

BIO 55 G 1 F Load Unit



Main Features	
Application	BIO 55 G 1F Insulated Load Unit is used to connect a heating system with a hydronic fireplace or solid fuel boiler and a hot water storage tank. The return water temperature to boiler is kept at 55°C min. by a load valve in order to prevent low-temperature corrosion in the boiler. The output of the heating system is controlled by regulating the boiler output – e.g. by switching on/off a pellet-fired boiler.
Description	<p>The Load Unit includes</p> <ul style="list-style-type: none"> • two Grundfos UPM3 Flex AS 25-75 circulation pumps (with the possibility of control by a PWM signal or by selecting a pump performance curve) • TSV3BM load valve with automatic bypass balancing protecting a boiler against low-temperature corrosion by keeping the min. return water temperature to boiler at 55°C. • two ball valves with drain valve for shutting off and draining the heating systém • check valve integrated in the ball valve body located at the outlet from the heating system • two ball valves and a drain valve to shut off the boiler circuit • two drain valves to drain the load unit • two ball valves permitting to shut off the HW storage tank circuit (included in supply) • lever for ball valves • four thermometers • outlets to connect a hot water storage tank and alternative outlets to connect optional accessories
Working fluid	water, antifreeze heat-transfer fluid for heating systems
Installation	vertically on a wall using the installation kit
Connections	<p>2 x G 1" F to a heating system</p> <p>2 x G 1" F to a boiler circuit</p> <p>2 x G 1" F to a hot water storage tank</p> <p>2 x G 1/2" F alternative outlets to connect optional accessories (if you do not need to use the outputs, they can be plugged with the enclosed plugs)</p>
Max. boiler output	38 kW Δt 20 K
Max. HS output	38 kW Δt 20 K
Code	17502

BIO 55 G 1 F Load Unit

Data for BIO 55 G 1 F Load Unit

Fluid working temperature	5-95°C
Max. working pressure	6 bar
Ambient temperature	5-40°C
Max. relative humidity	95%, non condensing
Power supply	230 V, 50 Hz from external controller
Max. load unit power input	120 W
Insulation material	EPP RG 60 g/l
Overall dimensions (L x W x D)	640 x 250 x 350 mm
Total weight	15.5 kg

Accessories *

Name	Description	Code
CSE OTS ZV G	Pump station with check valve	15042
Magnet Filterball 1"	MAGNET FILTERBALL 1" Ball valve with filter and magnet	17405

* not included in supply, shall be ordered separately!

Load Unit Components

Grundfos UPM3 Flex AS 25-75 Pumps

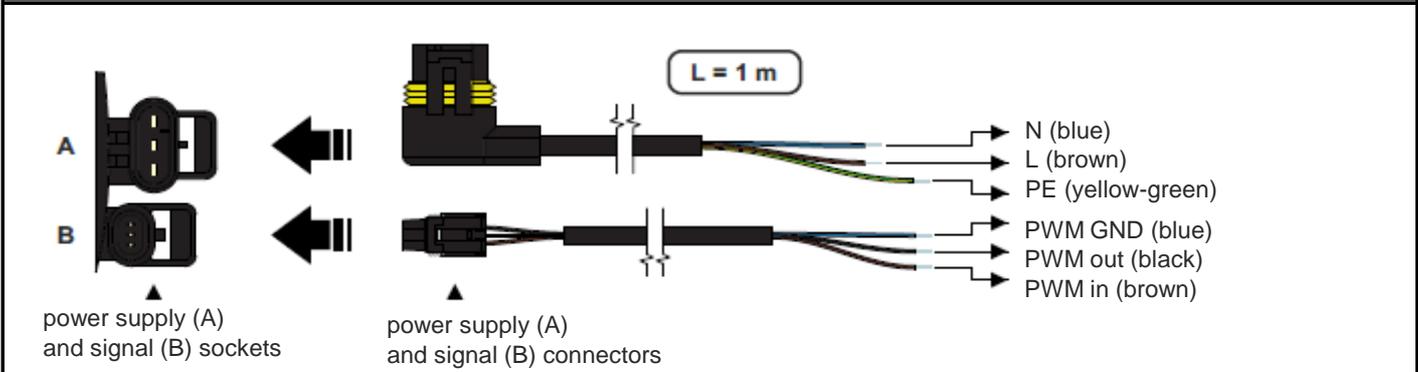
Electric Data

Power supply	230 V, 50 Hz
Power input (min./max.)	2/60 W
Current (min./max.)	0.04/0.58 A
IP rating	IP44
Max. speed	5991 rpm
Weighted average power	≤ 28 W
Energy Efficiency Index	≤ 0.2 by EN 16 297/3
Motor protection	not needed
Min. pressure at the suction port to avoid cavitation	0.5 m H ₂ O at 75 °C 5.1 m H ₂ O at 95 °C

