

# TTM SHUNTOMATIC®

## Operation and maintenance instructions

### TTM SHUNTOMATIC® - standardized shut units

Standardized shunt units for:

- Heat
- Cooling
- Dimensioned for water

TTM SHUNTOMATIC® is available in the following dimensions:

- Heat DN15 - 50
- Cooling DN32 – 50

TTM SHUNTOMATIC® is a pre-dimensioned shunt unit, complete with pump, control valve and actuator. TTM SHUNTOMATIC® is equipped with a dynamic control valve (PICV) which is a multifunctional valve with three functions; besides having a modulating control valve function, the valve also regulates flow and differential pressure. The TTM SHUNTOMATIC® therefore always provides correct regulation within its operating range, even if system pressure changes. Dimensioning is made in our ordering guide.

**Object:** .....

**Contractor:** .....

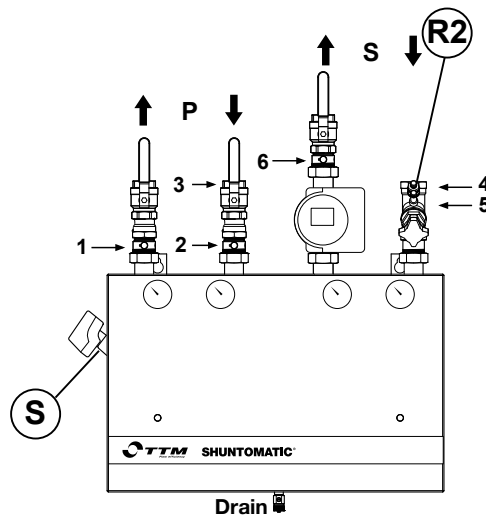
**Facility:** .....

**Building/part:** .....

**SHUNTOMATIC®**  
*All in one shunt*

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## ADJUSTMENT

### Primary side - P

- Remove the actuator and adjust the control valve **S** to the prescribed value (see control valve setting table on page **3 - 4**).
- Available differential pressure for the primary side of the shunt unit is obtained between **1 - 5**.

### Secondary side - S

- Close the control valve **S** for flow from the primary side.
- Measure the pressure drop between measuring points **4 - 5** on the adjustment valve **R2**. Read the flow in the diagram or directly on the instrument for the relevant valve.
- If necessary, adjust the flow with the pump's capacity control and/or on the adjusting valve.
- The pressure drop in the connected object on the secondary side is obtained by measuring the differential pressure between **4 - 6**.
- The head of the pump is obtained between **2 - 6**, with valve **3** closed.

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**TTM SHUNTOMATIC®**

## SETTING TABLE FOR THE CONTROL VALVE

TTM Shuntomatic® Heating / Cooling	Pre-set	Max flow (l/s)	Max flow (l/h)
DN15LF	0,5	0,008	30
	0,6	0,010	35
	0,8	0,011	40
	1,0	0,014	50
	1,2	0,017	60
	1,4	0,019	70
	1,6	0,022	80
	1,8	0,025	90
	2,0	0,028	100
	2,2	0,031	110
	2,4	0,033	120
	2,6	0,036	130
	2,8	0,039	140
	3,0	0,042	150
	3,2	0,044	160
	3,4	0,047	170
	3,6	0,050	180
3,8	0,053	190	
MAX	0,056	200	
DN15HF	0,5	0,028	100
	0,6	0,032	115
	0,8	0,036	130
	1,0	0,044	160
	1,2	0,050	180
	1,4	0,058	210
	1,6	0,067	240
	1,8	0,075	270
	2,0	0,083	300
	2,2	0,089	320
	2,4	0,097	350
	2,6	0,106	380
	2,8	0,114	410
	3,0	0,122	440
	3,2	0,128	460
	3,4	0,136	490
	3,6	0,144	520
3,8	0,153	550	
MAX	0,160	575	
DN25	0,6	0,078	280
	0,8	0,099	356
	1,0	0,119	430
	1,2	0,139	502
	1,4	0,159	574
	1,6	0,180	647
	1,8	0,201	722
	2,0	0,222	800
	2,2	0,245	881
	2,4	0,269	967
	2,6	0,294	1057
	2,8	0,320	1151
	3,0	0,347	1250

