CASCADA FRESH WATER
VERTICAL BUFFER TANK (SINGLE PIPE)

freshaqua

CASCADA

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 small-scale hotel applications.

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 (lt/min)	11.7	18.3	25.0
Nominal Flow Rate (m^3/h)	1.0	1.5	2.5
Nominal Useful Power (kW)*	25	39	53
Tank Capacity (lt)	300	600	1000
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
*(Tank 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 1000
Flow Rate Range (m^3/h)	0.4-0.8	1.5-3.0
Nominal Flow Rate (lt/min)	0.6	2.5
Nominal Flow Rate (m^3/h)	8.3	25.0
Nominal Useful Power (kW)*	18	53
Tank Capacity (lt)	130	1000
Height (mm)	1280	2030
Diameter (mm)	600	1000
Weight (kg)	40	157
*(Tank temperatures : 60-55°C, Secondary circuit temperatures: 20-50°C)		

Freshaqua Ltd.

8 Zalokosta, GR 106 71, Athens Greece

Email: info@freshaqua.gr

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	Inactivation 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	Inactivation coating
Fresh water heat exchanger nominal operating pressure	6 bar
Fresh water heat exchanger maximum operating pressure	12 bar
Nominal 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 304

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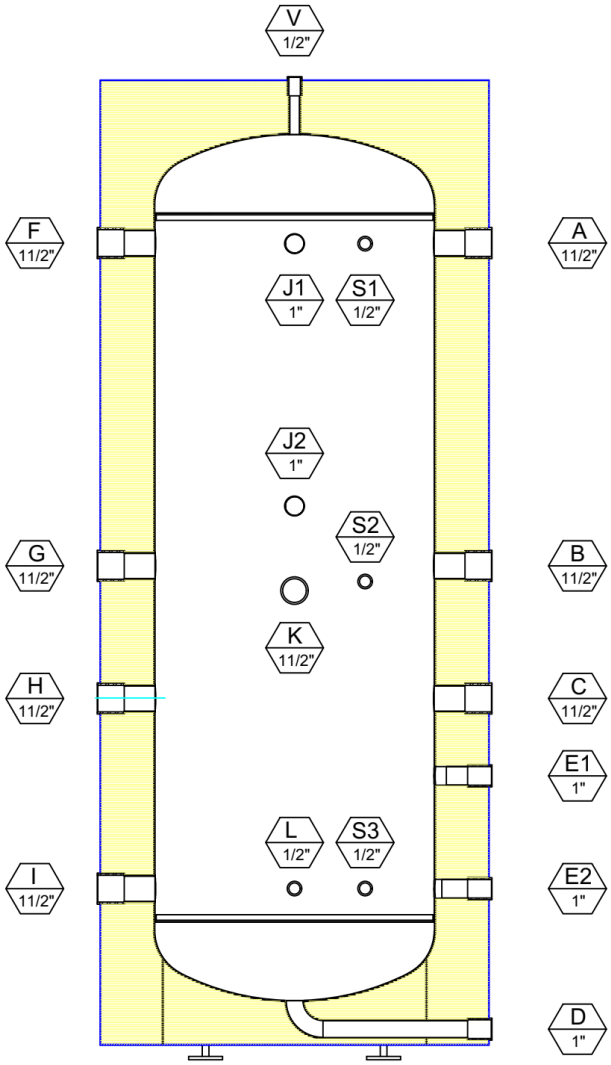
NOMENCLATURE AND HOLES DIAMETERS



