTO	1 Brass (standard on valves up to and including 1")	A NBR	1 Standard (inc. Exm)
56	ACDN (3/8"-1")	D 1/2"	2 BSP G (1 1/4" and above)		2 Bronze (standard on valves above 1")	B EPDM	3 Exd (S4)
		E 3/4"	3 NPT		5 316 Stainless Steel (option available up to and inc 1")	C FKM	
		F 1"	4 FLANGED (PN16 STD)				
		G 1 1/4"					
		H 1 1/2"					
		J 2"					
		*	*	*	1	Z	*
		*	*	*	*	*	-

Coil options

Enclosure		Voltage / Frequency		Electrical Connection		Approval	
D	N/O Exd Aluminium	E2	230 V / 50 Hz	5	M20 x 1.5	9	Atex T6
E	N/O Exd Stainless Steel	H2	110 V / 50 Hz & 120 V / 60 Hz	9	1/2" NPT	949	Atex T4
		F1	24 VDC				
		*	•	•	•	•	•
		4	••	E	48		
Enclosure		Voltage / Frequency		Electrical Connection		Solenoid Label	
4	Exm	M1	230 V / 50 Hz	E	3 metre lead M16 EXM	48	N/O module
		M2	110 V / 50 Hz				
		M4	24 VDC				

Product coding example:

56E11Z1A3-DF159 - ACDN Series
N/O 3/4" BS21, auto operation, bronze body, NBR seals, Exd T6 Aluminium 24 VDC M20 x 1.5.

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



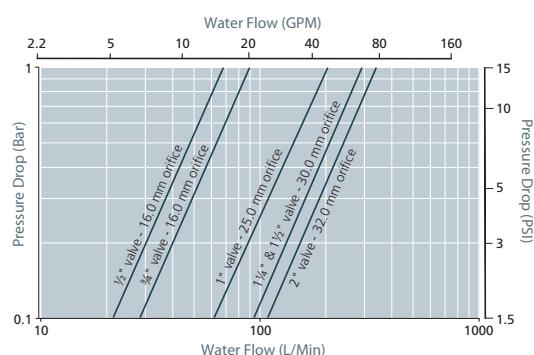
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)	P. Max Bar	Orifice (mm)	Protection Class	Weight (kg) excluding Solenoid
½"	4.9	4.2	0.3-10.3	46.5	16.00	Exd T6	1.4
¾"	6.3	5.4	0.3-10.3		16.00		2.3
1"	14.5	12.5	0.3-10.3		25.00		3.0
1¼"	20.9	18	0.3-10.3		30.00		
1½"	20.9	18	0.3-10.3		30.00		
2"	24.4	21	0.3-10.3		32.00		5.2
½"	4.9	4.2	0.3-10.3	50	16.00	Exm T5	1.4
¾"	6.3	5.4	0.3-10.3		16.00		2.3
1"	14.5	12.5	0.3-10.3		25.00		3.0
1¼"	20.9	18	0.3-10.3		30.00		
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
Exd T6 (IP67)	M20 x 1.5 Female (Std) (½" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional
Exd 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		

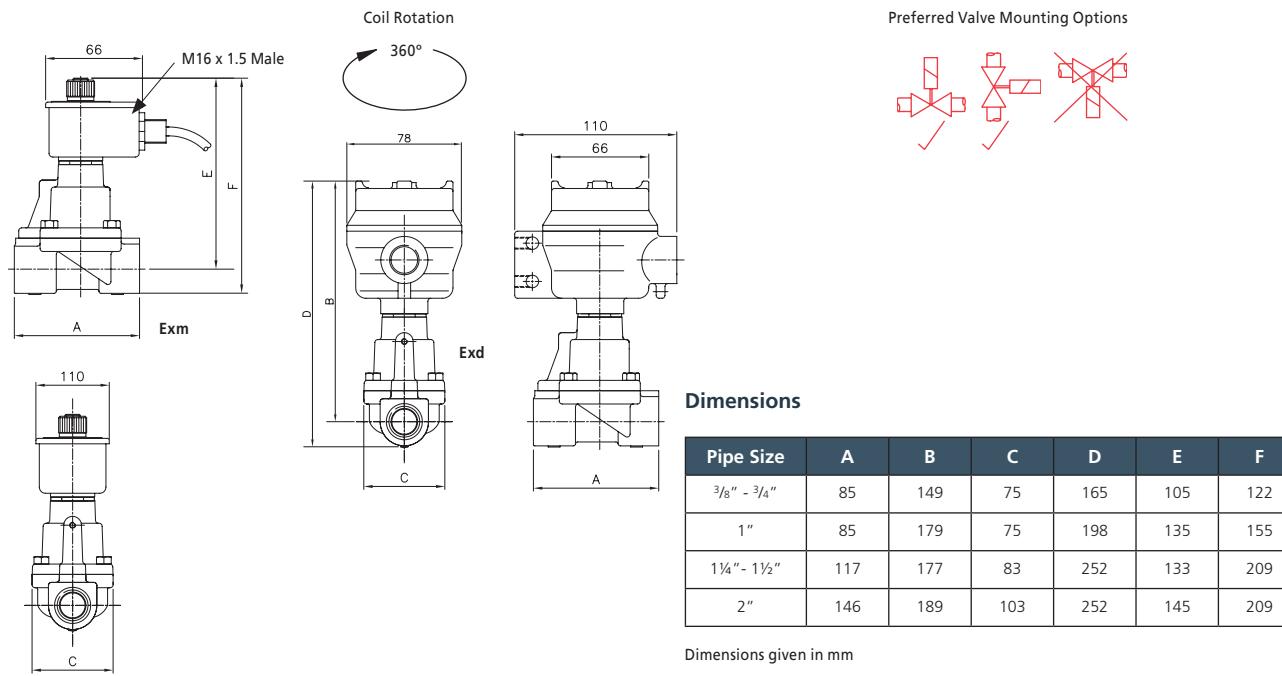
¹ See corrosion reference guide and sealing solutions for material compatibility.

