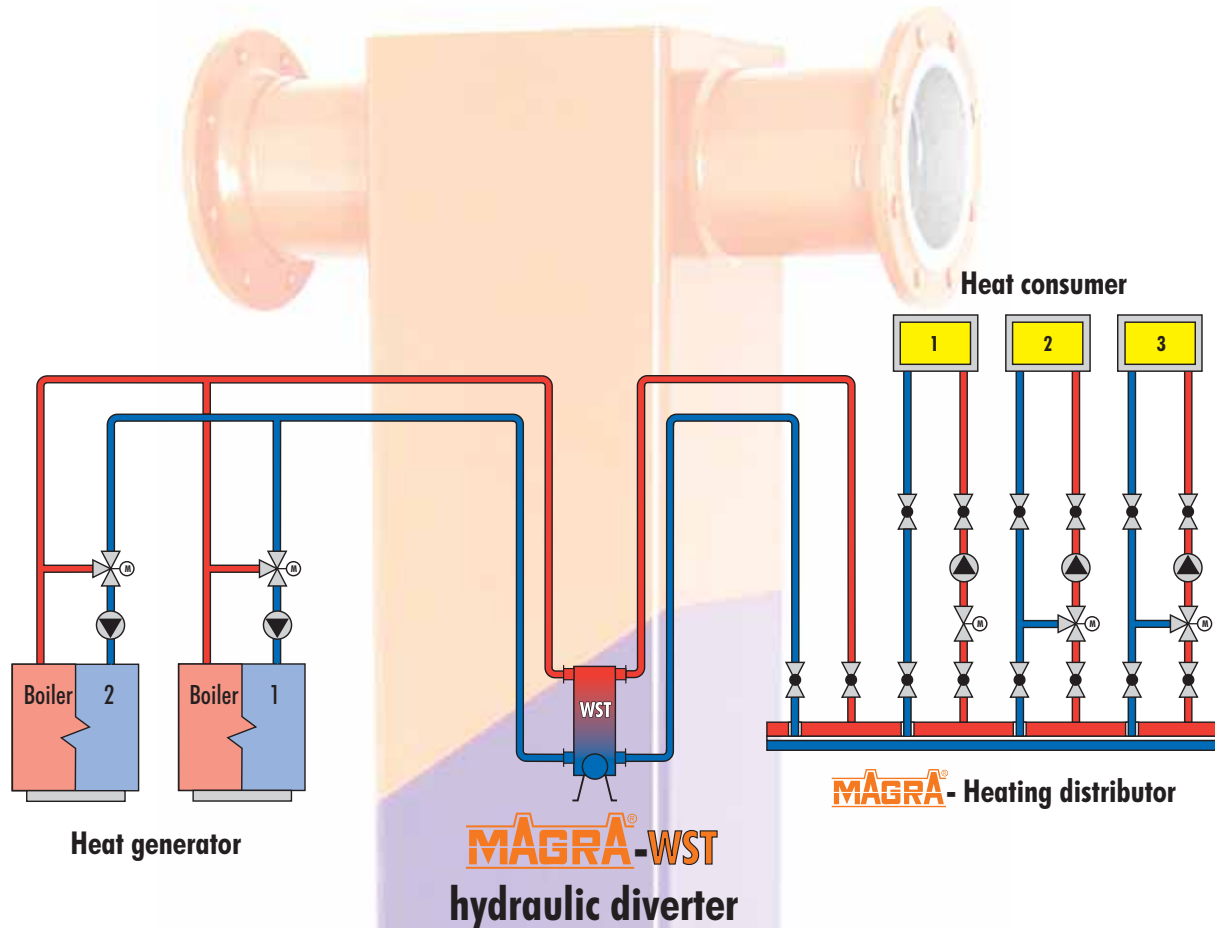


*For optimum hydraulic control  
of multi-boiler plants!*

**MAGRA®**

Heating distributor  
Oil distributor  
Sanitary distributor

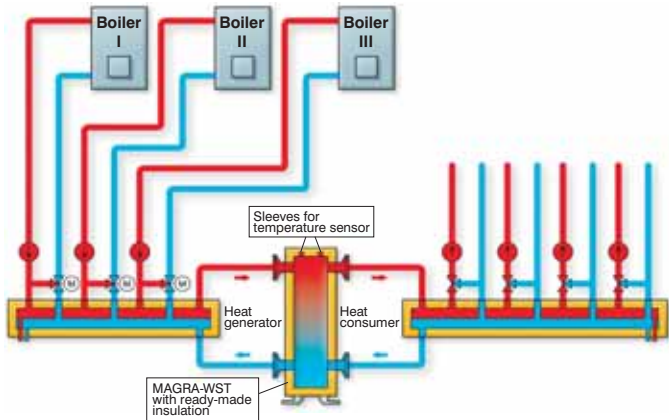
## **MAGRA®-WST hydraulic diverter**



### **Advantages:**

- The flow rate in the heat generator is independent of the flow rate in the heat consumer.
- Boilers which are not in operation can be locked hydraulically.
- For each boiler, the return temperature can be adjusted accordingly.

# MAGRA<sup>®</sup>-WST hydraulic diverter for optimum hydraulic control of multi-boiler plants



In the case of heating plants with 2 or more heat generators, a controller performs the coordination between the heat consumers and heat generators.