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

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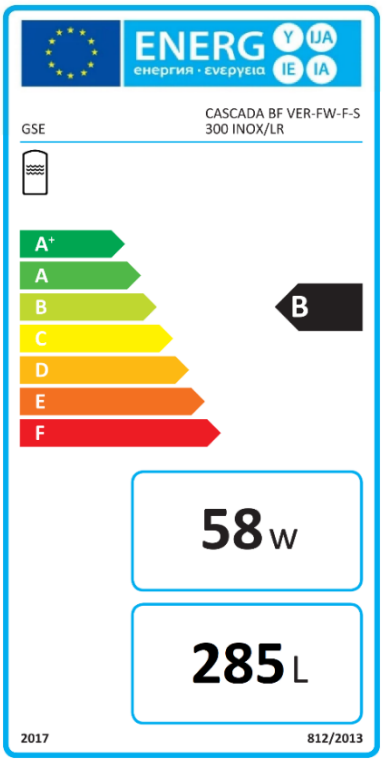
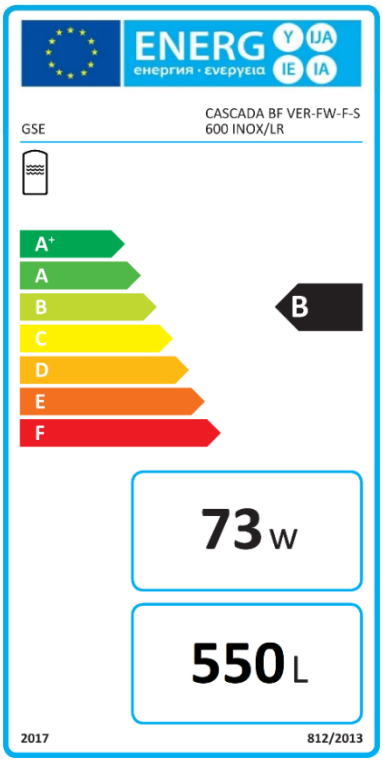
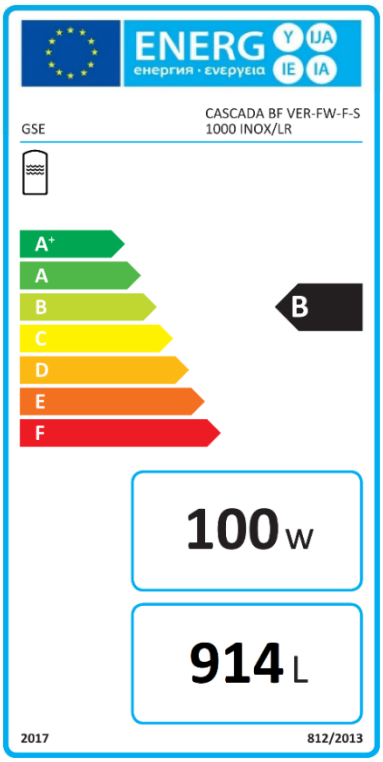
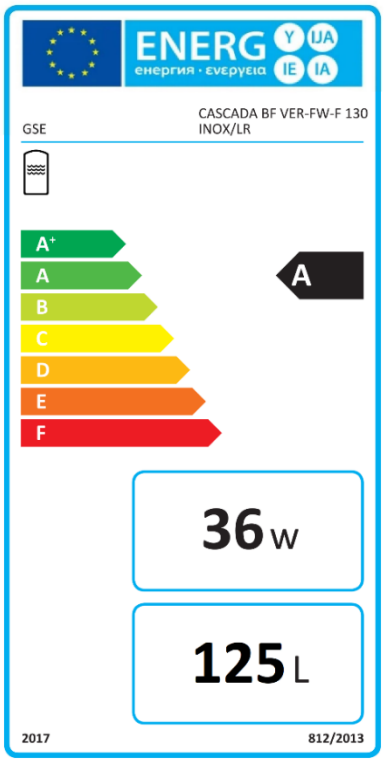
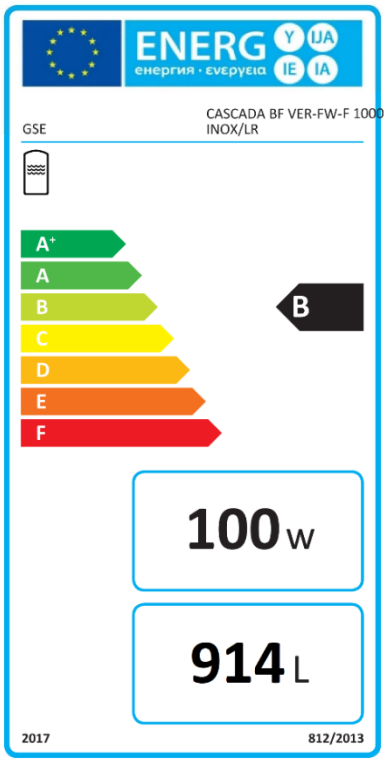
ENERGY LABELS











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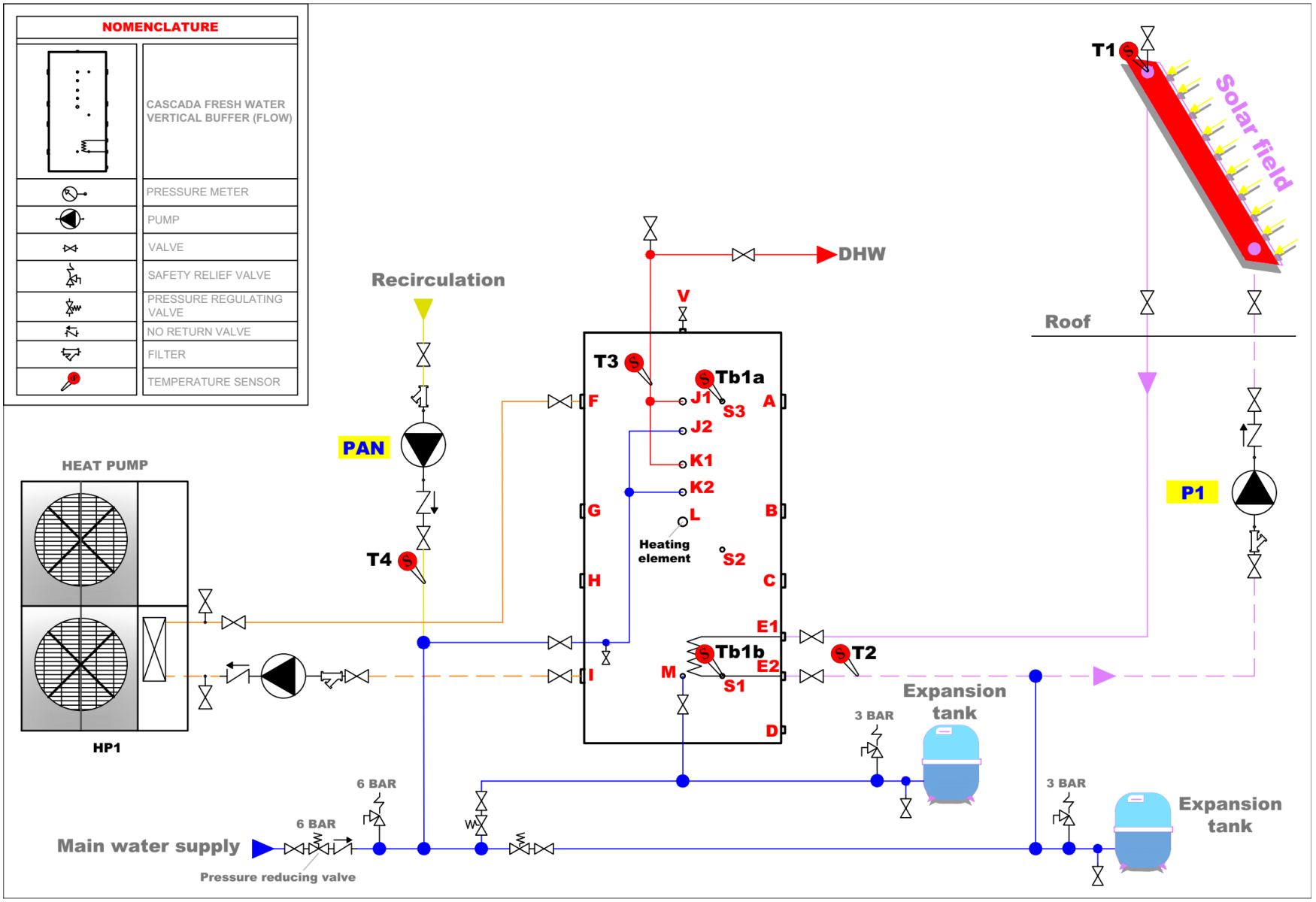
QUALITY CHARACTERISTICS-ADVANTAGES

