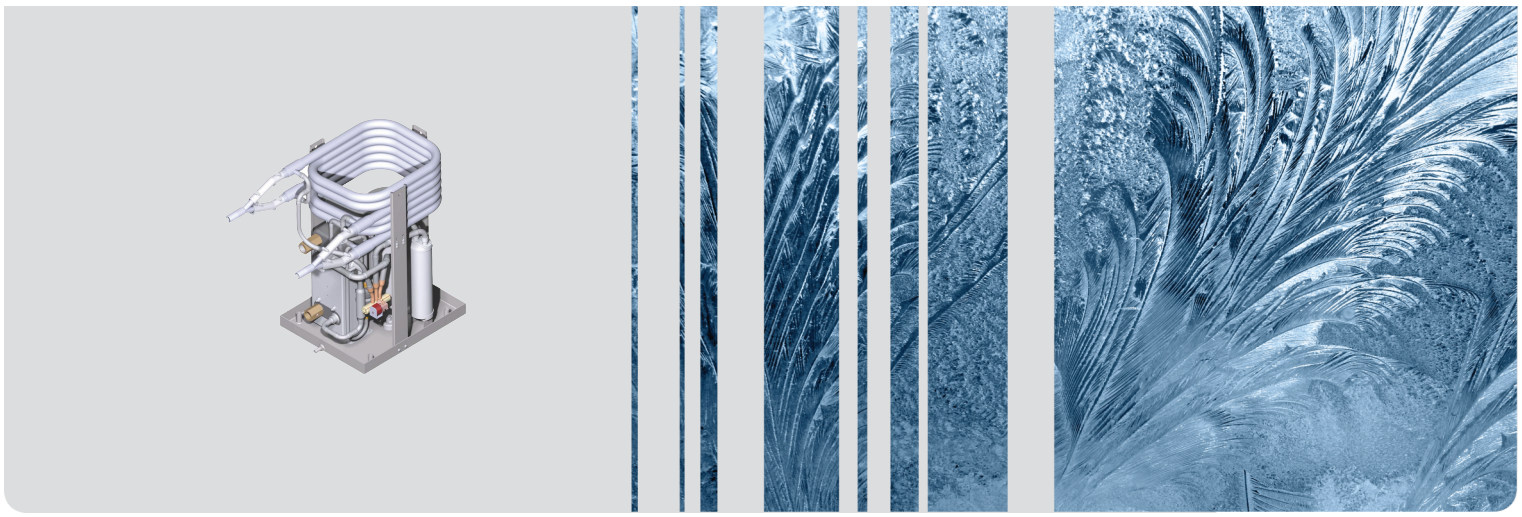
Operating Instructions

Ti22 ProX

Chilled Water Marine Air-Conditioning Systems



English

Table of Contents

1 About this document

1.1 Purpose of this document

This document is an integral part of the product and contains the information required to ensure correct and safe installation and operation.

1.2 Using this document

- Read these Operating Instructions (OI) carefully before operating the unit.
- Please pass this document on to the next owner or user of the unit.

1.3 Use of symbols and highlighting

This document uses warning labels and colors for hazard classification in accordance with ISO 3864:

See also https://www.iso.org/standard/55814.html.

DANGER
This signal word denotes a hazard with a high degree of risk which, if not avoided, will lead to death or serious injury.

WARNING
This signal word denotes a hazard with a moderate degree of risk which, if not avoided, may lead to minor or moderate injury.

CAUTION
This signal word denotes a hazard with a low degree of risk which, if not avoided, will lead to minor or moderate injury.

NOTE
This signal word denotes a Special Technical Feature or (if not observed) potential damage to the product.

Refers to separate documents which are enclosed or can be requested from Webasto.

✓	Requirements for the following necessary action

1.4 Warranty and liability

Webasto shall not assume liability for defects or damage that are the result of the Installation Instructions / Operating Instructions and the instructions contained therein being disregarded.

This liability exclusion particularly applies to:

- Installation by untrained personnel.
- Improper use.
- Repairs not carried out by a Webasto service workshop.
- Use of non-genuine parts.
- Conversion of the unit without permission from Webasto.

1.5 Measurements

NOTE
All measurements are in mm, unless stated otherwise.

2 Safety

2.1 Intended use

The purpose of Ti22 ProX is to provide heating and cooling on ships.

The Ti22 ProX meets the current state of technology and recognized safety rules.

