



TRIPLE DUTY VALVES

Why do we need them?

Are they less expensive?

Can they be mounted directly to the pump?

Can they be mounted vertically as well as horizontally?

These are three questions that I get asked with most frequency.

Why do we need them?

We need them for space saving and economic considerations.

Triple Duty valves perform the function of three separate valves, all housed in one single housing. A Triple Duty Valve replaces a balance valve, a check valve, and a shut-off/isolation valve, making the most important advantage obvious- space.

The space required for installation of a Triple Duty Valve is greatly reduced.

Let's look at an example:

A TSVN-040 plug style triple duty valve has a face to face dimension of 9"

The three valves required to replace a TSVN-040 have a combined face to face dimension of:

Balance valve 4": 10.50"

Check valve 4": 7.25"

Butterfly valve 4": 2.00"

Interconnecting piping: 16.0"

Total space required 35.75"

Total space required: 35.75" for three separate valves

Total space required: 9.0" for Triple duty valve

Very evident now isn't it, the TDV has a F/F of 9" whereas the three separate valves have a minimum F/F of at least 35.75", the choice is obvious.





Are they less expensive?

Absolutely.

Let's take a look at cost between a TDVN-040 triple duty valve and the other 3 separate valves, the balance, check, and isolation valves.

Typical contractor cost:

TSVN-040 Triple duty valve	\$439.00
Balance vale-4":	\$563.00
Check valve-4":	\$266.00
Butterfly valve-4":	\$91.00
Total cost for 3 separate valves	\$920.00 excluding labor and interconnecting piping

The Triple Duty Valve is obviously the choice to make.

Can the Triple duty valve be mounted directly to the pump?

NO

The triple duty cannot be mounted directly to the pump.

However, neither can the 3 separate valves that the triple duty valves replace.

The TDV must be mounted a sufficient distance from the pump discharge to ensure proper operation.

Failure to adhere to this minimum distance can result in premature failure of the check valve assembly, and erroneous gauge pressure drop readings across the valve.

Mounting the TDV too close to the pump will result in "chattering" of the check valve assembly causing premature failure of the springs and/or the flapper itself.

The discharge side of the pump is a very turbulent area, mounting the TDV too close to the discharge will create erroneous gauge readings across the TDV for obvious reasons.

I have heard the argument many times that people don't use them because they can't be mounted directly to the pump, which is obviously correct.





However, neither can the three separate valves.

Mounting any of the three valves within 10 pipe diameters of the pump will cause erroneous gauge readings as well. Furthermore, mounting any check valve too close to the pump will certainly facilitate premature failure of the check valve.

So, as you can see, that argument is pointless.

Can the Triple Duty Valve be mounted vertically OR horizontally

Yes, they can.

The Triple Duty valve can operate properly in either a vertical or horizontal orientation.

The only way a Triple duty valve CANNOT be utilized is with the stem/handle pointing in a downward direction, or upside down.

See the next page for a detailed and printable description of TDV location and orientation.

ONE OTHER IMPORTANT POINT I NEED TO MENTION

All Triple Duty Valves are NOT intended to be used in the full open position, they MUST be closed approximately 15% to operate properly.

SUMMARY

As you can plainly see, the utilization of the Triple Duty valve is the most economical way to perform the functions of a balance/throttling, shut-off, and check valve, as well as being the smallest physical choice, thereby saving valuable space in the mechanical room.

The use of triple duty valves has been the industry standard for almost 50 years and continues to be the smart choice even today.

American Wheatley is proud to offer both a plug style Triple Duty Valve, as well as a globe style version as seen on our website www.wheatleyhvac.com

American Wheatley HVAC offers a complete line of products for the hydronic, process, industrial, and institutional markets.



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TRIPLE DUTY VALVE LOCATION AND ORIENTATION

The American Wheatley Triple Duty Valve is a heavy-duty, three function valve that is installed on the discharge side of a pump. If installed properly, the Triple duty valve provides all the functions normally required on the discharge side of a pump including: a spring loaded silent check valve, a balancing valve, and a shut-off valve. The check valve function of the Triple duty valve is designed to automatically open (with as little as 1/2 psi line pressure) to allow system flow and close (when line pressure reaches zero) to prevent reverse flow and water hammer.

INSTALLATION

The triple duty valve may be installed either in a vertical or horizontal orientation, the stem must be pointing upward. If used as a balance device, the valve should be installed with 10X pipe diameters between the triple duty valve and pump discharge, and 5X the pipe diameter downstream of the valve. At a minimum, the valve must have at least 12" between the pump and valve in sizes 2"-6", and 24" in sizes 8" and above. There should be no fittings or valves for an equal distance after the triple duty valve.

However, for optimum operation as a balance device measuring differential pressure, it is recommended that a distance of 10 pipe diameters straight pipe be installed upstream of the TDV and 5 times the pipe diameter downstream.

This is to ensure proper flow for accurate pressure drop readings across the valve, and to protect the check valve portion of the valve. Install a standard, ANSI (1/8" thick) flange gasket between the Triple duty valve and pipeline flanges, on both sides. Install lubricated flange bolts and hand tighten. Flange bolts should then be tightened, using a star or crisscross pattern to evenly load the bolts, in accordance with established piping standards. Rotate the valve through its entire range of motion numerous times to ensure free and easy operation.

ORIENTATION

The triple duty valve may be installed in either a vertical or horizontal orientation, providing that the valve stem is not pointing in a downward direction. If piped in a reverse flow direction the check valve function may not operate properly.



HORIZONTAL



VERTICAL



NOT RECOMMENDED