

Manual Reset Solenoid Valves

E50 series 3/4" - 4"



- De-energise to close models
- Energise to close models
- ATEX, EAC Ex (CU TR 012) and IECEx, Ex-d approved

E66 series 3/8" - 2"



- Magnetic Latch
- ATEX, EAC Ex (CU TR 012) and IECEx, Ex-d approved

Solenoid Valve - 2/2 - Manual Reset

Benefits & Features

- Direct Acting with hand held manual reset knob
- Suitable for gaseous and liquid media
- Power to Close (ES model).
- Powered open. Remove power to close (DS model)
- Bronze body (nickel plated available. Please ask)
- IP65, EExd IIB or EExd IIC versions
- Ex-d IIC -60°C to +60°C ambient versions
- ATEX, EAC Ex (CU TR 012) and IECEx, Ex-d approved



EExd Hazardous Area versions

Specification

Configuration	Direct acting poppet design
Port Sizes	3/4" to 4"
Orifice	see table below
Kv	see table below
Body	Bronze
Media	Air, gases, liquids etc. Subject to material compatibility
Pressure ranges	See individual data tables below
Seals	NBR (-10°C to + 70°C), VITON (-10°C to + 90°C), (3/4" and 1" only)
Voltage	12, 24, 48, 110, 220, 230 AC/DC. Other voltages upon request

Technical Data

					Orifice mm	Pressures in BAR.			Operation (See page 2 for Information)	KV Flow Factor L/min.
	A	B	C	D		Nominal Max.	Differential			
							Min.	Max.		
E50	20				20	16	0	5	D	100
E52	20				20	16	0	5	E	100
E51	25				25	16	0	5	D	160
E53	25				25	16	0	5	E	160
E55	32				32	16	0	5	D	250
E56	38				38	16	0	5	D	360
E57	50				50	16	0	5	D	645
E60	62				62	16	0	5	D	1000
E58	75				75	16	0	5	D	1450
E09	98				98	16	0	5	D	2400
Flanged PN16	A	B	C	D						
E57	50				DN50	16	0	5	D	645
E60	62				DN60	16	0	5	D	1000
E58	75				DN80	16	0	5	D	1450
E09	98				DN100	16	0	5	D	2400



IP65 safe area version

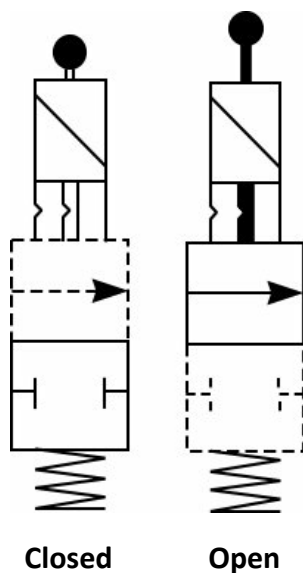


IP65 safe area version with flanged body

Solenoid Valve - 2/2 - Manual Reset

Configuration & Operation

The E50 series has two distinct types of operation. D and S.
They have either the power applied or removed, in order to return the valve to the closed position



D' Type Operation: Sizes 3/4" to 4"

Setting the valve to the Open position:

- Power is supplied to the solenoid
- Person attends valve on site and pulls reset to knob vertically. Valve is held open electrically
- Valve is now in the open position

'D' Type Operation: Sizes 3/4" to 4"

How the valve closes:

- Power is removed from the solenoid
- Valve is now closed

E' Type Operation: Sizes 3/4" and 1"

Setting the valve to the Open position:

- Person attends valve on site and pulls reset to knob vertically
- Valve is now mechanically held in the open position. No power is required.

'E' Type Operation: Sizes 3/4" and 1"

How the valve closes:

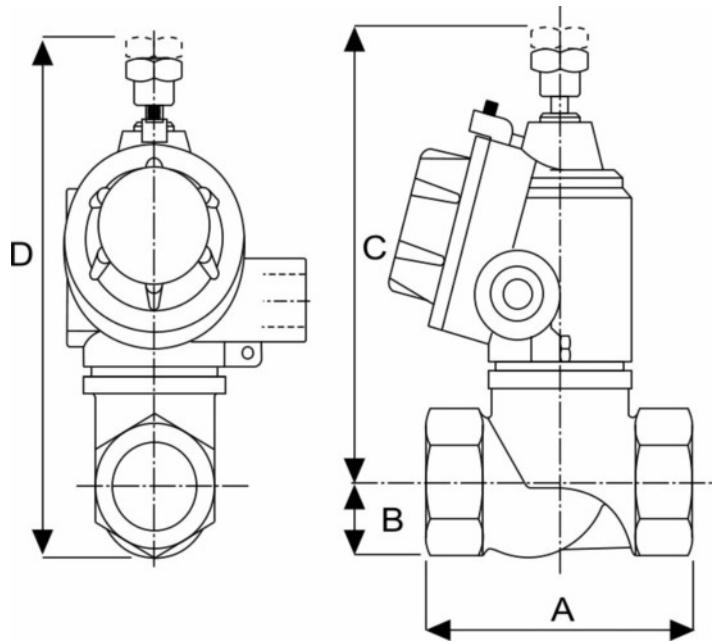
- Power is supplied to the solenoid (minimum 500 m/seconds)
- Valve is now closed

Solenoid Valve - 2/2 - Manual Reset

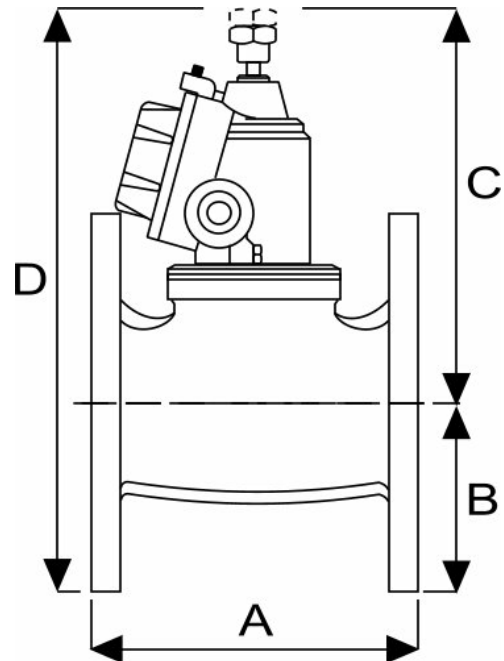
Dimensions

EExd & IP67 Safe Area

Screwed Port Size	Weight Kg	Dimensions mm			
		A	B	C	D
¾"	1.2	80	20	124	144
1"	1.4	94	25	130	155
1 ½"	1.8	109	31	159	190
1 ½"	2.1	119	34	166	201
2"	2.9	140	41	176	217
2 ½"	4.7	170	51	204	255
3"	6.7	188	61	205	266
4"	13.3	209	72	248	320
Flanged Port					
DN50	6.3	142	83	180	263
DN60	9.3	158	93	202	295
DN80	11.3	189	100	208	308
DN100	22.3	246	110	245	355



DN50	142	83	180	263
DN62	158	93	202	295
DN80	189	100	208	308
DN100	246	110	245	355

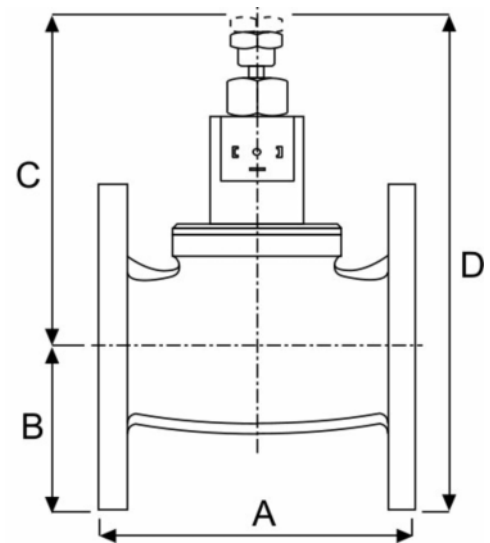
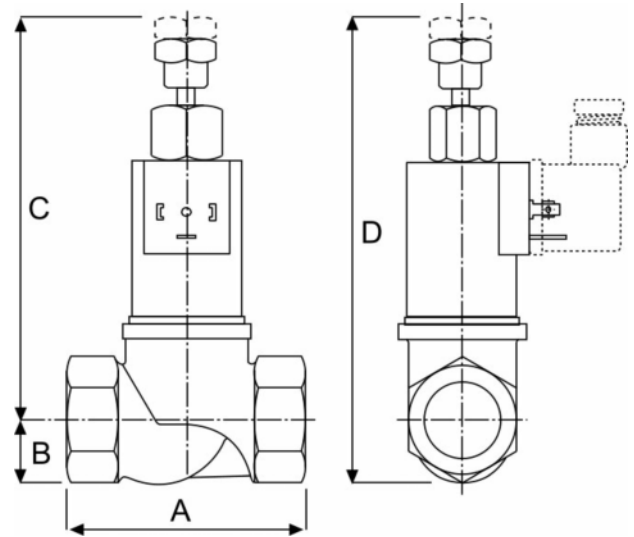