WARNING
Improper or inappropriate use may result in danger to life and limb of the user and others, as well as impairment of the unit and other property.
Any other use of this product is not permissible.
Any other use of or changes to the product, including as part of assembly and installation, will result in any and all warranty claims being voided.

WARNING
Moving parts
Risk of injury, damage to air handlers.
You must only operate the Ti22 ProX and its connected air handlers in their final installed position.

WARNING
Ignition of surrounding gases or highly flammable liquids by sparking of the Ti22 ProX.
You must always switch off the air conditioning system when refueling, or while in a petrol station area.

3 General

The BlueCool MyTouch is the standard control element for the Ti22 ProX and enables easy operation and setting of the connected system. The screen is a touch screen. System operation is described below.

ATTENTION
Damage to BlueCool MyTouch
The display must not come in contact with any other electrical devices. The electrostatic discharge could cause malfunctions.
Do not use pointed or sharp objects to operate the screen. Do not exert excessive pressure.

NOTE
Webasto recommends operating the screen using your fingers only. The touch sensitivity of the screen is optimized to fingertip contact. The screen may not respond if gloves are worn.
Tapping at the very edge of the screen may not be recognized.

4 Home screen and icons

There is a choice of 3 different designs of the Home screen with temperature and fan setting. The functions are the same.

To change the design (in Passenger menu) see chapter 8.1, "Setting level 1" on page 5.

Example: Air handlers are connected to the chiller unit.

If air handlers are connected to the chiller unit, you must select “Chiller unit with cabin control - Yes”.

In such cases, using the MyTouch control element, the chiller unit and the temperature in the cabin can be controlled.

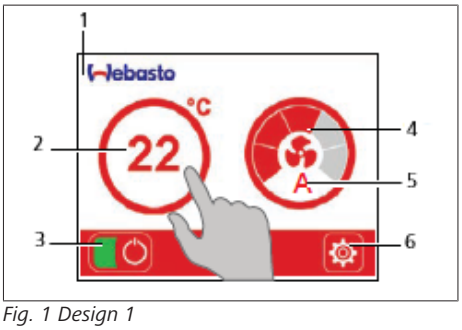


Fig. 1 Design 1

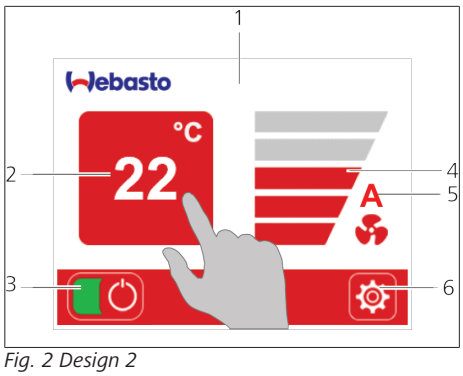


Fig. 2 Design 2

Fig. 3 Design 3

Illustration Fig. 1, Fig. 2 and Fig. 3 show examples of design 1 to 3.

Nr	Description
1	Home screen (Tap Webasto select crew / parameter menu)
2	Temperature setting
3	ON / OFF
4	Fan display
5	Automatic air handler control display
6	Settings (passenger menu)

The icons on the Home screen provide information about the system status.

Icon	Function
	On / Off
	Temperature
	Fan
	Settings
Webasto	Crew menu
	Notification
	Increase values
	Decrease values
AUTO	Automatic fan control
	Previous
22	Set-point temperature
	Previous
	Next
2	Parameter value
	Select
	Home screen
	Scroll up
	Scroll down
--	Keypad
	Display selection

5 Standby

The screen will go to Standby mode after 5 minutes if the screen remains untouched. Tap anywhere on the screen to bring up the Home screen.

6 ON/OFF

When the screen is off:

- Tap the screen
  - The screen switches on.

When the screen is on:

- Tap the green / grey field
  - The color of the ON/OFF symbol indicates the operating status of the BlueCool (green = switched on).

7 Operation

After switching on, the control system starts up the chiller unit and the connected air handler in steps and then assumes normal operation. The control element now shows the current temperature where the temperature sensor of the chiller unit is installed.

Depending on the installation location, this may also be the temperature of another cabin.

After approx. 20 seconds, the base colour of the control element changes to indicate the operating mode (cooling or heating) in which the chiller unit was started. Blue indicates cooling mode, red indicates heating mode. The selection depends on:

- the selected setpoint temperature and
- the room temperature, which is measured by the cabin temperature sensor.

The system will go into standby mode when the cabin temperature and the setpoint temperature are the same.

