

BPB-BLC.../BEPC 300/B.../FWS...

INDEPENDENT DOMESTIC CALORIFIERS

BPB...: "Performance", independent calorifiers, capacity 150 to 500 litres

BLC...: "Comfort", independent calorifiers, capacity 150 to 500 litres

B...: Large capacity independent DHW calorifiers, 650, 800 and 1000 litres

BEPC 300: DHW calorifier 300 litres for heat pump

FWS...: Instantaneous DHW calorifiers 750 and 1500 litres



BPB 150...500



BLC 150...500



BEPC 300



B 650...1000



FWS 750/1500



Stored DHW: BPB/BLC/B...
BEPC 300
instantaneous DHW: FWS...



For connection to a boiler up to an exchanged output of \approx :
- 90 kW for BLC/BEPC 300
- 120 kW for BPB...
- 170 kW for B 650/800/1000
- 290 kW for FWS...



BPB/BLC.../BEPC 300: Range of independent DHW calorifiers from 150 to 500 litres with exchanger in the form of an enamelled coil for connection to a central heating boiler, tank in enamelled steel and protection by magnesium anode.

B 650/800/1000: Range of independent DHW calorifiers from 650 to 1000 litres with exchanger in the form of an enamelled coil for connection to a central heating boiler, tank in enamelled steel and Correx[®] imposed current anode offering "Integral Anti-Corrosion" protection (B 800 and B 1000). B 650 is protected by two magnesium anode.

FWS...: Range of instantaneous domestic hot water (DHW) calorifiers, from 195 to 290 kW, with primary water storage and DHW production via a stainless-steel coil exchanger for applications where prevention of legionellosis is essential.

CONDITIONS OF USE

Maximum operating temperature

- primary (exchanger):
 - BPB/BLC...: 95 °C
 - B.../ BEPC 300: 110 °C
- primary (tank):
 - FWS...: 95 °C
- secondary (tank):
 - BPB/BLC...: 95 °C
 - B...: 95 °C
 - BEPC 300: 90 °C
- DHW exchanger:
 - FWS...: 90 °C

Maximum operating pressure

- primary (exchanger):
 - BPB/BLC...: 10 bar
 - BEPC 300: 12 bar
- primary (tank):
 - FWS...: 6 bar
- secondary (tank):
 - BPB/BLC...: 10 bar
 - BEPC 300: 7 bar
- DHW exchanger:
 - FWS 750: 7 bar
 - FWS 1500: 10 bar

PRESENTATION OF THE RANGES

THE BPB/BLC RANGE OF INDEPENDENT DHW CALORIFIERS

The independent DHW calorifiers in the ranges BPB... and BLC... are used to produce domestic hot water both in individual and collective housing and in commercial or industrial premises. They are made of very thick sheet steel allowing a maximum operating pressure of 10 bar for domestic hot water. Their interior is protected by food quality standard high quartz content vitrified enamel and by a magnesium anode. BPB/BLC DHW calorifiers are fitted with an exchanger in the form of an enamelled coil with a larger exchange surface for the BPB... than for the BLC... Insulation is provided by 0%-CFC polyurethane foam, injected directly into the casing, with a thickness of 75 mm for the BPB range and 50 mm for the BLC range.

The white ABS casing has a smooth appearance for the BPB and a granular appearance for the BLC.

Note:

The choice of a BPB... or BLC... DHW calorifier will be made according to its intended use as well as according to its volume:

- if the flow over 10 minutes (l/10 min) is the main criterion, both ranges, BPB... or BLC..., offer equal performances;
- if, on the other hand, continuous flow (l/h) is the main requirement, one or other DHW calorifier will be selected according to the larger exchanger on the BPB... than on the BLC at an equivalent capacity.

THE BEPC 300 INDEPENDENT CALORIFIER

The BEPC 300 is a mixed DHW calorifier, to be used in association with a heat pump, and hence has a primary exchanger that is oversized in comparison with the volume of the tank. It is fitted with a steatite, 3000 W electrical heater with integrated thermostat. It is made of very thick sheet steel allowing a maximum DHW operating pressure of 7 bar. The interior is protected by food

quality standard, high quartz content, vitrified enamel and by a magnesium anode.

The insulation is 50 mm thick, 0%-CFC polyurethane foam, injected directly into the casing.

THE B 650/800/1000 RANGE OF INDEPENDENT DHW CALORIFIERS

Like BPB/BLC... DHW calorifiers, B 650/800 and 1000 DHW calorifiers are used to produce domestic hot water in collective housing as well as in industrial or commercial premises. They are made of very thick sheet steel allowing a maximum operating pressure for domestic hot water of 10 bar. Their interior is protected by food quality standard vitrified enamel with a high quartz content. This protection against corrosion is further reinforced by a Correx® "self-adapting" current anode with a practically unlimited life span (B 800 and B 1000). B 650 is protected by two magnesium anode.

They are fitted with an exchanger in the form of a large enamelled coil.

The casing, in beige and grey on the B 650/800/1000, is constructed using rigid shells in polyurethane foam with 0% CFCs; this class M3 casing allows the use of these DHW calorifiers in establishments open to the public and can be put in place once the tank has been installed and connected.

THE FWS 750/1500 RANGE OF INDEPENDENT DHW CALORIFIERS

Multi-zone steel calorifiers for production of instantaneous DHW, to which all types of boiler can be connected and with the option of connecting a solar circuit. It is comprised of a stratification storage tank and an exchanger in the form of a high performance stainless steel coil incorporated in the tank

for the production of DHW (up to 80 l/min). Model FWS 1500 contains a double exchanger.

The main applications of this tank can be found in the service sector: retirement homes, hospitals, schools, etc. where prevention of legionella is essential.

WATER QUALITY

Our calorifiers from the B... range are fitted with enamelled tanks allowing use of water with a hard-water mineral content of between 12 °f and 20 °f on the French hard water scale. If this is not the case, we recommend pre-treating the water before

injection into the tank. The stainless steel exchanger in our FWS... calorifiers is suitable for all water qualities intended for human consumption.

CHOOSING THE DOMESTIC HOT WATER CALORIFIER

The domestic hot water calorifier must be chosen in full knowledge of the facts in order to ensure permanent DHW availability at the desired temperature.

It is therefore important accurately to determine the DHW needs necessary to meet this requirement, which depends largely on the number of people living in the home and their consumption habits.

Below are a number of points which may help you in this choice :

DETERMINING YOUR DOMESTIC HOT WATER NEEDS

Determining these needs will condition :

- The choice of the DHW calorifier's capacity;
- The power of its exchanger;
- And possibly the power of the generator with which it is combined.

METHODS FOR DETERMINING YOUR DHW NEEDS

⇒ Using the "DHW Needs" software available in our "DIEMATOOLS" offer

This software (or any other software which you may have acquired) will offer you an effective guide in assessing your needs.

⇒ Other methods

- Using the tables below, it is possible to approximate your daily domestic hot water needs.

It will also depend on the risk of legionellosis, which would direct the choice towards a calorifier with instantaneous DHW production.

Actual needs will therefore have to be determined for a given temperature over a given duration (hour/day) and the peak flows (litre/minute) assessed according to DHW use at a given moment. In collective housing, it will also mean factoring in simultaneous use.

Important:

To determine the capacity of the DHW calorifier, it is necessary to factor in any peak flows caused by simultaneous use at different draw-off points in addition to these daily needs. As for the calculation of the installation, this will have to be made in accordance with prevailing standards.

Station to be supplied	Number of people	Daily DHW needs (l to 60°C)
Sink	1-2	30 to 40
kitchen	3-4	40 to 50
Sink	1-2	75 to 95
+ washbasin	3-4	120 to 170
+ shower	5-6	150 to 190

Note: These tables do not cover multi-jet showers (≈ 50 l/min) or "spa" type bathtubs

Station to be supplied	Number of people	Daily DHW needs (l to 60°C)
Washbasin + small bathtub	1-2	50 to 75
Sink	3-4	80 to 120
+ washbasin	1-2	90 to 150
+ bathtub	3-4	150 to 240
	5-6	145 to 340

Special cases : domestic hot water requirements in the tertiary sector

Hotels with no restaurant

Hotel category	no*	1*	2*	3*	4*
DHW needs at 60°C (l/room)	50	70	100	120	150

Camp sites

Number of shower cabins	5	10	15	20
DHW needs at 60°C (l)				
Seaside	1200	2400	3600	4800
Not seaside	1000	1900	2800	3700

Others

Retirement home:

40 l at 60°C per bed per day + 10 l per meal (lunch and dinner).

Offices:

6 l at 60°C per occupant per day.

Hospitals and clinics:

60 l at 60°C per bed per day + 12 l per day per meal (lunch and dinner).

Restaurants

Restaurant	collective (1)		private (1*) (2)	
Number of place settings	100	200	40	60
DHW needs at 60°C (l)	500	1000	480	520

(1) 5 l/place setting with dishwashing for 1 h.
(2) 12 l/place setting with dishwashing for 1 h.

Hairdressing salons

Number of basins	DHW needs at 60°C (l)
3	700
4	1000

Schools:

5 l at 60°C per pupil per day.

Military barracks:

3 l at 60°C per person per day.

