ESBE SYSTEM UNITS

FRESH HYDRO UNIT
SERIES FSK100

FSK101

FUNCTION AND GENERAL INFORMATION

The Fresh Hydro Unit works according to the flowrate principle and guarantees potable hot water (PHW) on demand, with stable and accurate temperature as well lowest stand by losses. The Fresh Hydro Unit is equipped with an unique hydro block, which contains pump and motorized, quick 3-way mixing valve. A PWM signal pump, by changing the speed, ensures the correct volume of heating water to always provide the user with stable PHW temperature. The integrated high speed mixing valve regulates the temperature of heating water on the inlet of the plate heat exchanger. The lowest inlet temperature is maintained as long as possible. The regulation of the inlet temperature ensures effective use of energy and protects the plate heat exchanger against thermal calcification. The speed of the actuator, less than 3s from open to close position, provides stable potable hot water temperature in all conditions.

The high performance of the Fresh Hydro Unit has been reached thanks to the countercurrent flows, wave profiled plates and two pass plate heat exchangers. This construction allows mixing the plate heat exchanger inlet water with water from middle of the plate heat exchanger as well to connect the circulation pump in the middle section of the plate heat exchanger. The brain of the Fresh Hydro Unit is Fresh Hydro Control. This controller collects information and is responsible for the outstanding performance of the Fresh Hydro Unit. The Fresh Hydro Control can be set in service mode, where all electronic parts are inspected, with feedback status. In case of Legionella flushing, a thermal disinfection is provided. With push of a button the complete potable water installation will be flushed with 70°C temperature water. The Legionella flushing continues for 30 minutes.

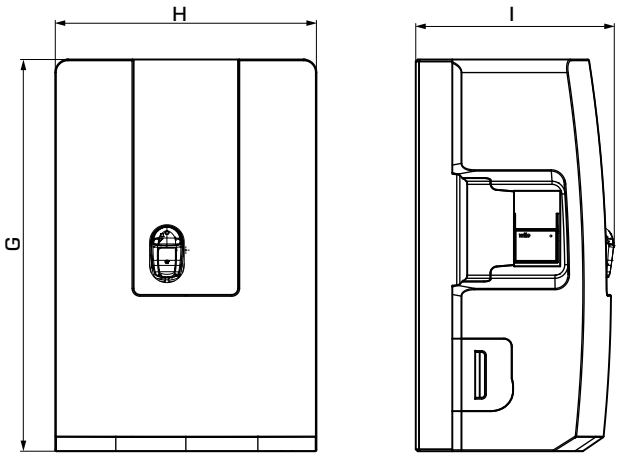
The controller allows PHW temperature setting in a range of 40-65°C. The temperature setting can be done by a knob. All working status and errors are communicated by a LED.

A circulation pump (accessory) can be connected to the Fresh Hydro Unit. The circulation pump has integrated check valve and is equipped with clock function. The temperature of the circulation water (PWH-C) can be set in the range of 20-70°C.

KEY BENEFITS

- All time fresh, vital and hygienic drinking water in the demanded volume
- High tap rates due to high dimensioned plate heat exchangers
- Fast reaction times without over and under shooting
- Lowest calcification risk due to reduction of the temperature on the heat plate exchanger inlet side
- Legionella flushing function

PRODUCT ASSORTMENT



SERIES FSK101

Art. No.	Reference	Pump	Connections (see Technical data)						Dimensions			Weight [kg]	Note
			A	B	C	D	E	F	G	H	I		
64000100	FSK101	Wilo 25/7,0	G 1"	G 1"	G 1"	G 1"	G ½"	G ½"	600	400	304	20,0	

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TECHNICAL DATA

The Fresh hydro unit, in general:

Tap performance: 40 l/min _____ - at 70°C primary
_____- at 45°C outlet secondary
Plate heat exchanger (plates): _____ 41
Insulation: _____ EPP
Weight: _____ 20 kg
Connections,
- cold water (A): _____ G 1" Internal thread, ISO 228/1
- warm water (B): _____ G 1" Internal thread, ISO 228/1
- storage tank (C): _____ G 1" External thread, ISO 228/1
- storage tank (D): _____ G 1" External thread, ISO 228/1
- circulation (E): _____ G ½" Internal thread, ISO 228/1
- flush connection (F): ___ G ½" Internal thread, ISO 228/1

Media temperature: _____ max. 95°C
_____min. 2°C
Media: _____ Heating water (in accordance with VDI2035)
_____Water / Glycol mixtures, max. 50%.
(above 20% admixture, the pump data must be checked)
_____Water / Ethanol mixtures, max. 28%
Working pressure - potable water: _____ 1 MPa (10 bar)
- heating: _____ 300 kPa (3 bar)

