

Technical Data Manual

Model Nos. and pricing: see Price List

Solar package for heating DHW with solar energy, with a dual mode DHW tank, Solar-Divicon, solar control unit, solar collectors and solar components

VIESSMANN®

VITOSOL® DHW SOLAR PACK



Product may not be exactly as shown

Vitosol 100-FM, type SVKF

Flat-plate collectors, optimized for this application, suitable for vertical sloped roof installation.

Vitocell 100-W, type CVBA

Floor standing steel DHW tank with Ceraprotect enamel coating and two indirect coils for heating by solar collectors and reheating by a boiler.
With pre-installed Solar-Divicon and solar control.

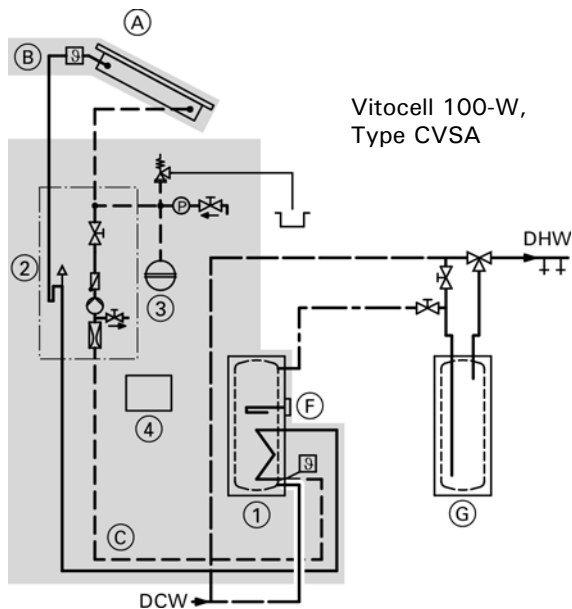
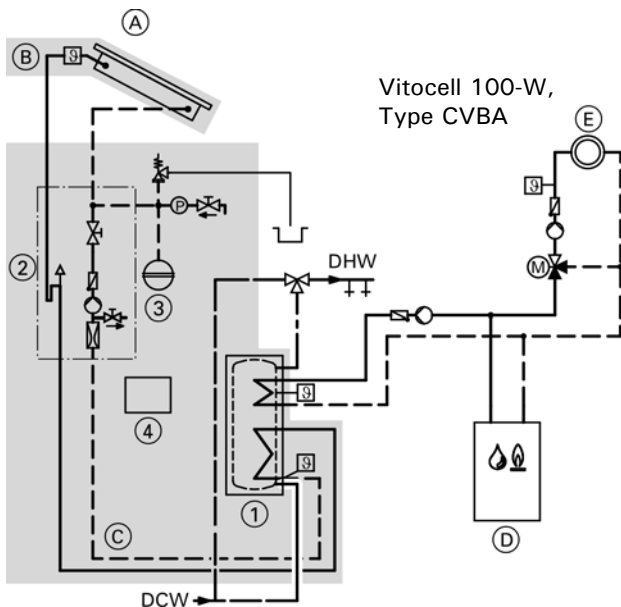
Vitocell 100-W, type CVSA

Floor standing steel DHW tank with Ceraprotect enamel coating and one indirect coil for heating by solar and one electric heating element.
With pre-installed Solar-Divicon and solar control.



Product Description

System diagram



Legend

DCW Domestic cold water

DHW Domestic hot water

Grey area = Standard delivery in solar pack

- (A) DHW solar pack:
- (B) Vitosol 100-FM, type SVKF, with connection set including collector temp. sensor and connection lines
- (C) Vitocell 100-W, type CVBA; 66 USG (250 L) or Vitocell 100-W, type CVSA; 69 USG (260 L)
- (1) Vitocell 100-W with integrated tank sensor
- (2) Solar-Divicon
- (3) Expansion tank
- (4) Solar controller, type DeltaSol BX

(D) Boiler

(E) Space heating circuit

(F) Electric heating element (DHW)

(G) Existing DHW tank

Benefits (DHW Solar Pack)

- Standard DHW solar pack with components tailored to heating DHW by solar energy.
- Clearly defined application range: Solar thermal system for DHW heating with two solar collectors.
- Special meander hydraulics for excellent stagnation characteristics.
- Suitable for sloped roof installation.
- High efficiency through highly efficient ThermProtect absorber and cover made from low-ferrous solar glass.
- Permanently sealed and high stability through all-round folded aluminium frame and endless glass seal.
- Low heat losses through highly effective, rockwool thermal insulation.
- Puncture-proof and corrosion-resistant back panel made from zinc plated sheet steel.
- Easy to assemble Viessmann fixing system with structurally-tested and corrosion-resistant components.
- Quick and reliable collector connection through push fittings and flexible connection lines.
- Dual mode DHW tank fully equipped for quick and easy connection to a solar thermal system.
- Corrosion-resistant steel tank with Ceraprotect enamel coating. Additional cathodic protection via a consumable magnesium anode (rod style).
- Straight forward and quick installation. Fill, vent and shut-off valve as well as a solar control unit are integrated in the Solar-Divicon and pre-installed on the tank.
- Solar control comes complete with the tank sensors factory installed and wired.
- Quality tested to Solar Keymark testing requirements.
- Certified to the Solar Rating and Certification Corporation (SRCC) OG-100 Standard.

Delivered condition

DHW solar pack:

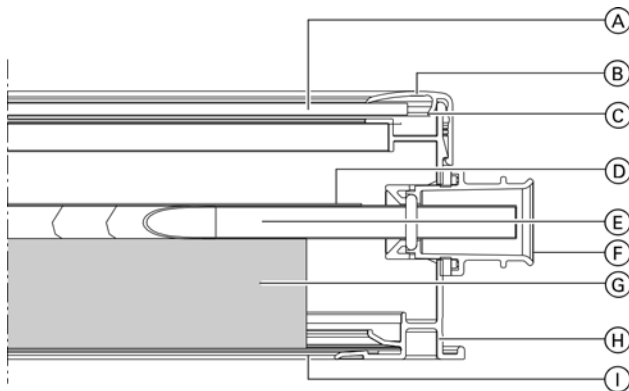
- 2 x Vitosol 100-FM, type SVKF. Connection set with flexible connection lines, brass connection tee with integrated sensor well
- Sloped roof mounting hardware kit
- Vitocell 100-W CVBA or CVSA with pre-mounted Solar-Divicon and solar control unit
 - Solar-Divicon with 3-speed circulation pump
 - Solar controller, type DeltaSol BX
- Solar expansion vessel 4.8 USG (18 L)
- Flexible stainless steel connection pipe with tank mounting bracket (for expansion tank)
- 1 container of premixed heat transfer medium 5.3 USG (20 L)
- Power supply for the solar control (120VAC, 14 ft., 3-wire with grounding plug) already connected.

IMPORTANT

DHW recirculation line cannot be installed on the Vitosol DHW Solar Pack in a single tank configuration.

This solar tank is not provided with a recirculation tapping. If DHW recirculation is required, then you must use a two-tank system configuration.

Vitosol 100-FM, SVKF



Legend

- (A) Solar glass cover, 0.13" (3.2 mm)
- (B) Aluminium cover strip bracket at the collector corners
- (C) Continuous flexible seal for solar glass cover
- (D) Aluminum absorber sheet with ThermProtect coating
- (E) Meander-shaped copper pipe
- (F) Plastic meander outlet
- (G) Thermal insulation made from rockwool
- (H) Non-coated aluminium frame
- (I) Aluminum - zinc coated sheet steel back panel

Type SVKF for sloped roof installation

The main component of the Vitosol 100-FM is the ThermProtect switching absorber. It ensures high absorption of solar radiation and low emission of thermal radiation. When the collector temperature becomes elevated $> 167^{\circ}\text{F}$ ($> 75^{\circ}\text{C}$) the absorber will switch or transition to a higher rate of thermal emission. The net result is that the collector will operate at a reduced temperature as the absorber will be rejecting excess thermal radiation. The ThermProtect switching absorber limits the maximum or stagnation temperature of the collector 293°F (145°C).