Gymnasiums:

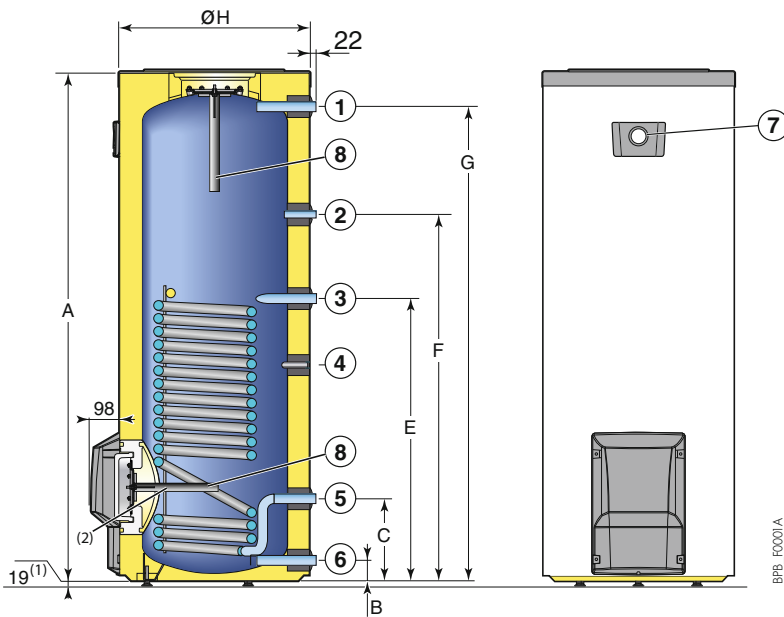
6.5 l at 60°C per person with timed shower.

Stadiums:

27 l at 60°C per person with timed shower.

BPB 150 TO 500 DHW CALORIFIERS: TECHNICAL SPECIFICATIONS

PRINCIPAL DIMENSIONS (IN MM AND INCHES)



- ① Domestic hot water outlet G 1"
- ② Circulation G 3/4"
- ③ Exchanger inlet G 1"
- ④ Location DHW sensor int. Ø 16,1 mm
- ⑤ Exchanger outlet G 1"
- ⑥ Cold water inlet and drainage G 1"
- ⑦ Thermometer
- ⑧ Anode

(1) Feet adjustable from 19 to 29 mm
 (2) by models 300, 400 and 500 litres
 G: cylindrical external thread
 (water tightness by flat gasket)

	A	B	C	E	F	G	Ø H
BPB 150	964	70	282	612	692	844	660
BPB 200	1234	70	282	747	910	114	660
BPB 300	1754	70	282	972	1262	1634	660
BPB 400	1642	66	282	972	1220	1509	760
BPB 500	1760	71	283	1152	1348	1618	810

TECHNICAL SPECIFICATIONS

Maximum operating temperature:
 - primary (exchanger): 95°C
 - secondary (tank): 95°C

Maximum operating pressure:
 - primary (exchanger): 10 bar
 - secondary (tank): 10 bar

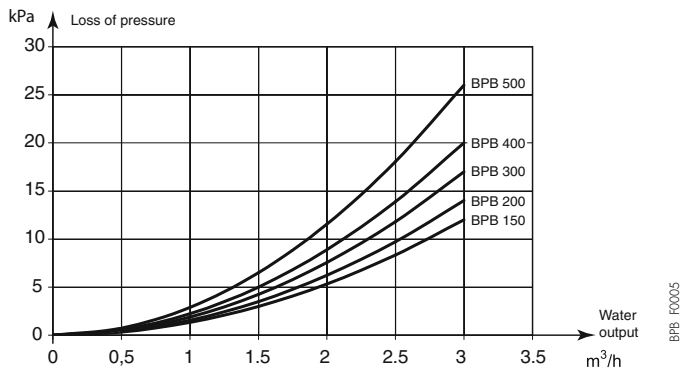
Model		BPB 150	BPB 200	BPB 300	BPB 400	BPB 500
Calorifier capacity	l	150	200	300	395	500
Exchanger surface	m ²	0.84	1.20	1.70	2.20	3.10
Nominal primary liquid flow	m ³ /h	3.0	3.0	3.0	3.0	3.0
ΔP primary circuit at nominal flow	kPa	9.1	11.8	15.5	20.0	27.0
at temp. Primary inlet temp.	°C	55 70 80 90	55 70 80 90	55 70 80 90	55 70 80 90	55 70 80 90
outlet Exchanged output	kW	10.9 22.1 29 36.5	14.7 29.8 39 49.1	20.3 41.2 54 68	25.6 51.9 68 85.7	32.3 65.6 86 108.4
DHW = 45°C Flow per hour at ΔT = 35 K	l/h	270 545 710 900	360 730 960 1205	500 1015 1330 1675	630 1275 1670 2105	795 1615 2115 2665
at temp. Primary inlet temp.	°C	- 70 80 90	- 70 80 90	- 70 80 90	- 70 80 90	- 70 80 90
outlet Exchanged output	kW	- 15.4 23.8 31.3	- 20.7 32 42.1	- 28.6 44.3 58.3	- 36 55.8 73.4	- 45.6 70.5 92.9
DHW = 60°C Flow per hour at ΔT = 50 K	l/h	- 265 410 540	- 355 550 725	- 490 760 1005	- 620 960 1265	- 785 1215 1600
Flow over 10 min at ΔT = 30 K (II)	l/10 min	250	340	520	670	800
Cooling constant	Wh/24 h.k.l	0.18	0.17	0.15	0.14	0.11
Standby consumption at ΔT = 45 K	kWh/24h	1.1	1.3	1.6	2.0	2.2
Net weight	kg	57	74	99	134	161

(II) Cold water temp.: 10°C, primary inlet temp.: 80°C

Note: Pressure drop according to the primary exchanger flow and continuous performance : see page 5.

BPB 150 TO 500 DHW CALORIFIERS: TECHNICAL SPECIFICATIONS

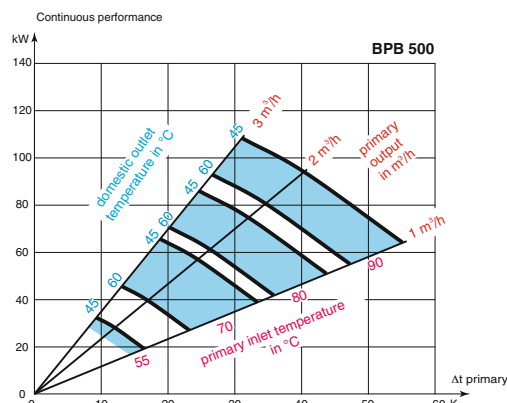
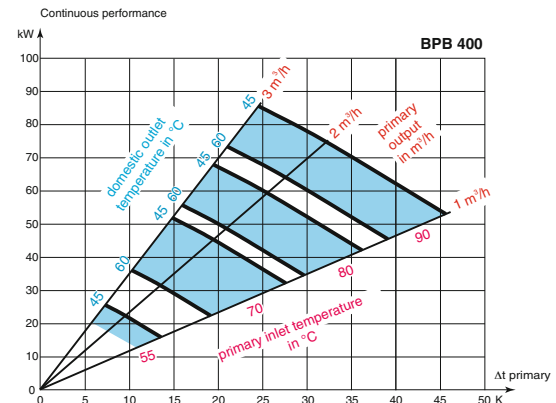
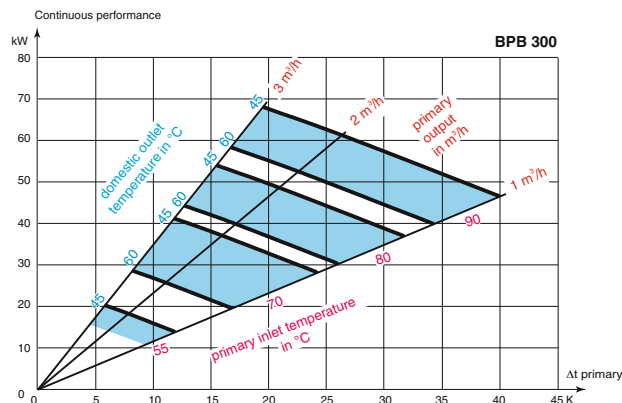
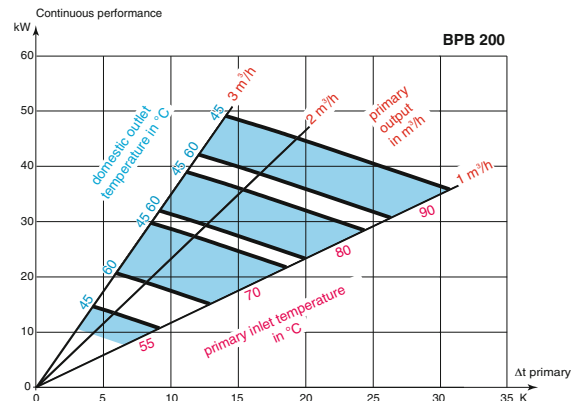
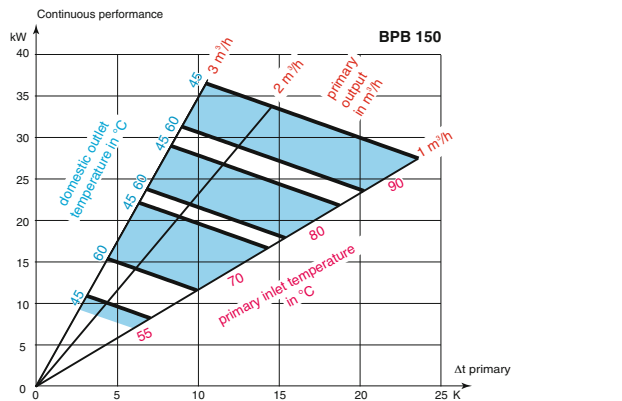
PRESSURE DROP ACCORDING TO THE PRIMARY EXCHANGER FLOW



