

Data sheet

Rotary valves HRB 3, HRB 4

Description



HRB rotary valves can be used in combination with electric actuators AMB 162 and AMB 182.

Features:

- Lowest leakage in class
- Unique position indicator (visible also when actuator is mounted)
- Ergonomic handle
- Easy installation
- For mixing and diverting applications
- Internal thread connection

Main data:

- DN 15–50
- k_{vs} 0.4–40 m³/h
- PN 10
- t_{max} =110 °C
- 3-way or 4-way
- S characteristic

Danfoss HRB rotary valves are primarily designed for regulation of flow temperature in heating systems where a certain leakage can be accepted and where a defined control characteristic is not required.

Ordering



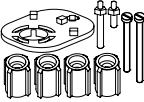
| Type | DN (mm) | k_{vs} (m ³ /h) | PN | Connection | Code No. | |
|----------------|------------|---------------------------------|----|------------|----------|----------|
| | | | | | HRB 3 | HRB 4 |
| HRB 3 HRB 4 | 15 | 0.4 | 10 | Rp ½" | 065Z0399 | - |
| | | 0.63 | | | 065Z0400 | |
| | | 1.0 | | | 065Z0401 | |
| | | 1.63 | | | 065Z0402 | |
| | | 2.5 | | | 065Z0403 | |
| | | 4.0 | | | 065Z0398 | 065Z0411 |
| | 20 | 2.5 | | Rp ¾" | 065Z0397 | |
| | | 4.0 | | | 065Z0404 | 065Z0412 |
| | | 6.3 | | | 065Z0405 | 065Z0413 |
| | | 6.3 | | | 065Z0406 | - |
| | 25 | 10 | | Rp 1" | 065Z0407 | 065Z0414 |
| | 32 | 16 | | Rp 1 ¼" | 065Z0408 | 065Z0415 |
| | 40 | 25 | | Rp 1 ½" | 065Z0409 | 065Z0416 |
| | 50 | 40 | | Rp 2" | 065Z0410 | 065Z0417 |

Data sheet

Rotary valves HRB 3, HRB 4

Ordering (continued)

Spare parts for old generation AMB actuators

| Picture | Type | Code No. |
|---|-------------------------------------|-----------------|
|  | Connection plate HRB | 065Z0439 |
|  | Linkage kit | 065Z0440 |
|  | Retrofit linkages for rotary valves | 065Z0441 |

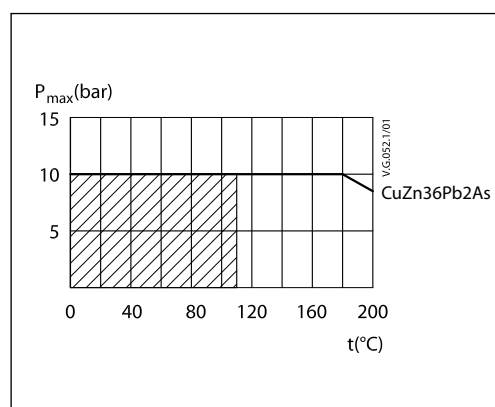
Spare parts and accessories for HRB valves

| Type | | DN | Code No. |
|--------------------------------------|---------|-------|----------|
| Transparent cover, scale and pointer | | 15-20 | 065Z0444 |
| | | 25 | 065Z0445 |
| | | 32 | 065Z0446 |
| | | 40 | 065Z0447 |
| | | 50 | 065Z0448 |
| Stuffing box | HRB 3/4 | 15-20 | 065Z0449 |
| | HRB 3/4 | 25 | 065Z0450 |
| | HRB 3/4 | 32 | 065Z0451 |
| | HRB 3 | 40 | 065Z0452 |
| | HRB 4 | 40 | 065Z0460 |
| | HRB 3 | 50 | 065Z0453 |
| | HRB 4 | 50 | 065Z0461 |
| Replacement handle | | | 065Z0442 |

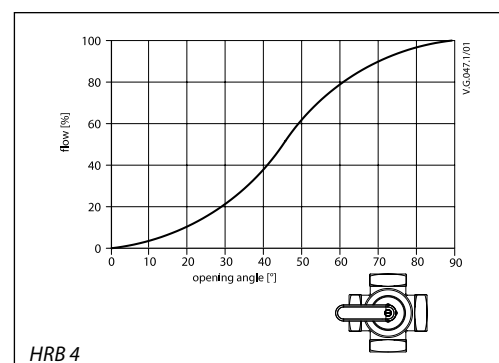
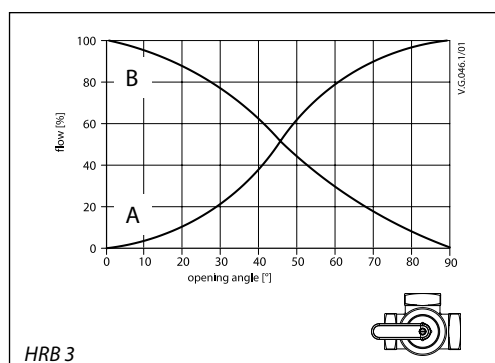
Technical data

| Nominal diameter | DN | 15 | 20 | 25 | 32 | 40 | 50 |
|---------------------------|-------|---|----|----|----|----|----|
| Control characteristic | | S characteristic | | | | | |
| Leakage | HRB 3 | Diverting: max. 0.02% of flow / Mixing: max. 0.05 % of flow | | | | | |
| | HRB 4 | max. 1.0 % of k_{vs} | | | | | |
| Nominal pressure | PN | 10 | | | | | |
| Max. closing pressure | bar | Diverting: 2 / Mixing: 1 | | | | | |
| Torque at PN | Nm | 5 | | | | | |
| Medium | | Circulation water / glycolic mixture up to 50% | | | | | |
| Medium pH | | Min. 7, max. 10 | | | | | |
| Medium temperature | °C | 2 ... 110 | | | | | |
| Connections | | Internal thread. ISO 7/1 | | | | | |
| Materials | | | | | | | |
| Valve body and slide shoe | | CuZn36Pb2As (Brass DZR, CW 602N) | | | | | |
| Stuffing box | | CuZn36Pb2As (Brass DZR, CW 602N) | | | | | |
| Stuffing box sealing | | EPDM | | | | | |

