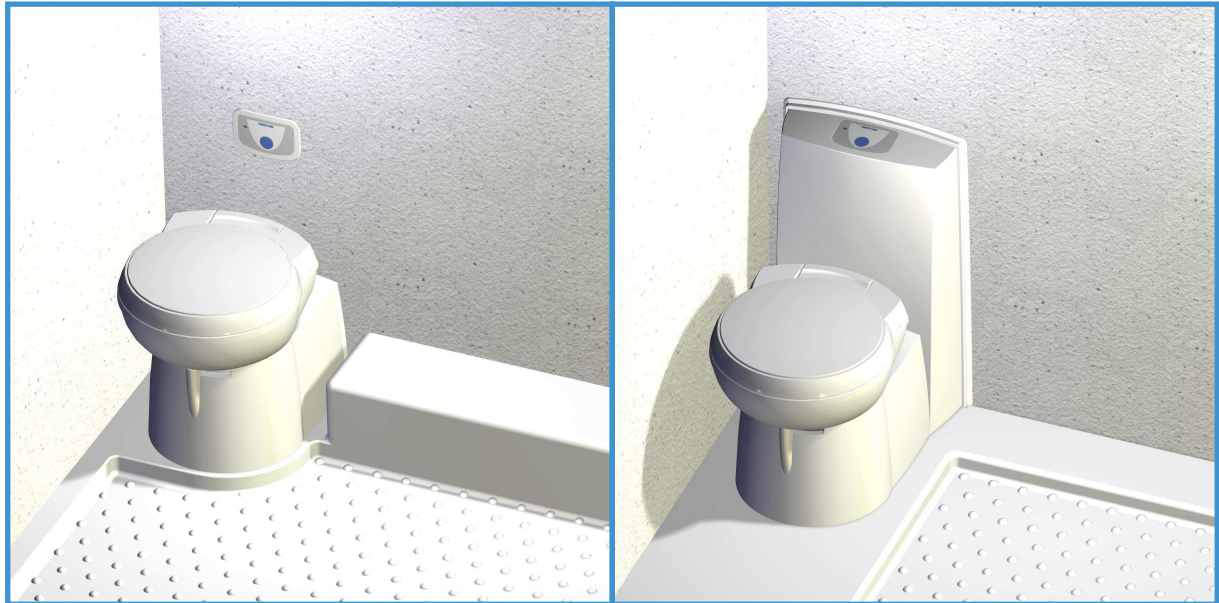


THETFORD

C-250S / CS / CWE



C-250

Installation manual OEM

UK

Also available in :

FR

DE

ES

SI

SE

IT

NL

Version 3.0
15-Jan-08

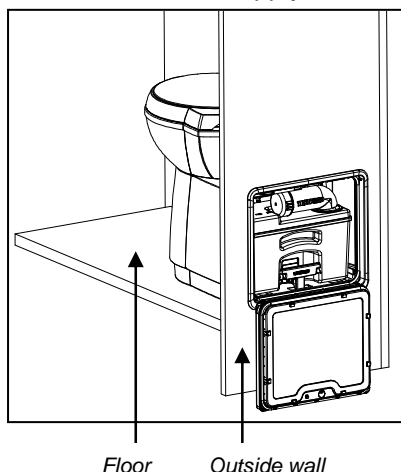
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1 INSTALLATION INTERFACES

1.1 Generic interfaces for all C-250 versions

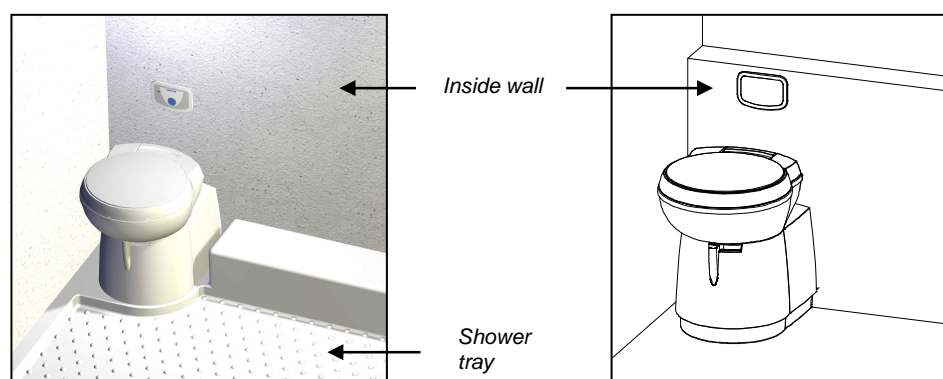
Generic interfaces apply to all versions of the C-250 (S/CS/CWE).



