testo 565i Vacuum Pump

Instruction manual

Contents

1 About this document

- The instruction manual is an integral part of the instrument.
- Pay particular attention to the safety instructions and warning advice in order to prevent injury and damage to the product.
- Please read this instruction manual through carefully and familiarize yourself with the product before putting it to use.

Symbols and writing standards

Display	Explanation
	Note: basic or further information
	Warning advice, risk level according to the signal word: **Warning!** Serious physical injury may occur. **Caution!** Minor physical injury or damage to the equipment may occur. **Careful!** Possible damage to equipment. **- Implement the specified precautionary measures.**
1 **2** **…**	Action: several steps, the sequence must be followed
▸	Result of an action
✓	Requirement
Menu	Elements of the instrument, the instrument display or the program interface.
[OK]	Control keys of the instrument or buttons of the program interface.

2 Safety and disposal

General safety instructions

- Always operate the product properly, for its intended purpose and within the parameters specified in the technical data. Do not use any force.
- Do not commission the instrument if there are signs of damage on the housing.
- Dangers may also arise from the systems being measured or the measuring environment: Make sure you comply with the locally valid safety regulations when carrying out measurements.
- Do not expose the product to temperatures above 50 °C (122 °F).
- Do not store the product together with solvents. Do not use any desiccants.
- Only maintenance and repair work that is described in the documentation may be carried out on this instrument. Follow the prescribed steps exactly when doing the work. Only use original spare parts from Testo.

2.1 Product-specific information

To prevent personal injury, please read the operating manual carefully.

- The testo 565i vacuum pump may only be used by qualified personnel with the appropriate qualifications and in accordance with local regulations.
- Wear goggles when working with refrigerants.
- Do not touch refrigerants without protection.
- To avoid electrical shock, confirm that all associated devices are grounded correctly before connecting the power.
- Do not touch the pump housing or motor during operation.
- When pumping R32/1234yf,please use explosion-proof socket.
- Do not use on pressurized systems.
- Do not use to extract refrigerants. Before evacuation, the refrigerant must be removed from the system using a suction station.
- If not used, close connections to protect against contamination.
- Do not use with ammonia.
- Use with A2L / A3 refrigerants

  The testo 565i vacuum pump can be used in compliance with the prescribed laws, standards, directives and safety regulations for refrigeration systems and refrigerants as well as regulations of the manufacturers of refrigerants of safety group A2L / A3 as per ISO 817.

  Regional standardization and interpretation must always be observed.

  For example, DIN EN 378-Part 1-4 applies to the scope of the EN standards.

During maintenance work, the employer must ensure that a hazardous explosive atmosphere is prevented (see also TRBS1112, TRBS2152 VDMA 24020-3).

A hazardous and potentially explosive atmosphere must be anticipated during maintenance and repair work on refrigeration systems with flammable refrigerants (e.g. those in category A2L and A3).

Maintenance, repairs, removal of refrigerants and commissioning of systems may only be carried out by qualified personnel.

Before operating

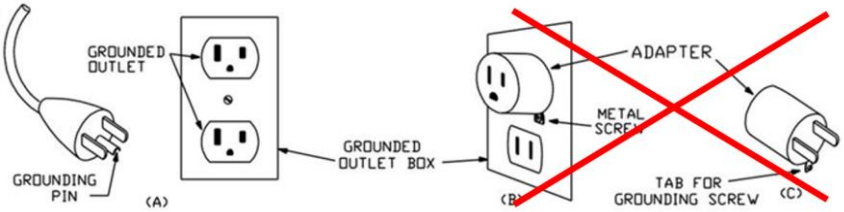
- Check the voltage and frequency matching the specifications on the pump motor nameplate.
- Ensure that the ON-OFF switch is in the OFF position before connecting the pump to a power source.
- All motors are designed for operating voltages plus or minus 10% of the normal rating. Power socket must be grounded.
- Before connect to A/C-R system, please pump the refrigerants with reliable way from the system with the help of a suction station.
- If the supply is damaged pull the plug from the mains before examining.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Do not use an extension cord.