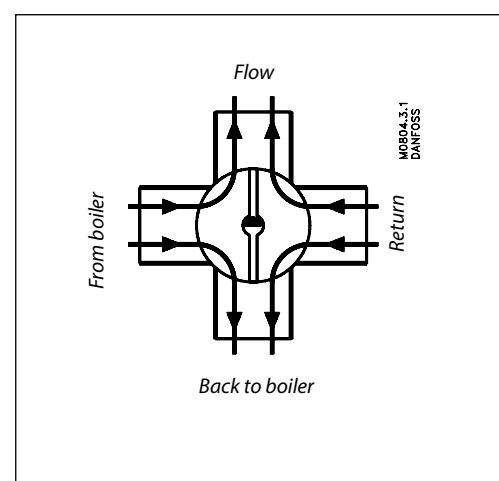
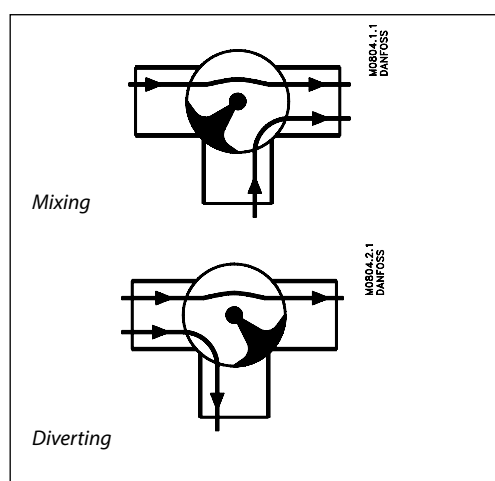
Pressure temperature diagram



Valve characteristics



Installation



Valve mounting

Before valve mounting pipes have to be cleaned and free from abrasion. Mechanical loads on valve body caused by the pipes are not allowed. It is recommended to install a strainer into application to avoid damaging controlling components.

Connection

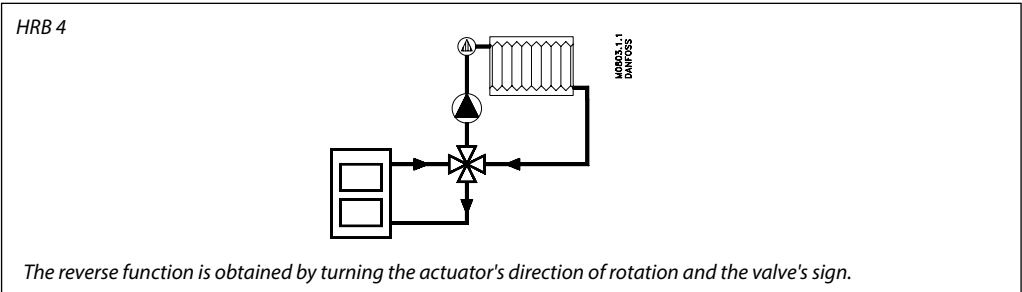
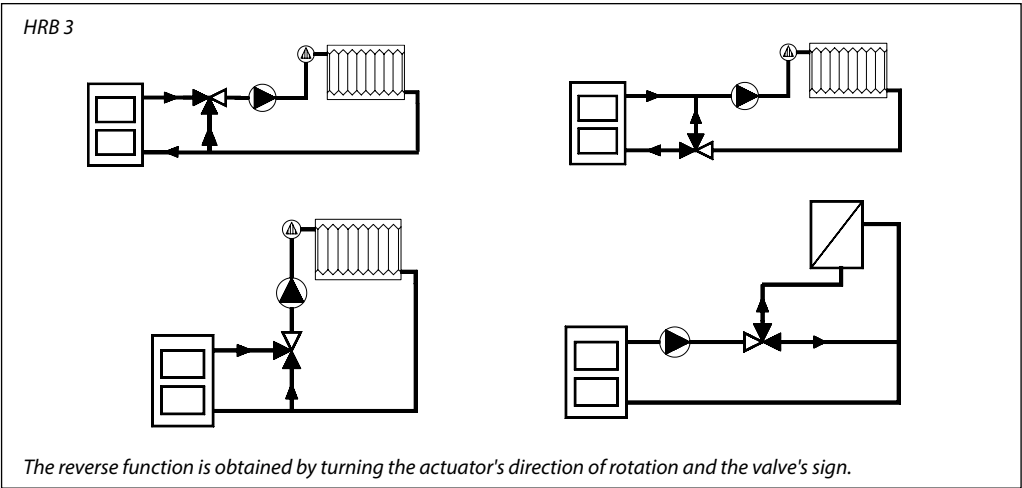
HRB 3 can be used as a mixing valve, diverting valve and in connection with heat exchangers where a certain leakage can be accepted.

HRB 4 operates according to the double shunt principle i.e. the water from the boiler is mixed with a certain portion of the water in the return. In this way the water which goes to the boiler reaches a higher return temperature than by using 3-way valves. This means that the risk of corrosion in oil and solid fuel boilers is reduced.

