

DEANE CONSULTANCY LTD

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18/141/B

ARCHITECTURAL PROMOTIONS Seismic Restraint for Vertigo Hot Water Cylinders

ATTN: Stuart Dale,

Stuart, I have analysed the requirements for fixing of the Vertigo wall mounted HWC assuming the heaviest cylinder at 120 kg full.

I have allowed a live load of 1.3kN to be applied to the cylinder. This represents an accidental overload during construction, or a possible overload during use.

The resultant 1.2G + 1.5Q load case exceeds the loads which can be applied by the 1.2G + E earthquake case.

Findings: The Vertigo wall mounted cylinders up to and including the largest at 120kg full can be restrained by the two brackets on 4 M10 coach screws in total. These must have at least 50mm thread penetration into the wall studs.

The supporting wall studs however require to be doubled up when the cylinder capacity exceeds 100 litres.

For models less than 100 litres (eg Atlantic Vertigo) single wall studs are adequate.

NB: This assessment does not consider loadings on the bracket which transfers load from the cylinder to the mounting screws. Certification should be provided to confirm these brackets have sufficient strength.



P A Deane,
CMEngNZ, CPEng.
3 April, 2020

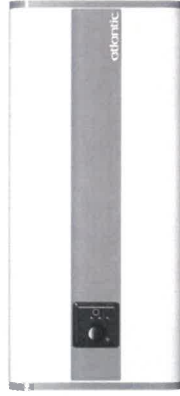
ATTACHED: 3 pages; C1 and C2.



A LEADING
EUROPEAN
BRAND SINCE
1968

VERTIGO STEATITE

Flat & space-saving water heater to fit perfectly into your home



Premium flat design (less than 30 cm depth)

The Vertigo must be installed horizontally

Extra lifetime of the heating element
thanks to Double Steatite technology



Boost function : 1 shower in less than 30 minutes



Smart control function: adapting to customer's habits to provide up to 20% energy savings



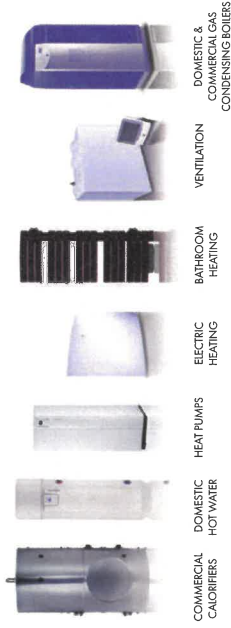
Energy efficiency class B
for smart energy consumption



*Not available for Vertigo Steatite 30

With a presence in over 70 countries, Atlantic is a French brand that manufactures and commercializes multi-energy indoor comfort solutions, since 1968. After more than 40 years of experience and know-how, Atlantic remains true to its origins and goes on designing, developing and manufacturing most of its products in France. Based on customer's satisfaction, the brand is synonymous with quality, innovation and efficiency.

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VERTIGO STEATITE

FLAT ELECTRIC WATER HEATER



THE WORLD'S FIRST FLAT WATER HEATER
WITH DOUBLE STEATITE ELEMENT

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VERTIGO STEATITE

TECHNICAL DATA & DIMENSIONS



- 1 Power light indicator
- 2 Boost mode : quick heating in order to recover 1 shower in less than 30 min
- 3 Smart shower display showing quantity of hot water remaining (fixed) or being produced (thinking)
- 4 Manual mode: manual selection of hot water quantity
- 5 Frost-free mode (7°C)
- 6 Manual selection (from 50°C to 70°C max)
- 7 Smart mode: automatic operation according to consumer's habits thanks to a self-learning program
- 8 Quick mode selection control knob

*Not available for Vertigo Steatite 30



Steatite technology
state-of-the-art technology for the best
long-lasting service



TECHNICAL DATA

MODEL	CAPACITY (L)	INSTALLATION	MAXIMUM POWER OUTPUT (W)	POWER OUTPUT EXIT-TANK (W)	POWER OUTPUT ENTRY-TANK (W)	TOTAL HEATUP TIME ΔT=50 °C
VERTIGO STEATITE 30	25	H	1 000	1 000	1 000	1h32
VERTIGO STEATITE 50	40	H	2 250	1 500 + 750	1 000	2h02
VERTIGO STEATITE 80	65	H	2 250	1 500 + 750	1 000	3h19
VERTIGO STEATITE 100	80	H	2 250	1 500 + 750	1 000	4h04