	Interface types	Thetford information	Action OEM
Outside wall	Cut-out for Door 3, Flush Door 3 or Door 2	For cut-out dimensions see drawing LE-383. NOTE: drawing LE-383 consists of 12 different sheets. Every sheet shows another cut-out drawing for a combination of a door, a C-250 (S, CS or CWE) and optional a waste pump-out system. Make sure the right sheet is used as cut-out drawing!	<ul style="list-style-type: none"> • Make cut-out in outside wall • Install door in outside wall • Use correct sealant / glue between side wall and door. This sealant / glue is prescribed in the installation manual of the specific door NOTE: Ensure that Flush Door 3 can be opened at least 180° in built-in situation!
Floor	Stability / mounting to floor	The C-250 needs to be screwed to a level and stable floor. See drawing LE-400 for the screw positions.	Mount the C-250 to the floor with four screws. These screws are supplied by Thetford. Required torque: 0,7 Nm
Power supply	Voltage and ampere	Fused on 3 ampere Max voltage: 15,5V Min voltage: 10,5V	Connect the wires to a power supply with a minimum capacity of 3 ampere (40W). NOTE: For the C-250S and CS as well as for toilets equipped with a waste pump-out system, additional wiring is needed. See the specific chapters (1.2.1.1, 1.2.2.1 and 1.3.2.1) for more information.
	Type of wiring	2 x 0,75 mm ²	
	Connections	Faston tab housing	
	Colour	Red = +12V Black = 0V	
Environment	Operating temperature rate	0°C to + 50°C	

1.2 Version specific interfaces

1.2.1 C-250S

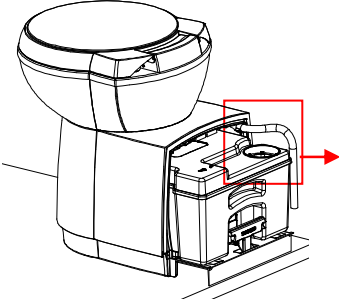
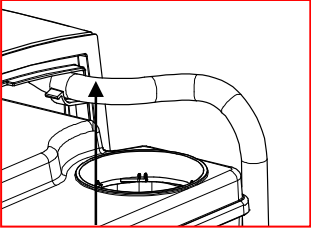
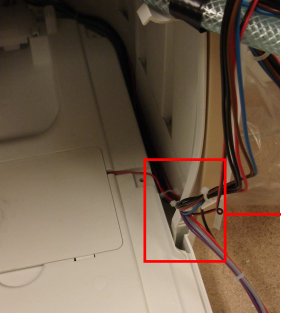
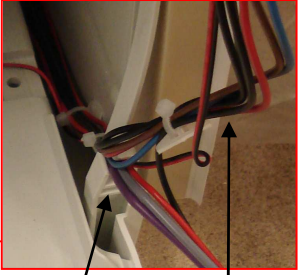
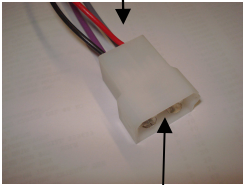
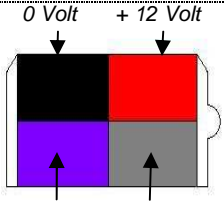


Applicable drawings for the installation of a C-250S

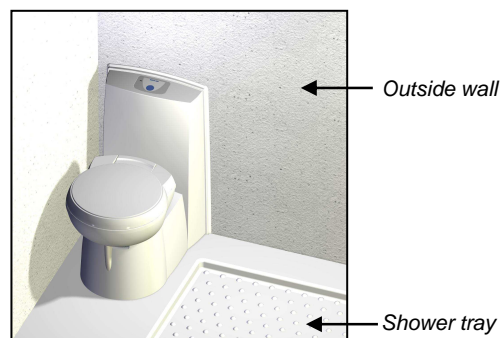
Cut-out drawing	LE-383 Sheet 1:	C-250S with Door 3
	LE-383 Sheet 2:	C-250S with Door 3 and waste pump-out system
	LE-383 Sheet 3:	C-250 S with Flush door 3
	LE-383 Sheet 4:	C-250 S with Flush door 3 and waste pump-out system
	LE-383 Sheet 5:	C-250S with Door 2
	LE-383 Sheet 6:	C-250S with Door 2 and waste pump-out system
Main dimensions	LE-393	
Floor connection	LE-400	
Interface shower tray	LE-426	
Rotated bowl	LE-428	
Water pump connection	LE-579	

1.2.1.1 Interfaces C-250S

	Interface	Thetford information	Action OEM
Inside wall	Sealing to inside wall	The seal is standard mounted on the C-250S.	
	Cut-out for toilet and control panel.	For cut-out dimensions see drawing LE-383.	Make cut-outs in inside wall. NOTE: Thetford recommends to place the bottom of the control panel at least 850 mm from the floor. From this height the control panel is still visible when the seat and cover are placed upright. See also drawing LE-393.
	C-250S in bathroom and against wall	For reference to the outside shape of the C-250S see LE-401 (3D data).	
	Mounting to inside wall	First connect the toilet to the floor and then to the wall. The toilet is connected to the inside wall with 3 screws. See drawing LE-383 for screw positions.	Connect the toilet to the wall using three screws. Screws are not supplied by Thetford. Required torque: 0.9 Nm

