

## Frese EVA - on/off control & automatic balancing valve

### Application

Frese EVA is a valve particularly designed for the balancing of cooling and heating units.

With its simple on/off control the valve can be used for many different applications, and at the same time advantage is derived from the dynamic control principles.

By means of Frese EVA the optimum flow rate is ensured in each control area. This flow rate is maintained in spite of pressure fluctuations in the system. A control area may be two fan coils for a hotel room or a calorifier for a sports centre.

Energy savings due to automatic flow control, lower flow and pump pressure. Maximized  $\Delta T$  due to faster response and increased system stability.

### Benefits

- Time consuming adjustment of the system is eliminated
- The valve automatically ensures the hydraulic balance, regardless of changing pressure conditions in the system

#### Design

- No need to use balancing valves in the distribution lines, main distribution lines and supply lines
- Less time to define the necessary equipment for a hydraulic balanced system
- No impact if the calculated distribution of pressure in the installation is not accurate
- Security that the specified flow is also the real one
- No requirements on pipe lengths before and after the valve

#### Installation

- Minimized commissioning time due to automatic balancing of the system
- No need for oversized pumps and oversized control valves

#### Operation

- Energy savings due to elimination of overflows
- Higher comfort due to correct distribution of water in the system and to optimized function of the control valves



*Frese EVA with P/T plugs and Frese EVA Basic with actuators*

### Features

- Two valves in one. Replaces both the normal static valve (DRV) and two way valve
- No requirement on pipe lengths before and after the valve
- Small compact product
- Built-in on/off function for electrically operated actuator (normally closed)
- The valve can easily be fitted into the system
- Integral optional P/T plugs on Frese EVA for needle system

# Frese EVA - on/off control & automatic balancing valve

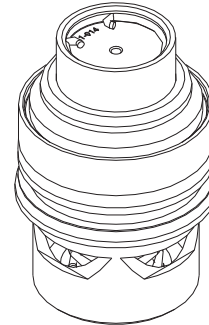
## Function

The balancing occurs by means of a flow rate cartridge that keeps the differential pressure constant across an orifice.

In the wanted control range the pump supplies sufficient differential pressure to affect the spring and diaphragm of the cartridge.

Frese EVA ensures the optimum flow in each control zone to maintain the rated heat/cool transfer. This flow is maintained regardless of pressure fluctuations in the system.

See cartridge catalogue for further details.

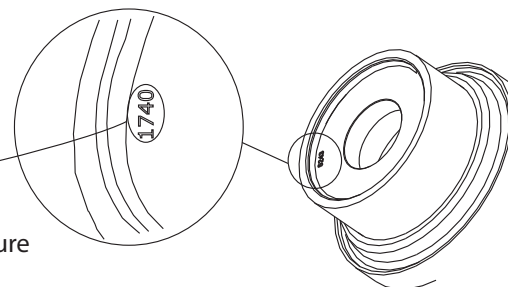


Cartridge

## Indication of flow rate on the orifice plate

A four-digit number on the orifice plate is identical with the last four digits in the Frese number. The cartridge can be identified by means of this number and the corresponding flow rate can be read from the above flow rate tables.

High Pressure Frese no.	Flow [gpm]	Flow [l/s]	Min. ΔP [kPa]
49-11740	3.52	0.222	16
49-11745	3.83	0.242	19
49-11750	4.12	0.260	21



49= HP High Pressure  
50= Low Pressure

## Text for technical specifications

### Housing:

The Valve housing shall be made of Hot stamped Brass in DR quality. The valve shall regulate flow by means of a replaceable cartridge.

Pressure rating of the valve housing shall be PN16 or PN25. The Kv Value of the valve housing inclusive the on/off control unit shall be no less than 3,0.

### Control unit:

The Valve shall be NC (normally closed)  
The valve shall be able to close completely against a DP of 4 Bar

### Flow Regulator:

The flow regulating Cartridge shall be made of brass in DR quality.

The Cartridge shall offer the opportunity to change the flow by replacing an orifice plate without changing the entire cartridge.

The Cartridge shall operate in one pressure range only throughout the entire hydraulic system.