NOTE

The system only cools under the following conditions:
cabin temperature > 15 °C.
Setpoint temperature < cabin temperature.

The system only heats under the following conditions:
cabin temperature < 29 °C.
Setpoint temperature > cabin temperature.

In automatic mode the fan remains set to speed 1 until the cold water temperature is lower (cooling) or higher (heating) than the cabin temperature.

In cooling mode, the cold water temperature is significantly below 15 °C and above 40 °C in heating mode. The current cold water temperature at the outlet of the Ti22 ProX can be requested in setting level 2 (crew menu).

See Setting level 2.

7.1 Selecting the setpoint temperature

To set the required cabin temperature:

1. Tap the temperature or the icon on the home screen. The setpoint temperature appears to the right.
2. Tap the Plus icon or Minus icon to increase or decrease the setpoint temperature. The Settings menu closes automatically after 30 seconds.

3. Or tap previous ❮ to safe and exit menu immediately.

7.2 Setting the fan speed

To set the required fan speed:

- Tap on the home screen.

With automatic fan control mode selected, the A appears on the home screen. The control system of the fan automatically adapts the fan speed.

To adapt the fan speed manually:

1. Tap the fan icon .
2. Tap the Plus icon or the Minus icon to change the fan speed, or tap AUTO to return to automatic fan mode. After 30 seconds the Settings menu automatically saves the last value and closes.
3. Tap previous ❮ to save and exit the menu immediately.

7.3 Chiller unit Home screen without cabin control

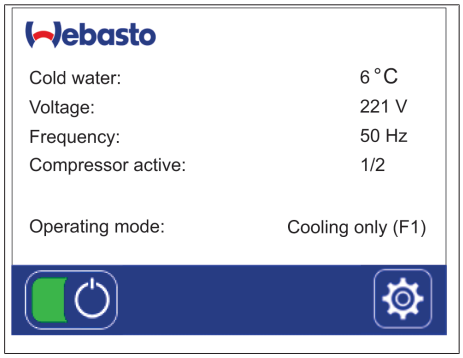


Fig. 4

If you operate the Ti22 ProX chiller unit without any connected air handlers, then you can select an alternative Home screen, which displays the current operating values for the chiller unit.

- Set level 2 (crew menu) to select "Chiller unit with cabin control (No)".

NOTE

The following actions are not possible with My-Touch on chiller units without cabin control:

- ▶ Setting the fan speed.
- ▶ Setting the setpoint temperature.
- ▶ Operating modes with automatic changeover between cooling and heating.

NOTE

If no air handlers are connected to the chiller unit, there is no need to connect a cabin temperature sensor.

8 System settings

The explanation of the Timer function is an example for the operating logic. The explanation also applies to other setting levels or functions.

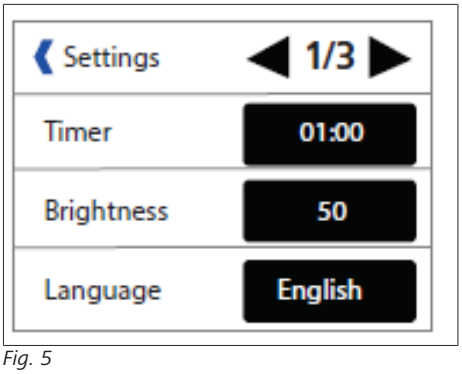


Fig. 5

To adjust the timer settings:

1. Tap the Settings icon . Setting level 1 (Passenger menu) is displayed.
2. Tap ◀ or ▶ to scroll between the various pages.

Fig. 6

3. Tap **Timer**. The setting window for this function opens up.

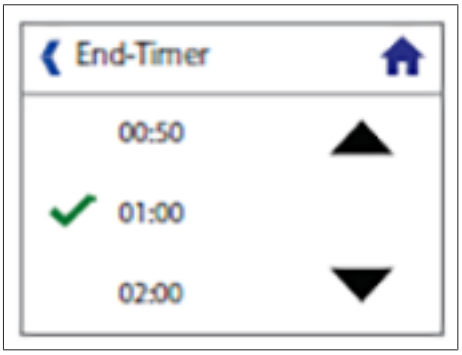


Fig. 7

4. Tap ▲ or ▼ to reduce or increase the time interval. The ✓ icon marks the current selection.
5. Tap the required time to set the time interval.
6. Tap the Previous icon ❮ to return to the previous level. The system adopts the selected settings.
7. Or tap the Home screen icon to return to the Home screen. The system adopts the selected settings.

