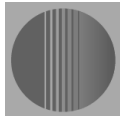


Technical Data Manual

Model Nos. and pricing: see Price List



Product may not be exactly as shown

Vitocell 300-H

EHA Series

Horizontal indirect-fired domestic hot water storage tank
of high-grade stainless steel



Vitocell 300-H

Fully hygienic, efficient and economical domestic hot water production with DHW tanks of high-grade stainless steel – horizontal version.

The benefits at a glance:

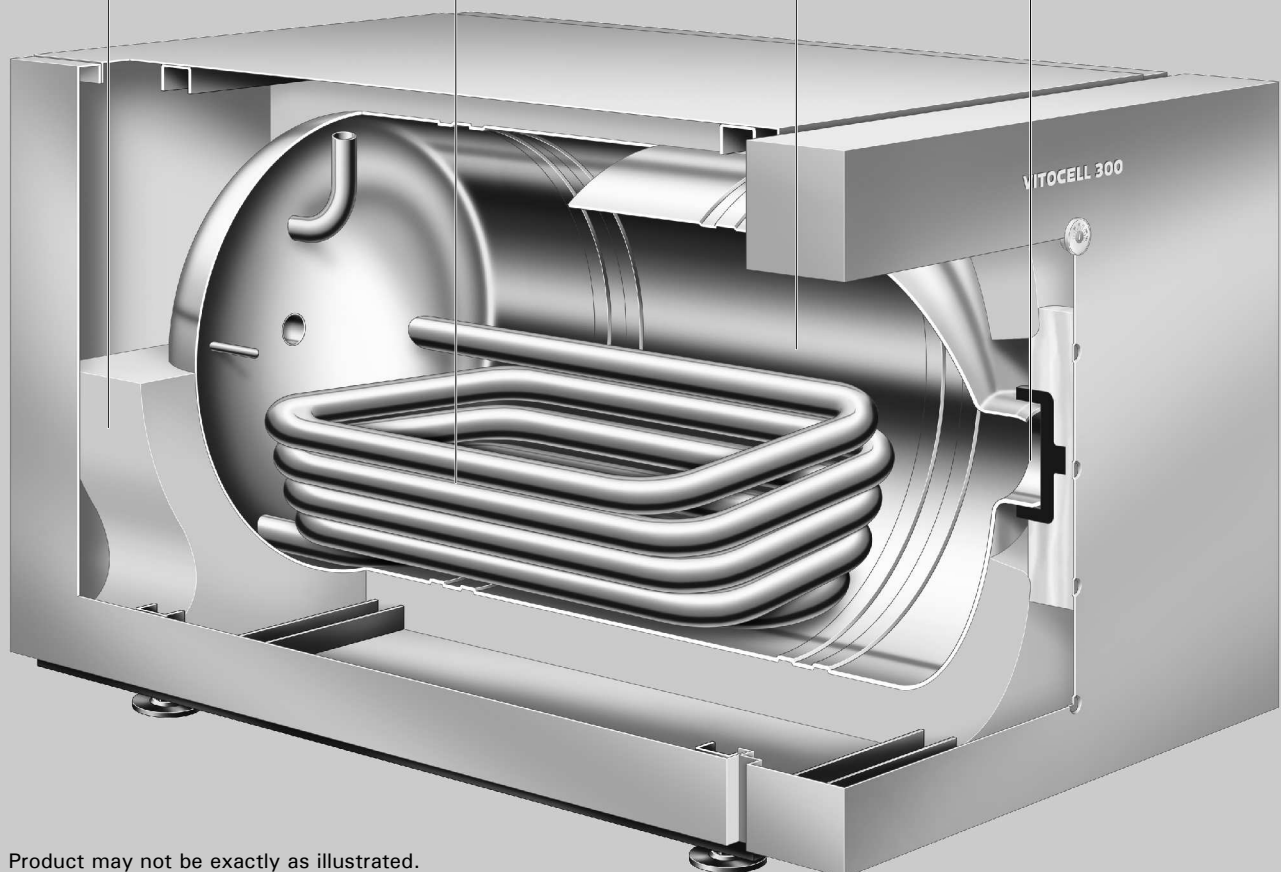
- Corrosion-resistant tank of **high-grade SA 240-316 Ti stainless steel** offers a long service life.
- Fully hygienic due to **high quality homogeneous stainless steel surfaces**.
- The high-alloy material is immune to cracking or peeling. The tank stays hygienic and requires only minimum service.
- The entire water content is heated by a **1 ¼" / 32 mm diameter stainless steel heat exchanger surface which extends to the bottom of the tank**.
- **Certified to CSA Low Lead Content Certification Program; including US Safe Drinking Water Act, NSF/ANSI 372 as well as other applicable US State requirements.**
- The positioning of the tubular heat exchanger coil further ensures that 82 to 97% of the tank volume can be drawn at **constant water temperature**.
- The stainless steel heat exchanger coil is self-venting towards the top and self-draining towards the bottom, therefore not susceptible to reduced heat transfer due to air lock or sediment deposits.
- **Standby losses minimized by 2 ¼" / 58 mm highly effective, foamed-in-place HCFC-free insulation.**
- **Easy transport** into mechanical room due to low weight and compact construction.

2¼" / 58 mm thick
foamed-in-place
HCFC-free insulation

Inspection port/
clean-out opening

Non-finned, stainless steel, tubular heat
exchanger coil extends to tank
bottom – the entire water
volume is heated ensuring no
cold spots where bacteria
growth could occur

Tank is constructed
of high-grade SA 240-316 Ti
stainless steel



Product may not be exactly as illustrated.

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Technical Data

Technical data

For domestic hot water heating applications which utilize hot water heating boilers

Suitable for heating systems with:

- max. working pressure on heat exchanger side up to 220 psig at 392°F / 200°C or a steam pressure of 15 psig at 250°F / 121°C
- max. working pressure on DHW water side of up to 150 psig at 210°F / 99°C