A meander-shaped copper pipe through which the heat transfer medium flows is part of the absorber.

The heat transfer medium absorbs the absorber heat through the copper pipe. The absorber is encased in a highly insulated collector housing that minimizes the heat losses of the collector.

The high-grade thermal insulation provides temperature stability and is non-outgassing. The collector is covered with a solar glass pane with low ferrous content.

This improves the transmission of insolation.

A flexible connection set with supply and return lines enables the collectors to be readily connected to the solar circuit. Install the collector temperature sensor in the factory supplied sensor well (part of the connection set).

Specifications

Type		SVKF
Gross area	ft ² (m ²)	23.5 (2.18)
Absorber area	ft ² (m ²)	21.6 (2.01)
Aperture area * 1	ft ² (m ²)	21.7 (2.02)
Spacing between collectors	in. (mm)	2¼ (57)
Dimensions * 2		
Width	in. (mm)	41¾ (1056)
Height	in. (mm)	81¼ (2066)
Depth	in. (mm)	2¾ (73)
Optical efficiency * 3	%	80.4
Heat loss factor k ₁	W/(m ² · K)	4.465
Heat loss factor k ₂	W/(m ² · K ²)	0.0213
Weight (dry)	lb (kg)	81.6 (37)
Fluid capacity (heat transfer medium)	USG (L)	0.33 (1.27)
Maximum working pressure * 4	psig (bar)	87 (6)
Maximum stagnation temperature * 5	°F (°C)	293 (145)
Connection	Ø in. (Ø mm)	¾ (22)
Requirements for installation surface and anchorage		Roof construction with adequate load capacity for prevailing wind forces
Mechanical test load		
Max. tested positive load	lb/ft ² (Pa)	62.7 (3000)
Max. tested negative load	lb/ft ² (Pa)	50.1 (2400)

* 1 Important for system design considerations.

* 2 Dimensions rounded to the nearest ¼ inch.

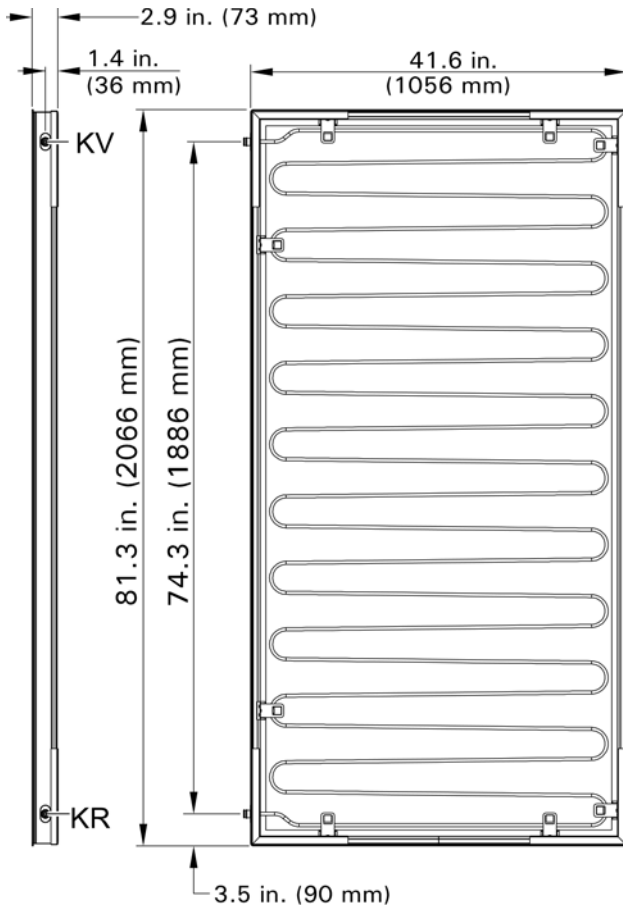
* 3 Based on absorber area.

* 4 In sealed systems, operating pressure of at least 44 psig + 0.45 psig x static head (ft.) (3.0 bar + 0.1 bar x static head (m)) must be present in the collectors in cold condition.

* 5 The stagnation temperature is the temperature which applies to the hottest point of the collector at a global radiation intensity of 3412 Btu/h / 1000 W when no heat is conducted by the heat transfer medium.

Vitosol 100-FM, SVKF (continued)

Dimensions



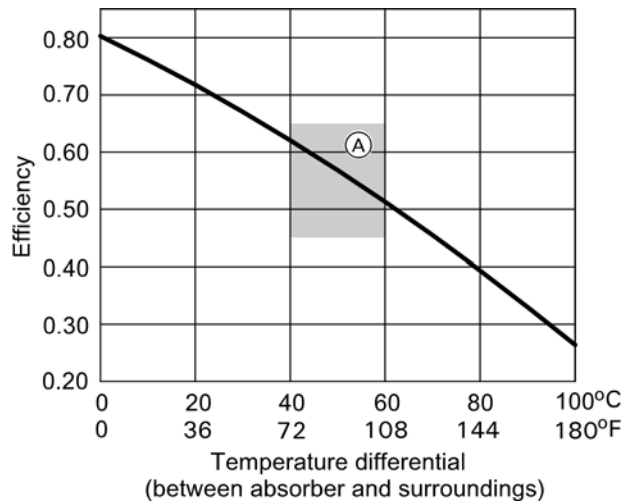
Legend

- KR Collector return (inlet)
- KV Collector supply (outlet)

Efficiency curve

The optical efficiency η_0 and the heat loss factors k_1 and k_2 together with temperature differential ΔT and the irradiance E_g are sufficient to determine the efficiency curve. Maximum efficiency is achieved when the differential between the absorber and ambient temperature ΔT and the thermal losses is zero. The higher the collector temperature, the higher the heat losses and the lower the efficiency.

The typical operating range of the collectors can be read off the efficiency curve. This gives the application options for the collector (see the following diagram).



Legend

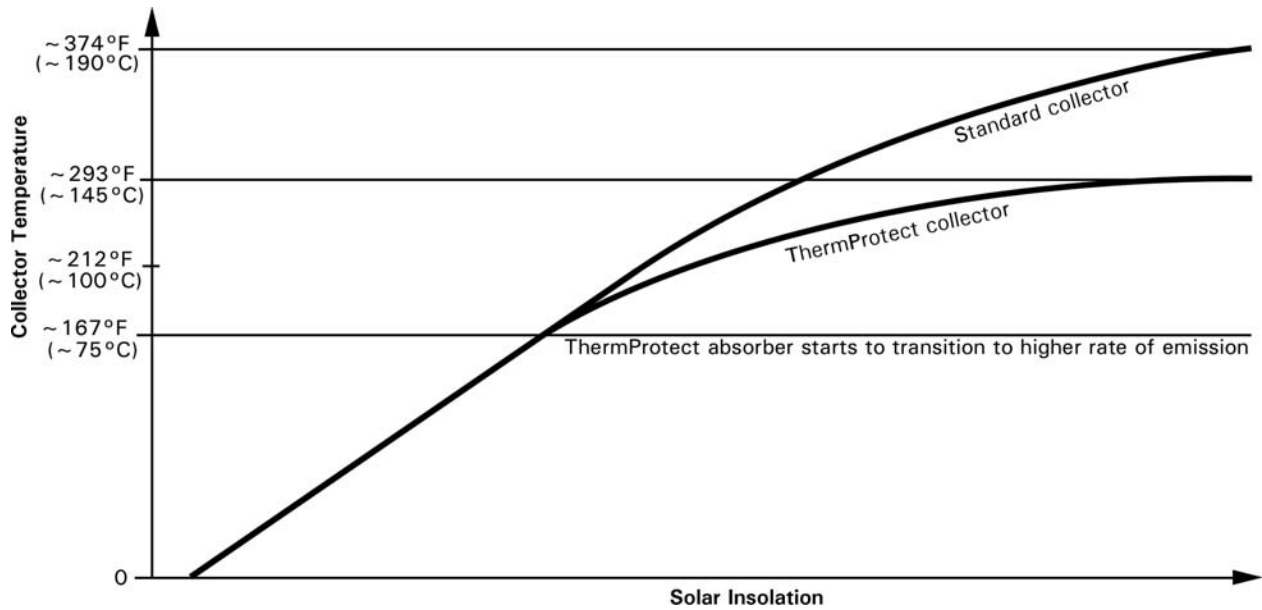
- Ⓐ Typical operating range for the solar thermal system for a residential DHW heating system

