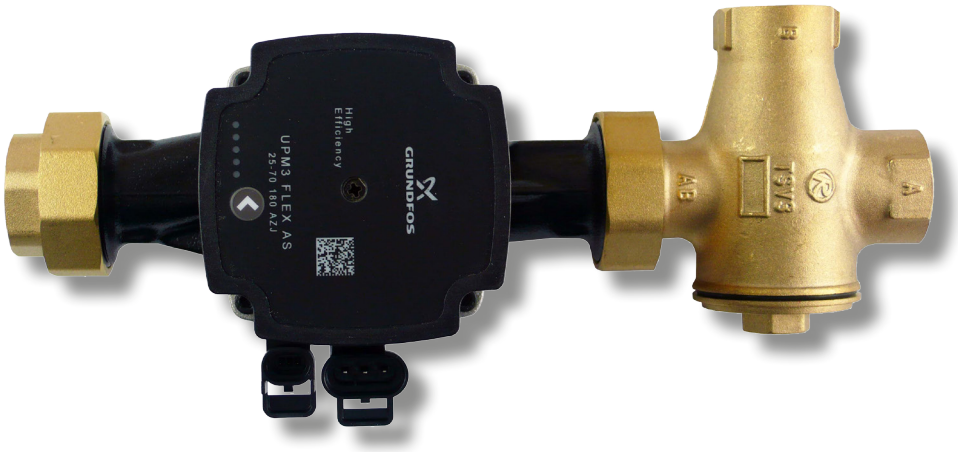
Regulus

www.regulus.en



REGOMAT G

Installation and Operation Manual
REGOMAT G LOAD UNIT with UPM 3
for heating systems

EN

REGOMAT G

1. Introduction

REGOMAT G Load Unit makes boiler installation quicker as it contains all components needed for boiler circuit circulation and for boiler protection against low-temperature corrosion. It is designed to be installed directly on return piping. This Load Unit is intended for hydronic fireplaces and solid-fuel boilers.

2. Regomat G Description

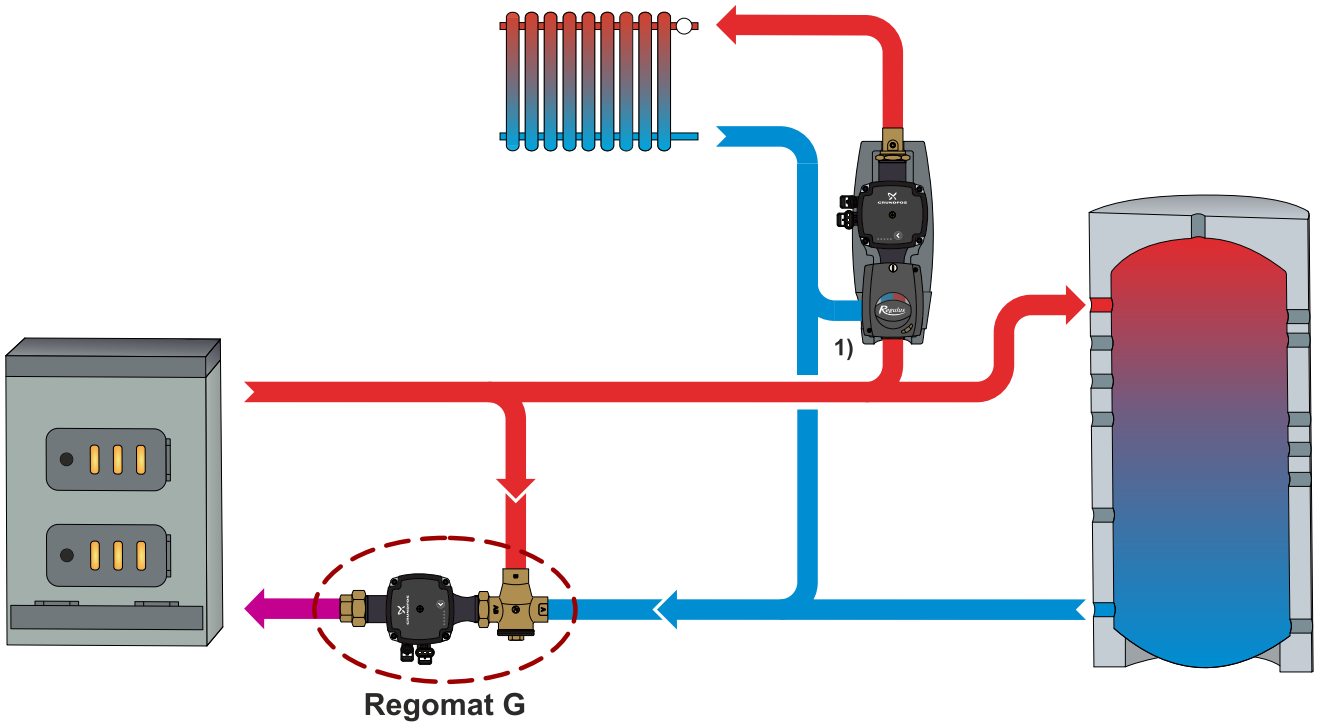
Regomat G keeps the temperature in a hydraulic boiler circuit above the flue gas condensation temperatures, which prevents so called low-temperature corrosion of the boiler combustion chamber. This limits condensation and boiler tarring significantly, the efficiency of fuel combustion increases and service life of the boiler is extended.

