

VIESMANN

Divicon & Low Loss Headers

- Extract from Vitodens 200-W
- Technical Guide
- 6152257 GB

Installation accessories

7.5 Divicon heating circuit distributor and low loss headers

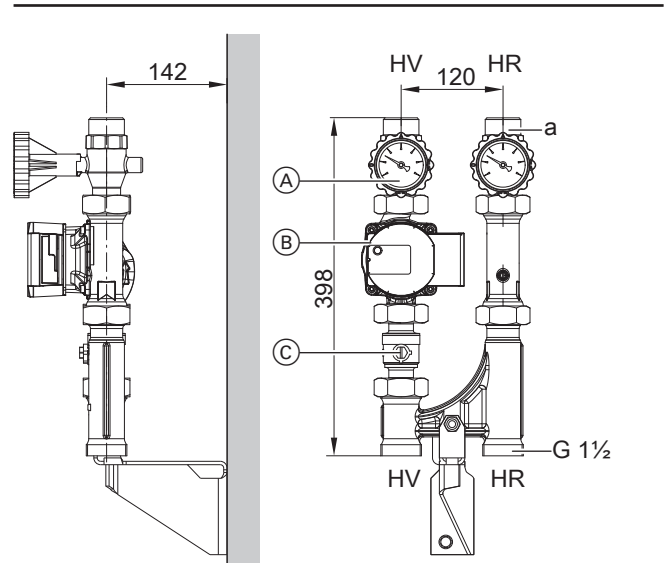
Divicon heating circuit distributor

Layout and function

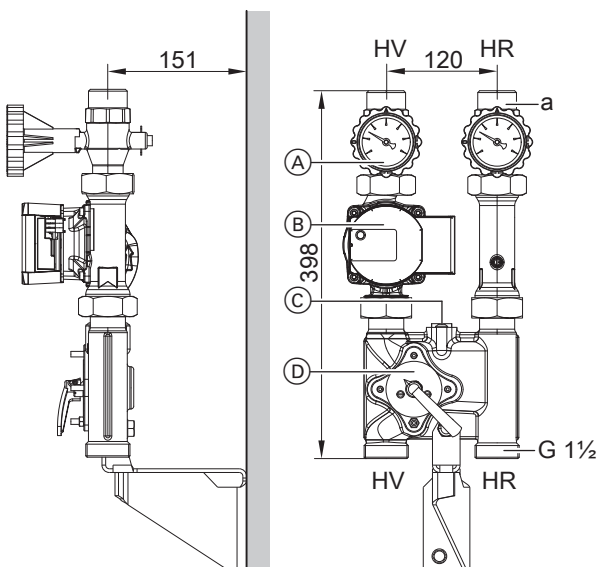
- Available with R $\frac{3}{4}$, R 1 and R $1\frac{1}{4}$ connections.
- With heating circuit pump, check valve, ball valves with integral thermometers and 3-way mixer or without mixer.
- Quick and simple installation due to pre-assembled unit and compact design.
- All-round thermal insulation shells for low radiation losses.
- High efficiency pumps and optimised mixer curve ensure low electricity costs and precise control characteristics.
- The bypass valve for hydraulic balancing of the heating system is available as an accessory and is provided as a threaded component for inserting into the prepared hole in the cast body.
- Individually wall mounted or with a double or triple manifold.
- Also available as a kit. For further details see the Viessmann pricelist.

For part numbers in conjunction with the different circulation pumps, see the Viessmann pricelist.

The dimensions of the heating circuit distributor are the same, with or without mixer.



Divicon without mixer: Wall mounting, shown without thermal insulation



Divicon with mixer: Wall mounting, shown without thermal insulation and mixer extension kit

- HR Heating return
- HV Heating flow
- (A) Ball valves with thermometer (as operating element)
- (B) Circulation pump
- (C) Bypass valve (accessories)
- (D) Mixer-3

- HR Heating return
- HV Heating flow
- (A) Ball valves with thermometer (as operating element)
- (B) Circulation pump
- (C) Ball valve

Heating circuit connection	R	$\frac{3}{4}$	1	$1\frac{1}{4}$
Flow rate (max.)	m ³ /h	1.0	1.5	2.5
a (female)	Rp	$\frac{3}{4}$	1	$1\frac{1}{4}$
a (male)	G	$1\frac{1}{4}$	$1\frac{1}{4}$	2

Heating circuit connection	R	$\frac{3}{4}$	1	$1\frac{1}{4}$
Flow rate (max.)	m ³ /h	1.0	1.5	2.5
a (female)	Rp	$\frac{3}{4}$	1	$1\frac{1}{4}$
a (male)	G	$1\frac{1}{4}$	$1\frac{1}{4}$	2

Installation accessories (cont.)