ΠΟΙΟΤΙΚΟ ΧΑΡΑΚΤΗΡΙΣΤΙΚΟ	ΟΦΕΛΟΣ
In Line heating of domestic hot water	***It prevents the incubation of Legionella bacteria*** ***Maximizes the lifetime of the installation***
Tank material: INOX 304	***The tank body material is made of INOX 304 stainless steel in contrast to the existing products in the market which use plain raw iron without any protective coating.*** ***It ensures the long life of the product compared to its competitors.***
High-density polyurethane tank insulation, 100 mm thick, in contrast to corresponding products on the market in which the thickness of the insulation does not exceed 65 mm.	***Elimination of thermal losses.***
Avoiding scale build-up due to its **innovative design**	***Long lifecycle of the heat exchanger*** ***Stable and reliable operation*** *The positioning of the heat exchanger inside the tank is such that allows the definitive* ***removal of the scales by cleaning the heat exchanger with reverse flow****. In particular, the inlet of the domestic water is carried out from a point lower than the outlet and in fact slightly lower than the lower part of the exchanger, which* ***enables cleaning****, in contrast to the corresponding geometries on the market in which the entrance and the exit of the domestic water is carried out from the upper part of the tank, as a result of which it is not possible to clean the exchanger.*
Reverse flow cleaning	***Easy and quick cleaning***
Small size and **ergonomic design**	***Easy installation and space saving in engine rooms***
Possibility of lining with INOX 304 stainless steel casing	***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).

