

**THETFORD**



# **Cassette Toilet C220 Series**

**Installation Manual**

# EN

## Original Installation Manual

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### 1. Introduction

This is the installation manual for the Thetford C223-S, C222-SWE, C223-CS and C224-CW toilet. The manual is meant for those installing the toilet in a mobile leisure vehicle e.g. campers and caravans. Read the information and instructions carefully and follow them strictly to install the toilet safely and correctly.

Also read the warnings in the user manual before testing the toilet after installation.

Our policy is one of continuous development and improvement. Specifications and illustrations may change subsequent to publication.

This document is version 200748/0522-V06 of the installation manual. Please visit [www.thetford.com](http://www.thetford.com) for the most recent version.



If the appliance is not installed in accordance with national and European regulations, rules and standards this will void the warranty.

## 2. Symbols

Key to symbols:



**Warning.** Risk of injury and/or damage.



**Attention.** Important information.



**Note.** Additional information.

## 3. Regulations and standards



Do not modify this appliance, unless the modification is authorised and carried out by the manufacturer or their agent.



Use only genuine and approved parts and materials.



Wear the correct Personal Protective Equipment during the installation. Also follow the applicable safety regulations.

## 4. Serviceability

The installer of Thetford products is responsible for proper installation to ensure the correct functionality and serviceability of the appliance. In terms of serviceability, this means that a dealer or an authorised Thetford service partner must be able to de-install and re-install the Thetford products within the time that is allowed according to the Thetford time-list, using standard tools and equipment.

This is to claim any warranty during the period of 3 years after purchase date. In case of any queries on this subject, please contact the Thetford local service representative before installing the product.

## 5. Before installation

Check the contents of the box:

- C222-SWE, C223-S, C223-CS or C224-CW toilet
- 4 stainless steel screws
- Wall bracket, incl. screws (only for the C223-CS)
- Flow restrictor
- Template
- User manual
- Installation manual

Optional for C222-SWE:

- Flush-water tank
- Wall bracket (incl. screws)

Gather the required tools:

- Drill with 3 and 8mm drill bits
- Electric saw
- Philips screwdriver no.2
- Awl
- Protective tape
- Tape Measure
- Level
- Marker/pencil
- Butyl sealant
- Double-sided tape



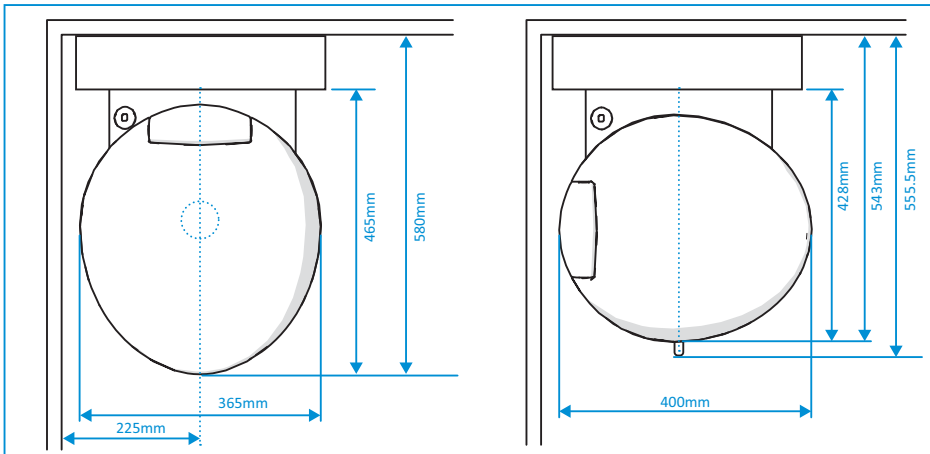
If something is missing from the box, please contact your dealer.



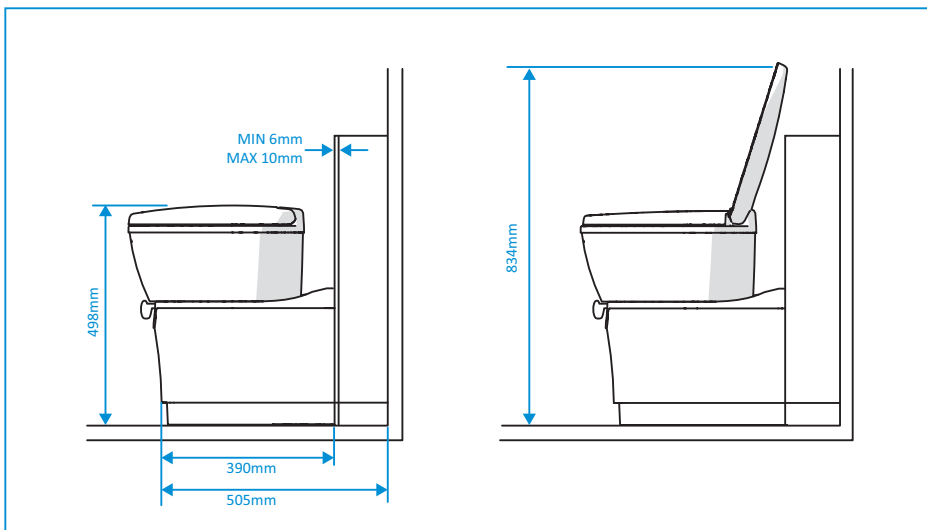
A service door is needed for the installation of this toilet. For installation of the C222-SWE and C224-CW, a water fill door is also needed. Please refer to template C220 and service door D3 for further instructions.

## 6. Position and placement [C223-S]

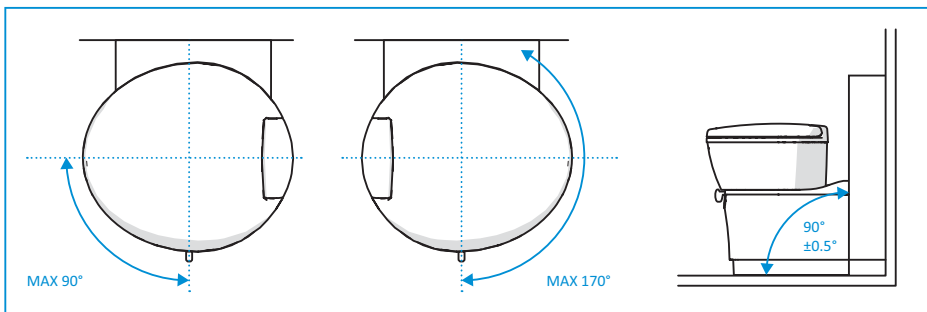
- The main bathroom dimensions:



■ The other dimensions:

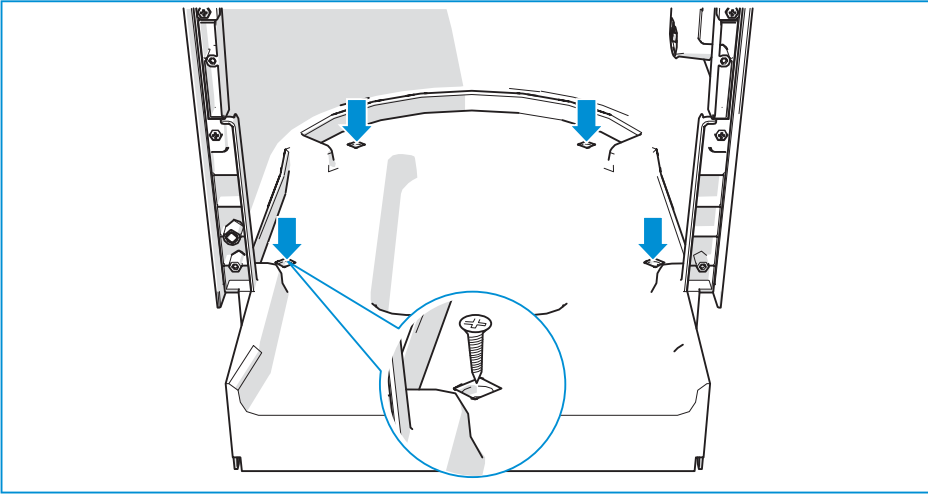


■ The bowl rotation and the floor-wall angle:



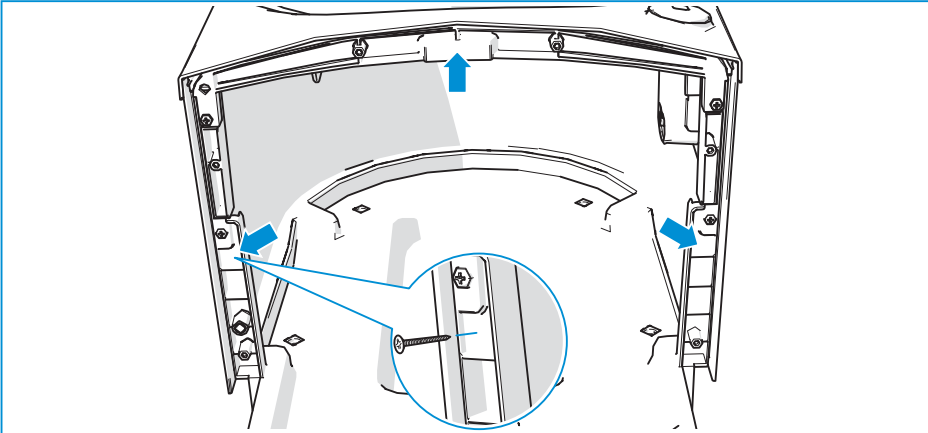
- Place template D1 on the inner vehicle wall, using the bottom of the template as a reference.
- Position template A (for the service door) horizontally or vertically, using the right reference holes, marked on the template with  $\oplus_{B/C/D}$ .
- Check if the service door fits on the outside wall of the vehicle.
- Drill the two reference holes in the wall.
- Install the service door according to the instructions of the door.
- Create the inside wall.
- Place template D1 on the inside wall, using the bottom of the template as a reference.
- Mark the 3 holes marked with  $\diamond_D$  on the wall with an awl.
- Drill the holes in the wall.
- Saw the cut-out in the inside wall, using template D2.

- Mount the toilet to the floor with four screws.



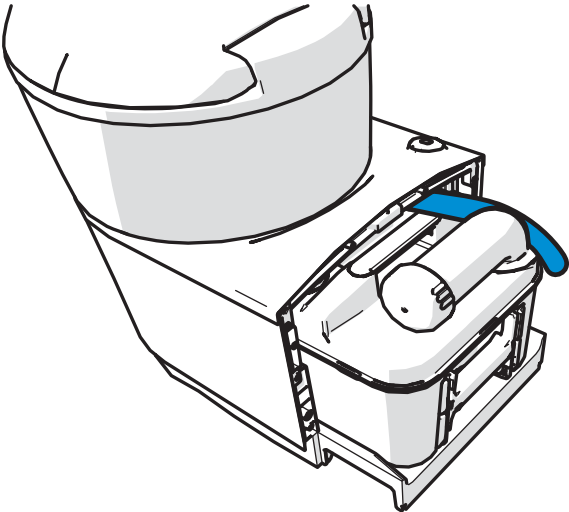
- i** Required torque:  $1.2 \pm 0.3\text{Nm}$  for a Plywood floor.
- i** Screws are supplied by Thetford. If these are not used, use stainless steel screws.
- i** Torque may differ if the floor is made from a different material.

- Connect the toilet to the inside wall with three screws.



- i** Required torque:  $0.9\text{Nm}$ .
- i** Use stainless steel screws.

- Connect the water hose to the central water tank of the vehicle.

Diameter	Inside: 10mm Outside: 16mm  For toilets equipped with a hose connector, connection hose must be:  Inside: 10mm Outside: 12mm
Length and position	105mm from the last fixed point on the toilet  
Required pressure remote pump at the toilet inlet	Min. 0.35bar at 4.2L/min Max. 0.70bar at 7.1L/min
Maximum allowable pressure on hose	Europe: 4bar AUS/China/US: 8bar



Check that all connections are watertight.



Make sure that after routing the water hose, the waste-holding tank can still be removed from the toilet.



Meet the required pressure for the remote pump at the toilet inlet to ensure correct flush. If the pressure is too high, install a flow restrictor.

- Use template F1 to check the necessary free space for the control panel.
- Saw the cut out for the control panel using template F2.
- Install the control panel at the desired location.



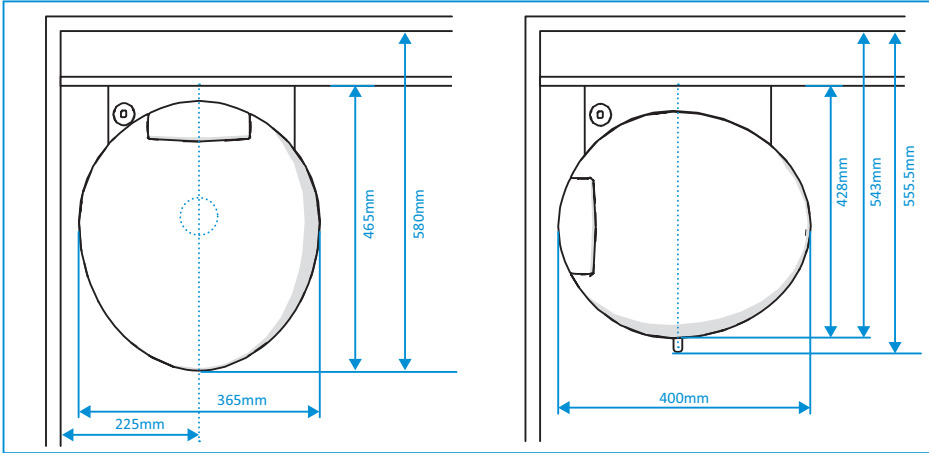
Do not install the control panel in the shower area unless a watertight connection between the control panel and wall can be guaranteed.