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**

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

ACP Series Exd & Exm – 2/2 Normally Closed



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 1/2" 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

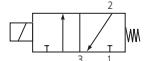
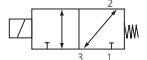
Model		Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style
22	ACP Exd	D	1/2"	1 BS21	1 AUTO	A NBR	1 Standard (Inc Exm)
		E	3/4"	2 BSP G		B EPDM	3 Exd
		F	1"	3 NPT			
		G	1 1/4"	4 FLANGED (PN16 STD)	2 Bronze (standard on valves up to and including 1")		
		H	1 1/2"		5 316 Stainless Steel (option available up to and inc 1")		
		J	2"				
22		*	*	*	Z	*	1
						*	-

Coil options

Enclosure		Voltage / Frequency	Electrical Connection		Approval
5	Exd Aluminum	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	1/2" 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
1 1/2" BSPG, auto operation, bronze body, NBR seals, Exd Aluminium 230 V / 50 Hz M20 x 1.5.

Specifications	
Function	 31 Series, 3/2 Normally Closed
	 33 Series, 3/2 Universal
Maximum Viscosity	115 SSU
Body Material (Std)	Brass CZ122
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 (-)	24 V, 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)
Electrical Connection (Exd)	Via terminal block (max wire diameter 1.6 mm)
Coil Insulation	Class H (BS EN 60085) 180 °C (E5 type)
Power Rating	19 VA ,14.5 Watts

Features and Benefits

- Compact valve design
- Zero pressure rated
- Wide range of available orifices
- Choice of valve body material and seals
- ATEX approved
- Response time 5-25 ms

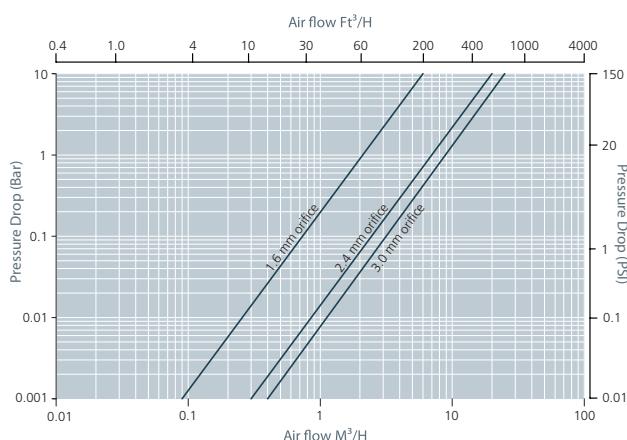


Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Orifice (mm)	Protection Class	Function	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages					
1/4"	0.12	0.10	0-10.6	0-10.6	46.5	1.6	Exd T6	N/C	0.35
1/4"	0.24	0.21	0-7.0	0-7.0		2.4		N/C	
1/4"	0.35	0.30	0-5.8	0-5.8		3.0		N/C	
1/4"	0.12	0.10	0-7.5	0-7.5		1.6		Universal	
1/4"	0.24	0.21	0-3.5	0-3.5		2.4		Universal	
1/4"	0.35	0.30	0-2.0	0-2.0		3.0		Universal	