ThermProtect Absorber Coating

- The absorber selective coating (ThermProtect), optical characteristics changes depending on operating temperature
- The rate of absorption α does not change
- The rate of emission ε automatically adapts to the system

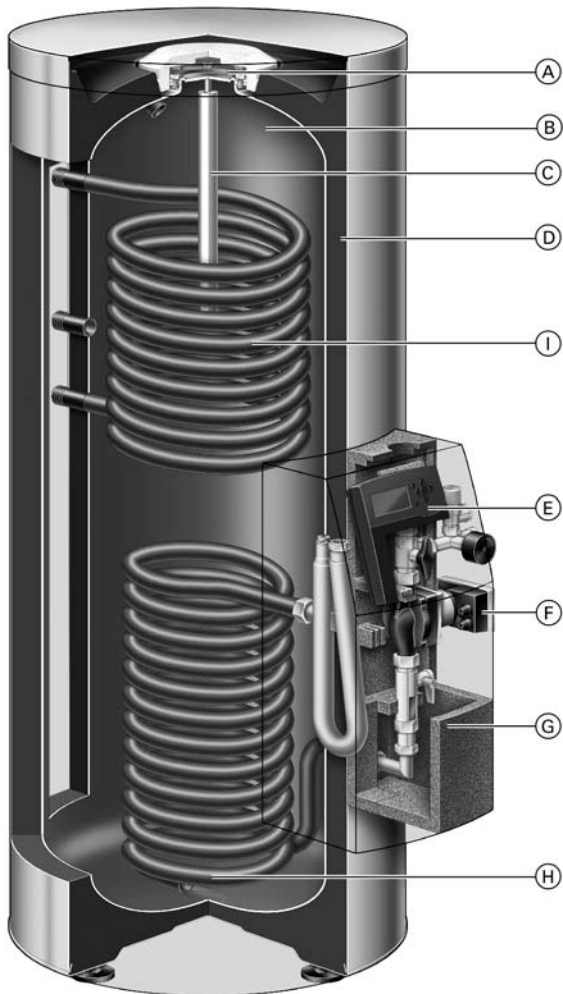
ThermProtect temperature characteristics

Solar collector temperature	Solar tank operation	Emission ε
up to 167°F (75°C)	Solar storage tank being heated	~ 5%
from 167°F to 293°F (75°C to 145°C)	Solar storage tank at max. temperature	~ 5% increases to ~ 40%

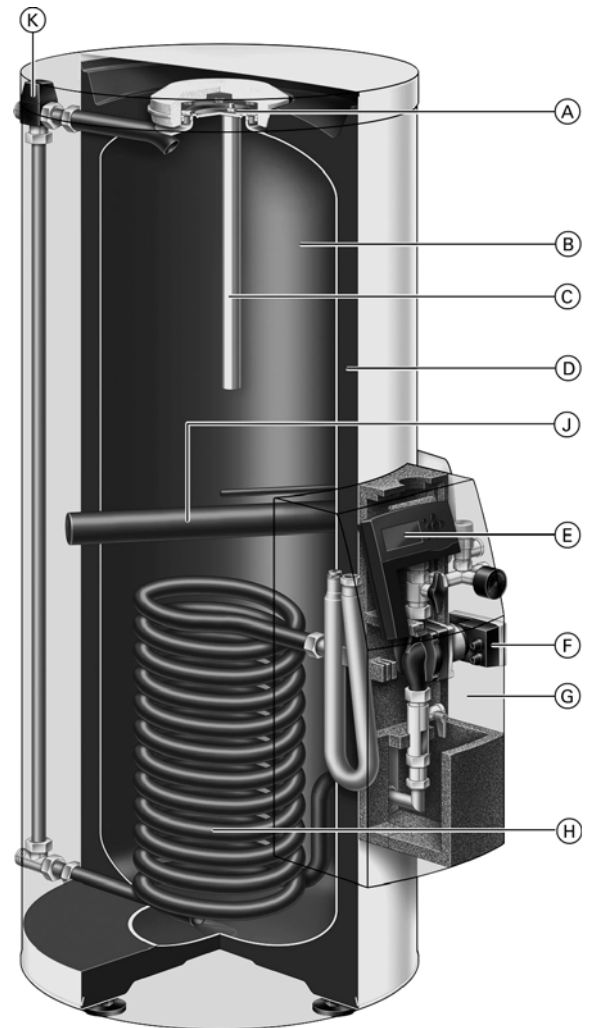


Vitocell 100-W, CVBA/CVSA

Vitocell 100-W, Type CVBA



Vitocell 100-W, Type CVSA



Product may not be exactly as illustrated.

Legend

- (A) Inspection and cleaning opening
- (B) Steel tank with Ceraprotect enamel coating
- (C) Magnesium anode
- (D) Highly effective all-round thermal insulation
- (E) Solar control unit DeltaSol BX
- (F) Solar circuit pump
- (G) Solar-Divicon pumping/control station
- (H) Lower indirect coil for connecting solar collectors
- (I) Upper indirect coil for reheating by the boiler
- (J) Immersion heater for electric reheating (wet connection)
- (K) External piping with anti-scald thermostatic mixing valve (field supplied)

Vitocell 100-W, CVBA Specifications

For DHW heating in conjunction with boilers and solar collectors. Suitable for the following systems:

- DHW temperatures up to 203°F (95°C)
- Heating water supply temperature up to 320°F (160°C)
- Solar supply temperature up to 230°F (110°C)
- Operating pressure on the heating water side up to 150 psig (10.3 bar)
- Operating pressure on the solar side up to 87 psig (6 bar)
- Operating pressure on the DHW side up to 150 psig (10.3 bar)

Tank capacity		USG (L)	66 (250)
Recovery rate, upper indirect coil	194°F (90°C)	MBH (kW)	106 (31)
For DHW heating from 50 to 113°F (10 to 45°C) and a water supply temperature of....at the supply flow rate stated below		USG/h (L/h)	201 (761)
	176°F (80°C)	MBH (kW)	89 (26)
		USG/h (L/h)	169 (638)
	158°F (70°C)	MBH (kW)	68 (20)
		USG/h (L/h)	129 (491)
	140°F (60°C)	MBH (kW)	51 (15)
		USG/h (L/h)	97 (368)
	122°F (50°C)	MBH (kW)	38 (11)
		USG/h (L/h)	71 (270)
Continuous output, upper indirect coil	194°F (90°C)	MBH (kW)	79 (23)
For DHW heating from 50 to 140°F (10 to 60°C) and a water supply temperature of....at the supply flow rate stated below		USG/h (L/h)	104 (395)
	176°F (80°C)	MBH (kW)	68 (20)
		USG/h (L/h)	91 (344)
	158°F (70°C)	MBH (kW)	51 (15)
		USG/h (L/h)	68 (258)
Supply flow rate for the stated continuous output		USG/min (m ³ /h)	13.2 (3.0)
Draw-off rate		USG/min (L/min)	3.9 (15)
Drawable water volume		USG (L)	29 (110)
Without reheating			
Tank content heated to 140°F (60°C),			
Water at t = 140°F (60°C) (constant)			
Thermal insulation			Rigid PUR foam
Standby heat loss q_{BS}		kWh/24 h	0.89
(standard parameter)		(MBH /24 h)	(3.03)
Standby capacity V_{aux}		USG (L)	26 (100)
Solar capacity V_{Sol}		USG (L)	40 (150)
Dimensions (with thermal insulation and Solar-Divicon)			
Length (Ø)		in. (mm)	24.8 (631)
Total width		in. (mm)	33.8 (860)
Height		in. (mm)	58.5 (1485)
Height when tilted		in. (mm)	62.6 (1590)
Weight (dry, with thermal insulation and Solar-Divicon)		lb (kg)	273 (124)
Total weight in operation		lb (kg)	824 (374)
Heating water content			
- Upper indirect coil		USG (L)	1.6 (6)
- Lower indirect coil		USG (L)	1.7 (6.5)
Heating surface			
- Upper indirect coil		ft ² (m ²)	9.7 (0.9)
- Lower indirect coil		ft ² (m ²)	10.8 (1.0)
Connections			
Heating water flow and return		in.	1
Cold water, DHW		in.	1
Solar-Divicon (locking ring fitting/double O-ring)		in. (mm)	¾ (22)

Information regarding continuous output of the upper indirect coil

When engineering systems with the specified or calculated continuous output, select a matching circulation pump.