A suitable hydraulic design of the heat generators and heat consumers is required to ensure an optimum function of the heat generator sequence control.

The MAGRA-WST hydraulic diverter fully meets this requirement.

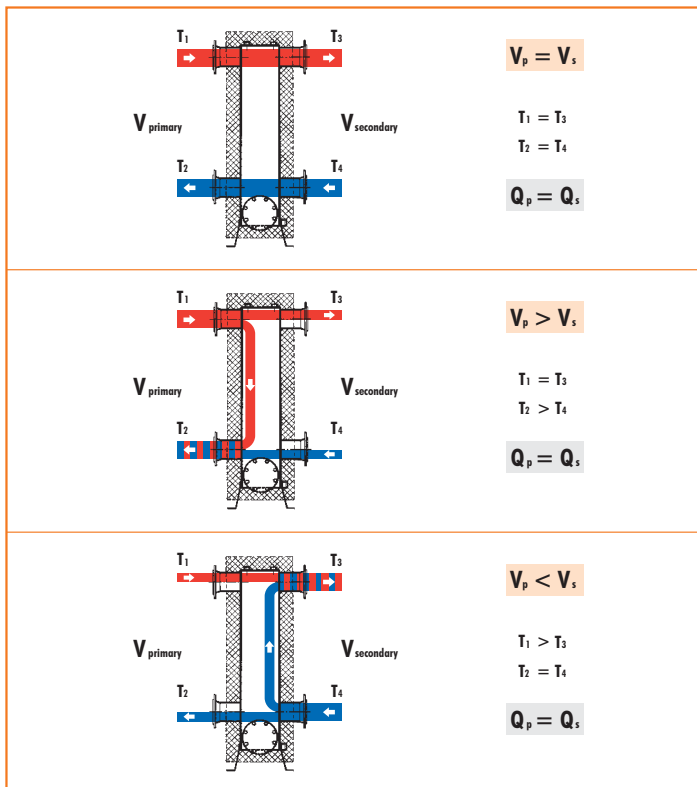
As shown in the illustration as an example, the boilers are controlled, depending on the load, via a boiler sequence circuit. The operating heating boiler(s) is/are connected to the MAGRA-WST. Boilers which are not in operation can be locked hydraulically. The circulation pump of the operating boiler demands the minimum flow rate via the boiler. The water not used by the consumers (heating circuits) flows back to the boiler via the return line.

