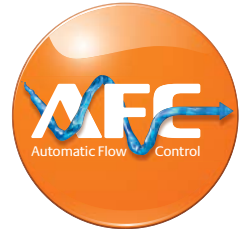# Eclipse

**AFC**
Automatic Flow Control

## Valves for radiators with integrated valve

Thermostatic inserts for radiators with integrated valves with automatic flow control

*Engineering* **GREAT** *Solutions*

IMI **HEIMEIER**

**IMI** Hydronic Engineering

# Eclipse

The Eclipse thermostatic inserts are suitable for all IMI Heimeier thermostatic heads and actuators. The required flow rate can be adjusted directly at the Eclipse thermostatic insert with a twist. The adjusted flow will not be exceed even if there are load changes in the system, due to other valves closing or during morning start up. The valve controls the flow rate independently from differential pressure. Therefore, complicated calculations to determine settings are not necessary.
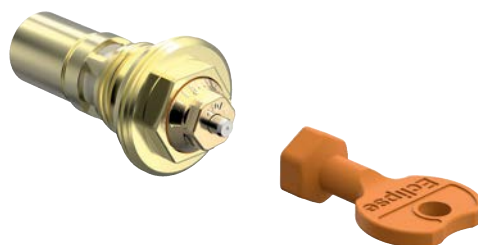
## Key features

> **Integrated flow limiter**
Eliminates over flows

> **Easy adjustment**
Just a twist to reach design flow

> **Flow range from 10 to 150 l/h**
For high flexibility

## Technical description

**Applications area:**
Heating systems.

**Function:**
Control
Flow limitation
Shut-off

**Pressure class:**
PN 10

**Temperature:**
Max. working temperature: 120°C, with protection cap or actuator 100°C.
Min. working temperature: 2°C.

**Materials:**
Valve insert: Brass, PPS
O-rings: EPDM rubber
Valve disc: EPDM rubber
Return spring: Stainless steel
Spindle: Niro-steel spindle with double O-ring sealing.

**Flow range:**
The flow can be stepless pre-set within the range: 10-150 l/h.
Delivery setting 150 l/h.
(Max. nominal flow $q_{mN}$ at 10 kPa concerning EN 215: 110 l/h)

**Differential pressure (ΔpV):**
Max. differential pressure:
60 kPa (<30 dB(A))
Min. differential pressure:
10 – 100 l/h = 10 kPa
100 – 150 l/h = 15 kPa

**Standards:**
Valves meet the following requirements:
– KEYMARK certified and tested to DIN EN 215. (Applied for KEYMARK certification and testing)

**Connection to thermostatic head and actuator:**
IMI Heimeier M30x1.5

# Construction

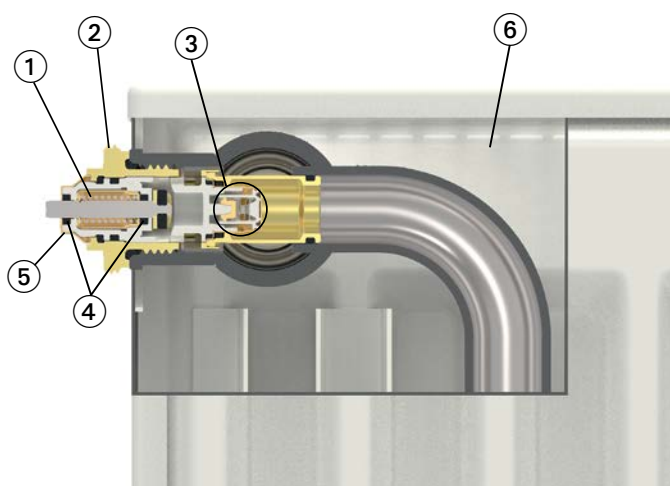**Eclipse thermostatic inserts with automatic flow limitation**



| 4381 | 4382 | 4383 | 4384 |

| Article No | Radiators with integrated valves e.g. |
|---|---|
| 4381 | Korado, U.S. Steel |
| 4382 | Caradon |
| 4383 | Kermi |
| 4384 | Lyngson |

Subject to technical modifications of the radiator manufacturer.
Status: 03.2017
*) KEYMARK certified and tested as per EN 215.
  KEYMARK symbol approval number 011-6T 0006.

**011**



1. Strong return spring in combination with high locating force ensures that the valve does not slacken off over time
2. IMI Heimeier M30x1.5 connection for thermostatic heads and actuators
3. Automatic flow limiter
4. Long-life double O-ring sealing
5. Flow setting
6. Radiators with integrated valves

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# Function

### Eclipse flow limiter
A regulating part is set to the calculated control rate by turning the digit cap with the setting key or an 11 mm end wrench. If the flow rate increases at the valve the rising pressure moves the sleeve, thus constantly limiting the flow to the set value.

