CASCADA FRESH WATER
VERTICAL BUFFER TANK (SINGLE PIPE)

Cascada Fresh Water Vertical Buffer Tank (Single Pipe) is the new compact solution for **FRESH WATER** production (in-line water heating). It can be thermally supplied by many heat sources such as Solar Field, Heat Pump, Boiler and Heating Element. It is suitable for domestic as well as smal-scale hotel applications.

INOX

INOX CONTAINER

FRESH WATER

ENERGY SAVE

PRODUCT MODELS

With solar heat exchanger

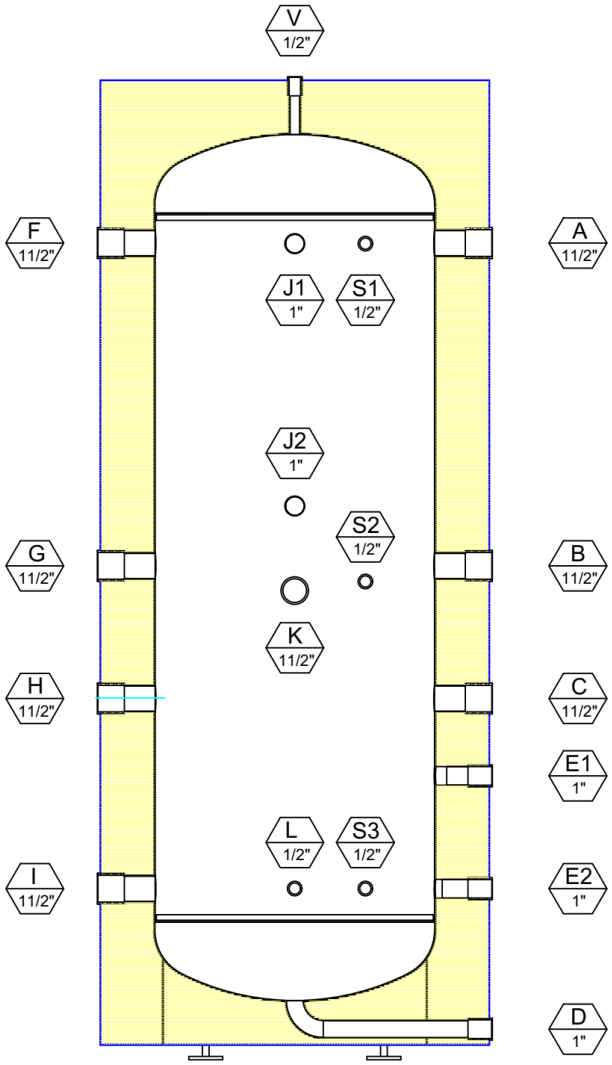
MODEL	CASCADA BF VER-FW-F-S 300	CASCADA BF VER-FW-F-S 600	CASCADA BF VER-FW-F-S 1000
Flow Rate Range (m^3/h)	0.8-1.5	1.0-2.0	1.5-3.0
Nominal Flow Rate (m^3/h)	1.0	1.5	2.5
Nominal Power (kW)*	25	39	53
Tank Capacity (lt)	285	550	914
Solar Heat Exchanger Area (m^2)	0.7	1.4	2.0
Height (mm)	1680	2020	2030
Diameter (mm)	690	810	1000
Weight (kg)	87	136	162
*(Primary circuit temperatures : 60-55°C, Secondary circuit temperatures: 20-50°C)			

Without solar heat exchanger

MODEL	CASCADA BF VER-FW-F 130	CASCADA BF VER-FW-F 300	CASCADA BF VER-FW-F 600	CASCADA BF VER-FW-F 1000	CASCADA BF VER-FW-F 1500 **
Flow Rate Range (m^3/h)	0.4-0.8	0.8-1.5	1.0-2.0	1.5-3.0	1.5-3.0
Nominal Flow Rate (m^3/h)	0.5	1.0	1.5	2.5	2.5
Nominal Power (kW)*	18	25	39	53	53
Tank Capacity (lt)	125	285	550	914	1420
Height (mm)	1280	1680	2020	2030	2900
Diameter (mm)	440	690	810	1000	1000
Weight (kg)	40	82	131	157	223
*(Primary circuit temperatures : 60-55°C, Secondary circuit temperatures: 20-50°C) ** ON DEMAND					

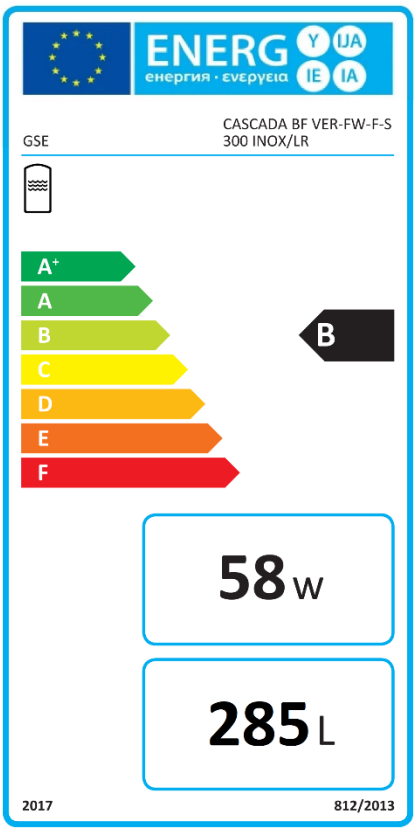
TECHNICAL SPECIFICATIONS	
Buffer tank material	INOX 304
Buffer tank insulation	Polyurethane foam (thickness: 90-110 mm, density: 45 kg/m^3)
Outer casing	PVC leather
Buffer tank welding type	Automatic circular welding
Buffer tank protection	Passivation coating
Buffer tank nominal operating pressure	3 bar
Buffer tank maximum operating pressure	4 bar
Buffer tank test pressure	8 bar
Energy classification	B
Fresh water heat exchanger type	Flow, Corrugated
Fresh water heat exchanger material	INOX 316L
Fresh water heat exchanger welding type	Automatic circular welding
Fresh water heat exchanger protection	Passivation coating
Fresh water heat exchanger nominal operating pressure	6 bar
Fresh water heat exchanger maximum operating pressure	12 bar
Maximum operating temperature	95°C
Solar field heat exchanger type	Immersed, Corrugated
Solar field heat exchanger nominal operating pressure	3 bar
Solar field heat exchanger maximum operating pressure	6 bar
Solar field heat exchanger	Immersed, corrugated
Solar field heat exchanger material	INOX 316L

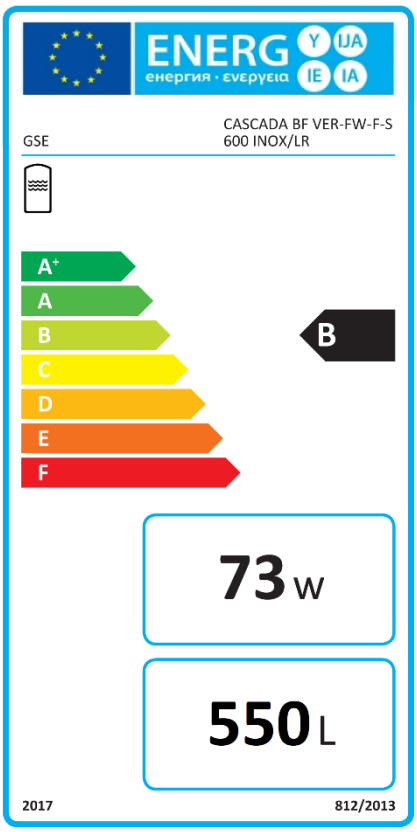
NOMENCLATURE AND TYPICAL HOLES DIAMETERS

