



# Cetetherm AquaEfficiency

## DOUBLE WALL

Best solution for boiler condensation



### APPLICATIONS

AquaEfficiency Double Wall (DW) is the most energy efficient tap water system with major innovations and an unique setpoint control, ensuring the lowest return temperature on the primary side. It is designed to provide Domestic Hot Water (DHW) up to 1000 kW for:

- apartment blocks
- hospitals
- hotels
- retirement and nursing homes
- schools
- leisure centres

### BENEFITS

- **Space saving** solution: compact unit and no need of any vessel
- **Robust and reliable** with EPDMFF gaskets
- High primary deltaT heat exchanger with variable primary flow rate control for the **best boiler condensation**
- **Short pay back period** of the overcost compared to other standard ranges due to
  - condensation
  - electrical savings due to controlled Class A pumps
- **Insulated** heat exchanger
- **Sanitary safe** materials

- **ModBus** RTU RS485 multi-sensors controls: up to 7 sensors
- **Easy maintenance**

### WORKING PRINCIPLE

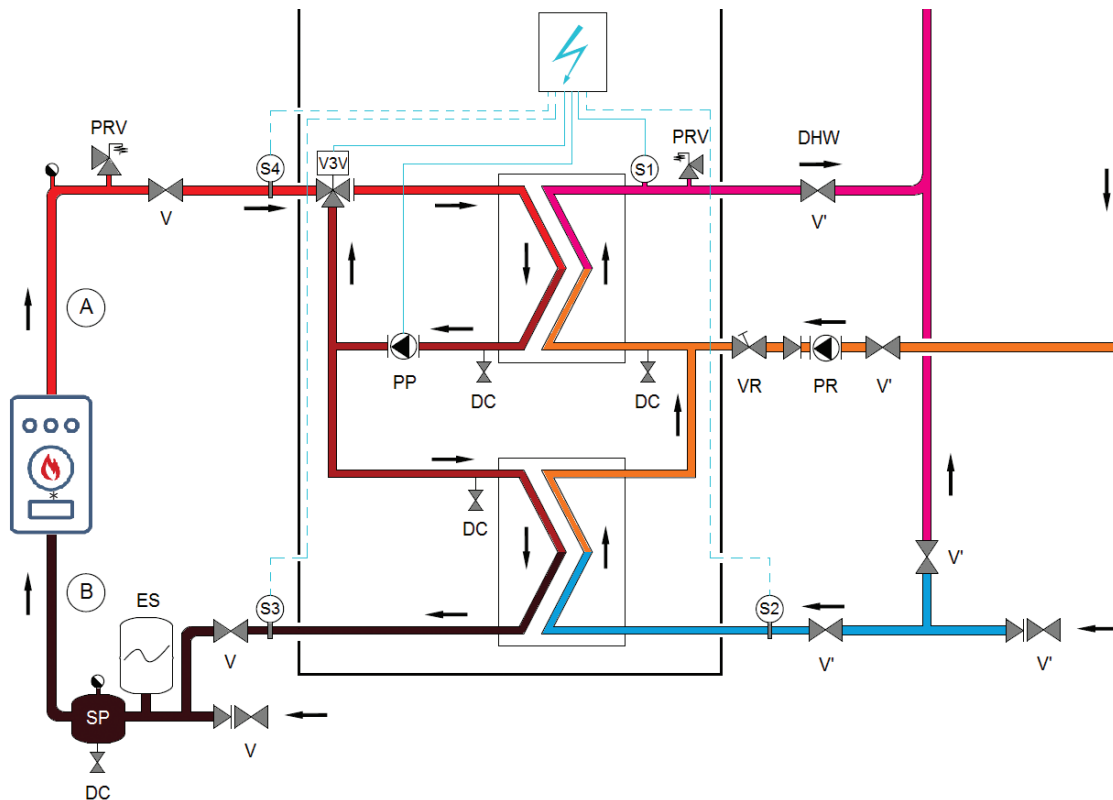
AquaEfficiency Double Wall (DW) is available in Direct version, also called Instantaneous version: no need for a storage tank.

In the tap water system from the primary to the DHW side, energy is exchanged through two double wall heat exchangers in series (double pass). On the primary side, AquaEfficiency DW should be connected to dedicated condensing boilers. The temperature of the water entering the heat exchanger on the primary side is adapted to meet the demand on the domestic side. The mixing valve eliminates thermal shock in the heat exchanger and reduces the potential build-up of lime-scale on the secondary side.

On the secondary side, AquaEfficiency DW is connected to the main water circuit and provides domestic hot water to the distribution pipe-work when there is a demand. A circulation pump, which is used to limit the time needed to deliver domestic hot water with right temperature to the tap, maintains a minimum flow rate through the heat exchangers and through the distribution pipe-work.

The circulation pump, installed between the two heat exchangers, permits the second heat exchanger to send back the lowest temperature possible for an optimum condensation on dedicated condensation boilers.