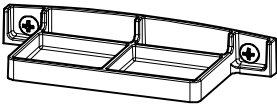
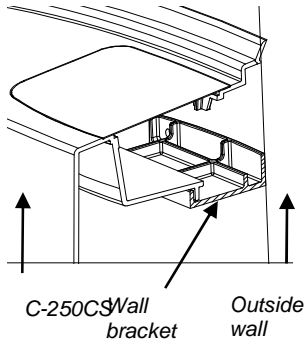
Shower tray	Shape/overlap	For more information on the C-250S and shower tray interface see drawing LE-426 and LE-401 (3D data).	
Water hose	Location	See pictures 	 <i>Last fixed point of water hose. From here water hose can be freely routed. Make sure that after routing of water hose the holding tank can still be removed from the toilet!</i>
	Diameter	10mm inside, 16mm outside	
	Length	740 mm (approx.), measured from last fixed point of water hose (see picture above).	
Remote pump	Remote pump relay (potential free)	2 x 1,5mm ² (grey and purple)	Connect pump NOTE: Minimum voltage and wattage as indicated on pump must be respected!
Power supply	Location	See pictures 	 <i>Wiring leaves toilet through this hole.</i> <i>This part of wiring is routed to the control panel</i>
	Connector	<p>C-250S wiring</p>  <i>Drawing is from this point of view!</i> For more information on the connection of the potential free contacts see drawing LE-579.	 <i>Potential free contacts to connect remote pump to.</i> NOTE: This connector is only applicable to toilets without waste pump-out system. For the connector applicable to toilets with waste pump-out system see chapter 1.3.2.1.

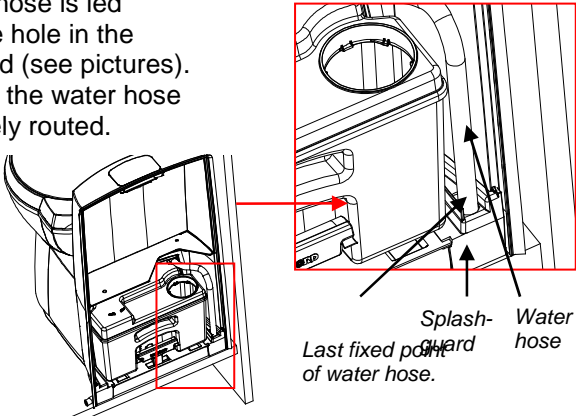
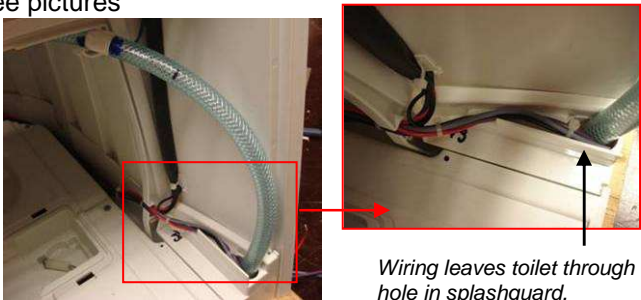
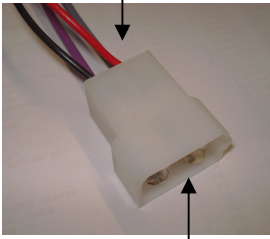
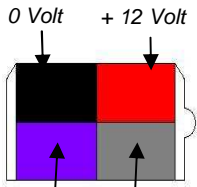
1.2.2 C-250CS

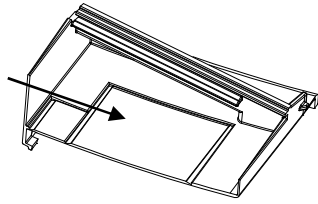


Applicable drawings for the installation of a C-250CS	
Cut-out drawing	LE-383 Sheet 7: C-250CS with Door 3
	LE-383 Sheet 8: C-250CS with Flush door 3
	LE-383 Sheet 9: C-250CS with Door 2
Main dimensions	LE-394
Floor connection	LE-400
Interface shower tray	LE-427
Rotated bowl	LE-429
Water pump connection	LE-579

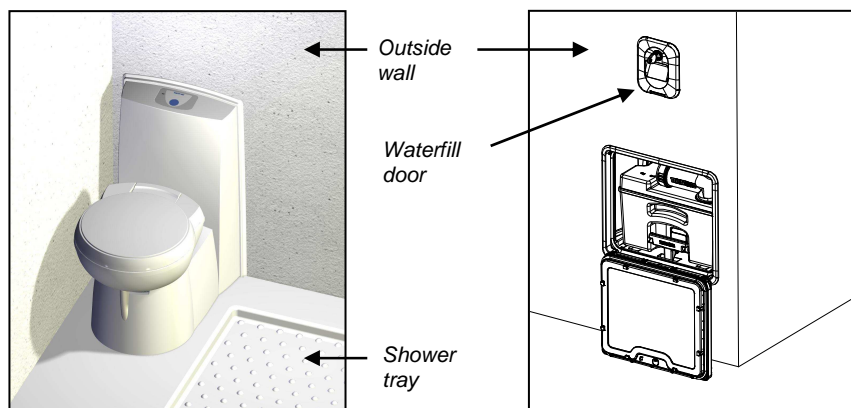
1.2.2.1 Interfaces C-250CS

	Interface	Thetford information	Action OEM
Outside wall	Sealing to outside wall	The seal is integrated with the C-250CS.	
	C-250CS in bathroom and against outside wall	For reference to the outside shape of the C-250CS see LE-402 (3D-data).	
	Mounting to outside wall	The C-250CS is mounted to the outside wall with a wall bracket (see pictures below). See drawing LE-383 for screw positions.	Install the wall bracket with two screws to the outside wall. These screws are supplied by Thetford. Required torque: 0.5 Nm
			<p><i>Cross section of connection to wall with wall bracket</i></p> 
Shower tray	Shape/overlap	For more information on the C-250CS and shower tray	