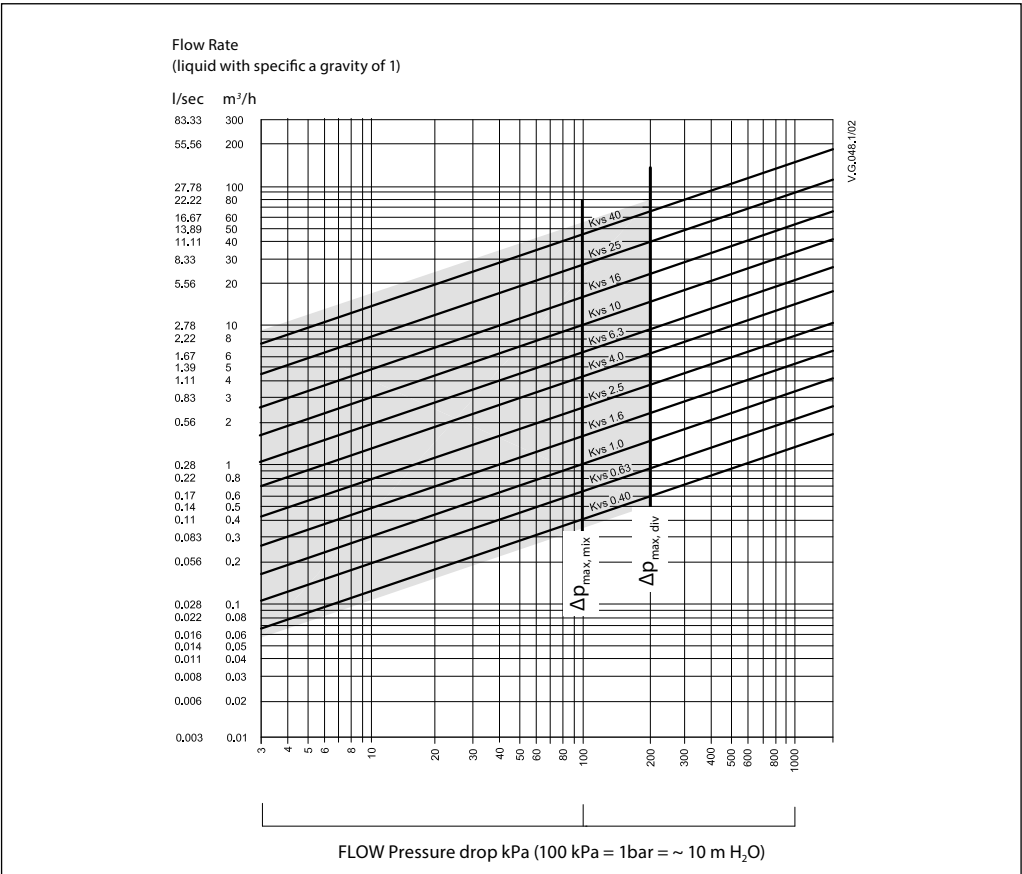
Disposal

The valve must be dismantled and the elements sorted into various material groups before disposal.

Application principles

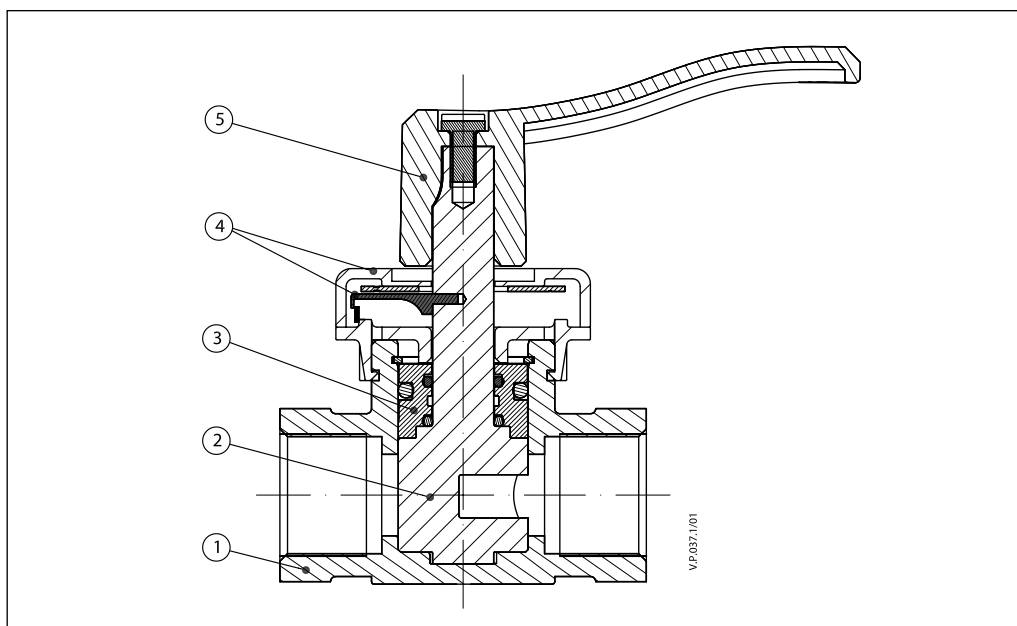


Sizing



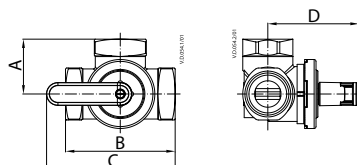
Design

1. Valve body
2. Slide shoe
3. Stuffing box
4. Transparent cover and indicator
5. Handle

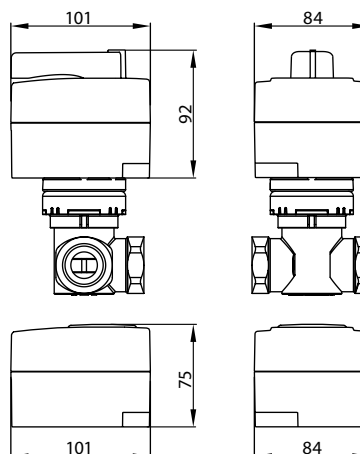
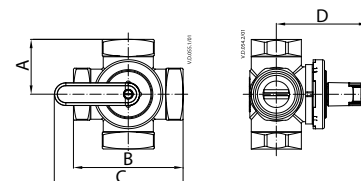


Dimensions

HRB 3



HRB 4



HRB 3, HRB 4

| DN | A | B | C | D | Connection | Weight (kg) | | Actuator |
|----|------|-----|-------|-----|------------|-------------|-------|--------------------|
| | mm | | | | | HRB 3 | HRB 4 | |
| 15 | 36 | 72 | 114 | 88 | Rp ½" | 0.55 | 0.60 | AMB 162 AMB 182 |
| 20 | 36 | 72 | 114 | 88 | Rp ¾" | 0.58 | 0.67 | |
| 25 | 41 | 82 | 119 | 92 | Rp 1" | 0.92 | 0.98 | |
| 32 | 47 | 94 | 125 | 97 | Rp 1 ¼" | 1.2 | 1.3 | |
| 40 | 58 | 116 | 136 | 97 | Rp 1 ½" | 1.5 | 1.8 | |
| 50 | 62.5 | 125 | 140.5 | 103 | Rp 2" | 2.5 | 2.8 | |

Data sheet

Rotary valves HRE 3, HRE 4

Description



Danfoss HRE rotary valves are primarily designed for regulation of flow temperature in heating systems where a certain leakage can be accepted and where a defined control characteristic is not required.