## FLOWCHART AQUAEFFICIENCY DOUBLE WALL



\* Boiler system with sufficient water volume to avoid boiler pumping effect, able to manage zero flow rate and low return temperature

### FLOWCHART LEGEND

A	Primary inlet	PR	Recycling pump (on installation)
B	Primary outlet	PRV	Pressure relief valve/Safety valve
CW	Cold water inlet	S1	NTC20K DHW outlet temperature sensor
DC	Draining valve	S2,S3,S4	NTC20K optional contact sensors
DHW	Domestic Hot Water	SP	Settling Pot system
ES	Expansion system	V, V'	Shut off valve
HE	Heat exchanger	VR	Balancing valve
PP	Primary pump (single or double)	V3V	3-port control valve with actuator

### FEATURES AQUAEFFICIENCY DOUBLE WALL

Heat exchanger	<ul style="list-style-type: none"> <li>Two Plate and Gasket heat exchangers in series</li> <li>- Double Wall corrosion resistant stainless steel 316 plates</li> <li>- EPDMFF Roof top Clip-on gaskets</li> <li>- Rock-wool insulations</li> </ul>
Control system	<ul style="list-style-type: none"> <li>3-port mixing electronic control valve</li> <li>24V 0-10V, fast speed actuator</li> <li>Micro3000 ModBus RTU RS485 controller</li> <li>Dedicated Multi functional IP54 control box</li> <li>2 NTC20K temperature sensors on secondary outlet</li> </ul>
Primary Pumps	<ul style="list-style-type: none"> <li>Single head flooded rotor pump</li> <li>Dedicated 0-10V signal for each pump for effective steering/control of primary flow rate</li> </ul>
Added facilities	<ul style="list-style-type: none"> <li>Easy access to analogic and digital data</li> <li>Up to 2 control valves signal commands</li> <li>Up to 4 variable speed pumps signal commands</li> <li>Up to 7 sensors</li> <li>1 Added 230 V AC relay: to activate an eventual draining valve</li> <li>Volt free contacts in: <ul style="list-style-type: none"> <li>- 1 Remote contact</li> <li>- Up to 4 pump isothermic contacts reported to the electrical box</li> </ul> </li> <li>Volt free contacts out: <ul style="list-style-type: none"> <li>- Configurable relays 1 &amp; 2 permitting communication with boilers (eco function, thermal treatment, pump default etc.)</li> <li>- Up to 4 flow switches on/off for pumps</li> </ul> </li> </ul>

**QUICK SELECTION TABLES - AQUAEFFICIENCY DOUBLE WALL**

Primary inlet: 90°C							
Secondary inlet/outlet	Nominal capacity	Primary flowrate	Free pressure primary side	Primary T° return	Secondary flowrate	Secondary pressure drop	Article number
	kW	m3/h	kPa	°C	m3/h	kPa	
10 / 60°C	150	2,2	59	31	2,6	11	EXM3DW41
	365	5,2	35	27	6,3	39	EXM6MDW21
	620	9,1	23	29	10,7	50	EXM6MDW31
	957	13,3	9	26	16,4	39	EXM6MDW55
	1221	17,3	8	27	21,0	47	EXM6MDW65
15 / 60°C	125	1,9	63	31	2,4	9,5	EXM3DW41
	350	5,2	35	30	6,7	44	EXM6MDW21
	560	8,4	34	31	10,7	50	EXM6MDW31
	914	13,3	9	29	17,5	44	EXM6MDW55
	1100	16,0	21	29	21,0	47	EXM6MDW65
15 / 65°C	135	2,2	60	35	2,3	9	EXM3DW41
	336	5,2	35	32	5,8	33	EXM6MDW21
	600	9,8	12	35	10,3	47	EXM6MDW31
	880	13,3	9	31	15,1	33	EXM6MDW55
	1121	17,3	8	32	19,3	40	EXM6MDW65
10 / 65°C	140	2,2	60	33	2,2	8	EXM3DW41
	351	5,2	35	30	5,5	30	EXM6MDW21
	575	8,78	30	35	9,0	36	EXM6MDW31
	920	13,3	9	28	14,4	30	EXM6MDW55
	1173	17,3	8	30	18,3	36	EXM6MDW65