		interface see drawing LE-427 and LE-402 (3D data).	
Water hose	Location	The water hose is led through the hole in the splashguard (see pictures). From there the water hose can be freely routed.	
	Diameter	10mm inside, 16mm outside	
	Length	500 mm (approx.), measured from last fixed point of water hose (see picture above).	
	Pressure	Min: 0,35 Bar at 4,2 L/min Max: 0,70 Bar at 7,1 L/min	Measured the pressure at the connection between the RV hose and the C-250 hose. NOTE: If the pressure turns out to be too high, a flow reducer must be used to prevent overflow.
Remote pump	Remote pump relay (potential free)	2x 1,5mm ² (grey and purple)	Connect pump. NOTE: Minimum voltage and wattage as indicated on pump must be respected!
Power supply	Location	See pictures	 <p>Wiring leaves toilet through hole in splashguard.</p>
	Connector	C-250CS wiring	 <p>Drawing is from this point of view!</p>  <p>Potential free contacts to connect remote pump to.</p> <p>For more information on the connection of the potential free contacts see drawing LE-579.</p>

Splash guard	Water hose and / or wiring	If needed for routing of water hose and / or wiring, the preformed push out of the splashguard can be taken out (see picture).	
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1.2.3 C-250CWE

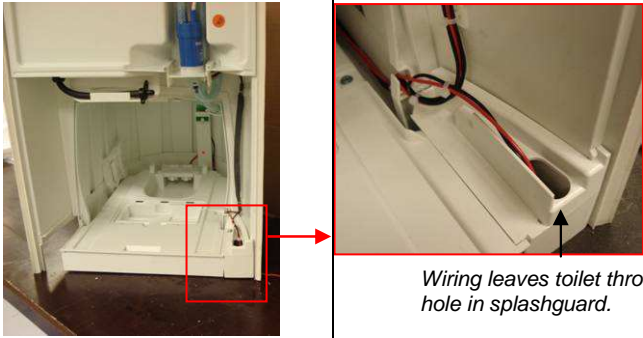
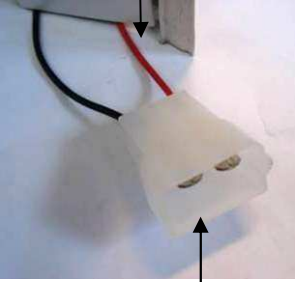
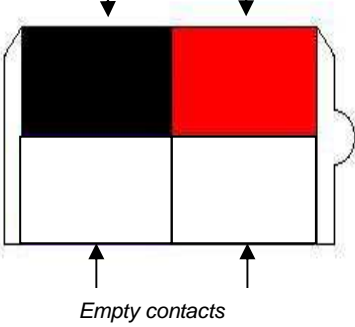
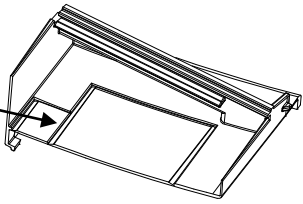


Applicable drawings for the installation of a C-250CWE

Cut-out drawing	LE-383 Sheet 10: C-250CWE with Door 3
	LE-383 Sheet 11: C-250CWE with Flush door 3
	LE-383 Sheet 12: C-250CWE with Door 2
Main dimensions	LE-395
Floor connection	LE-400
Interface shower tray	LE-427
Rotated bowl	LE-429

1.2.3.1 Interfaces C-250CWE

	Interface	Thetford information	Action OEM
Outside wall	Sealing to outside wall	The seal is integrated with the C-250CWE.	
	C-250CWE in bathroom and against outside wall	For reference to the outside shape of the C-250CWE see LE-402 (3D-data).	
	Cut-out for waterfill door	For cut-out dimensions waterfill door see drawing LE-383.	Make cut-out in outside wall.
	Mounting to outside wall	First connect the toilet to the floor and then mount the waterfill door. The C-250CWE is mounted to the outside wall with the waterfill door.	Install the waterfill door with four screws (screws are supplied by Thetford). Required torque: 0.5 Nm Use correct sealant between the side wall and the waterfill door. This sealant is prescribed in the installation manual of the

			waterfill door.
Shower tray	Shape/overlap	For more information on the C-250CWE and shower tray interface see drawing LE-427 and LE-402 (3D data).	
Power supply	Location	See pictures 	<i>Wiring leaves toilet through hole in splashguard.</i>
	Connector	<i>C-250CWE</i>  <i>Drawing is from this point of view!</i>	<i>0 Volt</i> <i>+ 12 Volt</i> 
	Connector specification	<i>Connector:</i> Tyco/AMP: 180901 <i>Contacts:</i> Tyco/AMP: 1-280081-2	
Splash guard	Wiring	If needed for routing of the wiring, the preformed push out of the splashguard can be taken out. 	