## This has the following advantages:

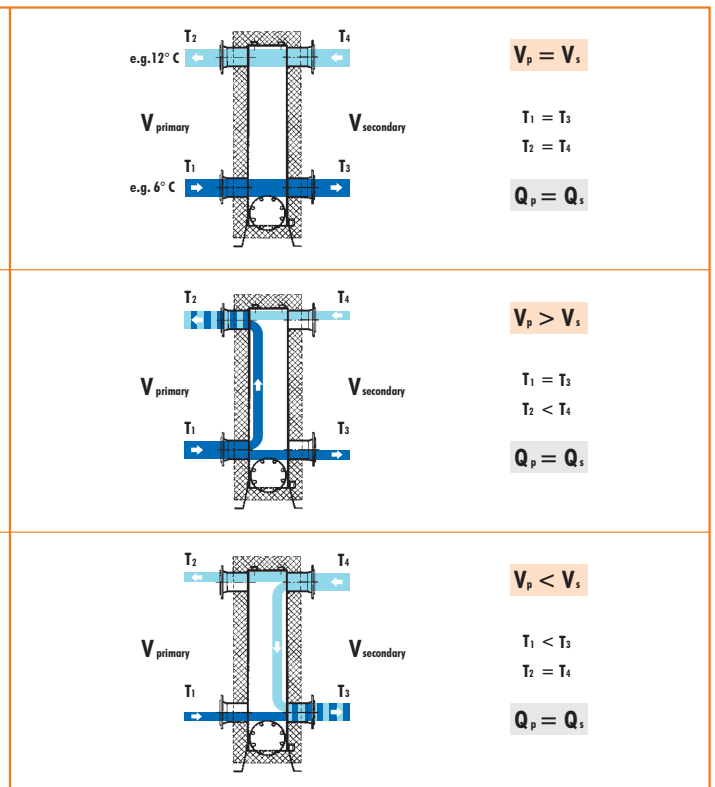
- A multi-boiler plant equipped with a hydraulic diverter ensures highly energy-saving operation.
- A pilot boiler is not required.
- The flow rate in the heat generator is independent of the flow rate in the heat consumer.
- Boilers which are not in operation can be locked hydraulically.
- For each boiler, the return temperature can be adjusted accordingly.

## Function of MAGRA<sup>®</sup>-WST hydraulic diverter

### in the case of heating water



### in the case of cooling water



The design of the MAGRA-WST hydraulic diverter ensures that the water flows of the heat generator and the heat consumers are independent of one another. The water flows are not separated physically. By using a hydraulic diverter, minimum flow rates are ensured on the heat generator side (primary) despite greatly varying flow rates on the heat consumer side (secondary). In the case of multi-boiler plants, this results in an improved overall behaviour of the plant, as regards the interactions of the control and hydraulic systems.

The measuring point of the boiler pilot temperature is selected such that the flow temperature of the heat consumer is detected independent of the

circulation rate of the heat generator. This means that, in the case of partial load operation of the boiler plant (low circulation rate on the generator side), the temperature on the consumer side is decisive for the sequence controller, not the flow temperature of the lower circulation rate in the boiler circuit.

Since the circulation rates do not influence one another, the boiler water circulation rate can be adjusted to the boilers which are actually in operation. This also enables increasing the return temperature separately and shutting down individual boilers hydraulically.

