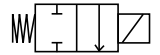




Red Dragon Valves

The Solutions Specialists



Solenoid Valves. 2/2 Cryogenic








Models: L88, L89



- Suitable for high dependency applications through proven design
- High reliability by using anti-freezing internal components
- Safe Area protection to IP65 & IP67
- ATEX Ex-d- IIC Gb Ex-t IIIC Db II B T6 or T5 or T4 t.amb -20 +40°C (T6 or T5)
- ATEX Ex-d- IIC Gb Ex-t IIIC Db IIC T6 or T5 or T4 t.amb -20 +40°C (T6 or T5)
- Ambient temp. -20 to +60°C upon request (T5 or T4)
- Manufactured in Italy

Specification

Configuration	Direct Acting
Port Sizes	1/4", 3/8", 1/2", 3/4"
Body	Brass and 316 Stainless Steel
Media	Liquid Nitrogen -196°C
Pressure ranges	See individual data tables below
Seal options	PTFE: -196°C

		L88 & L89 Series Solenoid Valves 2/2 Cryogenic Service				
Operation		Normally Closed				
Body Material		Brass		- or -	316SS	
Pressure Min (Bar)		0	0		0	0
Pressure Max*		15	10		15	10
Pipe Size	1/4" BSP/NPT	L88			L88	
	3/8" BSP/NPT		L89			
	1/2" BSP/NPT		L89			L89
	3/4" BSP/NPT		L89			L89
	ANSI 150/300 DN15					L89
 Safe Area Option IP65		IP65	IP65		IP65	IP65
 Safe Area Option IP67			IP67			IP67
 Hazardous Area Option IP67						



Options

Degreased for oxygen service

Solenoid Coil Housing (Blue: IP67 ATEX EExd, Green IP67)

IP67 housing with a choice of female cable gland entries: M20 x 1.5mm or 1/2" NPT



Red Dragon Valves

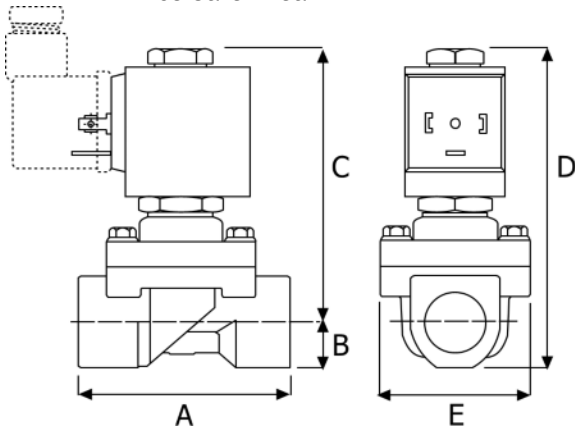
The Solutions Specialists



Solenoid Valves. 2/2 Cryogenic

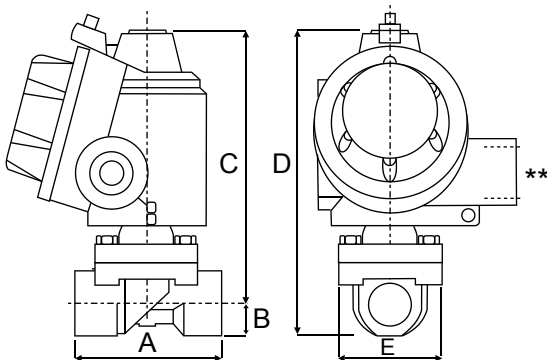
Models: L88, L89. Dimensional Drawing

IP65 Safe Area



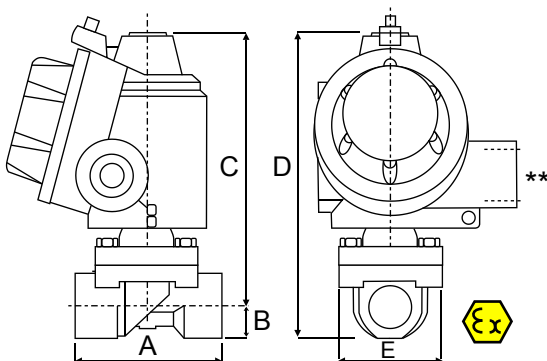
Models with Safe Area Solenoid Coil	Dimensions mm					Weight Kg
	A	B	C	D	E	
L88 (1/4")	50	10.5	84	36	54	0.3
L89 (3/8" & 1/2")	64	14	70	84	45	0.7
L89 (1/2" Flanged)	140	14	70	84		2.3

IP67 Safe Area



Models with IP67 Cable Gland Entry	Dimensions mm					Weight Kg
	A	B	C	D	E	
L88 (1/4")	50	10.5	115	86	87	0.7
L89 (3/8" & 1/2")	64	14	115	128	45	0.9
L89 (1/2" Flanged)	140	14	115	128		2.7

IP67 Hazardous Area



Models with ATEX EExd Approved Housing with IP67 Cable Gland Entry	Dimensions mm					Weight Kg
	A	B	C	D	E	
L88 (1/4")	50	10.5	115	86	87	0.7
L89 (3/8" & 1/2")	64	14	115	128	45	0.9
L89 (1/2" Flanged)	140	14	115	128		2.7

