

# 3-way Control Valves type H3F

## Cast steel, PN 40, DN 20 – 65 mm, Flanged ends

2.4.07-L

GB-1

### Characteristics

- Nominal pressure PN 40
- Regulating capability  $\frac{k_{vs}}{k_{vr}} > 25$
- Same  $k_{vs}$ -value as mixing and diverting valve
- Quadratic/linear characteristic

### Applications

Control valves type H3F are designed for control of hot oil, water and other liquids and can be installed in pipe systems as mixing or diverting valves.

The valves are used in conjunction with our temperature regulators for controlling industrial processes, district or central heating plants or marine installations.

### Dimensioning

For sizing of control valves and selection of actuators, please see "Quick Choice" leaflet no. 9.0.00.

### Design

The valve components - spindle, seats and cone - are made of stainless steel.

The valve body is made of cast steel GP240GH (GS-C25) with flanges drilled according to EN 1092-1.

The thread for the actuator connection is G1B ISO 228.

The valves have two balanced single seats and are designed for tight closure. The leakage rate is less than 0.5% of the full flow (according to VDI/VDE 2174).

### Quality assurance

All valves are manufactured under an ISO 9001 certification and are pressure and leakage tested before shipment.

For marine applications the valves can be supplied with relevant test certificates from recognized classification societies.

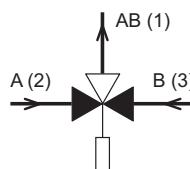
### Flange placing

Note that all flanges and the connecting boss for actuators are in the same plane for compact pipe mounting and that the mutual placing of the ports has been changed compared with our other 3-port valves.

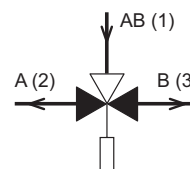
### Port numbering

Valves type H3F are marked with the internationally recognized port designations: A, B, AB.

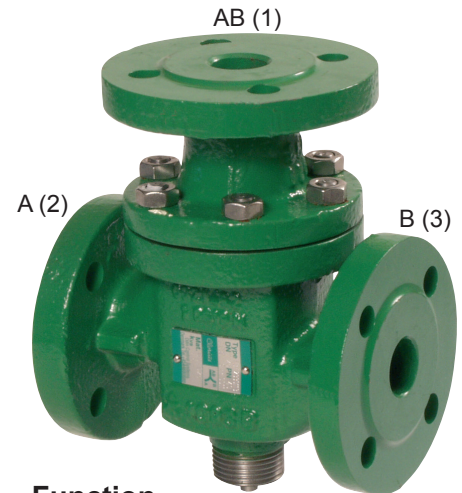
Mixing valve



Diverting valve



Port AB common port always open  
 Port A closes by activating the spindle  
 Port B opens by activating the spindle



### Function

Without an actuator being installed, connection A-AB is fully open and connection B-AB completely closed, by means of a spring.

By increasing pressure on the spindle, the opening of the ports changes proportionally to the travel of the spindle, and when the spindle is pressed to the bottom, connection B-AB is fully open and connection A-AB completely closed.

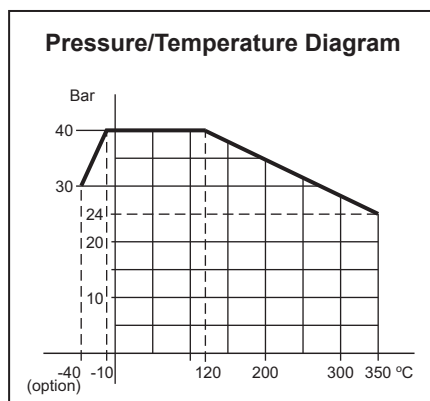
The valve characteristics are as follows:

- Port A-AB and AB-A: quadratic
  - Port B-AB and AB-B: almost linear
- These characteristics ensure constant total flow under almost all pressure conditions and optimum circulation in the individual circuits.