Storage capacity	USG	42	53	92	119
	ltr	160	200	350	450
Recovery rates ^{*1}		96	113	239	280
with a temperature rise of the domestic hot water from	194°F 90°C	MBH GPM ltr/h	2.1 2.5 568	5.3 1204	6.2 1410
50 to 140°F / 10 to 60°C	176°F 80°C	MBH GPM ltr/h	78 1.8 396	85 1.9 430	174 3.9 877
and heating water supply temperature of	158°F 70°C	MBH GPM ltr/h	51 1.1 258	58 1.3 292	116 2.6 585
at the supply flow rate stated below					133 3.0 671
Supply flow rate for the recovery rates stated	GPM m ³ /h	13.2 3.0	22.0 5.0	22.0 5.0	22.0 5.0
Recovery rates with a temperature rise of the domestic hot water from	7 1/2 psig	MBH GPM ltr/h	Please see Vitocell-H 300 Steam Chart on page 16		
50 to 113°F / 10 to 45°C , a steam pressure of	15 psig	MBH GPM ltr/h	Please see Vitocell-H 300 Steam Chart on page 16		
and a max. steam velocity of 164 ft/s, 50 m/s					
Standby losses ^{*2}	MBH/24 h	4.4	5.1	6.5	8.2
Overall dimensions					
Overall depth	inches	42 1/4	48 3/4	62 1/2	65
	mm	1072	1236	1590	1654
Overall width	inches	25 1/4	25 1/4	32 3/4	35 3/4
	mm	640	640	830	910
Width without enclosure	inches	--	--	30 1/4 ^{*3}	32 ^{*4}
	mm			768 ^{*3}	810 ^{*4}
Overall height	inches	25 3/4	25 3/4	31	35
	mm	654	654	786	886
Weight	lbs	168	185	379	421
Tank with insulation	kg	76	84	172	191
Heating water content (heat exchanger pipe coil)	USG ltr	1.8 7	2.1 8	3.4 13	4.2 16
Heat exchanger surface area	ft ² m ²	9.36 0.87	9.7 0.9	18.3 1.7	22.6 2.1
Connections					
Heating water supply/return	Ø" (male thread)	1	1	1 1/4	1 1/4
Domestic cold/hot water	Ø" (male thread)	3/4	3/4	1 1/4	1 1/4
Temp. and press. relief valve	Ø" (male thread)	3/4	1	1	1 1/4

^{*1} When planning for the recovery rate as stated or calculated, allow for the corresponding circulation pump.

The stated recovery rate is only achieved when the rated output of the boiler is equal to or greater than that stated under "Recovery rates". Please also refer to the corresponding sizing chart at the end of this manual.

^{*2} Measured values are based on a room temperature of 68 °F / 20 °C and a domestic hot water temperature of 149 °F / 65 °C and can vary by ±5%.

^{*3} To overcome mechanical room access problems, the front panel with thermometer and side panels can be removed, the adjustable feet unscrewed, and the Vitocell 300-H turned on its side.

^{*4} This is the net width of the Vitocell 300-H after removing the outer casing to ease problems of access into the mechanical room.

Vitocell 300-H, 42 to 119 USG / 160 to 450 ltr

Domestic hot water draw rate

Storage tank contents heated to 140°F / 60°C, boiler not reheating

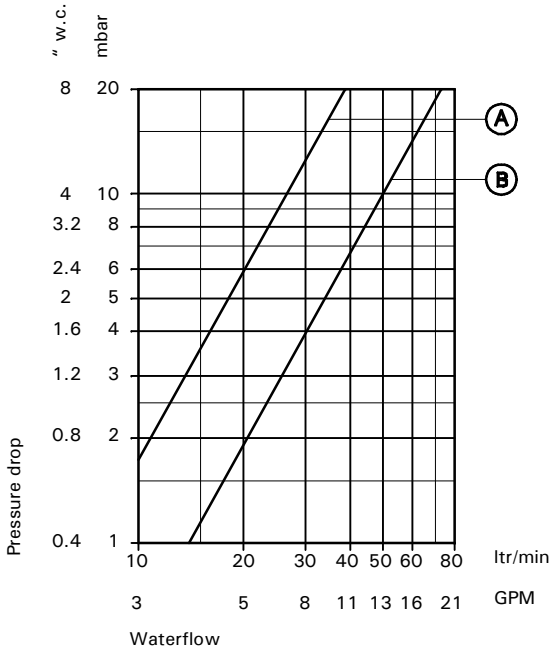
Storage Capacity	USG	42	53	92	119
	ltr	160	200	350	450
Domestic hot water draw rate	GPM	2.6	2.6	4.0	4.0
	ltr/min	10	10	15	15
Domestic hot water draw	USG	40	49	83	116
	ltr	150	185	315	440
Water with t = 140°F/60°C (constant)					
Percentage Tank Volume		94%	93%	90%	97%

Heat-up time

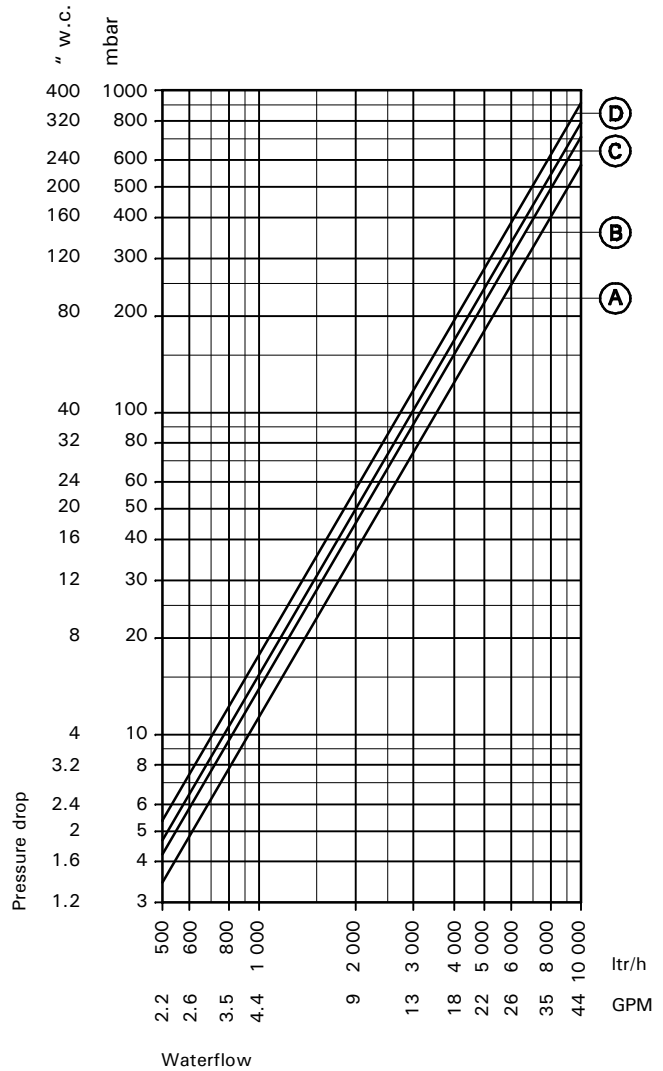
The stated heating times are achieved when the maximum recovery rate of the domestic hot water tank is made available at the respective supply temperature and with a domestic hot water rise from 50 to 140°F / 10 to 60°C.

