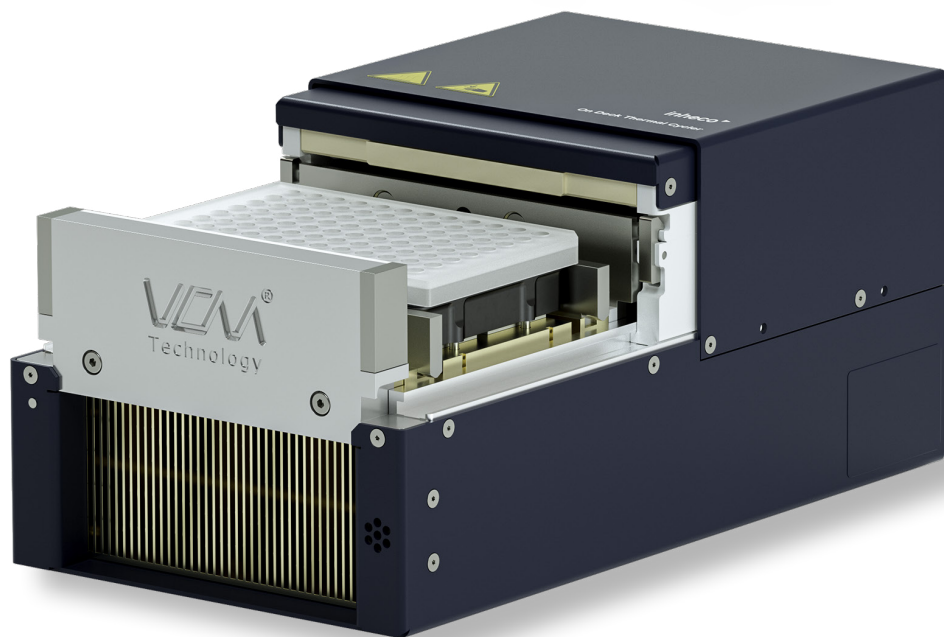


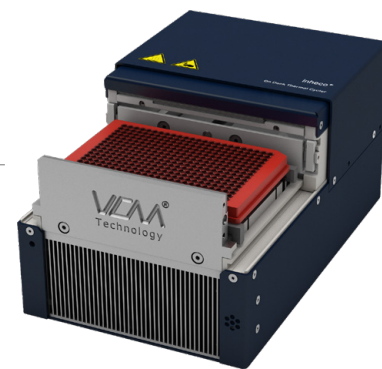
Thermal Cycling



ODTC®

On Deck Thermal Cycler for 96 or 384 well PCR plates

ODTC® – On Deck Thermal Cycler



ODTC® 384, Lid open, with Bio-Rad PCR plate

Our motivation

Automation of molecular biological processes is in high demand for today's genomic workflows, in particular when high throughput and high precision are required for human genomics projects or human diagnostics. However, space in the lab is often limited and thus solutions that save space are required. Our ODTC® can easily fit into existing liquid handling systems with its minimal footprint.

World's first purpose-designed on deck thermal cycler

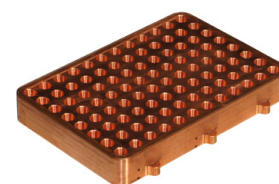
The INHECO On Deck Thermal Cycler (ODTC®) is the perfect instrument if you intend to fully automate processes containing PCR-amplification or other molecular biological routines which require fast-changing and accurate temperatures. The ODTC® fits on the deck of almost any liquid handling instrument, allowing direct pipetting into the disposable located in the ODTC®. PCR plates can be gripped from any direction, enabling continuous 24/7 mode throughput.

The heated lid of the ODTC® opens horizontally and can be operated independently from the heating block. This unique mechanism allows you to completely automate multistep-workflows as "hands off"-solutions. Opening of the lid has negligible influence on the thermal performance, allowing pipetting during thermal cycling or incubation steps.

Novel technology with superior thermal performance

The outstanding thermal performance of the ODTC® is achieved by our unique 3D vapor chamber mount (VCM®) technology. The patented VCM® is the first 3D heat pipe used as a superconductive thermal cycler mount for PCR disposables, with internal heat transfer at almost the speed of sound. State-of-the-art Peltier elements provide rapid heating and cooling to the VCM®.

In contrast to the solid silver, aluminum, copper or gold-plated mounts in competitor instruments, our VCM® is able to distribute the applied temperature much more evenly and rapidly inside the mount. The resulting superior well-to-well uniformity provided by this technology ensures consistent results across all wells. This is one of the most important criteria in diagnostic applications such as NGS and respective library preparation. The rapid transient response brings all wells to the same temperature level right after reaching the set target temperature, with minimal overshoots. This allows a significant reduction of the plateau time and PCR run time.