Main features	
Purpose	Load Unit for solid-fuel boilers and fireplaces; it prevents low-temperature corrosion and boiler (fire) fouling
Application	maintaining inlet temperature into a boiler (fireplace) through a load valve
Description	consists of a UPM3 FLEX AS pump, a TSV3B valve (with automatic bypass balancing) and fittings
Working fluid	water, water-glycol mixture (max. 1:1) or water-glycerine mixture (max. 2:1)
Installation	on a return pipe

Code	**Max. boiler output**
16 380 for opening temperature 45 °C	max. 48 kW
16 381 for opening temperature 55 °C	max. 37 kW
16 382 for opening temperature 65 °C	max. 27 kW

REGOMAT G Technical Data	
Fluid working temperature	0 - 95 °C
Max. working pressure	10 bar
Max. ambient temperature	70 °C
Max. rel. humidity	95 % , non condensing
Power supply	230 V, 50 Hz
Overall dimensions	310 x 140 x 140 mm
Total weight	3 kg
Connections	3 x G 1" F

3. Regomat G Connection Diagram



1) CSE MIX G 1M (15 208) or CSE MIX G 1M 0-10V (16 598) or CSE MIX G 1F 7,5 (16 401) or CSE MIX G 5/4F (16 402)

Install the Load Unit respecting the following instructions:

Connect the Load Unit outlet marked ***AB*** to the piping entering the boiler. Connect the return line from the heating system to the ***A*** inlet, and the outlet pipe from the boiler to the ***B*** inlet via a T-piece. Take care to install shut-off valves where necessary to avoid draining the whole system for valve cleaning or replacing the thermostatic element.

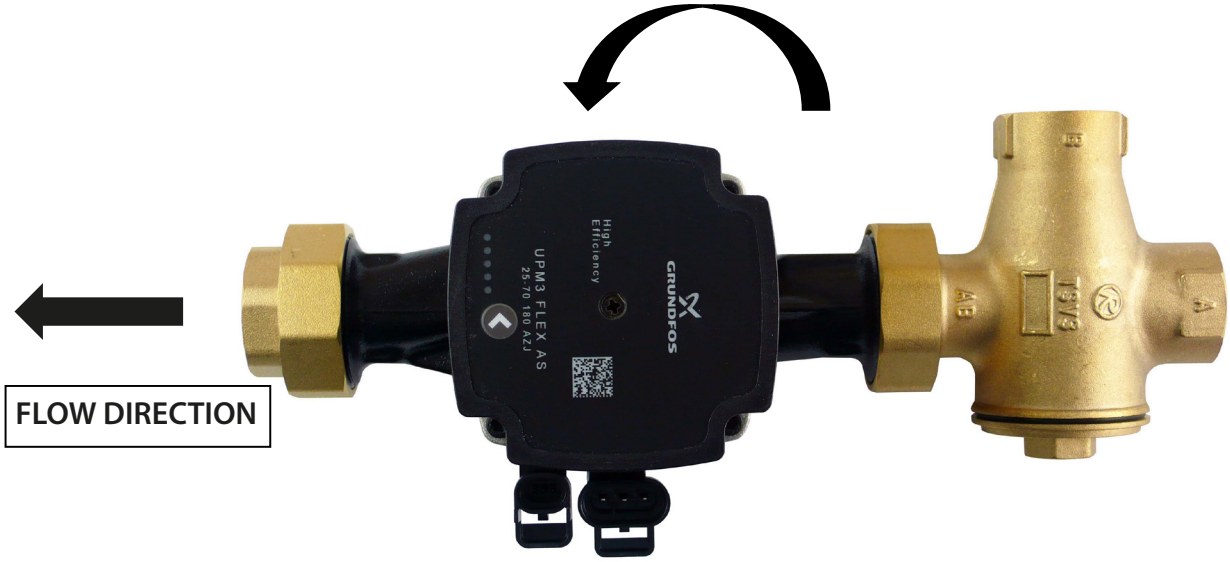
When the connecting pipes are not arranged or sloped properly, the load valve may get blocked by air inside. This may hinder or even disable its operation.

