

rotork[®]
Instruments



Direct Acting Valves

Product Overview



MIDLAND-ACS
A rotork[®] Brand

Keeping the World Flowing

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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

Rotork Midland offers a range of direct acting 3/2 solenoid valves for the oil, gas and petrochemical industries.

The 67 Series and 70 Series are 316L stainless steel direct acting 3/2 solenoid valves primarily designed for actuator control. The valves offer maximum internal and external protection from liquids and gases, for use in severe environments, with a variety of functions - normally closed, normally open and diverter.

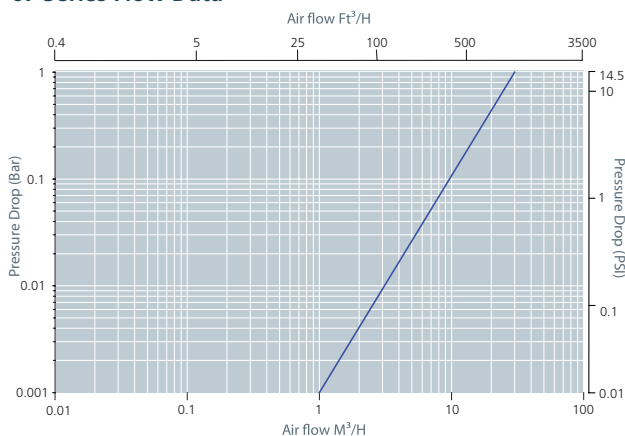
Direct Acting Valves – 67 Series



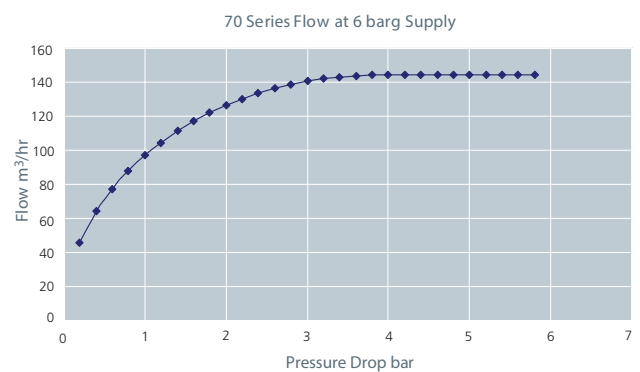
Direct Acting Valves – 70 Series



67 Series Flow Data



70 Series Flow Data



How to use the flow charts

1. Select the required flow.
2. Note the corresponding orifices/model and pressure drop.
3. Using orifices/model, (refer to the features panel) for technical information.

Certification Options Available



Direct Acting Valves – 1/4", 3/8", 1/2" 67 Series direct acting solenoid valves

A range of 3/2 normally open/ normally closed / diverting (universal) direct acting valves in stainless steel.

Features and Benefits

- Specifically designed for severe environments
- 316L stainless steel body construction
- Response time 75-100 ms
- SIL2 capable (in-house assessment)
- Designed for actuator control
- Manual reset and manual override options
- Normally open, normally closed and diverting (universal)
- Satisfies all relevant EC Directives
- Compact unit
- Easy cable installation

Working Temperature Range

- -20 to +40 °C (-4 to 104 °F) Nitrile seals
- -50 to +40 °C (-58 to 104 °F) EPDM seals

Working Pressure (operating pressure differential)

- 0 - 10 bar (145 psi) maximum

Protection

- Explosion proof standard = II 2 G Exd T6 (-50 °C ≤ Ta +40 °C)
Explosion proof optional = II 2 G Exd T4 (-50 °C ≤ Ta +80 °C)
- Suitable for Zones 1 and 2, gas groups IIA, IIB, IIC
- Ingress Protection IP67 as standard (NEMA equivalent: 6)
- The combination of the valve and coil will determine maximum ambient i.e. always the lower of the two
- DC models supplied with surge protection as standard

Ports NPT (BSP Option Available)