Operating Parameters

Fluid working temperature	2 - 110 °C
Max. working pressure	10 bar
Max. ambient temperature	70 °C
Max. relative humidity	95 %, non condensing

Electrical Wiring



BIO 55 G 1 F Load Unit

Selected profile display during pump operation

control button

curve 1 (4 m)

curve 2 (5 m)

curve 3 (6 m)

curve 4 (7.5 m)



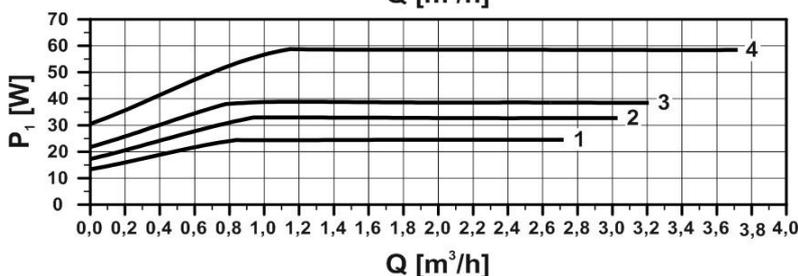
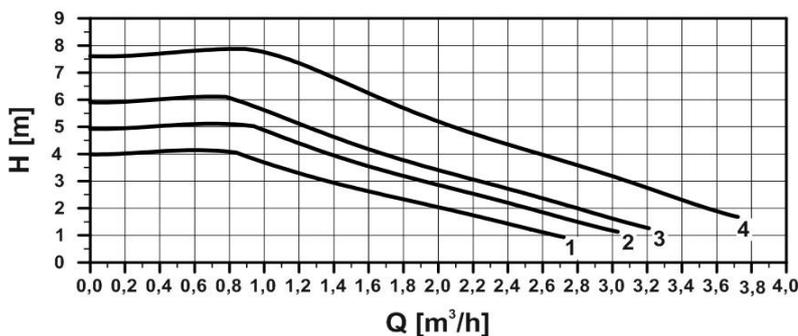
→ when the control button is pressed for less than 2 s, the currently selected curve is shown

→ with no PWM signal the pump runs at max. speed according to the selected curve

→ with PWM signal the pump speed changes with the signal value up to the maximum of the selected curve

UPM3 Flex AS 25-75 Performance Curves

Curve	Max. H (upper graph)	Max. P ₁ (lower graph)
1	4.0 m	25 W
2	5.0 m	33 W
3	6.0 m	39 W
4	7.5 m	60 W

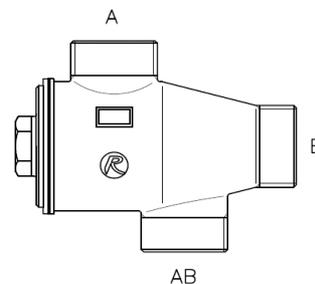
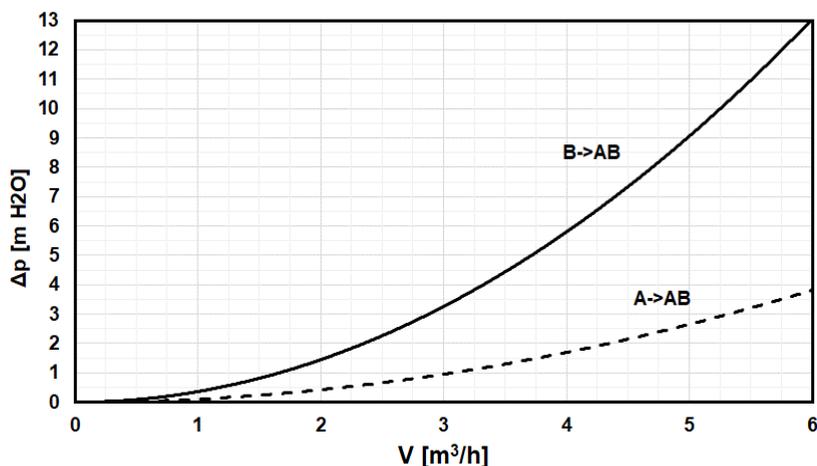


TSV3BM Load Valve

Technical Data of TSV3BM Load Valve

Opening temperature	55°C
Kvs value	Direction from A to AB: 9.8 m ³ /h
	Direction from B to AB: 5.3 m ³ /h

