

## FVRF/FVVF with quick coupling system



- Pre-settable
- Easy to mount
- Concealed pre-setting
- Dimension: DN 12/12-15/15
- Temperature: 5-90°C
- Pressure range: PN10

# Description MMA FVRF/FVVF

## Field of application

The FVRF/FVVF thermostatic radiator valve is used in heating and cooling installations. FVRF/FVVF is used as a separate valve. FVRF/FVVF can be fitted with a thermostat or an electrical actuator.

## Description

The FVRF/FVVF thermostatic radiator valve is pre-settable for precise balancing. The pre-setting is concealed. FVRF/FVVF is adapted to modern installations and is suitable for heating systems. FVRF/FVVF is equipped with quick couplings, and fits copper, PEX and Alupex pipes.

## Dimensioning

We recommend a differential pressure of 5 kPa for a dimensioning valve at the required flow.

MMA recommends a minimum of Kv 0.03 in a normal heating system.

For valves which are to be fitted with thermostats, use the Kv $\Delta$ T<sup>2</sup>K scale.

For valves which are to be fitted with actuators, use the Kv scale.

## Setting

Use the FN2 pre-setting key.

Remove the stuffing box using FN2. Fully close the insert and open again the number of turns to correspond with the calculated Kv or setting.

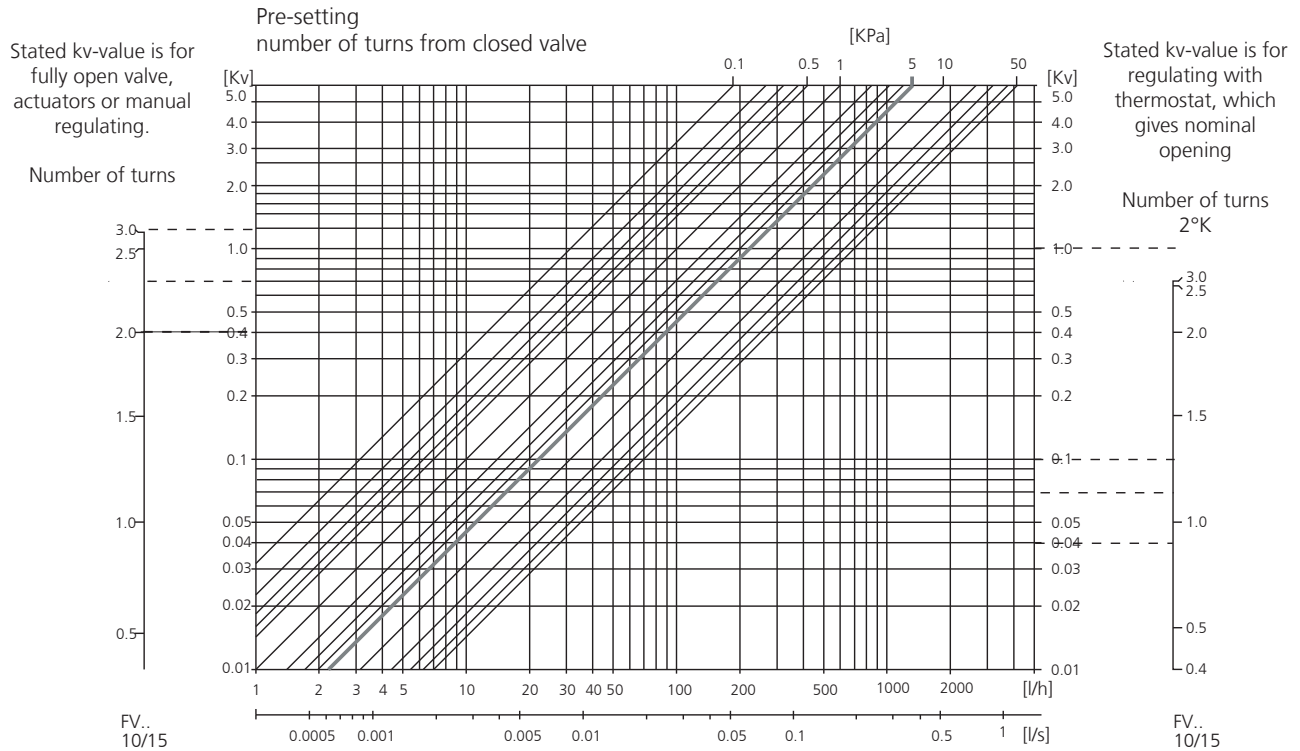
Refit the stuffing box.



