



**MILWAUKEE VALVE**

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**TECHNICAL BULLETIN**

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## **Buried Service Valves**

This bulletin is intended to clarify common terms related to buried or underground valves, discuss the issues and considerations for this service, and present the company's technical position regarding this type of installation.

There is some ambiguity with the terminology used in buried service applications. An underground vault is commonly understood as a concrete structure (or pit) equipped with a manhole or other access point that allows easy access to the equipment located within the vault. Maintenance personnel can climb down a ladder rung to inspect or perform maintenance on the pipe, valves, meters, or other equipment located in this below grade service.

The term valve box can have different meanings depending on the application where it is being used. Contrary to how it sounds, a valve box used in the underground water works industry is not actually a box that protects the valve from the buried environment. A valve box in this application resembles a pipe sleeve (either cast iron or plastic) that surrounds the top bonnet area of the valve and is extended up to ground level. This allows access to the square operating nut for opening and closing the valve with a tee handle above ground. The valve body itself is directly buried in the ground or soil. In an irrigation application, a valve box is genuinely referring to a square plastic box or plastic cylinder that keeps the valve out of the direct soil and protects from water seepage. Understanding the application and how the valve will be buried is essential when selecting the appropriate valve for the system design.

Below grade service is a special service that carries unique challenges and considerations, especially depending on the degree to which a valve is buried. Should there be an expectation that a valve will indeed be direct buried, precautions should be taken against compacted material impeding valve function, corrosion, frost damage, piping loads, as well as ordinary structural loads, and all other associated risks. Accessibility should also be taken into consideration. Direct burying a valve eliminates the possibility to perform maintenance, adjustments, or repair. For instance, valves with adjustable stem seal arrangements may require periodic adjustment. An installation that does not allow access to the stem packing should be avoided. Addressing these issues in detail is outside the scope of the valve manufacturer.

There are AWWA (American Water Works Association) valves that are intended for a direct burial application. These valves are designed to be sealed from outside elements and utilize an exterior coating to resist corrosion. For a below grade service, Milwaukee Valve recommends use of our products where the installation includes an underground vault with accessibility. Butterfly valves installed in horizontal piping with a direct mounted gear operator would need to have the stem in the horizontal position so the square nut on the handwheel shaft is directed upwards.

For a direct burial service, the customer takes full responsibility for the service if the valve is chosen to be buried in the soil. The final selection of valve type, materials of construction, and attached hardware remains the ultimate responsibility of the end user. Contact the factory with any further questions.