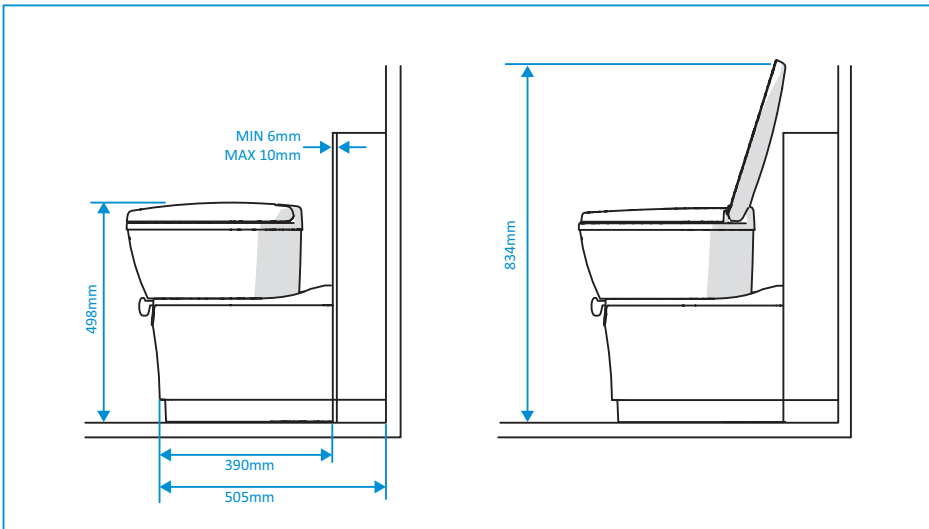
See Connecting electricity (C223-S / C223-CS) for more information about the control panel, including maximum cable lengths.

## 7. Position and placement (C222-SWE)

### ■ The main bathroom dimensions:

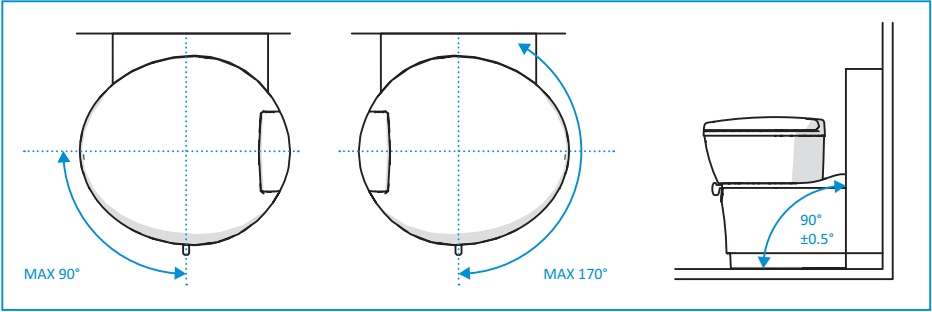


### ■ The other dimensions:



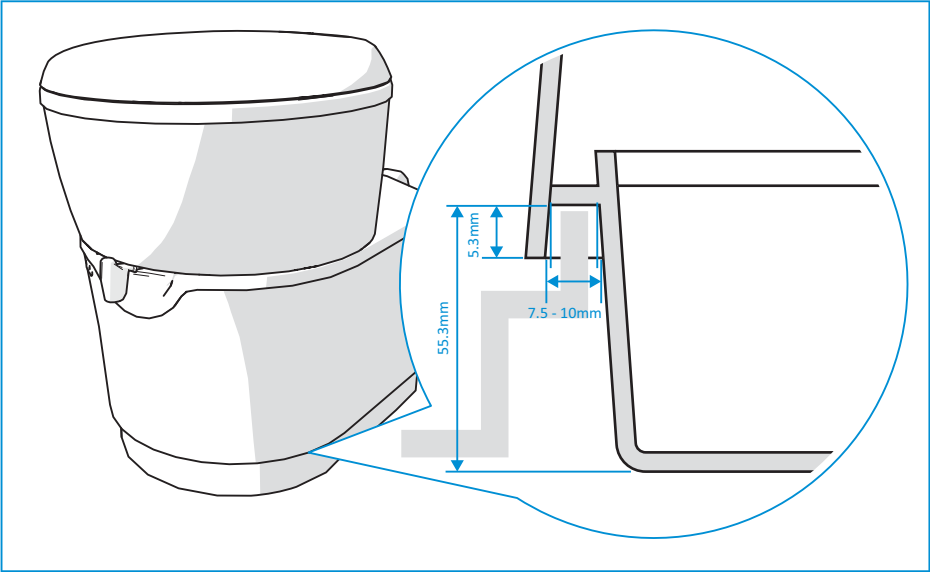


- The bowl rotation and the floor-wall angle:

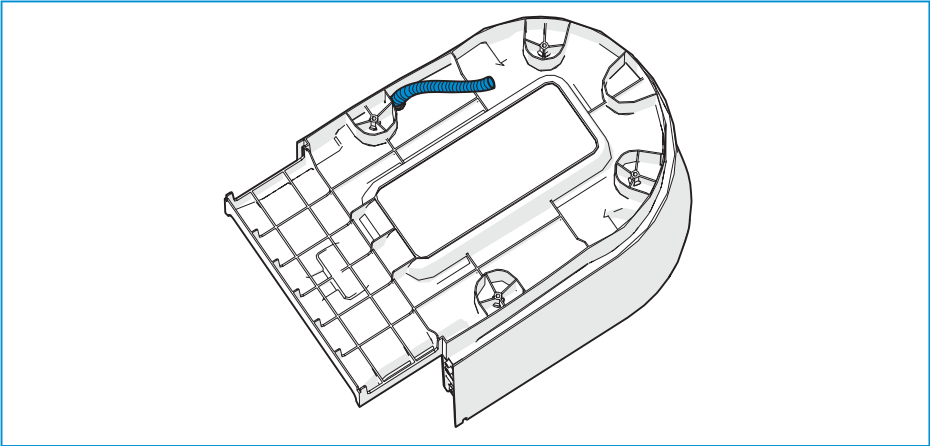


- Place template D1 on the inner vehicle wall, using the bottom of the template as a reference.
- Position template A (for the service door) horizontally or vertically, using the right reference holes, marked on the template with  $\oplus_{B/C/D}$ .
- Check if the service door fits on the outside wall of the vehicle.
- Drill the two reference holes in the wall.
- Install the service door according to the instructions of the door.
- Create the inside wall.
- Place template D1 on the inside wall, using the bottom of the template as a reference.
- Mark the 3 holes marked with  $\diamond_D$  on the wall with an awl.
- Drill the holes in the wall.
- Saw the cut-out in the inside wall, using template D2.
- Create the wall cut-outs for the service door.
- Install the service door.
- For further instructions, see the installation instructions of the door.

- Install a shower tray, if applicable.

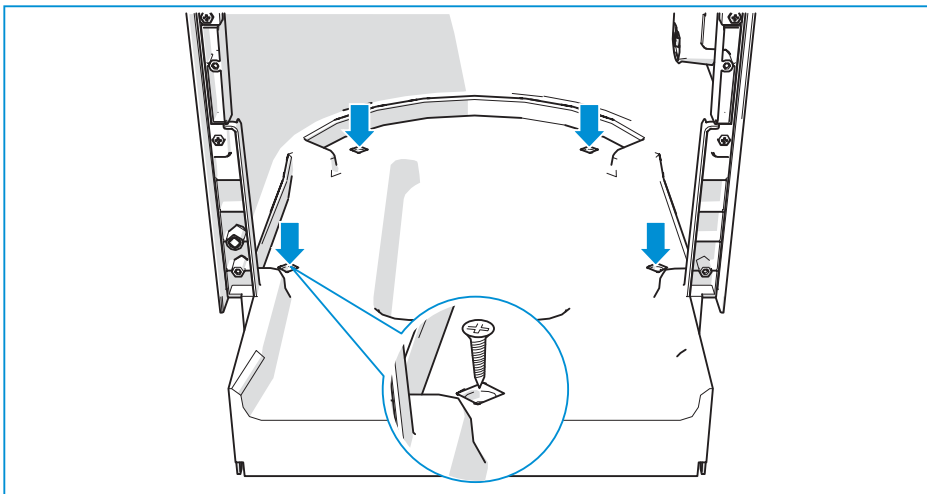


- Install the passive outside vent, if applicable.