ORDER CODES

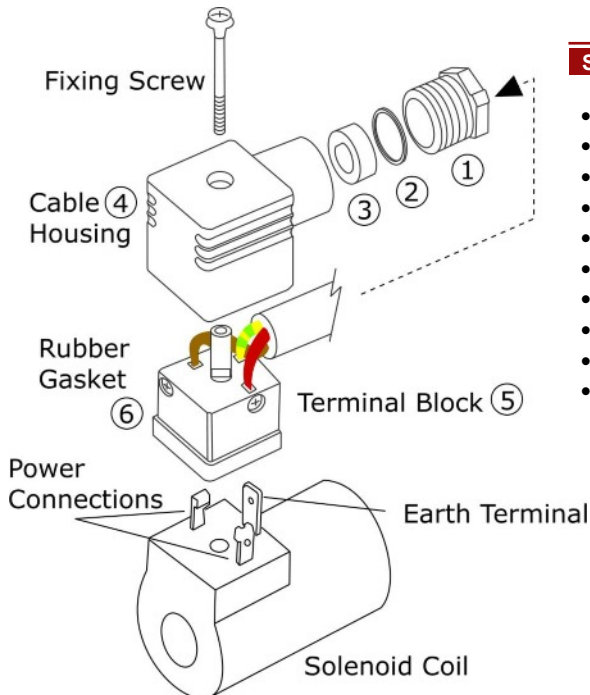
A	Body	B	Port	C	Seals (fluid temp. min / max)	D	Protection	E	Options		
T	Brass	C	1/4" BSP	D	1/4" NPT	3	PTFE (-192°C)	P	IP65	/SE	Degreased for Oxygen
I	316 Stainless Steel*	E	3/8" BSP	T	3/8" NPT			B	EExd IIB		
	1/2" Model Only	F	1/2" BSP	G	1/2" NPT			C	EExd IIC		
		H	3/4" BSP	I	3/4" NPT						



SOLENOID VALVE GENERAL INSTALLATION & MAINTENANCE

SAFE AREA
SOLENOID VALVES
DIN 43650-A (Large)
DIN 43650-B (Small)

Red Dragon Valves use 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.
- 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



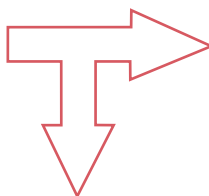
NADI srl
**PRODUCT CODE
 IDENTIFICATION**

**SOLENOID VALVES
 PNEUMATIC VALVES**

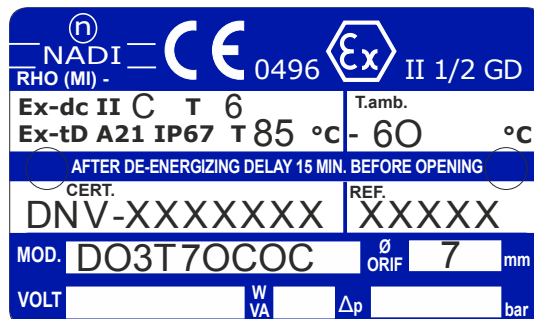
VALVE DE-CODING TABLE

Model (10 or 11 digits)

L 0 2 T 1 8 C O P X



MARKING EXAMPLE



VALVE TYPE	
M	Air Operated Valve
L	2 Way Solenoid Valve
C	3 Way Solenoid Valve
D	5 Way Solenoid Valve
E	Man. Reset 2 Way S.valve
F	Man. Reset 3 Way S.valve
G	Man. Reset 5 Way Sol. Valve
V	Special Manufacture

GROUP NUMBER	
From 0 to 99	

BODY MATERIAL	
T	Brass / Bronze
H	303/304 Stainless Steel
I	316 Stainless Steel
L	Light Alloy
C	Cast Iron
D	Ductile Iron
A	Aluminium
P	Plastic
Z	Other

ORIFICE DIAMETER MM

PORT CONNECTION SIZE. THREADED.					
A	1/8" BSP	H	3/4" BSP	X	M5
B	1/8" NPT	I	3/4" NPT	Y	M8
C	1/4" BSP	L	1" BSP	Q	2 1/2" BSP
D	1/4" NPT	M	1" NPT	R	3" BSP
E	3/8" BSP	N	1 1/4" BSP	S	4" BSP
T	3/8" NPT	O	1 1/2" BSP	U	collector
F	1/2" BSP	V	1 1/2" NPT	Z	other
G	1/2" NPT	W	2" NPT		

FLANGED PORT. RDV Code				NADI Code
FL	-	A	PN16	Z (UNI-2282)
FL	-	B	PN25	
FL	-	C	ANSI 150	Y
FL	-	D	ANSI 300	X
FL	-	E	JIS	
FL	-	F	PN10	
FL	-	G	PN40	

Example:

FL3A = 3" PN16
 FL34A = 3/4" PN16

OPTIONS	
W	Manual Override. Push Button
X	Manual Override. 1/4 Turn
Y	Transmission Pin
/AP	High Pressure version
/SG	Degreased for Oxygen
/LT	ATEX +60C Ambient
/C	Anti-noise Condenser
/V	Varistor
/LC	Low Consumption Coil
/H	Class H Coil Winding

SOLENOID PROTECTION	
A	EExia (Intrinsically Safe)
B	Ex-dc IIB IP67
C	Ex-dc IIC IP67
P	IP65 (Safe Area)
S	IP67 Housing (Safe Area)

SEALS	
0	NBR (Buna N)
1	VITON
2	UREPAN
3	PTFE / RULON
4	Metallic
5	Neoprene
6	EPDM
7	HNBR (-45°C)
8	PE
9	NBR (Buna N 60 sh.)
10	TEFLON
11	PE (Nylon)
12	Silicone