HRE rotary valves can be used in combination with electric actuators AMB 162 and AMB 182.

Features:

- Cast iron body with internal thread
- Lowest leakage in class
- Unique position indicator (visible also when actuator is mounted)
- Ergonomic handle
- For mixing and diverting applications
- Internal thread connection

Main data:

- DN 20–50
- k_{vs} 6.3–40 m³/h
- PN 6
- t_{max} = 110 °C
- 3-way or 4-way
- S characteristic

Ordering

| Type | DN (mm) | k_{vs} (m ³ /h) | PN | Connection | Code No. | |
|----------------|------------|---------------------------------|----|------------|-----------------|-----------------|
| | | | | | HRE 3 | HRE 4 |
| HRE 3 HRE 4 | 20 | 6.3 | 6 | Rp 3/4" | 065Z0418 | 065Z0423 |
| | 25 | 10 | | Rp 1" | 065Z0419 | 065Z0424 |
| | 32 | 16 | | Rp 1 1/4" | 065Z0420 | 065Z0425 |
| | 40 | 25 | | Rp 1 1/2" | 065Z0421 | 065Z0426 |
| | 50 | 40 | | Rp 2" | 065Z0422 | 065Z0427 |

Spare parts and accessories

| Type | DN | Code No. | |
|--------------------------------------|---------|-----------|----------|
| Connection plate HRE | | 065Z0439 | |
| Linkage kit | | 065Z0440* | |
| Retrofit linkages for rotary valves | | 065Z0441 | |
| Replacement handle | | 065Z0442 | |
| Transparent cover, scale and pointer | 15-20 | 065Z0444 | |
| | 25 | 065Z0445 | |
| | 32 | 065Z0446 | |
| | 40 | 065Z0447 | |
| | 50 | 065Z0448 | |
| Stuffing box | HRE 3/4 | 20 | 065Z0449 |
| | HRE 3/4 | 25 | 065Z0450 |
| | HRE 3/4 | 32 | 065Z0451 |
| | HRE 3 | 40 | 065Z0452 |
| | HRE 4 | 40 | 065Z0460 |
| | HRE 3 | 50 | 065Z0453 |
| | HRE 4 | 50 | 065Z0461 |

*Supplied with actuator AMB 162/182

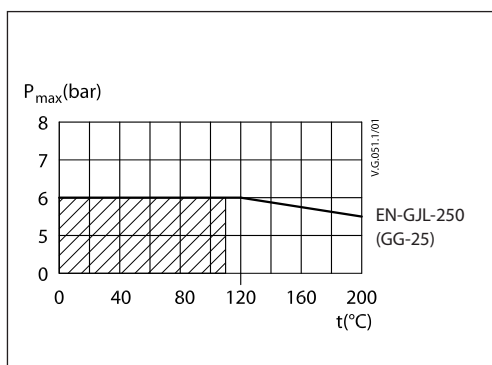
Data sheet

Rotary valves HRE 3, HRE 4

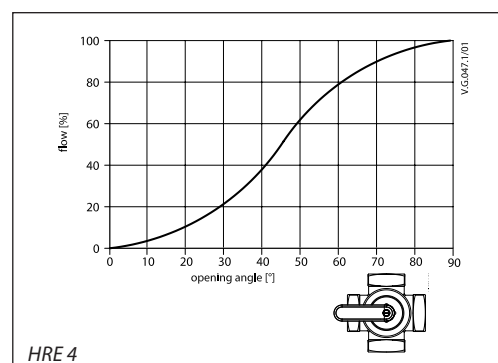
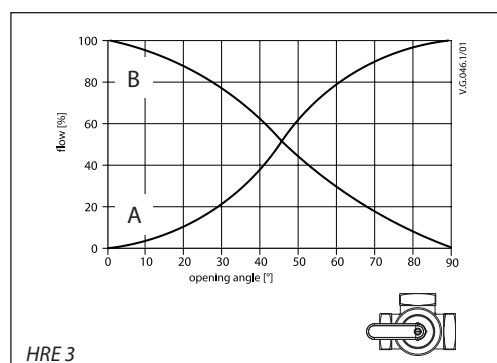
Technical data

| Nominal diameter | DN | 20 | 25 | 32 | 40 | 50 |
|------------------------|-------|---|----|----|----|----|
| Control Characteristic | | S characteristic | | | | |
| Leakage | HRE 3 | Diverting: max. 0.5% of k_{vS} / Mixing: max. 1.0 % of k_{vS} | | | | |
| | HRE 4 | Max. 1.5% k_{vS} | | | | |
| Nominal pressure | PN | 6 | | | | |
| Max. closing pressure | bar | 1 | | | | |
| Torque at PN | Nm | 5 | | | | |
| Medium | | Circulation water / glycolic mixture up to 50% | | | | |
| Medium pH | | Min. 7, max. 10 | | | | |
| Medium temperature | °C | 2 ... 110 | | | | |
| Connections | | Internal thread. ISO 7/1 | | | | |
| Materials | | | | | | |
| Valve body | | Grey cast iron EN-GJL-250(GG25) | | | | |
| Slide shoe | | CuZn36Pb2As (Brass DZR, CW 602N) | | | | |
| Stuffing box sealing | | EPDM | | | | |