Always respect valid rules and boiler manufacturer's data during installation.

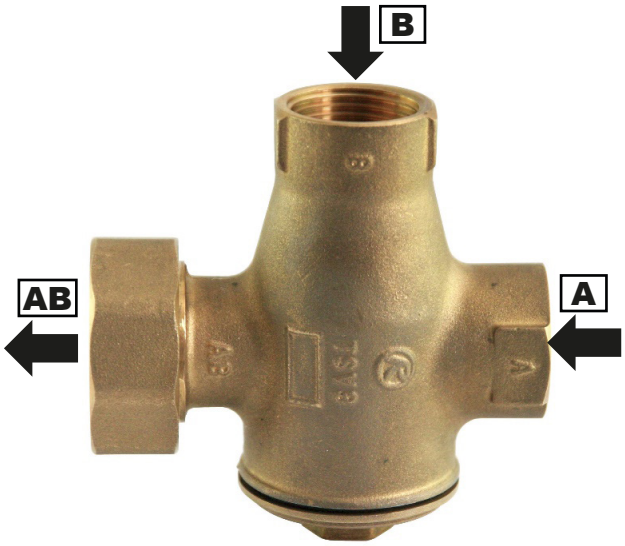
4. Installation options

This Load Unit comes in the version for horizontal installation to the right of a boiler. However, it can be installed also into vertical piping or horizontally to the left of a boiler. When being installed horizontally to the left of a boiler, the Load Unit needs to be turned by 180° and the TSV3B valve turned as shown in the pics below.

.