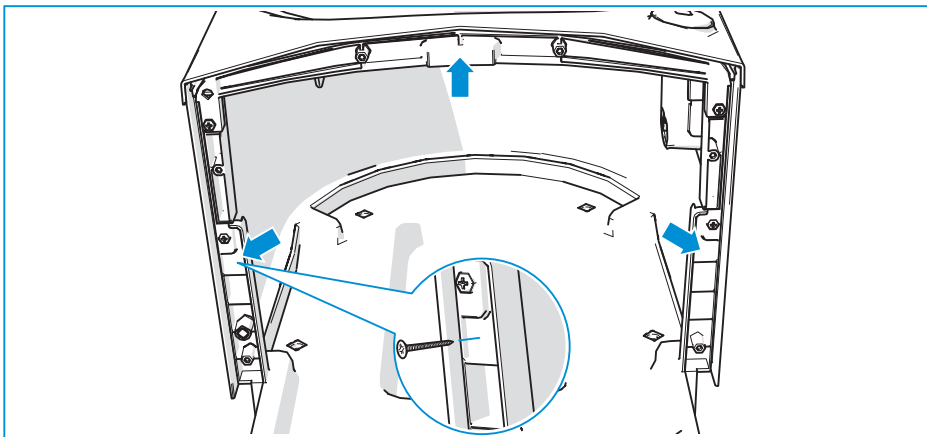
Outside diameter tube: 16mm.  
Length tube: 600mm.

- Mount the toilet to the floor with four screws.



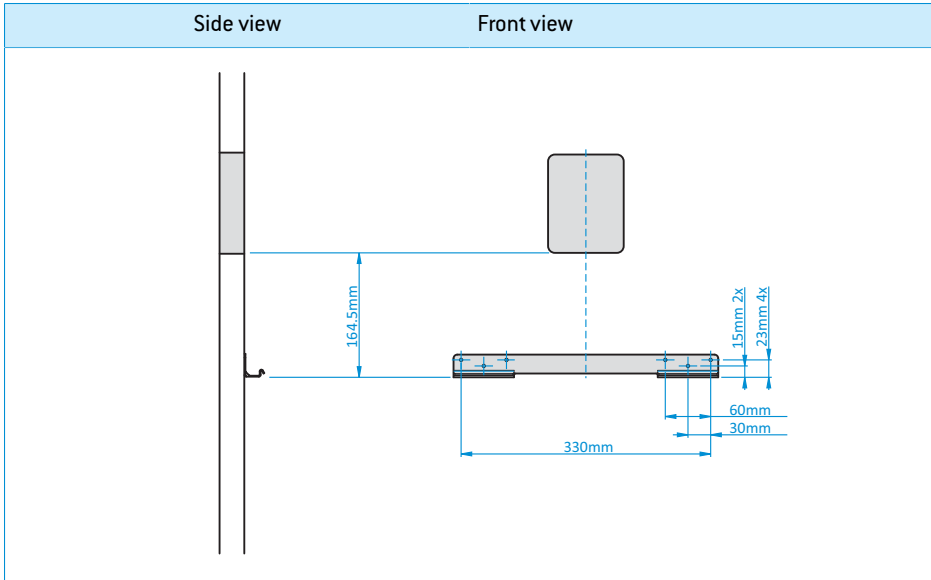
- ❗ Required torque:  $1.2 \pm 0.3\text{Nm}$  for a Plywood floor.
- ❗ Screws are supplied by Thetford. If these are not used, use stainless steel screws.
- ❗ Torque may differ if the floor is made from a different material.

- Connect the toilet to the inside wall with three screws.



- ❗ Required torque:  $0.9\text{Nm}$ .
- ❗ Use stainless steel screws.

- Create the cut-out for the waterfill door according to the template.
- Mount the bracket on the given height.



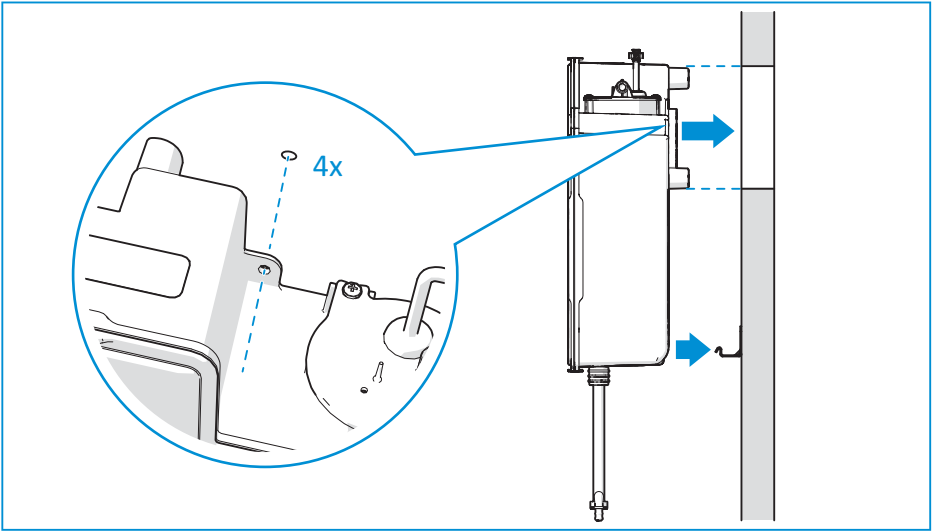
- Place the flush-water tank on the bracket.
- Mount the flush-water tank to the wall with four screws.



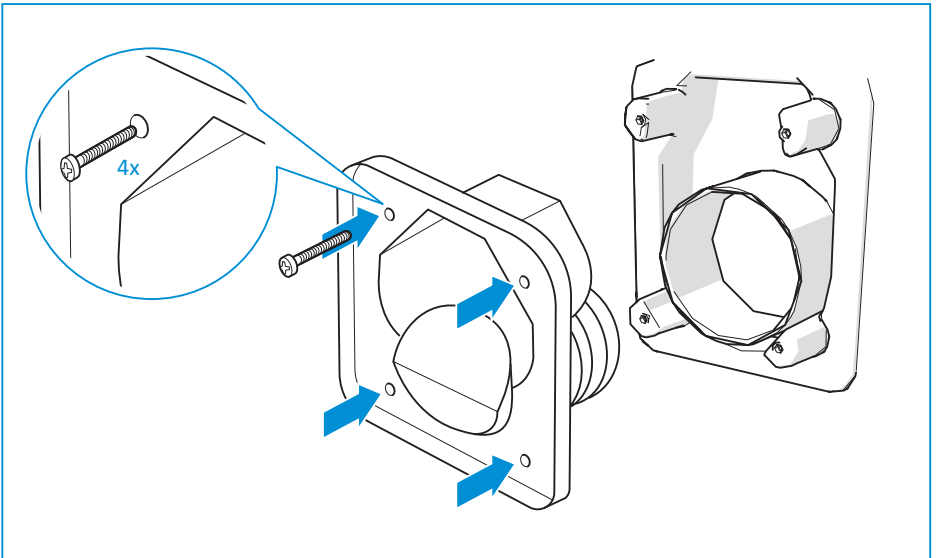
The flush-water tank can be placed at a maximum distance of 700mm from the toilet.