Installation example: Divicon with triple manifold

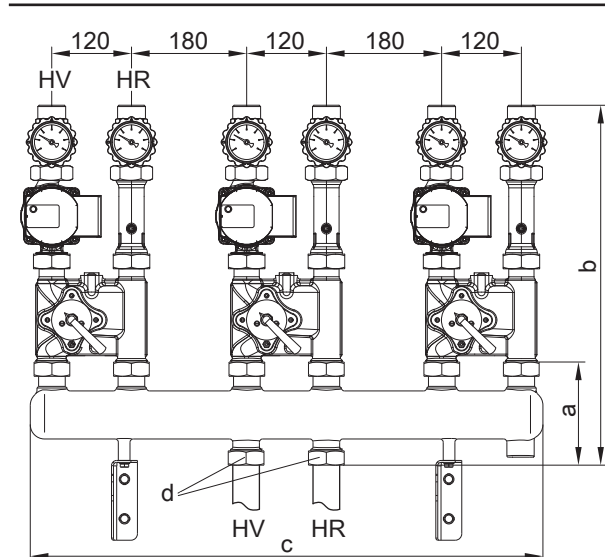
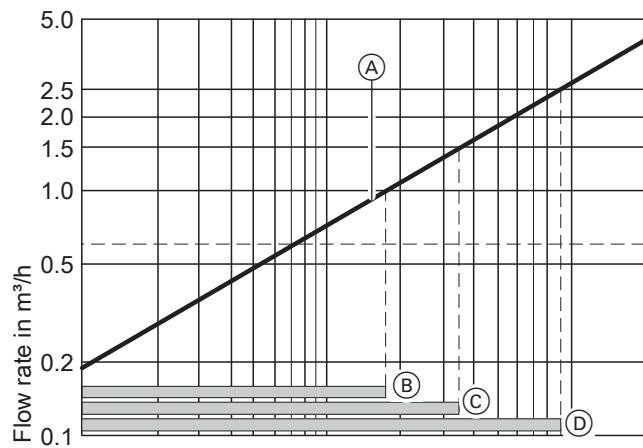


Diagram without thermal insulation

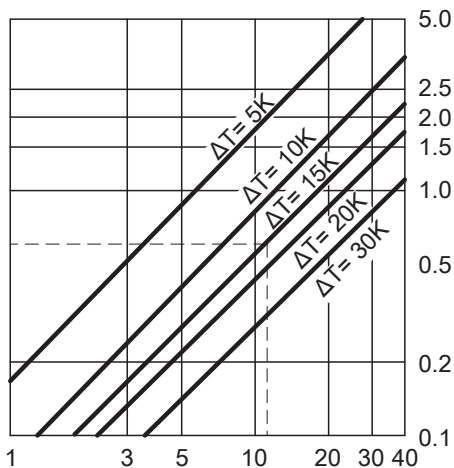
HR Heating return
HV Heating flow

Dim.	Manifold with heating circuit connection	
	R ¾ and R 1	R 1¼
a	135	183
b	535	583
c	784	784
d	G 1¼	G 2

Determining the required nominal diameter



Mixer control characteristics



Heating circuit output in kW

- Ⓐ Divicon with mixer-3
The operating ranges marked Ⓑ to Ⓓ provide optimum control characteristics with the Divicon mixer:
- Ⓑ Divicon with mixer-3 (R ¾)
Operating range: 0 to 1.0 m³/h
- Ⓒ Divicon with mixer-3 (R 1)
Operating range: 0 to 1.5 m³/h
- Ⓓ Divicon with mixer-3 (R 1¼)
Operating range: 0 to 2.5 m³/h

Example:

Heating circuit for radiators with a heating output of $\dot{Q} = 11.6$ kW
Heating system temperature 75/60 °C ($\Delta T = 15$ K)

c Specific thermal capacity
m Mass flow rate

Installation accessories (cont.)