3D VCM® uncoated

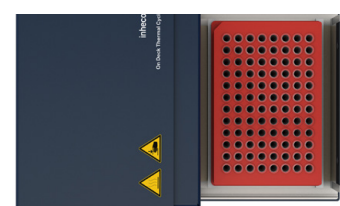
BENEFITS

On-deck integration made simple

Save space for integration – gain space for your assay

Most compact cycler integrated on deck: Its footprint is equivalent to around 2.5 SBS positions only; Ultra-flat design with a height of only 124.3 mm.

PCU (power & control unit) is separate and can be placed below or next to the deck.



ODTC® top view, open with disposable

Fits on most liquid handling stations on the market

Agilent: Bravo

Beckman: Biomek i5, i7, 4000, Genomic Workstation, Access Laboratory Workstation, Access Dual Robot System

BioNex: Hive Automation Platform, TaskCel Lab Workstation

Biosero: Acceleration Lab

Dispindex: NGS G.Station

Dynamic Devices: Lynx Liquid Handling Platform

Genie Life Science: Genie Automation Platform

Hamilton: Vantage, Star Line, Nimbus

HighRes: Prime™

MGI: SP960, SP100, MGISP-Smart 8

PAA: S-CEL™ Laboratory Workcells

PerkinElmer: Janus, Sciclone, Zephyr

Tecan: Fluent, Freedom EVO, Cavro Magniflex

ThermoFisher: inSPIRE™

Optimize your assay setup

Flexible deck positioning solutions pre-designed: four configurations for the ODTC® 96 & ODTC® 384 with respect to the direction of the air ventilation are available. The ODTC® is ideal for high density use anywhere in a liquid handling system.

Automated PCR, thermal performance at its best

Same results every day & across all wells

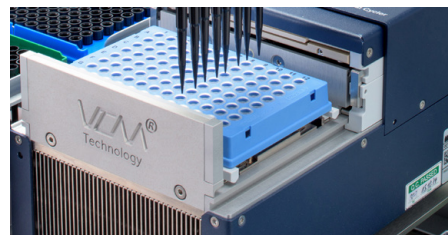
Ensured by superior well-to-well temperature uniformity of ± 0.2 K across wells @ 55 °C, 72 °C or 95 °C, respectively.

Save time for your workflow, or increase throughput

Excellent heating & cooling rates and an ultra-rapid transition into the plateau temperature due to VCM®-based precise thermal regulation characteristics allow faster PCR profiles.

Performance guaranteed even with unevenly filled wells

Our patented 3D VCM® guarantees target uniformity across the whole mount, even when some wells are empty.



ODTC® open during pipetting

User-friendly software, SiLA standard communication interface

Time saving, intuitive PCR profile editing

Temperature profiles can easily be programmed with our ODTC® SkriptEditor, a Windows based application software. Pre-programmed and adaptable temperature profiles simplify the creation of individual PCR cycles. Step-by-step programming in expert mode allows setting up customized temperature profiles for sophisticated applications.

Plate sealing options

State of the art accuracy

Multiple concepts are used to avoid unwanted liquid loss by evaporation. Use of built-in sealing mat (easily exchangeable) or usage of disposable automated lids (like the PCR Comfort Lid from Hamilton, or the Bio-Rad Auto-Sealing Lid) or even conventionally sealed plates prevent evaporation.

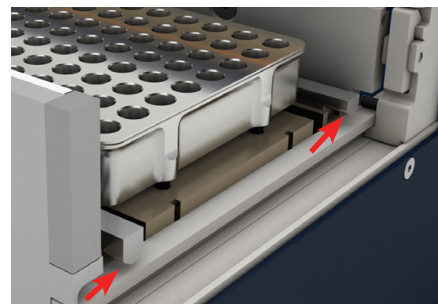
Reduce the risk of cross contamination by avoiding condensation

The heated lid is adjustable to any temperatures from 30 °C to 115 °C and thus even incubations at low temperatures are possible under optimal conditions.

Comfortably select low- and high-profile plates of your choice

Full- or semi-skirted low profile PCR plates from Bio-Rad, 4titude or Hamilton reliably fit into the mount of the ODTC®96 or ODTC®384. Note: High-profile plates will only fit in the ODTC®96 XL.

ODTC®96 XL: Use your high-profile plate of choice to streamline your workflow by utilising the same plate for all PCR/cleaning/size selection steps. Same performance as the standard device. Conveniently change between both low- and high-profile plates in the same instrument.



ODTC® plate ejection bars

Safe plate removal

The ejection mechanism is triggered upon opening of the lid, carefully lifting the plate and thus avoiding gripping problems. The mechanism can be adapted to any type of plate, full- semi- or non-skirted, by simple exchange of the customized ejection bars.

