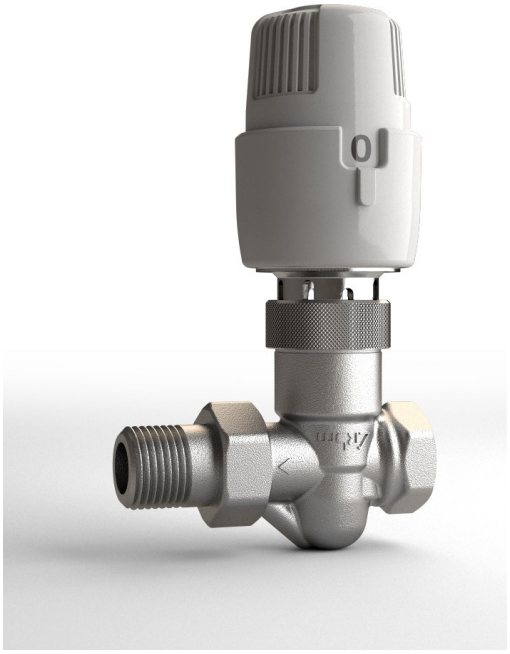
HIPER
HEAT INTERFACE UNIT



Pressure independent thermostatic radiator valves

PTRV12FA	PTRV angle valve with 1/2” Female and i-Therm thermostatic head
PTRV15FA	PTRV angle valve with 15mm Female and i-Therm thermostatic head
PTRV12FS	PTRV straight valve with 1/2” Female and i-Therm thermostatic head
PTRV15FS	PTRV straight valve with 15mm Female and i-Therm thermostatic head

The Inta PTRV

- **Pressure differential control maintaining pre-set flow rates**
- **Pre-set flow rates for commissioning**
- **Thermostatic control**

For too long the HIU has been carrying the blame for high Secondary Return temperatures that are actually the result of poor commissioning or balancing of the secondary (tertiary) system. Making the use of pre-settable radiator valves mandatory would go a long way to resolving this.

The **thermostatic valve with pre-setting independent from pressure** is a radiator valve that performs the functions of a thermostatic valve and a differential pressure regulator. Each pre-settable thermostatic valve comes with six pre-set Kv values. The valve comes complete with the EN215, class A efficiency rated Inta i-therm TRV valve head.

The flow rate pre-setting limits the maximum flow passing through the radiator and thereby ensures simple and effective radiator circuit balancing. The differential pressure regulator integral with the rad valve maintains a constant pressure differential so therefore maintaining the set flow rate.

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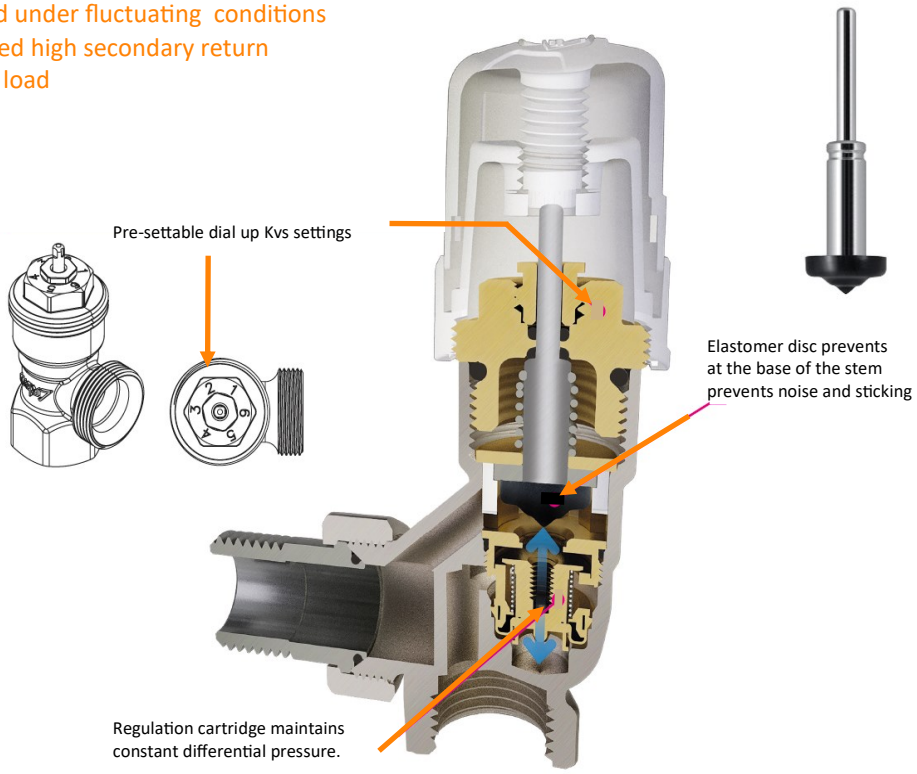
The benefits of PTRV are;