Primary inlet: 80°C							
Secondary inlet/outlet	Nominal capacity	Primary flowrate	Free pressure primary side	Primary T° return	Secondary flowrate	Secondary pressure drop	Article number
	kW	m3/h	kPa	°C	m3/h	kPa	
10 / 60°C	112	2,0	62	30	1,9	6	EXM3DW41
	300	5,2	35	29	5,2	26	EXM6MDW21
	500	9,0	25	31	8,6	33	EXM6MDW31
	785	13,3	9	28	13,5	27	EXM6MDW55
	1000	17,3	8	29	17,2	32	EXM6MDW65
15 / 60°C	125	2,5	57	36	2,4	9	EXM3DW41
	285	5,2	35	31	5,4	29	EXM6MDW21
	500	9,6	14	34	9,5	41	EXM6MDW31
	748	13,3	9	30	14,3	30	EXM6MDW55
	951	17,3	8	31	18,2	35	EXM6MDW65
15 / 65°C	97	1,9	61	36	1,7	5	EXM3DW41
	267	5,2	35	35	4,6	21	EXM6MDW21
	430	8,6	31	35	7,4	24	EXM6MDW31
	701	13,3	9	33	12,0	21	EXM6MDW55
	887	17,3	8	35	15,2	25	EXM6MDW65
10 / 65°C	100	1,9	62	33	1,7	4	EXM3DW41
	277	5,1	37	32	4,3	19	EXM6MDW21
	430	7,9	41	32	6,7	20	EXM6MDW31
	739	13,3	9	31	11,5	20	EXM6MDW55
	936	17,3	8	32	14,6	23	EXM6MDW65

## Primary inlet: 70°C

Secondary inlet/outlet	Nominal capacity	Primary flowrate	Free pressure primary side	Primary T° return	Secondary flowrate	Secondary pressure drop	Article number
	kW	m3/h	kPa	°C	m3/h	kPa	
10 / 60°C	76	1,8	63	32	1,3	3	EXM3DW41
	225	5,2	35	32	3,9	15	EXM6MDW21
	370	8,9	26	33	6,4	18	EXM6MDW31
	591	13,3	9	31	10,2	15	EXM6MDW55
	749	17,3	7	32	12,9	18	EXM6MDW65
15 / 60°C	75	1,9	62	35	1,4	4	EXM3DW41
	211	5,2	35	34	4,0	16	EXM6MDW21
	350	9,0	25	36	6,7	20	EXM6MDW31
	558	13,3	9	33	10,7	17	EXM6MDW55
	706	17,3	7	34	13,5	20	EXM6MDW65
15 / 65°C	45	1,1	67	35	0,8	2	EXM3DW41
	140	3,6	64	36	2,4	6	EXM6MDW21
	218	5,6	72	36	3,7	7	EXM6MDW31
	393	10,0	52	35	6,8	7	EXM6MDW55
	479	12,3	52	36	8,2	8	EXM6MDW65
10 / 65°C	50	1,2	66	34	0,8	2	EXM3DW41
	153	3,7	62	34	2,4	6	EXM6MDW21
	225	5,4	75	33	3,5	6	EXM6MDW31
	400	9,4	59	32	6,2	6	EXM6MDW55
	573	14,7	33	36	9,0	9	EXM6MDW65

## Primary inlet: 65°C

Secondary inlet/outlet	Nominal capacity	Primary flowrate	Free pressure primary side	Primary T° return	Secondary flowrate	Secondary pressure drop	Article number
	kW	m3/h	kPa	°C	m3/h	kPa	
10 / 60°C	Non applicable						EXM3DW41
	159	4,4	51	33	5,2	26	EXM6MDW21
	280	8,4	44	36	8,6	33	EXM6MDW31
	468	13,3	9	34	13,5	27	EXM6MDW55
	590	17,3	7	35	17,2	32	EXM6MDW65
15 / 60°C	Non applicable						EXM3DW41
	148	4,4	51	35	5,4	29	EXM6MDW21
	233	7,0	64	36	9,5	41	EXM6MDW31
	428	13,1	12	36	14,3	30	EXM6MDW55
	491	14,4	35	35	18,2	35	EXM6MDW65

## DESCRIPTION TABLE - AQUAEFFICIENCY DOUBLE WALL

Article number	Primary side			Heat exchanger	Secondary side	Electrical consumption		Dimensions	Average weight
	Pump(s)	Control valve	Actuator	Type	Safety valve Barg	Pmax (W)	I <sub>max</sub> (A)	L x W x H mm	Kg
EXM3DW41	Magna3 32-80	HNW V5833 DN32 Kvs 16	ML7430E - 15 sec.	2 X M3DW	10	155	1,8	900x600x1100	285
EXM6MDW21	Magna3 40-100	HNW V5833 DN25 Kvs 10	ML7430E - 15 sec.	2 X M6MDW		360	2,2	1000x965x1450	375
EXM6MDW31	Magna3 40-100	HNW V5833 DN40 Kvs 25	ML7430E - 15 sec.			360	2,5	1000x965x1450	430
EXM6MDW55	Magna3 40-120	HNW V5833 DN40 Kvs 25	ML7430E - 15 sec.			450	2,5	1000x965x1450	560
EXM6MDW65	Magna3 50-120	HNW V5013E DN50 Kvs 40	ML7420 A6017 - 30 sec.			550	3	1000x1100x1450	610

Suitable for a connection to a 230V / 1 ph / 50 Hz + earth power supply

Operating limits	Design temperature	Design pressure
Primary	100°C	10 bar
Secondary	100°C	10 bar