Make sure that the pump at the top and the drainage tube at the bottom of the flush-water tank are accessible for service purposes.

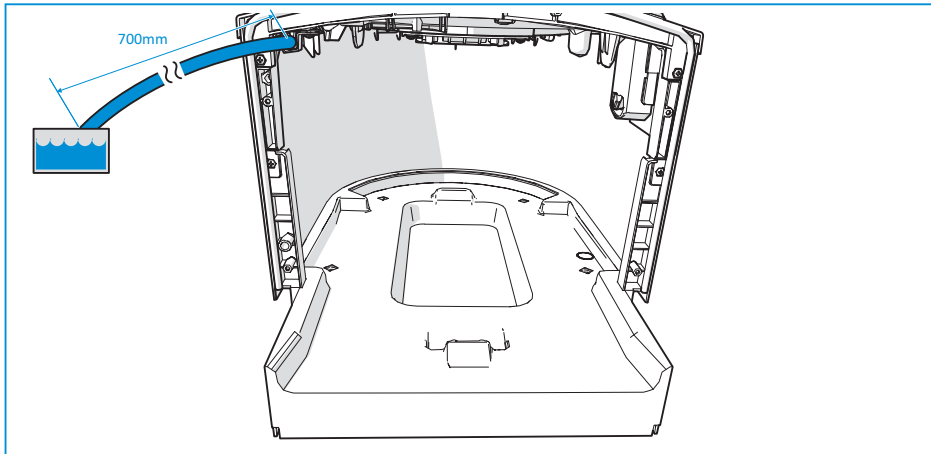


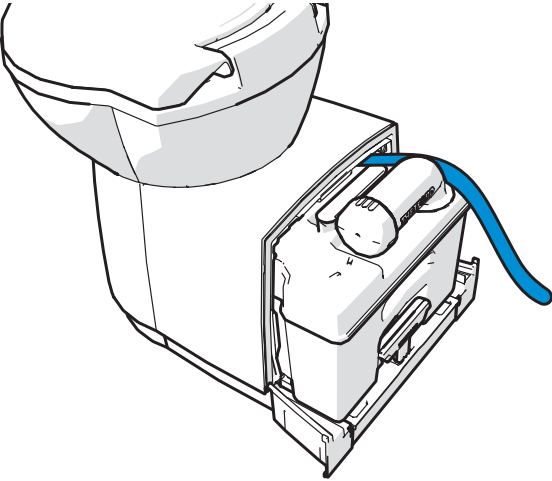
- Install the waterfill door with four screws.



- i** The required torque depends on parameters such as wall thickness, sealant, material and tools used. Therefore Thetford can only provide guidelines for the torque value. For these guidelines and further instructions, see the installation instructions of the door.
- i** Screws are supplied by Thetford. If these are not used, use stainless steel screws.

- Connect the water hose of the toilet to the flush-water tank.



Diameter	Inside: 10mm Outside: 16mm
Length and position	700mm from the last fixed point on the toilet 



Check that all connections are watertight.



Make sure that after routing the water hose, the waste-holding tank can still be removed from the toilet.



Meet the required pressure for the remote pump at the toilet inlet to ensure correct flush. If the pressure is too high, install a flow restrictor.

- Create the cut-out for the control panel according to the template.

- Install the control panel at the desired location.



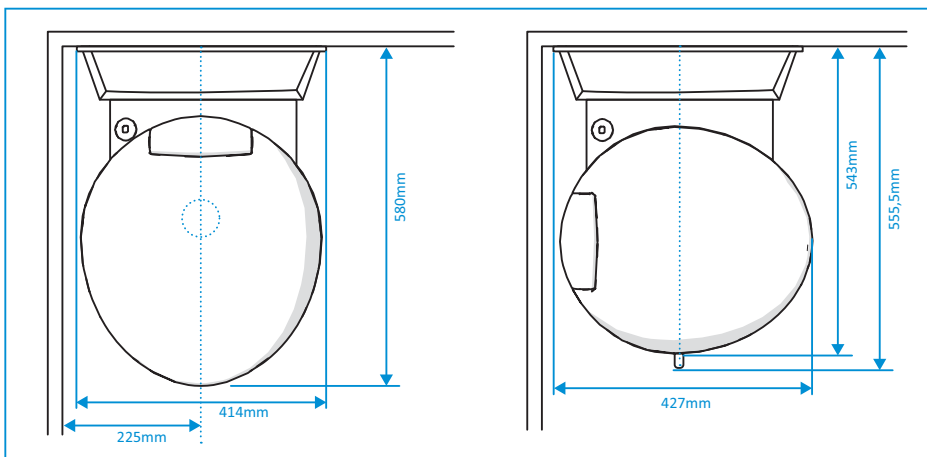
Do not install the control panel in the shower area unless a watertight connection between the control panel and wall can be guaranteed.



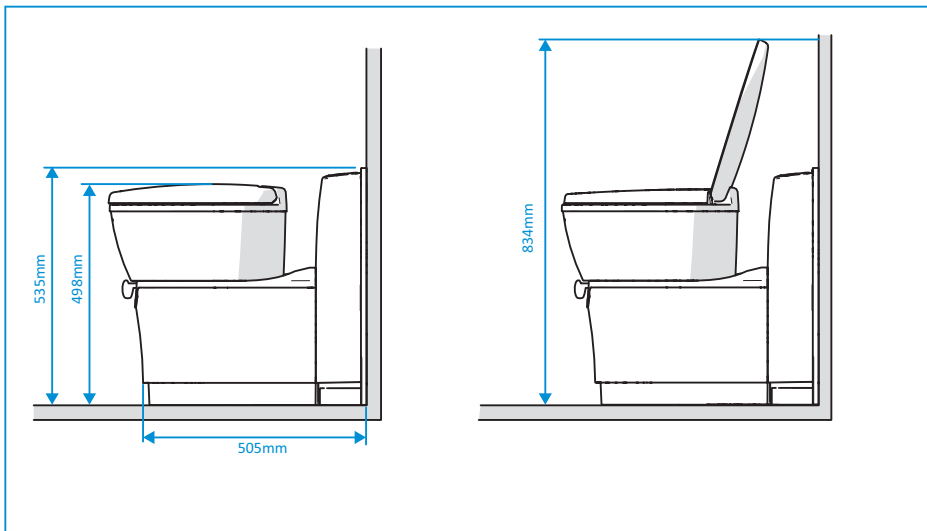
See Connecting electricity (C222-SWE) for more information about the control panel, including maximum cable lengths.