Grounding instructions

- This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ WARNING

For model 0564 5652 01 and 0564 5653 01: This product is for use on a nominal 120 V circuit and has a grounding plug similar to the plug illustrated in sketch A in the figure below.
Only connect the product to an outlet having the same configuration as the plug. Do not use an adapter with this product.



⚠ WARNING

Risk of electric shock due to Improper installation of the grounding plug.

- **When repair or replacement of the cord or plug is required, do not connect the grounding wire to either flat blade terminal.**
- **The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.**

- Check with a qualified electrician or serviceman when the grounding instructions are not completely understood, or when in doubt as to whether the product is properly grounded. Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.

Oilfilling

- Remove the oil fill cap and add oil until oil level showed in the middle between the Min and Max mark. Please refer to technical data in manual for the correct oil capacity.

⚠ CAUTION

Danger of oil spillage in case of fast filling.

- Fill in the oil slowly.

During operation

⚠ CAUTION

Risk of electric shock.

- Do not expose to rain and store indoors.

- As long as the vacuum pump is not connected to the refrigeration circuit, it should not be running more than 3 minutes.
- The ambient temperature affects the viscosity of the oil and therefore also the pump performance. Therefore the pump should be operated only at ambient temperature between 5-40°C.
- It is recommended to pre-flush the system with nitrogen to speed up the drying process. This step can also be repeated during evacuation to ensure the best possible drying.
- The use of shorter hoses or the removal of the Schrader valve can significantly speed up evacuation.
- Use vacuum-compatible refrigerant hoses, otherwise leaks may occur or you may not achieve the desired vacuum target.
- To prevent overheat and oil spill out from oil filter: The inlet fitting can't expose to the atmosphere over 5 minutes while the pump is running.
- Please pay attention to the smooth air outlet, if found clogged please clean the filter.
- Clean/replace the catcher after using more than 3 months to avoid problems caused by a blocked pump.

2.2 Disposal

- At the end of its useful life, deliver the product to the separate collection point for electric and electronic devices (observe local regulations) or return the product to Testo for disposal.

- WEEE Reg. No. DE 75334352

3 Intended use

The testo 565i vacuum pumps is intended to be used in the refrigeration service including CFC, HCFC, and HFC refrigerants (such as R12/ R22/ R23/ R32/ R134A/ 1234yf and so on).

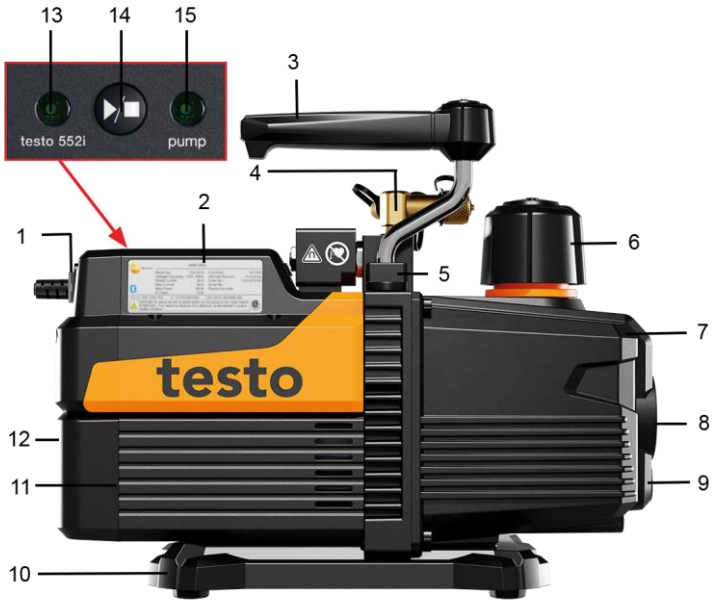
The testo 565i vacuum pump should only be used for evacuation of refrigerant systems after refrigerant has been removed from the system and the system has been opened to atmosphere. It is not to be used as a transfer pump for liquids or any other media; doing so can damage the product.

The testo 565i vacuum pump complies to the standard 61000-6-4 and 61000-6-2 for EMC. Accordingly the intended use is in industrial environment only.

The testo 565i vacuum pump must not be used by children and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge unless they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the device.