## Frese EVA - on/off control & automatic balancing valve

### Product programme Frese EVA

#### 1. Frese EVA

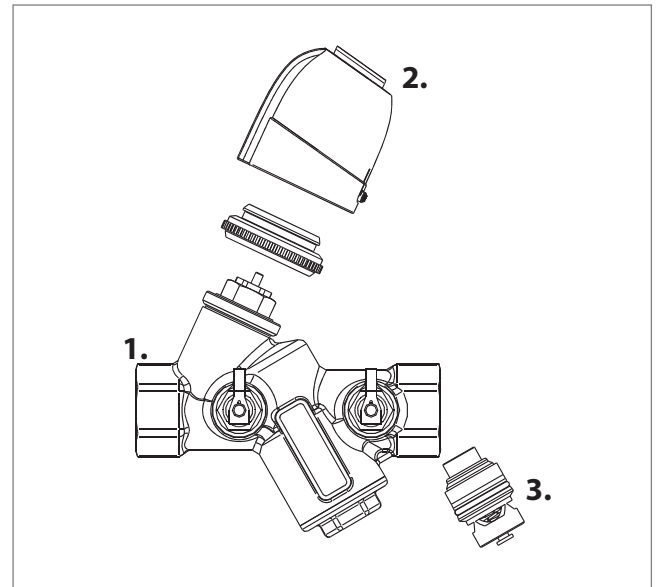
With plugs	With P/T plugs		
48-5803	48-5800	DN15	Kv 3,0
48-5804	48-5801	DN20	Kv 3,0
48-5805	48-5802	DN25	Kv 3,0

#### 2. Actuator on/off, normally closed

	48-5515	24 volt	
	48-5525	24 volt	
	48-5526	230 volt	

#### 3. Cartridge

Frese no. 49 or 50-xxxx	Flow l/h	Flow l/s	Flow gpm	Min. DP kPa	DP Housing kPa	Min DP. total kPa
11150	25	0,007	0,11	7	0	7
11170	36	0,010	0,16	7	0	7
11190	43	0,012	0,19	7	0	7
11210	55	0,015	0,24	7	0	7
11230	75	0,021	0,33	8	0	8
11260	84	0,023	0,37	9	0	9
11290	104	0,029	0,46	10	0	10
11300	114	0,032	0,50	10	0	10
11320	129	0,036	0,57	11	0	11
11350	154	0,043	0,68	11	0	11
11370	175	0,049	0,77	12	0	12
11400	204	0,057	0,90	12	0	12
11430	241	0,067	1,06	12	1	13
11460	279	0,078	1,23	12	1	13
11490	320	0,089	1,41	13	1	14
11510	350	0,097	1,54	13	1	14
11540	400	0,111	1,76	13	2	15
11570	477	0,133	2,10	14	3	17
11620	545	0,151	2,40	14	3	17
11725	615	0,171	2,71	14	4	18
11730	670	0,186	2,95	14	5	19
11735	736	0,204	3,24	14	6	20
11740	799	0,222	3,52	16	7	23
11745	870	0,242	3,83	19	8	27
11750	936	0,260	4,12	21	10	31
20700	1020	0,283	4,49	22	12	34
20740	1081	0,300	4,76	22	13	35
20770	1195	0,332	5,26	22	16	38
20820	1335	0,371	5,88	23	20	43
20860	1483	0,412	6,53	23	24	47
20880	1581	0,439	6,96	23	28	51
20920	1774	0,493	7,81	24	35	59
20940	1833	0,509	8,07	24	37	61
20990	2080	0,578	9,16	25	48	73
21030	2251	0,625	9,91	26	56	82
21060	2319	0,644	10,21	27	60	87
21090	2448	0,670	10,78	28	67	95



### Accessories

#### Extension piece for actuator

h = 20 mm	48-5557
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#### Strainer

DN15	41-1132
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DN20	41-1142
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DN25	41-1152
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#### Ball Valve

DN15	38-5020
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DN20	38-5022
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DN25	38-5024
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#### Strainer Ball Valve

DN15	38-5040
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DN20	38-5041
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DN25	38-5042
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#### Spindle Extension

DN15/20	46-1072
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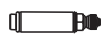
DN25	46-1073
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#### P/T-plugs