\dot{Q} Heating output
 \dot{V} Flow rate

$$\dot{Q} = \dot{m} \cdot c \cdot \Delta T \quad c = 1.163 \frac{\text{Wh}}{\text{kg} \cdot \text{K}} \quad \dot{m} \hat{=} \dot{V} \quad (1 \text{ kg} \approx 1 \text{ dm}^3)$$

$$\dot{V} = \frac{\dot{Q}}{c \cdot \Delta T} = \frac{11600 \text{ W} \cdot \text{kg} \cdot \text{K}}{1.163 \text{ Wh} \cdot (75-60) \text{ K}} = 665 \frac{\text{kg}}{\text{h}} \hat{=} 0.665 \frac{\text{m}^3}{\text{h}}$$

Select the smallest possible mixer within the application limit with the value \dot{V} .

Circulation pump curves and pressure drop on the heating water side

The residual pump head results from the differential between the selected pump curve and the pressure drop curve of the respective heating circuit distributor and further components (pipe assembly, distributor, etc.).

The following pump graphs show the pressure drop curves of the different Divicon heating circuit distributors.

Maximum flow rate for Divicon:

- With R ¼ = 1.0 m³/h
- With R 1 = 1.5 m³/h
- With R 1 ¼ = 2.5 m³/h

Example:

Flow rate $\dot{V} = 0.665 \text{ m}^3/\text{h}$

Selected:

- Divicon with mixer R ¼
- Wilo PARA 25/6 circulation pump, variable differential pressure operating mode and set to maximum delivery head
- Pump rate 0.7 m³/h

Head of the relevant pump

curve: 48 kPa
 Divicon pressure drop: 3.5 kPa
 Residual head: 48 kPa – 3.5 kPa = 44.5 kPa.

Note

For further components (pipe assembly, distributor, etc.) determine the pressure drop and deduct it from the residual head.

Differential pressure-dependent heating circuit pumps

According to the [German] Buildings Energy Act (GEG), circulation pumps in central heating systems must be sized in accordance with current technical rules.

Ecodesign Directive 2009/125/EC requires high efficiency circulation pumps to be used throughout Europe from 1 January 2013, if these pumps are not installed in the heat generator.

Design information

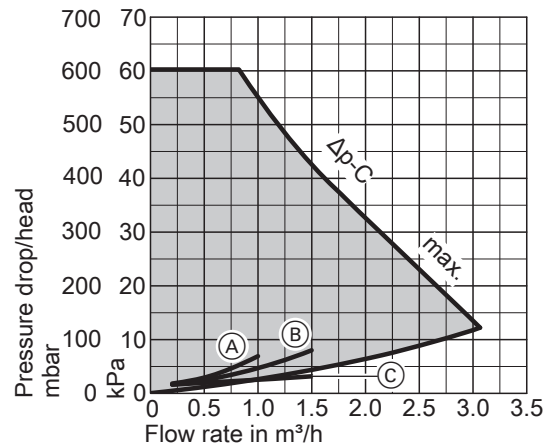
The use of differential pressure-dependent heating circuit pumps requires heating circuits with variable pump rates, e.g. single-line and twin-line heating systems with thermostatic valves and under-floor heating systems with thermostatic valves or zone valves.

Example result: Divicon with mixer-3 (R ¼)

Wilo Para 25/6

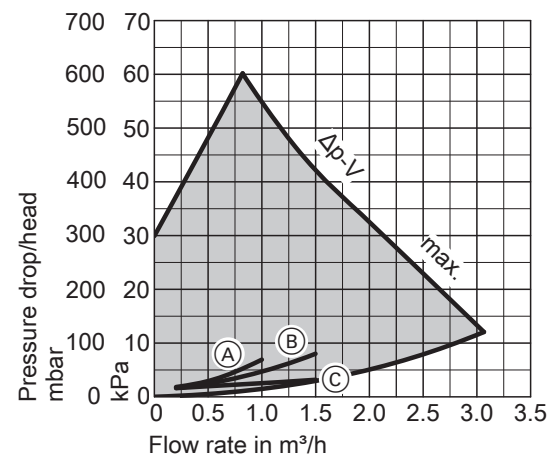
- Particularly power saving, high efficiency circulation pump
- Energy efficiency index EEI ≤ 0.20

Operating mode: Constant differential pressure



- (A) Divicon R ¼ with mixer
- (B) Divicon R 1 with mixer
- (C) Divicon R ¼ and R 1 without mixer