5. Function description of TSV3B valve

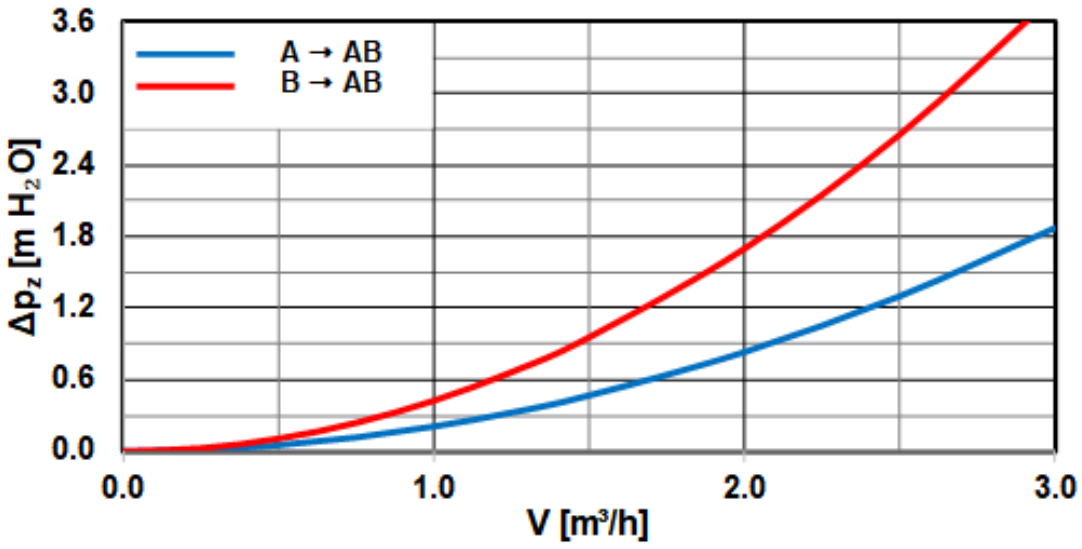


The TSV3B load valve is fitted with an integrated thermostatic insert that will close the ***A*** inlet (from a heating system), if the return water temperature to the boiler (***AB*** outlet) is lower than the opening one. As soon as the opening temperature is reached, the thermostat starts opening the ***A*** inlet slowly and mixing the cold return water with the hot water from the ***B*** inlet (boiler flow) with the aim to reach the valve opening temperature in the return pipe (***AB*** outlet). At the same time, the valve closes the ***B*** inlet, limiting so hot water flow coming from the bypass till its complete tight closure. Thanks to this, no balancing valve is needed. The load valve is made of brass, the element and plug seals are in EPDM, the cone seal is made of NBR.

Technical data	
Max. working temperature	95 °C
Max. working pressure	6 bar
Valve opening temperature	depending on the thermostatic element
Control range	$t_{valve\,opening}$ + 5 °C
Valve Kvs (A→AB direction)	6.2 m^3/h
Valve Kvs (B→AB direction)	4.4 m^3/h
Connections	2x G 1" F, 1x union nut G 6/4" Fu
Nominal inner diameter	DN 25

Materials	
Housing, cone and plug	brass
Spring	stainless steel
Element and plug seals	EPDM
Cone seal	NBR

Valve pressure drop graph



6. UPM3 FLEX AS 25-70 Pump

Design

Wet-running circulation pump with G 6/4“ M connection.

Electrical data	
Power supply	230 V, 50 Hz
Power input (min./max.)	2/52 W
Current (min./max)	0,04/0,5 A
IP rating	IP44
Max. speed	5766 rpm
Energy Efficiency Index	≤ 0,20 by EN 16 297/3
Motor protection	not needed

Minimum pressure at suction port	
Min. pressure at suction port to avoid cavitation	0,05 bar at 75 °C
	0,50 bar at 95 °C
	1,08 bar at 110 °C