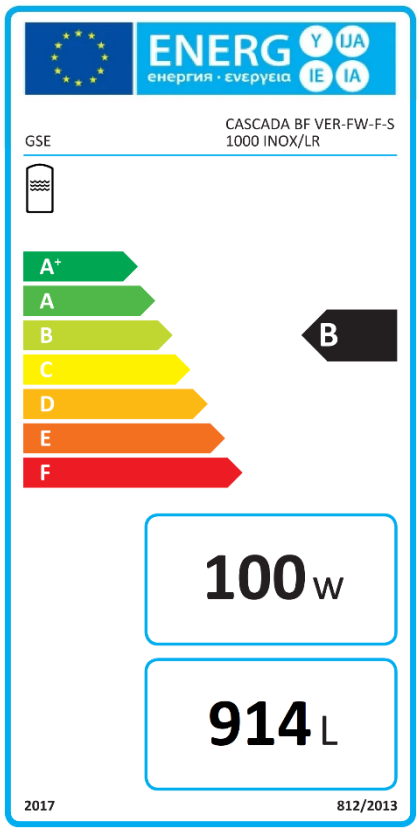


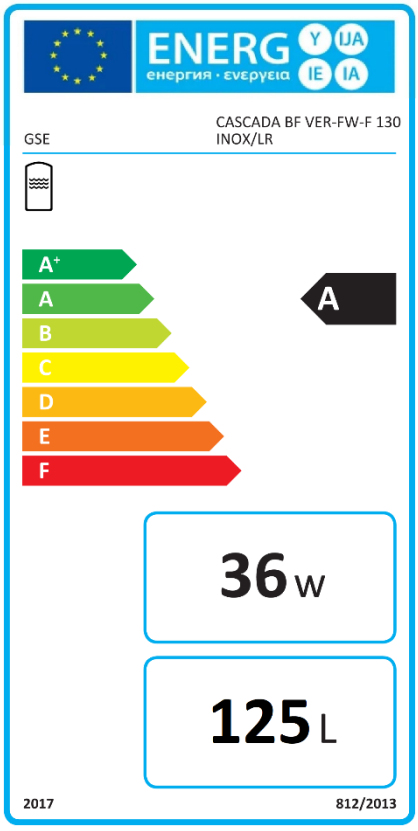
CASCADA BF VER-FW-F-S 300 INOX/LR		
Hole	Nozzle size	Description
A	1 1/2"	HEATING IN
B	1 1/2"	HEATING RETURN
C	1 1/2"	HEATING RETURN
D	1"	DRAIN
E1	1"	FROM SOLAR
E2	1"	TO SOLAR
F	1 1/2"	HEATING IN
G	1 1/2"	SPARE
H	1 1/2"	ANODE
I	1 1/2"	HEATING RETURN
J1	1"	HOT WATER
J2	1"	COLD WATER
K	1 1/2"	HEATING ELEMENT
L	1/2"	FILLING WATER
S1	1/2"	SENSOR
S2	1/2"	SENSOR
S3	1/2"	SENSOR
V	1/2"	AIR RELIEF