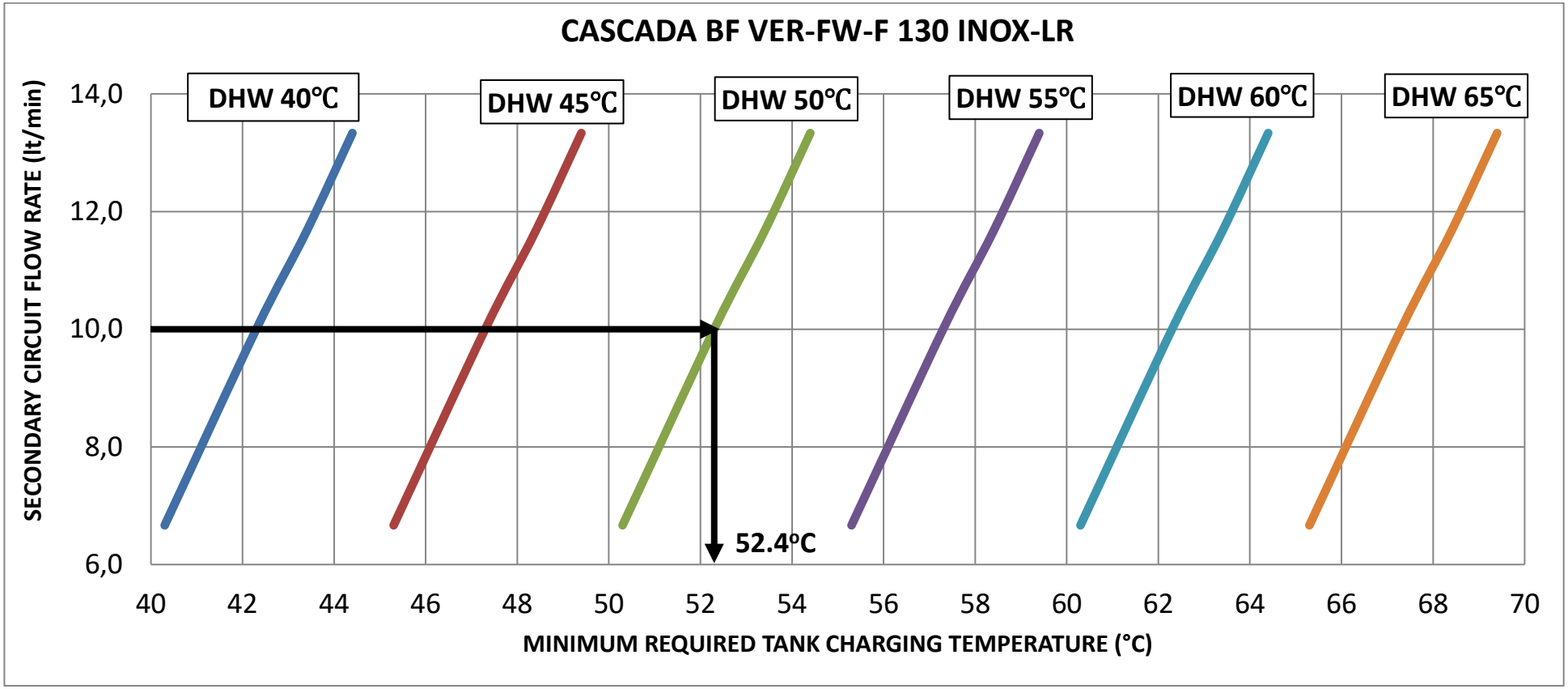


Figure 1

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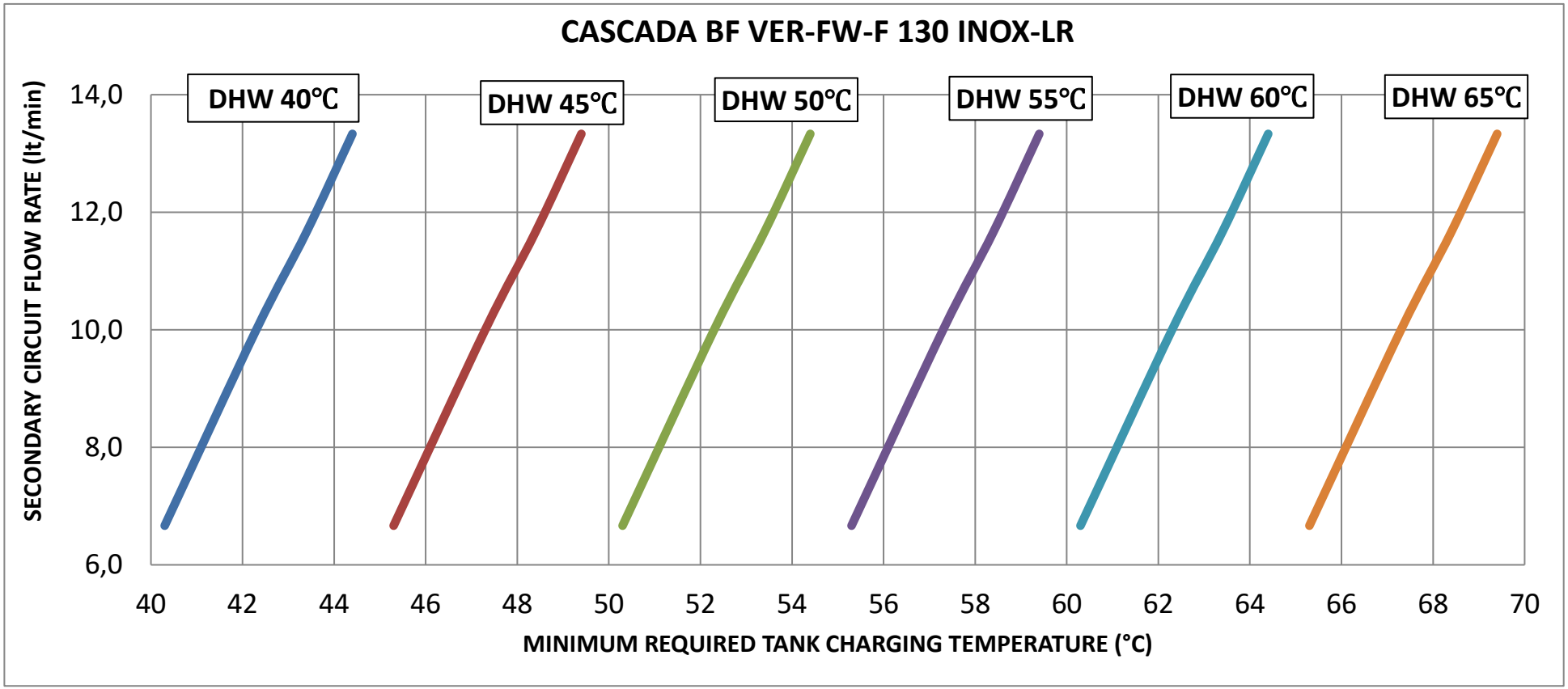
1) CASCADA BF VER-FW-F 130

DHW flow rate (lt/min)	DHW temperature (ºC)	Minimum tank charging temperature (ºC)	Pressure drop (bar)
10	50	52.4	0.17



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

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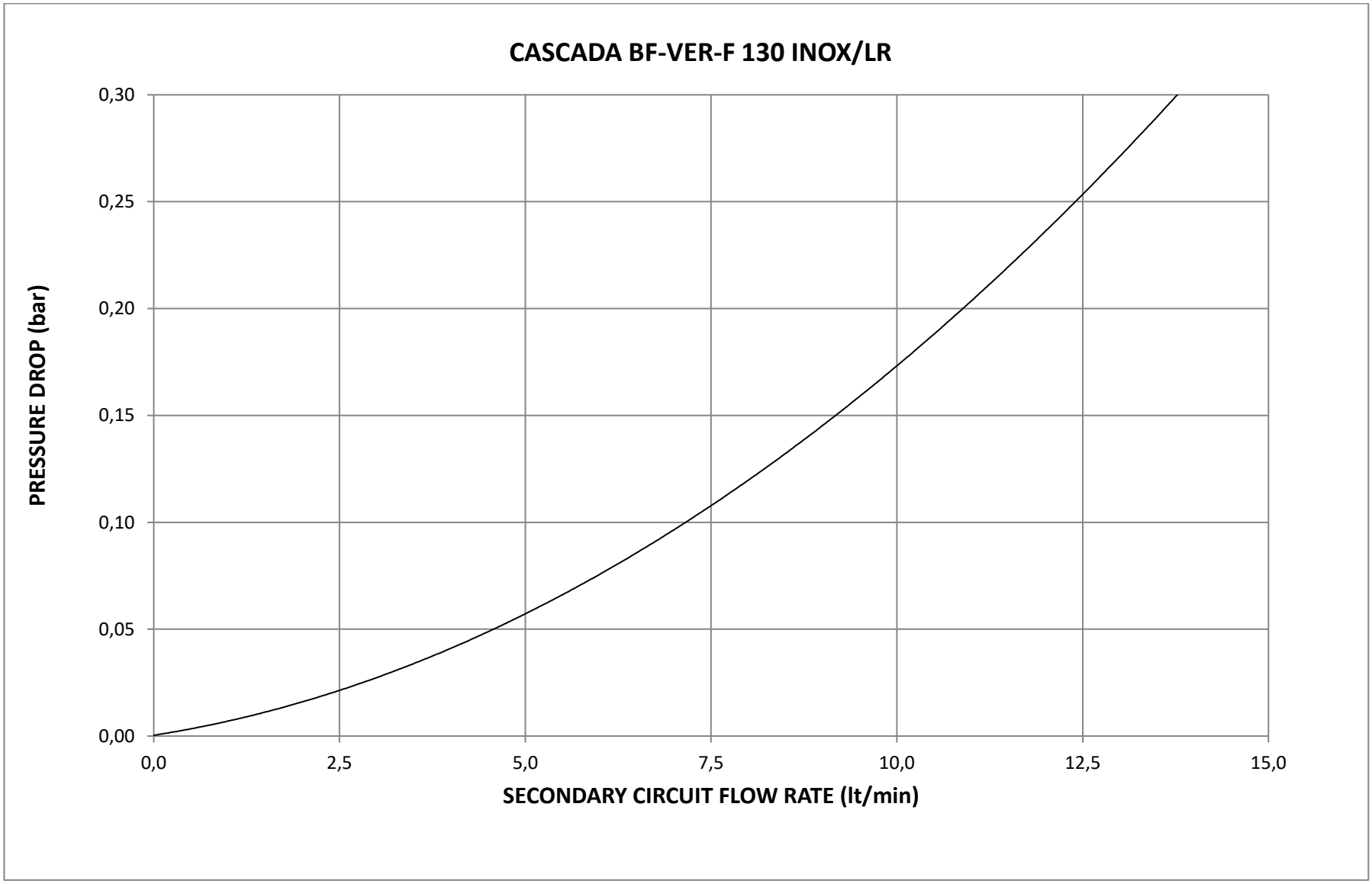