The set flow rate is therefore never exceeded. If the flow rate drops below the set value a spring presses the sleeve back to its original position.

## Application

Eclipse thermostatic inserts for radiators with integrated valves are applied in two-pipe pumped heating system with normal to high temperature spread.

The required design flow for each radiator is set directly on the Eclipse valve. This automatic flow limitation is done with a twist and the adjusted flow will then not be exceeded. Even if there is an oversupply of pressure, due to load changes in the system, for example other valves closing or during morning start up, Eclipse will guarantee the requested flow.

The valve controls the flow rate independently from differential pressure. Therefore, complicated calculations to determine settings are not necessary. The pressure loss of pipings in old systems does not have to be determined in renovation projects.

Only the heating capacity and the resulting max. flow rate have to be determined (see setting chart). The min. differential pressure has to be at the most unfavourable valve. If necessary, it can be measured in order to optimize pump settings (see accessories).

**Noise behaviour**
To ensure low-noise performance, the following conditions must be met:
• The differential pressure above Eclipse should not exceed 60 kPa = 600 mbar = 0,6 bar (<30 dB(A)).
• Flow must be correctly adjusted.
• The system must be completely deaerated.

**Sample application**
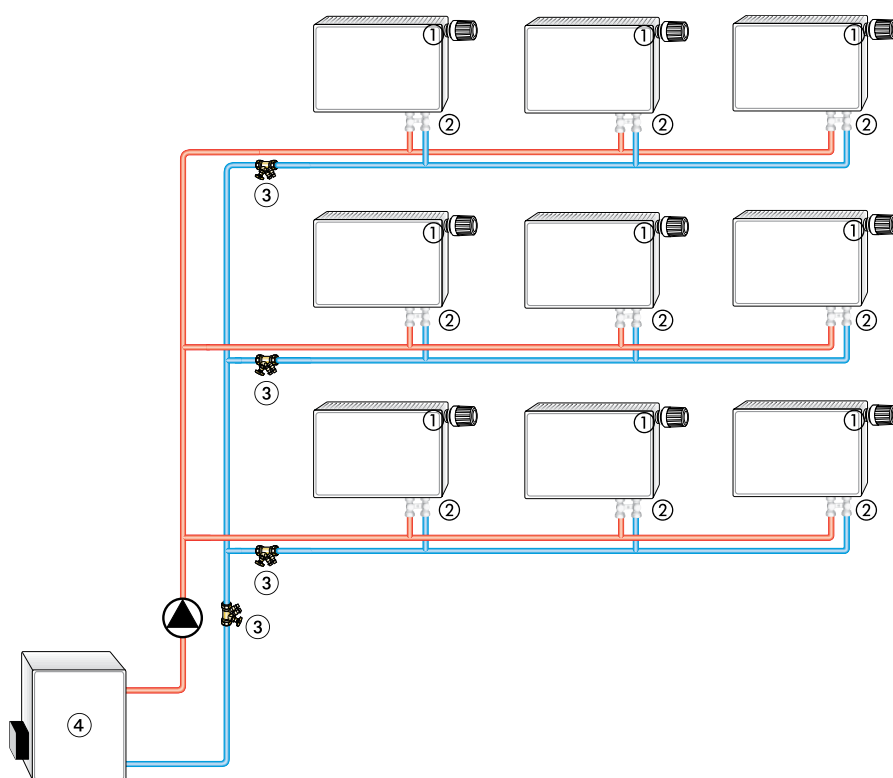


1. Eclipse thermostatic inserts for radiators with integrated valves
2. Double connection fitting Vekolux / Vekotec / Vekotrim
3. STAD balancing valve for maintenance and diagnostics
4. Boiler



**Identification by article number**
The IMI Heimeier thermostatic inserts can be identified by the corresponding 4-digit article number on the end face.
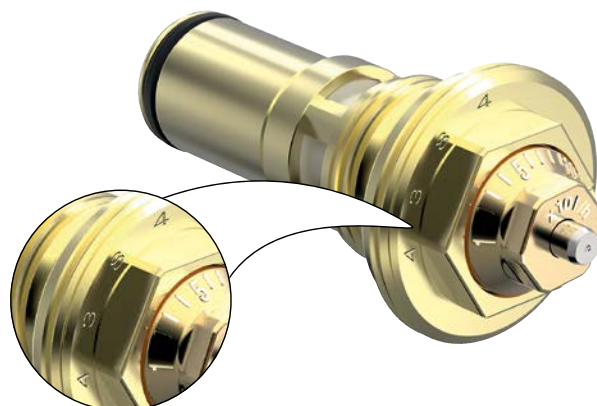
**Note**