1.3 Optional interfaces

- Plenum
- Waste pump-out system
- Passive outside vent*
- Automatic ventilator

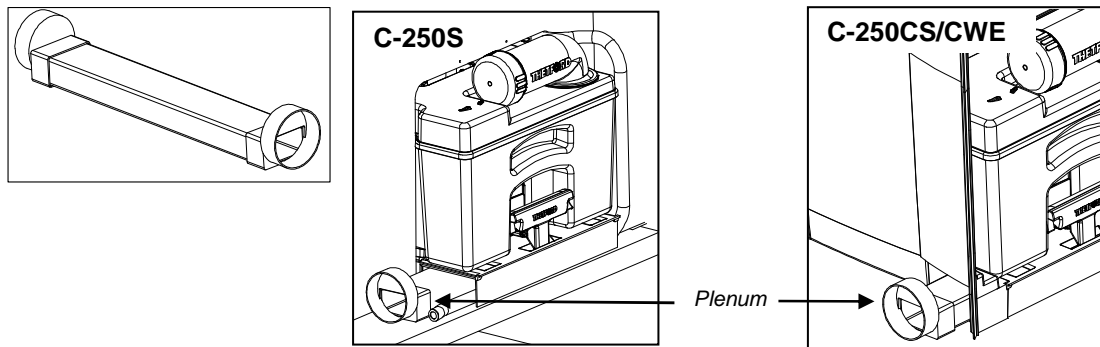
These options are available for the following versions of the C-250:

	C-250S	C-250CS	C-250CWE
Plenum	•	•	•
Waste pump-out system	•		
Passive outside vent*	•	•	•
Automatic ventilator	•	•	•

* For motor homes the passive outside vent option is a standard feature.

1.3.1 Plenum

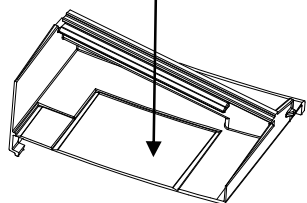
The plenum is available for all C-250 versions.



Applicable drawings for the installation of a plenum

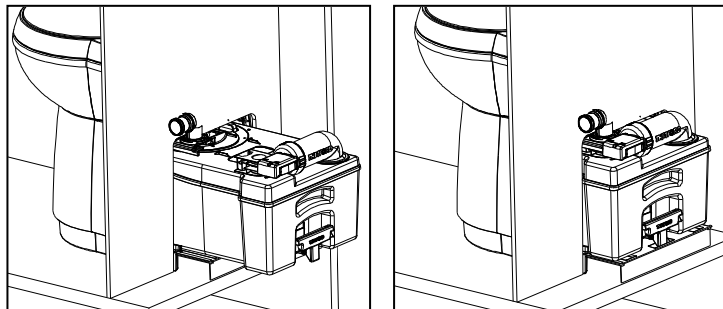
C-250S with plenum	LE-396
C-250CS with plenum	LE-447
C-250CWE with plenum	LE-447

1.3.1.1 Interfaces plenum

	Interface	Thetford information	Action OEM
Heating hose	A plenum is needed to lead (heated) air underneath the toilet	Plenum to connect heating hose (Ø65mm) to (on both sides). See drawing LE-396 for the C-250S and drawing LE-447 for the C-250CS/CWE version.	<p>Install plenum When the plenum is used in combination with a C-250CS / CWE the preformed push outs of both splashguards must be taken out to create space for the plenum (see picture below).</p>  <p>NOTE: Cut into the rims of the preformed push outs before taking those out of the splashguards!</p>

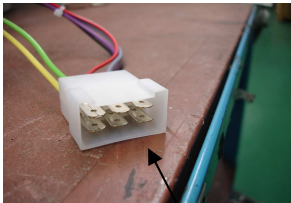
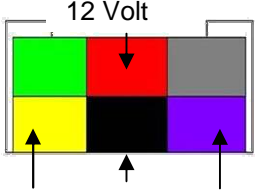
1.3.2 Waste pump-out system

The waste pump-out system is available for C-250S versions.



Applicable drawings for the installation of a waste pump-out system	
Cut-out drawing	LE-383 Sheet 2: C-250S with Door 3 and waste pump-out system
	LE-383 Sheet 4: C-250S with Flush door 3 and waste pump-out system
	LE-383 Sheet 6: C-250S with Door 2 and waste pump-out system
Lay-out waste pump-out system	LE-442
Waste pump connection	LE-580

1.3.2.1 Interfaces waste pump-out system

	Interface	Theftford information	Action OEM
Waste pump	Pump	Theftford supplies a pump to transfer waste from the holding tank to a central waste tank. For more information see LE-442.	Install the pump at a serviceable location near the toilet.
	Waste pump relay (potential free)	2 x 1,5mm ² (yellow + green)	Connect the wires to the waste pump. NOTE: Minimum voltage and wattage as indicated on the pump must be respected!
Power supply	Connector Connector: Tyco/AMP: 180906 Contacts: Tyco/AMP: 1-280081-2	 <p>Drawing is from this point of view</p>	<p>NOTE: This connector is only applicable to toilets with waste pump-out system.</p>  <p>12 Volt</p> <p>Potential free 0 Volt contacts (yellow and green) to connect waste pump to</p> <p>Potential free contacts (grey and purple) to connect remote pump to</p>
Level indication	Level sensor	Theftford supplies a sensor to indicate the level of the	Route the wiring of the sensor from the toilet to the

		central waste tank of the vehicle.	central waste tank and connect the sensor to this tank. For more information see the FAQ in chapter 1.3.2.1.
Tubing	Tube to central waste tank via pump of waste pump-out system	Thetford supplies 5 metres of tube and 4 hose clamps for connecting. See also drawing LE-442.	Connect tubes from toilet to pump and from pump to central waste tank.
Inside wall	Cut-out in inside wall	NOTE: The cut-out for the inside wall for a C-250S with a waste pump-out system differs from the generic cut-out. Make sure the right cut-out drawing is used. For cut-out dimensions see drawing LE-383 (sheet 2, 4 or 6).	Make cut-out

1.3.2.2 FAQ waste pump-out system

Installation

Q: Where do I have to install the waste pump in the vehicle?