CE LVD 2014/35/EU
EMC 2014/30/EU
RoHS3 2015/863/EU

Primary pump:

Type: _____ Wilo-PARA HU25/7-50/iPWM
Power supply: _____ 1~230 V +10%/-15%, 50/60 Hz
Speed: _____ 700 - 4700 rpm
Power consumption: _____ 1,8 - 50 W
Current, nominal: _____ 0,02 - 0,43 A
EEI (Energy Efficiency Index): _____ ≤0,20

3-way mixing valve SLB233

Type: _____ ESBE SLB233
Power supply: _____ 12 ± 15% V DC
Power consumption, standby: _____ 0,6 W
Current, peak: _____ 0,8 A

optional Circulation pump:

Type: _____ Xylem E3-00-3/000 BRU
Power supply: _____ 230 V, 50Hz
Power consumption: _____ 8 W
Current, nominal: _____ < 0,1 A

SPECIFICATION WATER VALUES

	Limits
pH-value (considering SI Index)	7-9
Saturation index (delta pH-value)	-0,2 < 0 < +0,2
Degree of hardness [°dH]	6 -15
Conductivity [µS/cm]	10...500
Filterable matter [mg/l]	< 30
Free chlorine [mg/l]	< 0,5
Hydrosulfide (H_2S) [mg/l]	< 0,05
Ammoniac (NH_3/NH_4+) [mg/l]	< 2
Sulfate [mg/l]	< 100
Hydrogencarbonate [mg/l]	< 300
Hydrogencarbonatc/Sulfate [mg/l]	> 1,0
Sulfide [mg/l]	< 1
Nitrate [mg/l]	< 100
Nitrite [mg/l]	< 0,1
Iron, solute [mg/l]	< 0,2
Manganese [mg/l]	< 0,1
Free aggressive carbonic acid [mg/l]	< 20

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FRESH HYDRO UNIT
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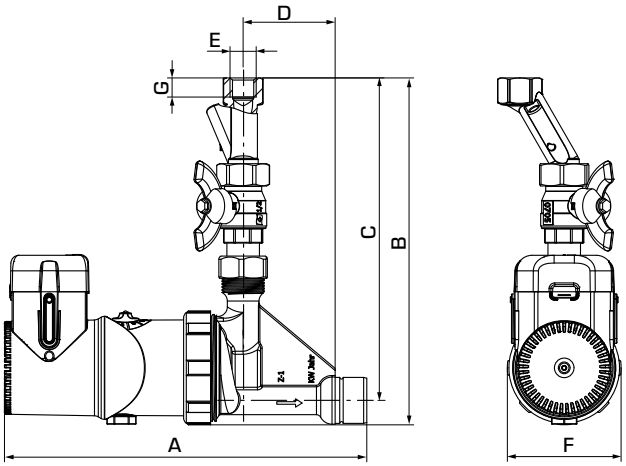
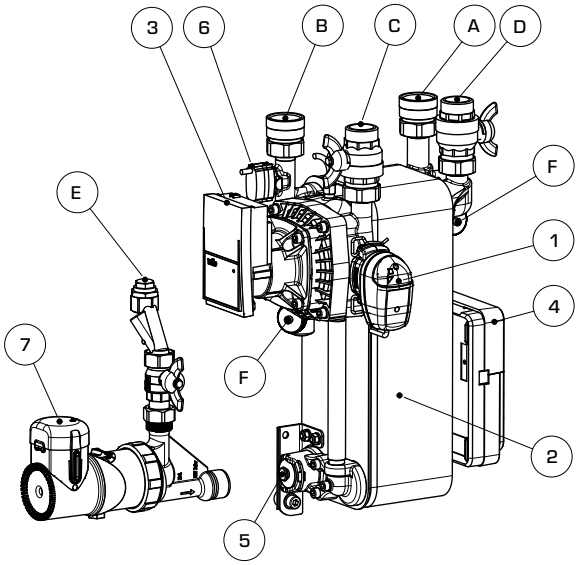
ACCESSORIES



CIRCULATION UNIT WITH PUMP AND ELECTRONIC RETURN THERMOSTAT

Art. No.	Reference	Connection E	Dimensions						Weight [kg]	Note
			A	B	C	D	F	G		
64020100	FSK803	G ½"	229	219	203	58	72	12	1,75	