ii) Secondary circuit (DHW) pressure drop diagram

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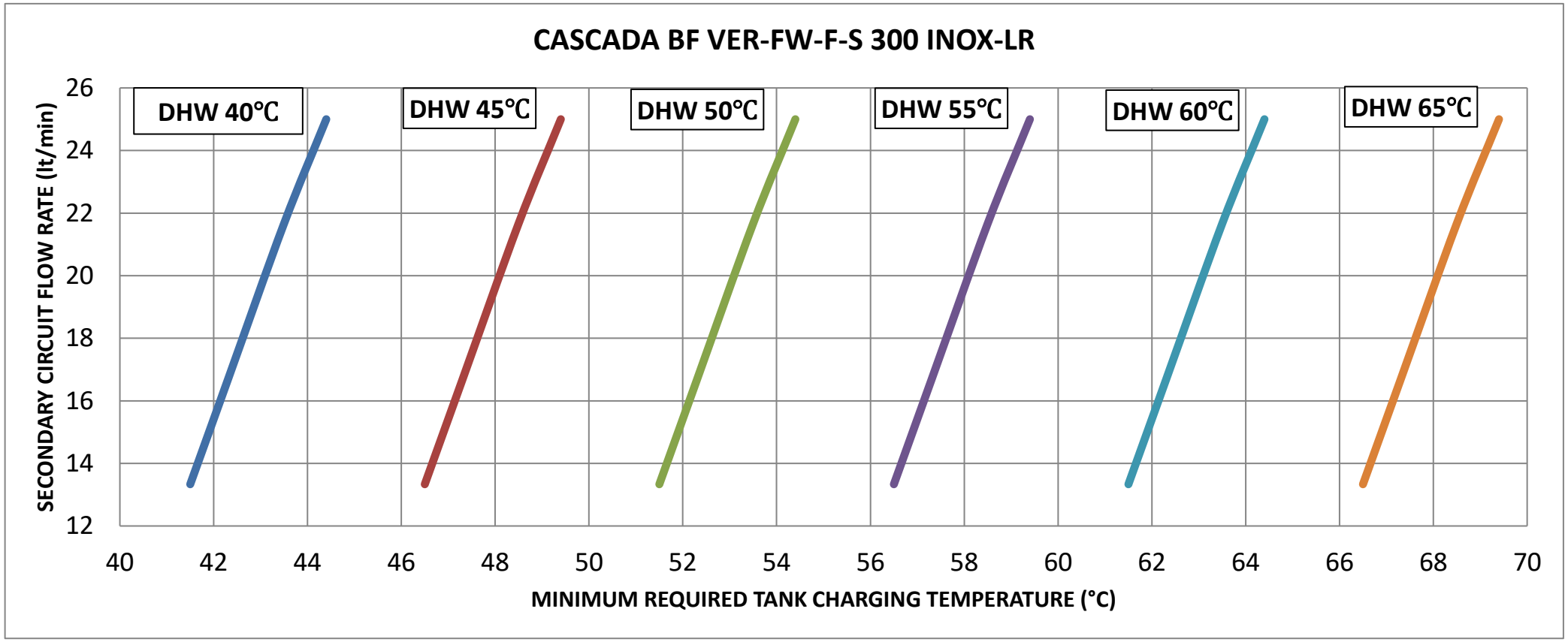
2) CASCADA BF VER-FW-F-S 300

DHW flow rate (lt/min)	DHW temperature (ºC)	Minimum tank charging temperature (ºC)	Pressure drop (bar)
16.7	50	52.3	0.19