# Specifications

## MAGRA<sup>®</sup>-WST hydraulic diverter Types 121 to 401 with sludge trap

### Types 120 to 400 with sludge trap and cleaning opening

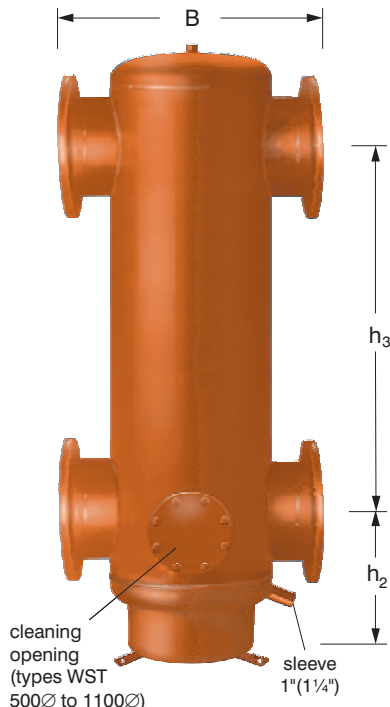


Type WST	flow rate in m <sup>3</sup> /h	size of chamber in mm	Fitting dimensions	dimensions in mm			Total height including insulation
				B	h <sub>2</sub>	h <sub>3</sub>	
121 120	12 m <sup>3</sup> /h	120/120	DN 65	520	300	900	1350
161 160	21 m <sup>3</sup> /h	160/160	DN 80	600	300	930	1390
201 200	29 m <sup>3</sup> /h	200/200	DN 100	600	380	1000	1550
251 250	45 m <sup>3</sup> /h	250/250	DN 125	660	400	1000	1580
301 300	65 m <sup>3</sup> /h	300/300	DN 150	700	450	1000	1650
351 350	95 m <sup>3</sup> /h	350/350	DN 200	765	450	1000	1680
401 400	125 m <sup>3</sup> /h	400/400	DN 250	825	500	1000	1750

MAGRA-WST hydraulic diverter with sludge trap, consisting of: exchanger chamber of steel, with welded lid and bottom. Connection nozzle for heat consumer and heat generator, made of steel tubes with welding neck flanges according to DIN, PN 6, PN 10 or PN 16. De-sludging connection 1" (lateral). In the case of types WST 120 to 400 additionally with large cleaning opening with blind flange. Sleeves 3/4" in lid for temperature sensor. Bases with floor anchoring plates. The MAGRA hydraulic diverter has been pressure-tested and prime-coated in the factory.

## MAGRA<sup>®</sup>-WST hydraulic diverter Types 501Ø to 1101Ø with sludge trap

### Types 500Ø to 1100Ø with sludge trap and cleaning opening



Type WST	flow rate in m <sup>3</sup> /h	chamber size in mm	fitting dimensions	dimensions in mm			Total height
				B	h <sub>2</sub>	h <sub>3</sub>	
501AØ 500AØ	170 m <sup>3</sup> /h	Ø 500 mm	DN 250	870	500	1100	1900
501BØ 500BØ	225 m <sup>3</sup> /h	Ø 500 mm	DN 300	930	500	1200	2000
601AØ 600AØ	300 m <sup>3</sup> /h	Ø 600 mm	DN 350	980	550	1400	2300
601BØ 600BØ	400 m <sup>3</sup> /h	Ø 600 mm	DN 400	1040	550	1550	2450
701 Ø 700 Ø	540 m <sup>3</sup> /h	Ø 700 mm	DN 500	1280	650	1715	2765
801 Ø 800 Ø	700 m <sup>3</sup> /h	Ø 800 mm	DN 500	1380	675	1715	2815
901 Ø 900 Ø	890 m <sup>3</sup> /h	Ø 900 mm	DN 600	1490	740	1840	3070
1001 Ø 1000 Ø	1100 m <sup>3</sup> /h	Ø 1000 mm	DN 600	1590	765	1840	3120
1101 Ø 1100 Ø	1335 m <sup>3</sup> /h	Ø 1100 mm	DN 700	1700	860	1910	3380

MAGRA-WST hydraulic diverter with sludge trap, consisting of: exchanger chamber of steel, with welded dish bottoms. Connection nozzle for heat consumer and heat generator, made of steel tubes with welding neck flanges according to DIN, PN 6, PN 10 or PN 16. De-sludging connection 1" (1 1/4"). In the case of types WST 500Ø to 1100Ø additionally with large cleaning opening with blind flange. Sleeve 3/4" for de-aeration. Bases with floor anchoring plates. The MAGRA hydraulic diverter has been pressure-tested and prime-coated in the factory.