## 8. Position and placement (C223-CS)

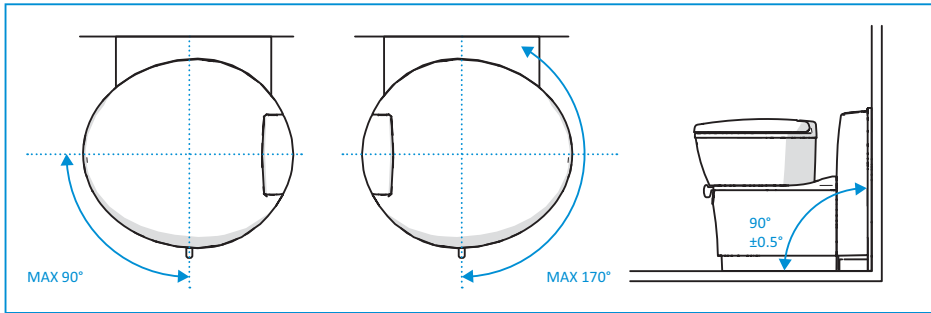
- The main bathroom dimensions:



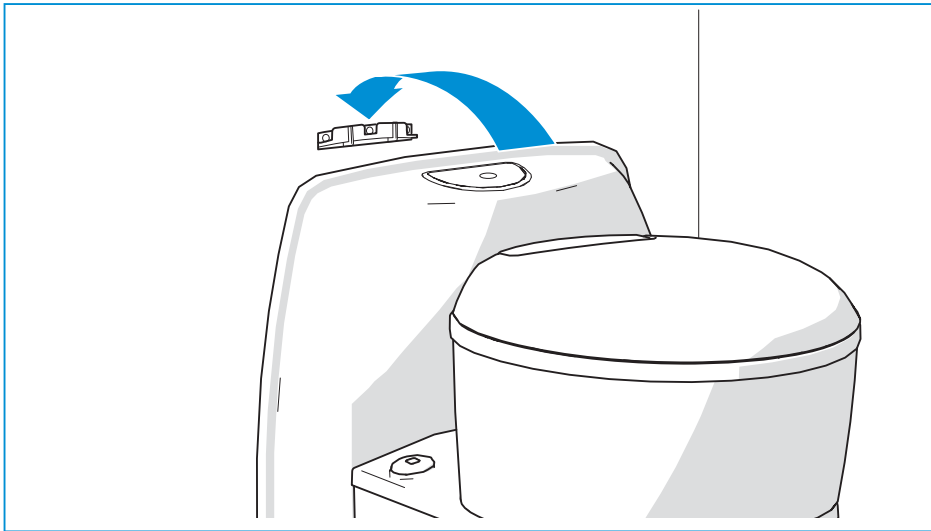
- The other dimensions:



- The bowl rotation and the floor-wall angle:

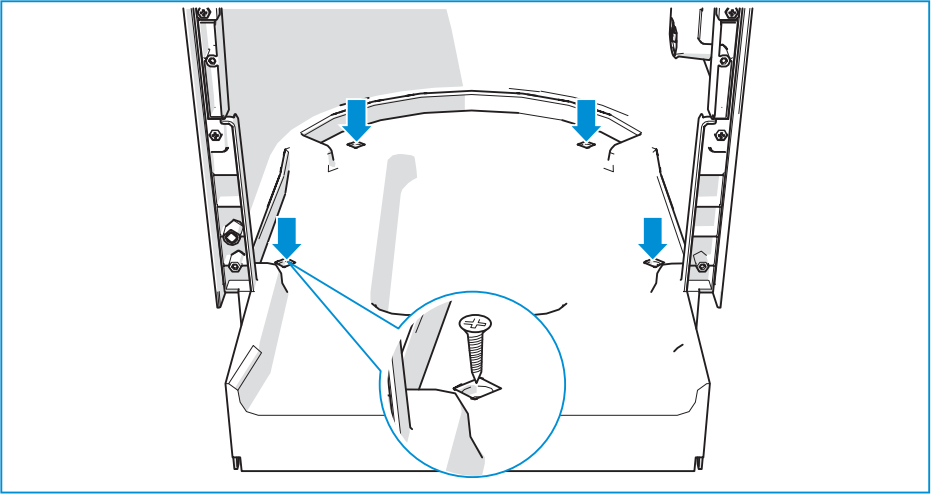


- Place template C on the inner vehicle wall, using the bottom of the template as a reference.
- Position template A (for the service door) horizontally or vertically, using the right reference holes, marked on the template with  $\oplus_{B/C/D}$ .
- Check if the service door fits on the outside wall of the vehicle.
- Drill the two reference holes in the wall.
- Install the service door according to the instructions of the door.
- Place template C on the inner vehicle wall, using the bottom of the template as a reference.
- Mark the 3 holes marked with  $\dagger_c$  on the wall with an awl.
- Drill the holes in the wall.
- Mount the wall bracket to the inner vehicle wall with three screws.
- Connect the toilet to the wall bracket.





- Mount the toilet to the floor with four screws.



Required torque:  $1.2 \pm 0.3\text{Nm}$  for a Plywood floor.

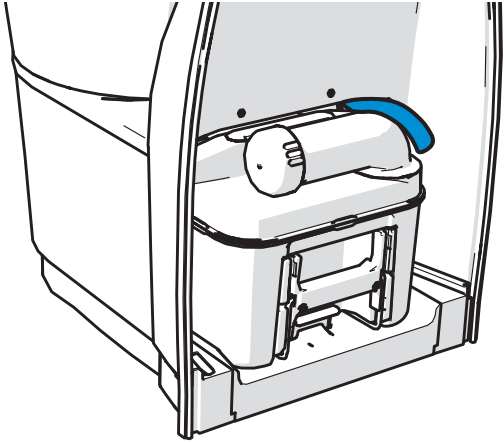


Screws are supplied by Thetford. If these are not used, use stainless steel screws.



Torque may differ if the floor is made from a different material.

- Connect the water hose to the central water tank of the vehicle.

Diameter	Inside: 10mm Outside: 16mm
	For toilets equipped with a hose connector, connection hose must be: Inside: 10mm Outside: 12mm
Length and position	105mm from the last fixed point on the toilet 
Required pressure remote pump at the toilet inlet	Min. 0.35bar at 4.2L/min Max. 0.70bar at 7.1L/min
Maximum allowable pressure on hose	Europe: 4bar AUS/China/US: 8bar



Check that all connections are watertight.



Make sure that after routing the water hose, the waste-holding tank can still be removed from the toilet.

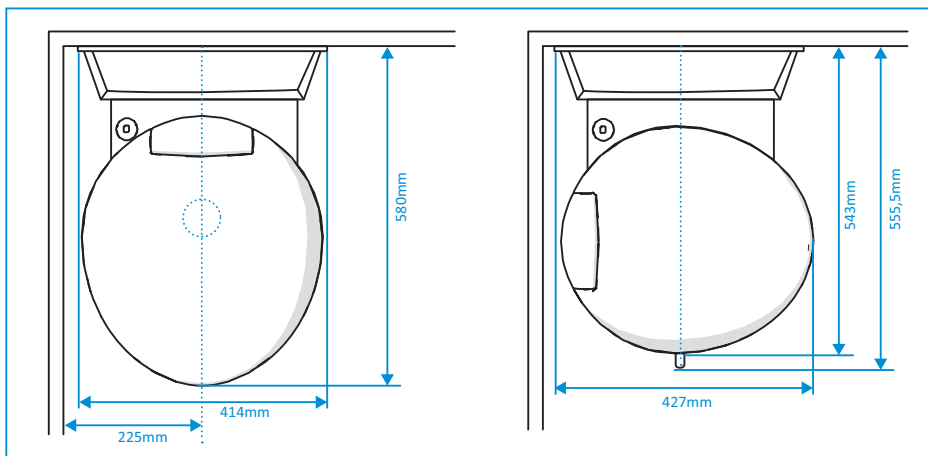


Meet the required pressure for the remote pump at the toilet inlet to ensure correct flush. If the pressure is too high, install a flow restrictor.