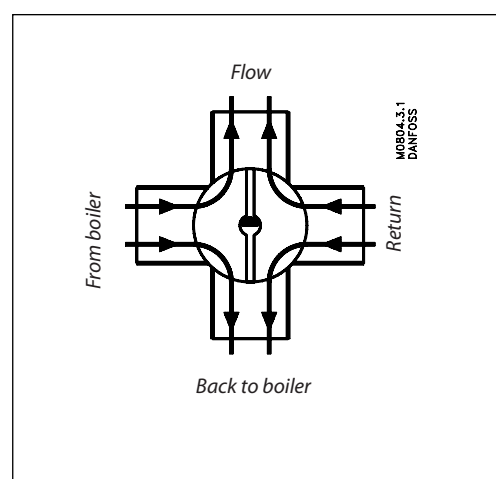
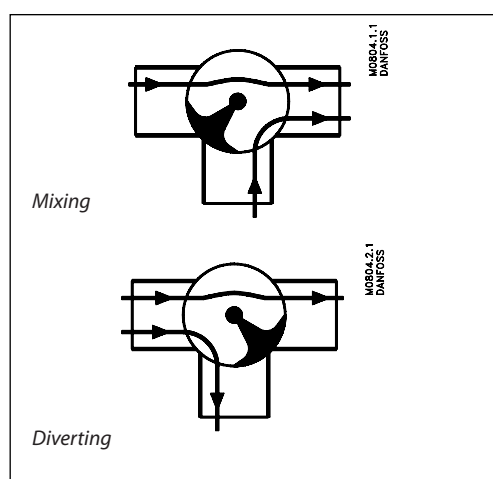
Pressure temperature diagram



Valve characteristics



Installation



Valve mounting

Before valve mounting pipes have to be cleaned and free from abrasion. Mechanical loads on valve body caused by the pipes are not allowed. It is recommended to install a strainer into application to avoid damaging controlling components.

Connection

HRE 3 can be used as a mixing valve, diverting valve and in connection with heat exchangers where a certain leakage can be accepted.

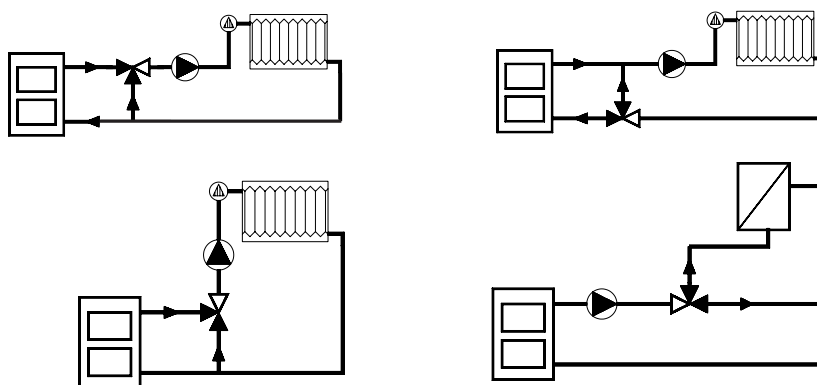
HRE 4 operates according to the double shunt principle i.e. the water from the boiler is mixed with a certain portion of the water in the return. In this way the water which goes to the boiler reaches a higher return temperature than by using 3-way valves. This means that the risk of corrosion in oil and solid fuel boilers is reduced.

Disposal

The valve must be dismantled and the elements sorted into various material groups before disposal.

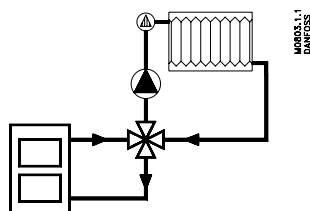
Application principles

HRE 3



The reverse function is obtained by turning the actuator's direction of rotation and the valve's sign.

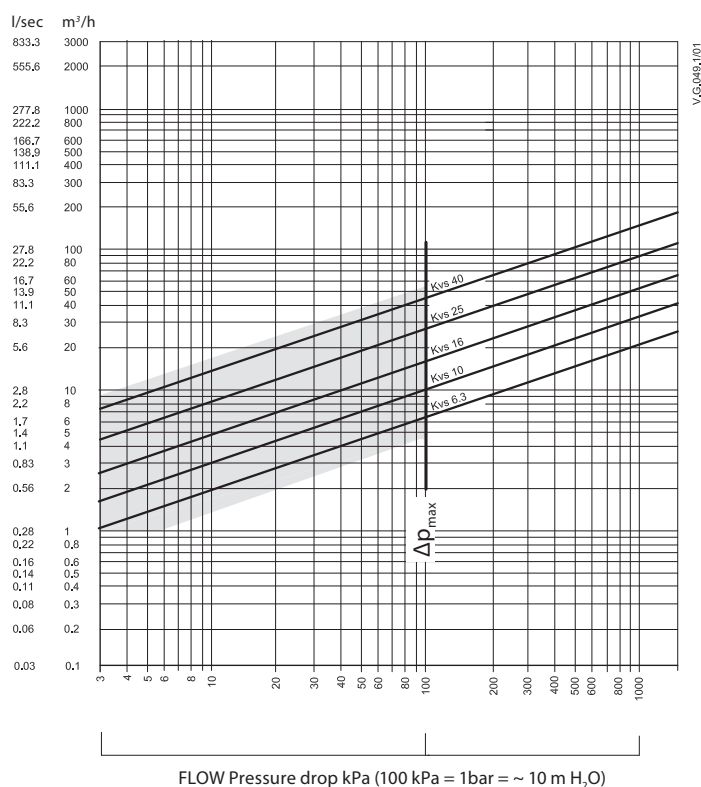
HRE 4



The reverse function is obtained by turning the actuator's direction of rotation and the valve's sign.