# Description MMA FVRF/FVVF

## Dimensioning diagram for separate FVRF valve

Pressure drop diagram



We recommend a pressuredrop of 5 kPa.

# Description MMA FVRF/FVVF

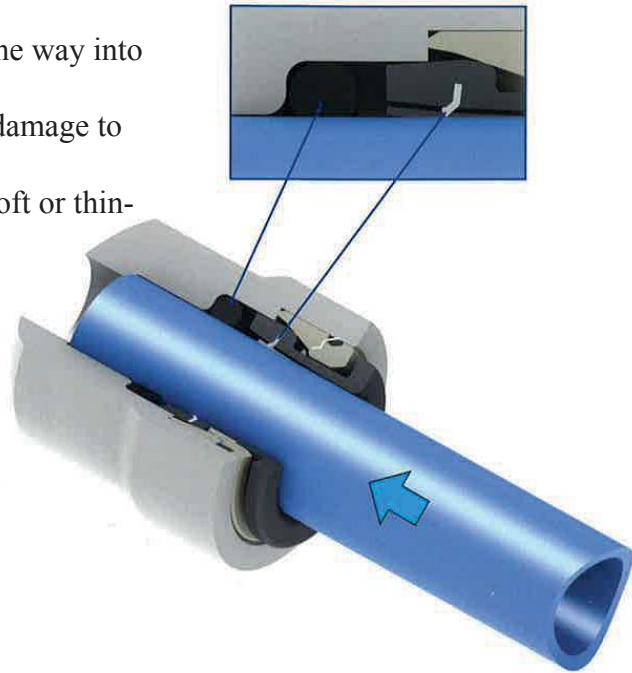
## Make a good connection

1. Cut the pipe at 90 degrees and press it all the way into the coupling.

Remove any burrs or sharp edges to prevent damage to the O-ring.

We recommend using a support sleeve with soft or thin-walled plastic pipes.

2. The coupling grips before it seals. Check that the pipe is inserted all the way and securely in position. The stainless-steel teeth in the steel grip onto the pipe while the O-ring seals the coupling.



3. Pull on the pipe to ensure it is correctly in position. Test the system before commissioning.



4. The plastic ring must be pushed in at right angles against the side of the coupling when removing the coupling.

Hold the ring in position to remove the pipe.

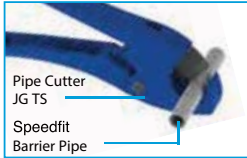
Then pull the pipe out with care



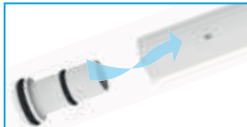
## MAKING A GOOD CONNECTION

### PREPARE THE PIPE

Fittings and pipe should be kept clean bagged and undamaged before use.



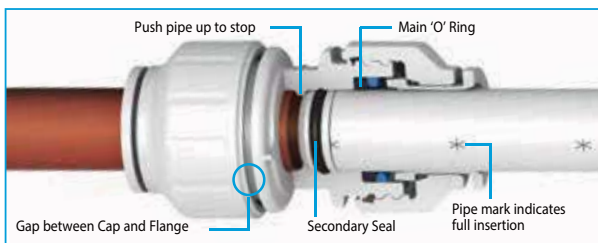
Ensure the pipe is free of score marks. Cut the pipe square. When using Speedfit Barrier Pipe cut along an insertion mark. We recommend the use of JG Pipe Cutters.



To prevent damage to the 'O' ring remove all burrs and sharp edges. When connecting Speedfit Pipe use a Superseal Pipe Insert or a Standard Speedfit Pipe Insert. A twisting motion

will aid insertion. The insert should only be used with Speedfit Pipe.

### TWIST AND LOCK FITTINGS



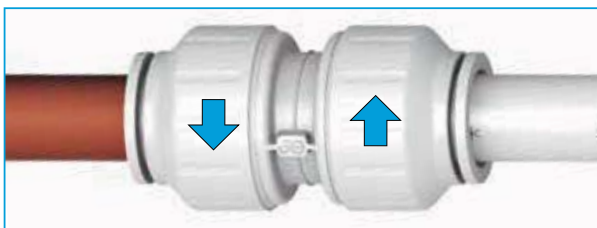
The fitting should be in the 'unlocked' position, this is shown with a small gap between the screwcap and the body flange.