Storage Capacity	USG	42	53	92	119
	ltr	160	200	350	450
Heating water supply temperature	Heat-up time (minutes)				
	194°F / 90°C	19	18	15	20
	176°F / 80°C	26	25	20	26
	158°F / 70°C	34	32	31	40

Pressure drop on domestic hot water side (secondary circuit)



Pressure drop on heating water side (primary circuit)






- Ⓐ 42 USG / 160 ltr storage capacity
- Ⓑ 53 USG / 200 ltr storage capacity
- Ⓒ 92 USG / 350 ltr storage capacity
- Ⓓ 119 USG / 450 ltr storage capacity

- Ⓐ 42 and 53 USG / 160 and 200 ltr storage capacity
- Ⓑ 92 and 119 USG / 350 and 450 ltr storage capacity

Technical data

Three possible combinations are shown below as examples.

Please note the maximum number of tank units which may be stacked upon one another.

Total capacity of tank battery	USG		184	238	357
	ltr		700	900	1350
Number of storage tanks			2	2	3
Storage capacity per tank	USG		92	119	119
	ltr		350	450	450
Layout			Max. number of tanks which may be stacked on top of each other		Max. number of tanks which may be stacked on top of each other
					
Recovery rates ^{*1}					
with a temperature rise of the domestic hot water from	194°F	MBH	478	560	839
	90°C	GPM	10.6	12.4	18.6
		ltr/h	2408	2820	4230
50 to 140°F / 10 to 60°C and heating water supply temperature of at the supply flow rate stated below	176°F	MBH	348	423	635
	80°C	GPM	7.7	9.4	14.1
		ltr/h	1754	2132	3198
	158°F	MBH	232	266	399
	70°C	GPM	5.2	5.9	8.9
		ltr/h	1170	1342	2013
Supply flow rate		GPM	44	44	66
		m ³ /h	10	10	15
for the recovery rates stated					
Recovery rates	7½	MBH	566	566	850
with a temperature rise of the domestic hot water from	psig	GPM	18.0	18.0	27.0
		ltr/h	4078	4078	6117
50 to 113°F / 10 to 45°C, a steam pressure of and a max. steam velocity of 164 ft/s, 50 m/s	15	MBH	717	717	1075
	psig	GPM	22.7	22.7	34.1
		ltr/h	5160	5160	7740
Standby losses ^{*2}		MBH/24 h	13.0	14.3	21.5

^{*1} When planning for the recovery rate as stated or calculated, allow for the corresponding circulation pump.

The stated recovery rate is only achieved when the rated output of the boiler is equal to or greater than that stated under "Recovery rates".

^{*2} Measured values are based on a room temperature of 68 °F / 20 °C and a domestic hot water temperature of 149 °F / 65 °C and can vary by ± 5 %.

Installation of additional aquastat(s)



WARNING

In a multiple tank installation, it is recommended that an additional high limit aquastat be installed in the common domestic hot water supply header to the system. This aquastat should be wired in series to the operating aquastat on the tank battery. The setting on this additional high limit aquastat should be approximately 9°F / 5°C higher than the operating high limit.

Ensure that temperature tempering valve(s) is/are installed if the domestic hot water storage tank temperature exceeds 140°F / 60°C to protect from scalding.

Consult plumbing codes and authorities for local requirements.

Vitocell 300-H in a Multiple Tank Installation

Product Delivery

Domestic hot water draw rate

Storage tank content heated to 140°F / 60°C, boiler not reheating

Storage capacity	USG ltr	92 350	119 450	119 450
Battery storage capacity	USG ltr	184 700	240 900	360 1350
Number of tanks		2	2	3
DHW draw rate	GPM ltr/min	7.9 30	7.9 30	7.9 30
Domestic hot water draw	USG ltr	166 630	232 880	349 1320
Water with t = 140°F / 60°C (constant)				
Percentage of battery volume		90%	97%	97%

Quick recovery (over 10-minute period)

Domestic hot water rise from 50 to 113°F / 10 to 45°C

Storage capacity	USG ltr	92 350	119 450	119 450
Battery storage capacity	USG ltr	184 700	240 900	360 1350
Number of tanks		2	2	3
Heating water supply temperature		Quick DHW recovery (over 10-minute period)		
194°F / 90°C	USG/10 min ltr/10 min	219 830	317 1200	433 1640
176°F / 80°C	USG/10 min ltr/10 min	219 830	300 1137	408 1545
158°F / 70°C	USG/10 min ltr/10 min	203 769	277 1050	378 1430

Max. domestic hot water draw rate (over 10-minute period)

Domestic hot water rise from 50 to 113°F / 10 to 45°C

Storage capacity	USG ltr	92 350	119 450	119 450
Battery storage capacity	USG ltr	184 700	240 900	360 1350
Number of tanks		2	2	3
Heating water supply temperature		Max. DHW draw rate (over 10-minute period)		
194°F / 90°C	GPM ltr/min	21.9 83	31.7 120	43.3 164
176°F / 80°C	GPM ltr/min	21.9 83	30.1 114	40.7 154
158°F / 70°C	GPM ltr/min	20.3 77	27.7 105	37.8 143

Standard Equipment

Vitocell 300-H,
with 42 to 119 USG / 160 to 450 ltr capacity

Domestic hot water tank of high-alloy stainless steel with PUR Foam insulation with
– adjustable leveling feet.

The following is packed separately and attached to the crate:

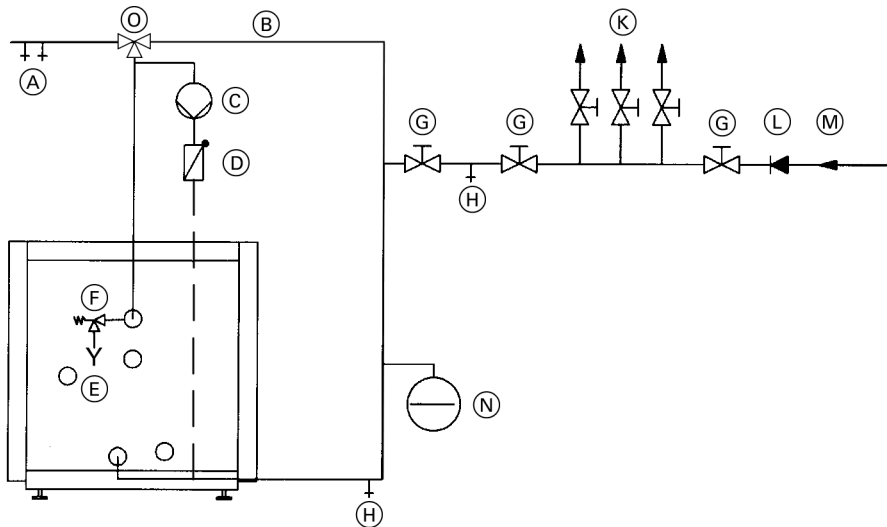
- installation fittings package: with the necessary brass adaptors, other necessary hardware, and Loctite 55
- temperature and pressure relief valve
- sensor well with insulation
- thermometer
- Installation Instructions, Start-up/Service Instructions and Operating Instructions.