The stated continuous output is only achieved when the rated boiler heating output \geq continuous output.

For specifications on the Solar Divicon, see page 13.

Vitocell 100-W, CVSA Specifications

For DHW heating in conjunction with boilers and solar collectors. Suitable for the following systems:

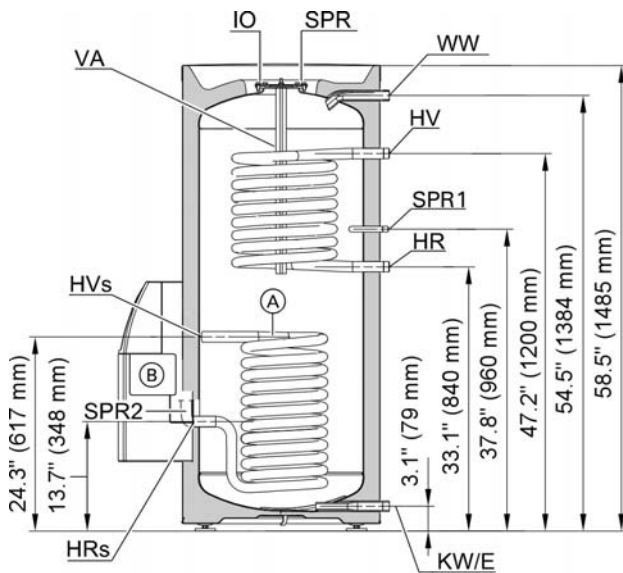
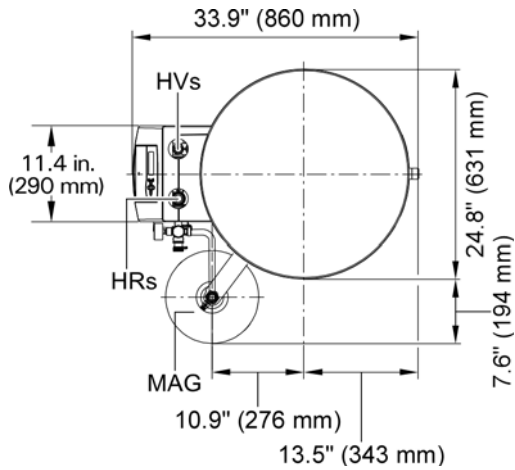
- DHW temperatures up to 203°F (95°C)
- Solar supply temperature up to 230°F (110°C)
- Operating pressure on the solar side up to 87 psig (6 bar)
- Operating pressure on the DHW side up to 150 psig (10.3 bar)

Tank capacity	USG (L)	69 (260)
Electric immersion element		
Phase	PH	1
Voltage	VAC	240
Watts (element)	W	4500
Amps	A	20
*Overcurrent protection: 25A for 240VAC		
Thermal insulation		Rigid PUR foam
Standby heat loss q_{BS} (standard parameter)	kWh/24 h (MBH /24 h)	0.89 (3.03)
Standby capacity V_{aux}	USG (L)	32 (122)
Solar capacity V_{sol}	USG (L)	37 (138)
Dimensions (with thermal insulation and Solar-Divicon)		
Length (Ø)	in. (mm)	25.6 (650)
Total width	in. (mm)	33.8 (860)
Height	in. (mm)	58.5 (1485)
Height when tilted	in. (mm)	62.6 (1590)
Weight (with thermal insulation and Solar-Divicon)	lb (kg)	275 (125)
Total weight in operation	lb (kg)	824 (374)
Heating water content		
- Lower indirect coil	USG (L)	1.7 (6.5)
Heating surface		
- Lower indirect coil	ft ² (m ²)	10.8 (1.0)
Connections		
Cold water, DHW	in.	1
Solar-Divicon (locking ring fitting/double O-ring)	in. (mm)	¾ (22)

For specifications on the Solar Divicon, see page 13.

Hot water recovery rate for Vitocell 100-W CVSA (4500 electric element)		
Δt (Lwt - Ewt)	USG/h (L/h)	Hrs to recover
40°F	46.1 (175)	0.7
55°F	33.5 (127)	1.0
70°F	26.3 (100)	1.2
85°F	21.7 (82)	1.5
90°F	20.5 (78)	1.6
100°F	18.4 (70)	1.7
115°F	16.0 (61)	2.0

Vitocell 100-W, CVBA Dimensions



Legend

- (A) Lower indirect coil for connecting solar collectors
The connections HV_S and HR_S are located on the Solar-Divicon
- (B) Solar-Divicon with DeltaSol BX
- E Drain
- HR Heating water return
- HR_S Heating water return, solar thermal system
- HV Heating water supply
- HV_S Heating water supply, solar thermal system
- IO Inspection and cleanout opening
- KW Cold water
- MAG Expansion vessel (can be mounted on the DHW tank or on a wall)
- SPR Solar thermal system tank temperature sensor
- SPR1 Tank temperature sensor of the DHW temperature controller (by others)
- SPR2 Solar thermal system tank temperature sensor
- VA Magnesium anode
- WW DHW

Performance factor NL

To DIN 4708.

Upper indirect coil.

Tank storage temperature T_{cyl} = cold water inlet temperature + 50 K (+ 5 K/-0 K).

Performance factor NL at heating water supply temperature of:

194°F (90°C)	1.6
176°F (80°C)	1.5
158°F (70°C)	1.4

Information regarding performance factor NL

The performance factor NL depends on the tank storage temperature T_{cyl}.

Standard values

- T_{cyl} = 60°C → 1.0 × NL
- T_{cyl} = 55°C → 0.75 × NL
- T_{cyl} = 50°C → 0.55 × NL
- T_{cyl} = 45°C → 0.3 × NL

Peak output (over 10 minutes)

Relative to the performance factor NL.

DHW heating from 50 to 113°F (10 to 45°C).

Peak output (USG/10 min) at a heating water supply temperature of:

194°F (90°C)	45 USG (172 L)
176°F (80°C)	44 USG (168 L)
158°F (70°C)	43 USG (164 L)

Max. draw-off rate (over 10 minutes)

Relative to the performance factor NL.

With reheating.

DHW heating from 50 to 113°F (10 to 45°C).

Max. draw-off rate (USG/min) at heating water supply temperature of:

194°F (90°C)	4.5 USG/min (17 L/min)
176°F (80°C)	4.5 USG/min (17 L/min)
158°F (70°C)	4.2 USG/min (16 L/min)

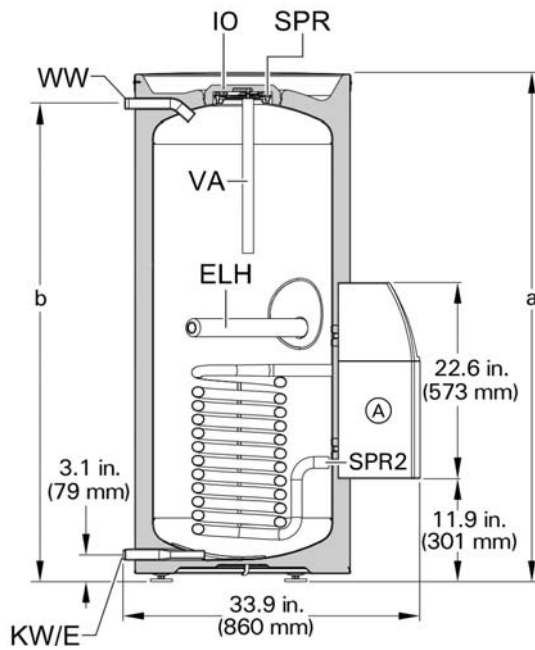
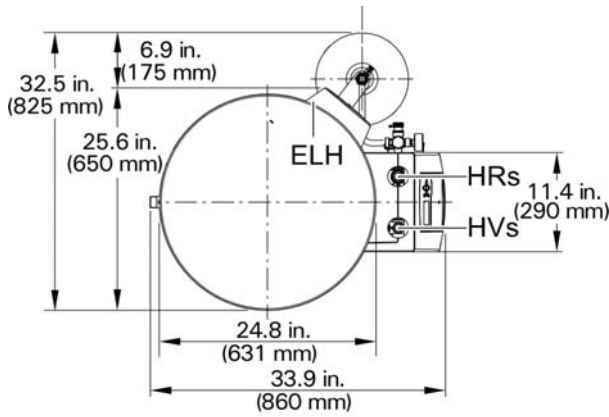
Heat-up time

The heat-up times specified will be achieved if the max. continuous output of the DHW tank is made available at the respective heating water supply temperature and when heating DHW from 50 to 140°F (10 to 60°C).