Options Available

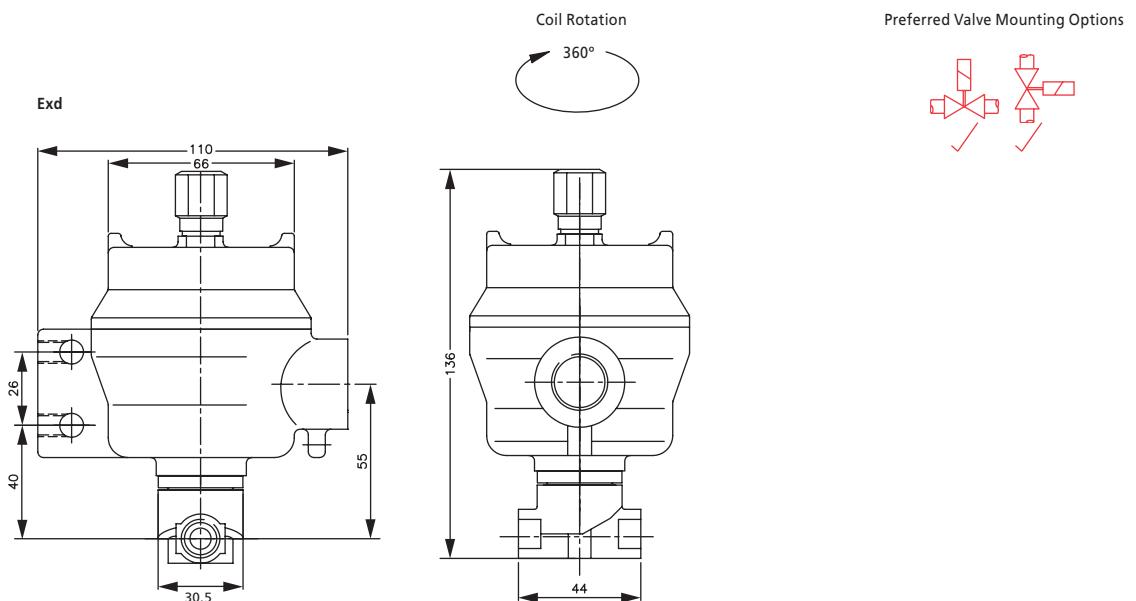
Solenoid Enclosure			Seal Material ¹ and Media Temp. Range	EXD			Main valve body options			
Protection Class	Electrical Entry (Std)	Enclosure Material		Ambient Temperature Range °C			Stainless Steel 316			
				Min	Max (T6)	Max (T4)				
Exd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)	Aluminium (Std) Stainless Steel optional	NBR (-10 °C to +80 °C)	-10	40	70	Manual override			
Exd T4 (IP67)			EPDM (-50° to +120 °C)	-50	40	70				
			FKM (-20 °C to +150 °C)	-20	40	70				

1 See corrosion reference guide and sealing solutions for material compatibility.

**How to use the flow chart**

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

31/33 Series Exd – 3/2 Closed / Universal



Dimensions given in mm

Solenoid enclosures



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 1/2" 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

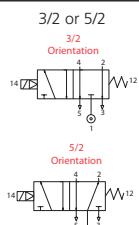
Coding chart

Main Valve Assembly

Model	Size	Connection Type	Operation	Orifice (mm)	Body Material	Seals	Style	Enclosure	Voltage / Frequency	Electrical connection	Approval
29 31 Series (N/C)	B 1/4"	1 BS21 3 NPT	1 AUTO 2 MANUAL OVERRIDE	C 1.6 E 2.4 F 3.0	1 Brass CZ122 5 316 Stainless Steel	A NBR B EPDM C FKM	3 Exd	9 3 way Exd Aluminium A 3 way Exd Stainless Steel	E2 230 V / 50 Hz H2 110 V / 50 Hz & 120 V / 60 Hz F1 24 V / DC	5 M20 x 1.5 9 1/2" NPT	9 Atex T6 949 Atex T4
32 33 Series (UNIV)											
••	B	•	•	•	•	•	3	-	•	•	•

Product coding example:

29B11C1A3-9E259 - 31 Series
1/4" BS21, auto operation, 1.6 mm orifice brass body, NBR seals, Exd T6 Aluminium 230 V / 50 Hz M20 x 1.5.

Specifications	
Function	3/2 or 5/2 
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



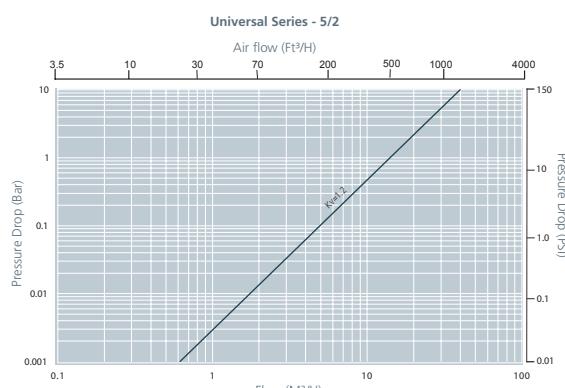
Pipe Size	Cv (gpm)	Kv (m³/h)	OPD (Bar)		P. Max Bar	Weight (kg) excluding Solenoid
			AC Voltages	DC Voltages		
1/4"	1.4	1.2	2.5-10	2.5-10	10	0.5