Electrostatically powder coated sheet metal enclosure panel in a Vitosilver finish.

Product Installation

Domestic hot water connections

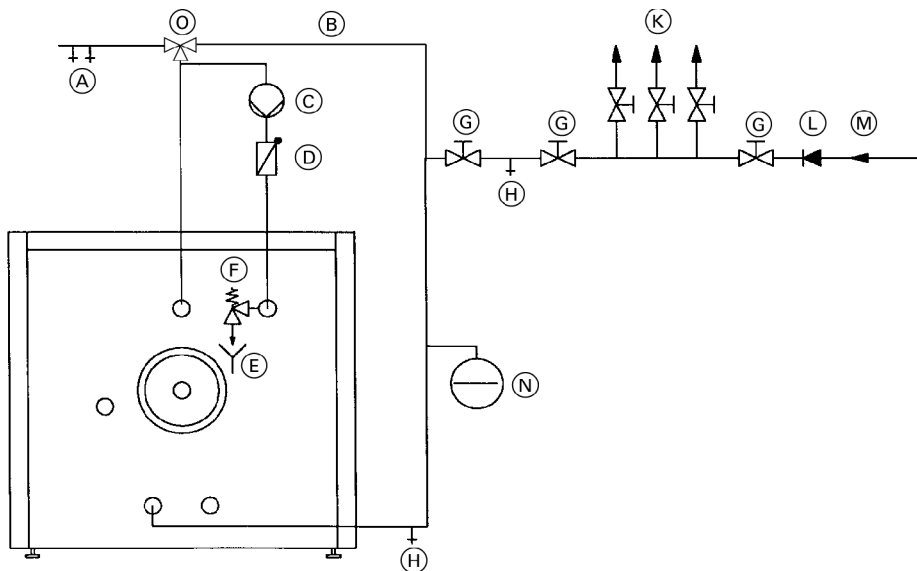
42 and 53 USG / 160 and 200 ltr capacity



IMPORTANT

These are simplified conceptual drawings only! Piping and necessary componentry must be field verified. Proper installation and functionality in the field is the responsibility of the heating contractor.

92 and 120 USG / 350 and 450 ltr capacity



IMPORTANT

These are simplified conceptual drawings only! Piping and necessary componentry must be field verified. Proper installation and functionality in the field is the responsibility of the heating contractor.

- (A) Domestic hot water supply
- (B) DHW recirculation line
- (C) DHW recirculation pump
- (D) Spring loaded flow check valve
- (E) Discharge pipe of temperature and pressure relief valve
- (F) Temperature and pressure relief valve

- (G) Shut-off valve
- (H) Drain
- (K) Domestic cold water supply lines
- (L) Backflow preventer
- (M) Domestic cold water inlet

- (N) Precharged expansion tank
(required where backflow preventer is installed; check local plumbing codes and requirements)
- (O) Thermostatic mixing valve/anti-scald

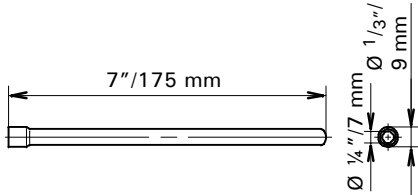
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Product Installation

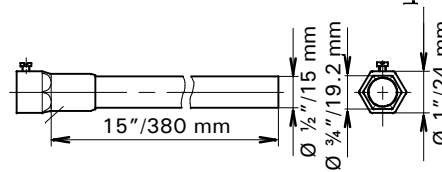
Sensor Well

Vitocell 300-H,
with 42 and 53 USG / 160 and 200 ltr
capacity

The sensor well is welded into the DHW
tank.



Vitocell 300-H,
with 92 and 119 USG / 350 and 450 ltr
capacity



! WARNING

To ensure optimum, safe operation, the supplied stainless steel well must be installed. The well diameter is large enough to accommodate a wide variety of sensing bulbs.

Always use spring clip to ensure proper contact of capillary bulb against the stainless steel well for proper sensing/heat transfer!

Heating water supply temperatures over 230°F / 110°C

For these operating conditions, an approved high limit safety aquastat must be installed to limit the domestic hot water temperature to 203°F / 95°C in the tank.

Vitocell-H domestic hot water tank positioned under the boiler

Please note that only the boiler/tank combinations stated in the Price List are possible. In the case of the 92 USG / 350 ltr capacity Vitocell 300-H, the boiler can **only** be positioned on the DHW tank so that it is flush **at the front**.

Recirculation tapping

The recirculation tapping on the Vitocell-H 300 is also the opening for mounting the temperature and pressure relief valve.

If this opening is utilized for recirculation, extend the stainless steel nipple on the tank with a brass tee of the same size as the stainless steel nipple \varnothing to accommodate both connections; see installation instructions.

Temperature and pressure relief valve

A temperature and pressure relief valve (T&P relief valve) is supplied with the tank. The heating contractor must install the valve on each tank in a method meeting code requirements. If local codes require a different relief valve, substitute the manufacturer's supplied valve. The tank is approved for 100 psig where a CRN is required. Maximum operating pressure is 150 psig.

The T&P relief valve supplied with the tank is ASME pressure steam rated for 998 MBH and CSA temperature steam rated for 200 MBH. It is tested under ANSI Z21.22 code for Relief Valves and Automatic Gas Shut-off Devices for Hot Water Supply Systems.

For steam applications, a field supplied 1" T&P valve must be utilized.

Watts Model 40XL-8	100 psig (Canada where CRN is required)	150 psig (US and Canada)
ASME pressure steam rating	998 MBH	1438 MBH
CSA temperature steam rating	205 MBH	
Relief temperature	210°F (99°C)	
Inlet thread	3/4" male	
Outlet thread	3/4" female	

Warranty excerpt

Our warranty for domestic hot water tanks states that the water heated should be of drinking water quality and that any water treatment equipment in use must function correctly.