Operating mode: Variable differential pressure



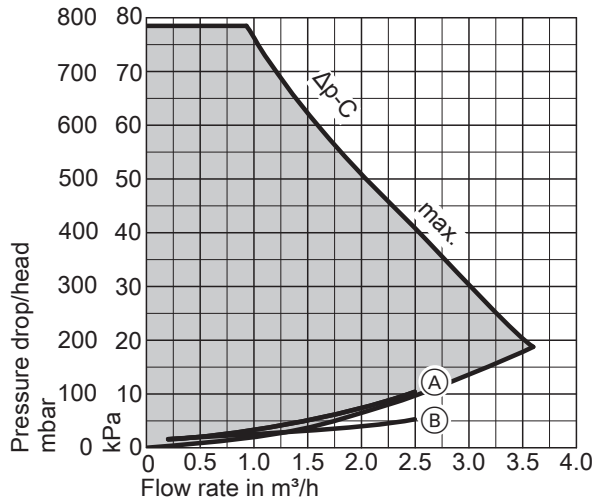
- (A) Divicon R ¼ with mixer
- (B) Divicon R 1 with mixer
- (C) Divicon R ¼ and R 1 without mixer

Installation accessories (cont.)

Wilo Para 25/8

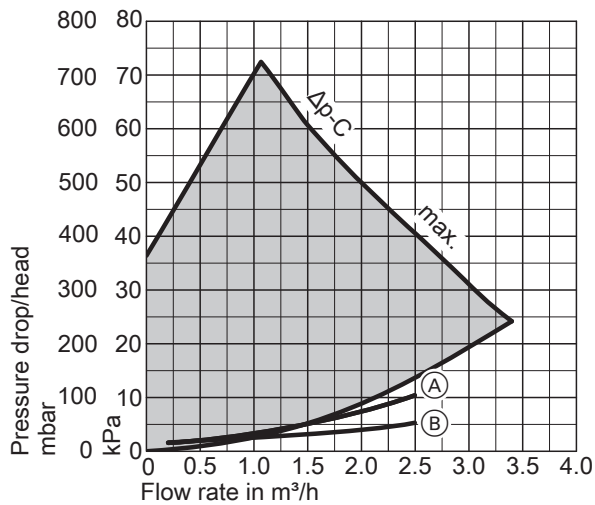
Operating mode: Constant differential pressure

- Energy efficiency index EEI ≤ 0.20



- (A) Divicon R 1¼ with mixer
- (B) Divicon R 1¼ without mixer

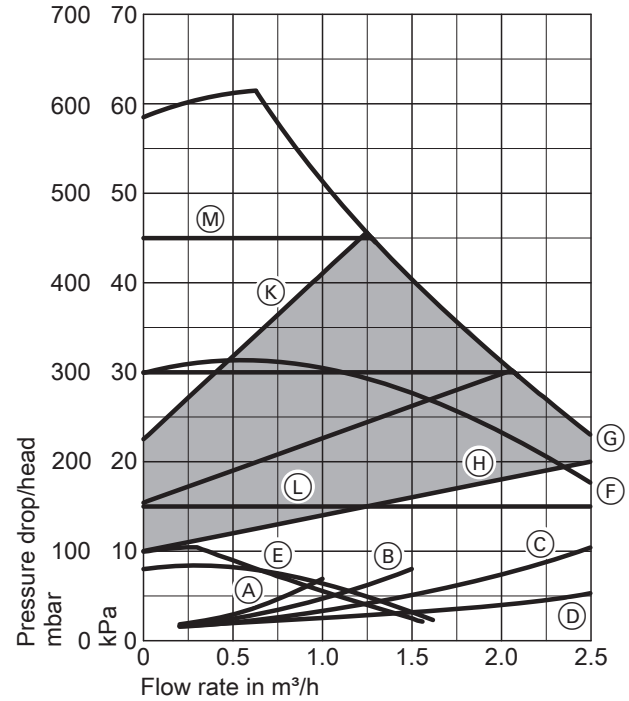
Operating mode: Variable differential pressure



- (A) Divicon R 1¼ with mixer
- (B) Divicon R 1¼ without mixer

Grundfos Alpha 2.1 25-60

- With power consumption display
- With Autoadapt function (automatic matching to the pipework)
- With night setback function
- Energy efficiency index EEI ≤ 0.20



- (A) Divicon R ¾ with mixer
- (B) Divicon R 1 with mixer
- (C) Divicon R 1¼ with mixer
- (D) Divicon R ¾, R 1 and R 1¼ without mixer
- (E) Stage 1
- (F) Stage 2
- (G) Stage 3
- (H) Min. proportional pressure
- (K) Max. proportional pressure
- (L) Min. constant pressure
- (M) Max. constant pressure

Bypass valve

Part no. 7464889

For hydronic balancing of the heating circuit with mixer. To be inserted into the Divicon.