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

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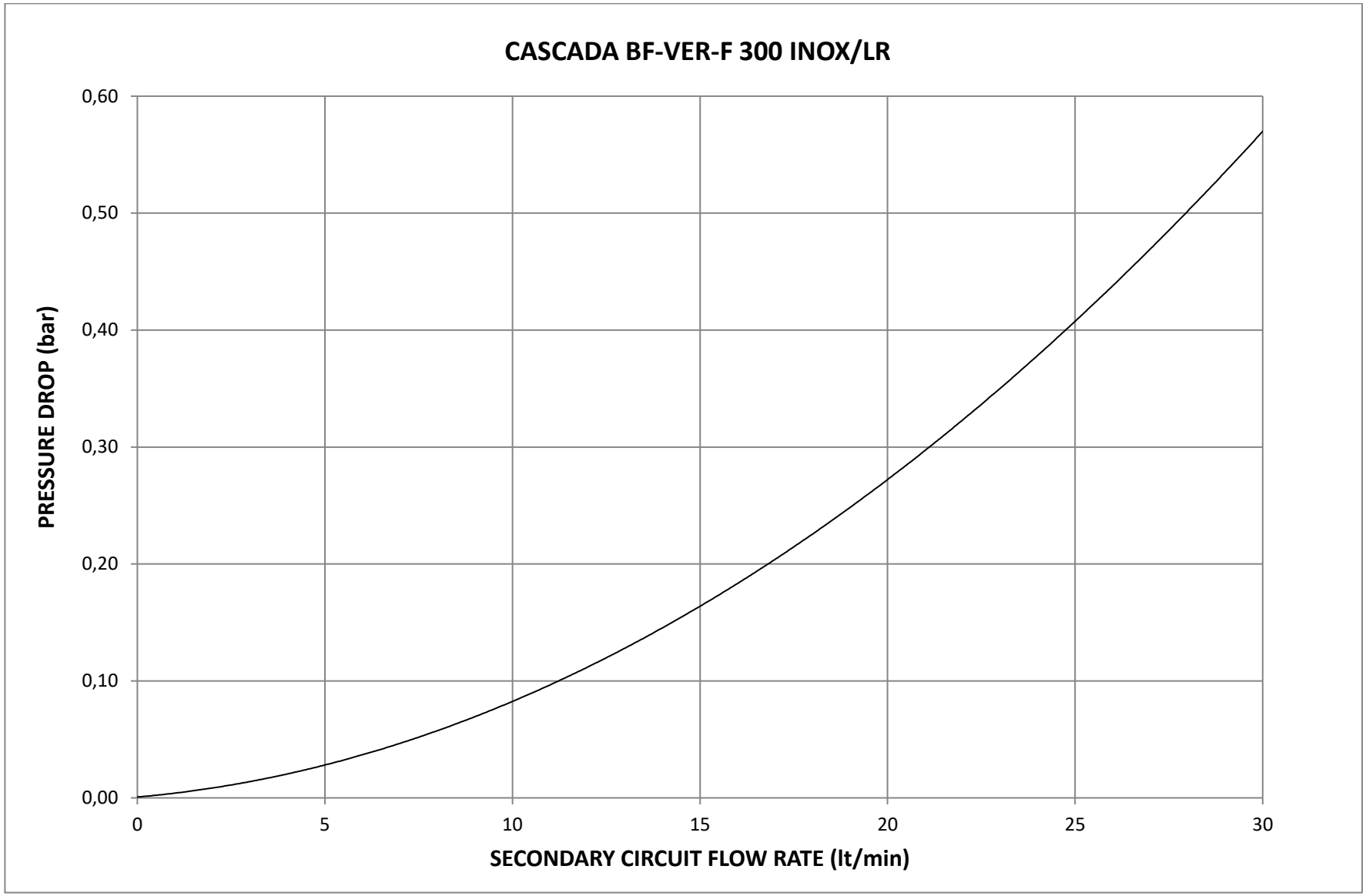

ii) Secondary circuit (DHW) pressure drop diagram

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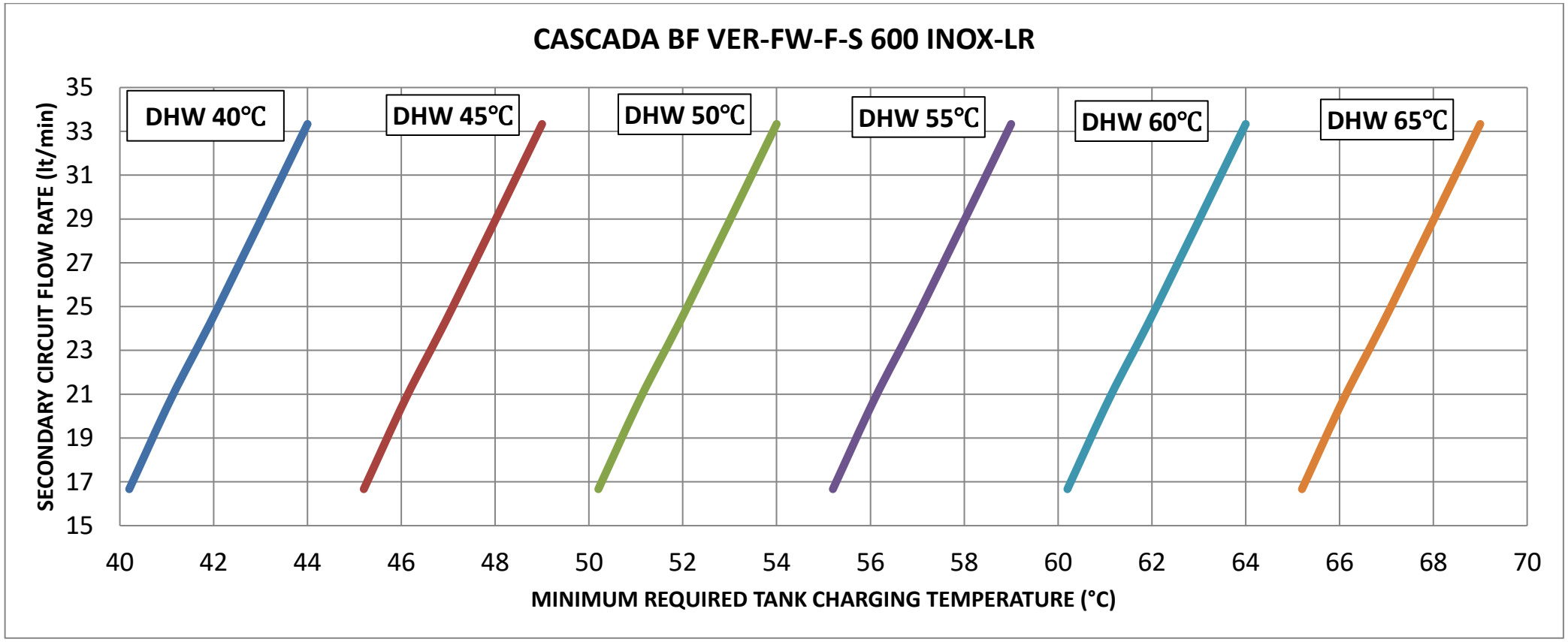
3) CASCADA BF VER-FW-F-S 600