If the product has been improperly installed or misapplied by the installer, contractor or final user, Viessmann accepts no responsibility for damage howsoever caused and reserves the right to withdraw the product warranty. In order to qualify for product warranty, strict adherence to the installation and service manuals must be observed. In the event that Viessmann non-approved components are utilized, Viessmann reserves the right to withdraw all expressed or implied warranties without written notice.

The water to be heated with the Vitocell must be drinking (potable) water quality. If the tank is used to heat other media, the warranty will be null and void. Damage resulting from excessive pressure or temperature is clearly not the responsibility of Viessmann.

The amount of chloride and sulfate acceptable to the tank is limited. In areas where high concentrations of chloride and sulfate are present in drinking water, please consult Viessmann for directions.

For full warranty details, please read the product warranty card.

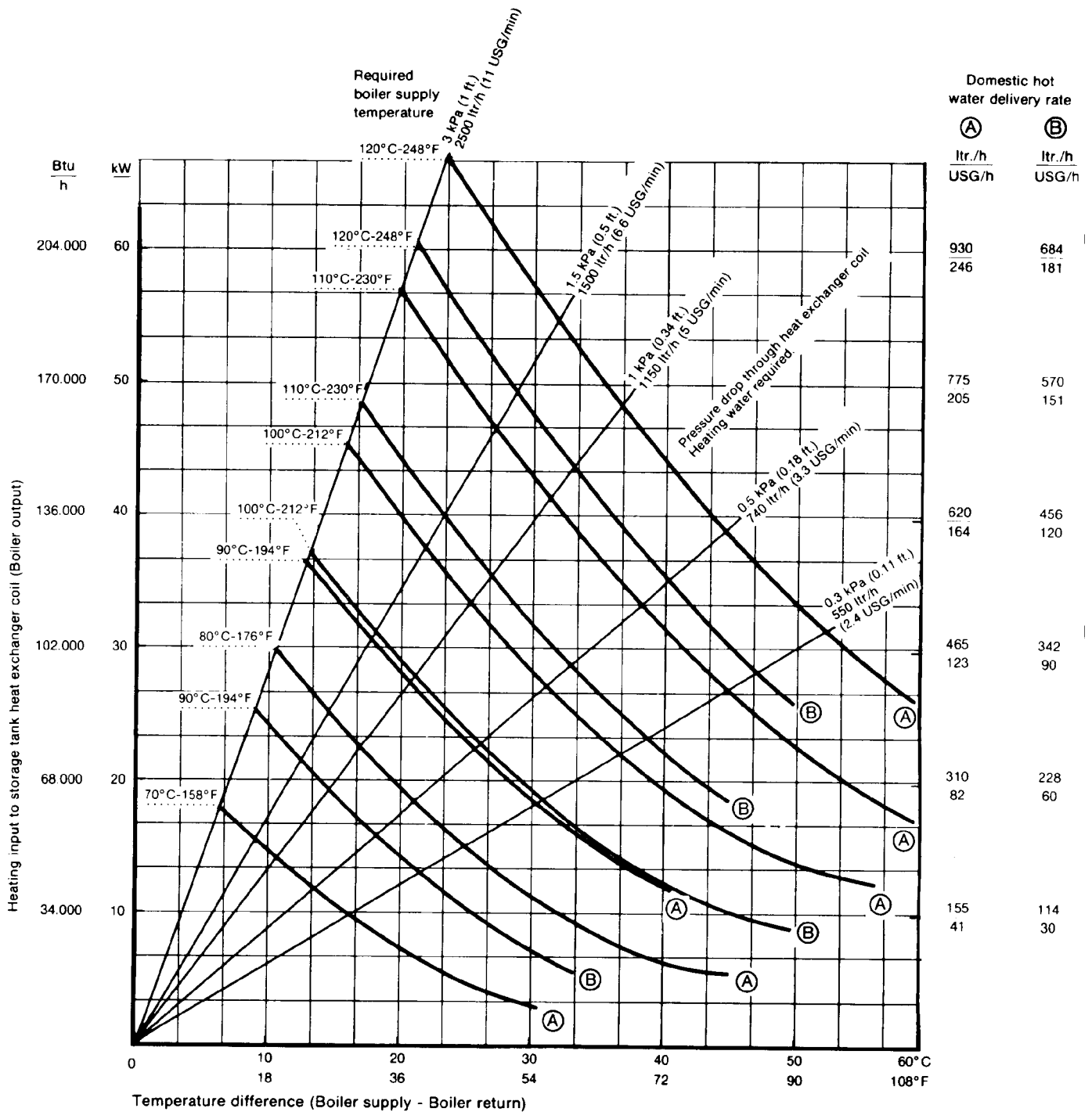
Backflow preventers

Where backflow preventers are required, a domestic water expansion tank installation is recommended in the cold water inlet piping before the cold water enters the Vitocell. For the backflow device, observe local plumbing codes and regulations.

Vitocell 300-H, 42 USG / 160 ltr capacity

Curve **(A)**
Domestic hot water 40 to 140°F / 4 to 60°C

Curve **(B)**
Domestic hot water 40 to 176°F / 4 to 80°C



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Vitocell 300-H Sizing Continuous Flow Capacity Chart