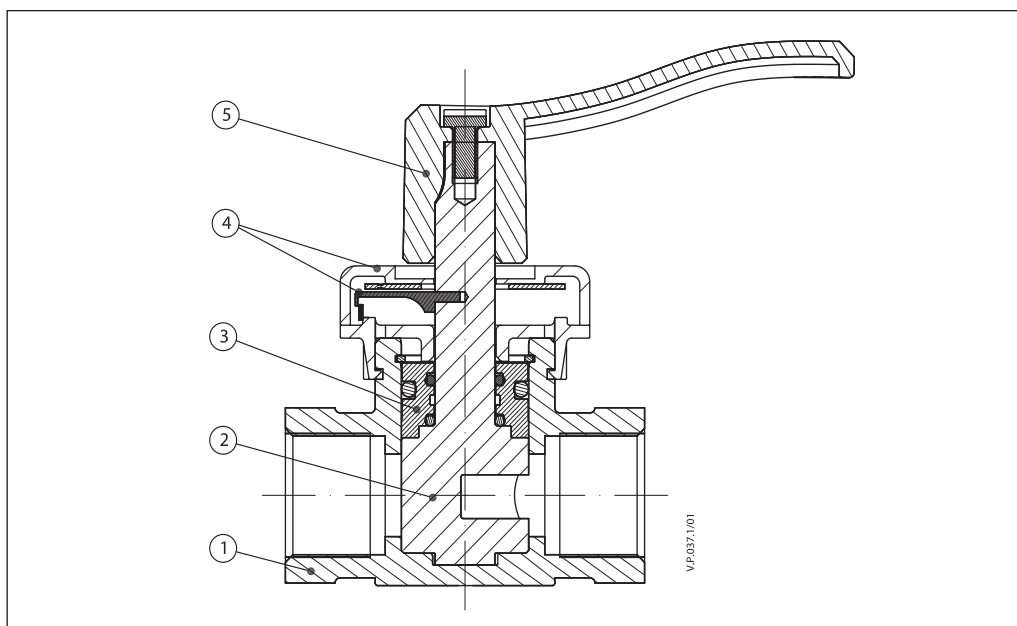
Sizing

Flow Rate
(liquid with specific gravity of 1)

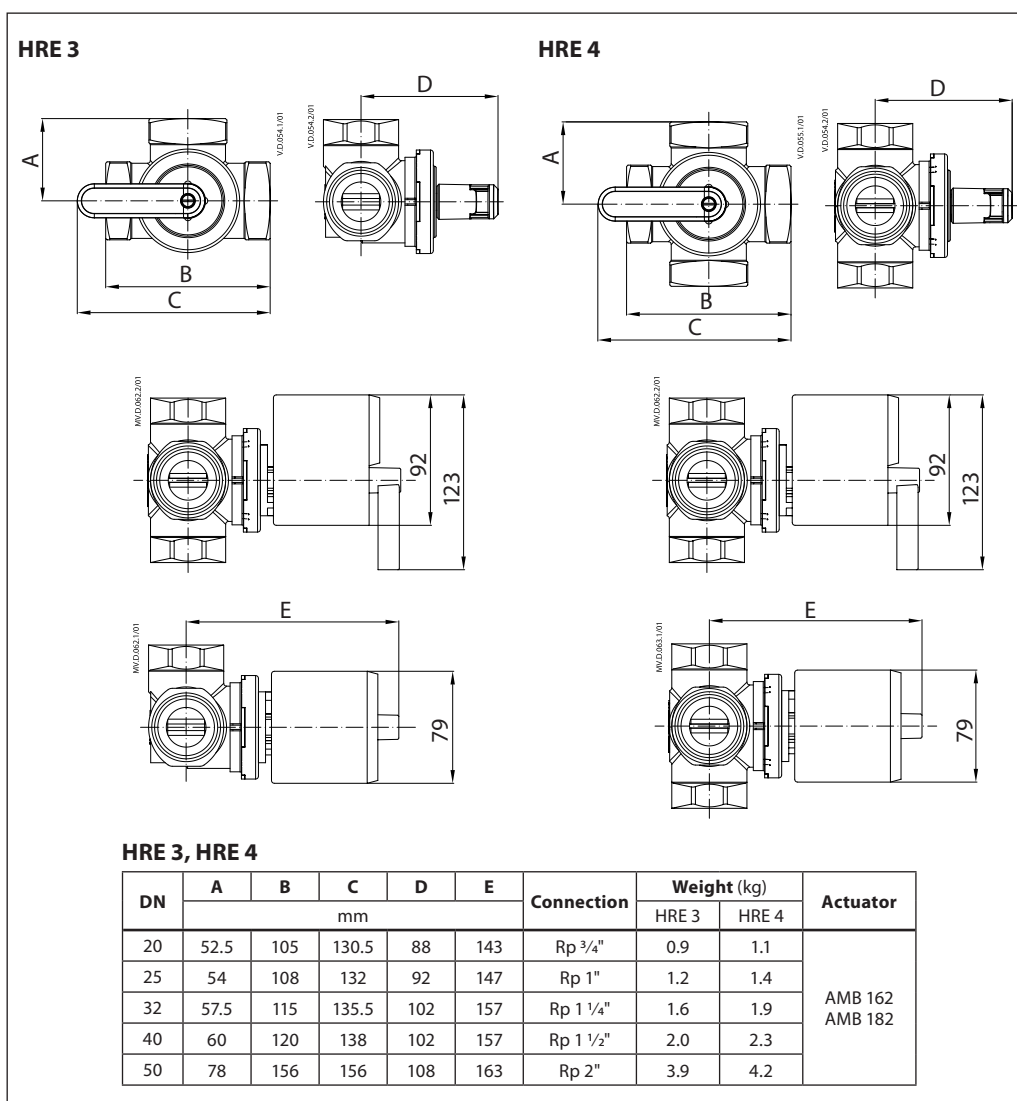


Design

1. Valve body
2. Slide shoe
3. Stuffing box
4. Transparent cover and indicator
5. Handle



Dimensions



Data sheet

Rotary valves HFE 3

Description



Danfoss HFE rotary valves are primarily designed for regulation of flow temperature in heating systems where a certain leakage can be accepted and where a defined control characteristic is not required.

HFE rotary valves can be used in combination with electric actuators AMB 162 and AMB 182.

