

# Pubco

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## Maintenance Dual Flush Valve

## Hydraulic operation

### GENERAL DESCRIPTION

The Pubco dual flush valve is designed to provide a set ratio of flush (full flush to half flush) for any given setting on the adjusting valve. For example 2 to 1 (9/4.5 or 6/3litres).

The valve operates via hydraulic buttons which pass water flow at pressure to actuators on the valve. These actuators trip the main inner valve allowing a flush to occur.

### DUAL FLUSH

The Pubco dual flush valve is an Australian made product and was designed and tested during 2005 and approved by WELS in June 2006. It is a development of the standard Pubco valve which has been made in Australia since the 1930's with slight modifications over the years.

The dual flush is achieved by the operating actuators being positioned at different heights on the valve body. When they are pressurized and operate, the inner valve will travel to different heights depending on the flush button chosen and therefore the valve will close at a different time giving a flush ratio between the actuators.

At a particular setting on the adjusting valve there will be a corresponding volume. The valve will therefore give 9 / 4.5, or 6 / 3 volumes for set positions of the adjusting valve.

Static pressure changes should not affect the volume of flush for any given position of the adjusting valve. What will vary is the rate and therefore time of flush depending on the opening of the stop valve.

The adjusting valve is set to the required volume when shipped.

In the earliest valves the diameter of the operating stems varied to achieve the correct ratio of flush. This was soon changed to provide a particular valve with a particular flush ratio and the operating stems were the same diameter and more recently made from stainless steel to provide a very long working life.

It is important that the hoses are correctly connected to the actuators and they are coloured for this reason.

### ENSURING THE CORRECT FLUSH

The Pubco flush valve can be adjusted for flow rate and volume.

Toilet pans need to pass the correct volume of water at the correct flow rate to function properly. Today the Australian Standards use performance testing procedures to produce matching pans and cisterns or flushing valves which meet those performance tests.

Generally, though, pans require 1.5 litres per second to perform properly. For example this means a 6 litre full flush should be completed in 3.5 to 4 seconds.

The stop valve position determines flow rate and should be set to fully wet the pan surface but not allow any build up of water in the bowl. The stop valve needs to be set for each level in the building as the static pressure varies.

Having set the stop valve correctly, the adjusting valve then can be set to provide a 3.5 to 4 second flush time. This will give a volume of 6 litres. The adjusting valve only requires slight adjustment and in or clockwise increases flush volume.

In the same way a 9 litre full flush should last 5 to 6 seconds when the stop valve is correctly set. A 4.5 litre full flush should last 2.5 to 3 seconds.

There is no individual adjustment for the half flush. It will be a volume of half or two thirds the full flush volume, depending on the valve purchased.

## VALVE ASSEMBLY

The hoses are coloured to ensure that the connections are correctly made.

The red tubing is pressurized at all times once the stop valve is opened.

The black or grey (\*blue) tubing is only pressurized when the button is pressed for that flush.

(\*We have made valves such that the tubing to the half flush actuator is grey or blue)

The black tubing is always connected to the full flush actuator located opposite to the inlet of the valve.

The half flush actuator position is on the side of the valve and can generally be switched to the most convenient position. There is a plug for the unused position on the valve.

It is very important that all tubing is fully pressed into the adapters and pulled back to check for soundness. There is a collet which can be held in to release the tubing.

The black or grey (blue) tubing can be disconnected while the valve is pressurized to check for the correct operation of the button. No water should pass unless the corresponding button is pressed.

## TROUBLE-SHOOTING

The Pubco valve itself has not changed significantly. The internal parts are all similar to previous models. We have modified the auxiliary valve to include a stainless steel pin rather than a sleeve.

What has changed is the way the valve is operated and tripped.

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|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flush not correct. | Check that hoses are correctly connected<br>Check that the flow rate is correctly set on the stop valve to just wet full pan area without build up of water and that the adjusting valve is set to give the correct time. (See above) Clockwise increases volume. Volume can also be measured but this is usually not convenient. |
| No Flush           | Remove the two tubes to the actuators and check for a leaking button. If a button leaks it will not allow the operating stem to return and the valve cannot operate.<br>Check actuators for grit preventing return.                                                                                                               |

Determine static pressure and if it is at the minimum ie. 3 to 4 metres the actuator may not be sealing internally and therefore not providing sufficient operating force. Contact Pubco.

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- Continuous Flush      Check for correct adjusting valve position. Fully wound down or blocked adjusting valve will lead to continuous flush.  
Check for major contamination in the valve cylinder preventing closure.  
Check for contamination on the inner valve preventing the trip (auxiliary) valve from sealing.  
Check half flush actuator is returning by removing it from the valve body.
- Leaking into pan      Check for leaking button.  
Check for slight contamination on the main internal seat.  
Check half flush actuator is returning by removing it from the valve body.

#### MANUAL OPERATION

The valve can be operated manually to check for button or actuator problems.

Remove the actuators and disassemble one to use the operating stem manually. If the valve functions it is a button or actuator problem.

If the valve continues to leak or will not operate manually it is a valve problem.

#### SPARE PARTS

Pubco can provide a parts listing and spare parts brochure for the dual flush valve.