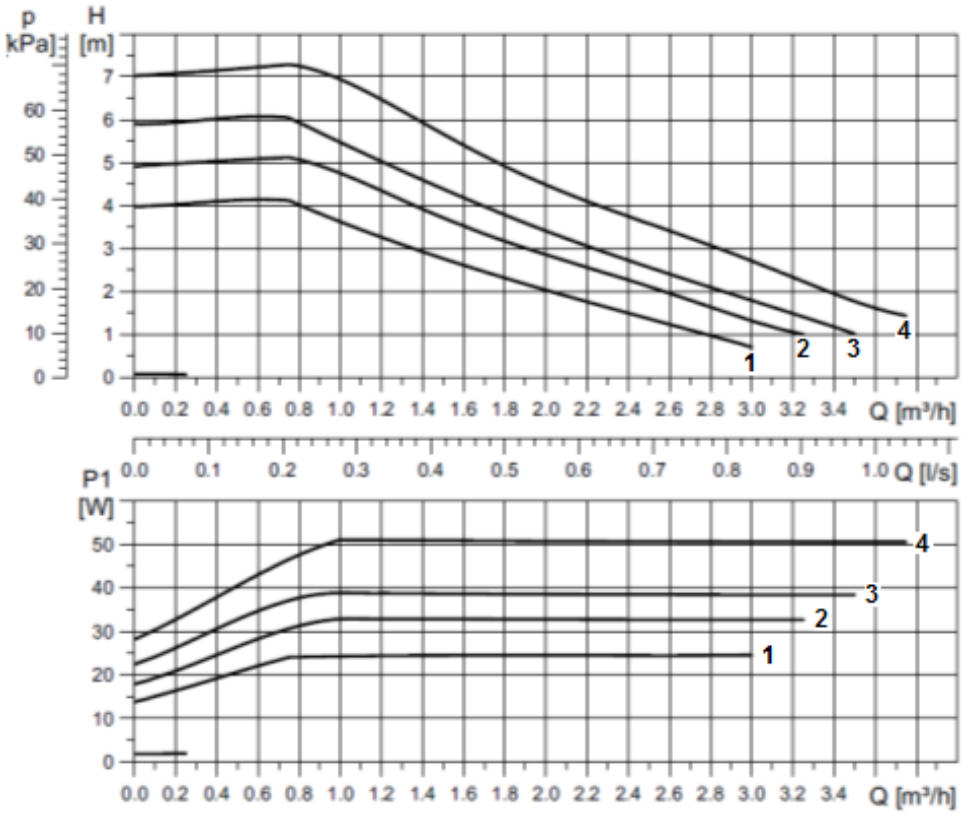
Pump control

The circulation pump can be controlled by an external PWM signal (profile for use in heating systems) or without a PWM signal by selecting a pump performance curve.

A maximum curve of a pump working range can be defined.

- with PWM signal the pump speed changes with the signal value up to the maximum of the selected curve
- without PWM signal the pump runs at the max. speed according to the selected curve

Performance curves



Curve	Max. H (upper graph)	Max. P_1 (lower graph)
1	4 m	25 W
2	5 m	33 W
3	6 m	39 W
4	7 m	52 W

Performance display

DISPLAY	STATE	PERFORMANCE in % of P_1max
1 flashing green LED	STAND-BY MODE (EXTERNAL CONTROL ONLY)	0
1 green + 1 yellow LEDs	LOW PERFORMANCE	0-25
1 green + 2 yellow LEDs	MEDIUM-LOW PERFORMANCE	25-50
1 green + 3 yellow LEDs	MEDIUM-HIGH PERFORMANCE	50-75
1 green + 4 yellow LEDs	HIGH PERFORMANCE	75-100

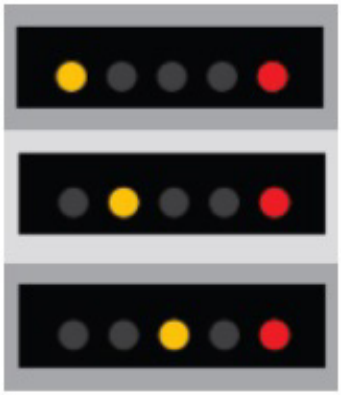
When switched on, the pump runs at factory settings or the last setting. The display shows the momentary pump performance.

Settings display

WARNING: LEDs may be turned by 180°, depending on the specific pump type.
By pressing the button the display switches to "performance view" and the current settings will be shown by LEDs for 2 seconds (see figures below).

4 m **5 m** **6 m** **7 m**

Error display



seized pump

too low power supply voltage

electric fault

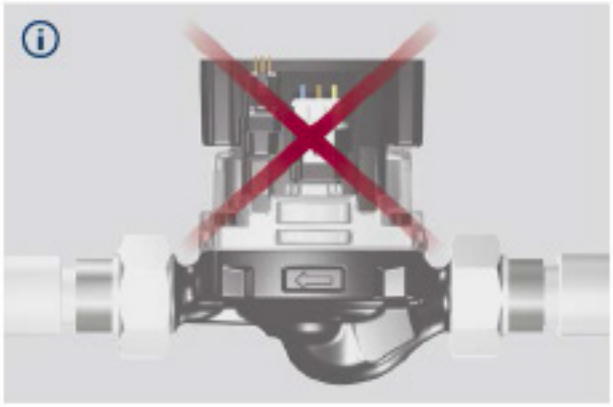
Setting selection for UPM3

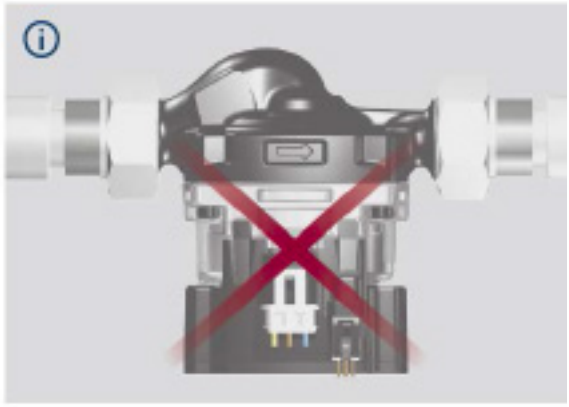
1. Press the pushbutton until the LEDs start flashing, the pump will switch to adjustment selection mode.
2. To select your desired setting, press the button repeatedly until you find the setting you need (see the figures below). If you pass the desired setting, you have to go one more round until it appears again – there is no way back in the loop.