Features:

- Cast iron body with flange connection
- Lowest leakage in class
- Valve position indicator
- Ergonomic handle
- For mixing and diverting applications
- Flange PN 6 connection

Main data:

- DN 20–150
- k_{vs} 12–400 m³/h
- PN 6
- t_{max} = 110 °C
- 3-way
- S characteristic

Ordering

| Type | DN (mm) | k_{vs} (m ³ /h) | PN | Code No. |
|-------|------------|---------------------------------|----|-----------------|
| HFE 3 | 20 | 12 | 6 | 065Z0428 |
| | 25 | 18 | | 065Z0429 |
| | 32 | 28 | | 065Z0430 |
| | 40 | 44 | | 065Z0431 |
| | 50 | 60 | | 065Z0432 |
| | 65 | 90 | | 065Z0433 |
| | 80 | 150 | | 065Z0434 |
| | 100 | 225 | | 065Z0435 |
| | 125 | 280 | | 065Z0436 |
| | 150 | 400 | | 065Z0437 |

Spare parts and accessories

| Type | DN | Code No. |
|-------------------------------------|---------|------------------|
| Linkage kit | | 065Z0440* |
| Retrofit linkages for rotary valves | | 065Z0441 |
| Replacement handle | | 065Z0443 |
| Stuffing box and sealing | 20-25 | 065Z0454 |
| | 32-40 | 065Z0455 |
| | 50-65 | 065Z0456 |
| | 80 | 065Z0457 |
| | 100-125 | 065Z0458 |
| | 150 | 065Z0459 |

*Supplied with actuator AMB 162/182

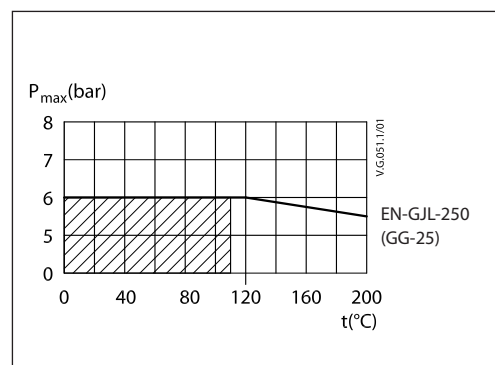
Data sheet

Rotary valves HFE 3

Technical data

| Nominal diameter | DN | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 |
|------------------------|------|---|----|----|----|----|----|-----|-----|-----|-----|
| k _{vs} | m³/h | 12 | 18 | 28 | 44 | 60 | 90 | 150 | 225 | 280 | 400 |
| Control characteristic | | S characteristic | | | | | | | | | |
| Leakage | | Diverting: max. 0.5% of k _{vs} / Mixing: max. 1.0 % of k _{vs} | | | | | | | | | |
| Nominal pressure | PN | 6 | | | | | | | | | |
| Max. closing pressure | bar | 0.5 | | | | | | | | | |
| Torque at PN | Nm | 5 | | | | | 10 | | | 15 | |
| Medium | | Circulation water / glycolic mixture up to 50% | | | | | | | | | |
| Medium pH | | Min. 7, max. 10 | | | | | | | | | |
| Medium temperature | °C | 2 ... 110 | | | | | | | | | |
| Connections | | Flanges PN 6 | | | | | | | | | |
| Materials | | | | | | | | | | | |
| Valve body and cover | | Grey cast iron EN-GJL-250 (GG25) | | | | | | | | | |
| Slide shoe | | CuZn36Pb2As (BrassDZR, CW 602N) | | | | | | | | | |
| Stuffing box sealing | | EPDM | | | | | | | | | |

Pressure temperature diagram



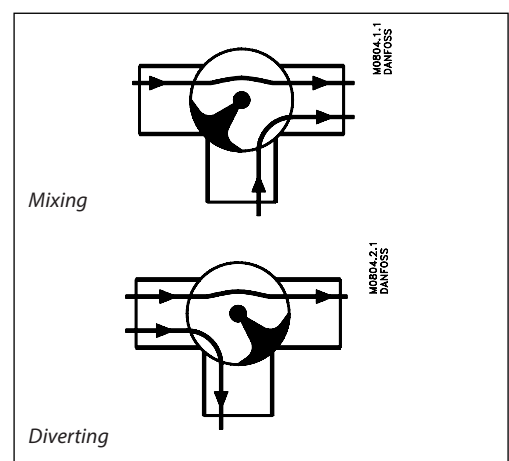
Installation

Valve mounting

Before valve mounting pipes have to be cleaned and free from abrasion. Mechanical loads on valve body caused by the pipes are not allowed. It is recommended to install a strainer into application to avoid damaging controlling components.

Connection

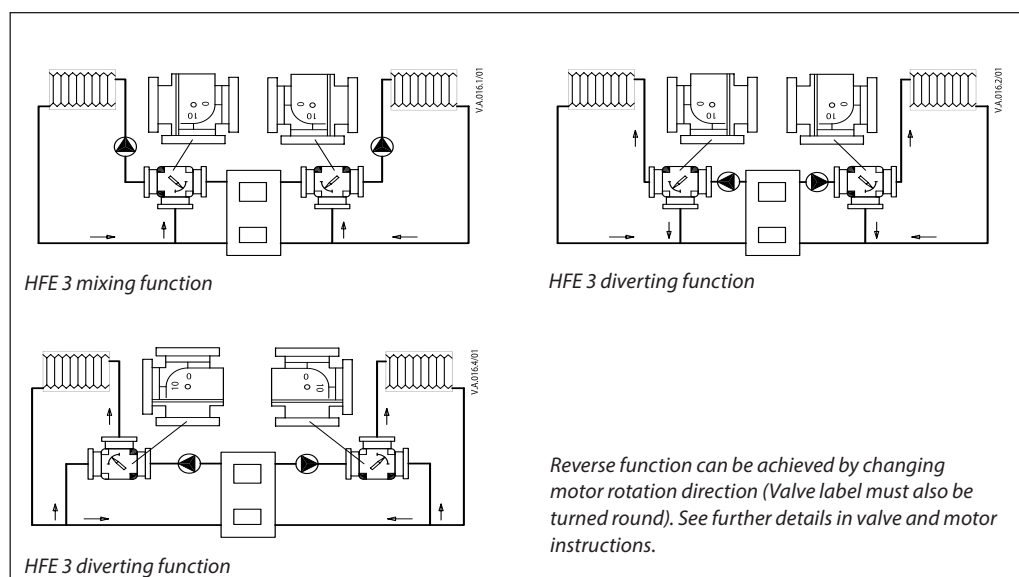
HFE 3 can be used as a mixing valve, diverting valve and in connection with heat exchangers where a certain leakage can be accepted.



