

# TECHNICAL SPECIFICATION

## *QW Series Brass Body – Normally Closed*



**Product Description**



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## PRODUCT DESCRIPTION

The QW series of valves are 2 port, 2 position, solenoid pilot operated diaphragm valves. The QW series uses a floating diaphragm which requires a small pressure drop across the main valve orifice to remain in the open position.

## Typical Applications

The QW valves are general purpose valves for controlling flow of air, water, light oil.



## PRINCIPLE OF OPERATION

### Functionality

The QW normally closed series of valves are solenoid operated. The valve is opened by the application of a suitable electric power supply to the solenoid coil. This coil provides magnetic flux to the solenoid which causes a plunger (armature) to move towards a matching pole face (iron top) within the solenoid.

The plunger end normally seals a pilot orifice either centred on a diaphragm or located adjacent to the diaphragm on larger models. The sealing of this pilot orifice creates a closed volume above the diaphragm which is open to upstream fluid pressure via a small bleed hole in the diaphragm. The net force due to fluid pressure on top of the diaphragm effectively seals the diaphragm against the main valve orifice. When the plunger lifts under magnetic influence the volume above the diaphragm is open to the down stream end of the valve with a flow capability greater than the inflow capability of the bleed orifice. This causes the diaphragm to lift to its open position as the net force holding the diaphragm closed is exceeded by the net force tending to move the diaphragm to the open position. Fluid may now flow freely through the valve until the electrical energy is removed so the plunger freed from the magnetic flux moves back to its closed position under the influence of a return spring. The volume above the diaphragm is once again closed to outflow and the diaphragm returns to the closed position.



## PERFORMANCE

### Flow Performance

See table below

### Pressure Rating

20-1000 kPa (3-150 psi)

### Temperature Rating

Ambient temperature range: -34°C to 25°C (-29°F to 77°F), specific approvals may have different temperature ranges.

Fluid Temperature range: -34°C to 82°C (-29°F to 180°F), for standard seal materials. FMK and EPDM may be used to 100°C (212°F), specific approvals may have different temperature ranges.

### Fluid Media

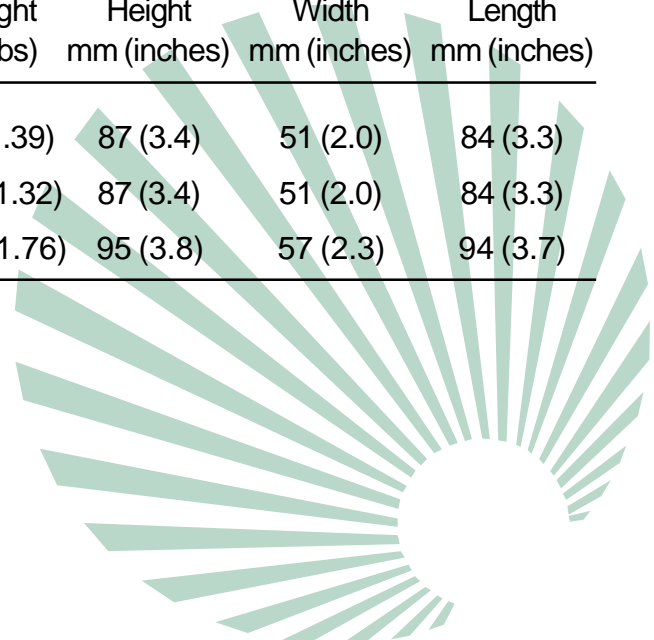
Water, light oil, air

### Power Consumption & Duty Cycle

See *How To Order* guide for coil options. All coils are continuous duty rated.

### Unit Weight

Model	Pipe size mm (inches)	Cv/Kv	Orifice mm (inches)	Weight kg (lbs)	Height mm (inches)	Width mm (inches)	Length mm (inches)
6QW2	8 (1/4)	1.10/0.95	6.3 (0.25)	0.6 (1.39)	87 (3.4)	51 (2.0)	84 (3.3)
10QW2	10 (3/8)	2.10/1.81	9.5 (0.38)	0.95 (1.32)	87 (3.4)	51 (2.0)	84 (3.3)
12QW2	15 (1/2)	3.50/3.01	12.7 (0.50)	1.27 (1.76)	95 (3.8)	57 (2.3)	94 (3.7)



## **APPROVALS**

### **Approvals Carried**

**AGA (Australian Gas Association):**

Not approved for fuel gas applications.