– The composition of the heat transfer medium should conform to VDI Guide - line 2035 so as to avoid damage and the formation of stone deposits in hot water heating systems. Please refer to the VdTÜV 1466/AGFW FW 510 codes of practice for industrial and long-distance heating systems. Mineral oils or all types of lubricants containing mineral oils in the heat transfer medium can have severe adverse effects on the equipment and usually lead to the failure of EPDM seals. When using nitrite-free antifreeze and anticorrosion agents with an ethylene glycol base, pay particular attention to the information provided by the manufacturer, particularly details concerning the concentration of the individual additives.

– The thermostatic inserts fit all IMI Heimeier thermostatic heads and thermal or motor-driven actuators. Correctly matching the components will ensure maximum safety and reliability. When using other-make actuators, make sure that the actuating force in the closing range is appropriate for thermostatic inserts with soft-sealing valve discs.
– Flush the system before changing thermostatic valves in heavy polluted existing systems.

## Operation

**Flow setting**

Stepless setting between 1 to 15 (10 to 150 l/h).
The setting is changed using a special setting key (article No. 3930-02.142) or an 11 mm end wrench, to ensure tamper proof setting.

• Place the setting key on the valve insert.
• Turn the setting tool so that desired setting value is pointing at the index* of the valve body (see fig.).
• Remove the key or 11 mm end wrench. The valve is now set.

**Front-end and lateral visibility**
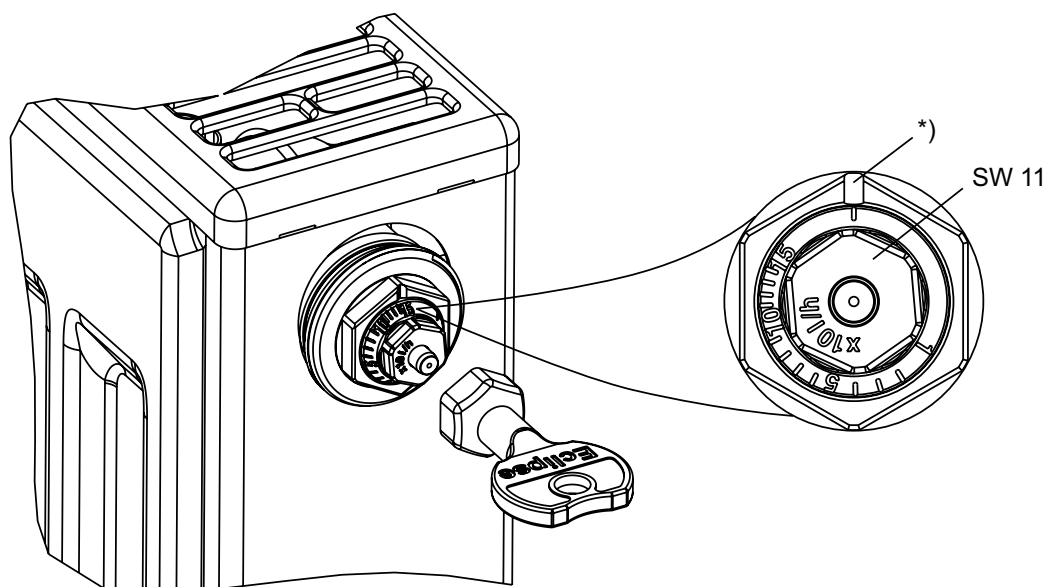


*) Index

| Setting | 1 | I | I | I | 5 | I | I | I | I | 10 | I | I | I | I | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| l/h | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |

P-band [xp] max. 2 K.
P-band [xp] max. 1 K up to 90 l/h.

## Diagram

**Lowest flow tolerances**



*) P-band [xp] max. 2 K.