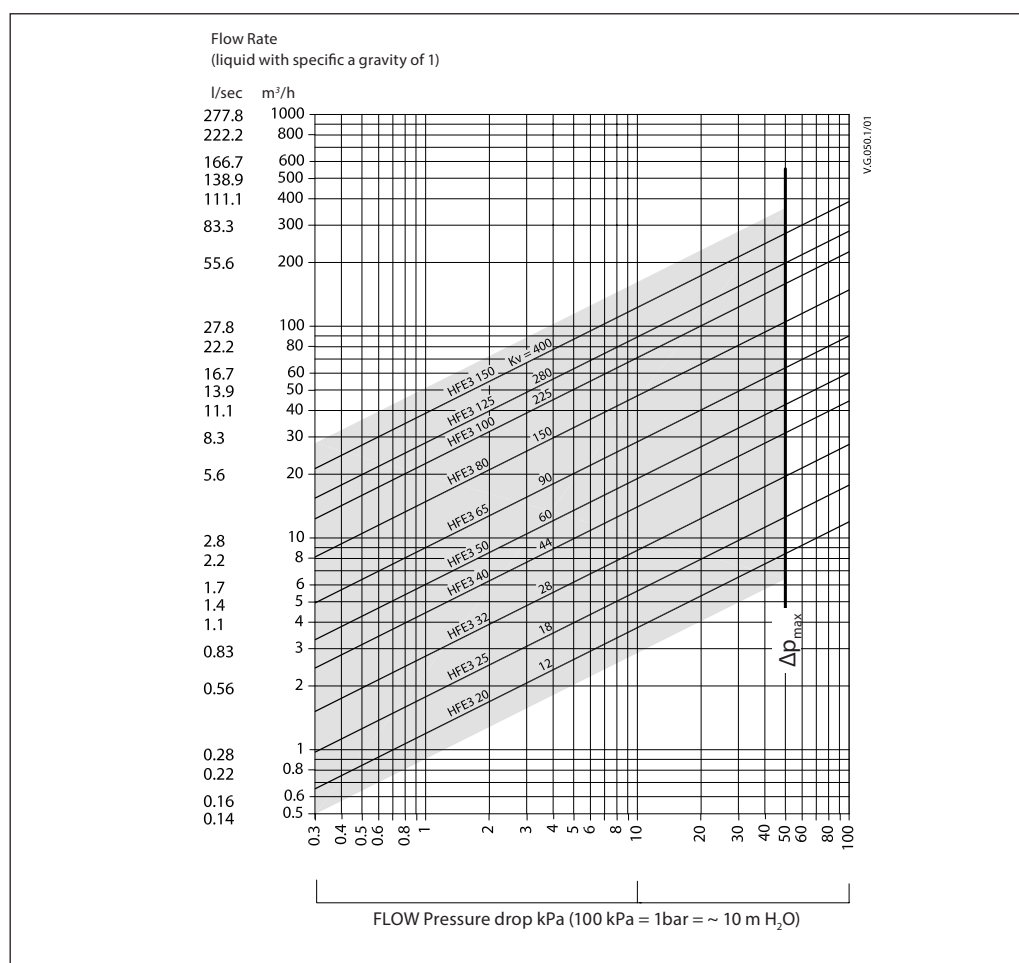
Disposal

The valve must be dismantled and the elements sorted into various material groups before disposal.

Application principles

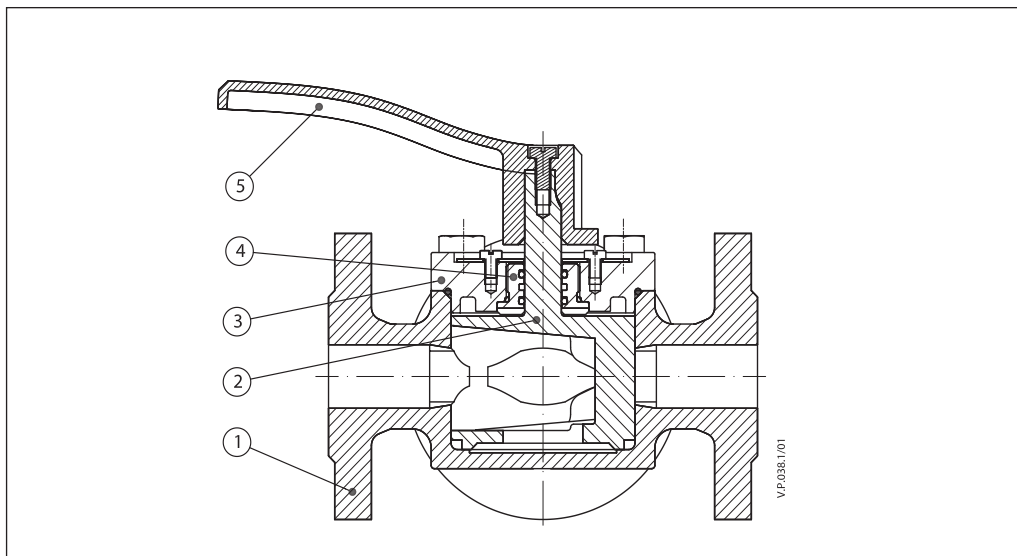


Sizing



Design

1. Valve body
2. Slide shoe
3. Valve cover
4. Stuffing box
5. Handle



Dimensions

