

Application Note

Motion Sensor Operated Solenoid valves for plumbing systems

The BREEAM public building energy economy certificate (Building Research Establishment Environmental Assessment Method) is becoming as well-known as the A+ standard for household equipment. Ever growing interest in certified "green" office spaces (or even ones that are about to get certified) are becoming ever more popular. Thanks to using modern, environmentally friendly technology and materials these buildings consume some 30 % less energy than traditional office spaces. Working in buildings like these has been proven to have a positive effect on employees.

In the construction industry, energy efficient building materials and modern technology have been helping buildings to accumulate heat. International organizations which carry out building assessments have come up with their own specialized environmental certification systems covering a variety of criteria. A building that is environmentally certified automatically makes an entire

investment more prestigious, and attracts environmentally friendly developers. Potential tenants also prefer renting "green office spaces" as they have been proven to have a positive influence on their employees' health and mood, which will of course therefore benefit their business.

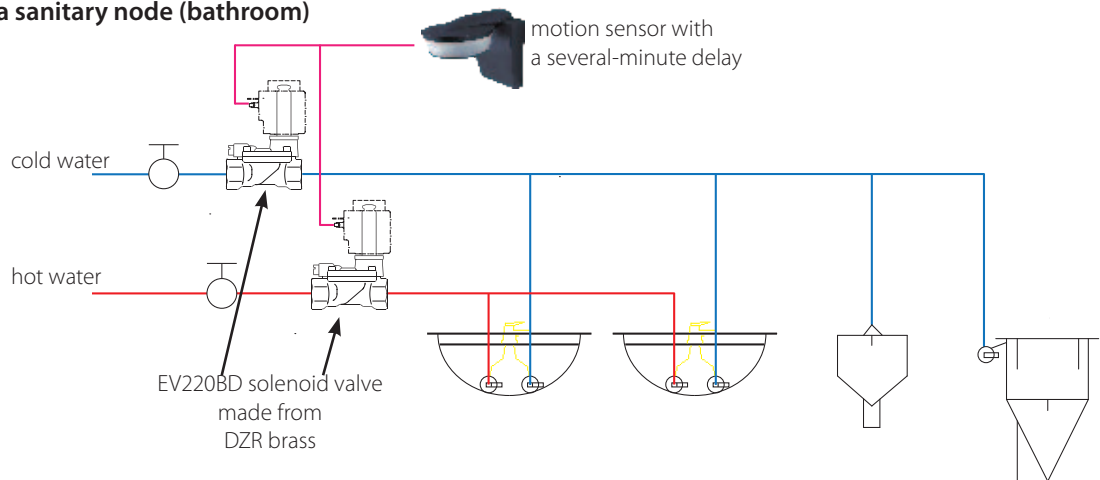
During the certification process, there are certain criteria a building must meet in order to be successful. One cost that tenant have to take into account is the cost of water. Motion sensor operated solenoid valves can prove a huge help in getting rid of unnecessary water usage (caused by a leaking toilet handle, dripping tap, or broken tubes for example). They will allow you to have complete water control in sanitary nodes. By setting a timer that will shut off the water using an solenoid valve a couple of minutes after the motion sensor has picked up movement in a particular room, water consumption can be controlled, which means lower bills and a reduced risk of flooding.



Unique corrosion-resistant brass valves – long-lasting and trouble-free

Whenever a water-stopping system is installed, we recommend using a special valve made from a brass alloy (DZR). The reason is because it is corrosion and galvanization resistant which therefore means it'll last even for up to 20 years. When used properly, the brass is both resistant to water and atmospheric corrosion. When, however, in contact with soft chlorine-containing water, brass tends to lose its zinc-plating, which therefore exposes it to a corrosive phenomenon called "seasonal cracking". CuZn36Pb2As (DZR) brass features a high rate of de-galvanization resistance, therefore offering better corrosion resistance when installed into the water supply. DZR brass is successfully used in manufacturing water system valve components.

Example diagram of a sanitary node (bathroom)



The complete solenoid valve consists of two components: a valve body which is chosen according to the size of the required connection or flow rate (Table 1) and a coil selected according to the supply voltage (Table 2).



Table 1. **Body of the EV220BD valve, NC version** (normally closed)

Connection	DN	Pressure	Designation	K _v	Code no. (*)
G 1/2"	DN 15	0,3 - 16 bar	EV220B 15BD G12E NC 000	4 m ³ /h	032U5815
G 3/4"	DN 20	0,3 - 16 bar	EV220B 20BD G34E NC 000	8 m ³ /h	032U5820
G 1"	DN 25	0,3 - 16 bar	EV220B 25BD G1E NC 000	11m ³ /h	032U5825
G 1 1/4"	DN 32	0,3 - 16 bar	EV220B 32BD G114E NC 000	18 m ³ /h	032U5832
G 1 1/2"	DN 40	0,3 - 16 bar	EV220B 40BD G112E NC 000	24 m ³ /h	032U5840
G 2"	DN 50	0,3 - 16 bar	EV220B 50BD G2E NC 000	40 m ³ /h	032U5850

(*) - water flow rate value at 1 bar



Table 2. **BE coils**

Coil type	Coil supply voltage		Enclosure	Code no.
	a.c.	d.c.		
BE 230AS	230V 50Hz	-	IP 67	018F6701
BE 024AS	24V 50Hz	-	IP 67	018F6707
BE 024DS	-	24V	IP 67	018F6757

Comments:

- We recommend using a 500-µm filter upstream solenoid valve.
- Checking the valves regularly is also recommended.
- The solenoid valves listed in Table 1 have a PZH certificate allowing them to come into contact with drinking water.

Please note that the products chosen here are automatic components; products with different technical parameters are also available. For more information please contact Technical Consultancy, Danfoss s.r.o., by phone **+420 (2) 83 014 111** or by emailing **danfoss.cz@danfoss.com**.

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