DHW flow rate (lt/min)	DHW temperature (ºC)	Minimum tank charging temperature (ºC)	Pressure drop (bar)
25	50	57	0.15



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

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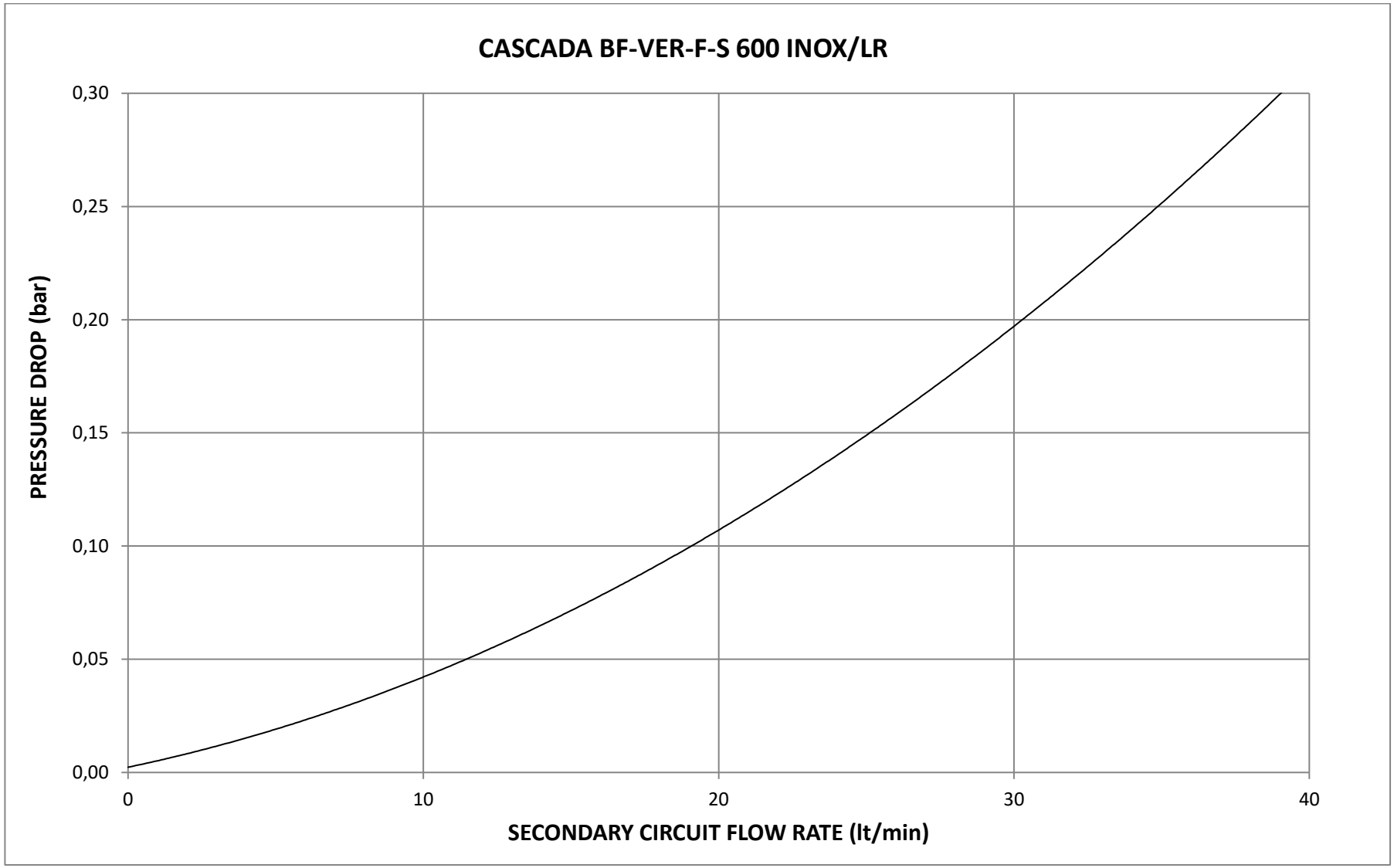