1/4" x 60mm	48-0012
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Combidrain 1/4" x 60mm	46-1073
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# Frese EVA Basic

## - on/off control & automatic balancing valve

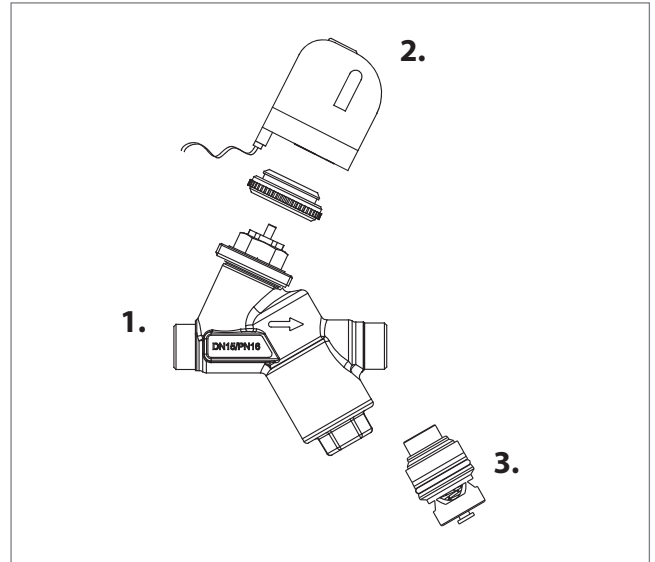
### Product programme Frese EVA Basic

#### 1. Frese EVA Basic









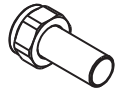
	48-5806	DN15	Kv 3,0
<b>2. Actuator on/off, normally closed</b>			
	48-5515	24 volt	
	48-5525	24 volt	
	48-5526	230 volt	

#### 3. Cartridge

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<b>Strainer</b>		
DN15	41-1132	
<b>Ball Valve</b>		
DN15	38-5020	
<b>Strainer Ball Valve</b>		
DN15	38-5040	
<b>Spindle Extension</b>		
DN15/20	46-1072	
<b>Compression coupling</b>		
39-1432	DN15 x Ø8 mm	
39-1433	DN15 x Ø10 mm	
39-1434	DN15 x Ø12 mm	
39-1435	DN15 x Ø15 mm	
<b>PEX coupling</b>		
31-2021	DN15 for Ø12 x 2 mm	
31-2031	DN15 for Ø15 x 2,5 mm	
31-2041	DN15 for Ø16 x 2 mm	
<b>Alu-PEX coupling</b>		
31-2441	DN15 for Ø16 x 2 mm	
<b>Press coupling</b>		
31-2831	DN15 for Ø15 mm	

## Frese EVA - on/off control & automatic balancing valve

### Technical data Frese EVA

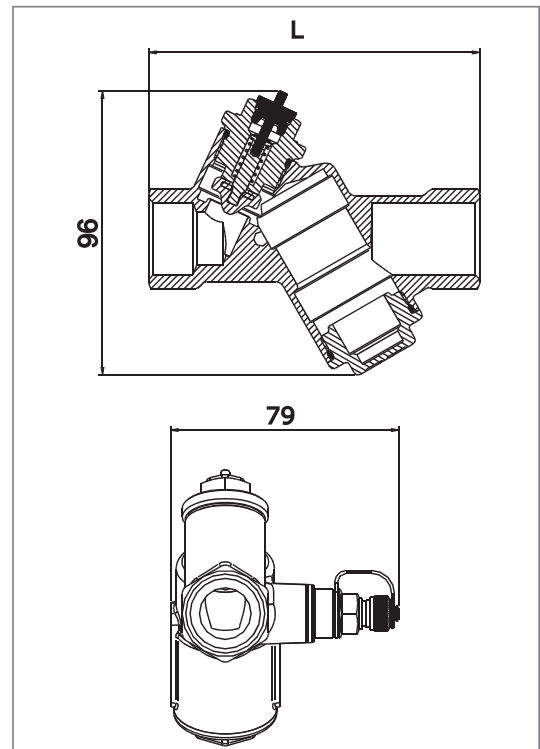
<b>Valve Housing:</b>	DZR Brass, CW602N
<b>O-rings:</b>	EPDM
<b>Pressure class:</b>	PN25
<b>Temperature:</b>	0 to + 95°C
<b>Ambient temperature:</b>	0 to + 50°C
<b>Flow range:</b>	See page 3
<b>Max. differential pressure:</b>	400 kPa
<b>Weight:</b>	0,7 kg
<b>Dimension packaging in mm:</b>	135 x 115 x 85