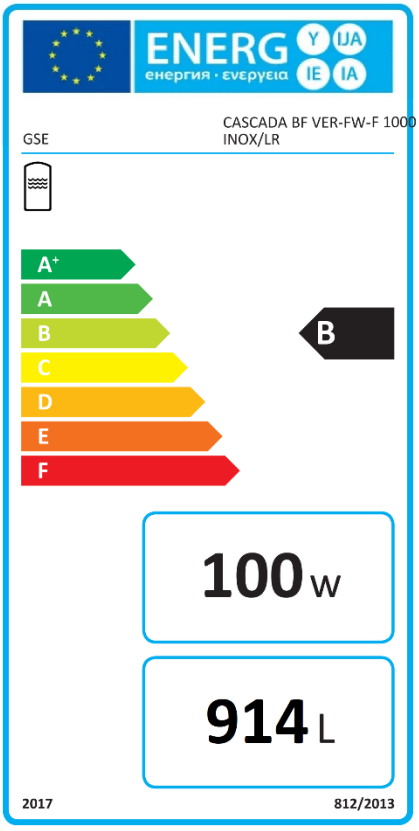
ENERGY LABELS







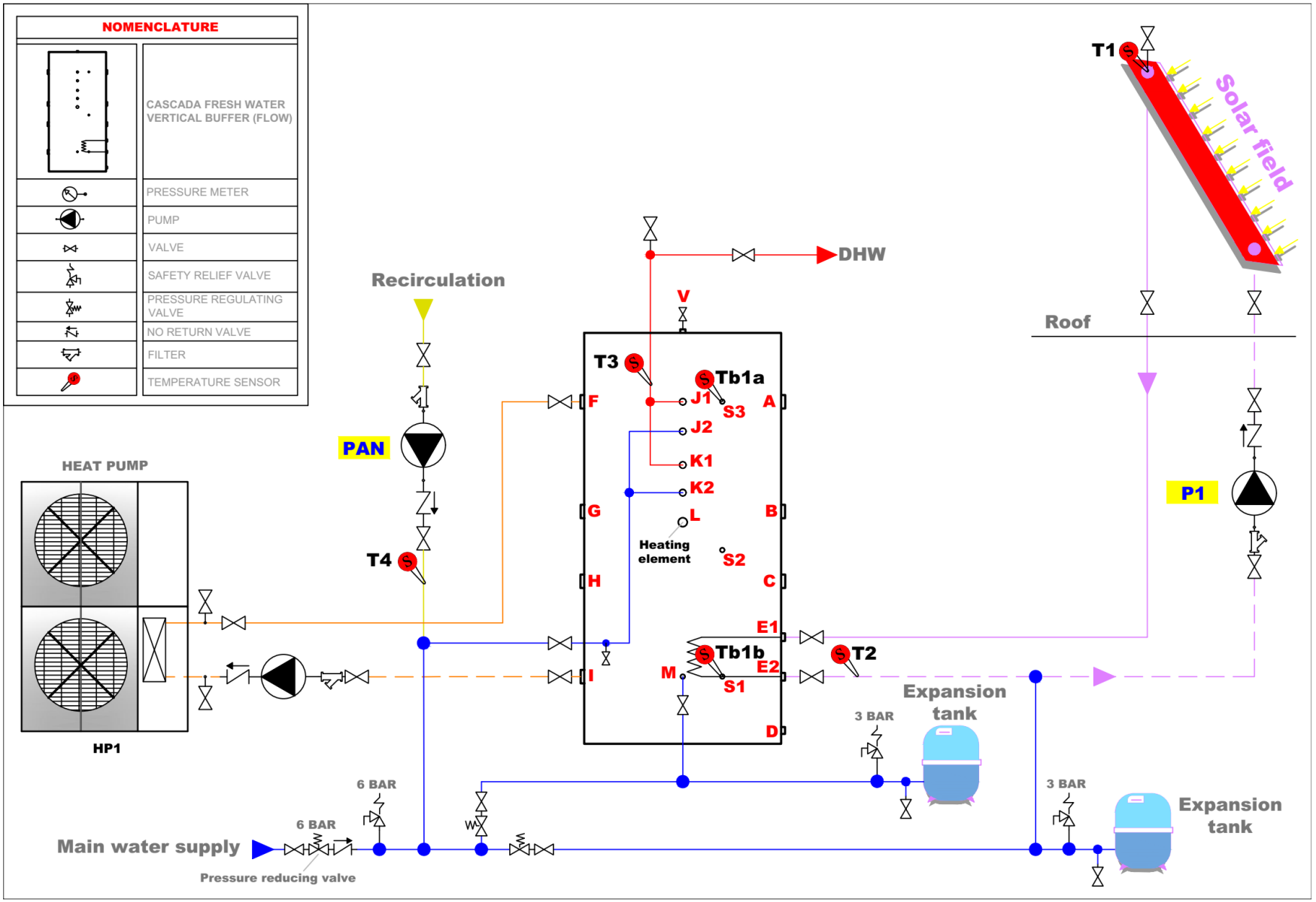




QUALITY CHARACTERISTICS-ADVANTAGES

QUALITY CHARACTERISTIC	BENEFIT
In-line water heating	***It prevents the incubation of Legionella bacteria*** ***Maximizes the lifetime of the installation***
ALL-IN-ONE product	***Combines an optimized buffer tank with an integrated FRESH WATER heat exchanger. It ensures both thermal energy storage and direct fresh hot water production.***
Tank material: INOX 304	***The tank body material is made of INOX 304 stainless steel in contrast to the existing products in the market where plain raw iron is used without any protective coating.*** ***It ensures the longevity of the product compared to its competitors.***
High-density polyurethane tank insulation, up to 100 mm thick, in contrast to most corresponding market products where insulation thickness does not exceed 65 mm.	***Thermal loss elimination.***
Buffer tank operation	**Prevents scale build-up and tank corrosion due to prolonged use of the same water within the buffer tank, thereby maximizing the installation's lifespan**
Prevention of scale build-up due to **innovative design**	***Prolongs the lifespan of the heat exchanger*** ***Stable and reliable operation*** *The positioning of the heat exchanger inside the tank is designed to allow for definitive scale removal by cleaning the heat exchanger with reverse flow. Specifically, the domestic water inlet is positioned lower than the outlet and slightly below the bottom part of the exchanger. This configuration facilitates cleaning, unlike other designs on the market where both the inlet and outlet for domestic water are located at the upper part of the tank, preventing effective cleaning of the exchanger.*
Reverse flow cleaning	***Quick and easy maintenance.***
Small size and **ergonomic design**	***Easy installation and space saving in engine rooms***
Available with INOX 304 stainless steel casing ON DEMAND.	***Suitable for external installation of the product.***

PIPING AND INSTRUMENTATION DIAGRAM (PID)



TEMPERATURE AND PRESSURE DROP CHARTS

Example of calculating required tank temperature

Suppose the supply we need is 10 lt/min. For the production of 50°C Domestic Hot Water (DHW) and a supply of 10 lt/min (see Figure 1), going vertically downwards we see that the required tank charging temperature must be at least 52.4°C (see Figure 1).

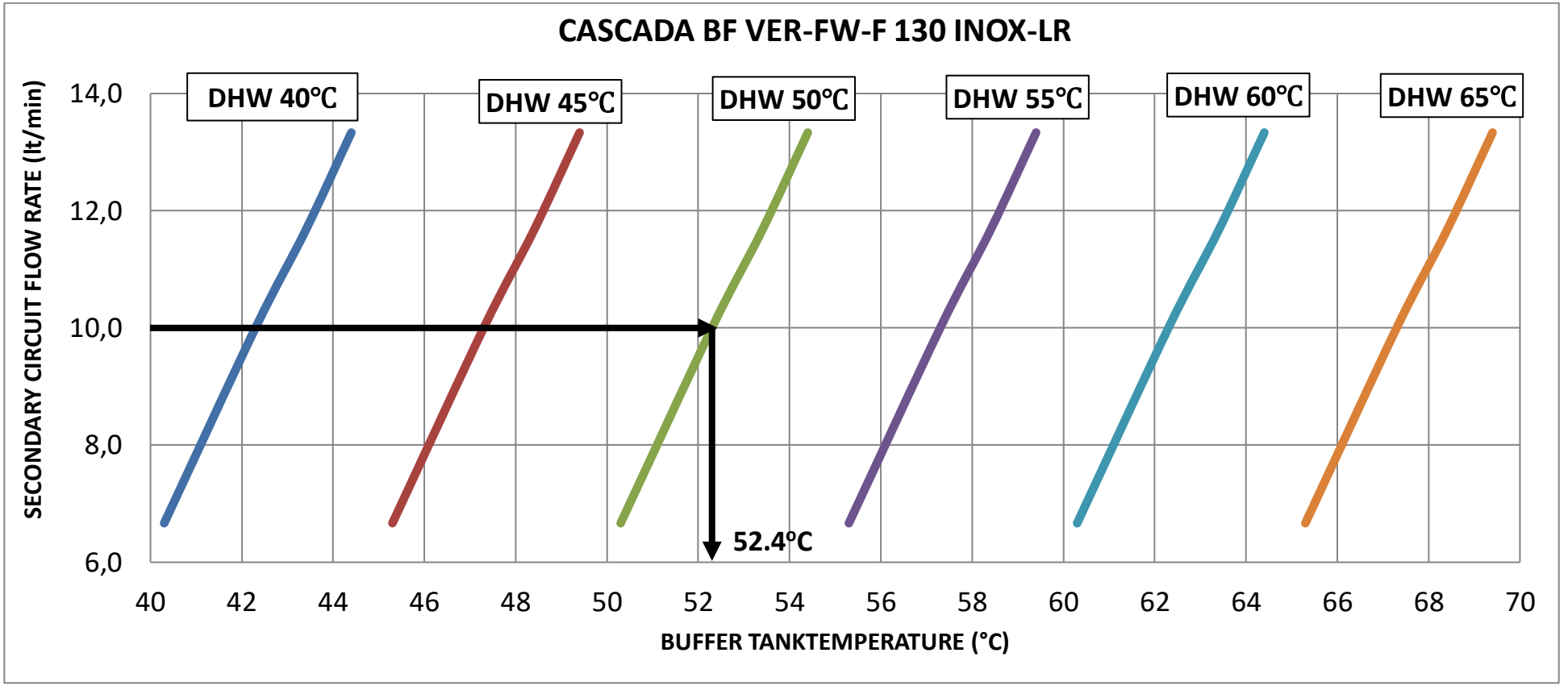
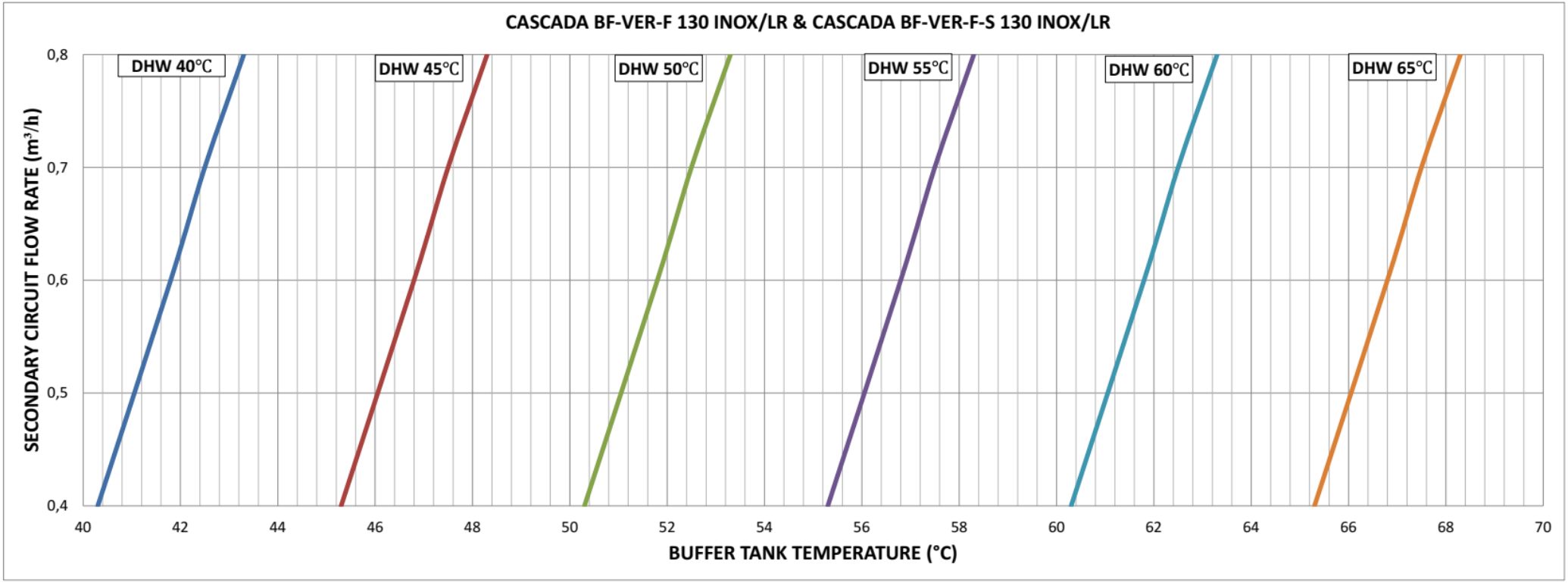