ii) Secondary circuit (DHW) pressure drop diagram

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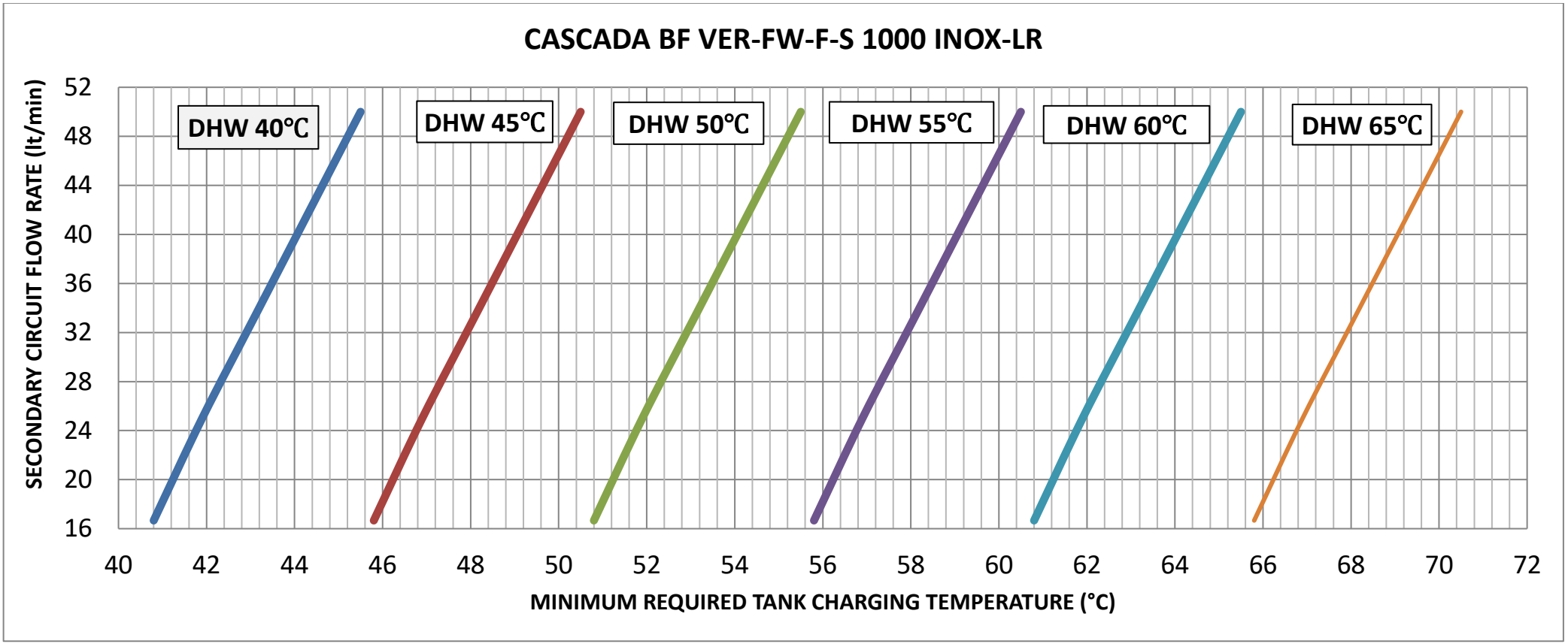
4) CASCADA BF VER-FW-F 1000 & CASCADA BF VER-FW-F-S 1000

DHW flow rate (lt/min)	DHW temperature (ºC)	Minimum tank charging temperature (ºC)	Pressure drop (bar)
41.7	50	54.2	0.32



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

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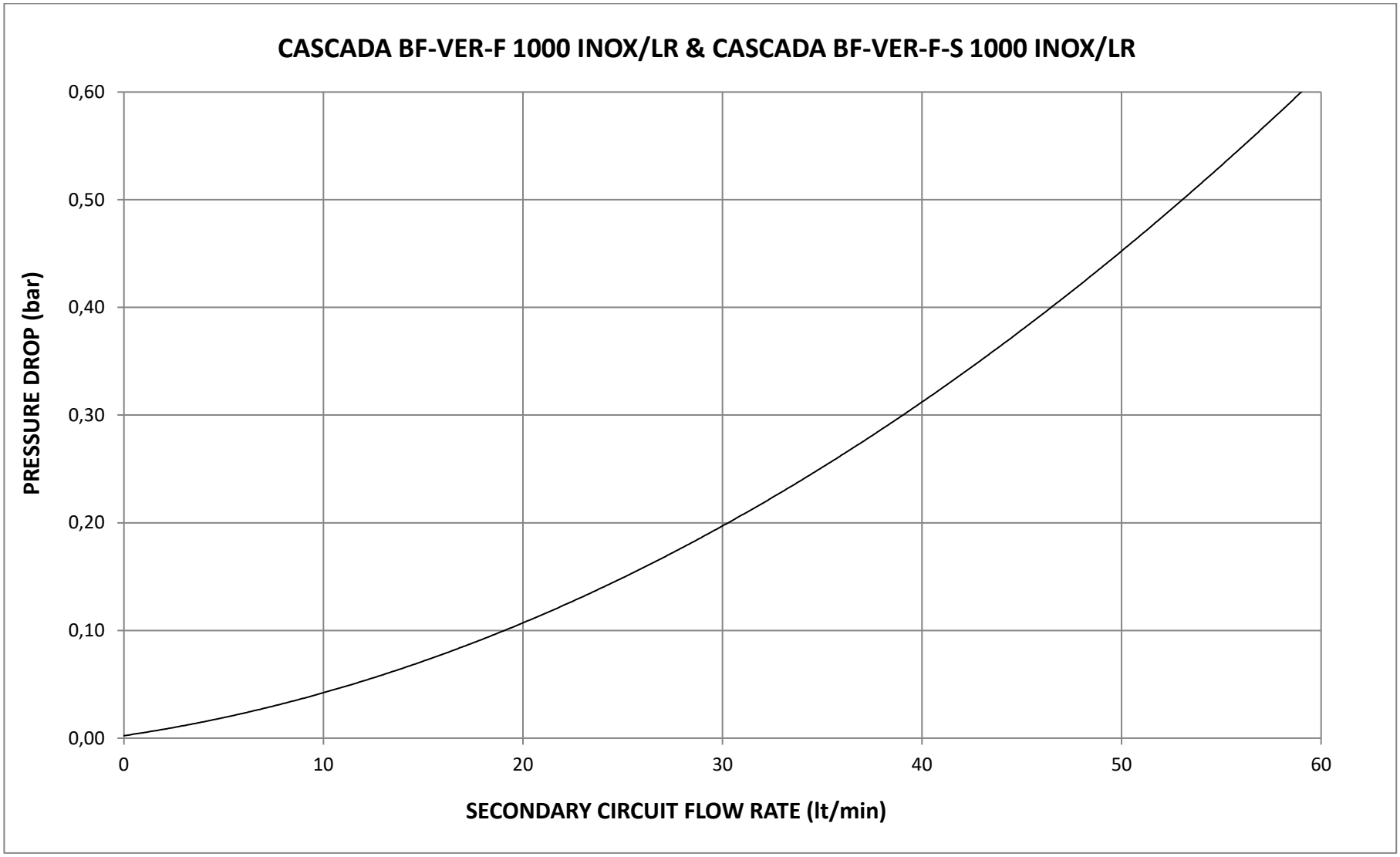

ii) Secondary circuit (DHW) pressure drop diagram

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