- 1/4", 3/8", 1/2" NPT

Operating Media

- Gases - filtered lubricated or non-lubricated
- Air, inert gas, sweet (natural) gases

Approvals:

ATEX, IECEx
CSA, uCSAs
CU-TR, CE

Construction Materials

- Body: 316L stainless steel
- Flange tube: 303 stainless steel
- Plunger and top stop: stainless steel 430 FR
- Springs: 302 stainless steel
- Shading ring: Copper
- Seals: Nitrile (Viton option)
- EPDM on low temperature option

Maximum Flow

At 6 bar, 1 bar differential:

- 3/2 valves - 800 l/min (28.25 SCFM)

Electrical Characteristics

- Voltage tolerance: +10% or -10%
- Duty cycle: 100% ED
- Electrical connection (Std): cable connector from M20x1.5 female conduit
- Coil insulation: class H (BS EN 60085) 180 °C

Options Available

- 1/2" NPT option available see below for ordering details
- T4 option available, substitute 'K' within the part number for '7', e.g. 2325M23-SD2DK#



Code	Voltage
D	24 VDC
F	48 VDC
G	110 VDC
M	110 V 50 Hz AC
N	110 / 120 V 60 Hz
S	220 V / 50 Hz AC

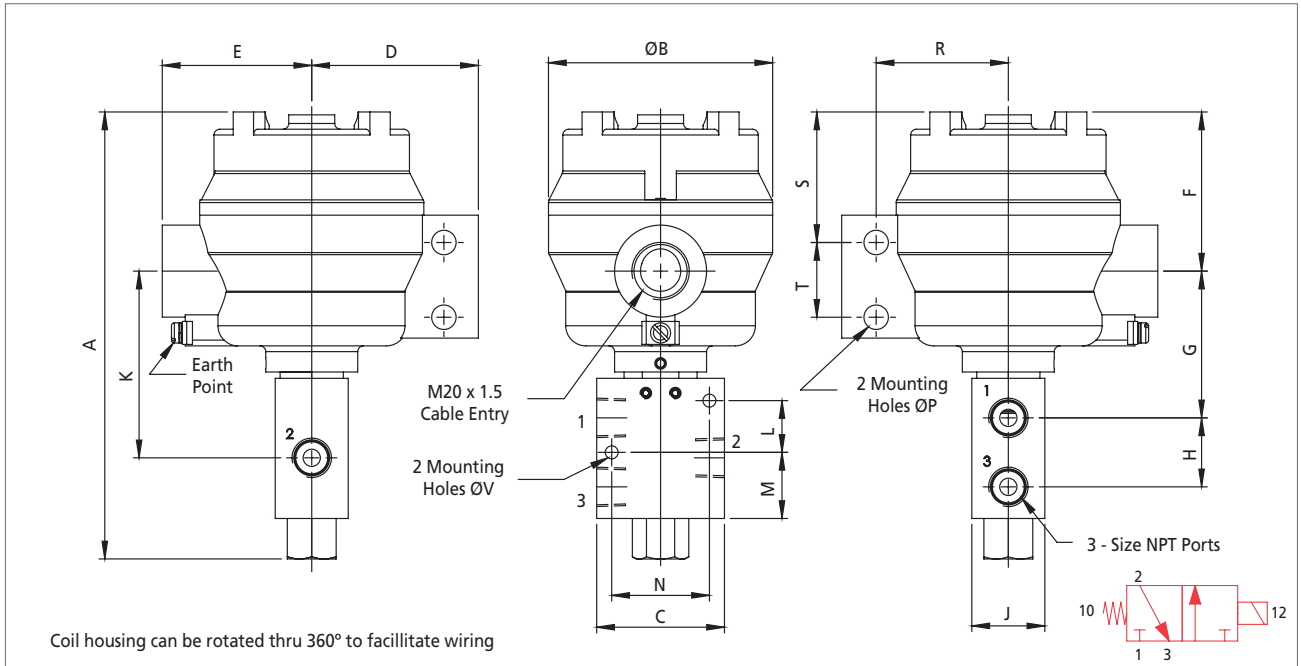
Product Code	Low Temperature Version	Size	Description	P.Max (bar)	Orifice (mm)	Power (Watts)	Flow Factor CV	Valve Weight (kg)
2325M23-SD2DK#	2325M23-ED2DK#	1/4"	Direct solenoid operated spring-return	10	6.0	14.5	0.86	2
3325M23-SD2DK#	3325M23-ED2DK#	3/8"	Direct solenoid operated spring-return					2.5
4325M23-SD2DK#	4325M23-ED2DK#	1/2"	Direct solenoid operated spring-return					2.5
2325M23MSD2DK#	2325M23MED2DK#	1/4"	Direct solenoid operated manual override					2
3325M23MSD2DK#	3325M23MED2DK#	3/8"	Direct solenoid operated manual override					2.5
4325M23MSD2DK#	4325M23MED2DK#	1/2"	Direct solenoid operated manual override					2.5
2325M23XSD2DK#	2325M23XED2DK#	1/4"	Direct solenoid operated manual reset			4		2
3325M23XSD2DK#	3325M23XED2DK#	3/8"	Direct solenoid operated manual reset					2.5
4325M23XSD2DK#	4325M23XED2DK#	1/2"	Direct solenoid operated manual reset					2.5