4 m **5 m** **6 m** **7 m**

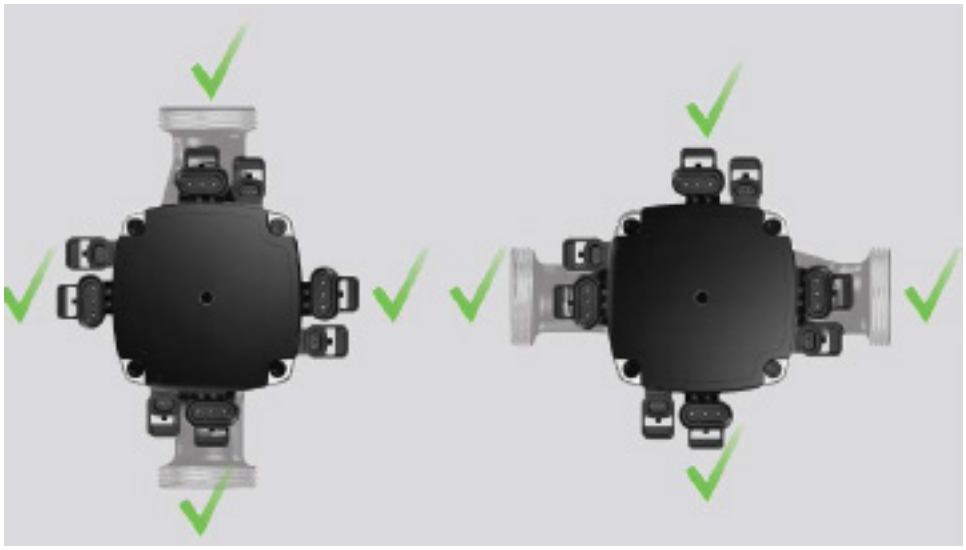
3. Release the button for more than 10 s and the LEDs will return to „performance view", while the last setting is saved.

Forbidden pump positions

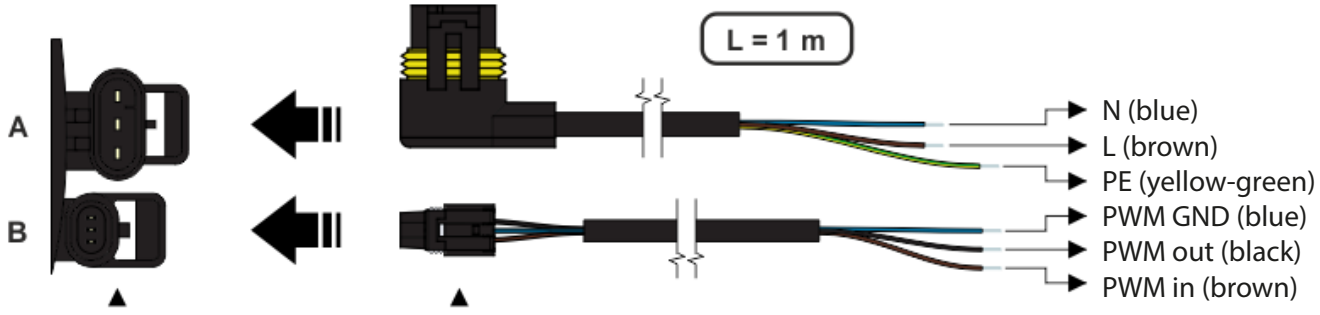




Permissible pump (actuator) positions



Pump wiring



socket for power supply (A)
and signal transmission (B)

power supply (A)
and signal (B) terminals

v1.0-12/2017

REGULUS spol. s r.o.
E-mail: sales@regulus.eu
Web: www.regulus.eu