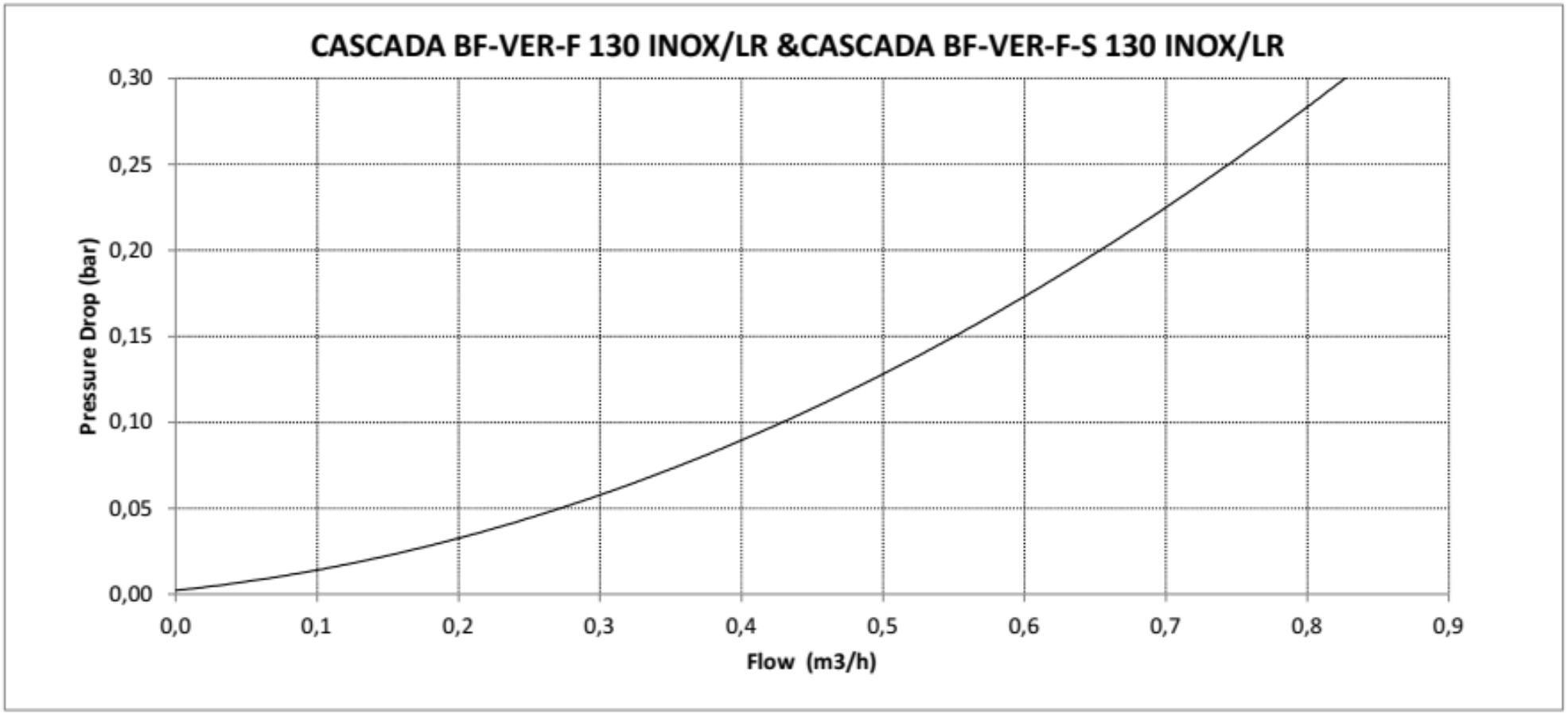
Figure 1

1) CASCADA BF VER-FW-F 130

DHW flow rate (m^3/h)	DHW temperature (°C)	Minimum buffer tank temperature	Pressure drop (bar)
0.6	50	51.7	0.17