### Technical data

Materials:	
- Valve body	Cast steel GP240GH (GS-C25) (W. No. 1.0619)
- Trim	Stainless steel (W. No. 1.4305)
- Bolts, nuts	Steel (24 CrMo 4/A4)
Nominal pressure	PN 40
Seating	2 balanced single seats
Valve characteristic	Quadratic / linear
Regulating capability	$\frac{k_{vs}}{k_{vr}} > 25$
Seat leakage	$\leq 0.5\%$ of $k_{vs}$
Temperature range	See pressure/temperature diagram
Mounting	See page 2
Flanges - drilled according to	EN 1092-1 PN 40
Counter flanges	DIN 2635
Colour	Green

Subject to changes without notice.



Specification					
Type	Flange Connection DN in mm	Opening mm	$k_{vs}$ -value * m <sup>3</sup> /h	Lifting height mm	Weight kg
20 H3F	20	20	6.3	7.5	6
25 H3F	25	25	10	9	7
32 H3F	32	32	16	10	10
40 H3F	40	40	25	11	14
50 H3F	50	50	38	11.5	18
65 H3F	65	65	63	14.5	26

\* Same  $k_{vs}$ -values for mixing and diverting valves



Clorius Controls A/S  
 Kajakvej 4 · DK-2770 Kastrup · Denmark  
 Tel.: +45 77 32 31 30 · Fax: +45 77 32 31 31  
 E-mail: mail@cloriuscontrols.com  
 Web: www.cloriuscontrols.com

# 3-way Control Valves type H3F

## Cast steel, PN 40, DN 20 – 65 mm, Flanged ends

2.4.07-L

GB-2

### Definition of $k_{VS}$ -value

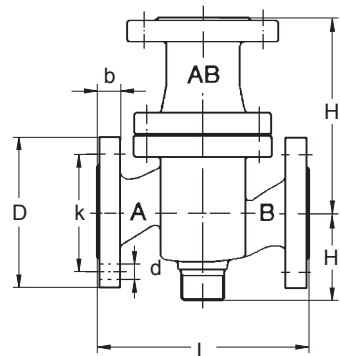
The  $k_{VS}$ -value is identical to the IEC flow coefficient  $k_V$  and defined as the water flow rate in m<sup>3</sup>/h through the fully open valve by a constant differential pressure,  $\Delta p_V$ , of 1 bar.

### Mounting

Up to 170°C the valve can be installed vertically as well as horizontally. For media temperature above 170°C, a cooling unit of type KS has to be applied. It must then be installed with actuator/thermostats downwards, and according to the following instructions:

Valve temperature	Cooling unit	Suitable for
170°C - 250°C	KS-4	All actuators
250°C - 350°C	KS-5	Thermostats
250°C - 350°C	KS-6	El. actuators

### Dimension sketch



### Dimensions

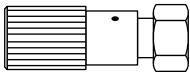
Type	L mm	H mm	H1 mm	D (dia.) mm	b mm	k (dia.) mm	d mm dia. (number)
20 H3F	150	115	63	105	16	75	14x(4)
25 H3F	160	130	70	115	18	85	14x(4)
32 H3F	180	150	75	140	18	100	18x(4)
40 H3F	200	160	85	150	18	110	18x(4)
50 H3F	230	190	95	165	20	125	18x(4)
65 H3F	290	220	110	185	20	145	18x(8)

### Strainer

It is recommended to use a strainer in front of the control valve if the liquid contains suspended particles.

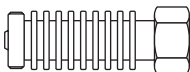
### Accessories

#### Manual adjusting device



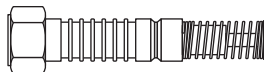
The device has a built-in stuffing box. For sealing and manual operation of valves when an actuator has not been fitted, e.g. during periods of construction.

#### Cooling unit KS-4



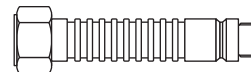
Cooling unit protecting the stuffing box of the electric actuator/thermostat. To be applied at valve temperatures between 170°C and 250°C.

#### Cooling unit KS-5



Cooling units with built-in bellows glands, replacing stuffing box of thermostat (KS-5) or electric valve actuator (KS-6). Must be applied at valve temperatures above 250°C.

#### Cooling unit KS-6



Subject to changes without notice.