Options Available

Solenoid Enclosure	
Protection Class	Electrical Entry
Exd T6 (IP67)	M20 x 1.5 Female (Std) (1/2" NPT conduit entry option)
Exd T4 (IP67)	
Exm	M16 x 1.5 Male flying lead
Exia	PG9 via Din Plug Connector Din 43650-A

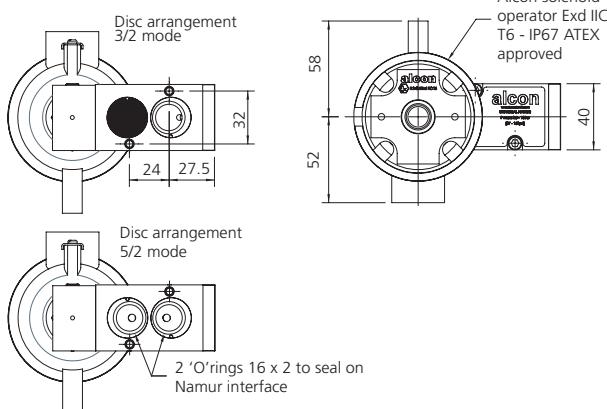
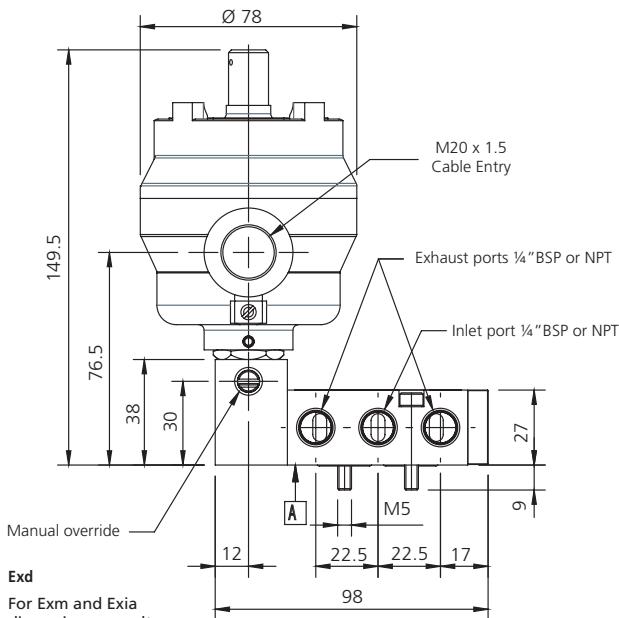
Seal Material ¹ and Media Temp. Range	EXD			EXM	
	Ambient Temperature Range °C			Ambient Temperature Range °C	
	Min	Max (T6)	Max (T4)	Min	Max (Exm)
NBR (-10 °C to +80 °C)	-10	40	70	-10	40

¹ See corrosion reference guide and sealing solutions for material compatibility.

**How to use the flow chart**

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

Namur Series Exd, Exm & Exia Series – 3/2 or 5/2 Universal



Coding chart

Main Valve Assembly

Model	Valve Body Conn. Size	Connection Type	Operation	Body Material	Seals	Style
65 Namur	B 1/4"	3 NPT	2 MANUAL OVERRIDE	3 Aluminium	A NBR	1 Exm 3 Exd
65	B	3	2	Z	3	A • -

Product coding example:

65B32Z3A3-9E259 - Namur Series
1/4" NPT, manual override, aluminium, NBR seals, Exd T6 Aluminium 230 V / 50 Hz M20 x 1.5.

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

For Exia option use product code 65B32Z3A5-1QJ1.

For all other coding options see below:

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 1/2" 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

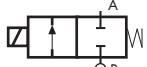
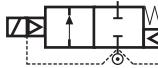
Power consumption: Holding 16 VA, 12 V to 230 V, 50 / 60 Hz. 10 W 12, 24 VDC
External material: powder coated metal enclosure with st.st. nameplate
Electrical entry: 2 metre length of approved 3 core cable with M16 conduit male winding insulation class.
Protection Class: II 2 G Exm II T5 for ambient temperatures -20 °C to +40 °C
Additional weight: 0.5 kg



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 1/2" NPT	9 ATEX T6 K ATEX T4
9	••	•	•
4	••	E	
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	

ADV Series, Compressed Air – with Solenoid Valves

Specifications ¹	
Function (single acting)	 <p>Direct Acting flow direction overset 1 → 2</p>  <p>Pilot Operated flow direction overset 1 → 2</p>
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.

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.