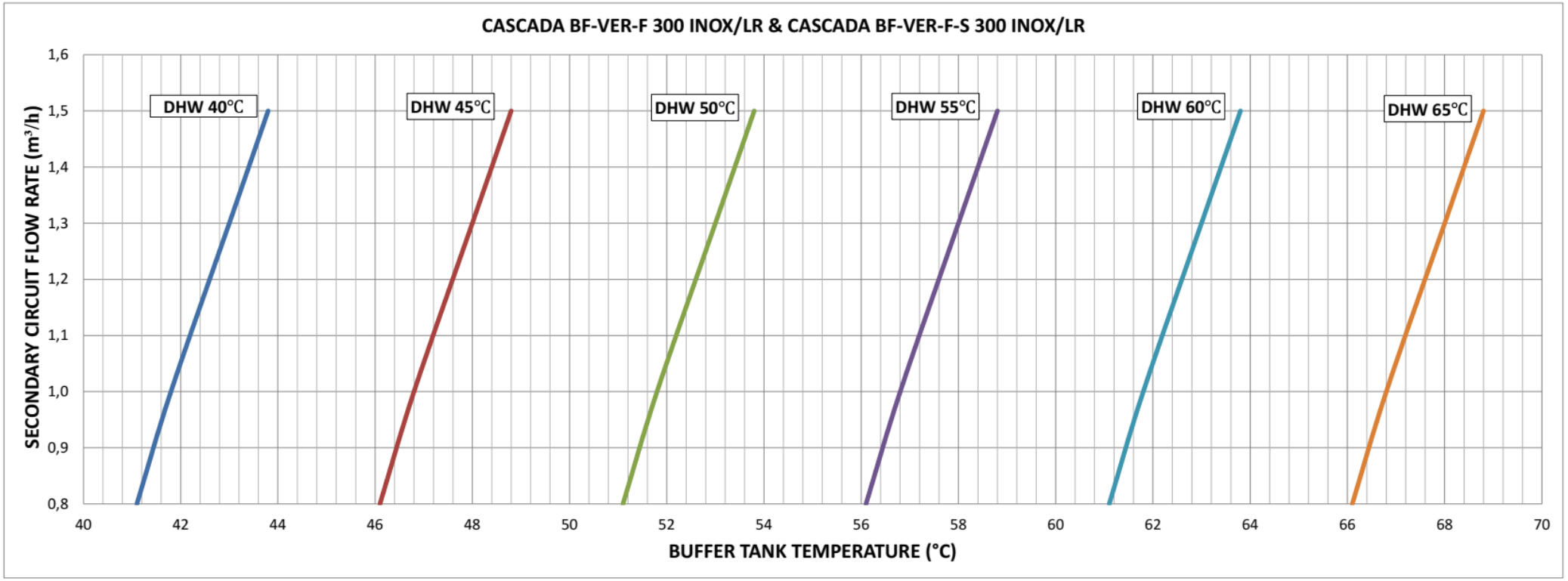
i) Minimum required tank charging temperature as a function of the secondary circuit flow rate and the desired DHW temperature



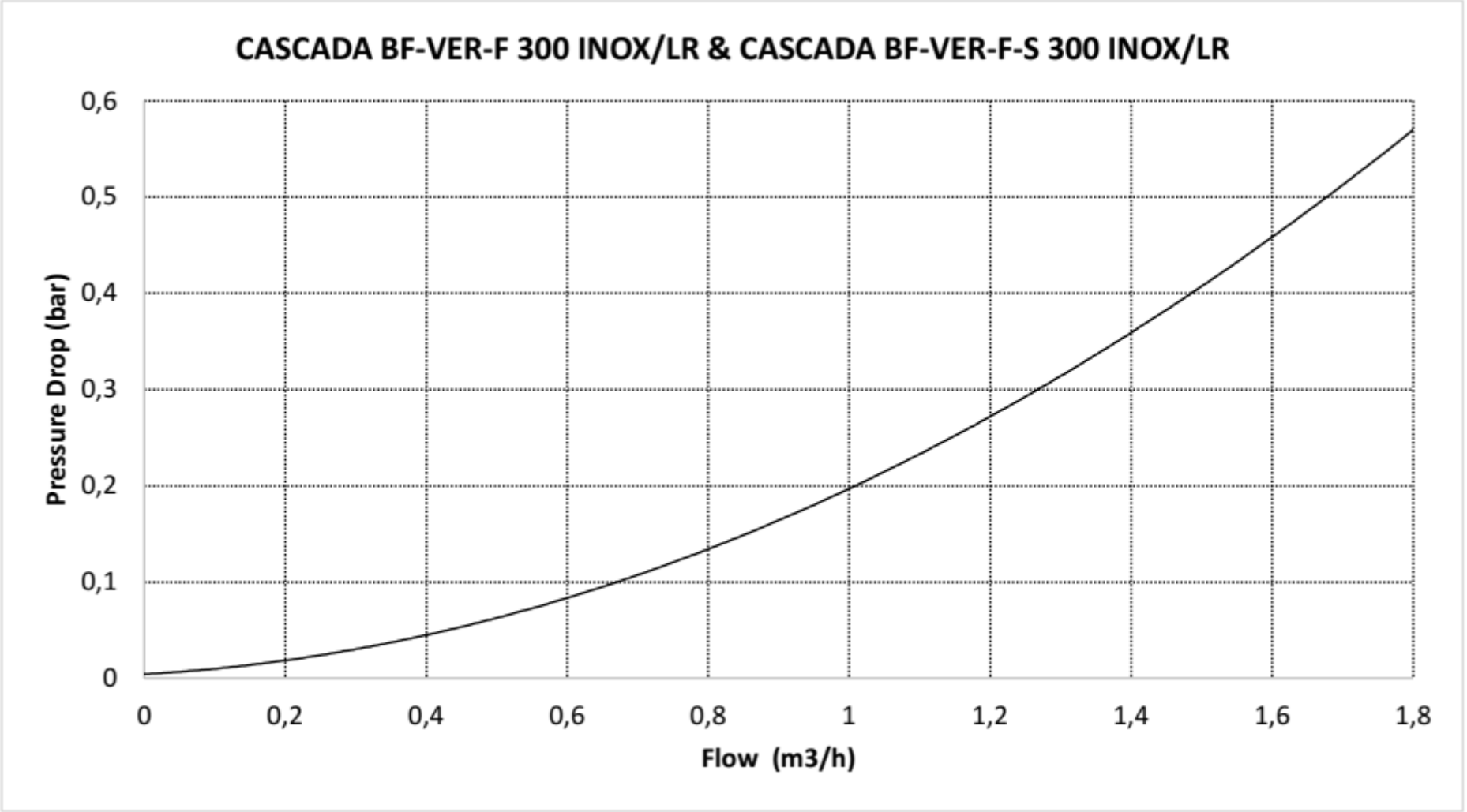
ii) Secondary circuit (DHW) pressure drop diagram

2) CASCADA BF VER-FW-F-S 300

DHW flow rate (m^3/h)	DHW temperature (°C)	Minimum buffer tank temperature (°C)	Pressure drop (bar)
1	50	51.9	0.19