Solenoid Valve - 2/2 - Manual Reset

Dimensions

IP65 Safe Area

Screwed Port	Weight Kg	Dimensions mm			
		A	B	C	D
3/4"	1.2	80	20	124	144
1"	1.4	94	25	130	155
1 1/4"	1.8	109	31	159	190
1 1/2"	2.1	119	34	166	201
2"	2.9	140	41	176	217
2 1/2"	4.7	170	51	204	255
3"	6.7	188	61	205	266
4"	13.3	209	72	248	320



Flanged Port	Dimensions mm				
DN50	6.3	142	83	180	263
DN65	9.3	158	93	202	295
DN80	11.3	189	100	208	308
DN100	22.3	246	110	245	355

Order Codes

A	Body	B	Port	C	Seals (fluid temp. min / max)	D	Protection	E	Options		
T	Bronze	H	3/4" BSP	P	2" BSP	0	NBR (-10°C to +70°C)	P	IP65 Safe Area	/SG	Degreased for oxygen
		L	1" BSP	Q	2 1/2" BSP	1*	VITON (-10°C to +90°C)*	S	IP67 Safe Area		
		N	1 1/4" BSP	R	3" BSP	7	HNBR (-45°C to +90°C)	B	II 1/2 GD Ex-d IIB T6 (-20 to +40°C)		
		O	1 1/2" BSP	S	4" BSP			C	II 1/2 GD Ex-d IIC T6 (-20 to +40°C)		
		DN	50, 65, 80, 100					/LT	II 1/2 GD Ex-d IIC T6 (-60 to +60°C)		
								H	Ex-d c IIB IP67 IECEX		
								T	Ex-d c IIC IP67 IECEX		
								R	Ex-d IIC EAC Ex		

Solenoid Valve Fire Systems - Deluge

Benefits & Features

- Two way normally closed, manual reset, with magnetic latch
- Brass or 316 Stainless Steel body (1/2" and 3/4")
- IP67 housing for waterproof operation
- Ideal for fire fighting deluge systems
- IP65, IP67, Ex-d IIB, Ex-d IIC versions
- Ex-d IIC -60°C to +60°C ambient versions
- ATEX, EAC Ex (CU TR 012) and IECex, Ex-d approved

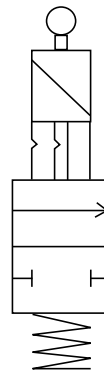


Specification

Configuration	Pilot operated diaphragm
Port Sizes	1/2" to 2" BSP/NPT screwed ports.
Max. Applied pressures	PN25 body. Maximum differential pressure: 10 Bar
Body	Brass or 316 Stainless Steel (1/2" and 3/4")
Media	Liquid/gases compatible with the seal/body materials
Power consumption	>500 m/s pulse

Valve Function

- Site engineer closes the valve by pressing on the reset knob (A). Valve is now closed.
- Valve opens when the solenoid coil receives a >500 m/s pulse.
- Valve then stays open without power.



"E" Type Operation with Magnetic Latch

Valve is latched CLOSED after pressing the centre plunger knob.
Valve Opens when the coil is energised.