CONTINUOUS PERFORMANCE OF BPB 150 TO 500

The following diagrams give the continuous performance in kW according to the ΔT or the primary flow, primary inlet and DHW

outlet temperatures (45° to 60°C).
Cold water temp.: 10°C



How to use the diagrams

a) BPB 150

data: primary inlet t° /outlet t° : 90/76°C
i.e. Δt primary = 14 K
domestic inlet t° /outlet t° : 10/45°C
results: primary flow = 2 m³/h
continuous output = 34 kW

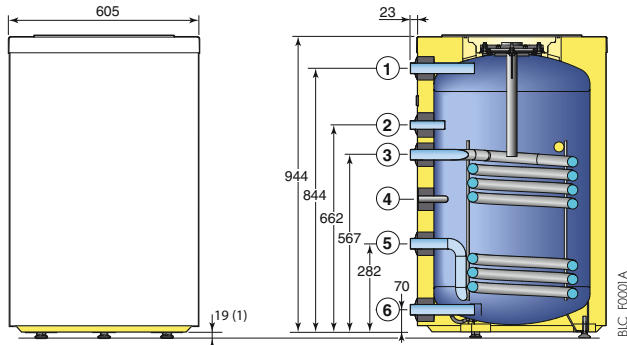
b) BPB 400

data: primary inlet t° : 80°C
domestic inlet t° /outlet t° : 10/45°C
primary flow = 3 m³/h
results: Δt = 19 K
continuous output = 67 kW

1 K = 1°C

BLC 150 TO 500 DHW CALORIFIERS: TECHNICAL SPECIFICATIONS

PRINCIPAL DIMENSIONS (IN MM AND INCHES) BLC 150

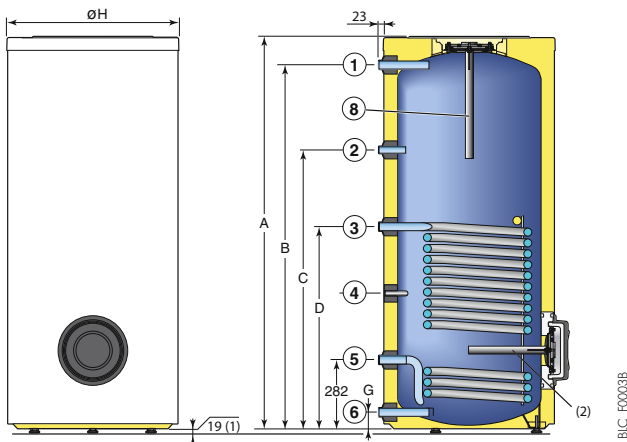


- ① Domestic hot water outlet G 1"
- ② Circulation G 3/4"
- ③ Exchanger inlet G 1"
- ④ Location DHW sensor int. Ø 16,1 mm
- ⑤ Exchanger outlet G 1"
- ⑥ Cold water inlet G 1"

(I) Feet adjustable from 19 to 29 mm

G: cylindrical external thread
(water tightness by flat gasket)

BLC 200/300/400/500



- ① Domestic hot water outlet G 1"
- ② Circulation G 3/4"
- ③ Exchanger inlet G 1"
- ④ Location DHW sensor int. Ø 16,1 mm
- ⑤ Exchanger outlet G 1"
- ⑥ Cold water inlet and drainage G 1"
- ⑧ Anode

(I) Feet adjustable from 19 to 29 mm
(2) By models 300, 400 and 500 litres

G: cylindrical external thread
(water tightness by flat gasket)

	A	B	C	D	G	Ø H
BLC 200	1214	1114	840	657	70	610
BLC 300	1734	1634	1142	747	70	610
BLC 400	1622	1509	1155	836	61	710
BLC 500	1740	1618	1213	896	71	760

TECHNICAL SPECIFICATIONS

Maximum operating temperature:
 - primary (exchanger): 95°C
 - secondary (tank): 95°C

Maximum operating pressure:
 - primary (exchanger): 10 bar
 - secondary (tank): 10 bar

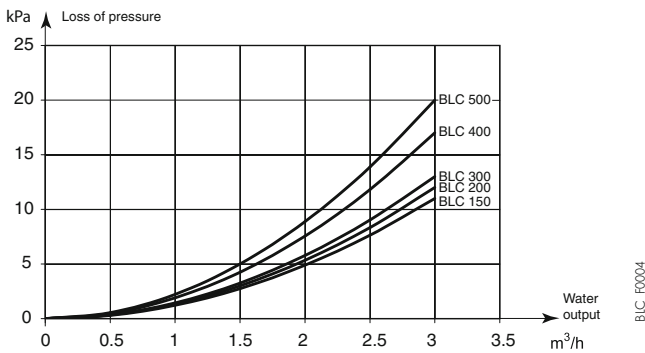
Model		BLC 150	BLC 200	BLC 300	BLC 400	BLC 500
Calorifier capacity	l	150	200	300	395	500
Exchanger surface	m ²	0.76	0.93	1.20	1.80	2.20
Nominal primary liquid flow	m ³ /h	3.0	3.0	3.0	3.0	3.0
ΔP primary circuit at nominal flow	kPa	11	12	13	17	20
at temp.	Primary inlet temp.	°C	55 70 80 90	55 70 80 90	55 70 80 90	55 70 80 90
outlet	Exchanged output	kW	9.8 19.8 26 32.8	12.4 25.2 33 41.6	14.7 29.8 39 49.1	21.1 42.7 56 70.6
DHW = 45°C	Flow per hour at ΔT = 35 K	l/h	240 490 640 805	305 620 810 1020	360 730 960 1210	520 1050 1375 1735
at temp.	Primary inlet temp.	°C	- 70 80 90	- 70 80 90	- 70 80 90	- 70 80 90
outlet	Exchanged output	kW	- 13.8 21.3 28.1	- 17.5 27.1 35.6	- 20.7 32 42.1	- 29.7 45.9 60.5
DHW = 60°C	Flow per hour at ΔT = 50 K	l/h	- 240 370 485	- 300 465 615	- 355 550 725	- 510 790 1040
Flow over 10 min at ΔT = 30 K (I)	l/10 min	250	340	520	670	780
Cooling constant	Wh/24 h.K.l	0.24	0.23	0.20	0.18	0.15
Standby consumption at ΔT = 45 K	kWh/24h	1.4	1.8	2.2	2.6	3
Net weight	kg	57	74	99	134	161

(I) Cold water temp.: 10°C, primary inlet temp.: 80°C

Note: Pressure drop according to the primary exchanger flow and continuous performance: see page 7.

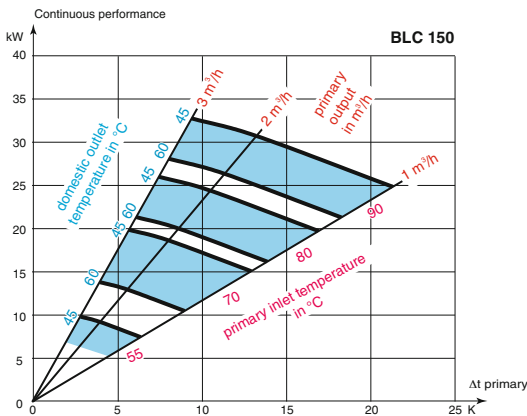
BLC 150 TO 500 DHW CALORIFIERS: TECHNICAL SPECIFICATIONS

PRESSURE DROP ACCORDING TO THE PRIMARY EXCHANGER FLOW

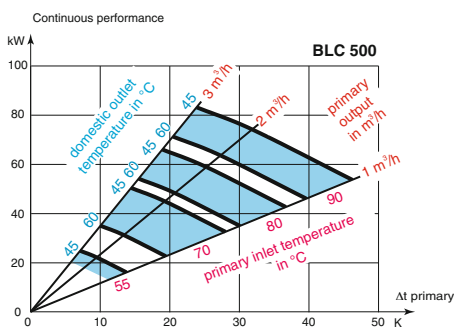
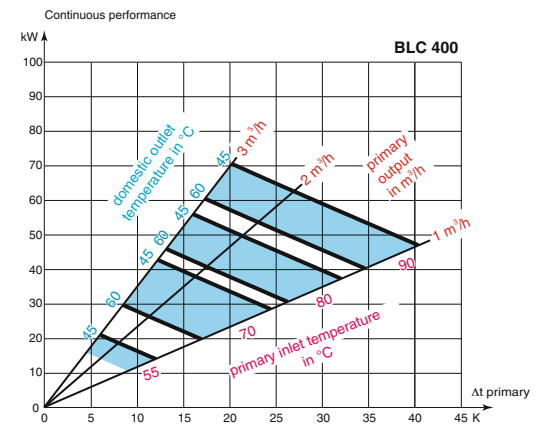
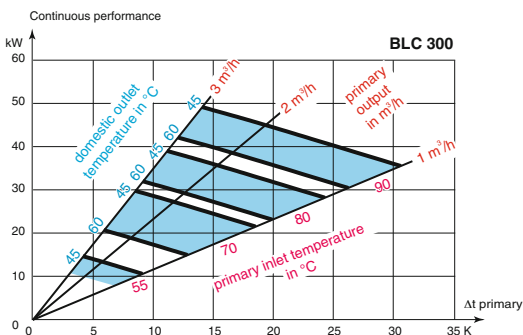
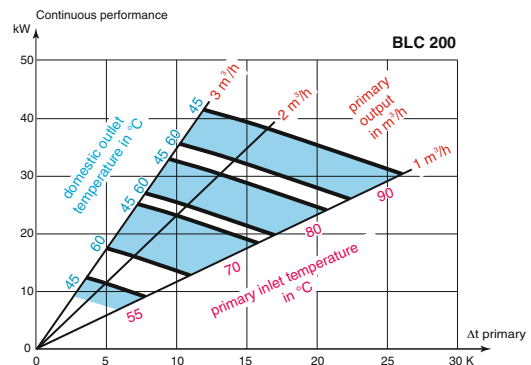