4 Product description

4.1 Overview



1	Power switch	**2**	Nameplate
3	Handle	**4**	Inlet fitting
5	Oil fill cap	**6**	Exhaust fitting
7	Oil housing	**8**	Sight glass
9	Oil drain plug	**10**	Base
11	Motor	**12**	Fan cover
13	testo 552i connection status LED	**14**	Start/stop the vacuum pump
15	Vacuum pump status LED		

Symbol explanation

	Observe operating instructions
	**ATTENTION** **Magnetic field** **Damage to other devices!** **- Keep a safe distance from products that can be damaged by magnetism (e.g. monitors, computers, credit cards).**
	**⚠ WARNING** **Magnetic field** **May be hazardous to the health of pacemaker wearers.** **- Keep a minimum distance of 15 cm between the pacemaker and the device.**
	**⚠ WARNING** **Risk of burns from hot surfaces** **- Do not touch the pump housing or motor during operation.** **- Allow it to cool down first after operation.**
	Hearing protection must be worn
	Do not use in rain or wet conditions
	If cable is damaged, pull the plug from the mains before examining.

5 First steps

5.1 Preparations before operation

1. Check the voltage and frequency matching the specifications on the pump motor nameplate.
2. Ensure that the ON-OFF switch is in the OFF position before connecting the pump to a power source.
3. Remove the Oil Fill Gap and add oil until oil level showed in the middle between the “Min” and “Max” mark.
   Refer to chapter “Technical data” for the correct oil capacity.

⚠ CAUTION

Danger of oil spillage in case of fast filling.

- **Fill in the oil slowly.**

5.2 Evacuation with a manifold

Preparing the evacuation

1. Remove one of the protection caps (please refer the right figure)

2. Connect the manifold and testo 565i via hoses to the refrigeration circuit.

3 Connect testo 552i with the manifold or an available service connection on the refrigeration circuit.

4 Check the tightness of all connected hoses and check that the other protective caps and all connections are tight before starting the evacuation.

Switching on testo 565i and establish Bluetooth connections

1 Turn the motor switch to **ON** position.

2 After the pump operates for approximately one minute, check the sight glass for proper oil level, which should always be visible in the middle between Max and Min mark

▸ Refill oil if necessary.

3 Place back the cap on the inlet fitting when the pump runs smoothly.

The oil level should always be visible in the middle between Max and Min mark when the pump is running. Insufficient oil filled will result in poor vacuum performance. Excessive of oil can result in overflowing of oil from the exhaust fitting.

4 Establish a Bluetooth connection between testo 552i and testo 565i.

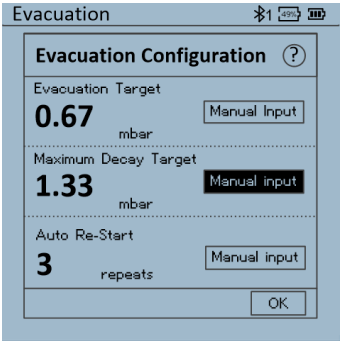
5 Establish a Bluetooth connection between manifold and testo Smart App.

Make settings and start evacuation

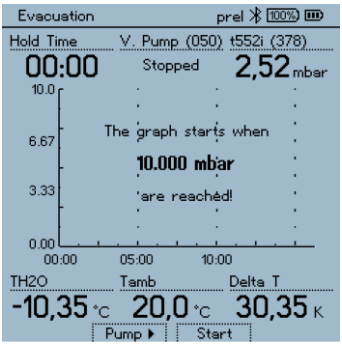
All configurations are done via the manifold. The testo Smart App is operating in second screen mode. All measurement values from the installation aid are mirrored in the testo Smart App.

1 Enter the desired vacuum target values in the manifold and activate **Auto Re-Start** function if required (value higher than 0).

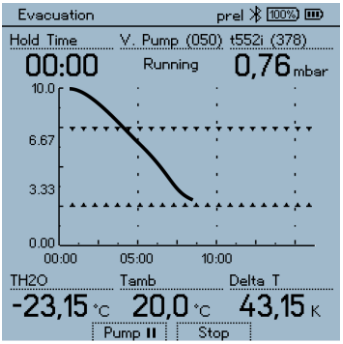
Auto Re-Start function:
Once the target value has been reached, the pump is reactivated and the vacuum hold test is performed. The auto restart is repeated according to the input.