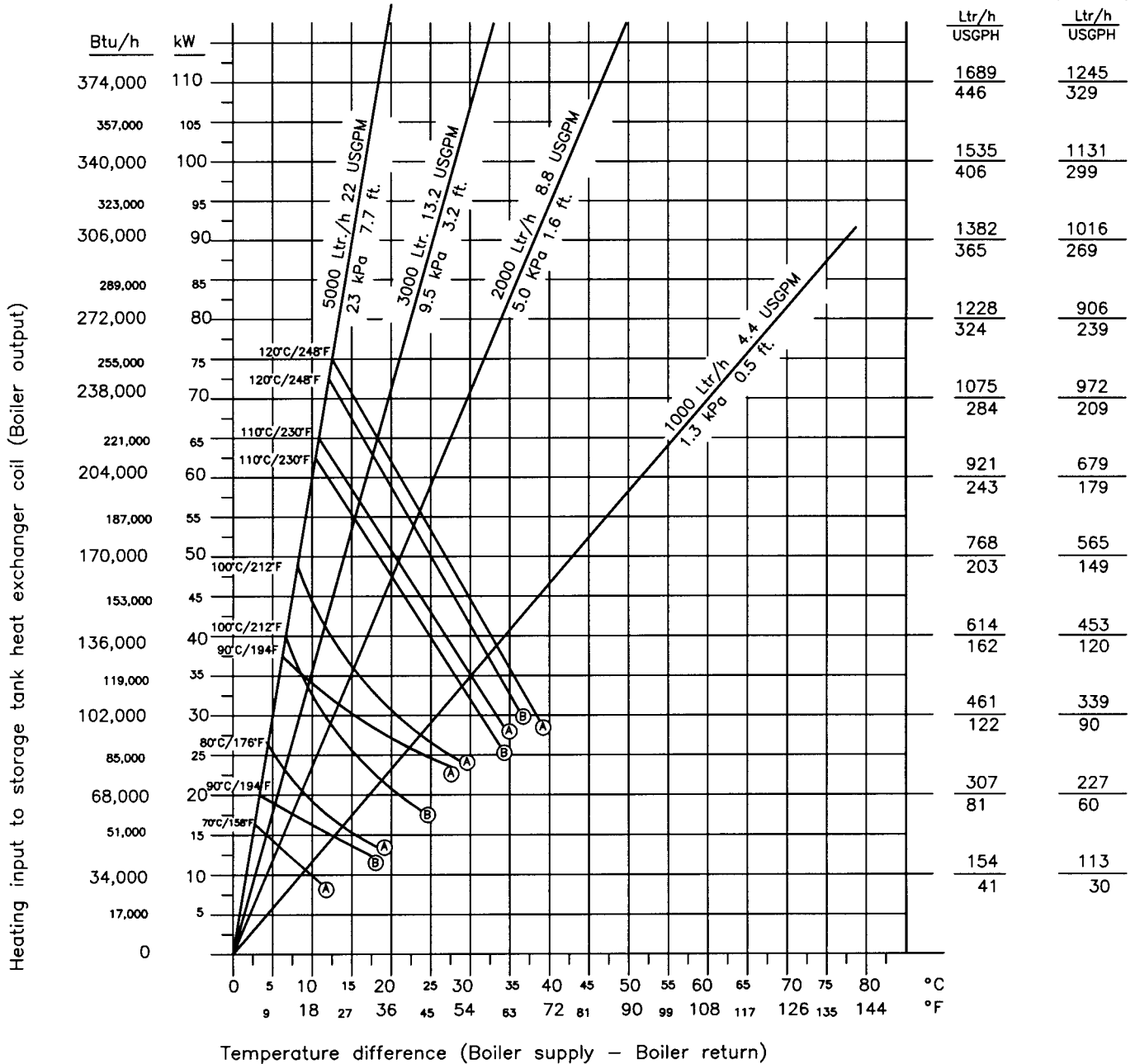
Vitocell 300-H, 53 USG / 200 ltr capacity

Curve (A)
Domestic hot water 40 to 140°F / 4 to 60°C

Curve (B)
Domestic hot water 40 to 176°F / 4 to 80°C

Domestic hot water
delivery rate

(A)	(B)
4 °C–60 °C 40 °F–140 °F	4 °F–80 °C 40 °F–176 °F
Ltr/h USGPH	Ltr/h USGPH



Vitocell 300-H Sizing Continuous Flow Capacity Chart

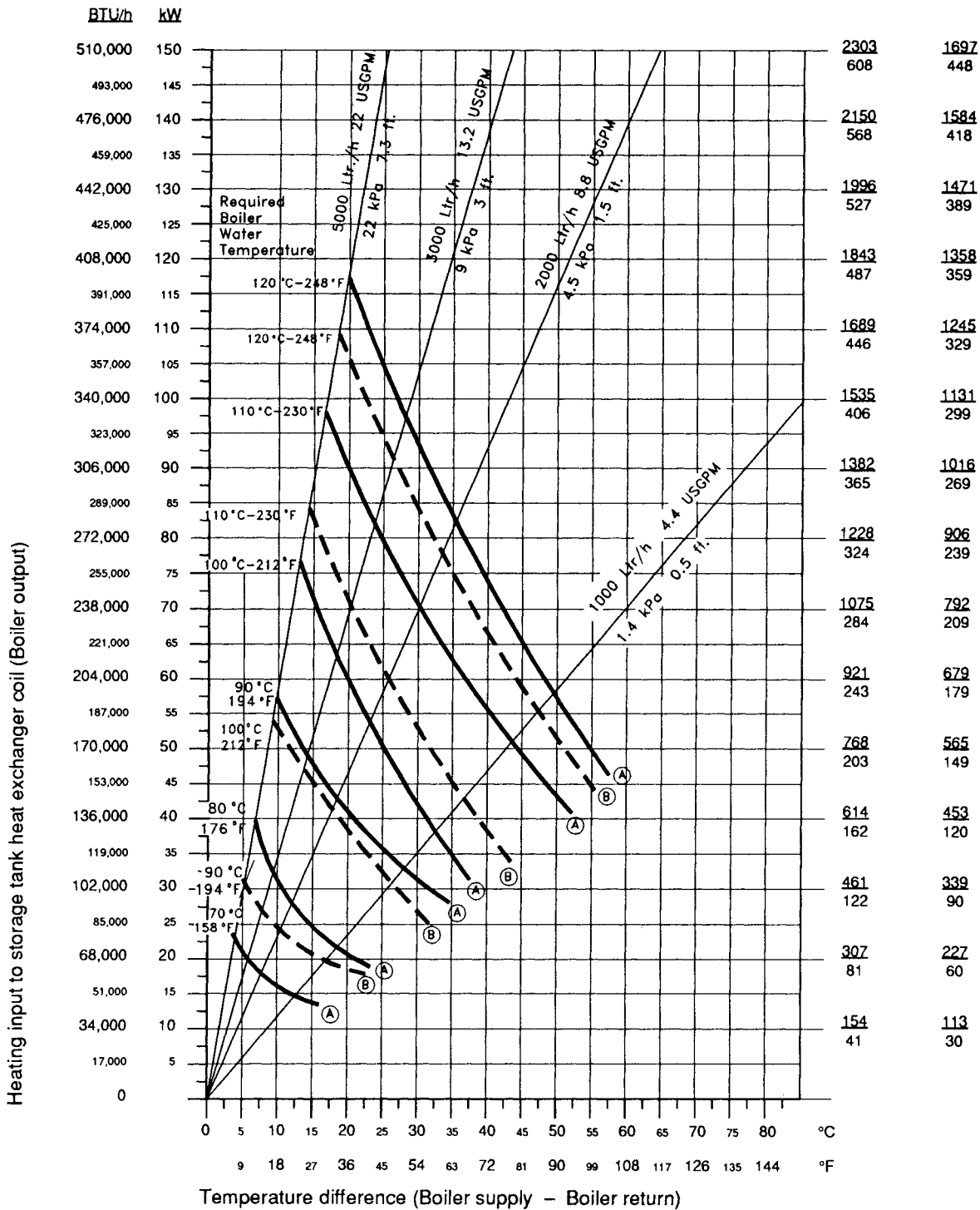
Vitocell 300-H, 92 USG / 350 ltr capacity