Name	PN	Description
Ejection bar standard ¹⁾	5000071	For low profile full-skirted 96 well PCR plates
Ejection bar semi-skirted	5000084	For low profile semi-skirted 96 well PCR plates
Ejection bar 384	5000100	For full-skirted 384 well PCR plates
Ejection bar XL standard	5100105	For high profile skirted 96 well PCR plates
Ejection bar +0.7 mm	5100121	For Hamilton full-skirted 96 well PCR plates
Ejection bar +1.2 mm	5000094	For Biorad full-skirted 96 well PCR plates
PCR plate fixation frame ²⁾	5000099	Keeps the PCR plate in place during piercing of foil & aliquot aspiration

¹⁾ Included in standard scope of delivery, ²⁾ Inserted by hand, not automatable

Sealing with horizontally moving Lid

The flexible design of the ODTC® allows the use of two different sealing options through the horizontally moving lid:

1. Pre-installed fixed ODTC® Sealing Cover, opens with lid, easily exchangeable.
2. Automation-friendly sealing lid, e.g. Bio-Rad AutoSealing Lid, 4titude PCR lid, or Hamilton Comfort Lid instead of ODTC® Sealing Cover.

To prevent accidental contamination of the ODTC® instrument and to fully exclude any cross-contamination issues, pre-sealing of the plates in combination with sealing covers/lids may be an additional option, depending on your requirements. Please check manufacturers' requirements for use of operation and cleaning.



Bio-Rad Auto-Sealing Lid, fully compatible with the ODTC®

Product Name	Manufacturer	PN	Function
INHECO Sealing Cover	INHECO	5000066	ODTC® built-in, re-usable
Hamilton PCR ComfortLid	Hamilton	814300	disposable
Bio-Rad Auto-Sealing Lid	Bio-Rad	MSL2022	re-usable
Bio-Rad Auto-Sealing Lid	Bio-Rad	MSL2032	re-usable, gripper version
4titude Auto-Sealing PCR Plate Lid	4titude	4ti-0291	disposable

Transient response & faster PCR runs

Due to the use of VCM® technology the transient response of the ODTC® is much faster than the response of state-of-the-art thermocyclers using aluminum or silver thermal blocks. All 96 or 384 wells are on the same temperature level right after reaching the target plateau temperature. This fast transient response allows for a reduction of the plateau time and speeds up the whole PCR process.



ODTC® 96 XL

Variants (wells and ventilation outlet)

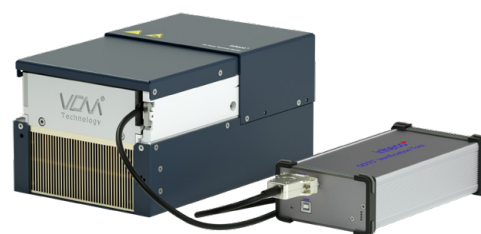
Vent outlet (front view based)	ODTC® 96	ODTC® 384	ODTC® 96XL	ODTC® 384XL
Left	8100100	8100200	8100300	8100400
Back	8100101	8100201	8100301	8100401
Right	8100102	8100202	8100302	8100402
Down	8100103	8100203	8100303	8100403

Power & Control Unit (PCU) is identical for all ODTC® versions and included in the scope of supply

ODTC® Verification Tool OVT

The OVT is specially designed to test the performance of the ODTC®. Quick, easy & reliable! Its unique flat measuring head captures mount and lid temperatures while the cyclers is closed during a predefined test routine. The OVT verifies the heating and cooling rates, the temperature precision and accuracy, as well as the temperature uniformity across the mount. We offer two variants of the OVT: The OVT 96 and the OVT 384, which are used with the 96 or 384 well versions of our ODTC® respectively. The ODTC® unit & OVT system information and test results are shown in a PDF verification document.

Use the OVT for Instrument Qualification (IQ), Operational Qualification (OQ) and for regular checks to ensure good manufacturing practices (GMP). The guided setup and the automated test routine make it the ideal tool for service personnel as well as end-users.