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

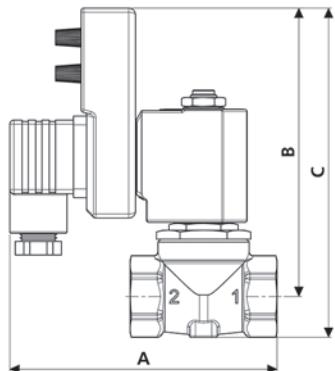
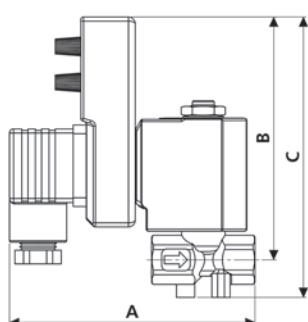


Pipe Size	OPD (bar)		Orifice (mm)	Valve Code	Conn. Code	Timer Code	Coil code	ADV Code ²
	AC Volt	DC Volt						
With Direct Acting Solenoid Valves								
1/4"	0 - 18	-	2.2	D249DVF	600 011-	AT2000C02I	7400	888 120 00-
1/4"	0 - 18	-	2.2	D249DVF	600 011-	AT2000C02I	7700	888 121 00-
1/4"	-	0 - 16	2.2	D249DVF	600 011-	AT2000C02I	7250	888 122 00-
With Pilot Operated Solenoid Valves								
1/4"	0.1 - 16	-	10.5	D264DVU	600 011-	AT2000C02I	7400	888 123 00-
1/4"	0.1 - 16	-	10.5	D264DVU	600 011-	AT2000C02I	7700	888 124 00-
1/4"	-	0.1 - 7	10.5	D264DVU	600 011-	AT2000C02I	7250	888 125 00-
3/8"	0.1 - 16	-	10.5	D265DVU	600 011-	AT2000C02I	7400	888 126 00-
3/8"	0.1 - 16	-	10.5	D265DVU	600 011-	AT2000C02I	7700	888 127 00-
3/8"	-	0.1 - 7	10.5	D265DVU	600 011-	AT2000C02I	7250	888 128 00-
1/2"	0.1 - 16	-	10.5	D266DVU	600 011-	AT2000C02I	7400	888 129 00-
1/2"	0.1 - 16	-	10.5	D266DVU	600 011-	AT2000C02I	7700	888 130 00-
1/2"	-	0.1 - 7	10.5	D266DVU	600 011-	AT2000C02I	7250	888 131 00-

³ See corrosion reference guide and sealing solutions for material compatibility.

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

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
Absorbtion	4 mA max.
Duty Cycle	100% ED
Switch Life	3 • 10 ⁸
Repeat Accuracy	±1%
Protection Class	IP65 (EN 60529) with plug and gasket correctly fitted *
Circuit	UL 94 V0

Features and Benefits

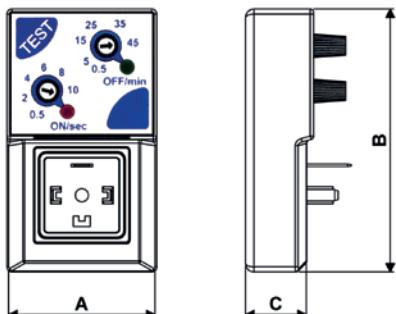
- Ideal for: automatic drain valve, sampling valves, lubrication system, air dryers
- Black colour
- UL file number: E200580



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.

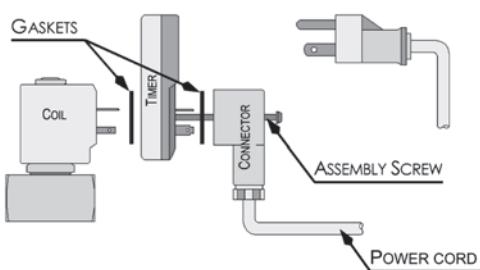
Supplied in single boxes with two squared gaskets and M3x50 fixing screw (see assembling scheme)



Valve Series	A	B	C	Weight (kg)
AT2000C02I	44	77	20	0.077

Dimensions (mm)

Assembling scheme



Customised Products

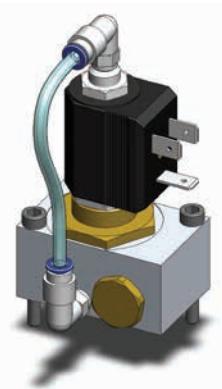
Rotork is constantly evolving and developing new products, enabling us to remain competitive in an ever changing market and keeping at the forefront of technological advances. For many years Rotork has operated in the most diverse industrial sectors and therefore acquired vast experience with a multitude 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.