- Maintaining the design efficiency of the system
- System remains balanced under fluctuating conditions
- Prevention of uncontrolled high secondary return temperatures under low load
- Reduced system noise



Thermostatic head temperature settings	
*	7°C
1	10°C
2	15°C
3	20°C
4	25°C
5	30°C

Technical	
Operating Max temperature	110 C
Operating Max Pressure	10 bar (1000 kPa)
Min differential pressure	0.1 bar
Max differential pressure	0.6 bar
Flow rates	25 l/h to 150 l/hrto
Fluid	Water (water + glycol max mix 50%)

Examples for setting the PTRV , min pressure for constant flow 0.1 bar. Heating is 60 / 40 with calculated *flow rated using the formula ;

$$Q = \frac{P}{1.16 * \Delta T}$$

Heat Load	ΔT	*Flow l/h	Setting Number
600 W	20°C	25 l/h	1
800 W	20°C	34.5 l/h	2
1200 W	20°C	53.88 l/h	3
1800 W	20°C	77.58 l/h	4
2200 W	20°C	94.8 l/hr	5
2800 W	20°C	120.68 l/hr	6

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For too long the HIU has been carrying the blame for high Secondary Return temperatures that are actually the result of poor commissioning or balancing of the secondary (tertiary) heating system. It's been often said that the making the use of pre-settable radiator valves mandatory would go a long way to resolving this. The Inta PTRV is a dynamic balancing valve with thermostatic control and is the solution to this problem.

So to explain, in addition to traditional thermostatic control the PTRV also enforces the dynamic balancing of each radiator to a pre-set flow rate, and the differential pressure regulator part of the PTRV controls the pressure differential constant, guaranteeing a constant set flow rate.

Unbalanced radiator systems are a common problem, often going unchecked because It is difficult to achieve reliable balancing in radiator systems using manual valves. In older housing estates this is not an issue, individual homes are served by installers with varying degrees of training in how to balance a radiator system, and the home owner is simply convinced all is OK as long as they can 'burn' themselves on the radiator surface.

For operators of communal heating system even a 40C return temperature is a worse case scenario, but it's often impossible to convince the installation team that it is their responsibility to balance the heating circuit accurately and make provision that it will always remain this way. Designers are continually looking to reduce return temperature to increase efficiency and reduce pipe sizes in the network, with reports that reducing network pipes by just one size can reduce network heat loss by up to 10%. But with multiple homes all left with unbalanced heating systems then most of the gains are lost, and any reductions in cost gained by the installer from fittings to labour are wiped out by remedial work to investigate the cause behind a system that is nor running as efficiently as designed for.

Using a PTRV is not to be seen as an added cost, but a cost saving and with the end result of lower running costs, through less heat loss, and improved comfort levels for home owners. This set up is not new, and has been available and has been used across Europe for many years, where district heating schemes are more widely used. And as in the UK the design and efficiency of heat interface units has improved dramatically, so heating design and control must keep pace. Radiator sizing is required to be optimised for working with lower temperatures, and with that PTRVs are essential in the system and regarded as a vital component to the network operators.

The **PTRV** is a radiator valve that performs the functions of a thermostatic valve and a differential pressure regulator.
Each pre-settable thermostatic valve comes with six pre-set Kv values.
The valve comes complete with the EN215, class A efficiency rated Inta i-therm TRV valve head.
The advantages are that not only commissioning is easier and exact, but each radiator, regardless of pressure fluctuations, variable speed pump and modulating TRVs, receives constant flow and the heat emission is always under control. With this control the return temperature is at its most efficient.

The flow rate pre-setting limits the maximum flow passing through the radiator and thereby ensures simple and effective radiator circuit balancing. The differential pressure regulator integral with the rad valve maintains a constant pressure differential, therefore maintaining the set flow rate. The system is set and kept to maximum efficiency, in accordance with best practice (see current CIBSE Heat Networks code of practice document).

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