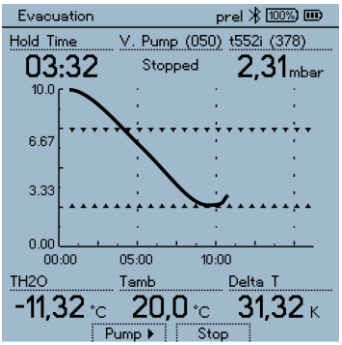
2 Start evacuation with **Start**.
The pump starts automatically and the measurement begins.



The measurement is running, the vacuum holding test has not yet started.



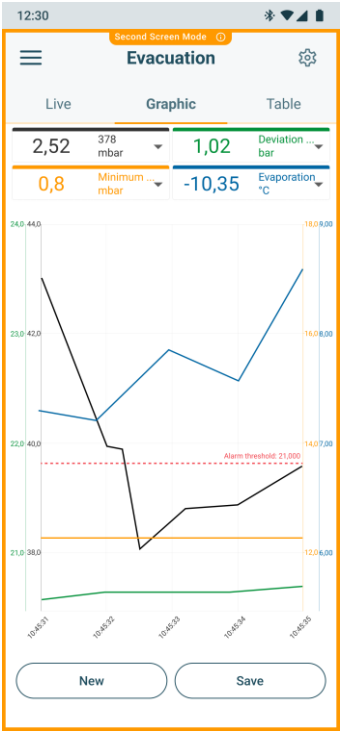
- When the target values are reached, the evacuation and therefore also the pump are stopped automatically. The vacuum hold test begins.



- If the **Auto Re-Start** function has been activated, evacuation is restarted in order to restart the vacuum hold test once the target value has been reached.

- The vacuum hold test can be ended via **Stop**.

- The measurement data is transferred to the testo Smart App and evaluated there.



5.3 Direct Evacuation

Preparing the evacuation

1 Remove one of the protection caps (please refer the right figure).

2 Connect testo 565i via hose and testo 552i directly to the refrigeration circuit.

3 Check the tightness of all connected hoses and check that the other protective caps and all connections are tight before starting the evacuation.

Switching on testo 565i and establish Bluetooth connections

1. Turn the motor switch to **ON** position.

2. After the pump operates for approximately one minute, check the sight glass for proper oil level, which should always be visible in the middle between Max and Min mark

▸ Refill oil if necessary.

3. Place back the cap on the inlet fitting when the pump runs smoothly.

The oil level should always be visible in the middle between Max and Min mark when the pump is running. Insufficient oil filled will result in poor vacuum performance. Excessive of oil can result in overflowing of oil from the exhaust fitting.