Denotes Voltage. See chart above. Kv = 0.853 x Cv

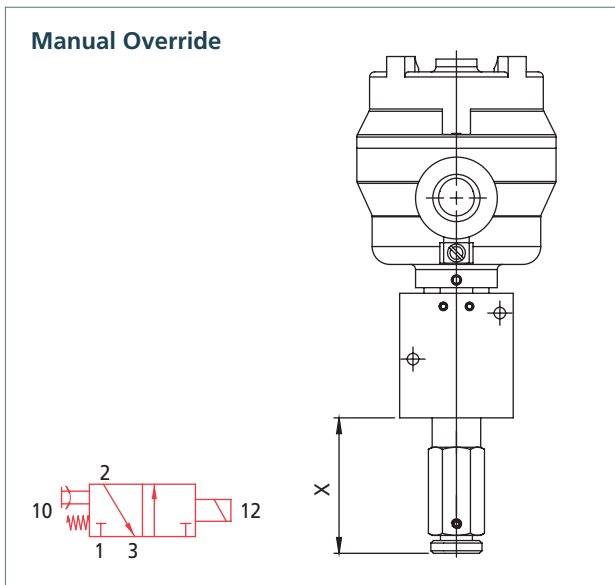
For 1/2" NPT electrical connection option, suffix part number with '1/2"NPT', e.g. 2325M23-SD2DK#1/2"NPT

For CSA approval suffix part number with 'CSA', e.g. 2325M23-SD2DKD/CSA

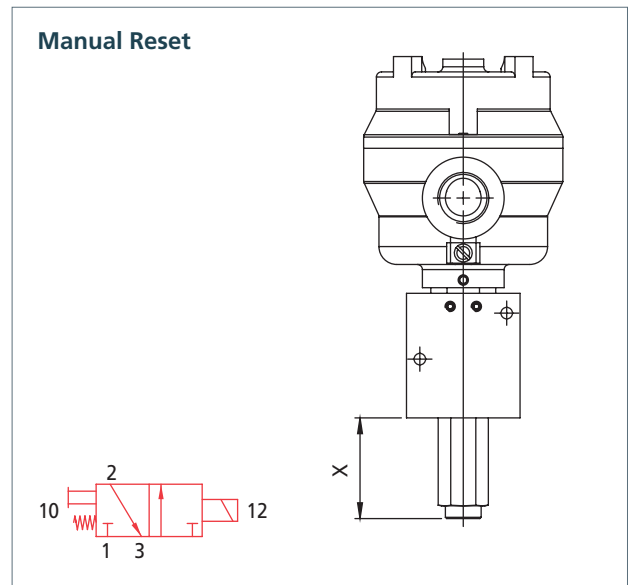
Direct Acting Valves – 1/4", 3/8", 1/2" 67 Series direct acting spring-return