CONTINUOUS PERFORMANCE OF BLC 150 TO 500

The following diagrams give the continuous performance in kW according to the ΔT or the primary flow, primary inlet and DHW outlet temperatures (45 to 60°C). Cold water temp.: 10°C



outlet temperatures (45 to 60°C). Cold water temp.: 10°C



How to use the diagrams

a) BLC 150

data: primary inlet t° /outlet t° : 90/75°C
 i.e. Δt primary = 15 K
 domestic inlet t° /outlet t° : 10/45°C
 results: primary flow = 2 m³/h
 continuous output = 34 kW

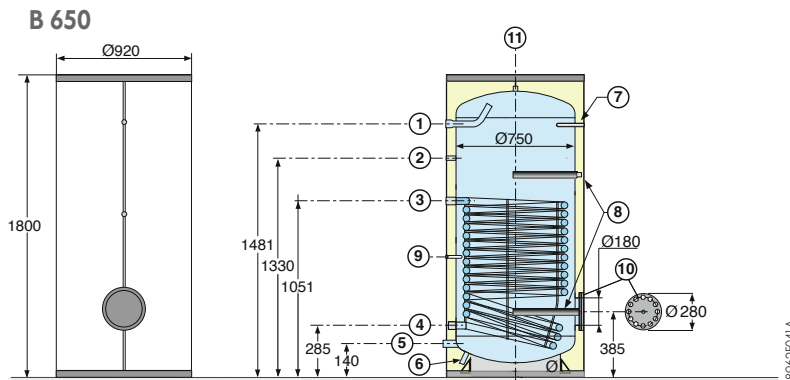
b) BLC 400

data: primary inlet t° : 80°C
 domestic inlet t° /outlet t° : 10/45°C
 primary flow: 3 m³/h
 results: Δt = 20 K
 continuous output = 70 kW

1 K = 1°C

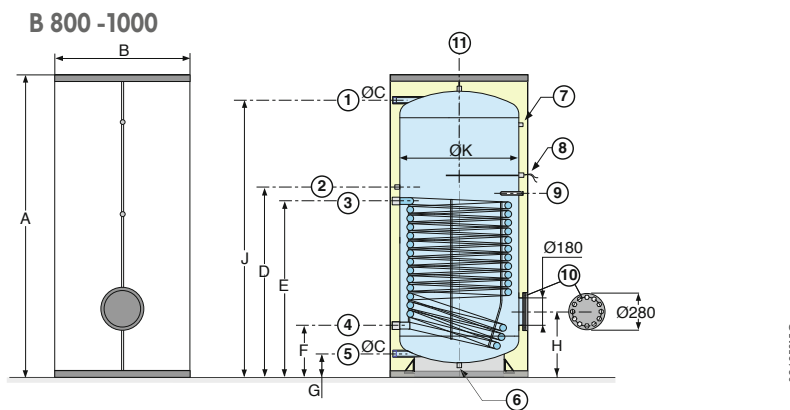
B 650, B 800 AND 1000 DHW CALORIFIERS: TECHNICAL SPECIFICATIONS

PRINCIPAL DIMENSIONS (IN MM AND INCHES)



- ① Domestic hot water outlet Rp 1 1/4"
- ② Circulation Rp 3/4"
- ③ Exchanger inlet Rp 1 1/2"
- ④ Exchanger outlet Rp 1 1/2"
- ⑤ Domestic cold water inlet Rp 1 1/4"
- ⑥ Drainage Rp 1"
- ⑦ Location for thermometer
- ⑧ Magnesium anode Rp 1 1/4"
- ⑨ Sensor location
- ⑩ 12 x M12 on Ø 246 mm
- ⑪ Location for air vent Rp 3/4" plugged

R: threading
Rp: tapped connection



- ① Domestic hot water outlet Ø C
- ② Circulation Rp 3/4"
- ③ Exchanger inlet Rp 1 1/2"
- ④ Exchanger outlet Rp 1 1/2"
- ⑤ Domestic cold water inlet Ø C
- ⑥ Drainage Rp 3/4"
- ⑦ Location for thermometer Rp 1/2" plugged
- ⑧ Impose current anode
- ⑨ Sensor tube interior Ø 9 int.
- ⑩ 12 x M12 on Ø 246 mm
- ⑪ Location for air vent Rp 3/4" plugged

R: threading
Rp: tapped connection

	A	Ø B	Ø C	D	E	F	G	H	J	Ø K
B 800	2180	920	Rp 1 1/4	1345	1245	355	152	455	2050	750
B 1000	2170	1040	Rp 1 1/2	1355	1255	365	162	465	1977	850

TECHNICAL SPECIFICATIONS

Maximum operating temperature:
 - primary (exchanger): 95°C
 - secondary (tank): 95°C

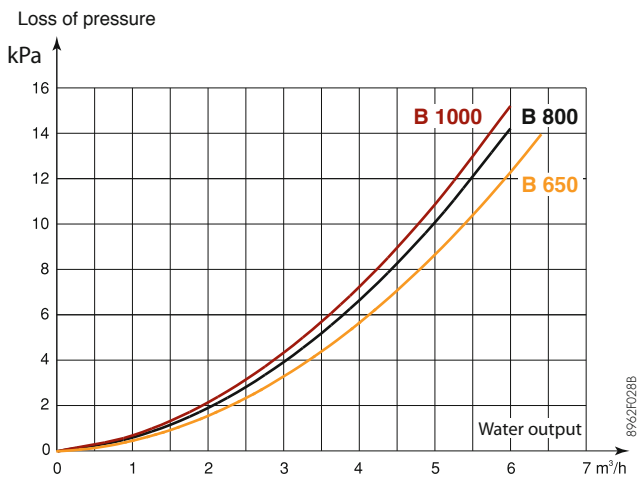
Maximum operating pressure:
 - primary (exchanger): 12 bar
 - secondary (tank): 10 bar

Model		B 650	B 800	B 1000
Calorifier capacity	l	650	780	980
Exchanger surface	m ²	3.4	3.9	4.5
Exchanger capacity	l	35.3	37.9	43.3
Nominal primary liquid flow	m ³ /h	6.0	6.0	6.0
ΔP primary circuit at nominal flow	kPa	13.8	14.2	15.2
at temp. Primary inlet temp.	°C	55 70 80 90	55 70 80 90	55 70 80 90
outlet Exchanged output	kW	38 77.5 101 128	45.1 91.6 120.0 151.2	50.8 103.1 135.0 170.1
DHW = 45°C Flow per hour at ΔT = 35 K	l/h	930 1900 2480 3150	1111 2260 2950 3720	1251 2540 3320 4190
at temp. Primary inlet temp.	°C	- 70 80 90	- 70 80 90	- 70 80 90
outlet Exchanged output	kW	- 53.5 82.8 109	- 63.6 98.4 129.6	- 71.6 110.7 145.8
DHW = 60°C Flow per hour at ΔT = 50 K	l/h	- 920 1420 1870	- 1090 1690 2230	- 1230 1900 2510
Flow over 10 min at ΔT = 30 K (II)	l/10 min	980	1150	1430
Cooling constant	Wh/24 h.K.l	0.15	0.15	0.13
Standby consumption at ΔT = 45 K	W	215	215	235
Net weight	kg	292	354	459