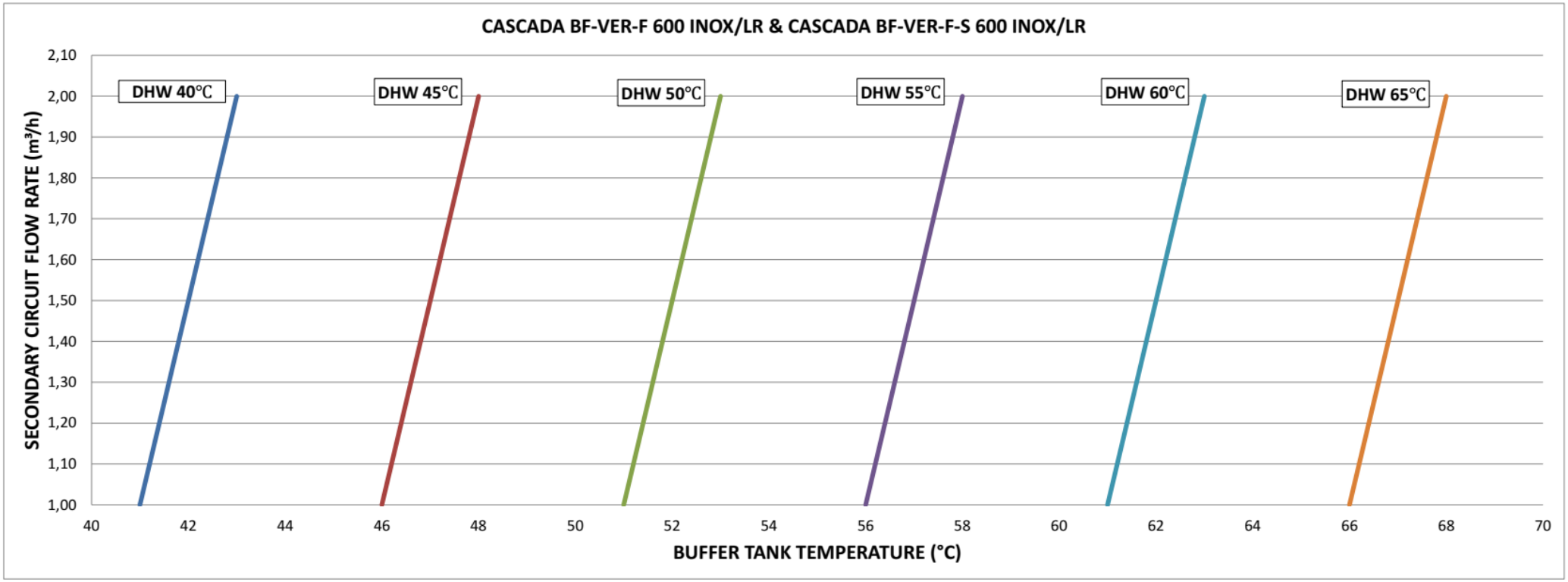
i) Minimum required tank charging temperature as a function of the secondary circuit flow rate and the desired DHW temperature



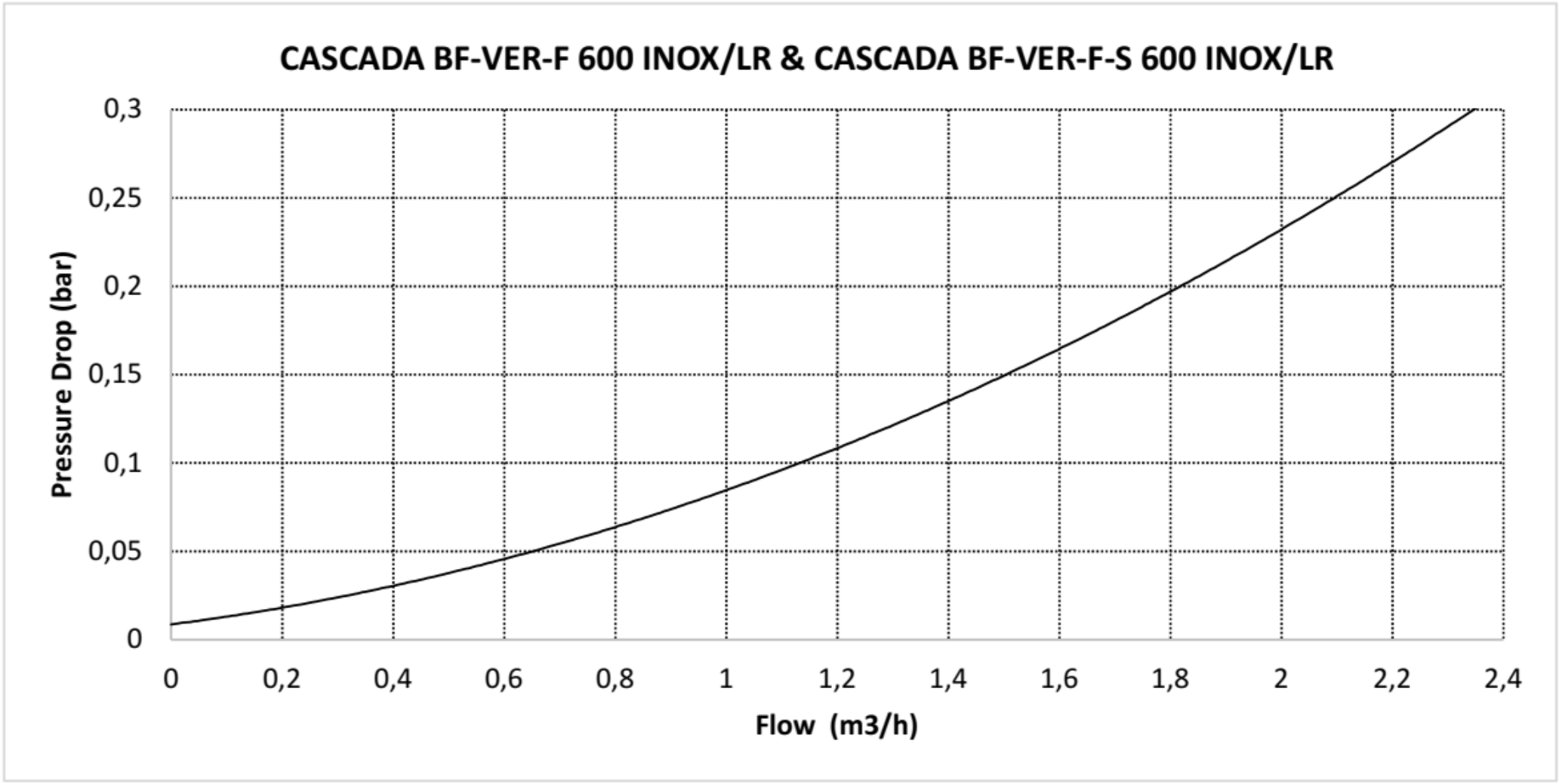
ii) Secondary circuit (DHW) pressure drop diagram

3) CASCADA BF VER-FW-F-S 600

DHW flow rate (m^3/h)	DHW temperature (°C)	Minimum buffer tank temperature (°C)	Pressure drop (bar)
1.5	50	52	0.15



