

# Top tips how to select the best Fan Coil Unit Valve Package

Prefabrication or offsite build (OSB) of hydronic solutions has widely recognised advantages. A recent [MBS magazine](#) publication listed some of the benefits.

- Factory conditions 80% safer than site conditions
- Site labour approx. 2.2 times more expensive than factory-based labour
- Factory productivity 80% versus 40% for a typical site
- Overcomes skilled labour shortage and waste
- Less hot work on site
- Fewer logistic movements
- Lower risk of project and cost overrun
- Less design time
- Assurance of quality testing
- Design for service
- Off-site Factory Acceptance Testing (FAT)
- Waste reduced to just 2% - 3% in efficient factories with most materials recyclable

Considering the potential implications of Brexit on the skilled labour shortage already prevalent on UK construction sites, topped with the recent Covid-19 impact, the choice for prefabricated solutions seems even more obvious and can resolve many of the challenges construction sites are currently facing.

Prefabrication of Fan Coil Unit Valve Packages has been a common approach in the UK market for several years. Larger-scale new builds or refurbishments mostly opt for a prefabricated Fan Coil Unit Valve Package that will be mounted directly onto the Fan Coil Unit by the Fan Coil Unit Manufacturer, ready to connect on site.



Fan Coil Valve Sets are available from most valve suppliers in the UK, which can make it difficult for specifiers and contractors to select the most appropriate solution for their application and requirements and to compare options available like for like.

There are some important criteria that specifiers and contractors should consider when selecting the Fan Coil Unit Valve for their application to avoid costly and time-consuming snagging during or after installation and commissioning.

## Design

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A Fan Coil Unit Valve Package is a structure designed, engineered, assembled and tested in a safe, controlled offsite facility. A standard BSRIA BG29 compliant Fan Coil Unit Valve Package comprises a flushing by-pass, flow measurement, the control valve with all components needed to dynamically flush the FCU backward, forward or externally and to purge, vent and balance the system.

Some valve sets seen in the market simply connect all components in a long line, with multiple connections, prone to leak over time. Some valve set components have extended handles that will not fit side by side or horizontally aligned over the drip tray.

A well-designed Fan Coil Unit Valve Package

- is compact, with a small footprint to fit over the FCU drip tray with 40mm centres;
- allows for handling to accommodate heating and cooling duties with all brass components still fitting over the drip tray avoiding the need for insulation;
- doesn't clash with the FCU control box or interfere with the control box access cover;
- incorporates or allows for the easy incorporation of additional components and features such as an air vent, strainer, P/T Plugs and drain valves without significantly increasing the total length of the valve set so that the set still fits over a standard or extended drip tray.

In a well-designed Fan Coil Unit Valve Package features are being added to the PICV, metering station or bypass where possible, minimising the number of components, resulting in less fittings, a smaller footprint, lower cost and reduced risk of failing joints.



## Fit with Fan Coil Unit

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UK Fan Coil Unit designs vary by application and manufacturer. As there isn't a national standard for Fan Coil Unit Valve Packages, it warrants to select a Valve Package flexible enough to be configured to meet any FCU manufacturer's requirements, keeping all options regarding the choice of FCU manufacturer open.

Look out for a Fan Coil Valve supplier who offers

- vertical and horizontal configurations (covering slim line FCUs as well as regular sizes);
- flow measurement either in the flow or return branch;
- a wide range of union FCU connections for easy installation;
- a range of options for filtration, venting and filling.

It is advisable to pay attention to details, e.g. are flushing by-pass handles operable when mounted to the FCU tails side by side or horizontally and are test points and flushing valves accessible in every possible configuration once the Fan Coil Valve is in situ?

## Installation & Deployment

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In most cases the Fan Coil Unit Valve Package will be installed and the connections tested at the Fan Coil Manufacturer's facility but there are cases where it is more practical to install the Fan Coil Valve onsite, e.g. retrofits, system upgrades from constant flow to variable flow systems, which may not require a new FCU.

Wherever the Fan Coil Unit Valve Package is installed, it is always of utmost importance that the right Fan Coil Valve is installed on the correct FCU, matching the flow rates specified for that FCU. What's more, system connections will be required in line with the standard used in a specific installation. And before putting the system to work, it will be flushed, a process that potentially can damage the internal components of the balancing valve.

Ensure your supplier

- sets the balancing valve to the required flow rate;
- references and labels all Valve Sets to their destination FCU, labels packaging (boxes & pallets) to their destination in the building to minimise installation errors;
- offers a wide range of system connections, male/female threaded union, solder, compression, press fit connections, Euroconus flat face inserts and flexible hoses as well as elbows, which can be useful on exposed FCUs;
- provides a solution such as a removable balancing valve insert and a blank cap for flushing the system if water contamination/debris could be a problem.



## System Maintenance

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Choosing a Fan Coil Valve with removable insert and a multi-functional flushing bypass will turn system maintenance into a quick and easy experience, ultimately reducing the total cost of ownership of the installation.

The bypass should support 5 functions:

- full flow;
- full bypass the FCU;
- full isolation;
- back flush;
- forward flush.

The ability to fill and vent the system and FCU through By-Pass components should also be considered as important. The full bypass functionality enables the removal of the valve insert for cleaning or replacement without having to isolate and drain the entire branch.

**The valve set supplier selection is important. The right choice can save contractors, installers, commissioning engineers and building managers time and resources and contributes to a reduced carbon footprint of a building.**

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