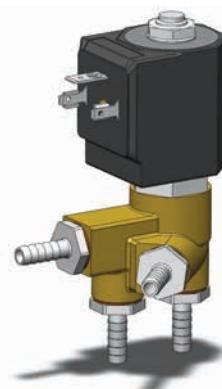
Please find below some examples:



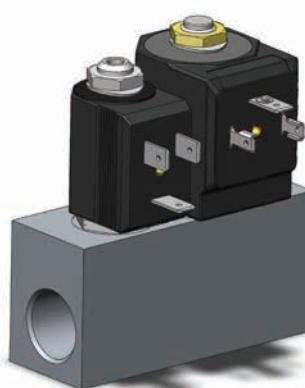
CAR AIR CONDITIONING REFILLER



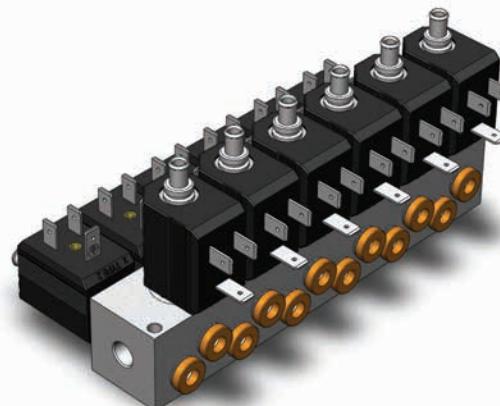
COMPRESSED AIR TREATMENT



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**,

$$1 \text{ St} = 1 \cdot 10^{-4} \text{ m}^2/\text{s} \text{ or } 10.000 \text{ St} = 1 \text{ m}^2/\text{s}$$

as well as the additional unit centistokes **cSt**

$$1 \text{ cSt} = 1 \cdot 10^{-2} \text{ St}$$

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), Krync (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™ 6375

KALREZ® Spectrum™ 6375 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°C)

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.

- Direct Acting – The coil supplies all the power to open the valve and the valve will operate from zero pressure.
- 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



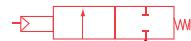
These valves are available in 2 forms;

- 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.
- 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



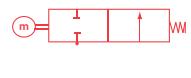
2 way, normally open, pressurise to close, de-pressurise to open with the aid of a return spring, having one inlet and one outlet connection. Can be direct acting air operated against a return spring. Note: These valves are operated via a 3 way solenoid valve which is always required

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



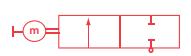
2 way, normally open, energise to close – (slow closing) de-energise to open – (quick opening).

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.