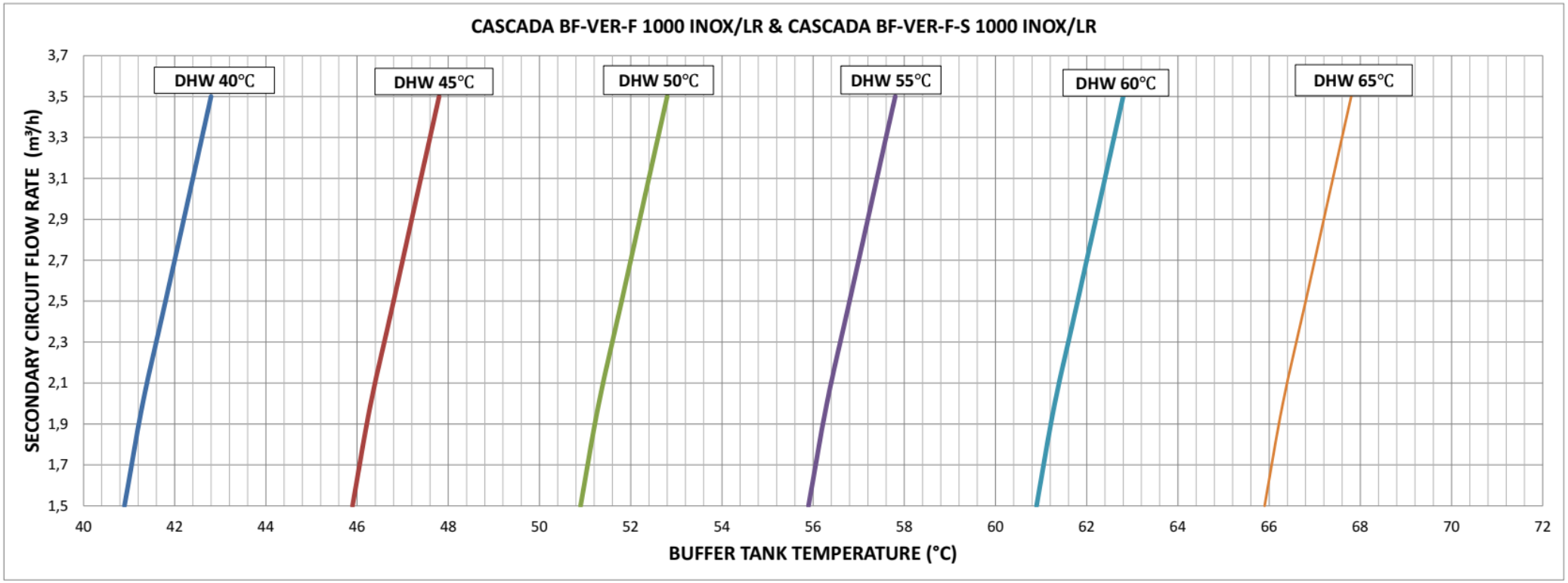
i) Minimum required tank charging temperature as a function of the secondary circuit flow rate and the desired DHW temperature



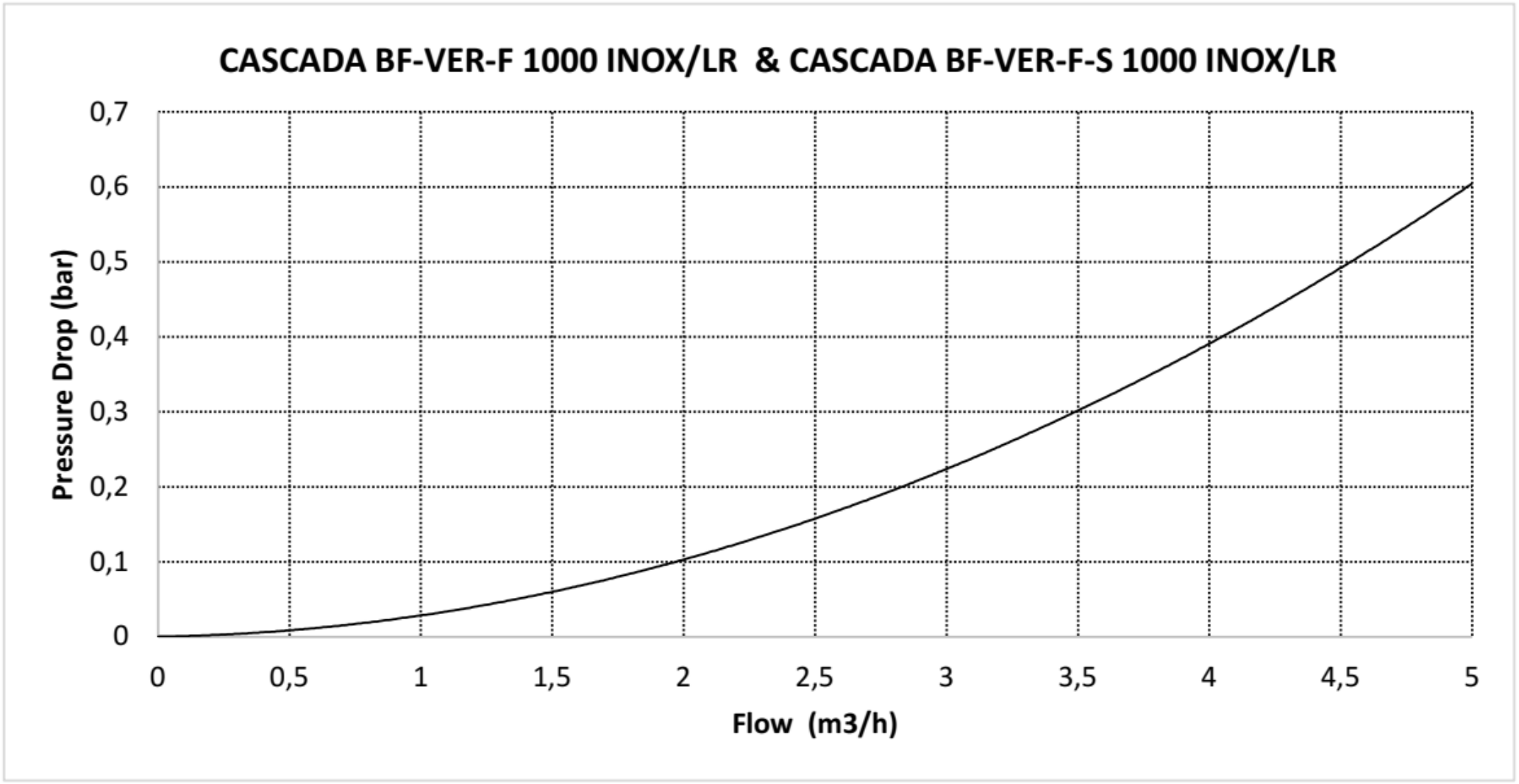
ii) Secondary circuit (DHW) pressure drop diagram

4) CASCADA BF VER-FW-F 1000 & CASCADA BF VER-FW-F-S 1000

DHW flow rate (m^3/h)	DHW temperature (°C)	Minimum buffer tank temperature (°C)	Pressure drop (bar)
2.5	50	51.7	0.32