Push the pipe fully into the fitting, up to the pipe stop. If the Speedfit Pipe has been cut correctly the insertion mark on the pipe will be level with the collet head. The 'O' ring on the Superseal Pipe Insert provides a secondary seal against the bore of the fitting. A good connection has been made.



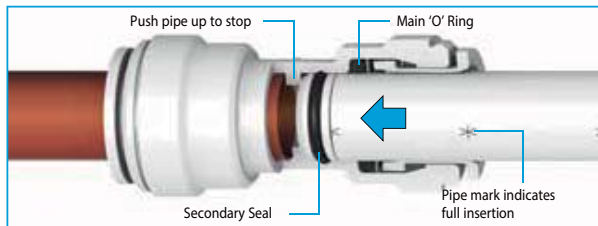
If you are not using collet clips, ensure that the screwcaps are in the locked position. Pull to check it is secure. It is good practice to test the system prior to leaving the site or before use. Our recommended test procedure is shown in our Technical Checklist.

### ADDED BENEFIT OF TWIST AND LOCK



Twist the screwcap until it touches the body flange. This increases the 'O' ring seal around the pipe and locks the pipe into position.

### STANDARD SPEEDFIT FITTINGS



Standard Speedfit connections are made in the same way as Twist and Lock.

Push Pipe up to Pipe Stop. If the Speedfit Pipe has been cut correctly the insertion mark on the pipe will be level with the collet head.



Pull to check connection is secure and test the system. Our recommended test procedure is shown in our Technical Checklist on page 31.

### TO DISCONNECT

Ensure that the system is depressurised.



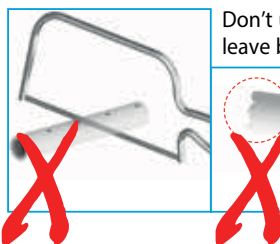
The screwcap on Twist and Lock Fittings will need to be turned back to the unlocked position.



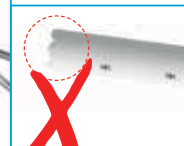
For both Twist and Lock and Standard fittings, push the collet square against the face of the fitting by using fingers or with

the help of our collet release tool. With the collet held in position the pipe can be removed. The fitting can be used again without the need for replacement parts.

### WHAT NOT TO DO



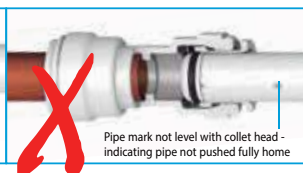
Don't use hacksaws to cut the pipe or leave burrs on the end of the pipe.



Don't use damaged or scored pipe. Score marks can cause leaks passed the 'O' Ring.



Fitting may be gripped but not sealed if pipe is not fully inserted



Pipe mark not level with collet head - indicating pipe not pushed fully home

Don't forget to push the pipe fully into the fitting, past both the collet (gripper) and the 'O' ring.

Do not insert fingers into the fitting as the stainless steel teeth may cause injury.

Remember to pressure test the completed installation according to the recommendations in our Technical Checklist.

# Technical data MMA FVRF/FVVF

## Pressure class

PN10

## Max. temperature

90°C

## Min. temperature

5°C

## Material

Brass, acetal copolymer

## Capacity

Kv $\Delta$ T2K 0.01-0.7

Kv 0.01-1.2

Kvs 1.2

## Recommended maximum differential pressure

Lp <30 dB(A) at 30kPa

## Connection

M28x1.5

## Pipe standards

SS-ISO 15875 Pex

NOTE! Preliminary

SS-EN 1057 Copper

Note! Preliminary

SS-ISO 21003-2 Alupex

Note! Preliminary



# Product details MMA FVRF/FVVF

## Ordering codes

RSK number	Item number	Designation
479 58 44	30411401	FVRF 12/12
	30411501	FVRF 15/15
	30411402	FVVF 12/12
	30411403	FVVF 10/12

## AMA text

**PSE.111** Temperature-controlled radiator valves  
Thermostatic radiator valve with concealed, pre-settable spindle behind the stuffing box.  
The valve must be manufactured with quick couplings.  
Made by: AB Markaryd Metallarmatur  
Type: FVRF  
DN: 12/12 and 15/15  
Models: Straight

## TECHNICAL CHECKLIST - PLUMBING AND HEATING FITTINGS

Fittings and pipe should be kept clean and undamaged before use.