Installation accessories (cont.)

Manifold

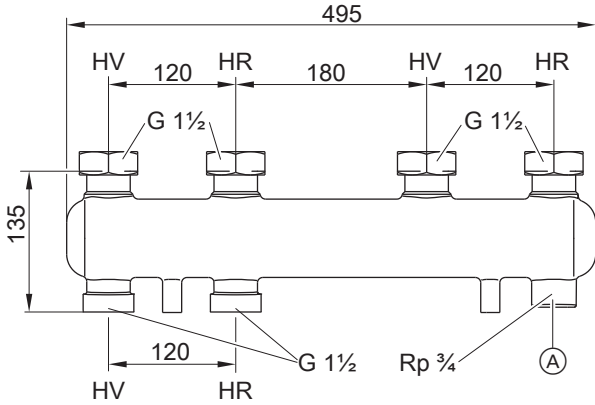
Incl. thermal insulation.

For wall mounting with separately ordered wall mounting bracket.

The connection between boiler and manifold must be made on site.

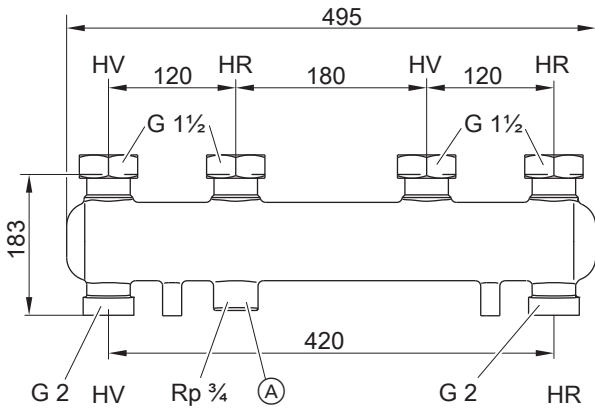
For 2 Divicon

Part no. 7460638 for Divicon R ¾ and R 1



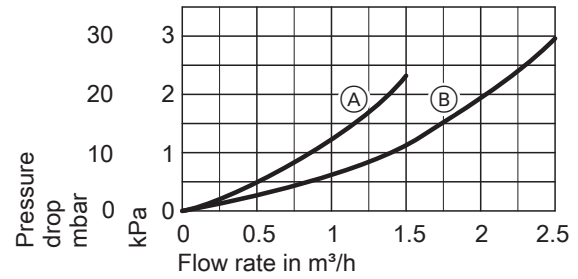
- Ⓐ Connection option for expansion vessel
- HV Heating water flow
- HR Heating water return

Part no. 7466337 for Divicon R 1¼



- Ⓐ Connection option for expansion vessel
- HV Heating water flow
- HR Heating water return

Pressure drop

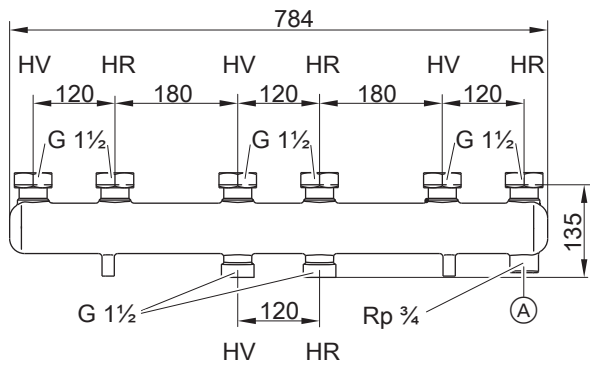


- Ⓐ Manifold for Divicon R ¾ and R 1
- Ⓑ Manifold for Divicon R 1¼

Installation accessories (cont.)