**ALPGA (Australian Liquid Petroleum Gas Association):**

Not approved for LPG applications.

**CE:**

Approval applied for, not applicable to this range of products at this date.

**CSA (Canadian Standards Association):**

General Purpose Electrically Operated Valves to CSA 22.2, report no. LR26709-13, dated 11th Jan. 1990

**UL (Underwriters Laboratories):**

Listed General Purpose Valve, file MH9011, sections 2.02, 2.05, 2.12 and File E53107, section 1.03

**WaterMark:**

Licence W172 (WaterMark approved materials available on request)



## CONSTRUCTION

### Body

DR brass forgings. Electroless nickel plating is optional.

### Diaphragm & Seals

A choice of Nitrile, FMK or EPDM.

### Solenoid Operator

Stainless steel (300 and 400 series), valves designed for AC operation will contain a copper shading ring.

### Screws

Zinc passivated steel.

### Enclosure

See *How To Order* guide for coil enclosure options.



## **DIMENSIONAL DETAILS**

### **Port Sizes**

See *How To Order* guide for coil options. All coils are continuous duty rated.

### **Electrical Connections**

See *How To Order* guide for coil connection options.

### **Mounting Details**

Valve can be mounted with the ports horizontal or vertical.



## HOW TO ORDER

The example shows a 12QW2-ENBNT-7143 which may be described in words as:

A 12mm (1/2" ports), Q series coil, Pilot operated diaphragm with inline ports, design series 2, normally closed, No approvals, Forged brass, Nitrile seals, RC (BSPT) inlet and outlet threads, NEMA 1 enclosure, 240V 50Hz coil.

col 1	col 2	col 3	col 4	col 5	col 6	col 7	col 8	col 9	col 10	col 11	col 12
12	QW	2	-	E	N	B	N	T	-	71	43

### Col 1

Nominal Size	Description
6	6mm (1/4")
10	10mm (3/8")
12	15mm (1/2")

### Col 2

Valve Series	QW
Description	Q coil, Pilot operated diaphragm with in line ports

### Col 3

Design Series	2
Description	All models

### Col 4 and Col 10

Dash Delimiter



**Col 5**

Key Design Feature	Description
C	DC only normally closed
E	AC only normally closed
J	DC only normally closed with hazardous enclosure
L	AC only normally closed with hazardous enclosure

**Col 6**

Approvals	Description
N	No approval
A	UL and/or CSA <sup>1</sup>
W	WaterMark

**Col 7**

Construction	Description
B	Forged brass
C	Chrome plated brass
N	Nickel plated brass

**Col 8**

Seal materials	Description
N	Nitrile
E	EPDM
V	FMK
R	Neoprene <sup>1</sup>



**Col 9**

Port threads	Description
T	RC (BSPT)
A	NPT
P	RP (BSPP) <sup>1</sup>

**Col 11**

Coil/Enclosure	Enclosure	Electrical connections	Conduit Thd.
71	NEMA 1	Screw terminals	M20 x 1.5
72	NEMA 1	Screw terminals	1/2" NPSC
77	NEMA 1	Flying leads	M20 x 1.5
78	NEMA 1	Flying leads	1/2" NPSC
73	Open C frame	Screw terminals	
74	Open C frame	Flying leads	
75	Open C frame	Quick connect terminals	
76	Open C frame	2 core cable	
70	Raintight	Standard DIN socket	Cable gland
7A	Raintight	Less DIN socket	Cable gland

**Col 12**

Coil Voltage <sup>2</sup>	Description
51	220V/50Hz, 240V/60Hz, 8 watts, continuously rated <sup>3</sup>
81	110V/50Hz, 120V/60Hz, 9 watts, continuously rated
23	24V/50Hz, 9 watts, continuously rated
25	24V/60Hz, 9 watts, continuously rated
43	240V/50Hz, 9 watts, continuously rated
27	24VDC, 15 watts, continuously rated
D7	12VDC, 15 watts, continuously rated

**NOTES**

1. Confirm availability when ordering.
2. Additional voltages may be available.
3. Coil is unreliable at 240V AC 50Hz.