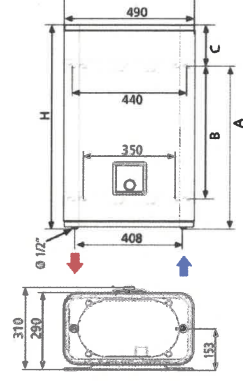
DIMENSIONS

MODEL	HEIGHT (H)	WIDTH (W)	DEPTH" (D)	DIMENSIONS (mm)				NET WEIGHT (kg)	ERP ENERGY CLASS
				A	B	C	D		
VERTIGO STEATITE 30	601	490	290	449	280	310	155	25	C
VERTIGO STEATITE 50	765	490	290	610	500	310	155	28	B
VERTIGO STEATITE 80	1 090	490	290	975	700	310	115	33	B
VERTIGO STEATITE 100	1 300	490	290	1 185	800	310	115	39	C

(1) Without wall plate

(1) Without wall plate

INSTALLATION DIMENSIONS (in mm)





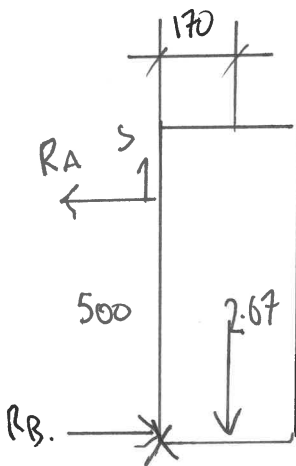
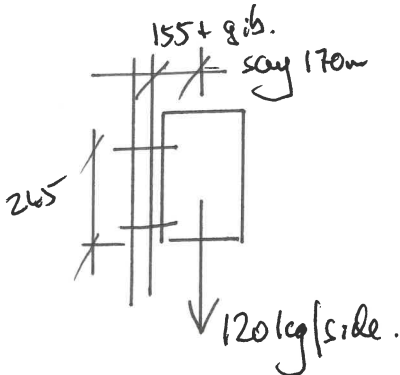
Vertigo Wall Mounted

① Gravity loads:

$$P_g / \text{side} = 60 \text{ kg} = .6 \text{ kN}$$

$$P_q / \text{side} = 1.3 \text{ kN}$$

$$\therefore P(1.26 + 1) = 2.67 \text{ kN/side}$$



$$\sum V = 0 \quad S = 2.67 \text{ kN}$$

$$\sum H = 0 \quad R_A = R_B$$

$$\sum M_x = 0:$$

$$2.67 \times 1.7 = R_A \times 5.0$$

$$\therefore R_A = 0.91 \text{ kN}$$

$$= R_B$$

$$\therefore S / \text{fixing}$$

$$= 1.36 \text{ kN}$$

$$\text{tension/top}$$

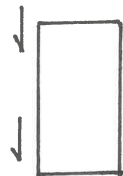
$$\text{fixing}$$

$$= 0.91 \text{ kN}$$

$$\therefore (1.26 + 1.5 Q) \text{ case: } \underline{1.36 \text{ kN shear} + 0.91 \text{ kN tension}}$$

② ElQ case:

per side



$$\rightarrow E = 0.51 \times .6 \text{ kN} = .31 \text{ kN}$$

$$\text{OR } .16 \text{ kN / fixing}$$

$$1.26 / \text{fixing} = 1.26 \times .6 \times .5 \text{ kN} = .36 \text{ kN}$$

$$\therefore \text{Case ① is most critical.}$$

tension.

shear.

DEANE CONSULTANCY

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Client:

Page 02 of 2

Job:

Vertigo

Date:

11/12/18

Signed:

He

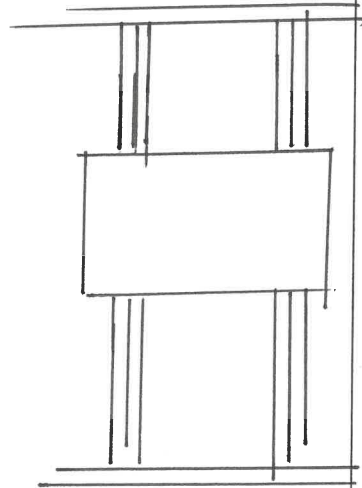
Try M10 coach screw with 50mm thread engaged.

Check fixing to studs M10 coach screw with 50mm thread penetration easily ok for 1.36kN shear / 0.91kN tension.

Check studs: Applied to two studs
 $= .5m \times 0.91kN = 0.455kNm$.

From S teakite calcs $\phi M_n = .68kNm$ ↗
this ok for occasional shock load of load case (1).

New build: Provide double studs:
for Vertigo > ok.
(ie models 100):



Where cylinder < 100 litre

(Atlantis and Vertigo 60+ 80 models)

single studs are ok.

3/4/20