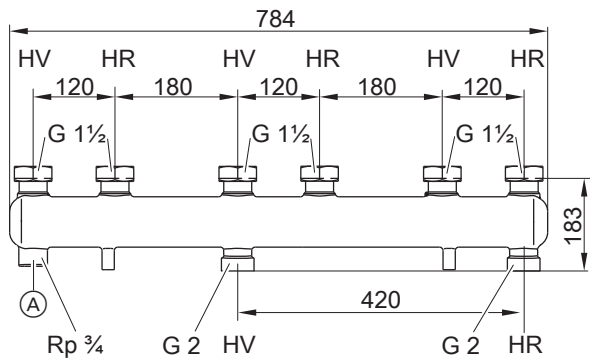
For 3 Divicon

Part no. 7460643 for Divicon R $\frac{3}{4}$ and R 1



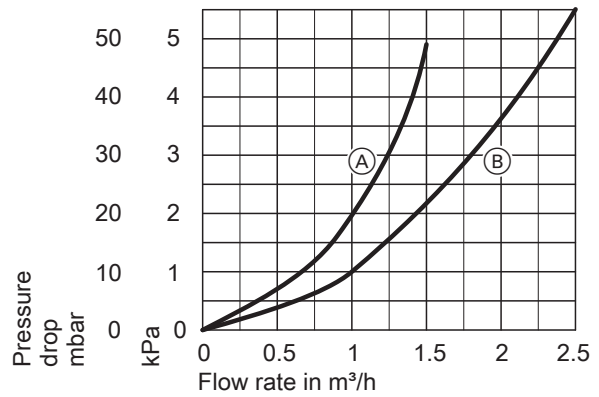
- Ⓐ Connection option for expansion vessel
- HV Heating water flow
- HR Heating water return

Part no. 7466340 for Divicon R $\frac{1}{4}$



- Ⓐ Connection option for expansion vessel
- HV Heating water flow
- HR Heating water return

Pressure drop



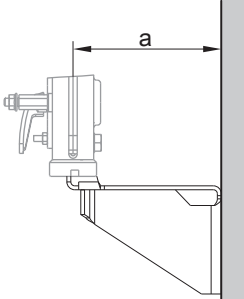
- Ⓐ Manifold for Divicon R $\frac{3}{4}$ and R 1
- Ⓑ Manifold for Divicon R $\frac{1}{4}$

Installation accessories (cont.)

Wall mounting bracket

Part no. 7465894

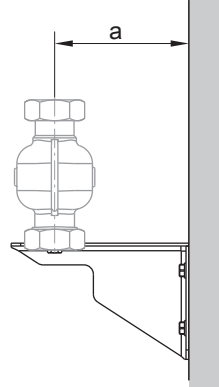
For individual Divicon.
With screws and rawl plugs.



For Divicon	With mixer	Without mixer
a mm	151	142

Part no. 7465439

For manifold.
With screws and rawl plugs.

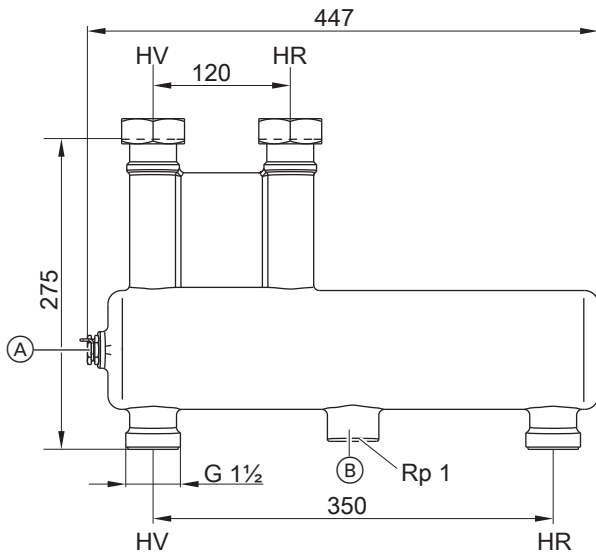


For Divicon	R ¾ and R 1	R 1¼
a mm	142	167

Low loss header

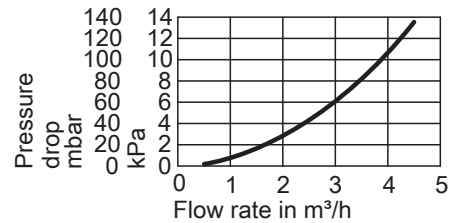
Part no. 7460649

Max. flow rate 4.5 m³/h.
With thermal insulation and integral sensor well.
The connection between boiler and low loss header must be made on site.



- Ⓐ Sensor well
- Ⓑ Optional blow-down
- HV Heating water flow
- HR Heating water return

Pressure drop



Installation accessories (cont.)

Wall mounting bracket for low loss header, type Q70

Part no. ZK03682
With fixing materials