Product Code	Low Temperature Version	Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	V
2325M23-SD2DK#	2325M23-SD2DK#	1/4"	153	78	45	58	52	55.4	51	24	25.4	65	18	23	34	8.5	46	45.4	26	4.5
3325M23-SD2DK#	3325M23-SD2DK#	3/8"	164	78	63.5	58	52	55.4	54	33.5	32	70.5	24	32.4	42	8.5	46	45.4	26	4.5
4325M23-SD2DK#	4325M23-SD2DK#	1/2"	164	78	63.5	58	52	55.4	54	33.5	32	70.5	24	32.4	42	8.5	46	45.4	26	4.5



Product Code	Low Temperature Version	Size	X
2325M23MSD2DK#	2325M23MED2DK#	1/4"	53
3325M23MSD2DK#	3325M23MED2DK#	3/8"	50
4325M23MSD2DK#	4325M23MED2DK#	1/2"	50



Product Code	Low Temperature Version	Size	X
2325M23XSD2DK#	2325M23XED2DK#	1/4"	40
3325M23XSD2DK#	3325M23XED2DK#	3/8"	37.5
4325M23XSD2DK#	4325M23XED2DK#	1/2"	37.5

Direct Acting Valves – 1/4", 3/8", 1/2" 70 Series 3/2 direct acting solenoid valves

A range of 3/2 normally open / normally closed / diverting (universal) direct acting valves in stainless steel.

Features and Benefits

- Specifically designed for severe environments
- Large porting for high Cv
- 3.5 W low power consumption
- SIL3 available, third party approved
- Zero pressure rated
- Response time 100 - 150 ms
- Manual override and reset options available
- 316L stainless steel body construction
- Designed for actuator control and safety critical systems
- Normally open, normally closed and diverting (universal)
- Satisfies all relevant EC Directives
- Easy cable installation

Working Temperature Range

- -20 to +60 °C (-4 to 140 °F) FKM seals
- -50 to +60 °C (-58 to 140 °F) EPDM seals

Working Pressure (operating pressure differential)

- 0 - 12 bar (174 psi) maximum

Protection

- Explosion proof standard (dual-rated) II G Exd T6 (-50 °C ≤ Ta +60 °C) and T4 (-50 °C ≤ Ta +80 °C)
- Suitable for Zones 1 and 2, gas groups IIA, IIB, IIC
- Ingress Protection IP67 as standard (NEMA equivalent: 6)
- IP68* option available, third party approval (please consult factory)
- The combination of the valve and coil will determine maximum ambient i.e. always the lower of the two
- DC models supplied with surge protection as standard

Ports NPT (BSP Option Available)

- 1/4", 3/8", 1/2" NPT

Operating Media

- Gases - filtered lubricated or non-lubricated
- Air, inert gas, sweet (natural) gases
- Sour gas option available (consult factory)

Approvals:

SIRA SIL3 3rd party assessed
ATEX
IECEX
CE
CU-TR

Construction Materials

- Body: 316L stainless steel
- Springs: 316 stainless steel
- Seals: FKM as standard
- EPDM on low temperature option

Electrical Characteristics

- Electrical connection (Std): cable connector from M20 x 1.5 female conduit
- 1/2" NPT option available see below for ordering details
- Coil insulation: class H (BS EN 60085) 180 °C



Code	Voltage
D	24 VDC
F	48 VDC
G	110 VDC
M	110 V 50 Hz AC
N	110 / 120 V 60 Hz
S	220 V / 50 Hz AC