## SETTING TABLE FOR THE CONTROL VALVE

TTM Shuntomatic® Heating / Cooling	Pre-set	Max flow (l/s)	Max flow (l/h)
DN32	0,8	0,222	800
	1,0	0,253	910
	1,2	0,308	1110
	1,4	0,367	1320
	1,6	0,422	1520
	1,8	0,478	1720
	2,0	0,536	1930
	2,2	0,592	2130
	2,4	0,647	2330
	2,6	0,703	2530
	2,8	0,761	2740
	3,0	0,817	2940
	3,2	0,872	3140
	3,4	0,931	3350
3,6	0,986	3550	
DN50	1,2	0,625	2250
	1,4	0,736	2650
	1,6	0,833	3000
	1,8	0,944	3400
	2,0	1,056	3800
	2,2	1,181	4250
	2,4	1,319	4750
	2,6	1,458	5250
	2,8	1,611	5800
	3,0	1,764	6350
	3,2	1,931	6950
	3,4	2,097	7550
	3,6	2,278	8200
	3,8	2,444	8800
MAX	2,639	9500	

## PUMP

To ensure good heat transfer in ventilation coils and radiator systems and to avoid freezing, a circulation pump is built into each TTM Shuntomatic®. The circulation pump is an important component of the system and requires continuous maintenance.

- The circulation pump, regardless of design, must NEVER be operated without the piping system filled with water.
- Circulation pumps, especially with wet motors, are sensitive to dirt. Therefore, make sure that the pipework is flushed before starting.
- Please note that circulation pumps can be equipped with capacity control in several ways.

## ARMATUR

### Shut-off valves

is equipped with shut-off valves with coupling on all pipe connections to facilitate dismantling and servicing. When reassembling, the threads and sealing surfaces must be lubricated with oil.

### Adjustment valves - static valves

Normally fitted in the return line. They allow the water quantity and checked with a differential pressure instrument, see adjustment instructions on the previous page.

### Motor actuators 24V 0-10 V

High actuating force motor actuator with M30 x 1.5 connection. The actuator has a stepper motor with electronic actuation and cut-out. It also has adjustable function-Direction and stroke length. The actuator has a maintenance-free gearbox. LED indication.

### Dynamic Control Valve - PICV

Mounted between flange joints for easy service and interchangeability. The valve is of the PICV type.

## TROUBLESHOOTING

Flow too low the primary side	Flow too low the secondary side	To high $\Delta t$ between supply and return	Heat transfer when valve is closed	The temperature of outgoing heat cannot be as high as incoming heating*/cooling*
<p>Check that all valves are open.</p> <p>Check that pipes, pumps and valves not are clogged with gravel, welding slag, etc.</p> <p>Ventilate the system.</p> <p>Check that sufficient water pressure is obtained from the main pump.</p>	<p>Check that all valves are open.</p> <p>Check that pipes, pumps and valves not are clogged with gravel, welding slag, etc.</p> <p>Ventilate the system.</p> <p>Check that a sufficient pressure set is obtained from the circulation pump.</p>	<p>The power output is larger than calculated, e.g. due to too high air volume.</p> <p>Flow lower than calculated; check according to adjustment instructions.</p>	<p>With manual operation, check that the control valve closes completely.</p> <p>Check that the valve sealing surfaces are free of deposits.</p>	<p>a) The circulation pump works with too high a capacity. Return water from the secondary side is mixed in via the non-return valve line. Adjust the flow according to the adjustment instructions.</p> <p>b) The flow on the primary side is too low. Adjust the flow according to the adjustment instructions.</p>

\* In some systems temperatures may vary, for example underfloor heating coils (heating) or cooling coils (cooling).