8.1 Setting level 1

To select setting level 1 from the Home menu:

- Tap the Settings icon .

This displays setting level 1 with the following functions described below:

9 Maintenance

Check daily:

- Check and clean the sea water strainer. Remove debris.
- Check the sea water flow rate at the sea water exit. If there is no flow, turn the chiller of immediately and check if the valve is closed. If this does not solve the problem, please contact your authorised Webasto Marine dealer or service partner.

Check monthly:

- Check the position of the cooling water temperature sensor.
- Check the cooling water level or static pressure in the expansion tank. Correct if necessary.

- Add a sufficient amount of glycol to get a water/glycol mix ratio of 25 % to 40 % glycol.
- Check the sea water and chilled water circuit for leaks in the entire system and from the sea-cock to the sea water outlet.
- Check the condensate outflow from the condensed-water tray and the condensed-water drain line for free passage and leaks.
- Check the functioning of the system. Run the Ti22 ProX in cooling and heating mode for at least 10 minutes. Let the compressor start 3 to 4 times in each mode.

Check yearly:

- Check the entire sea water circuit, including the condenser. The time interval may need to be increased, depending on the degree of biological fouling (by shellfish etc.). Soiling of the sea water circuit reduces the sea water flow rate, which decreases the heat dissipation and may result in high-pressure switch-offs. If the condenser is soiled, the cooling or heating capacity of the system decreases. An expert must clean the sea water circuit (such as the installer or your Webasto Service Centre).
- Check the electrical connections for corrosion of the contacts and for firm seating.
- Check the heater exhaust system for corrosion and leaks, if a fuel operated heater is installed.
- Check the fuel line for leaks. Clean or replace the fuel filter, if a fuel operated heater is installed.

Winter storage:

- Make sure the cooling water circuit contains at least 25 % to 40 % glycol to prevent accidental freezing of the system during winter. For sufficient protection, let the glycol percentage depend on the local temperature.
- Empty the entire sea water circuit and close the sea water valve.

General Recommendation:

- When leaving the boat unattended for a longer period close all sea-water valves.

10 Status / Error message table

Screen	LED “Alive”	Possible cause	Correction
AAA - Undervoltage	1x flashing, pause...	Switch-off in case of undervoltage. Power supply below the set undervoltage value for longer than 5 seconds. The cause is probably an excessively long power cable for the on-shore connection, small cable cross sections, overloading or low power generator output.	Check setting (default setting: 195 V). Do not set below 195 V to prevent damage to the compressor and subsequently voiding of the warranty. If this does not solve the problem, please contact your authorised Webasto Marine dealer or service partner.
A01 - Low pressure compressor 1	2x flashing, pause...	Pressure switch defective or power circuit interruption / short circuit.	Check if the pressure switch wires are cut. Please contact your authorised Webasto Marine dealer or service partner.
		COOLING MODE: Cold water flow rate too low.	Check cold water flow rate and if necessary, increase by changing system layout. The difference between evaporator inlet and outlet temperature must be approximately 5 K.
		HEATING MODE: - Seawater flow rate insufficient or seawater too cold (temperature below 6 °C). - Seawater strainer blocked or no intake.	Check the flow rate of the seawater circuit at the seawater outlet. The difference between evaporator inlet and outlet temperature must be approximately 5 K. At se water temperature < 6 °C: no heating is possible in reverse heating operation. Clean the seawater strainer and bleed the seawater circuit.
		Refrigerant shortage.	Please contact your authorised Webasto Marine dealer or service partner.
A02 - High pressure compressor 1	3x flashing, pause...	Pressure switch defective or power circuit interruption / short circuit.	Check if the pressure switch wires are cut. Please contact your authorised Webasto Marine dealer or service partner.
		COOLING MODE: - Seawater cooling insufficient. - Seawater strainer soiled or no intake.	Check the flow rate of the seawater circuit at the seawater outlet. The minimum flow rates must be complied with. Clean the seawater strainer and bleed the seawater circuit.
		HEATING MODE: Cold water flow rate too low.	Check the cold water flow rate and if necessary, increase this by changing thesystem layout. Difference between the evaporator inlet and outlet temperature must be approximately 5 K.
A03 - Low pressure compressor 2	4x flashing, pause...	See A01	See A01
A04 - High pressure compressor 2	5x flashing, pause...	See A02	See A02
A05 - Low pressure compressor 3	6x flashing, pause...	See A01	See A01
A06 - High pressure compressor 3	7x flashing, pause...	See A02	See A02
A07 - Low pressure compressor 4	8x flashing, pause...	See A02	See A02