A: The closer the pump is placed to the toilet, the better it is. For more information about the specifications of the position of the pump in the vehicle see drawing LE-442.

Q: Can the pump be installed in any position (horizontal, vertical etc)?

A: It is best to mount the pump horizontally. Vertically is also possible, but then the head of the pump must point downwards. Do not mount the pump upside down.

Q: Can the pump be installed outside the vehicle?

A: No, the pump cannot be mounted outside the vehicle.

Pump specifications

Q: What are the outside dimensions of the waste pump?

A: The outside dimensions of the waste pump are (LxWxH) 289 x 355 x 118mm.

Q: What is the weight of the pump?

A: The waste pump weighs 2,2 kg.

Q: How much current does the pump use?

A: The maximum current that is used by the pump is 8 amps.

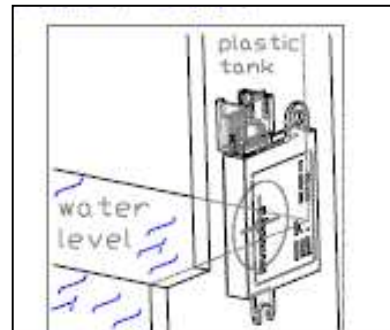
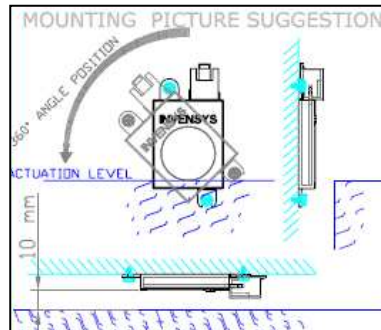
Q: How does the pump indicate it's blocked e.g. by toilet paper?

A: If a complete blockage occurs, the fuse will blow and it will not be possible to pump any waste to the central holding tank. If the system is only partly blocked, it is still possible to transfer waste. This means that the pump will give no indication about the partial blockage.

Level sensor specifications

Q: How can I connect the level sensor to the central waste tank?

A: You can use double-sided adhesive tape to connect the level sensor to the tank. Make sure that the distance between level sensor and the inside of the tank is maximal 10mm. See pictures below for more information.



Q: What is the maximum distance between the inside of the central waste tank and the level sensor?

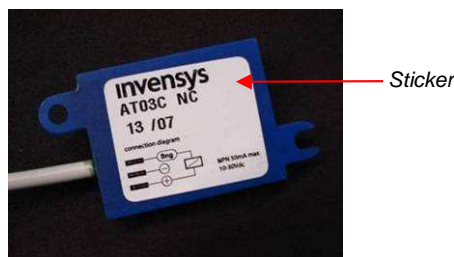
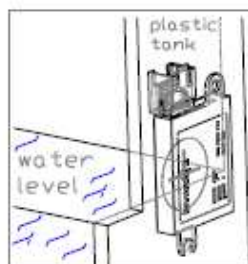
A: The maximum distance is 10mm.

Q: Do I have to place the level sensor directly on the tank?

A: No, the level sensor will also function if it isn't placed directly on the tank as long as the maximum distance between the inside of the central waste tank and the level sensor is 10mm.

Q: Which side of the level sensor do I have to place to the tank?

A: You have to place the side **without** the sticker to the tank (see picture below).



Q: Where do I have to place the level sensor on the central waste tank (f.e. can it be close to the inlet of the waste)?

A: The sensor must be placed at the side wall of the tank, near the top of the tank (at maximum fill level) and at least at 20cm from the waste inlet.

Q: Will the material of the central waste tank affect the functioning of the level sensor?

A: The level sensor will only function properly when it is placed on a plastic tank.

Q: What happens if the level sensor does not function?

A: If the level sensor isn't working correctly, the waste pump-out system can still be used. Due to the danger of overfilling the central waste tank, always pay attention to the level sensor of the vehicle's waste tank on the central console.

Tubing

Q: How can I connect the tube from the pump to the central waste tank?

A: Standard connections are for sale at distributors of RV accessories and plumbing equipment.

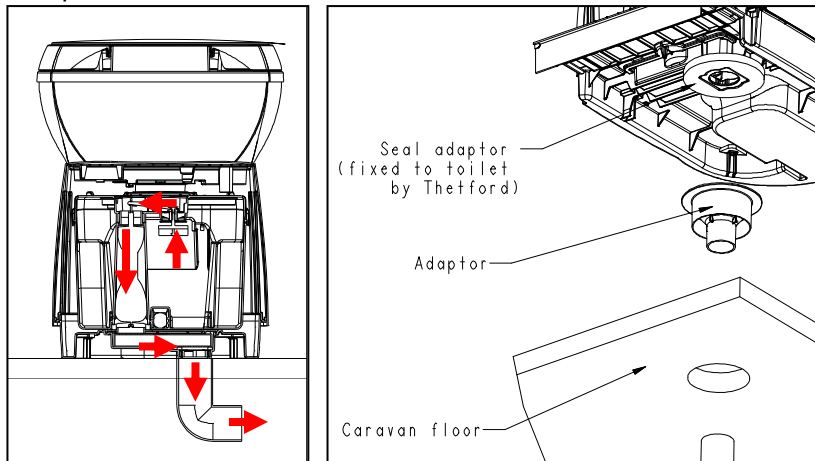
Chemical resistance

Q: Are the tubes and pump of the waste pump-out system resistant to Thetford fluids?