Heat-up time (min.) at heating water supply temperature of:

194°F (90°C)	16 min
176°F (80°C)	22 min
158°F (70°C)	30 min

Vitocell 100-W, CVSA Dimensions



Legend

- (A) Solar-Divicon with DeltaSol BX
- IO Inspection and cleanout opening
- E Drain outlet
- ELH Electric immersion heater (wet connection)
- HRs Heating water return, solar thermal system
- HVs Heating water supply, solar thermal system
- KW Cold water
- SPR Solar thermal system tank temperature sensor
- SPR2 Solar thermal system tank temperature sensor
- VA Protective magnesium anode
- WW DHW

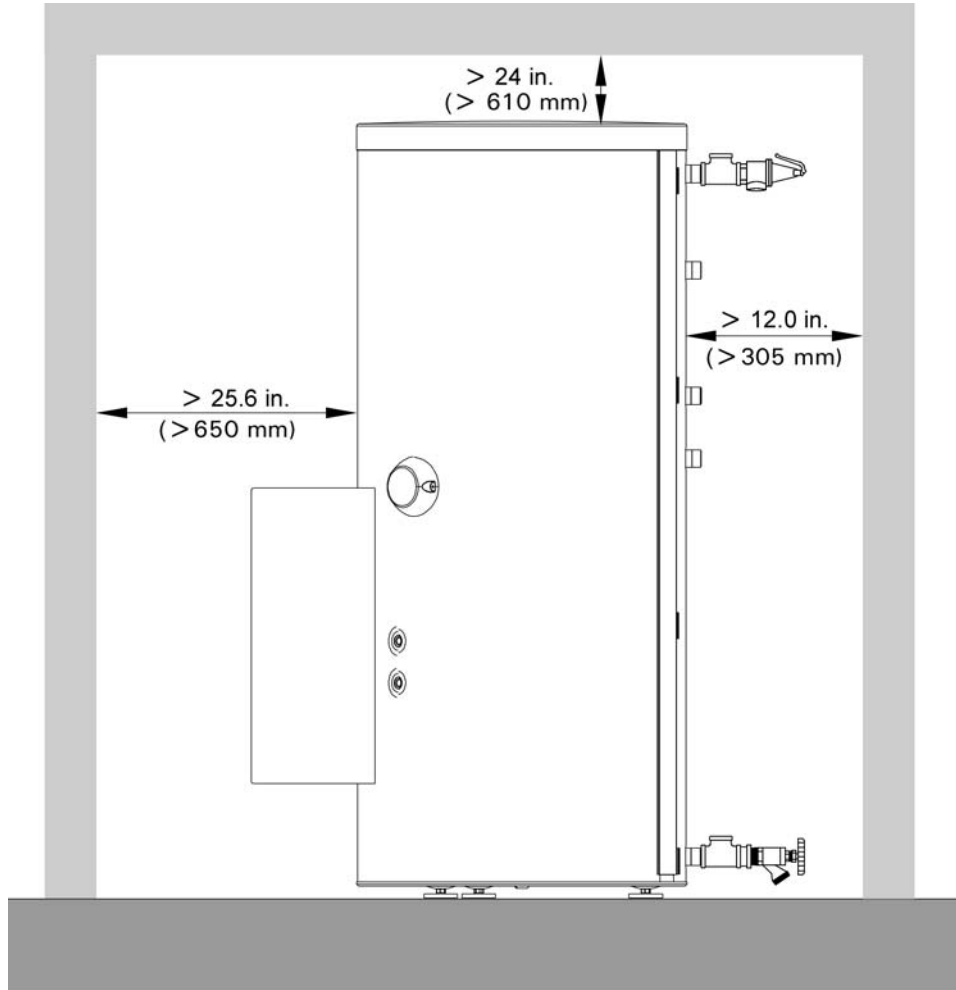
Dimensions	
Tank capacity	69 USG (260 L)
a	58.5 in. (1485 mm)
b	54.5 in. (1384 mm)

Drawable water volume

Entire cylinder contents heated to 140°F (60°C)
Without reheating

Performance factor NL at heating water supply temperature of:	
Tank capacity	69 USG (260 L)
Draw-off rate	4 USG/min (15 L/min)
Drawable water volume Water at t = 140°F (60°C) (constant)	60 USG (228 L)

Siting Information



Maintain the minimum clearance.

IMPORTANT

The thermal insulation must not be able to come into contact with flames. Exercise caution when welding and soldering.

IMPORTANT

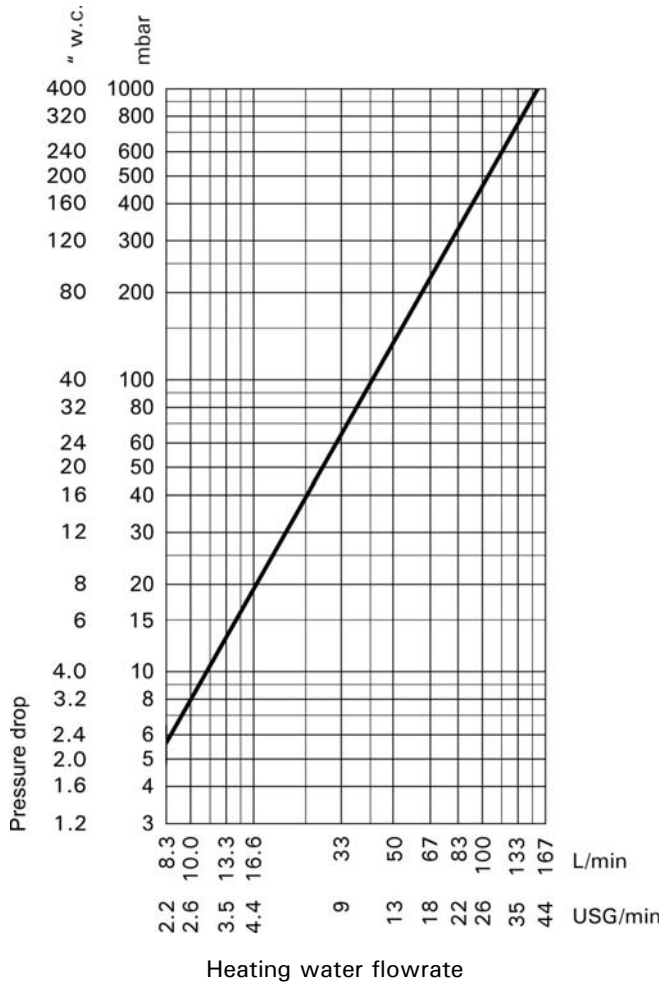
To prevent material losses, place the DHW tank in a room free from the risk of frost and draughts. When not in use, the DHW tank must be drained if there is a risk of frost.

- Provide adequate clearance from the wall so that the solar control can be operated.
Note: To facilitate access to the solar supply and return connections, the solar control can be moved to the right or left.
- Level the DHW tank with the adjustable feet.
Note: Never extend the adjustable feet beyond a total length of 1.4 in. (35 mm).