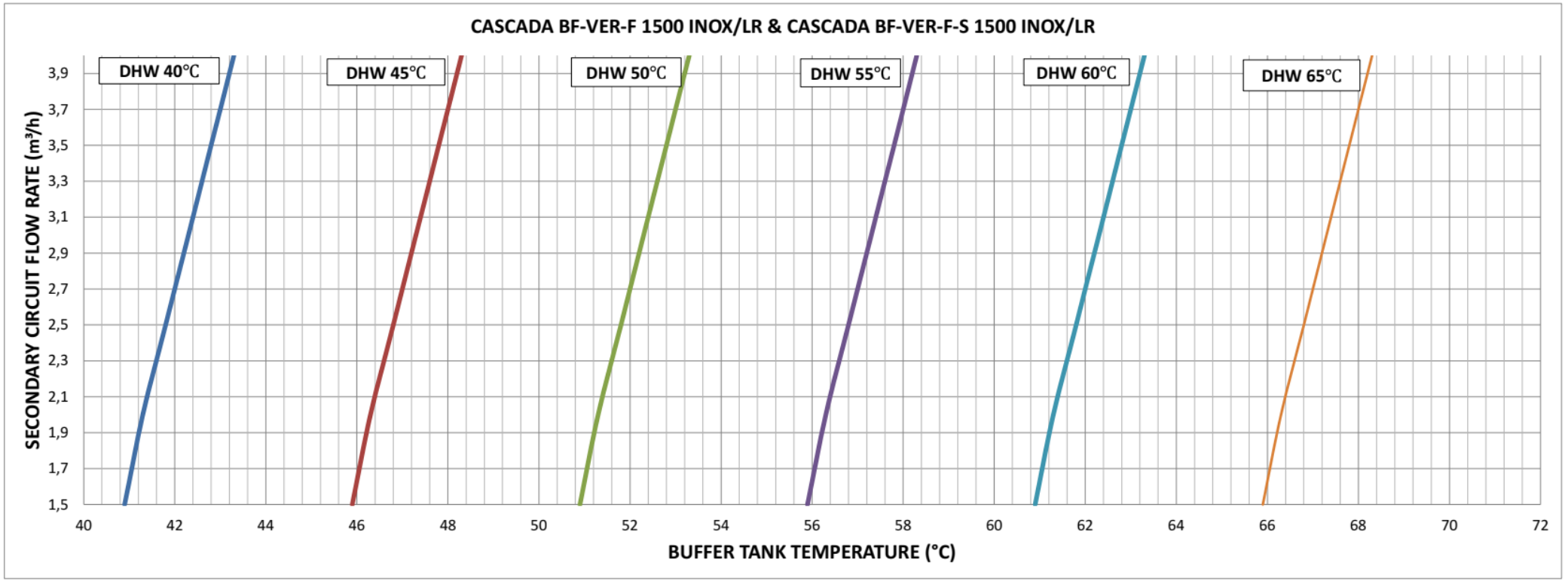
i) Minimum required tank charging temperature as a function of the secondary circuit flow rate and the desired DHW temperature



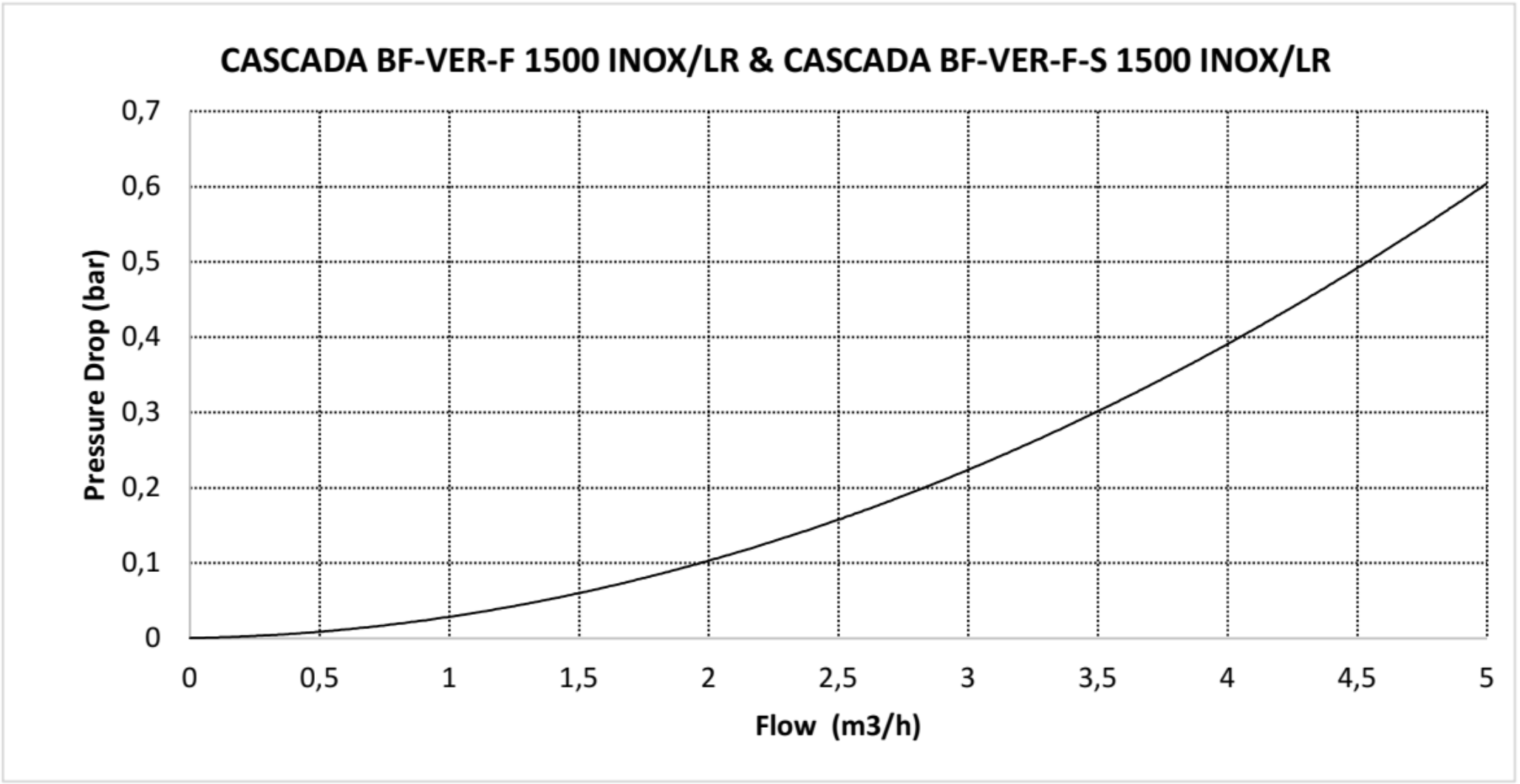
ii) Secondary circuit (DHW) pressure drop diagram

5) CASCADA BF VER-FW-F 1500 & CASCADA BF VER-FW-F-S 1500

DHW flow rate (m^3/h)	DHW temperature (°C)	Minimum buffer tank temperature (°C)	Pressure drop (bar)
2.8	50	52.1	0.32



i) Minimum required tank charging temperature as a function of the secondary circuit flow rate and the desired DHW temperature



Secondary circuit (DHW) pressure drop diagram