4. Establish a Bluetooth connection between testo 552i and testo 565i.

5. Establish a Bluetooth connection between testo 565i and testo Smart App.

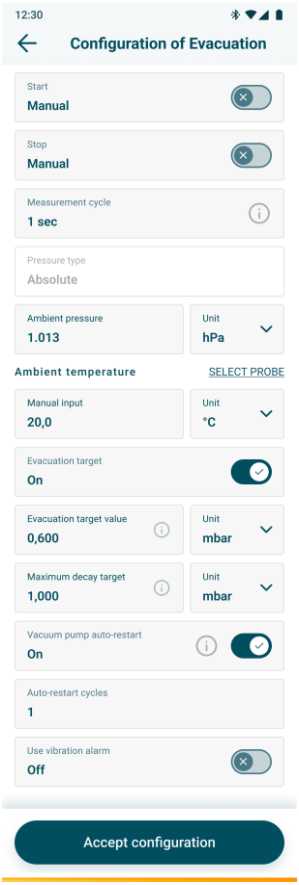
Make settings and start evacuation

4 Enter the desired vacuum target values in the testo Smart App.

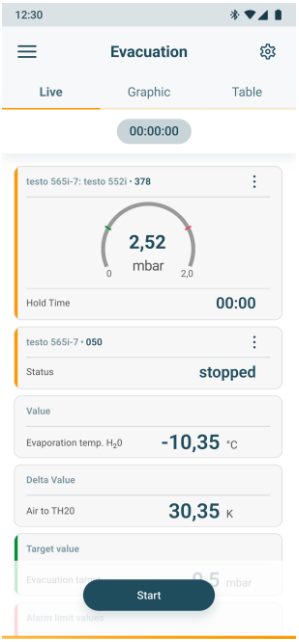
Activate/deactivate the **Auto Re-Start** function to repeat the evacuation and vacuum hold test after the target value has been reached. By entering the maximum number of repetitions, you determine the number of automatic evacuations/vacuum hold tests.

Auto Re-Start function:

Once the target value has been reached, the pump is reactivated and the vacuum hold test is performed. The auto restart is repeated according to the input.

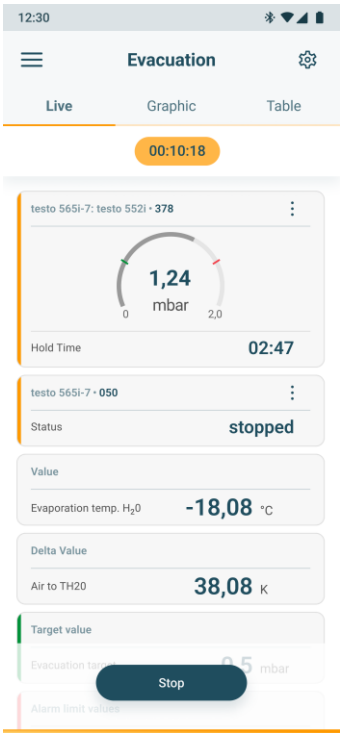


5 Start evacuation with **Start**.
The pump starts automatically and the measurement begins.



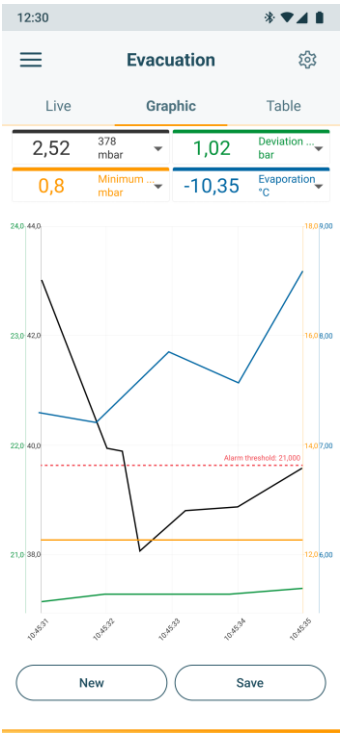
The measurement is running, the vacuum holding test has not yet started.

When the target values are reached, the evacuation and therefore also the pump are stopped automatically.
The vacuum hold test begins.
The vacuum hold test can be ended via **Stop**.



If the **Auto Re-Start** function has been activated, evacuation is restarted in order to restart the vacuum hold test once the target value has been reached.

- The measurement data is transferred to the testo Smart App and evaluated there.



5.4 Start Evacuation manually

Preparing the evacuation

1. Remove one of the protection caps (please refer the right figure).

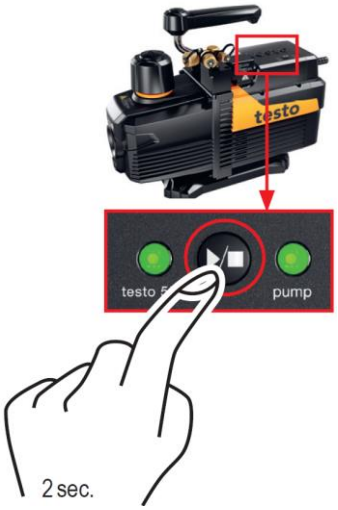
2. Connect a hose between the refrigerant circuit and the pump or between the pump and the manifold and also between the manifold and the pump.

3. Check the tightness of all connected hoses and check that the other protective caps and all connections are tight before starting the evacuation.

Switching on testo 565i and starting it manually

1. Turn the motor switch to **ON** position.

2 Press the start/stop button for 2 seconds to start the vacuum pump manually.



▸ This may takes 2 to 30 seconds depend on the ambient temperature.

