Data sheet

Rotary valves HRB 3, HRB 4

Description

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.

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 in 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

Ordering

Type	DN (mm)	k_{vs} (m³/h)	PN	Connection	Code No. HRB 3	Code No. 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	065Z0411
		4,0			065Z0398	-
	20	2,5		Rp ¾"	065Z0397	-
		4,0			065Z0404	065Z0412
		6,3			065Z0405	065Z0413
	25	6,3		Rp 1"	065Z0406	-
		10			065Z0407	065Z0414
	32	16		Rp 1 ¼"	065Z0408	065Z0415
	40	25		Rp 1 ½"	065Z0409	065Z0416
	50	40		Rp 2"	065Z0410	065Z0417

Ordering *(continued)*

Spare parts for old generation AMB actuators

Picture	Type	Code No.
	Retrofit linkages for: HRB 3 (Gen. 2009) **065B2220 ---> 065B2230** HRB 4 (Gen. 2009) **065B2240 ---> 065B2246**	**082G4235**

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**
Linkage kit for AMB (Gen. 2014)			**082H0255**

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

HRB 3

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

HRB 4

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

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	

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