- Sizes. 10mm to 28mm diameter.
- Pipes. Speedfit fittings can be used with:
  - Copper pipe to BS EN 1057 \*
  - Speedfit Barrier Pipe to BS7291 \*

**\*Note! Preliminary**

Speedfit fittings cannot be used on stainless steel pipe.

- Standards. Speedfit products are designed and manufactured under a fully integrated system assessed by B.S.I. to BS EN ISO9001 and are approved by the Water Regulations Advisory Scheme. Speedfit 'PEM', 'PSE' and 'SFM' Fittings and Speedfit Barrier Pipe are Kitemarked to BS7291 Parts 1, 2 and 3 Class S (Licence No. KM39767).

- Applications
  - Mains fed and indirect cold water systems
  - Vented and unvented hot water systems
  - Vented and sealed central heating systems

- DO NOT USE FOR Gas, fuel oil or compressed air applications.**

- Working Temperatures and Pressures.

Application	Usual working temperature, °C	Maximum working temperature, °C	Maximum working pressure, bar
Cold Water (indirect and direct mains)	20	20	20
Central Heating	80	90, short term malfunction at 100	10
Hot Water (including unvented cylinders)	70	80	10

- Burst Pressure (fittings). With copper or plastic pipe at 20°C: Speedfit fittings used with copper or Speedfit Barrier Pipe will withstand pressures well in excess of normal service conditions.

- High Temperatures. Can withstand 114°C intermittently for short periods. The Speedfit system should not be used on an uncontrolled heat source.

- Insulation. Should comply with BS EN 806 and complimentary guidance document BS 8558, and BS5422, as for copper.

- Minimum Bend Radii (BPEX)

Pipe Diameter	10mm	15mm	22mm	28mm
Min radius with clips	100mm	175mm	225mm	300mm
Min radius with cold forming bend	30mm	75mm	110mm	-

- Minimum Bend Radii (BPB)

Pipe Diameter	10mm	15mm	22mm	28mm
Min radius with clips	80mm	120mm	176mm	-
Min radius with cold forming bend	30mm	75mm	110mm	-

- Clip Spacing (in mm) For Surface Mounted Pipes

Pipe Diameter	Clip Spacing	
	Horizontal Run	Vertical Run
10-15mm	300mm	500mm
22mm	500mm	800mm
28mm	800mm	1,000mm

Where pipe is concealed, clipping may only be required where necessary.

- Expansion (PEX pipe). 1% on length between 20°C and 82°C.
- Flow Rates. Comparable with metal systems.
- Cleaners, Inhibitors and Descalants. For advice on the replenishment of additives such as corrosion inhibitors, the following manufacturers should be contacted: Fernox Manufacturing Limited on 0330 100 7750, Sentinel BetzDearborn Limited on 0151 424 5351 or Adey Innovations LLP on 01242 546717.
- Paint and Chemicals. Use only water or oil based paint. DO NOT ALLOW CONTACT WITH jointing compounds, cellulose based paints, paint thinners or strippers, solder flux, acid based descalants or aggressive cleaning products, including those below pH4, high in hypochlorite (e.g. bleach) or containing hydrogen peroxide. (See the DISINFECTION OF HOT AND COLD WATER SYSTEMS section of the Product Guide installation advice for specifically permitted disinfection procedures).
- Solder Flux. No fluxes of any types should come into contact with JG Speedfit Pipe and Fittings. If fluxes are to be used in an environment where Speedfit is installed, then (1) extreme care should be taken to ensure that no such contact takes place and (2) JG recommend installers only use fluxes tested and approved in writing in advance by JG. At the date of this publication, the only such approved flux is Fernox Flux.
- Chlorine. Speedfit is not suitable for use in systems where the water contains high levels of chlorine. e.g. swimming pools, fountains etc.
- Exposure to Sunlight. Speedfit products, when used indoors, are not affected by sunlight. When used outdoors protect from ultra violet light by lagging or painting.
- Pipe Clips. Pipe clips should not be fitted any closer than 60mm from the end of the fitting. Pipe should be adequately supported by pipe clips to prevent undue stress (side load) on fittings.
- Pipe Inserts. Must be used on all installations when using plastic pipe and should be fully inserted. Only use a Speedfit Insert with Speedfit Pipe.