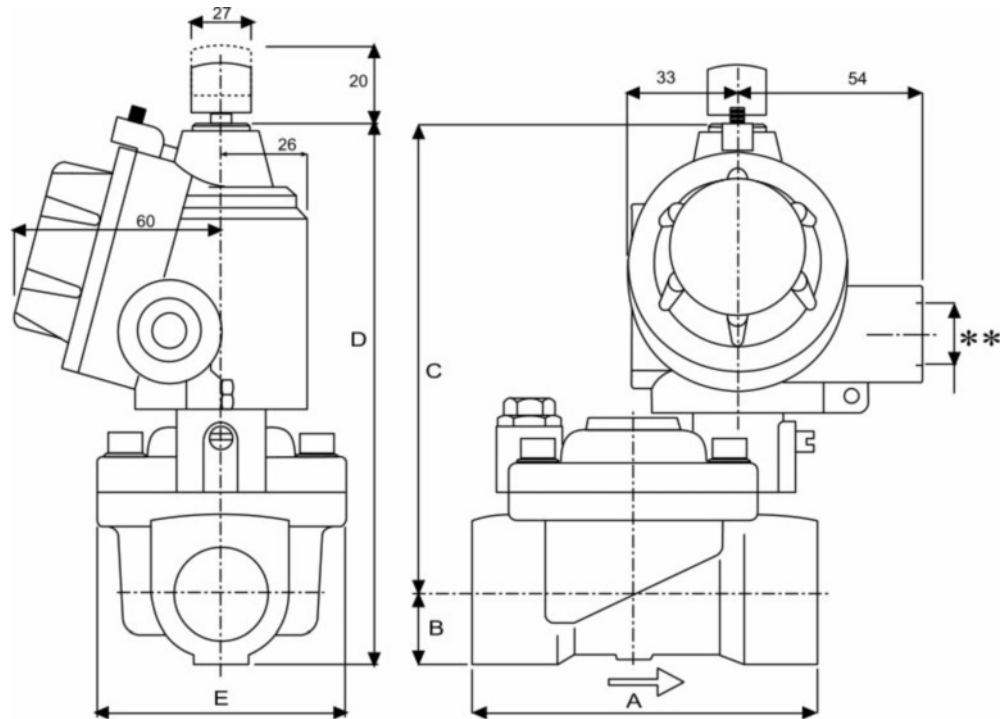
Technical Data

	A	B	C	D	E	Orifice mm	Body Rating	Min. /Max. Operating Differential Pressures. BAR.			KV Flow Factor L/min.
								Min.	Normally Open Maximum		
									AC	DC	
E66	12					12.7	25	0.2	10	10	35
E66	12					12.7	25	0.2	10	10	40
E66	18					18	25	0.2	10	10	87
E66	25					25	25	0.2	10	10	170
E66	36					36	20	0.3	10	10	300
E66	36					36	20	0.3	10	10	340
E66	50					50	20	0.3	10	10	600

Solenoid Valve Fire Systems - Deluge

Weights & Dimensions

Port Size	Weight Kg	Dimensions mm				
		A	B	C	D	E
3/8"	1	64	14	119	133	45
1/2"	1	64	14	119	133	45
3/4"	1.3	82	17	128	145	55
1"	1.8	100	20	135	155	70
1 1/4"	3.3	144	28	142	170	98
1 1/2"	3.1	144	28	142	170	98
2"	4.9	152	35	153	188	120



Order Codes

A	Body	B	Port	C	Seals (fluid temp. min / max)	D	Protection	E	Options
I	316 Stainless steel*	E	3/8" BSP	T	3/8" NPT	0	NBR (-10°C to +70°C)	P	IP65 Safe Area
N	Niploy Plated Brass**	F	1/2" BSP	G	1/2" NPT	1	VITON (-10°C to +90°C)	S	IP67 Safe Area
T	Brass	H	3/4" BSP	I	3/4" NPT	6	EPDM (-10°C to +90°C)	B	II 1/2 GD Ex-d IIB T6 (-20 to +40°C)
	* 1/2" & 3/4" only	L	1" BSP	M	1" NPT	7	HNBR (-45°C to +90°C)	C	II 1/2 GD Ex-d IIC T6 (-20 to +40°C)
	** Upon request	N	1 1/4" BSP	O	1 1/2" BSP			/LT	II 1/2 GD Ex-d IIC T6 (-60 to +60°C)
		V	1 1/2" NPT	P	2" BSP			H	Ex-d c IIB IP67 IECEX
		W	2" NPT					T	Ex-d c IIC IP67 IECEX
								R	Ex-d IIC EAC Ex

! Solenoid Valve Series: "L", "C", "D", "E", "F", "G" and "H" !