STRUCTURE



1 Motorized Control valve SLB233
2 Plate heat exchanger
3 Primary pump, Wilo Yonos PARA HU 25/7.0 PWM 1W
4 Controller (Fresh Hydro Control)
5 Push-in connection for circulation unit
6 Flow sensor
7 Optional Circulation unit with pump and electronic return thermostat (for pulse or time mode)
A Cold water connection
B Warm water connection
C Storage tank connection
D Storage tank connection
E Circulation connection
F Flush connection

A	B	C	D	E	F
G 1"	G 1"	G 1"	G 1"	G ½"	G ½"

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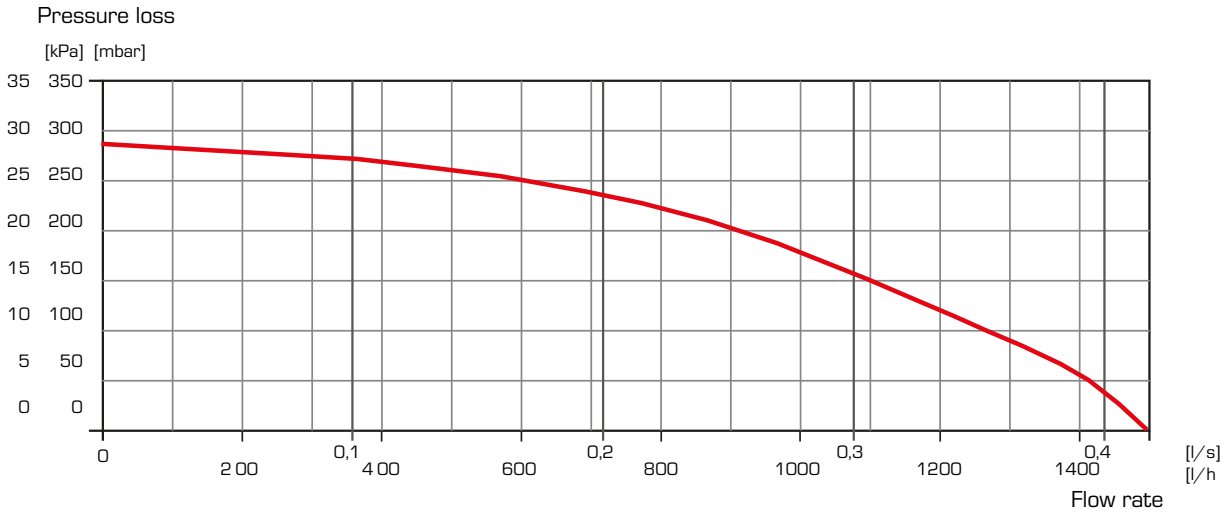
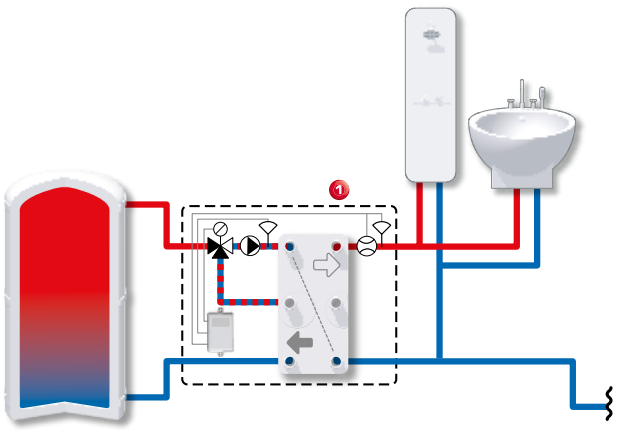
DIMENSIONING

FSK803 – Pump Capacity diagram



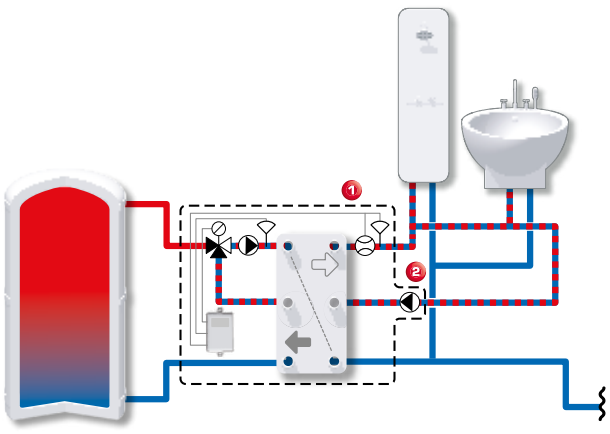
INSTALLATION EXAMPLES

1 FRESH HYDRO UNIT



1 FSK100

2 FRESH HYDRO UNIT WITH ACCESSORIES



1 FSK100

2 FSK803

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