- Metal Joists. When 'cabling' plastic pipe through metal joists ensure rubber grommets are in place to prevent damage to pipe. Use of collet covers or collet clips on fittings recommended.
- Connection to Boilers. A minimum 1 metre run of copper pipe must be installed between the boiler and the Speedfit system, as per BS5955: Part 8.
- Connection to Copper Pipe. 450mm is the minimum distance to make a solder connection on copper pipe inserted into a Speedfit Fitting. Ensure that any residual flux and solder does not come into contact with the fitting.
- Concrete and Masonry. Speedfit pipe and fittings can be laid in concrete and masonry providing they are installed in conduit pipe with access boxes for the fittings. This is to enable the pipe to expand and to provide accessibility for both pipe and fitting. As stated in Water Regulation Schedule 2.7 and BS8000: Part 15, fittings and pipe should be removable for possible replacement. Insulation is also recommended to protect against heat loss and the effects of frost.
- Electrical Continuity. If Speedfit is used in an existing metal system which may have been used for earthing, electrical continuity should be reinstated.
- Valves and Taps. Plastic 15mm and 22mm valves and taps available from JG Speedfit Ltd are not suitable for central heating installations.
- 1/4 Turn Valves. These valves have been designed to allow temporary servicing of downstream equipment and must only be used in the fully open or fully closed position.

Do Not use these Valves:

- In a partially open position to control flow.
- To provide a permanent termination.
- Without tubing assembled or plugged (or threaded connections sealed).
- As a tap or "faucet".

- Collet Covers. Collet covers provide added security against pipe disconnection, e.g. the fittings coming into contact with rigid surfaces and behind dry-lining walls. They are offered in white as standard and in red or blue to provide colour coding of pipe.

- Collet Clips. White and Grey collet clips are used with standard fittings to prevent accidental pipe disconnection. Red or blue clips provide colour coding of pipe. Red and blue clips should not be used to prevent accidental release of pipe.

- Continuously Operated Re-Circulating Systems (Secondary Hot Water Circulation/Ring Main Installations): A continuously operated re-circulating system is a water-replenished circulating system which is maintained at a constant high temperature to provide a constant source of hot water. Continuously operated re-circulating systems are used to distribute constant hot water to draw off points that may be distant from the source or hot water storage vessel. Continuously operated re-circulating systems are very different from conventional hot water supply and central heating systems found in domestic properties, for which our products have been tested to, under either BS7291 2010 Class S or WRAS approval standards, and for this reason Speedfit products must not be used on any continuously operated re-circulating systems as they are not approved under the current version of these standards.

- System Testing. To ensure the pipework and fittings have been installed correctly, whether it be on a new or extended system, it is essential that the system is checked and hydraulically wet tested. Testing should be at 2 bar for 10 minutes and 10 bar for 10 minutes. This testing, combined with other relevant checks, should reveal installation problems and is regarded as good plumbing practice. Speedfit Stop Ends and Plugs are particularly useful during this operation, enabling all outlets and any fittings to be easily plugged. However, system testing should not be regarded as a substitute for correct installation. See also "Making a Good Connection".

- System Flushing. As is usual practice for any plumbing installation, flushing of the system prior to the use of Speedfit is recommended to remove any contaminants/chemical residue from elsewhere in the system.

- British Gas Service has accepted the John Guest Speedfit fittings as being suitable for open vented and sealed central heating systems and as eligible for acceptance onto its service contracts.

- Products within this Price List are designed for use within UK plumbing and heating installations or in other countries where similar installation requirements apply. For information on products suitable for use in other countries please consult our Technical Advisory Service.

- Vermin. Speedfit products should not be used in vermin infested areas.

- Maximum Torque Figures (BSP & BSPT). Plastic threads are not generally as strong as brass threads. Customers and end users should be aware of this when choosing products for their applications. Overtightening of plastic threads will cause undue stress and eventual cracking and leakage. The maximum torque figures for BSP and BSPT threads used on Speedfit plumbing products in mating threads conforming to relevant BS or International thread standards are shown below.

Threads	Size	Maximum Torque
Plastic	1/2"	3.0 Nm
	3/4"	4.0 Nm
Brass	1/2"	4.0 Nm
	3/4"	5.0 Nm

- It is recommended that all installations are checked prior to use to determine that a seal has been made.

- Side Loads. John Guest products are not designed to be used whilst under side load as this may adversely affect their ability to function long-term. Always ensure tubes have good alignment with the fitting. They must also not be subjected to any form of impact or other damage, such as being hit or dropped, even accidentally. If fittings have been damaged or suffered an impact, they should be replaced immediately. John Guest warranty does not cover loss caused by any form of damage.