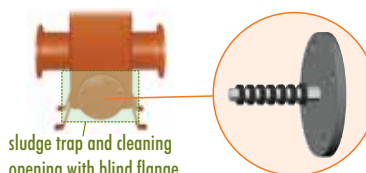
# Accessories

## MAGRA<sup>®</sup>-ready-made insulation



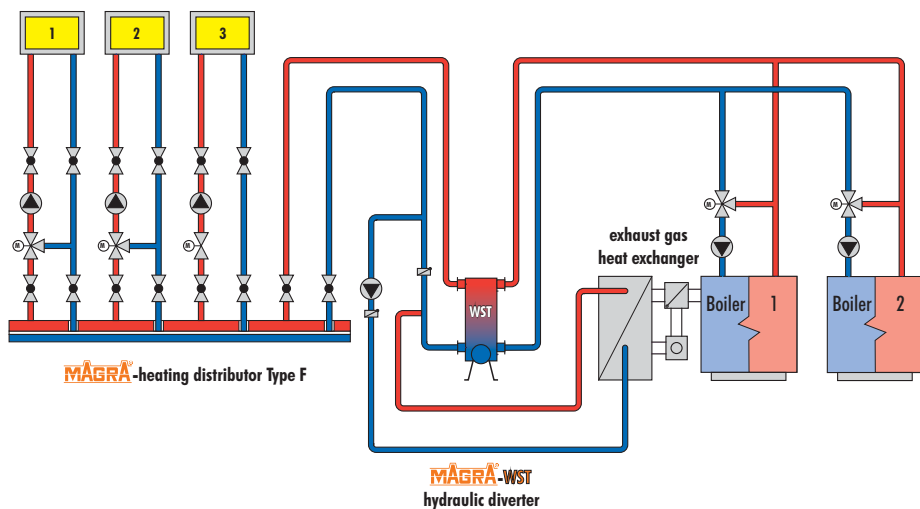
made of PU hard foam with aluminium sheet jacket or mineral fibre with galv. steel sheet jacket.

## MAGRA<sup>®</sup>-magnetite separator for installation in WST Types 120 to 400

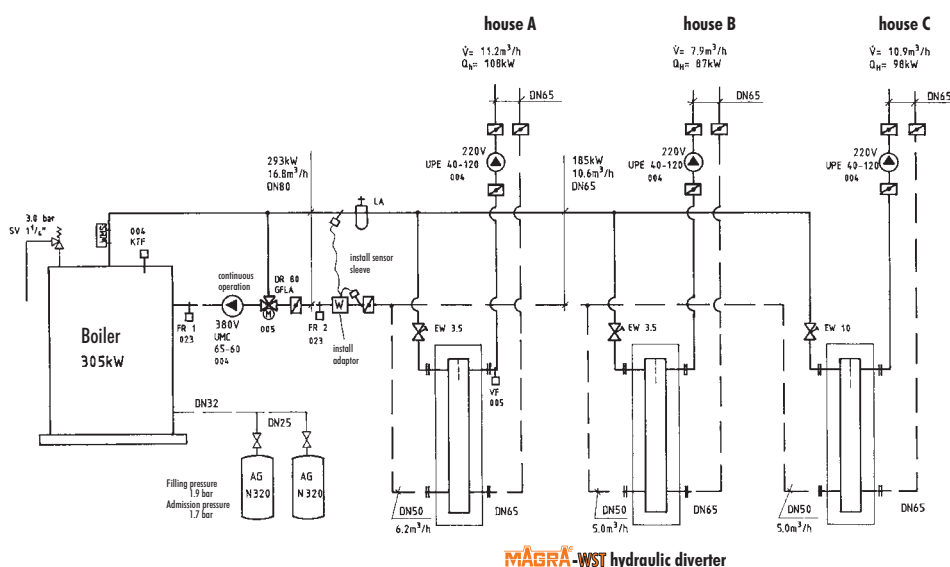


magnetite separator consisting of: Threaded rod of stainless steel with individual permanent magnets mounted on the cleaning flange. The number of magnets accordingly to the size of the hydraulic diverter.

# Practical application examples



Condensing value multi-boiler plant with **MÄGRÄ-WST** hydraulic diverter



single-boiler plant for 3 residential buildings with **MÄGRÄ-WST** hydraulic diverters



**MÄGRÄ-WST** hydraulic diverter and **MÄGRÄ**-heating distributor with **MÄGRÄ**-ready-made insulation

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