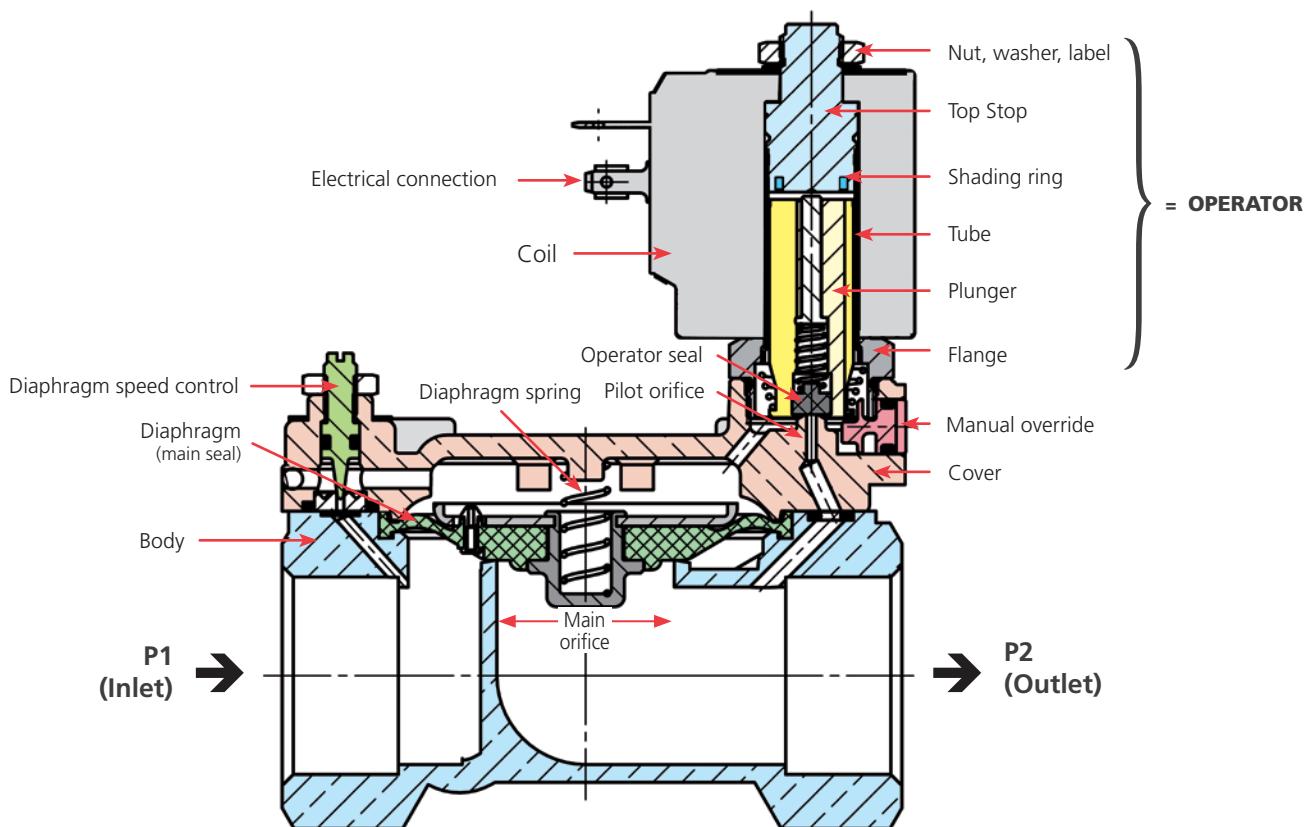
Waterhammer Control

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.

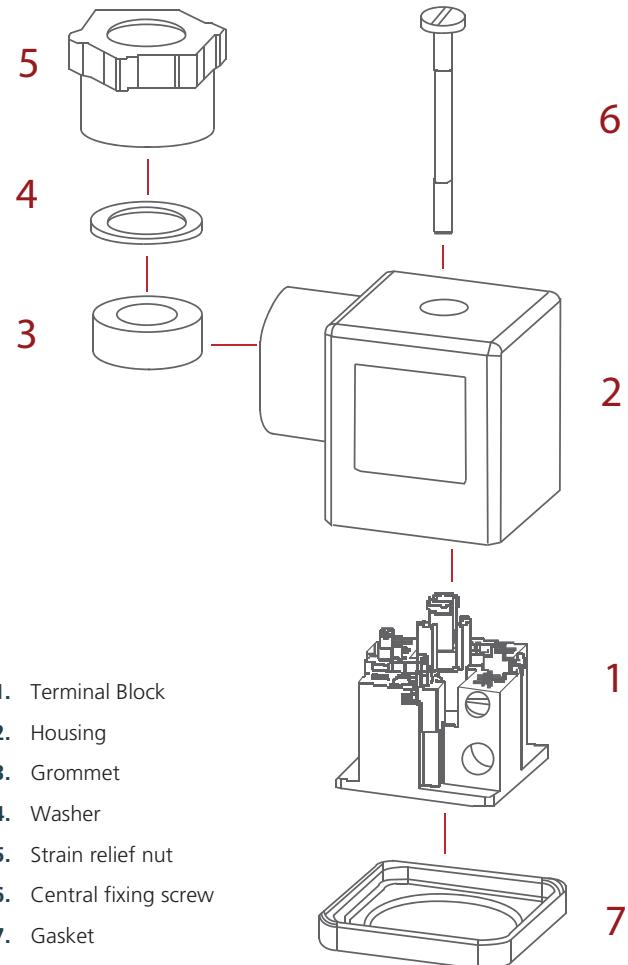
Scheme of Components of Solenoid Valves



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.



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.

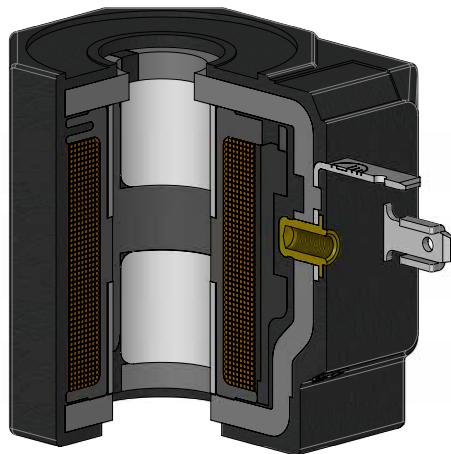
The temperature classification indicates the maximum (hotspot) temperature at which the insulation system can be operated for normal expected service life.

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 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 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 with the RoHS Directive (2011/65/EU)

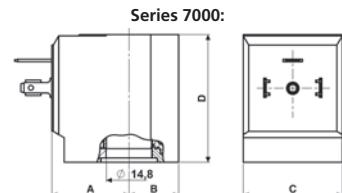
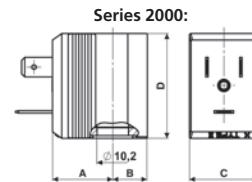
Insulation class according to EN 60730-1 see the below table