Curve (A)
Domestic hot water 40 to 140°F / 4 to 60°C

Curve (B)
Domestic hot water 40 to 176°F / 4 to 80°C

Domestic hot water delivery rate

(A)	(B)
4°C – 60°C	4°C – 80°C
40°F – 140°F	40°F – 176°F
Ltr/h USGPH	Ltr/h USGPH



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Vitocell 300-H Sizing Continuous Flow Capacity Chart

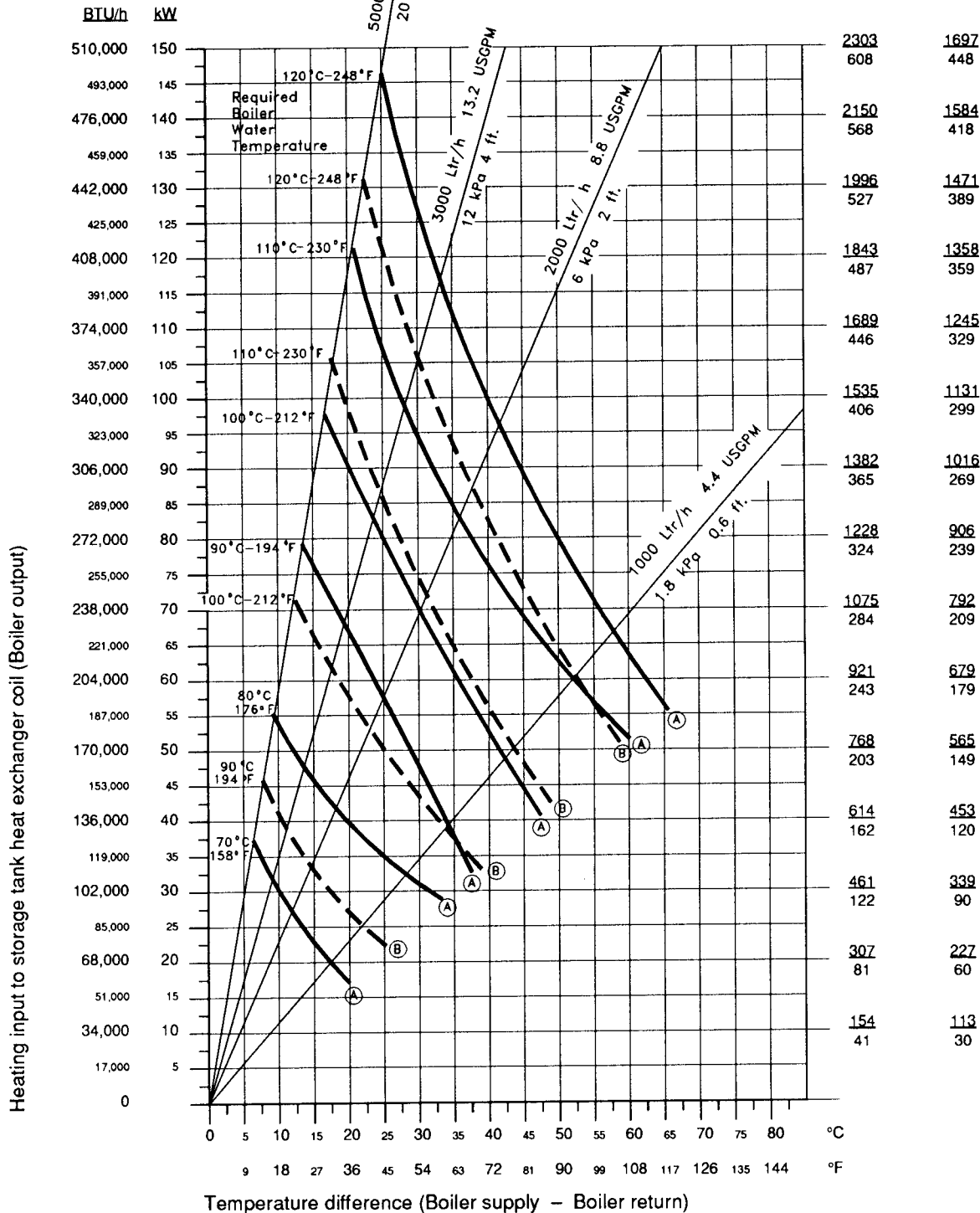
Vitocell 300-H, 119 USG / 450 ltr capacity