2 After the pump operates for approximately one minute, check the sight glass for proper oil level, which should always be visible in the middle between Max and Min mark

▸ Refill oil if necessary.

3 Place back the cap on the inlet fitting when the pump runs smoothly.

The oil level should always be visible in the middle between Max and Min mark when the pump is running. Insufficient oil filled will result in poor vacuum performance. Excessive of oil can result in overflowing of oil from the exhaust fitting.

5.5 End evacuation

1. Once the refrigeration circuit has been successfully evacuated, close all valves.
2. Turn off the power.
3. Remove the hose/ hoses.
4. Screw the protection cap to avoid the granule into the pump.

6 Maintenance

6.1 Cleaning instruments

Do not use any aggressive cleaning agents or solvents! Mild household cleaning agents and soap suds may be used.

> If the instrument housing is dirty, clean it with a damp cloth.

6.2 Keeping connections clean

> Keep screw connections clean and free of grease and other deposits; clean with a damp cloth as required.

6.3 Choosing correct pump oil

> The condition and type of oil used in any high performance vacuum pump are extremely important in determining the ultimate attainable vacuum.
> It is recommended to use High Performance Vacuum Pump Oil (Recommended viscosity of 46 mm²/s at +40°C),which is specifically blended to maintain maximum viscosity at normal running temperatures and to improve cold weather start up.

ATTENTION

Risk of damage
Change the pump oil timely when oil was contaminated or emulsified.

6.4 Changing pump oil

1. Ensure the pump is warmed up.
2. Remove the oil drain plug on the underside of the oil sight glass using an hex key (5mm).
3. Drain off contaminated oil into a container and dispose it properly.

▸ Oil can be removed from the pump by opening the inlet and partially blocking the exhaust with a cloth while the pump is running.

4. When the drainage of oil completed, tilt the pump forward to remove the residual oil.
5. Place back the oil drain plug.
6. Remove the oil fill cap and fill the oil reservoir with new vacuum pump oil until oil level is seen in the middle between “Max” and “Min” mark.
7. Close the oil fill cap.

6.5 Replacing oil mist trap

If the performance of the pump has decreased seriously, please replace the oil mist trap.

The oil mist trap can only be replaced as a single part, not to each individual part.

1. Turn the oil mist trap counterclockwise until it is completely screwed out.
2. Replace with a new oil mist trap and slowly screw it in clockwise until the bottom plane of the base is almost in contact with the oil tank.

   It cannot be violently screwed in if the threads are not aligned, otherwise it could cause damage to the base threads.

7 Technical data

7.1 Version 7 CFM

Feature	Value	
Model no.	0564 5652 01	0564 5652
Voltage	120 V~ / 60 Hz	230 V~ / 50 Hz
Rated current	3.3 A	1.9 A
Max. current	8.5 A	4.8 A
Power	805 W	800 W
Storage and transport temperature	-10 ... +50 °C / +14 ... +122 °F	
Operating temperature	+5 ... +40 °C / +41 ... 104 °F	
Flow rate	198 l/min / 7 CFM	
Ultimate Vacuum	15 micron	
Max. oil capacity	610 ml / 20.6 fl. oz.	
Dimension	375 x 150 x 314 mm / 14.8 x 5.9 x 12.4 in	
Weight	11.3 kg / 24.9 lb	
Intake Ports	1/4" & 3/8" & 1/2" SAE	
Noise tested acc. to EN ISO 2151:2008 as following:		
Sound pressure level at working station	65.03 dB(A), K = 3 dB(A)	
Sound power level	74.19 dB(A), K = 3 dB(A)	