A: Yes, the tubes and pump are chemical resistant to all Thetford fluids.

1.3.3 Passive outside vent

The passive outside vent is available for all C-250 versions.



Applicable drawings for the installation of a passive outside vent

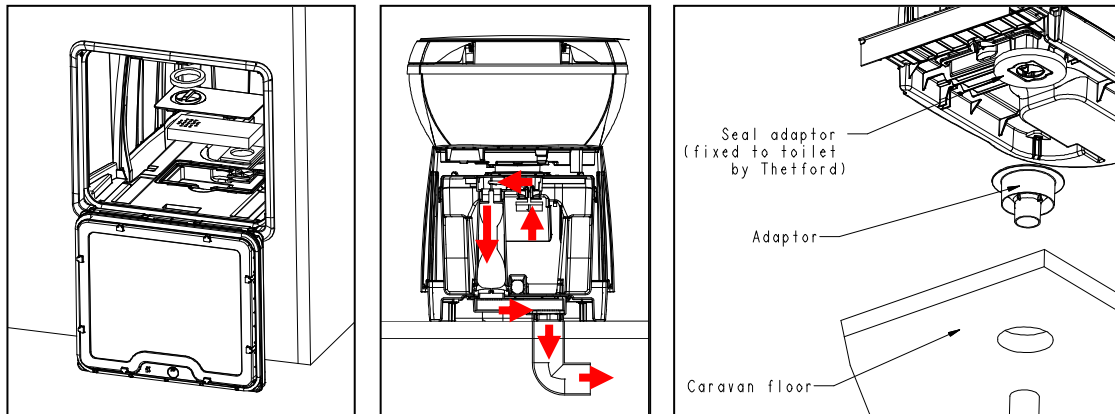
Position of hole in floor	LE-397
Adaptor interface	LE-438

1.3.3.1 Interfaces passive outside vent

	Interface	Thetford information	Action OEM
Floor	Hole in floor	For position of hole see drawing LE-397	Make hole in floor
	Seal adaptor	The seal adaptor secures an airtight connection between toilet and adaptor / floor	The seal is already mounted to the toilet by Thetford
	Adaptor (optional)	See also drawing LE-438	Place adaptor in hole in floor. Use sealant to connect / seal adaptor to floor.
	Tubing	Tubing can be connected to the bottom of the adaptor. For more information see drawing LE-438.	

1.3.4 Automatic ventilator

The automatic ventilator is available for all C-250 versions.



Applicable drawings for the installation of an automatic ventilator

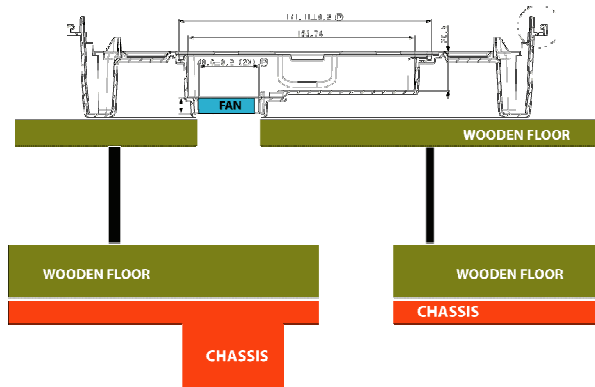
Position of hole in floor	LE-397
Adaptor interface	LE-438

1.3.4.1 Interfaces automatic ventilator

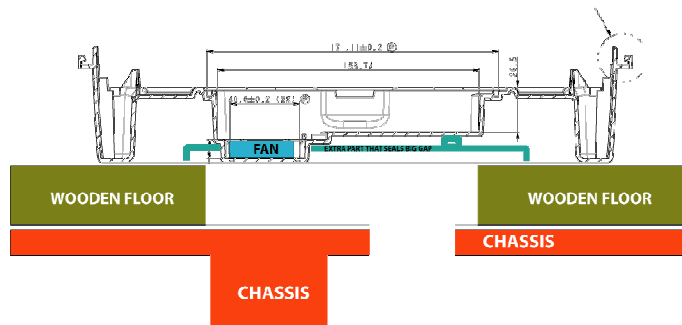
	Interface	Thetford information	Action OEM
Floor	Hole in floor	For position of hole see drawing LE-397	Make hole in floor
	Adaptor (optional)	See also drawing LE-438	Place adaptor in hole in floor. Use sealant to connect / seal adaptor to floor.
	Seal adaptor	The seal adaptor secures an airtight connection between toilet and adaptor / floor	The seal is already mounted to the toilet by Thetford
	Tubing	Tubing can be connected to the bottom of the adaptor. For more information see drawing LE-438.	

1.3.4.2 FAQ automatic ventilator

- Q:** I cannot drill a hole in the **double floor** directly under the outlet of the Automatic Ventilator because of the chassis. How can I solve this problem?
- A:** Thetford recommends to create an extra, sealed compartment so that the hole can be drilled next to the chassis (see picture below). Instead of creating a compartment, the holes can also be connected with a tube.



- Q:** I cannot drill a hole in the **single floor** directly under the outlet of the Automatic Ventilator because of the chassis. How can I solve this problem?
- A:** Thetford recommends to create an extra, sealed compartment so that the hole can be drilled next to the chassis (see picture below). The compartment needs to be covered with an extra part that seals the compartment airtight. This extra part is available on request at Thetford BV.