(II) Cold water temp.: 10°C, primary inlet temp.: 80°C

B 650, B 800 AND 1000 DHW CALORIFIERS: TECHNICAL SPECIFICATIONS

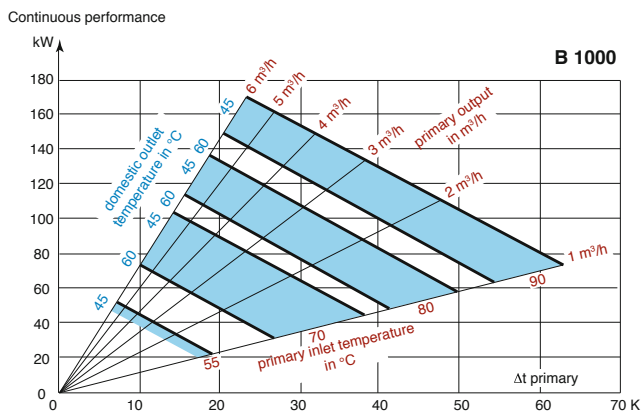
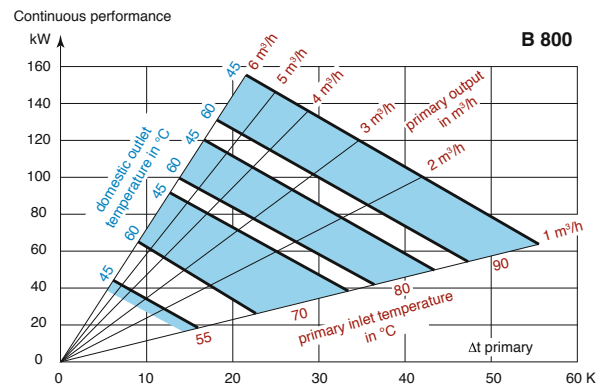
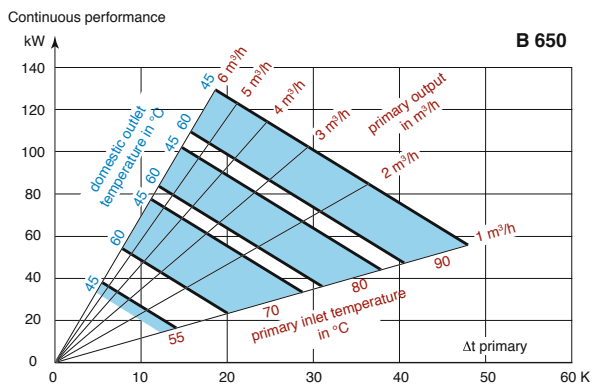
■ PRESSURE DROP ACCORDING TO THE PRIMARY EXCHANGER FLOW



■ CONTINUOUS PERFORMANCE OF B... CALORIFIERS

The following diagrams give the continuous performance in kW according to the ΔT or the primary flow, primary inlet and DHW

outlet temperatures (45° to 60°C).
Cold water temp.: 10°C



BPB/BLC 150 TO 500, B... CALORIFIERS: OPTIONS

OPTIONS

AM 7



892Q079

Inert electrical anode "with self-adapting current"

Package AJ 38: for BPB/BLC 150 to 300
Package AM 7: for BPB/BLC 400 and 500

Kit "Titan Activ System" - Package EC 431

(for DHW calorifier combined with a boiler fitted with the DIEMATIC 3 control panel)

The self-adapting current anode consists essentially of a titanium, platinum-coated rod powered at low voltage. Its advantage over a traditional magnesium anode is that the material is free of wear. Therefore it does not need to be monitored as its life span is practically unlimited. The self-adapting current anode is mounted in the lateral flange, in the place and instead of the magnesium anode; for the calorifiers BPB 300 to 500 and BLC 300, 400 and 500 with 2 anodes, the 2nd anode

should also be removed and the opening plugged (kit delivered with the anode). The imposed current anode is delivered with a cable 3.5 m long and a transformer which can be plugged into a 230 V socket, to be fitted close to the DHW calorifier.

Important: The self-adapting current anode is not compatible with the installation of a shielded electrical resistor.



898Q311

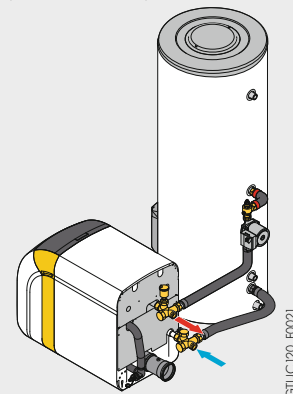
Electrical resistor 3 kW with thermostat - Package ER 336

This resistor is fitted to a flange 1" 1/2 in the place and instead of the existing lateral flange. In this case, it will not be possible to mount the ABS side-cover. This resistor is equipped with a safety thermostat and is powered independently of the DHW control system on the boiler circuit.

Important:

Fitting a "shielded" electrical resistor is not compatible with using a "self-adapting current" anode.

BPB - BLC + GT/GTU (C) 120
(Package EA 116)



GTUC120_F0021

BPB/BLC...calorifier/boiler connection kit

Package EA 116: for GT/GTU (C) 120, Elidens DTG 130-35 Eco.NOx Plus
Package EA 117: for GT 224, GT 225
Package EA 118: for GT 226 to 228, DTG 230
Package EA 119: for Elitec DTG (E) 130, Elidens DTG 130-15/25 Eco.NOx Plus
Package EA 121: for Elidens DTG 130-45 à 115 Eco.NOx Plus, Innovens Pro MCA 45 à 115
Package EA 124: for Elidens DTG E 130-35 Eco.NOx Plus
Package EH 149: for heat pump ALEZIO AWHP-II

As a general rule, the DHW calorifier can be placed to the right or left of the boiler according to the details given in the technical instructions for the boiler. The connection kits include an air vent, a non-return valve, a load pump (or reversal valve for package EA 124) and all the pipes required to make the connection.

Note:

The hydraulic specifications of the load pumps provided with these connection kits make it possible to reach primary flow values of between 2 and 3 m³/h depending on the pressure drop in the boiler connected to the DHW calorifier.



8975Q002

Thermometer (option for B... calorifiers) - Package AJ 32

The thermometer is delivered with a sensor tube to be inserted into the opening provided for this

purpose on the front of the DHW calorifier after first taking out the plug.



EH145_Q0001

Reversal valve heating + DHW sensor - Package EH 145

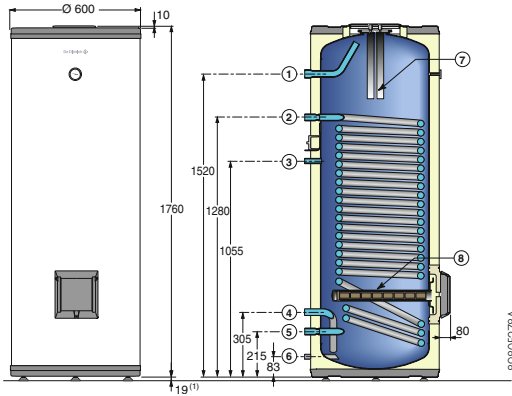


898Q107

Control unit for loading pump SLA 2 - Package EC 320

BEPC 300 DHW CALORIFIER: TECHNICAL SPECIFICATIONS

PRINCIPAL DIMENSIONS (IN MM AND INCHES)



- ① DHW outlet G 1"
- ② Exchanger inlet G 1"
- ③ Circulation G 3/4"
- ④ Domestic cold water inlet G 1"
- ⑤ Exchanger outlet G 1"
- ⑥ Drainage G 1"
- ⑦ Anode
- ⑧ Electrical resistance

(I) Feet adjustable from 19 to 29 mm
 G: cylindrical external thread
 (water tightness by flat gasket)

TECHNICAL SPECIFICATIONS

Maximum operating temperature:

- primary (exchanger): 110°C
- secondary (tank): 90°C

Maximum operating pressure:

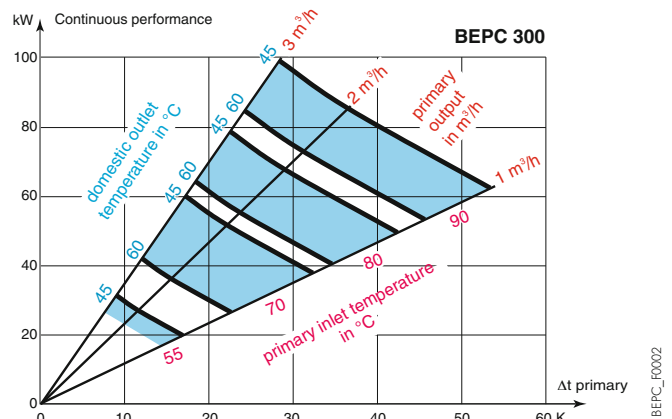
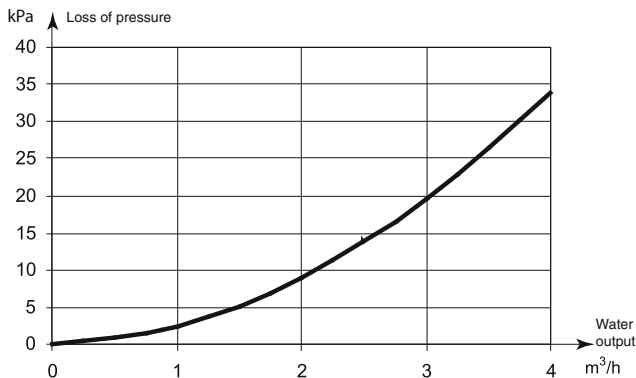
- primary (exchanger): 12 bar
- secondary (tank): 7 bar