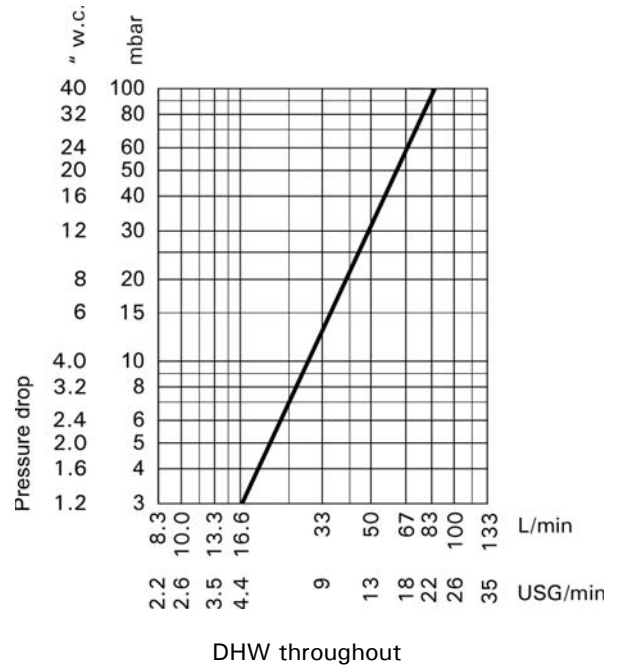
Recommended minimum installation clearances for service access

Rear		in. (mm)	12 (305)
Sides		in. (mm)	24 (610)
Top		in. (mm)	24 (610)
Front		in. (mm)	25.6 (650)

Vitocell 100-W, CVBA/CVSA Pressure Drop



Pressure drop on the heating water side, upper indirect coil, (only applies to the CVBA tank)



Pressure drop on the DHW side, (CVBA and CVSA tanks)

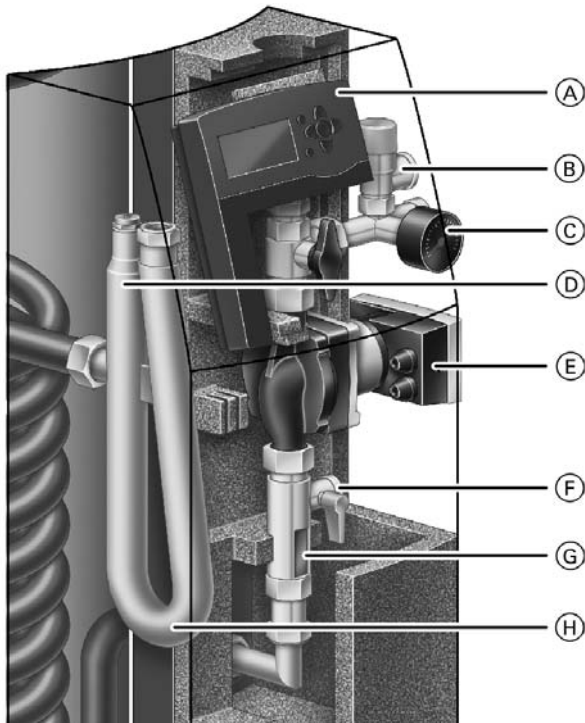
Solar Divicon

Specifications, Solar Divicon

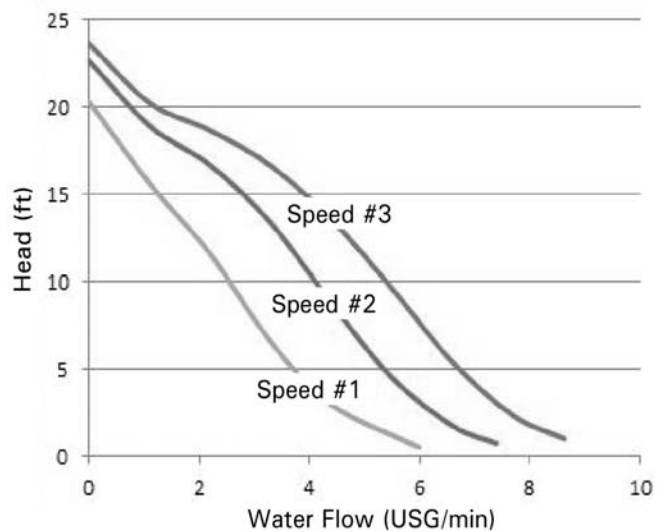
The Solar-Divicon is supplied with a 3 speed solar circuit pump.

Specifications

Circulation pump (Grundfos)		15-68 130
Rated voltage	VAC	115
Power consumption at		
- Output stage 1 (speed #1)		50 Watts - 0.45 Amps
- Output stage 2 (speed #2)		62 Watts - 0.54 Amps
- Output stage 3 (speed #3)		70 Watts - 0.61 Amps
Maximum flow rate	USG/min (L/min)	8 (30)
Maximum head	ft. (m)	23.5 (7.2)
Flow indicator (flow meter)	USG/min (L/min)	0.5 to 4 (2 to 15)
Solar safety valve (pressure relief valve)	psig (bar)	87 (6)
Max. operating temperature	°F (°C)	230 (110)
Max. operating pressure	psig (bar)	87 (6)
Solar circuit connections (compression fittings)	Ø mm	22
Solar expansion tank connection	Ø in.	G ¾
Safety relief valve connection	Ø in.	Rp ¾



Grundfos Solar 15-68 130 - 3 Speed Circulating Pump

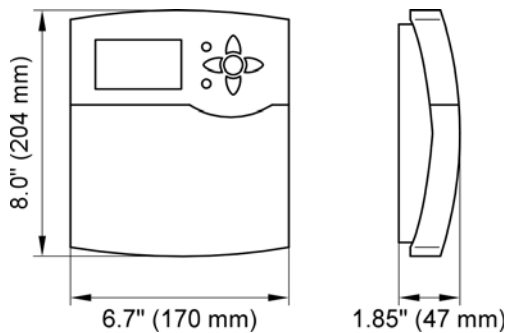


Legend

- (A) Solar control
- (B) Pressure relief valve
- (C) Pressure gauge
- (D) Manual air vent
- (E) Circulation pump
- (F) Flush and fill port
- (G) Flow meter
- (H) U-tube thermosiphon trap

Solar Divicon *(continued)*

Specification, Viessmann DeltaSol BX Solar Control



Rated voltage	115VAC
Rated frequency	60 Hz
Rated current	4A
Power consumption	< 1 W (standby)
Protection class	I
Protection type	IP 20 / EN 60529
Mode of operation	Type 1.B.C.Y
Permissible ambient temperature	
– During operation	32 to +104°F (0 to +40°C)
– During storage and transport	–4 to +149°F (–20 to +65°C)
Rated relay output breaking capacity	
– Semiconductor relays (R1-R3)	1A
– Electromechanical relay (R4)	1A
– Total (all relays combined)	max. 4A

Specification, Viessmann DeltaSol BX Solar Control Design

- LCD Screen
- Selector keys
- Terminals
 - Temperature sensor inputs (5)
 - Grundfos Direct Sensors™ (2)
 - Relay outputs (4)
 - VBus accessories
 - Power supply (on-site ON/OFF switch)
- PWM output for switching the solar circuit pump
- Relay for actuating pumps and valves
- V40 flowmeter
- SD Card slot

Function

- Switching the solar circuit pump for DHW heating.
- Electronic limiter for the temperature in the tank (safety shutdown at 195°F (90°C)).
- Collector emergency shutdown.
- Heat metering by measuring the temperature differential and input of the flow rate.
- Display of the hours run by the solar circuit pump.
- Thermostat function:
 - This function ensures that excess heat is transferred at the earliest opportunity.
 - This function can be used independently of the solar operation, and can be time controlled.
- Variable speed control of the solar circuit pump (30% - 100%) based on collector loop ΔT .
- Multiple system configurations possible for 1 or 2 tanks, 2nd Δt , heat dumps, etc.
- Collector cooling and night time tank cooling functions.
- Datalogging to SD Card.

Collector temperature sensor (FKP6)

Supplied with the collector connection set.
Field installed at the collector array.

