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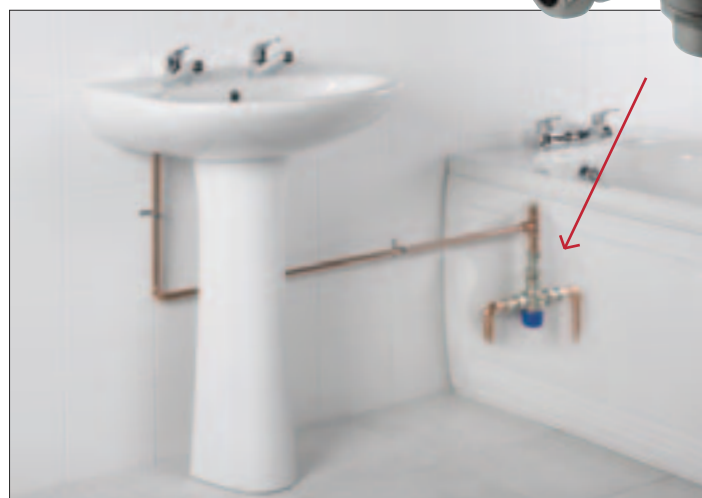
Thermostatic Mixing Valves

Provided by the BMA Bathroom Academy CPD | No3
Generic industry Guide | THERMOSTATIC MIXING VALVES

Startling statistics and a shocking image underpin the seriousness of this new Industry Guide from the Bathroom Manufacturers Association.

Hot bath water can be a killer and the bathroom can be a dangerous place if hot water is not given the respect it deserves. Hot bath water is responsible for the highest number of fatal injuries in the home. Each year around 20 people die as a result of scalds. A further 570 suffer very serious scalding injuries which can cause disfigurement, for life. Second and third degree burns can result from uncontrolled hot water and these shocking statistics show that the very young and the very old, with thin skins, are the most vulnerable.

Scalding is deadly serious and this excellent new publication from the BMA provides an in-depth and informative guide to Thermostatic Mixing Valves. The TMV is an effective and relatively inexpensive piece of lifesaving bathroom equipment and this guide is a valuable resource for anyone in the bathroom industry.



What is a TMV and how does it work?

A thermostatic mixing valve is a device which mixes hot and cold water before discharging it at a stable temperature.

TMVs are used in both domestic and commercial situations, particularly in hospitals and care homes where users are at their most vulnerable. They are used to control water at a safe pre-determined temperature thus minimising the possibility of anyone sustaining a serious scald injury.

Three types of mechanism are available to operate a TMV. The wax capsule mechanism expands and contracts according to the temperature of the incoming water and thus, via the valve's 'shuttle' system, will maintain a stable temperature of outgoing water. The bi-metallic coil also reacts to temperature changes of incoming water and adjusts the proportion of hot

and cold to maintain a stable temperature. A more recent advance has been the development of the electronic / digital TMV which uses a system of motorised pumps and valves to control the outgoing water temperature.

What do they look like?

As well as differing thermostatic mechanisms TMVs also come in a variety of mechanical configurations. T-pattern valves are typically situated under the washbasin or bath to control the temperature of the outgoing water. TMVs may also be found within the body of the mixer tap itself. But most commonly TMVs are used as shower controls, either sequential or dual control on built-in or exposed models.



T-pattern serving basin

What factors affect the choice of product?

Many factors affect the final choice of TMV but all of them should demonstrably comply with the Water Supply (Water Fittings) Regulations 1999 and the Water Bye-Laws Scotland 2000. In addition there are a number of British and Industry Standards which cover the performance and safety aspects of TMVs. Manufacturers usually seek independent third party approval to demonstrate that these standards have been met for their products.

Temperature stability is key to the operation of TMVs and wherever they are used they should maintain a set mixed water temperature of $\pm 2^{\circ}\text{C}$. In order to prevent scalding the TMV must also shut off in the event that the cold water supply is lost. Performance standards and operating pressures relate to this feature – full details are given in the Industry Guide.

The guide also lists the current maximum temperatures relating to different bathroom applications in particular for high risk applications covered by both BS7942 and NHS D 08. For instance a TMV controlling water to a washbasin or shower in a high risk application should be set at a maximum 41°C , a bath should have a maximum of 44°C , and a bidet 38°C .

TMVs may be approved to the appropriate 'BuildCert' Scheme. In domestic situations the valve must comply with the specifications laid down in TMV2 and in the more strict applications of commercial or public buildings TMV3 becomes relevant. TMV3 approval demonstrates compliance with NHS D 08.

Other factors affect the choice of the correct valve. Water efficiency and 'Green Issues' are becoming increasingly important. TMVs also need to be matched to the existing plumbing system. For instance a TMV designed to work in a high pressure system will not work effectively in a low pressure system. The valve mechanism will not respond to the low pressure water supply, and may even become dangerous.



Showers - exposed TMV

T-pattern multiple outlets



All TMVs are supplied with manufacturer's instructions and these should be followed if a trouble free life is to be achieved.

How are TMVs installed and maintained?

The correct installation, commissioning and maintenance of a TMV is critical to its correct operation. Water supplies must be connected correctly – if they become swapped for whatever reason the TMV may fail to do its job and scalding could result. Supply pipes should be flushed after installation to remove debris and service valves should be installed close to the fitting to allow regular and effective maintenance.

As previously mentioned the plumbing system can affect the performance of the TMV and careful choice of product is important. It is also important the boiler system is considered. A TMV will work well with a combi boiler provided that it is of the 'fully modulating' type. More details about this can be found in the full guide.

CIPHE Special Offer

This latest Industry Guide from the BMA offers essential information for the plumber, retailer and merchant. The readable text and excellent images bring home the importance of the TMV.

The guide, in PDF format, is downloadable from the BMA's Bathroom Academy website: www.bathroom-academy.co.uk/guides2.asp and for a nominal fee of £20 members of CIPHE may apply to register for the one-off TMV Guide and Certification.

Should a member of CIPHE wish to study a further five BMA Academy Guides, this £20 fee can be discounted from the full fee of £75 for the Certificate in Bathroom Studies .

This is an excellent and invaluable way for anyone in the bathrooms industry to bring their knowledge base bang up to date. The guide and certificate is an effective entry to increasing skills and product knowledge and helps readers get one step ahead of their competitors during difficult trading conditions.

TMVs save lives – learn about them.

For more details read the BMA Bathroom Academy Industry Guide to THERMOSTATIC MIXING VALVES. Downloadable from www.bathroom-academy.co.uk/guides2.asp

Questions:

1. Exactly what is a TMV? Give the definition.
2. Name the three types of TMV mechanism
3. How are TMVs most commonly used?
4. Name the *regulations* to which a TMV must comply if an offence is to be avoided.
5. A TMV must maintain water temperature stability in varying conditions of inlet pressure, temperature and flow rate. What are the limits of that temperature stability?
6. According to BS7942 and NHS D08 what maximum water temperature should a TMV be set at when used on a standard bath?
7. Name the different applications for TMV2 and TMV3 valves.
8. If a TMV which has been designed for a high pressure plumbing system is fitted to a low pressure system what happens?
9. What happens if, during installation of the TMV, the hot and cold water supplies get swapped?
10. What specific type of Combi Boiler is a TMV best used with?

Name..... Membership number.....

Either photocopy or cut out this section (attach an additional A4 sheet if necessary) and return to: Gary Evans, CIPHE, 64 Station Lane, Hornchurch, Essex RM12 6NB or fax 01708 448987. Certificates are awarded at the end of the year.