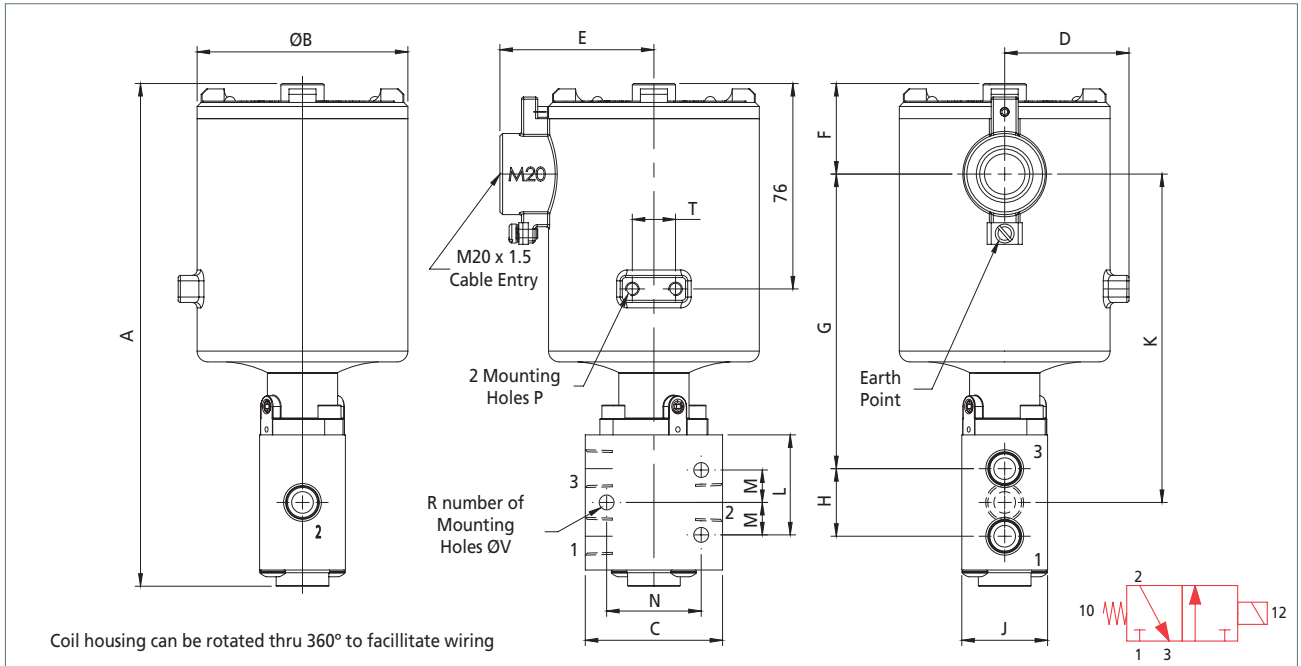
Product Code	Low Temperature Version	Size	Description	P.Max (bar)	Orifice (mm)	Power (Watts)	Flow Factor CV	Valve Weight (kg)
2325M23-SD27K#	2325M23-ED27K#	1/4"	Direct solenoid operated spring-return	20	10.0	3.5	1.5	2.5
3325M23-SD27K#	3325M23-ED27K#	3/8"	Direct solenoid operated spring-return			3.5	1.7	2.8
4325M23-SD27K#	4325M23-ED27K#	1/2"	Direct solenoid operated spring-return			3.5	2.2	2.8
2325M23MSD27K#	2325M23MED27K#	1/4"	Direct solenoid operated manual override			3.5	1.5	2.5
3325M23MSD27K#	3325M23MED27K#	3/8"	Direct solenoid operated manual override			3.5	1.7	2.8
4325M23MSD27K#	4325M23MED27K#	1/2"	Direct solenoid operated manual override			3.5	2.2	2.8
2325M23XSD27K#	2325M23XED27K#	1/4"	Direct solenoid operated manual reset			1	1.5	2.5
3325M23XSD27K#	3325M23XED27K#	3/8"	Direct solenoid operated manual reset			1	1.7	2.8
4325M23XSD27K#	4325M23XED27K#	1/2"	Direct solenoid operated manual reset			1	2.2	2.8