The following data is intended exclusively for specialised users only. These person(s) must comply with local and national regulations. This document is for information regarding the installation, assembly, disassembly and authorised maintenance. Such operations must exclusively be performed by authorised technical personnel. The product should be verified and checked that it is suitable for the application, by checking the Solenoid Valve specification against the Application demands (fluids, pressures, temperatures etc.)

Make sure that the type and degree of Solenoid Valve protection, as well as the temperature of the fluid that the valve intercepts are compatible With the degree, the type of protection and the class of temperature required by the classification of the zone, which the valves will be installed.

Use Solenoid Valves only with fluids compatible with the materials of which they are composed: Brass OT58 Uni 5705-65 (Cu 58% Zn 40% Pb 2%). Stainless Steel A X5CrNiMo1712 (AISI 316s) or A X2 CrNiMo1712 (AISI 316Ls) and the type of elastomer used for the seal.

Do not use Solenoid Valves with pressure limits outside that marked on the Identification Plate.

Make sure that the voltage and type of power supply (alterate or continuous) are the same as that marked on the Identification Plate. Make sure the Tolerance of +/- 10% is not exceeded.

Do not energise the Solenoid Valve without the protection cap being completely closed and sealed, the security dowel screwed tight, and the cable Correctly fitted and secured.

Before removing the safety cap, make sure that the Solenoid Valve is not energised.

In the event of Solenoid Coil replacement, use the following procedure using the tools and methods advised by the manufacturer. Use only a Replacement Solenoid Coil supplied by the manufacturer. Verify that the coil has the correct voltage, and is suitable for the model of Solenoid Valve, As indicated on Identification Plate. Ensure that the threaded safety cap and the security dowel are reassembled correctly and that all joints are tight. Ensure that the Electrical Cable is fitted correctly, and that the Explosion Proof Housing is free from the ingress of water.

Do not use the Solenoid Valve Explosion Proof Housing as a lever when mounting the Solenoid Valve on the process pipe line.

INSTALLATION PROCEDURE & METHODS

19 mm hexagon nut.
(present only on some models of solenoid valves)

Security dowel
M4x8 UNI 5927

Rating plate

Threaded cap

A

① ② Safety devices.

Fig. 1

! Attention:

For safety Purposes, ensure that the power supply is disconnected. After De-energising, Allow 15 mins. before continuing the next operation

Loosen the security dowel (1), using a 2 mm set screw wrench, turning anticlockwise.

B

Firmly hold the threaded plug (2) and loosen it, by turning anticlockwise. Do not unscrew it completely.

Unscrew completely the threaded plug (3).

Coil

solenoid housing security clip

Terminal board of power supply

Internal ground connecting screw

Power supply wires threaded entry hole.

External ground connecting screw

C

Connect the ground wire to the ground connecting screw (2).

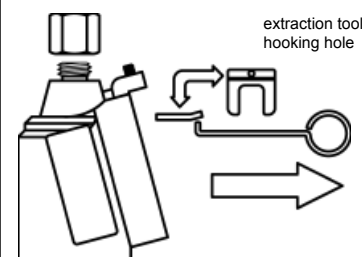
Connect the power supply wires to the terminal board (3) using a (*) 3 mm max. flat screw-driver.

Connect the solenoid valve to the ground using the external ground connecting screw (3).

! Pipe fittings used for cable entry (cable duct, conduit, etc) are NOT supplied by the manufacturer. Should be care of the installer to use fittings of proper diameter and type suitable to secure tightness for the cable used. Pipe fittings (cable duct, conduit, etc) must be ATEX approved for a protection degree equal or greater than the protection degree indicated on the rating plate. Type of thread of the cable entry for the solenoid housing is stamped on the outlet side of the cable entry and it could be: 1/2" Gk, 1/2" NPT, M20x1,5 (ISO M20x1,5).

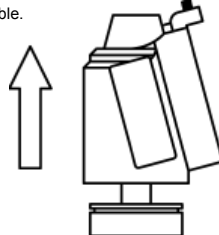
SOLENOID REPLACEMENT

If fitted unscrew the hexagon nut with a (*) 19 mm wrench turning it anticlockwise.

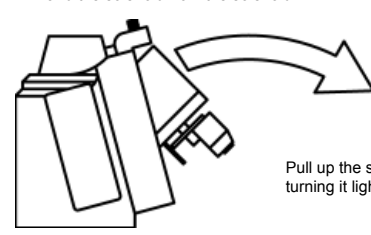


Extract the clip putting the extraction tool (KM/3062) in the hole of the security clip then pull hard to extract the clip.