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



Coils	Voltage		Power		Class	Ambient Temperature		Media Temperature ¹		
Code	-		Holding	Inrush	F 155 °C	Min.	Max.	Min.	Max.	Series 2000 - Standard Connection: to DIN 46244
2150	12 VDC		7 W	—						
2250	24 VDC		7 W	—						
2750	230 VDC		7 W	—						
2100	12 V / 50/60 Hz		10 VA	16 VA						
2200	24 V / 50/60 Hz		10 VA	16 VA						
2300	48 V / 50/60 Hz		10 VA	16 VA						
2400	110 V / 50 Hz - 120 V / 60 Hz		10 VA	16 VA						
2600	200 V / 50 Hz - 220 V / 60 Hz		10 VA	16 VA						
2700	230 V / 50 Hz - 240 V / 60 Hz		10 VA	16 VA						
215R	12 VDC		6 W	—	F 155 °C					Series 200R - UL approved UL approved coils recognized component, file number E193928
225R	24 VDC		6 W	—						
220R	24 V / 50 Hz		9 VA	14 VA						
226R	24 V / 60 Hz		9 VA	14 VA						
240R	110 V / 50 Hz - 120 V / 60 Hz		9 VA	14 VA						
270R	230 V / 50 Hz - 240 V / 60 Hz		9 VA	14 VA						
B150	12 VDC		7 W	—						
B250	24 VDC		7 W	—	F 155 °C					Series B000 - Impregnated Impregnated coils for humid environments (e.g code B400)
B200	24 V / 50/60 Hz		10 VA	16 VA						
B400	110 V / 50 Hz - 120 V / 60 Hz		10 VA	16 VA						
B700	230 V / 50 Hz - 240 V / 60 Hz		10 VA	16 VA						
21V1	12 VDC		10 W	—						
22V1	24 VDC		10 W	—	H 180 °C	-10 °C	+70 °C	-10 °C	+130 °C	Series 2001 - Class 'H'

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		Series 7000 - Standard Connection: to DIN EN 175301-803 form A (ex DIN 43650-A)
		Holding	Inrush		Min.	Max.	Min.	Max.	
Code	-			F 155 °C					
7150	12 VDC	14 W	—		-10 °C	+50 °C	-10 °C	+130 °C	
7250	24 VDC	14 W	—						
7750	230 VDC	14 W	—						
7100	12 V / 50/60 Hz	18 VA	36 VA						
7200	24 V / 50/60 Hz	18 VA	36 VA						
7300	48 V / 50/60 Hz	18 VA	36 VA						
7400	110 V / 50 Hz - 120 V / 60 Hz	18 VA	36 VA						
7600	200 V / 50 Hz - 220 V / 60 Hz	18 VA	36 VA						
7700	230 V / 50 Hz - 240 V / 60 Hz	18 VA	36 VA						
725R	24 VDC	10 W	—	F 155 °C					Series 700R - UL approved UL approved coils recognized component, file number E193928
720R	24 V / 50 Hz	15 VA	30 VA		-10 °C	+60 °C	-10 °C	+130 °C	
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					Series 7001 - Class 'H' OPTIONS Impregnated coils for humid environments (e.g. code D701)
7201	24 V / 50/60 Hz	18 VA	36 VA		-10 °C	+70 °C	-10 °C	+130 °C	
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					Series 7000 - High Power OPTIONS Impregnated coils for humid environments (e.g. code D7K1)
72Z1	24 VDC	22 W	—						
72K1	24 V / 50/60 Hz	25 VA	50 VA		-10 °C	+70 °C	-10 °C	+130 °C	
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.

Solenoid Enclosures (Safe Area)

Type : E5, S50, S4, S7

<p>E5 Type Enclosure Protection Class IP65</p> <p>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.</p>	
<p>S50 Type Enclosure Protection Class IP65</p> <p>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: FACHL, GB8.</p>	
<p>S4 Type Enclosure Protection Class IP50</p> <p>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.</p>	
<p>S7 Type Enclosure Protection Class IP65</p> <p>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.</p>	

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 Exm 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 Exia 1.6 watts DC

Consumption:

Material: Thermoset resin

Electrical Entry: PG9 via Din Plug Connector
Din 43650-A

**Applicable to the following types:
UNIVERSAL NAMUR**

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 against 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		American NEC	
Class	Max. surface temp (°C)	Class	Max. surface temp (°C)
T1	450	T1	450
	300	T2	300
		T2A	280
		T2B	260
		T2C	230
T3	200	T2D	215
		T3	200
		T3B	165
T4	135	T3C	160
		T4	135
T5	100	T4A	120
T6	85	T5	100
		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, electrical 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	m³/h	l/s	l/m	m³/s (cumec)	UK gpm	US gpm	ft³/s (cusec)	Water	
										UK ton/h	tonne/h
1 m³/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 m³/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 ft³/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 m³/h 1 scfm = 1.699 Nm³/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/in²)	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		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.

Material	Valve Body					Seals			Notes	
	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 Alcohol	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.

Material	Valve Body					Seals				Notes
	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	•	•	•	•	•	
Perchlcrenylene 20C	NR	•	•	NR	•	NR	NR	•	•	
Phosphoric 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 Hypochlorite 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 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).



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



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Rotork is a corporate member of the Institute of Asset Management

