

C 400 TC, C 500 TC:

Vacuum Chamber Systems with Constantly Heated Solid Seal Bars



C 400 TC

*Featuring acoustic and visual
alarming for absolute
package integrity,
operator safety*



C 500 TC

Medical products, including drug-coated implantable devices, can be sealed reliably — with repeatable and measurable results — to protect against oxidation. These machines are engineered to seal a variety of high-barrier pre-formed pouches made from all standard materials — including Tyvek* and aluminium foil.

All C 400 TC and C 500 TC systems are equipped with easily accessible external calibration and validation porting for monitoring of crucial parameters including seal time, vacuum pressure and seal temperature.

Finished packages produced on Multivac's C 400 TC/C 500 TC ...

- ... are sealed at constant temperatures via temperature sensor (PT 100) control
- ... are sealed with reliable, repeatable results that can be stored for subsequent data acquisition
- ... can be sealed under vacuum as low as 5 mbar or flushed with medical grade inert gases
- ... are created with optimal operator safety

* Tyvek is a trademark registered by Du Pont.



Customized machine

You have the choice of two different models – C 400 TC (single-chamber machine) and C 500 TC (double-chamber machine) – which you can have equipped individually. The following options represent only a small selection of the possibilities. Your Multivac medical packaging expert is ready to discuss your specific requirements.

Sealing unit

TC machines are equipped with constantly heated seal bars made from coated metal.

Every heating circuit consists of a seal bar with a rugged tubular heating element, a PT 100 temperature sensor, a PID controller and a solid-state relay that operates on a non-contact basis.

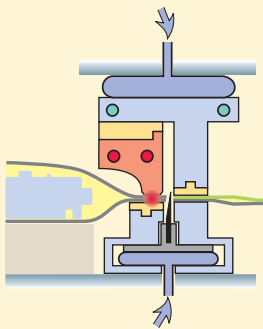


Diagram of the sealing and cutting equipment

When sealing is not being carried out, the seal bars are positioned such that heat application to the pouch is avoided almost completely.

Multivac's tight production tolerances and rigorous manufacturing standards

guarantee consistent sealing pressure.

An optional cutting device for excess pouch removal can be added to either machine.

For added operator safety, water-cooled insulation prevents heat transference from seal bars to external machine surfaces. A retractable heat shield prohibits operator contact with constantly heated seal bar.

Control system

The C 400 TC and C 500 TC are equipped with Multivac's state-of-the-art industrial PC (IPC) controller, now used across the company's entire line of packaging systems. The IPC is extremely user-friendly and intuitive, and is operated using a simple touch-screen panel. The user can control and adjust all variables including seal time / temperature, gas flushing, and vacuum settings. All safety systems and sensors are also controlled and monitored by the IPC.

Simple, intuitive operation:

- 12-inch TFT colour display, 800 x 600 pixels, with touch screen
- Self-explanatory symbols
- Text in a choice of 18 different languages
- Machine information
- Memory for 500 program settings
- Soft keys for rapid access to individual functions
- Settings protected via three access levels



Terminal

Operating data collection, data exchange:

The integrated operating data collection system stores machine statuses (ready for operation, automatic operation etc.) as well as times and reasons for interruptions in production and provides time accounts for production and stoppages.



Operating data collection, time account display

Data exchange: machine data can be exchanged between the machine and the control centre via Ethernet and an OPC interface. External operating data analysis with SCADA systems.

Further interface: USB

Evacuation

The pressure level in the chamber is lowered for evacuation of the pouches – to 5 mbar or lower to guarantee low oxygen level. The vacuum pump can be built into the machine or mounted externally. Numerous functions are provided for regulation and control of the evacuation operation:

- Absolute pressure measurement
- Time control and/or pressure regulation
- Intermittent evacuation
- pressure gradient monitoring
- leak test
- pump pre- and post-operation control.
- For post ETO sterilized pre-sealed Tyvek-headered breathable pouches, a proprietary program has been developed. Ask your Multivac representative for details.

Inert gas flushing

A variety of inert gases can be introduced into the chamber after evacuation in order to obtain a desired residual oxygen level inside the package. Gas flushing can be executed directly into unsealed pouches via nozzle or through intermittent pressurization for previously sealed pouches. Metering can be carried out on a pressure and/or time basis.



Gas injection into aluminium pouches via jets

Accurate positioning of pouches

Depending on pouch size and product requirements, a variety of options are available to capture and hold your product. In many cases, a standard magnetic support bracket and clamping device will suffice.

Multivac can also customized a pouch holding fixture for your package/product if required.



Pouch holding fixture

Control equipment

Multivac will provide sensors for all required process factors. Examples include control temperature sensors, sealing pressure transducers, second vacuum gauge, residual oxygen analysis via integrated PBI Dansensor. Visual and acoustic and/or digital signals can be issued when limits are exceeded or to indicate readiness for operation.



Light tower with acoustic alarm

Calibration, validation

ISO 11607 Compliant Validation Package

Multivac's C 400 TC/C 500 TC are equipped with external porting for calibration and validation. These ports are compatible with commonly used handheld measurement devices. We install calibrated sensors to implement your exacting quality requirements and calibrate the time basis and the control circuits. You receive the measurement reports; we correct measurement deviations, wherever this is requested.

Based on customer preferences, Multivac will provide validation and calibration documentation either upon machine assembly (best conducted at Multivac factory) or at customer facility.

Occupational health and safety

These systems have been engineered to guarantee the safety of your personnel. For example, the hot seal bars are shielded from operator contact automatically when the lid is open.

The C 500 TC is equipped with a special brake that prohibits lid movement unless all four sensor handles are held by both operators.

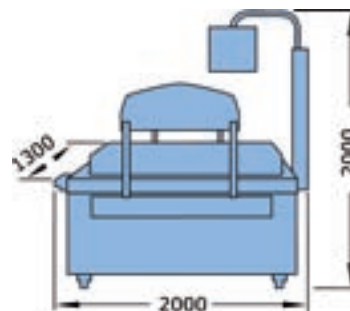
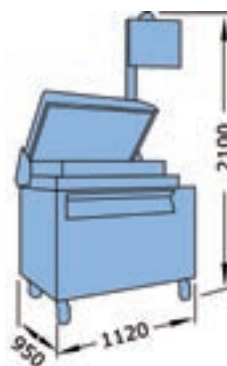


C 500 TC: sensor handles on the lid

C 400 TC and T 500 TC meet the requirements of EN 954 -1, category 3.

Lid movement

The C 400 TC closes and opens automatically (starting via foot switch), while these operations are done manually on the C 500 TC.



The outline dimensions may vary somewhat according to the individual equipment.

Dimensions, technical data

	C 400 TC	C 500 TC
Useful sealing length (with cutting)	1 x 660 mm / 2 x 320 mm	4 x 640 mm / 8 x 270 mm
Position of seal bars	front	front and rear
Cutting	optional	optional
Maximum product height		80 mm
Useful chamber depth (without / with cutting)	480 mm / 465 mm	755 mm / 725 mm
Temperature consistency (at temperature sensor)		± 1 °C
Temperature deviation along a seal bar		± 3 °C
Maximum sealing temperature		220 °C
Electrical connection	3 x 400 / 415 V, 50 Hz, 3 x 220 V, 60 Hz	
Cooling water	1.5 ... 6 bar, 60 ... 140 l/h	
Compressed air	3.5 ... 6 bar, abt. 50 standard litres/h	
Weight (with pump)	abt. 300 kg	abt. 700 kg