Model		BEPC 300											
Calorifier capacity	l	300											
Exchanger surface	m ²	2.5											
Exchanger capacity	l	16.7											
Intensity: single phase (230 V) / three phase (230 V) / three phase (400 V)	W	13.7/7.8/4.6											
↪ DHW flow (with primary flow...)	m ³ /h	1			2			3					
at temp. Primary inlet temp.	°C	55	70	80	90	55	70	80	90	55	70	80	90
outlet Exchanged output	kW	19.7	37.7	49.4	62.2	27.0	51.6	67.6	85.1	31.4	60.0	78.6	99.0
DHW = 45°C Flow per hour at ΔT = 35 K	l/h	485	926	1213	1528	664	1268	1661	2092	772	1474	1931	2432
at temp. Primary inlet temp.	°C	55	70	80	90	55	70	80	90	55	70	80	90
outlet Exchanged output	kW	-	26.4	40.3	53.2	-	36.1	55.2	72.8	-	42.0	64.2	84.6
DHW = 60°C Flow per hour at ΔT = 50 K	l/h	-	454	694	914	-	621	949	1251	-	722	1104	1455
Electrical power	W	3000											
«Electric» heating time from 15 to 65°C	h	5.5											
Cooling constant	Wh/24h.K.l	0.20											
Qpr	kWh/24h	2.2											
Primary circuit pressure drop at flow of 3 m ³ /h	kPa	21											
Net weight	kg	145											

PRESSURE DROP ACCORDING TO THE PRIMARY EXCHANGER FLOW - CONTINUOUS PERFORMANCE

The following diagrams give the continuous performance in kW according to the ΔT or the primary flow, primary inlet and DHW

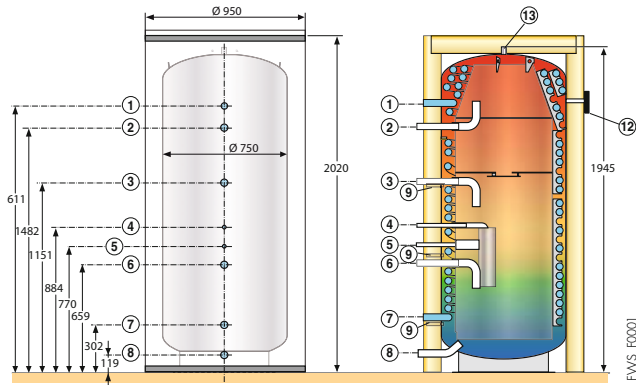
outlet temperatures (45 to 60°C).
 Cold water temp.: 10°C



FWS... INSTANTANEOUS DHW CALORIFIER: TECHNICAL SPECIFICATIONS

PRINCIPAL DIMENSIONS (IN MM AND INCHES)

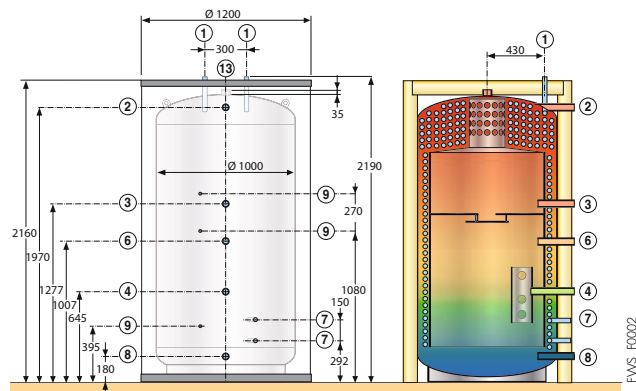
FWS 750



	FWS 750	FWS 1500
① Domestic hot water outlet	Rp 1"	R1"
② Boiler inlet	R 1 1/4"	R 1 1/2"
③ Boiler return (maxi solar)	R 1 1/4"	R 1 1/2"
④ Solar circuit inlet	R 3/4"	R 1 1/2"
⑤ Solar volume input	R 3/4"	-
⑥ Boiler return (mini solar)	R 1 1/4"	R 1 1/2"
⑦ Domestic cold water inlet	Rp 1"	R 1"
⑧ Solar circuit outlet/drainage Boiler outlet if no solar circuit	R 1 1/4"	R 1 1/2"
⑨ Sensor tube Ø	20 mm	16 mm
⑫ Thermometer	Rp 3/4"	-
⑬ Air vent	Rp 3/8"	R 2"

R: threading
Rp: tapped connection

FWS 1500



DHW exchanger

FWS 750: annealed stainless steel tube, DN 32, with 1" connection (7 bar)

FWS 1500: 2 rigid, 1" stainless-steel tubes individually connected to the same circuit or to separate circuits (10 bar)

Material: Stainless steel

TECHNICAL SPECIFICATIONS

Operating pressure:
- tank: 6 bar

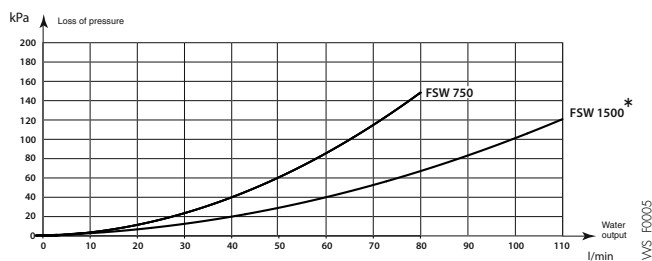
- DHW exchanger: FWS 750: 7 bar
FWS 1500: 10 bar

Max. operating temperature:
- tank: 95°C

Model		FWS 750						FWS 1500																		
Total storage volume	l	700						1440																		
Total solar storage volume maxi/mini	l	380/230						860/700																		
DHW coil capacity	l	50						86																		
DHW exchange surface	m ²	10 (single coil)						11 (double coil)																		
Exchange power maxi	kW	195						280																		
DHW coil pressure drop at 2 m ³ /h / 4 m ³ /h / 6 m ³ /h	bar	0.2/0.8/2.0						0.1/0.5/1.0																		
⇨ DHW flow (with primary flow...)		m ³ /h	3	4	5	6	3	4	5	6	3	4	5	6												
at temp.	Primary inlet temp.	°C	70	80	90	70	80	90	70	80	90	70	80	90	70	80	90									
outlet	Exchanged output	kW	143	186	-	171	-	-	192	-	-	-	170	201	-	196	239	-	211	262	-	223	274	-		
DHW = 45°C	Flow per hour at ΔT = 35 K (I)	l/h	3513	4567	-	4216	-	-	4729	-	-	-	4176	4938	-	4815	5872	-	5184	6437	-	5478	6731	-		
at temp.	Primary inlet temp.	°C	70	80	90	70	80	90	70	80	90	70	80	90	70	80	90	70	80	90	70	80	90	70	80	90
outlet	Exchanged output	kW	100	153	203	118	182	241	134	204	270	148	228	-	117	179	220	139	203	261	154	217	288	160	227	301
DHW = 60°C	Flow per hour at ΔT = 50 K (I)	l/h	1721	2629	3500	2043	3140	4143	2308	3518	4653	2554	3916	-	2012	3078	3783	2390	3491	4488	2648	3732	4953	2772	3904	5176
Cooling constant		Wh/24h.K.l	0.14						0.15																	
Net weight		kg	260						320																	

(I) boiler connected in ② and ③ (without solar)

PRESSURE DROP ACCORDING TO THE DHW EXCHANGER FLOW



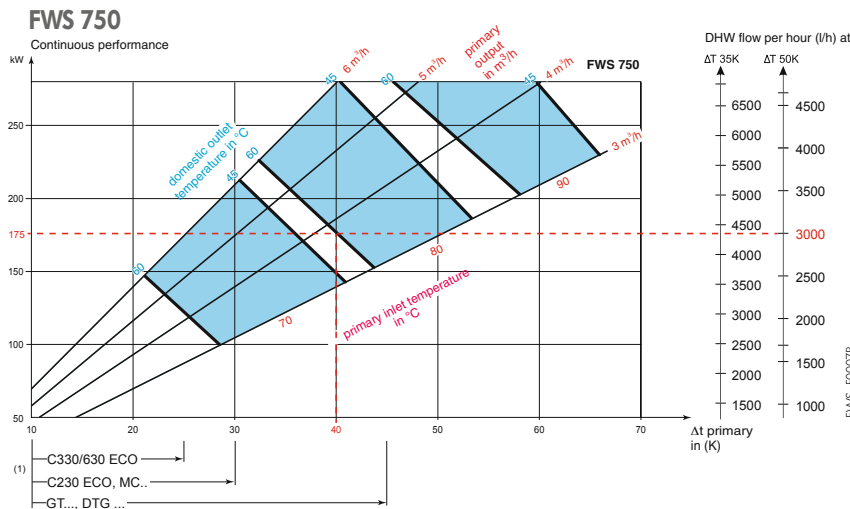
Comment:

The maximum permissible flow through the DHW exchanger on the FWS 750 is 4800 l/h (80 l/min) because of the noise in the exchanger.