Screen	LED “Alive”	Possible cause	Correction
A08 - High pressure compressor 4	9x flashing, pause...	See A02	See A02
A09 - Cabin temperature sensor	10x flashing, pause...	Cabin temperature sensor defective, break / short-circuit in electrical circuit, cabin temperature sensor not connected.	Connect or replace the cabin temperature sensor.
A10 - Cold water temperature sensor	11x flashing, pause...	Cold water temperature sensor defective or break / short-circuit in electrical circuit.	Replace the sensor. If this does not solve the problem, please contact your authorised Webasto Marine dealer or service partner.
A11 - Low pressure compressor 5	12x flashing, pause...	See A01	See A01
A12 - High pressure compressor 5	13x flashing, pause...	See A02	See A02
A13 - Low pressure compressor 6	14x flashing, pause...	See A01	See A01
A14 - High pressure compressor 6	15x flashing, pause...	See A02	See A02
A15 - Cold water flow	16x flashing, pause...	The flow monitor identifies insufficient cold water flow 5 seconds after the cold water pump is switched on. Cold water circuit is blocked or wire break at flow monitor if the parameter "flow monitor" in the Deactivation menu is set to Normally open (NO).	Check cold water circuit. If a flow monitor is not installed, you must deactivate the flow monitor parameter using the control element. Refer to Setting level 3 (parameter menu).
CA11 - compressors deactivated	n.a.	Set compressor(s) in the control setting are not active.	Check settings on the control element. At least one compressor must be set as active. See Setting level 3 (parameter menu)
Init - data communication	17x flashing, pause...	Data communication: Electrical wiring defective. Power circuit interruption/short circuit.	Check cables and connections of pc-board and of control element. Replace defective connection cable, control element or pc-board.
No display on screen; compressor and sea water pump not running.	n.a.	Fuse faulty or break / short-circuit in this electrical circuit.	Please contact your authorised Webasto Marine dealer or service partner.
		Pc-board damaged by high voltage.	Please contact your authorised Webasto Marine dealer or service partner.
		Electronic relay (TRIAC) defective.	Please contact your authorised Webasto Marine dealer or service partner.
Compressor not running.	n.a.	Compressor defective or break / short-circuit in compressor wiring.	Please contact your authorised Webasto Marine dealer or service partner.
		Compressor overload or overload protection element on top of compressor defective.	Please contact your authorised Webasto Marine dealer or service partner.
		Incorrect compressor settings.	Check settings. At least one compressor must be set as active.
Seawater pump(s) start up directly after the control is switched on.	n.a.	Wiring of seawater pump and cold water pump interchanged.	Check electrical wiring.
Compressor keeps cutting in and out.	n.a.	Too little cold water.	Check cold water system for leaks.
No or insufficient cooling or heating capacity.	n.a.	Poor air or water flow, soiled or circulation blocked.	Secure adequate air or water flow.
		Refrigerant shortage.	Please contact your authorised Webasto Marine dealer or a refrigerant specialist.

Screen	LED “Alive”	Possible cause	Correction
		Oil block.	Leave air-conditioning system running in heating mode. Call out a refrigerant specialist if necessary. Technical datasheet available.
		Refrigerant circuit blocked (drier, capillary lines or expansion valve).	Have checked by refrigerant specialist. Technical datasheet available.
		Compressor fault.	Have checked by refrigerant specialist.
Incorrect cabin/ambient temperature or water temperature displayed.	n.a.	Temperature sensor positioned incorrectly, subject to interference or display values falsified.	Check whether the temperature sensor is subject to direct fault sources such as direct sunlight or devices radiating heat. Replace defective sensor.
The automatic operating modes cannot be selected.	n.a.	Screen settings are not selected correctly.	Select the setting “Chiller unit with cabin control (Yes)” in setting menu 2, screen settings; see Screen settings (level 2)
Chiller unit in cooling mode (or heating mode) required despite cabin temperatures needing heating mode (or cooling mode).	n.a.	Wrong position selected for the cabin temperature sensor.	Check position of cabin temperature sensor. Select screen settings “Chiller unit with cabin control (Yes)”. Now select automatic mode (F3/F4, see Screen settings (level 2))

These are the original instructions. The English language is binding.
You can request your language if it is missing. The telephone number of each country can be found in the Webasto service centre leaflet or the website of the respective Webasto representative of your country.

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