10 - 100 l/h: 10 kPa
100 - 150 l/h: 15 kPa
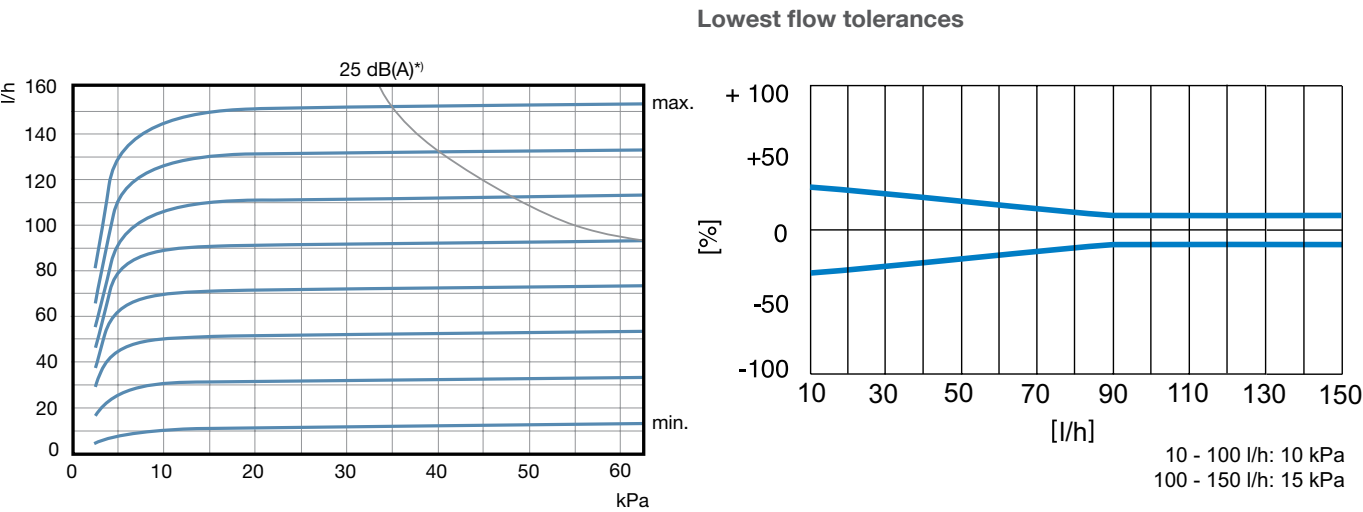
## Setting table

**Setting values with different radiator performances and system differential temperatures**

| Q [W] | 200 | 250 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2600 | 2800 | 3000 | 3200 | 3400 | 3600 | 3800 | 4000 | 4800 | 5300 | 6500 | 6800 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Δt [K] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 15 | | | | | | | | | | | | | | | |
| 15 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | | | | | | | | | | | |
| 20 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 10 | 11 | 12 | 13 | 14 | 15 | | | | | | | |
| 30 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 5 | 5 | 6 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 14 | 15 | | |
| 40 | | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 7 | 8 | 8 | 9 | 10 | 11 | 14 | 15 |

Δp min.   10 - 100 l/h = 10 kPa
Δp min. 100 - 150 l/h = 15 kPa

Q = Radiator performance
Δt = System differential temperature
Δp = Differential pressure

**Sample**:
Q = 1000 W, Δt = 15 K
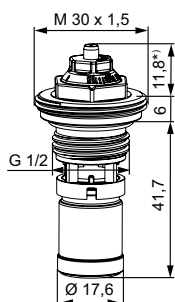Setting value: **6** (≈ 60 l/h)

# Articles
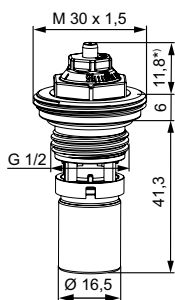
**Eclipse thermostatic insert**
For radiators with integrated valves.
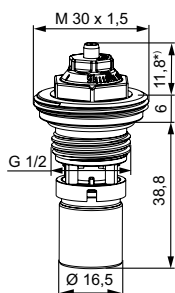With automatic flow limiter.
Suitable for e.g. Korado, U.S. Steel.

| Thread | EAN | Article No |
|--------|-----|------------|
| G1/2 | 4024052978915 | 4381-00.300 |

**Eclipse thermostatic insert**
For radiators with integrated valves.
With automatic flow limiter.
Suitable for e.g. Caradon.

| Thread | EAN | Article No |
|--------|-----|------------|
| G1/2 | 4024052979011 | 4382-00.300 |

**Eclipse thermostatic insert**
For radiators with integrated valves.
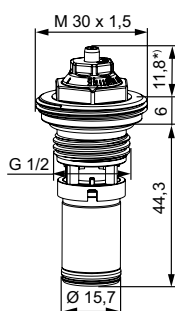With automatic flow limiter.
Suitable for e.g. Kermi

| Thread | EAN | Article No |
|--------|-----|------------|
| G1/2 | 4024052979110 | 4383-00.300 |

**Eclipse thermostatic insert**
For radiators with integrated valves.
With automatic flow limiter.
Suitable for e.g.  Lyngson.

| Thread | EAN | Article No |
|--------|-----|------------|
| G1/2 | 4024052979219 | 4384-00.300 |

# Accessories

**Setting key**
for Eclipse. Color orange.

| | EAN | Article No |
|--|-----|------------|
| | 4024052937714 | 3930-02.142 |

**IMI**
**Hydronic** Engineering