* 2 exchangers connected in parallel

FWS... INSTANTANEOUS DHW CALORIFIER: TECHNICAL SPECIFICATIONS

CONTINUOUS PERFORMANCE



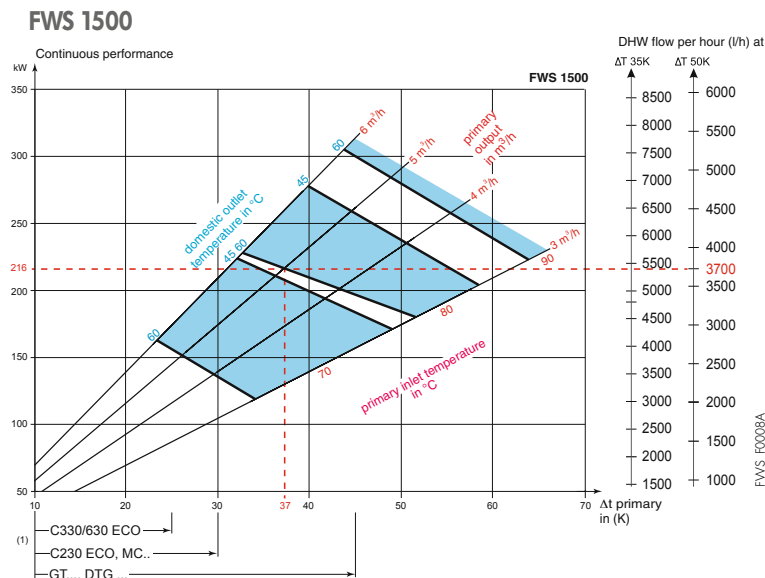
Example: GTU C 330 with

- DHW need: 3000 l/h
- Target DHW outlet temp.: 60°C (ΔT DHW: 50 K)

⇒ DHW setpoint temp. 70°C above primary inlet temp.: 80°C
Min. required boiler output: 175 kW. Primary flow rate required to fill the tank: 3.8 m³/h, ΔT primary: 40 K

⇒ Boiler selected: GTU C 337... with 193 kW
Recalculated primary flow with ΔT primary of 40 K: 4.2 m³/h

Note: max. flow rate through the DHW exchanger: 4800 l/h



Example: C 330 ECO with

- DHW need: 3700 l/h
- Target DHW outlet temp.: 60°C (ΔT DHW: 50 K)

⇒ DHW setpoint temp. 60°C above primary inlet temp.: 80°C
Min. required boiler output: 216 kW
Primary flow rate required to fill the tank: 5 m³/h, ΔT primary: 37 K (Δ ΔT primary max. 25 K for C 330 ECO)

⇒ Boiler selected: C 330-280 ECO... with 280 kW
Recalculated primary flow with ΔT primary of 25 K: 9.6 m³/h

(1) the max. primary ΔT permitted on these boilers ensures that they are protected against insufficient water supply.

INFORMATION REQUIRED FOR INSTALLATION

ELECTRICAL CONNECTIONS

Generally, the DHW calorifiers are managed by a control system incorporated in the De Dietrich boiler control panel. In this case, a domestic hot water sensor with a connection cable is delivered as optional equipment or with the control system. This sensor is inserted into the sensor tube provided for this purpose in the DHW calorifier. If using a boiler without a domestic hot water

control system incorporated in the control panel, you should fit the option: "Differential control system for controlling the load pump" which controls load pump operation according to the domestic hot water temperature selected. The "electrical resistor" and the "imposed current electrical anode" equipment (options for BPB/BLC...) are connected separately.

ANTI-CORROSION PROTECTION AND WATER QUALITY

The service life of enamelled calorifiers depends on the water quality and the anti corrosion protection of the internal lining of the tank.

- Water is termed hard (15 °f < TH < 50 °f) if it contains a lot of magnesium or calcium. These two elements have a protective role for the tank. Protection by magnesium anode is therefore sufficient. In contrast, the tank should be inspected periodically to prevent scaling.

- When the water is soft (TH < 14 °f), it becomes aggressive to the enamel and requires periodic monitoring of the magnesium anode. We recommend the installation of an imposed current anode to ensure effective long-term protection and a periodic check of the state of the tank lining.

EXAMPLES OF INSTALLATION

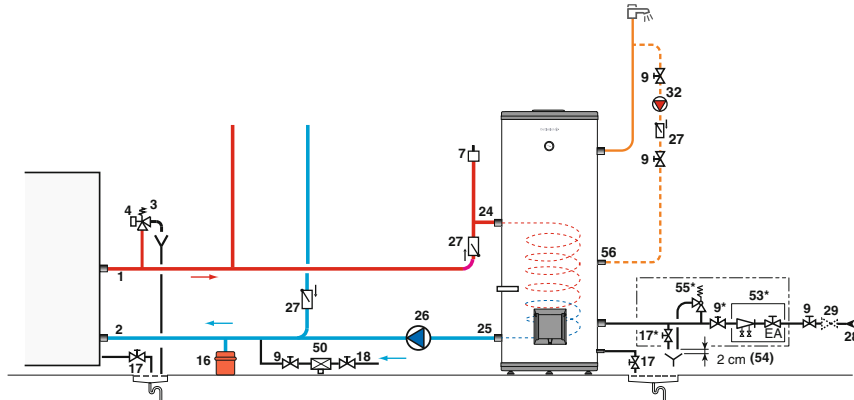
The purpose of the diagrams represented is to facilitate the drawing up of the quotation by the installer. They are given as examples. Other connections are possible. It is necessary to abide by the codes of practice and prevailing regulations.

Note: In accordance with safety rules, a calibrated, sealed safety valve must be fitted to the calorifier's domestic cold water inlet. We recommend hydraulic safety units with membrane.

When the heating installation includes a 3- or 4-way mixing valve, the exchanger must be connected between the boiler and the valve and must be as direct as possible. To improve efficiency, the independent DHW calorifier must be positioned as close as possible to the boiler and the connecting pipes must be insulated. The DHW calorifier can be placed to the right or left of the boiler.

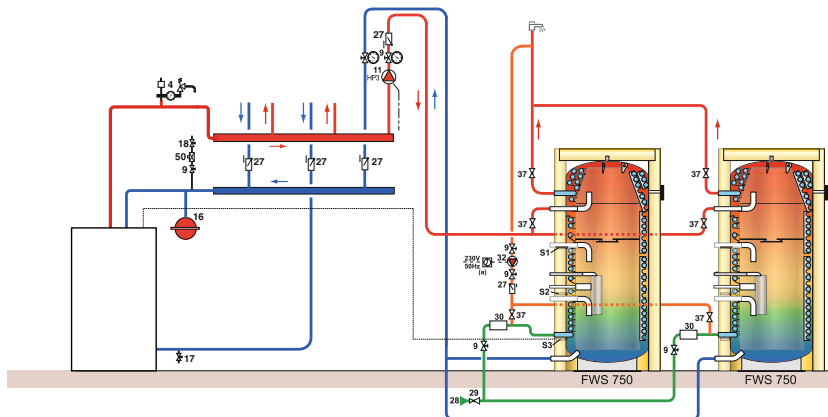
Note: To connect the domestic hot water, a sleeve made of steel, cast iron or any other insulating material must be interposed between the hot water outlet and the distribution pipes to prevent any corrosion to the connections if these pipes are made of copper.

Installation of an independent BPB/BLC... or B... calorifier and a boiler



8980312A

Installation with 2 FWS... calorifiers connected in parallel



FWS_F0036A

The FWS connects to the boiler like a calorifier with coil. The boiler reheats the hot water storage volume, which then provides heating of the DHW exchanger for instantaneous DHW production.

The DHW sensor circuit is placed in the lower 1/3 of the FWS calorifier, for which the set point should be adjusted to 10 K above

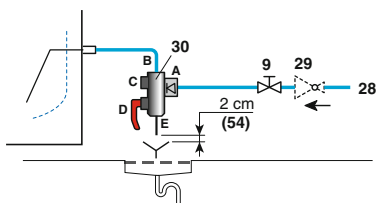
(*) Note:

The unit (53, 9, 55, 17) can be replaced to your advantage by a membrane safety unit 30, as long as you respect the following obligations:

- The safety unit and its connection to the DHW calorifier must be of the same diameter as the cold water supply pipes on the calorifier's domestic circuit (a minimum of 3/4" up to 300 litres and 1" over 300 litres);

the desired DHW temperature at the calorifier outlet. The storage volume compensates for low usage and for the revival time of the boiler during the times of largest demand. The choice of boiler power should be made with respect to the Δt that it allows.

- The level of the safety unit must be lower than the level of the cold water inlet (see below);
- The drainage pipe must have sufficient continuous gradient and its cross-section must be at least equal to that of the safety unit outlet opening (to avoid hindering the flow of water in the event of overpressure).



8980312A

- 30** - Safety unit calibrated and sealed at 10 bar
A - Cold water inlet including a non-return valve
B - Connection to the calorifier's cold water inlet
C - Stop valve
D - Manual safety and drainage valve
E - Drainage opening

Key: see page 15

EXAMPLES OF INSTALLATION

Installation of 2 independent BPB/BLC... or B... DHW calorifiers and a boiler

It is necessary to ensure that all parallel hydraulic connections, primary and secondary, are correctly balanced.

a) Parallel hydraulic connections - primary (exchangers) and secondary (DHW)

This type of connection is recommended when you want to give priority to the continuous performance of the calorifiers. It

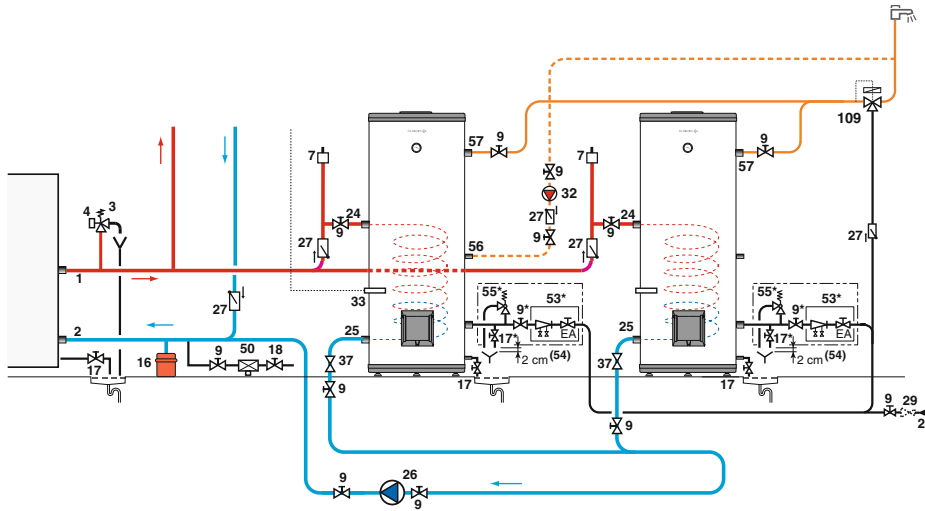
also allows operation with a single DHW calorifier when this is sufficient.