TSV3BM Load Valve Pressure Drop Diagram

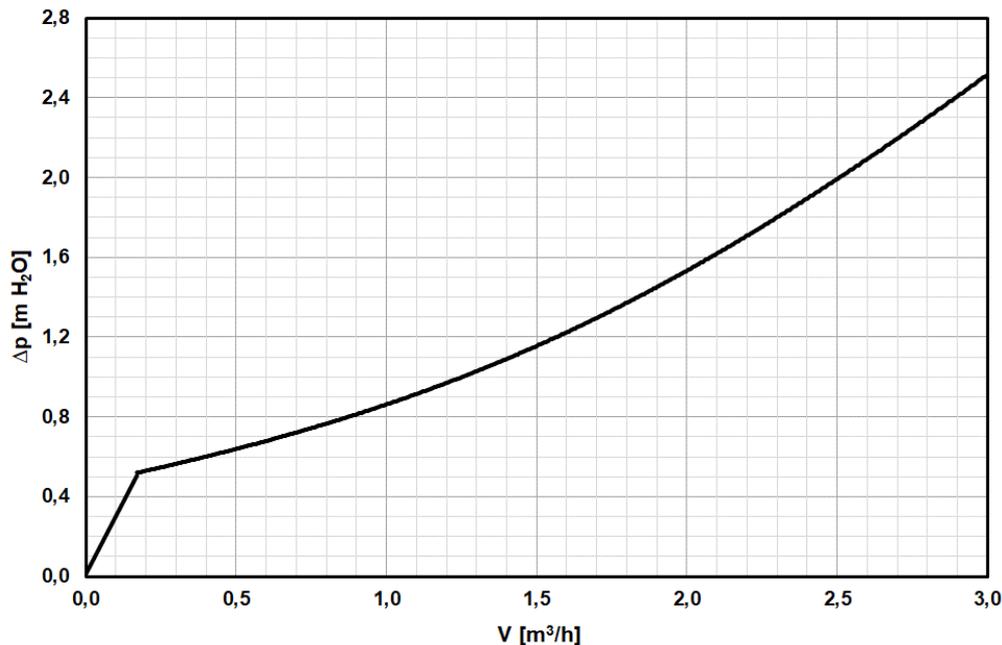


During mixing, the pressure drop of the valve moves between the two curves depending on the mixing ratio.

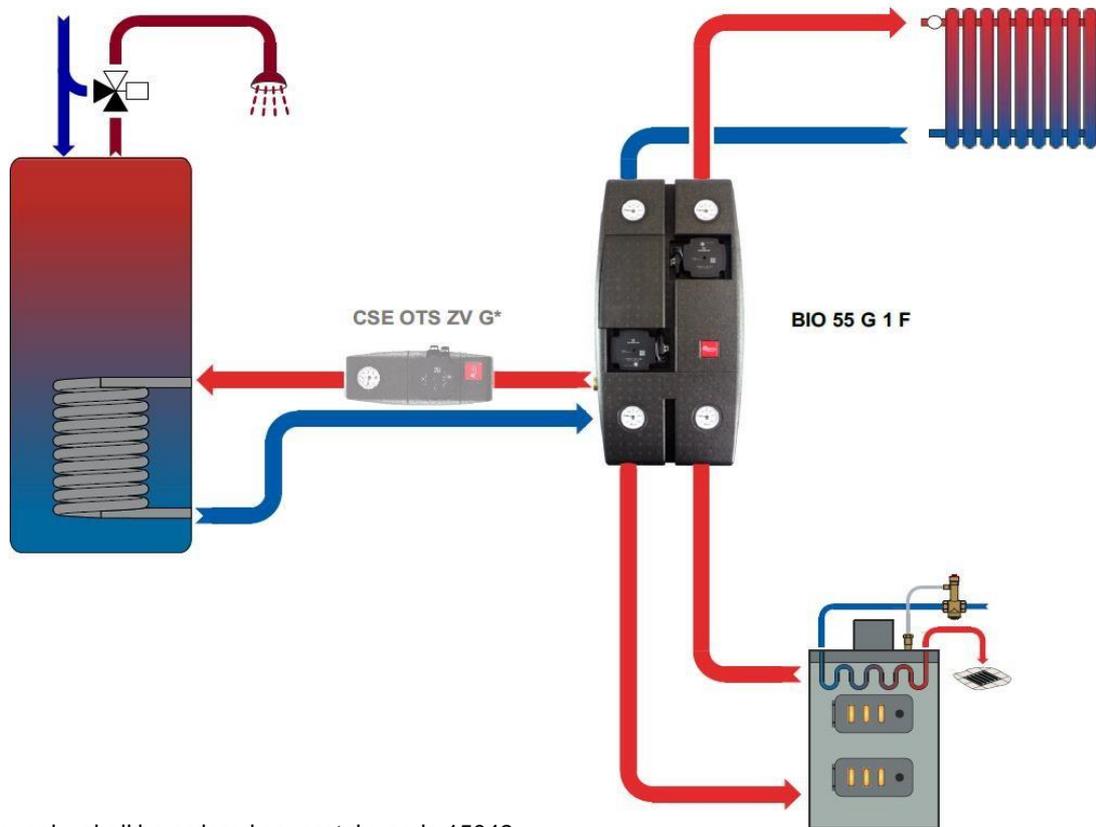
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Ball Valve with Check Valve

Ball Valve w. Check Valve Pressure Drop Diagram



Connection Diagram



* not included in supply, shall be ordered separately, code 15042