7.2 Version 10 CFM

Feature	Value	
Model no.	0564 5653 01	0564 5653
Voltage	120 V~ / 60 Hz	230 V~ / 50 Hz
Rated current	3,3 A	1,9 A
Max. current	10,1 A	5,5 A
Power	950 W	940 W
Storage and transport temperature	-10 ... +50 °C / +14 ... +122 °F	
Operating temperature	+5 ... +40 °C / +41 ... 104 °F	
Flow rate	283 l/min / 10 CFM	
Ultimate Vacuum	15 micron	
Max. oil capacity	545 ml / 18.4 fl. oz.	
Dimension	375 x 150 x 314 mm / 14.8 x 5.9 x 12.4 in	
Weight	12.1 kg / 26,7 lb	
Intake Ports	1/4" & 3/8" & 1/2" SAE	
Noise tested acc. to EN ISO 2151:2008 as following:		
Sound pressure level at working station	67.13 dB(A), K = 3 dB(A)	
Sound power level	76.29 dB(A), K = 3 dB(A)	

8 Tips and assistance

8.1 Accessories

Description	**Order no.**
testo 552i – App-controlled wireless vacuum probe	0564 2552
Vacuum pump oil 330 ml	0564 1002

For a complete list of all accessories and spare parts, please refer to the product catalogues and brochures or visit our website www.testo.com.

9 Support

You can find up-to-date information on products, downloads and links to contact addresses for support queries on the testo website at: www.testo.com.

9.1 Trouble shooting

Problem	Possible reason	Actions
Fail to attain good vacuum	- Intake port cap loosen - O ring inside the spare intake port cap damaged - Insufficient oil - Pump oil emulsification or pump oil dirty - Oil inlet channel is clogged or insufficient oil - Pumping system in leaking - Not suitable pump - Pump spare parts are worn out after long use	- Fasten the intake port cap - Change the O ring - Add oil - change oil - Clean the oil inlet channel. dean the filter screen - Check the pumping system, no leakage - Chose the right pump - Repair the pump or replace the pump if necessary.
Oil leakage	- Oil seal damage - Oil housing assy. Connections loosen or damage.	- Change oil seal - Fasten the screw and change the O-ring in the oil housing assy.
Oil injection	- Excessive oil in the pump - Continuous operation under high pressure in the inlet port	- Drain oil - Chose the right pump
Hard to start	- Oil temperature is too low - Malfunction of motor or power supply - Foreign matters entered into the pump chamber - The voltage is too low or too high - Over load protection	- Start the pump repeatedly and remove the oil filter - Check and repair - Check and clean the pump - Check the operating voltage - Keep the power switch on, remove the plug and wait 30 seconds. find the reason of over load protection, then re- run the pump.

9.2 Error codes

Code	Error	Description
E76	Error in vacuum pump motor	The vacuum pump testo 565i has stopped evacuation because an error has occurred. Please restart the vacuum pump. If the error continues to occur, please contact Testo Service.
E77	Vacuum pump overheats	The vacuum pump testo 565i has stopped evacuation because the motor overheated. As soon as the motor has cooled down, you can restart the evacuation via the vacuum pump.
E78	Temperature sensor in pump failed	The vacuum pump testo 565i has stopped evacuation because the internal temperature sensor has implausible values. Please contact Testo Service to replace the sensor.
E79	Impermissible operating voltage	The vacuum pump testo 565i has stopped evacuation because the operating voltage is outside the range. Please check the power supply.
E80	Motor does not work	The vacuum pump testo 565i has stopped evacuation because the motor can’t start. Please disconnect and try again.
E81	Battery no longer charged	The internal battery of the digital manifold is no longer being charged because the ambient temperature is too high. The charging process is resumed as soon as the temperature has dropped.
E84	Communication error	An error has occurred in the vacuum pump testo 565i. The pump is currently not working. Please contact Testo Service for repair.
E85	Error in vacuum pump motor	The vacuum pump testo 565i has stopped evacuation because an error has occurred. Please restart the vacuum pump. If the error continues to occur, please contact Testo Service.
E86	Error	An error has occurred. Please contact Testo Service.
E88	Error	An error has occurred. Please contact Testo Service.

Code	Error	Description
E89	Smart Probe testo 552i is not available	testo 552i has lost the Bluetooth connection to testo 565i. 1. please restart testo 552i and ensure that it is connected to the pump. 2. please check whether the testo 552i has sufficient battery capacity. If not, please replace the batteries.

If you have any questions please contact your local dealer or the Testo Customer Service. You can find contact details on the back of this document or online at **www.testo.com/service-contact.**

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