Emplacement of the control system sensor

The control system sensor will be placed in the DHW calorifier which can be allowed to operate alone or in the DHW calorifier connected to the circulation loop.

in the hydraulic balance of the circuits may lead to overheating in a calorifier not fitted with the control system sensor. (It is also necessary to ensure that the reverse phenomenon does not occur, i.e. insufficient heating in the same calorifier).

Note: It is advisable to fit a control system for the domestic hot water temperature (mixer tap) on the calorifier outlet, as a fault



*see note on page 14

8960F313B

b) Hydraulic connections - primary (exchangers) in parallel - secondary (DHW) in series

This type of connection is recommended when you wish to maintain maximum performance of the DHW calorifiers,

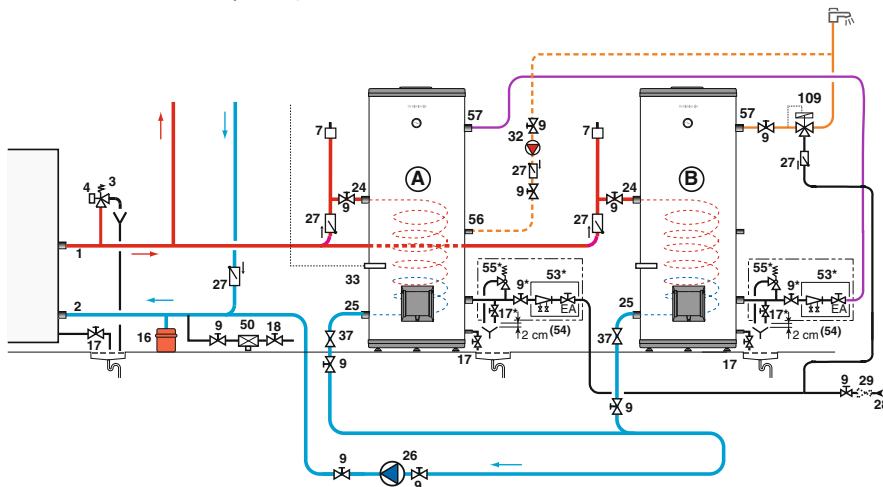
avoiding any mixing at the calorifier outlet due to domestic hydraulic circuits not being correctly balanced.

Emplacement of the control system sensor

The control system sensor will be placed in the DHW calorifier (A).

which may lead to overheating on calorifiers (B) not fitted with the control system sensor, the serial connection of the secondary circuits may lead to the need to reload the calorifier (A) whilst calorifier (B) is still at temperature.

Note: It is necessary to fit a device to control the domestic hot water temperature (mixer tap) on the DHW calorifier outlet (B). Apart from a hydraulic balance fault on the primary circuits



*see note on page 14

8960F313B

Key

- 1 Heating flow
- 2 Heating return
- 3 3 bar safety valve
- 4 Manometer
- 7 Automatic air vent
- 9 Stop valve
- 16 Expansion vessel
- 17 Drainage valve
- 18 Filling the heating circuit

- 24 Primary exchanger inlet
- 25 Primary exchanger outlet
- 26 DHW load pump
- 27 Non-return valve
- 28 Domestic cold water inlet
- 29 Pressure reducer if mains pressure > 5.5 bar
- 32 DHW loop pump (optional)

- 33 DHW temperature sensor
- 37 Balancing valve
- 50 Disconnecter
- 53 EA type protection unit comprising a stop valve and a controllable class A non-return valve (Standard P 43.007)
- 54 YA type load break (health regulations)

- 55 Membrane safety valve calibrated and sealed at 10 bar
- 56 DHW circulation return loop
- 57 Domestic hot water outlet
- 58 Plugged opening
- 109 Thermostatic mixer tap

INFORMATION ON THE PREVENTION OF SCALDING BY DOMESTIC HOT WATER AND THE DEVELOPMENT OF LEGIONELLA

To restrict the development of bacteria, the temperature of the hot water distributed must be at least 60°C on leaving storage and, if the installation includes a recirculation loop, the return water temperature

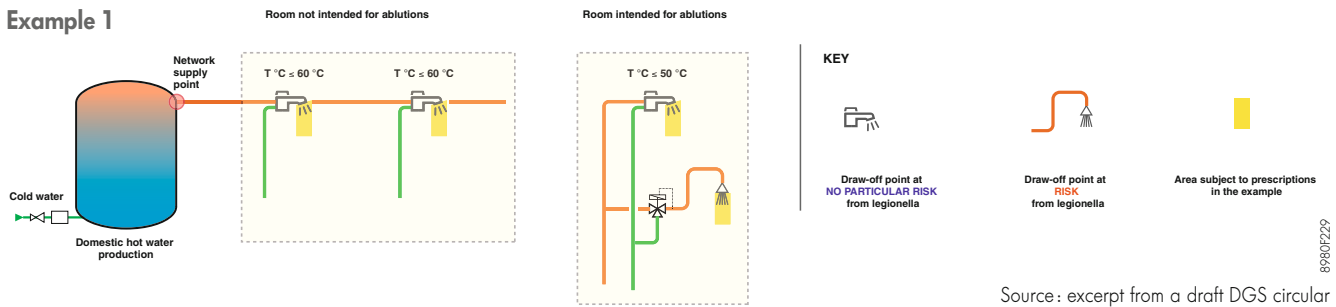
must be at least 50°C. In all cases, users must be protected against the risk of scalding at the draw-off points where the temperature of the water drawn off must not exceed 50°C.

RECOMMENDATION REGARDING SCALDING

Scalding caused by domestic hot water is a common accident which has serious consequences, particularly because of its potential extent. Around 15% of scalds are thought to be caused by the domestic hot water temperature being too high, occurring principally in the bathroom.

- In order to limit the risk of being scalded:
 - in rooms intended for ablutions, the maximum temperature of the domestic hot water is set at 50°C at the draw-off points;
 - in the other rooms, the maximum temperature of the domestic hot water is limited to 60°C at the draw-off points;
 - in the kitchens and laundries of establishments open to the public, the temperature of the water distributed may be raised to a maximum of 90°C at certain points which are indicated by special warning signs.

Example 1



RECOMMENDATION REGARDING LEGIONELLA IN STORAGE SYSTEMS AND DISTRIBUTION NETWORKS

Legionella is caused by the inhalation of water spray contaminated by legionella. Water temperature is a significant factor in preventing the development of legionella in distribution networks as the Legionella bacterium multiplies significantly in water presenting temperature of between 25 and 43°C. In order to limit the risk connected to the development of legionella in domestic hot water distribution systems to which draw-off points which may be at risk at likely to be connected, the following requirements must be respected when using domestic hot water production and distribution systems and during the 24 hours preceding their use:

- When the volume between the distribution point and the most distant draw-off point is more than 3 litres, the water

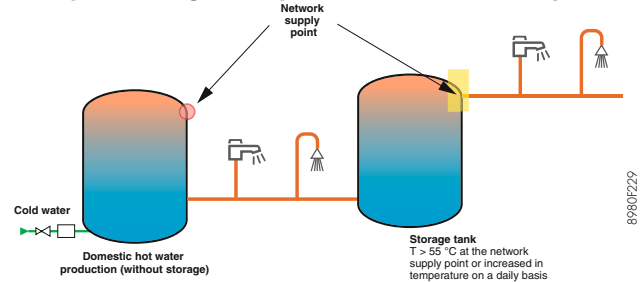
temperature must be higher than or equal to 50°C at all points in the distribution system with the exception of the final supply pipes. The volume in these final supply pipes must be as low as possible and at all times less than or equal to 3 litres;

- When the total storage volume is higher than or equal to 400 litres, the water contained in the storage equipment, excluding preheating calorifiers, must:
 - Always be at a temperature higher than or equal to 55°C at the equipment outlet;
 - Or be raised to a sufficient temperature at least once every 24 hours. Annex 1 gives the minimum water temperature maintenance time to be respected.

Annex 1 : minimum duration of the daily increase in the water temperature in storage equipment, excluding preheating calorifiers

Minimum time for which the temperature must be increased (min)	Water temperature (°C)
2	Higher than or equal to 70
4	65
60	60

Example 2 : storage tanks present in the distribution system



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