Glycolic mixtures (both ethylene and propylene) up to 50% are applicable with Frese Alpha. Strainer is recommended. The pipe system should be properly ventilated to avoid the risk of air-pockets. See application example. Valve height incl.actuator = 135 mm  
Length of stroke = 2,5 mm

Frese A/S assumes no responsibility if another actuator than the Frese actuator is used.

#### Dimensions

	DN15	DN20	DN25
L	102	110	119

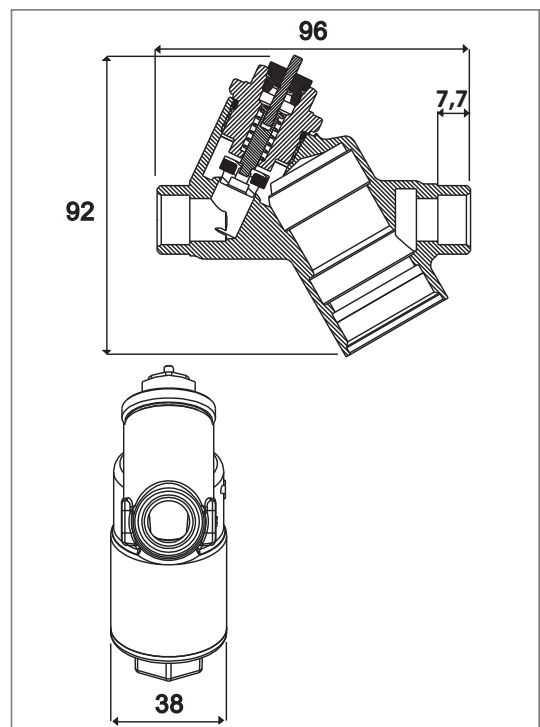


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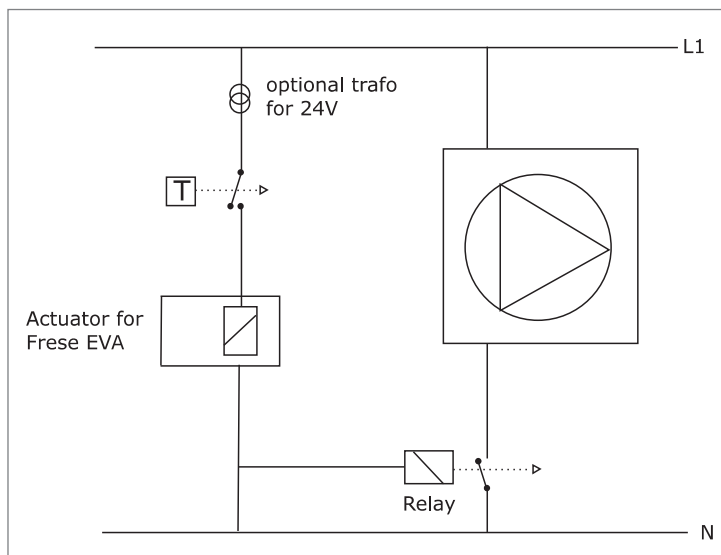


## Frese EVA - on/off control & automatic balancing valve

### Electric Diagram

**Example:** You may let the valve signal run the fan engine of the unit, so that the fan engine is not running when the valve is closed.

The valve is "normally closed". The power consumption of the actuator is 2 Watt.



### Application Example

The system is easily adjusted by adjusting the pump in accordance with the required differential pressure across the critical valve.

When this differential pressure is achieved, the system will automatically be balanced.

Min. Differential pressure = the lower limit of the operating range of the Alpha flow cartridge plus the pressure drop of the EVA valve at design flow.

See required min. Pressure of the cartridge on page 3.