On-site extension of the connecting lead:

- 2-core copper lead, length up to 197 ft. (60 m) with cross section of 0.0023 in² (1.5 mm²).

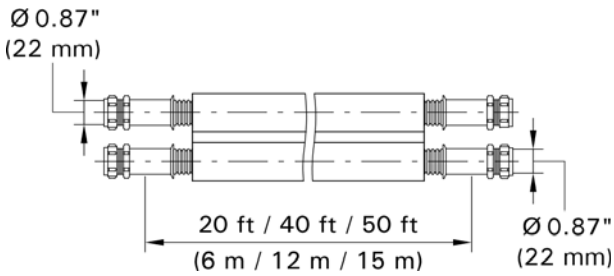
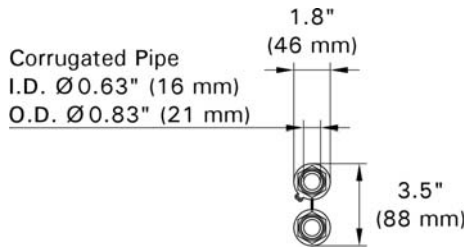
IP rating	IP 32 / EN 60529
Cable length	8 ft (2.5 m)
Sensor type	PT1000
Sensor bulb diameter	0.24 in. (6 mm)
Permissible ambient temperature	
– During operation	–58 to 356°F (–50 to +180°C)
– During storage and transport	–4 to 158°F (–20 to +70°C)

Tank temperature sensor

The installed sensor is connected to the control unit and built into the DHW tank.

IP rating	IP 32 / EN 60529
Sensor type	PT1000
Sensor bulb diameter	0.24 in. (6 mm)
Permissible ambient temperature	
– During operation	23 to 176°F (–5 to +80°C)
– During storage and transport	–4 to 158°F (–20 to +70°C)

Accessories



Solar supply and return piping kit

Stainless steel corrugated pipes with thermal insulation and protective foil, locking ring fittings and sensor lead:

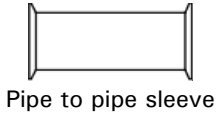
- 20 ft (6 m) long
- 40 ft (12 m) long
- 50 ft (15 m) long

Note: The solar supply and return piping kits are ordered separately from Viessmann. Contact your local Viessmann representative for assistance.

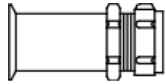
System Fluid Calculator

Component	Total Fluid Content	Selection				
2x Vitosol 100-FM, SVKF Collectors	2.5 L (0.7 USG)	●	●	●	●	●
Divicon Pump Station	0.3 L (0.8 USG)	●	●	●	●	●
Vitocell 100-W (CVBA/ CVSA) Storage Tank	6.5 L (1.7 USG)	●	●	●	●	●
20' – ½" Stainless Steel Preinsulated Lineset	3.2 L (0.9 USG)	●				
40' – ½" Stainless Steel Preinsulated Lineset	6.4 L (1.7 USG)		●			
50' – ½" Stainless Steel Preinsulated Lineset	8.0 L (2.1 USG)			●		
___ feet of ½" Copper Type-L @ 0.05L (0.01 USG) per foot =	___ L (___ USG)				●	
___ feet of ¾" Copper Type-L @ 0.10L (0.03 USG) per foot =	___ L (___ USG)					●
Miscellaneous Fluid (Extra piping or Charge cart)	3.0 L (0.8 USG)	●	●	●	●	●
Total fluid content based on component selection:		15.5 L (4.1 USG)	18.7 L (4.9 USG)	20.3 L (5.4 USG)	___ L (___ USG)	___ L (___ USG)

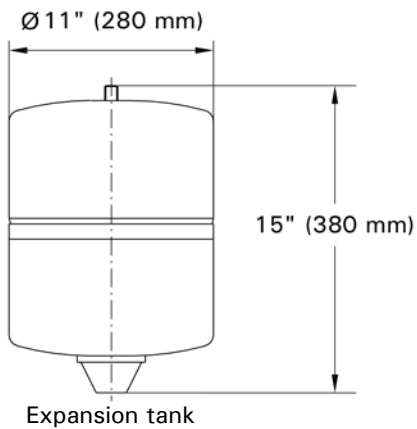
Accessories *(continued)*



Pipe to pipe sleeve



Pipe sleeve w locking ring



Expansion tank

Connection accessories for solar supply and return piping

Connecting Kit (splice fittings)

For extending the stainless steel corrugated pipes:

- 2x pipe sleeves
- 8x O-rings
- 4x support rings
- 4x profile clamps

Connection set with locking ring fitting

For joining the stainless steel corrugated pipes to the 22 mm fittings of the solar thermal system:

- 2x pipe sleeves with locking ring fitting
- 4x O-rings
- 2x support rings
- 2x profile clamps

Solar expansion vessel

Capacity	4.75 USG (18 L)
Diameter	11" (280 mm)
Height	15" (380 mm)
Connection	G $\frac{3}{4}$
Weight	16.5 lbs. (7.5 Kg)

Vitosol 100-FM, SVKF Engineering Information

Note: The solar thermal system will generate approximately half of the energy required for DHW heating in a 4-person household.

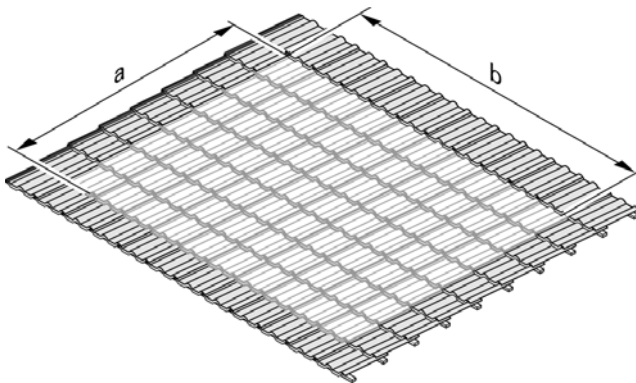
Application options for a 2 to 4 person household:

- New build
- Existing buildings

Pitched roof installation – sloped roof installation

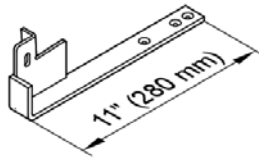
The Viessmann Vitosol 100-FM, type SVKF flat-plate collector is designed specifically for this type of installation.

In above roof systems, the collectors and the roof frame are connected. At each fixing point, a roof bracket penetrates the water-carrying level below the collector. This requires a completely rain-proof and safe anchorage. The fixing points and therefore also any possible defects will no longer be visible post installation. Maintain the minimum clearances from the roof edge in accordance with local codes.



Required roof area:
 a = 86.6" (2200 mm)
 b = 90.5" (2300 mm)