Extract the solenoid housing and the solenoid from the solenoid valves pulling up. Solenoid housing and solenoid will remain connected to the power supply cable.



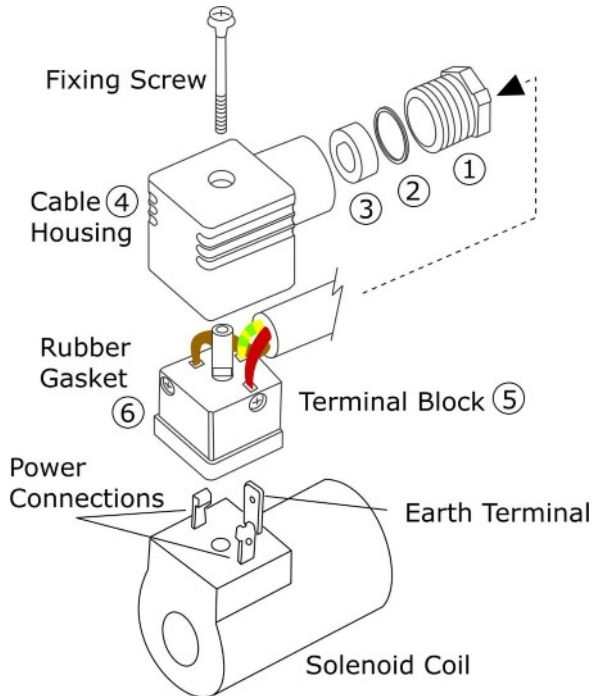
Disconnect power supply and internal ground connecting wires then extract the solenoid housing and the solenoid from the solenoid



For product safety purpose and conformity with certification, replace the coil only with a coil supplied by the manufacturer suitable for the model stamped on the rating plate. Do not supply the power until the solenoid and the housing have been assembled correctly on the solenoid valve body/pilot.



DIN electrical socket connectors to protect solenoid coil terminals and wiring.



Section 1: DIN Connector Assembly

- Insert the electrical power cable through the gland assembly (1,2,3)
- Push the cable through cable housing (4)
- Connect power and earth cables to terminal block 5
- Push terminal block (5) backwards, inside cable housing (4)
- Place rubber gasket (6) on terminal block (5) front face
- Push terminal block onto solenoid coil terminals
- Push fixing screw through complete assembly
- Tighten fixing screw with small screwdriver
- Do not over tighten
- Tighten cable gland (1,2,3) by hand

Section 2: How to install Solenoid Valves

Solenoid Valves can normally be installed and operate in any orientation. However, certain models are designed to operate in horizontal installations. Please contact Red Dragon for further information.

Installation Procedure:

Check that the Solenoid Valve is the correct product ordered for the application:

- Isolate the site electrical power supply
- Isolate the site media supply (dependant on the application)...air, water, steam etc. Leave until cool/safe.
- Insert the valve onto the pipe, ensuring that the flow direction is observed.....IN for incoming media, or an arrow stamped on the valve body.
- Ensure that the pipe connections are free from burrs or loose pipe thread tape
- Tighten all pipe joints
- Connect electrical power supply via DIN electrical socket connector, as detailed in section 1
- Ensure that DIN connector is properly connected to solenoid coil and the gasket is installed correctly
- Apply media pressure and check for leaks

Section 3: Maintenance Procedure for Solenoid Valves

In the unlikely event of a valve malfunction, or routine maintenance, follow these instructions:

- Isolate the site electrical power supply
- Isolate the site media supply (dependant on the application)...air, water, steam etc.
- Remove the solenoid coil by unscrewing the coil retention nut anti-clockwise
- Remove the coil tube stem by unscrewing anti-clockwise
- Carefully remove the plunger assembly (inside the coil stem)
- Check the plunger assembly for damage or worn seals
- Check the face inside the coil stem for foreign particles that could prevent correct operation
- For Pilot Diaphragm Solenoid Valves: remove the top cover housing and check the diaphragm for damage and blocked transfer port.
- Re-assemble the valve in reverse order, ensuring that all parts are cleaned and assembled correctly