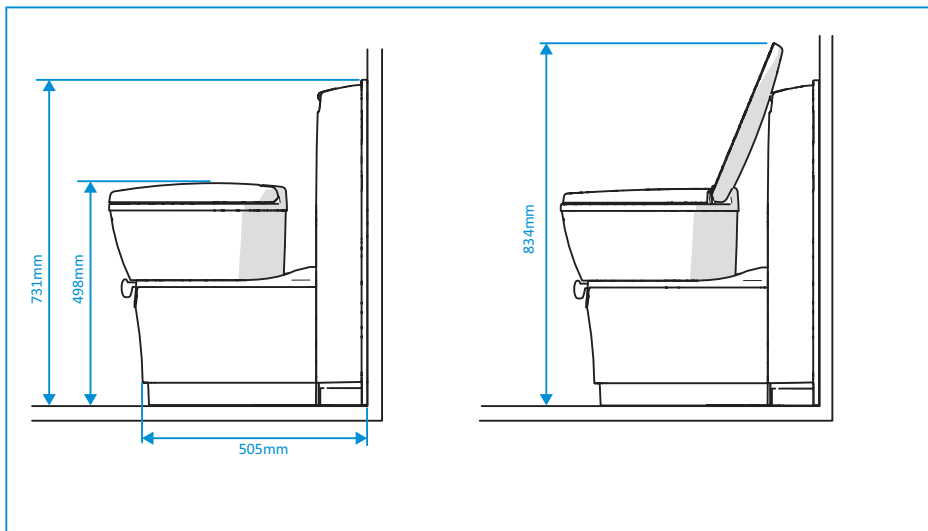
- Place the splashguards.

## 9. Position and placement (C224-CW)

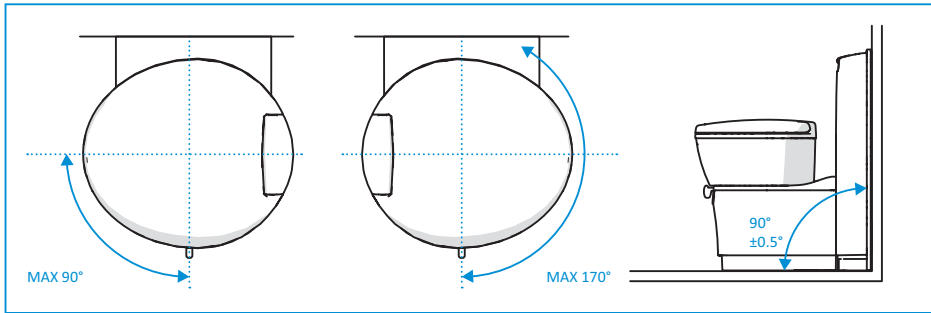
- The main bathroom dimensions:



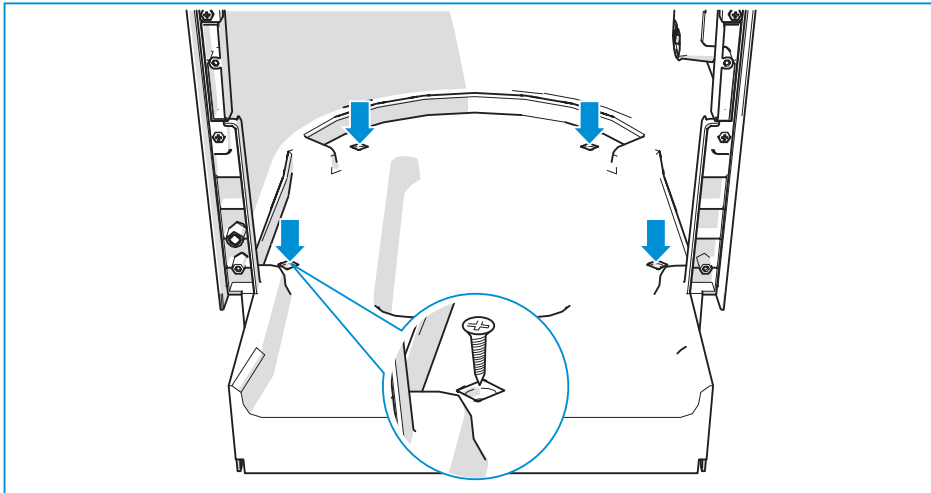
- The other dimensions:



- The bowl rotation and the floor-wall angle:



- Place template B on the inner vehicle wall, using the bottom of the template as a reference.
- Position template A (for the service door) horizontally or vertically, using the right reference holes, marked on the template with  $\oplus_{B/C/D}$ .
- Check if the service door fits on the outside wall of the vehicle.
- Drill the two reference holes in the wall.
- Install the service door according to the instructions of the door.
- Place template B on the inner vehicle wall, using the bottom of the template as a reference.
- Mark the 2 holes marked with  $\odot_B$  on the wall with an awl.
- Position template E1 (for the waterfill door), using the right reference holes.
- Check if the waterfill door fits on the outside wall of the vehicle.
- Drill the holes in the wall.
- Saw the cut-out, using template E2.
- Mount the toilet to the floor with four screws.



Required torque:  $1.2 \pm 0.3\text{Nm}$  for a Plywood floor.

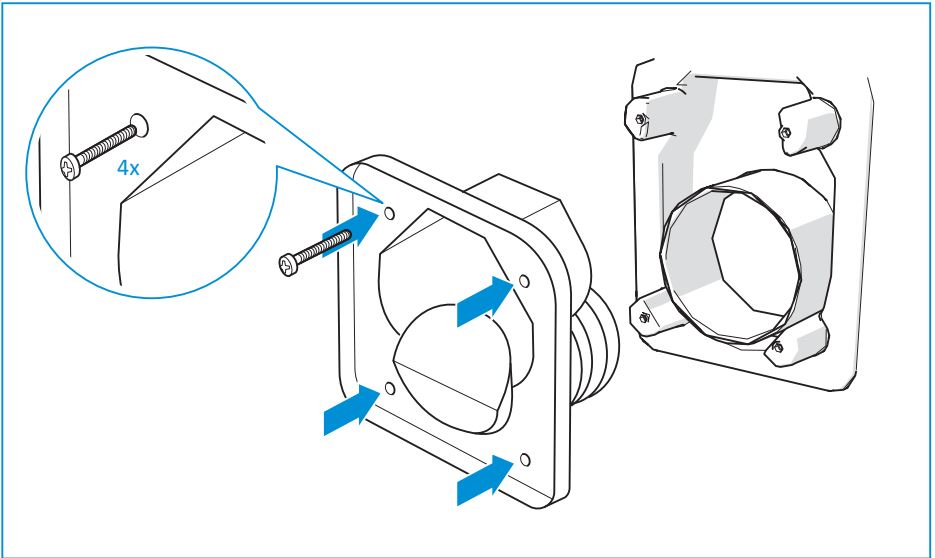


Screws are supplied by Thetford. If these are not used, use stainless steel screws.



Torque may differ if the floor is made from a different material.

- Install the waterfill door with four screws.



The required torque depends on parameters such as wall thickness, sealant, material and tools used. Therefore Thetford can only provide guidelines for the torque value. For these guidelines and further instructions, see the installation instructions of the door.

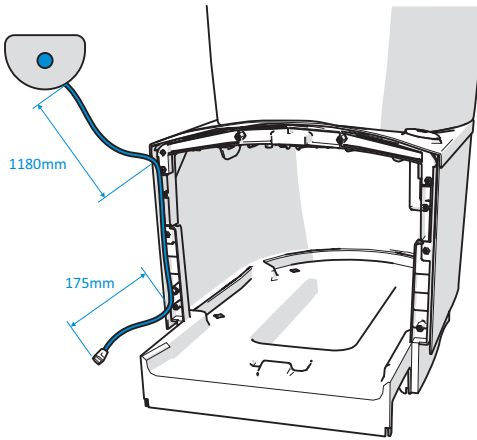


Screws are supplied by Thetford. If these are not used, use stainless steel screws.