Vitosol 200-FM, SVKF Engineering Information *(continued)*

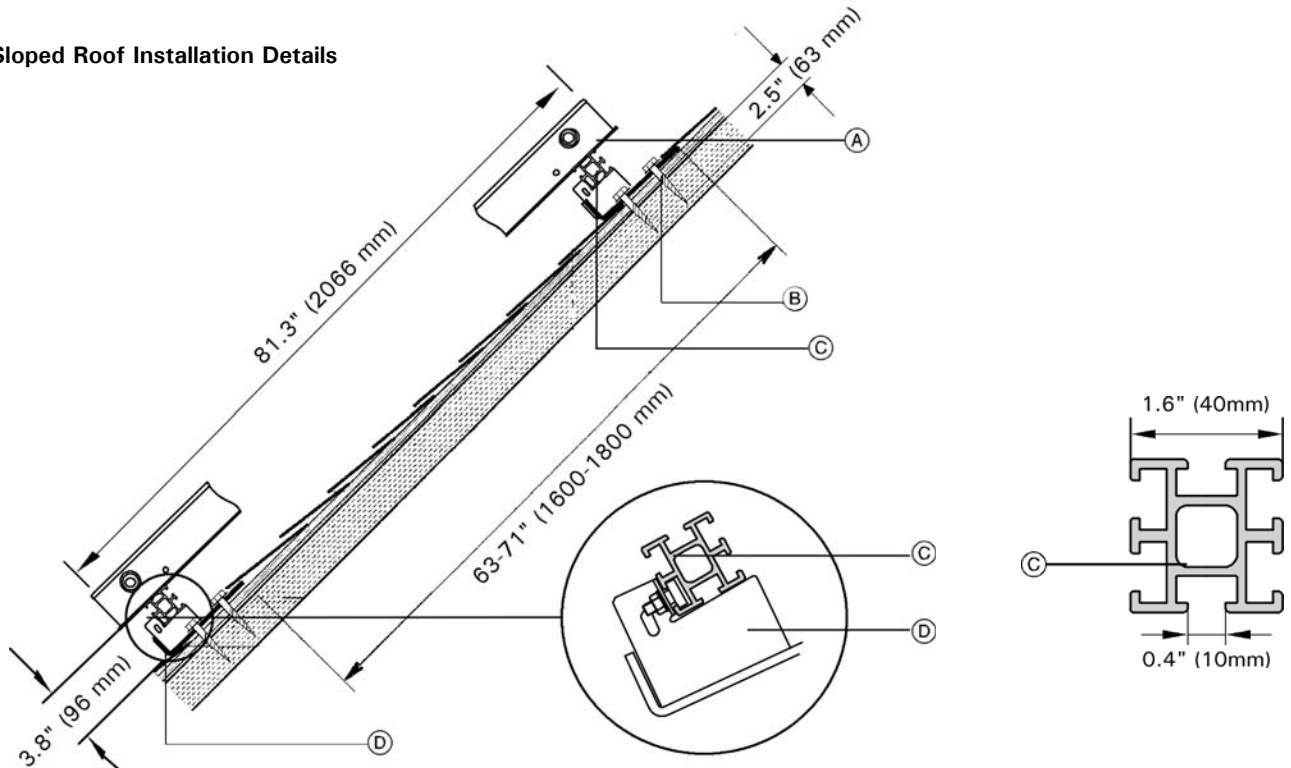


Roof bracket for shingled roofs

Sloped roof installation with roof brackets

- This fixing system is designed for shingled or slate roofs.
- The fixing system comprises roof brackets, mounting rails, clamping brackets and screws.
- Forces are applied to the roof structure in various ways, including via the roof brackets and the roof cover.

Sloped Roof Installation Details



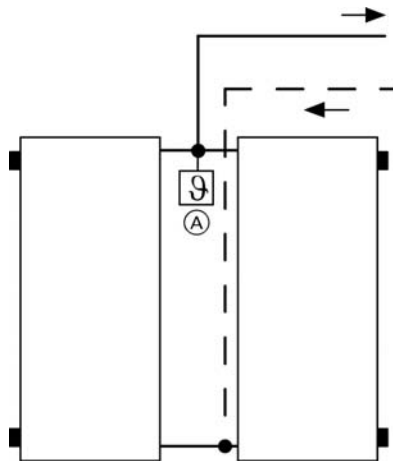
Legend

- Ⓐ Collector
- Ⓑ Lag bolt
- Ⓒ Mounting rail length 88.2 in. (2240 mm)
- Ⓓ Roof bracket

Installation

Hydraulic connection lines are routed below the roof.

- Sloped roof installation:



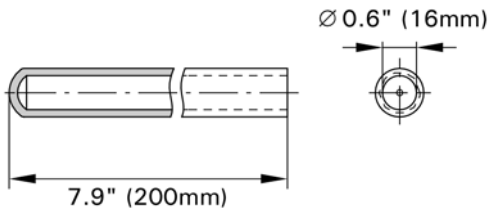
Legend

- Ⓐ Collector temperature sensor in the supply line

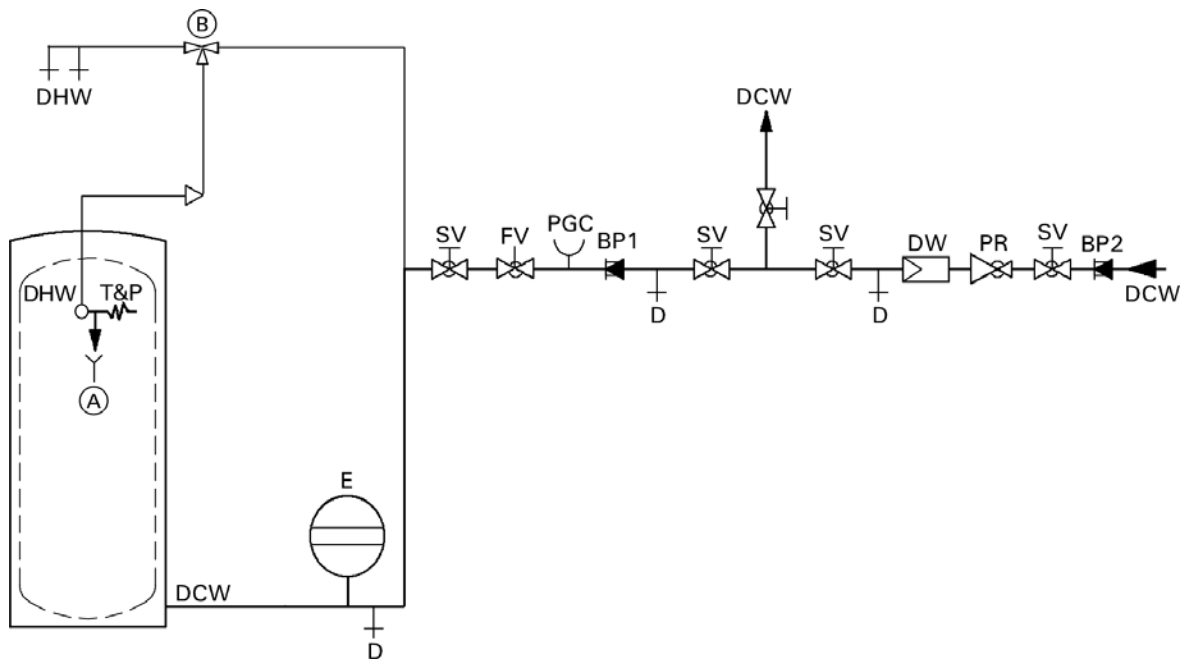
Vitocell 100-W Engineering Information

Sensor Well

The dry sensor well is welded into the DHW Tank



Connection on the domestic hot water side



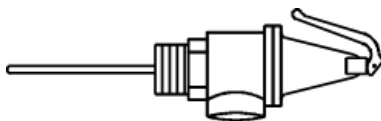
Legend

- (A) Discharge pipe
- (B) Anti-scald tempering valve (field supplied)
- SV Shut-off valve
- FV Flow check valve
- PR Pressure reducing valve
- D Drain
- DCW Cold water supply lines
- PGC Pressure gage connection
- E Precharged expansion tank (required where backflow preventer is installed; check local plumbing codes and requirements)
- BP1 Backflow preventer
- BP2 Backflow preventer
- T&P Temperature and pressure relief valve
- DW Water filter
- DHW Domestic hot water supply

Safety Valve - Temperature and Pressure

A temperature and pressure relief valve (T + P valve) is supplied with the tank. The heating contractor must install the valve on each tank in a method meeting code requirements.

- Relief pressure: 150 psig (10 bar)
- Relief temperature: 210°F (99°C)



Vitocell 100-W Engineering Information *(continued)*

Drinking water filter

According to DIN 1988-2, a drinking water filter should be installed in systems with metal pipework. We recommend the installation of a drinking water filter, even with plastic pipework. This prevents the ingress of dirt into the DHW system.

Intended use

The appliance is only intended to be installed and operated in sealed closed loop systems that comply with SRCC OG-300, with due attention paid to the associated installation, service and operating instructions. DHW tanks are only designed to store and heat water of potable water quality. Heating water buffer tanks are only designed to hold fill water of potable water quality. Only operate solar collectors with the heat transfer medium approved by the manufacturer.

Intended use assumes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer for the individual case.

Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and results in an exclusion of liability.

Incorrect usage also occurs if the components in the system are modified from their intended use (e.g. through direct DHW heating in the collector).

Adhere to local statutory regulations, especially concerning the hygiene of potable water.

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

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