Denotes Voltage. See chart above. Kv = 0.853 x Cv

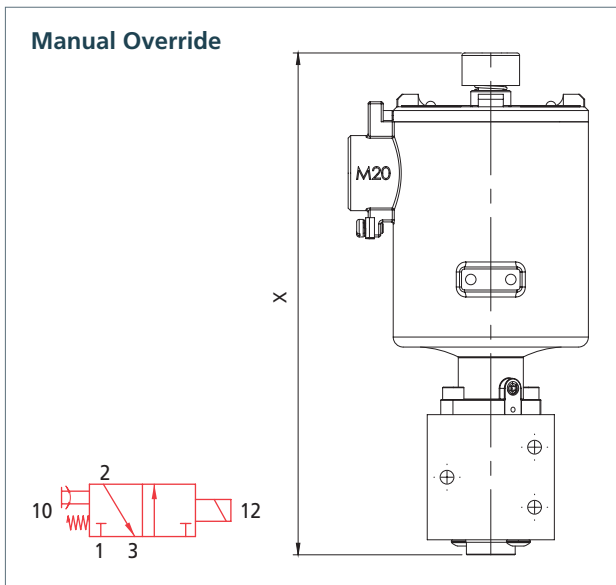
For 1/2" NPT electrical connection option, suffix part number with '1/2"NPT', e.g 2325M23-SD27K#1/2"NPT

*IPX8 - Continuous immersion in water. Tested in accordance with BS EN 60529:1992. Duration: 3hrs. Depth: 2 metres above lowest point of enclosure.

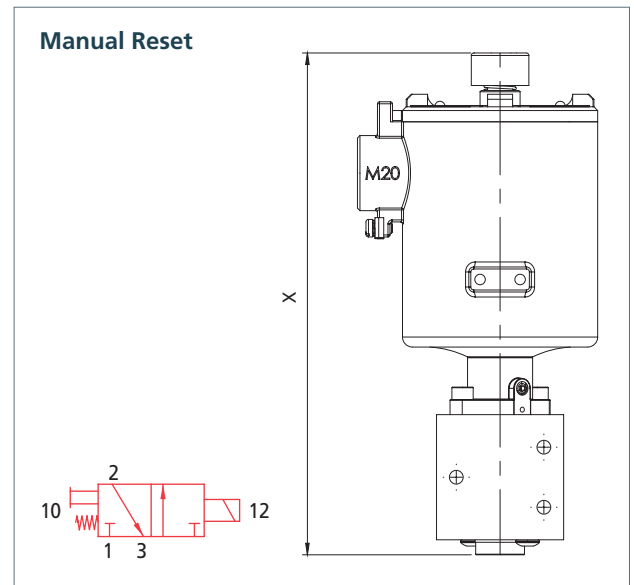
Direct Acting Valves – 1/4", 3/8", 1/2" 70 Series 3/2 direct acting spring-return



Product Code	Low Temperature Version	Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	V
2325M23-SD27K#	2325M23-ED27K#	1/4"	186	78	51	46	57	33.5	109	25	32	121.5	37	12	35	M5	3	76	16	5.5
3325M23-SD27K#	3325M23-ED27K#	3/8"	196	78	70	46	57	33.5	109.5	34	32	126.5	46	16	35	M5	2	76	16	5.5
4325M23-SD27K#	4325M23-ED27K#	1/2"	196	78	70	46	57	33.5	109.5	34	32	126.5	46	16	35	M5	2	76	16	5.5



Product Code	Size	X
2325M23MSD27K#	1/4"	201
3325M23MSD27K#	3/8"	211
4325M23MSD27K#	1/2"	211



Product Code	Size	X
2325M23XSD27K#	1/4"	201
3325M23XSD27K#	3/8"	211
4325M23XSD27K#	1/2"	211

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www.rotork.com

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

Rotork Midland Ltd.
Patrick Gregory Road
Wolverhampton
WV11 3DZ, UK
tel +44 (0)1902 305 678
fax +44 (0)1902 305 676
email sales.midland@rotork.com

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