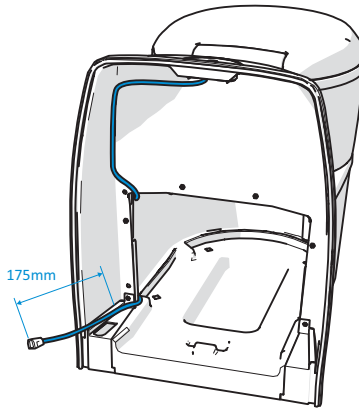
## 10. Connecting electricity [C223-S / C223-CS]

- Connect the cable.

C223-S



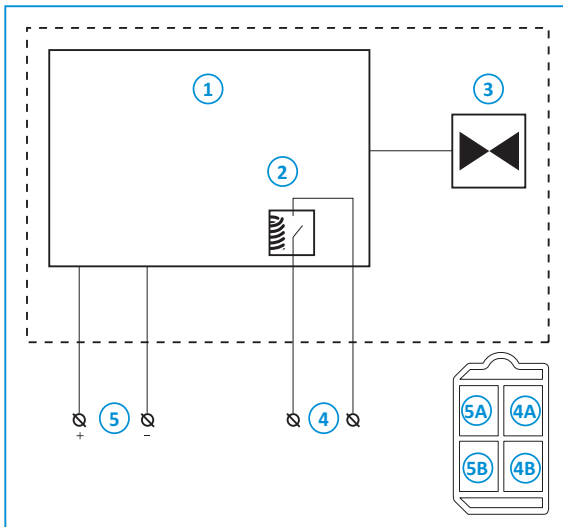
C223-CS



- Use the following values to connect the power supply.

Operating voltage	10–15V (power supply must be able to deliver 3A at rated voltage)
External flush pump	Grey and purple are used for external flush pump relay. Maximum pump current of 6A must be respected.
Connection	4 pole tab housing
4 pole connector on toilet	TYCO/AMP 180901
4 pole connector counter part	TYCO/AMP 180900
Wire thickness	Black/red: 0.5mm <sup>2</sup> Grey/purple: 0.75mm <sup>2</sup>

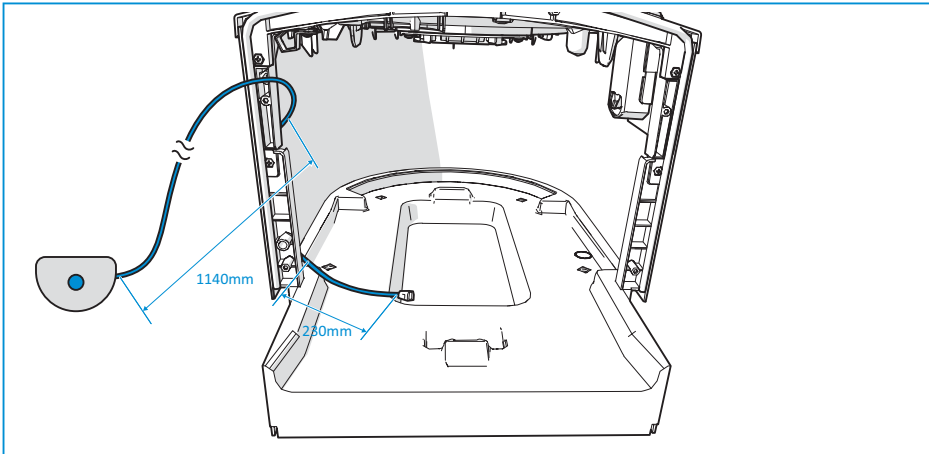
- Wiring diagram:




1. Control PCBA, including over-current protections
  2. Output relay on PCBA
  3. Internal flush valve
  4. External pump connection
  5. 12V DC power supply
- 4 pole connector on toilet:  
 4A = grey (NO)  
 4B = purple (COM)  
 5A = red (+)  
 5B = black (-)

## 11. Connecting electricity (C222-SWE)

- Connect the cable.

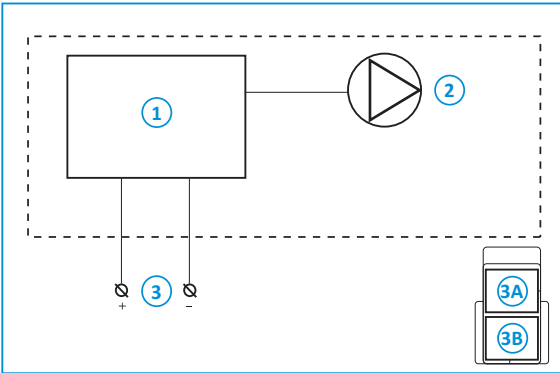


- Use the following values to connect the power supply.

Operating voltage	10–15V (power supply must be able to deliver 3A at rated voltage)  The voltage must be between 11.4V and 13.8V to be able to achieve full bowl coverage flush.
Connection	2 pole tab housing
2 pole connector on toilet	TYCO/AMP 180908
2 pole connector counter part	TYCO/AMP 180907
Wire thickness	0.5mm <sup>2</sup>



■ Wiring diagram:



1. Control PCBA, including over-current protections
  2. Flush pump
  3. 12V DC power supply
- 2 pole connector on toilet:  
3A = red (+)  
3B = black (-)

## 12. After installation

- Ensure that all packaging materials have been removed.
- Check if the toilet flushes correctly.
- Check if the level indication works.
- Test all piping and connections and make sure they do not leak.
- Make sure it is possible to drain the water system completely to prevent frost damage.
- Check if the waste-holding tank can be removed and placed back.
- Check if the doors open and close properly.
- Ensure the doors are waterproof after installation.

## 13. Technical specifications

Table 1: Dimensions and weight

	C223-S toilet		
Dimensions	H	W	D
mm	498	365	580
Empty weight	6.8kg		
Capacity waste-holding tank	18L		

	C222-SWE toilet		
Dimensions	H	W	D
mm	498	365	580
Empty weight	8.1kg		
Capacity waste-holding tank	18L		
Capacity flush-water tank	8.5L		

	C223-CS toilet		
Dimensions	H	W	D
mm	535	414	580
Empty weight	7.2kg		
Capacity waste-holding tank	18L		

	C224-CW toilet		
Dimensions	H	W	D
mm	731	414	580
Empty weight	8kg		
Capacity waste-holding tank	18L		
Capacity flush-water tank	9L		

## 14. Service & questions

### Service

Before any service work is started, disconnect the appliance from electrical supplies.



All servicing must be carried out by an approved competent person.

## Questions

If you have questions about your product, parts, accessories or authorised services visit [www.thetford.com](http://www.thetford.com).

If you contact an authorised local Service Centre in your country, provide the details of the model and serial number plus the date of purchase.

The data badge can be found on the base of the toilet.



## Warranty

For our warranty clause, please refer to the conditions mentioned on [www.thetford.com](http://www.thetford.com).

## Declaration of Conformity

Thetford hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the applicable Directives and Standards. A copy of the Declaration of Conformity can be found at [www.thetford.com](http://www.thetford.com)

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