Curve (A)
Domestic hot water 40 to 140°F / 4 to 60°C

Curve (B)
Domestic hot water 40 to 176°F / 4 to 80°C

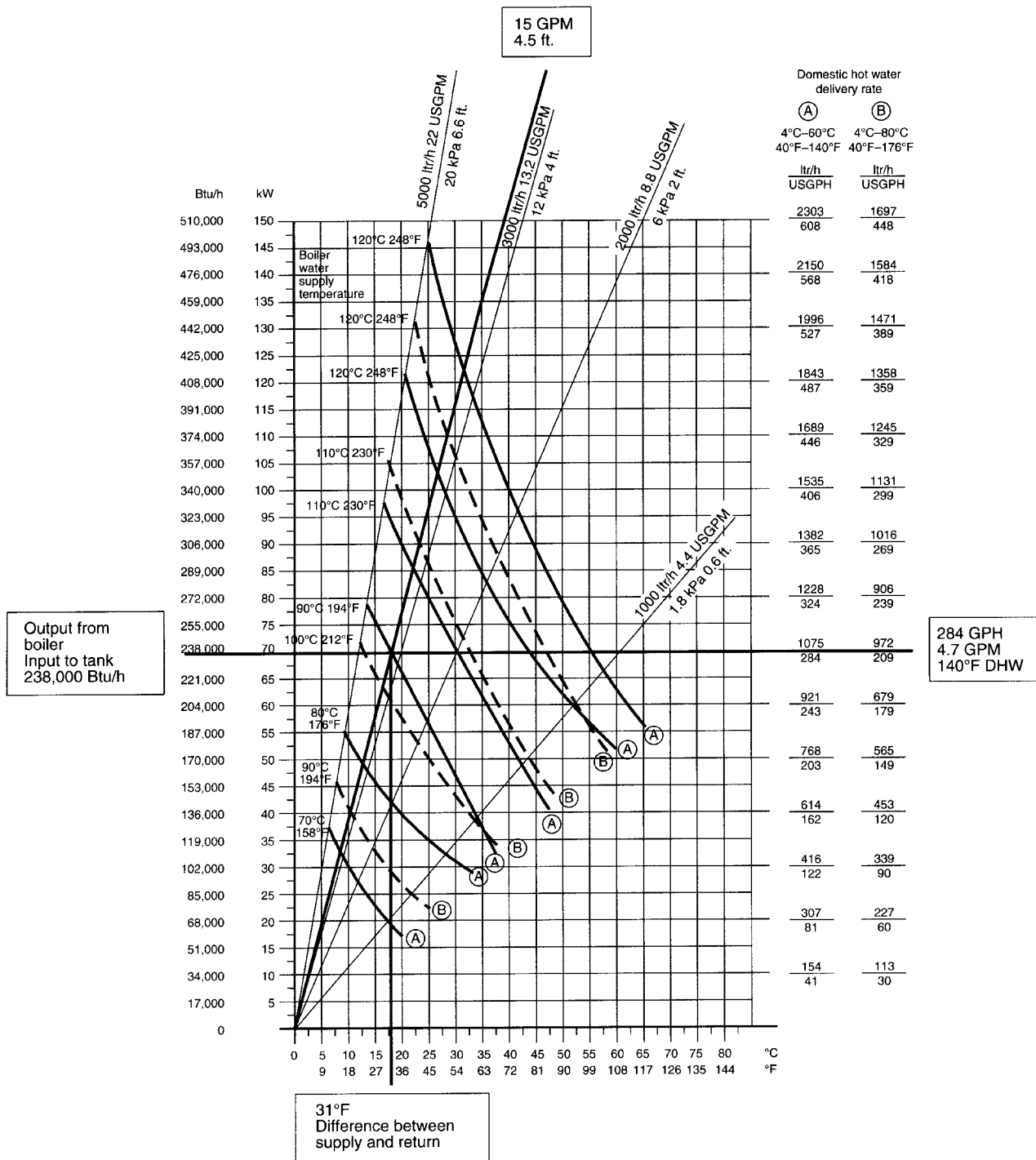
Domestic hot water delivery rate

(A)	(B)
4°C – 60°C	4°C – 80°C
40°F – 140°F	40°F – 176°F
Ltr/h USGPH	Ltr/h USGPH



Example: Vitocell 300-H, 119 USG / 450 ltr capacity

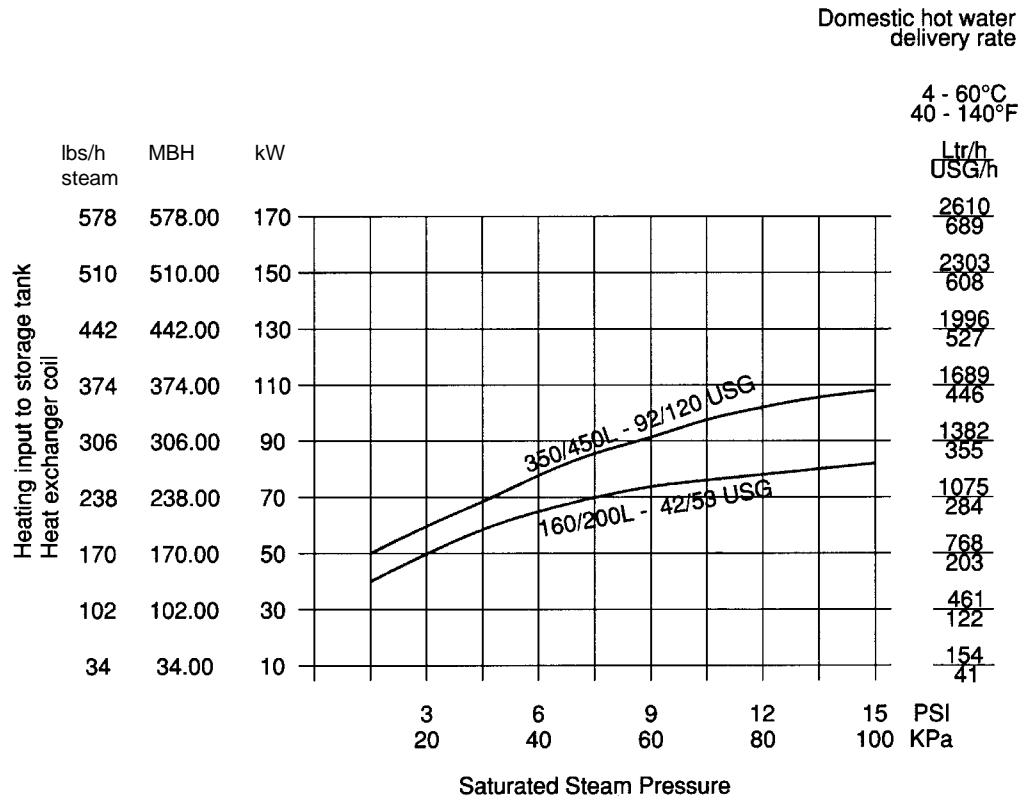
Assume boiler output to tank is 238 MBH. Enter chart at left and draw horizontal line across to recovery rate of 284 GPH / 4.7 GPM for 140°F / 60°C domestic hot water under column A. Where the horizontal line intersects the 194°F / 90°C curve is the point of intersection for the diagonal line used to size the pump. The diagonal line begins at the origin and goes through the point of intersection extending up to the top of the chart. Read between the reference diagonal lines to get a pump specification of 15 GPM at 4.5 ft. To summarize: For a Vitocell-H 300 with 119 USG / 450 ltr capacity and 238 MBH input, the boiler water temperature is 194°F / 90°C, difference between boiler return and supply water temperature is 31°F / 17°C, recovery rate is 4.7 GPM of 140°F / 60°C DHW, and the pump required is 15 GPM, 4.5 ft. plus pressure drop in piping and boiler. If a multiple tank application is required, i.e. 4 tanks at 238 MBH input each, then the pump selection would be (4 x 15 GPM) 60 GPM at 4.5 ft. plus piping pressure drop.



Vitocell 300-H Steam Chart

Vitocell 300-H

Continuous flow of domestic hot water at a temperature of 140°F / 60°C at 100°F / 56°C rise with a steam velocity of 164 ft./sec / 50 m/sec using saturated steam.



Printed on environmentally friendly (recycled and recyclable) paper.

Technical information subject to change without notice.

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