BELFIELD- DECANTATION/DRAIN VALVE

Process Measurement & Analysis Ltd has appointed Dawcul Limited to market the Belfield Valve in all overseas markets.

Specific Industry Applications:

- Petroleum
- Chemical
- Pharmaceutical
- Environmental Protection

It has been acclaimed, the easiest, most efficient way to decant and recover a wide variety of liquids possessing different specific gravities! It is automatic, extremely sensitive, versatile and provides users with a proven method for decanting or separating the heavier of two liquids. It also eliminates the many problems which occur during manual decanting of one phase in a wide range of multiphase systems, including:

a) Loss of product due to human error, especially where little or no colour variation exists between phases.
b) Detects and retains or rejects valuable interface materials containing recoverable products.
c) Serves as a safety device on effluent discharge systems reducing and/or eliminating pollution problems.
d) Requires minimal attention, service and maintenance thereby reducing labour costs drastically.
e) Standard body materials of construction are either carbon steel or stainless steel, in both cases the internals are constructed from stainless steel.

The valve consists of a body, inlet, valve seat and outlet, run off connections and a gravity sensitive float inside held in position by a guide. The valves are available in CS, SS and other materials on request and come in two basic sizes:

Model	Nominal Capacity Imp gph	At head ft.	Design pressure psig.	Inlet diameter	Outlet diameter	Slide run off diameter	Flange type*
MS/LC	1500	25	75	2-inch	1.5-inch	1.5-inch	ASA
MS/STD	10000	25	75	4-inch	2-inch	2-inch	150RF
SS6	1500	25	75	2-inch	1-inch	1-inch	to
SS8	3000	25	75	3-inch	2-inch	2-inch	Table
SS10	10000	25	75	4-inch	2-inch	2-inch	H

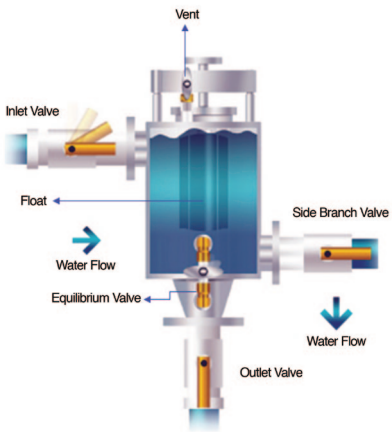
Other Flange Types Available - Call Factory

The valve is used to decant water from crude storage tanks, final product tanks and any application where an in-vessel separation occurs. They are often used on floating roof drains to protect the roof drain joints from leaking into the bunds-surface water collection systems.

The valves are manufactured to ISO9000 specifications and finished in an epoxy coating

OPERATION

The operation of the valve is based on the simple principle of differential specific gravity. One phase is discharged through the internal Float Seat. A change of specific gravity automatically closes the valve, the Float Valve. The side run off permits discharge of the second phase, together with any deliberately retained interface material. Test results show the Belfield Valve is capable of detecting variations in specific gravity of 5% on average, and in favourable circumstances greater accuracies are possible.



PERFORMANCE

The Belfield Valve has a design pressure of 75psig and tested to 1.5x design pressure (112.5psig).

Capacity of each model is stated as nominal for the following reasons:

1. Capacity at constant head will be influenced by the temperature, viscosity and specific gravity of the liquids involved.

2. Capacity is also influenced by the degree of ballasting of the float. Normally, the float is at the top of the body when un-ballasted in water and therefore, there is a minimum restriction to flow through the valve body. At the other extreme, when the float is ballasted to be just buoyant in cold water, it floats at a lower level and having little positive buoyancy is drawn further down the valve body by the velocity effect of the water passing through valve.

In practical terms, the following guidelines should be observed in deciding which capacity valve to select:

VISCOSITY

The main point in obtaining the viscosity is to ensure that there will not be excessive "drag" on the float. In general, the essential information required is viscosity at operating temperature and atmospheric temperature. This is particularly important if the liquid becomes solid at atmospheric temperatures.

Viscosities up to 50 c/s at operating temperature have little or no effect upon capacity. From 50 to 100 c/s, capacity should be reduced by 25%.

Any applications over 100 c/s viscosity should be referred to the factory with the fullest possible details of liquids involved, their characteristics, viscosity curve and, particularly, whether suspended solids are present.

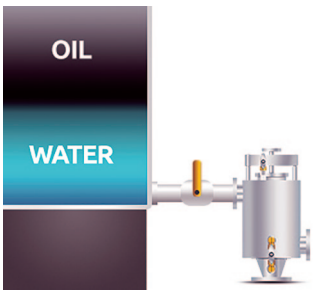
APPLICATION

The Belfield valve can be used for practically any decanting operations within the limits of its capacity, pressure and temperature limitations. It should be noted that this is a decanting valve, and not a separation valve. It will not be of any value for systems where pre-separation of the phases has not occurred.

MOST COMMON APPLICATIONS

- Water draining from the bottom of the storage tanks of oils and fuels
- Serves as a safety device in discharge systems
- General draining processed in the chemical and the pharmaceutical industries
- Oil separation in industries using oil and water
- Safe draining of rain water form storage tanks with floating roofs

FLOAT DETECTION APPLICATION



It is possible to detect if the valve is OPEN or CLOSED remotely if required by ordering the valve with a 'magnetic' proximity device built into the top of the valve. This requires the valve to be modified with a stainless steel bolted top if it's an MS/STD or MS/LC. Stainless bodied valves are manufactured in this style of top as standard.

This device will require 24vdc power by others and can be used in a hazardous area. There is a magnet attached to the top of the float and when it is in the proximity of the sensor a switched signal is generated indicating valve float up/down. This is a cost added to the standard valve.

PUMPING APPLICATIONS

Pumping applications present no real difficulty. It is, however, necessary to work with a great deal more information and in general no recommendation can be made without viewing detailed pipe drawings and flow sheets.

ENVIRONMENTAL PROTECTION

The Belfield valve is increasingly in demand on Environmental Protection Grounds. Throughout all industries where "Waste Water "is decanted from process or storage vessels tote Effluent Treatment Plant, the Belfield Valve is applied as an environmental protection device to minimise the possibility of accidental discharge of oil, solvents or chemicals into Final Effluent Treatment Plant.

Demo: http://www.belfieldvalve.uk/belfield-valve/
Website: http://www.belfieldvalve.uk/
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Winners of the 2014 IUG Award

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