- Q:** What is the inner diameter of the tube that can be connected to the adaptor?
- A:** The inner diameter of the tube is $\varnothing 40$ mm. See also drawing LE-438 for more information.
- Q:** What is the maximum length of the tube that can be connected to the adaptor.
- A:** The maximum length of the tube that can be connected to the adaptor is 1 metre.
- Q:** How can I connect a tube to the adaptor?
- A:** You can use a hose clamp to connect a tube to the adaptor.
- Q:** Can the tube be mounted under an angle?
- A:** Yes, the tube can be mounted under an angle.

2 PACKAGING

2.1 C-250S



- All units on the base of the toilet
- 4 toilets on a single layer, 2 layers on a pallet, i.e. 8 units per pallet
- Cardboard sheet between layers of toilets
- Internal sleeve height 100 cm, height per pallet: 120 cm
- Standard truck: 48 units per pallet-depth

Part number	Description	Return	Amount
14804	Pallet 1200 x 800	Y	1
23747	Bottom tray	Y	1
50881	Sleeve	Y	1
50882	Insert	Y	2
23814	Top tray	Y	1

2.2 C-250CS/CWE



- Nested on a pallet, 6 units per pallet
- Three units on base of toilet, two units are placed backwards up
- Cardboard sheet between layers of toilets
- Internal sleeveheight 100 cm, height per pallet: 120 cm
- Standard truck: 36 units per pallet-depth

Part number	Description	Return	Amount
14804	Pallet 1200 x 800mm	Y	1
23474	Bottom tray	Y	1
50881	Sleeve	Y	1
50879	C-250 interior 1	Y	1
50880	C-250 interior 2	Y	1
23814	Top tray	Y	1

2.3 Instructions for returnable packaging



OEM C-250 carton pallet



6 x C-250CS/CWE per pallet



8 x C-250S per pallet



1. start with empty bottom



2. add the inserts



3. fold the sleeve



4. add sleeve to box



5. add top to box

3 STANDARDS FOR C-250

The C-250 complies with the following certificates / standards:

- BSI 2081-2 1998 Closets for use with chemicals
- Electro Magnetic Compatibility(EMC) EN 60555 2&3/06.87,
EN 55014:1993 (emission)
- EN 55104:1995 (Immunity)
- CE

4 CONTENTS CD

Thetford supplies the following 2D drawings, 3D files and installation manual on cd.

4.1 Drawings (2D)

The 2D drawings are available in .pdf and .dxf.

Drawings (2D)	Description
LE-383	C-250 CUT-OUT DRAWINGS Sheet 1: C-250S WITH DOOR 3 CUT-OUT DRAWING Sheet 2: C-250S WITH DOOR 3 AND WASTE PUMP-OUT SYSTEM CUT-OUT DRAWING Sheet 3: C-250 S WITH FLUSH DOOR 3 CUT-OUT DRAWING Sheet 4: C-250 S WITH FLUSH DOOR 3 AND WASTE PUMP-OUT SYSTEM CUT-OUT DRAWING Sheet 5: C-250S WITH DOOR 2 CUT-OUT DRAWING Sheet 6: C-250S WITH DOOR 2 AND WASTE PUMP-OUT SYSTEM CUT-OUT DRAWING Sheet 7: C-250CS WITH DOOR 3 CUT-OUT DRAWING Sheet 8: C-250CS WITH FLUSH DOOR 3 CUT-OUT DRAWING Sheet 9: C-250CS WITH DOOR 2 CUT-OUT DRAWING Sheet 10: C-250CWE WITH DOOR 3 CUT-OUT DRAWING Sheet 11: C-250CWE WITH FLUSH DOOR 3 CUT-OUT DRAWING Sheet 12: C-250CWE WITH DOOR 2 CUT-OUT DRAWING
LE-393	C-250S MAIN DIMENSIONS
LE-394	C-250CS MAIN DIMENSIONS
LE-395	C-250CWE MAIN DIMENSIONS
LE-396	C-250S WITH PLENUM
LE-397	C-250 AUTOMATIC VENTILATOR HOLE POSITION
LE-400	C-250 FLOOR CONNECTION
LE-426	C-250S INTERFACE SHOWERTRAY
LE-427	C-250CS/CWE INTERFACE SHOWERTRAY
LE-428	C-250S ROTATED BOWL
LE-429	C-250CS/CWE ROTATED BOWL
LE-438	C-250 ADAPTOR INTERFACE
LE-442	C-250 LAY-OUT WASTE PUMP-OUT SYSTEM
LE-447	C-250CS/CWE WITH PLENUM
LE-579	C-250 WATER PUMP CONNECTION SCHEMATIC
LE-580	C-250 WASTE PUMP CONNECTION SCHEMATIC
50817	C-250S WALL BOX ASSEMBLY

4.2 Files (3D)

The 3D files are available in .iges.

Files (3D)	Description
LE-401	C-250S SIMPLIFIED OUTSIDE SHAPE
LE-402	C-250CS/CWE SIMPLIFIED OUTSIDE SHAPE
LE-383_basewall	Cut out inside wall S-version
LE-384_asm	C-250S connection to inside wall

4.3 Manuals

This C-250 Installation manual OEM is also available on cd.