ODTC® with OVT (ODTC® Verification Tool)

Main specifications

Specifications of ODTC®	ODTC® 96 / ODTC® 96XL	ODTC® 384 / ODTC® 384XL
Temperature range	4 °C to 99 °C [39 °F to 210 °F]	
Temperature accuracy	±0.3 K @ 55 °C [131 °F]	
Temperature uniformity	±0.2 K @ 55 °C [131 °F] ±0.2 K @ 72 °C [162 °F] ±0.2 K @ 95 °C [203 °F]	
Adjustable heating rate	from 0.1 to 4.4 K/s	from 0.1 to 5.0 K/s
Adjustable cooling rate	from 0.1 to 2.2 K/s	
Heating rate average	max. 4.4 K/s	max. 5.0 K/s
Cooling rate average	max. 2.2 K/s	
Heated lid temperature	adjustable from 30 °C to 115 °C	

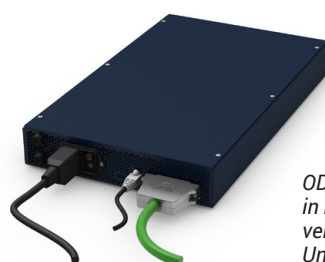
Power & Control Unit	
Interface	Web based protocol, XML files SiLA, Ethernet (RJ45 connector)
Dimensions (WxDxH horizontally placed)	256.5 mm x 414.5 mm x 58 mm Note: The ODTC® Power & Control Unit can be positioned vertically or horizontally.
AC input	100-240 V / 50-60 Hz (1250 W)
DC output	24 V / (1200 W)
ODTC® cable length to PCU	3 m



ODTC® 384 open without a PCR plate

Compatible PCR plate types

ODTC®96	ODTC® 96XL	ODTC®384 / ODTC®384XL
Bio-Rad Hard-Shell® HSP-9xxx 4titude FrameStar 96, 4ti-0960/C Hamilton FramePlate® 814302	MicroAmp EnduraPlate Optical, 96-Well Clear 4483352 Eppendorf twin.tec® E0030128575 BioRad Hard-Shell HSS-9xxx	Bio-Rad Hard-Shell® HSP-3xxx 4titude FrameStar 384, 4ti-0384/C/IND Hamilton FramePlate® 814305
for information on other plates contact sales@inheco.com		



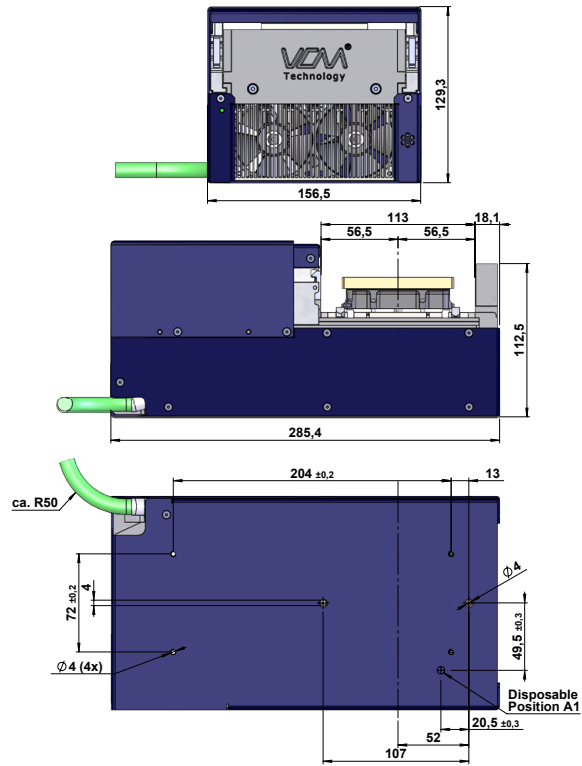
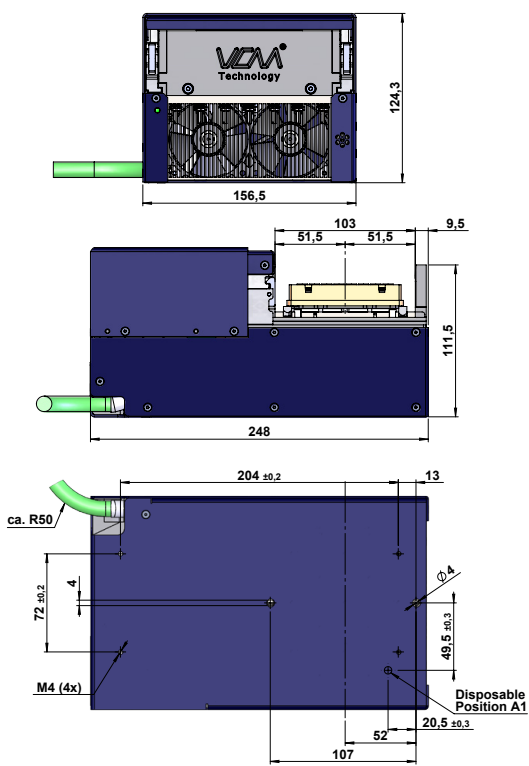
ODTC® Power & Control Unit (PCU) in horizontal position. Alternatively, vertical positioning of the Power & Control Unit is possible

Visit us on www.inheco.com

Drawings

ODTC® 96 or 384

ODTC® 96XL or 384XL



Front view

Side view

Bottom view
Drilling scheme