

# PCR solutions from Avantor

**01. XT FAMILY OF PCR CYCLERS: NEW APP CONTROL**

**02. PCR WORKSTATION NO ROOM FOR CONTAMINATION**

**03. VWR FAST HIFI POLYMERASE: ULTRA-LOW ERROR RATE & HIGH PROCESSIVITY**

**04. VWR® FAST EXTRACT GENOTYPING PCR KIT FAST EXTRACT DNA SOLUTION & PCR KIT FOR GENOTYPING**



# Welcome to the VWR range for PCR

Who would have thought that a bacterium, discovered in 1966 in a hot spring in Yellowstone National Park, would become such a pivotal ingredient in the molecular biology revolution? From that gram-negative bacterium, *Thermus aquaticus*, came Taq, a thermostable DNA polymerase that survives the repeated melting and extension steps to enable the modern PCR reaction we know today.

Taq, with its great processivity, is still the most widely used polymerase, and you will find a variety of formulations optimised to specific applications within this catalogue, including both stand-alone enzymes and master mixes, hot start, glycerol-free, or red variants for direct gel loading. In case you need higher accuracy than Taq can provide, take the next step to high fidelity PCR using VWR® Fast HiFi DNA polymerase, and benefit from its ultra-low error rate and fast elongation. Then, you know it from cooking, don't compromise on the basic ingredients, so also use VWR Collection dNTPs, which are both, purity checked by HPLC and functionally tested in PCR.

Provide your PCR reactions with the perfect housing, and take advantage of our huge choice of PCR consumables. Injection-moulded from virgin polypropylene, and quality tested thoroughly, VWR Collection PCR tubes, strips and plates come in all shapes and formats to fit your needs.

To avoid false-positive PCR, due to re-amplification of cross-contaminating DNA, what about adding the VWR® PCR Workstation to your lab? Ensuring UV inactivation of unwanted DNA traces, it will offer maximum protection during PCR sample preparation.

Finally, and this is where this catalogue starts, explore our range of the most advanced thermal cyclers. Developed and manufactured at our premises in southern Germany, following the world's most challenging quality standards, and being fully compliant to national and international regulations, these PCR machines represent the most reliable, comfortable and sustainable way of running a PCR.

Covering essentially all products needed within the PCR workflow, we understand your needs- this is a crucial step in satisfying them. In addition, it enables us to offer best value for money, helping you to save costs without compromising the quality of your PCR results. So, let us be your partner for PCR!

Your VWR Life Science Team



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# VWR Thermal Cycler XT<sup>96</sup>

Inside the VWR PCR Thermal  
Cycler XT<sup>96</sup>, a lot of new  
innovative features are in place.

DISCOVER  
THE XT<sup>96</sup>  
VIDEO



VWR 

# VWR Family of Thermal Cyclers

Thermal cyclers are used to amplify segments of DNA via the polymerase chain reaction (PCR). Also used to facilitate other temperature-sensitive reactions, these PCR machines or DNA amplifier devices can complete restriction enzyme digestion or rapid diagnostics. Each thermal cycle is equipped with high-performance components that ensure the formation of a homogenous tempered air cushion between the samples being combined. These instruments provide excellent temperature uniformity over the entire block and reproducible results regardless of the position of the inserted samples.



# Welcome to the VWR family of PCR thermal cyclers.

## Quality made in Germany

Engineered and manufactured in Germany according to ISO 9001, calibrated and maintained according to NIST standards and backed with 30 years of cycler expertise and experience: VWR thermal cyclers will be your reliable workhorse ready to take on the daily challenges of PCR!

More than this, being equipped with most sophisticated, state-of-the-art technology they will offer you an unmatched level of functionality and convenience. Explore their unique features and how you can benefit.

### VWR THERMAL CYCLERS FAMILY :



VWR XTender96



VWR XT96



VWR UNO96



VWR Doppio



VWR UNO384

#### More than just a gradient function.

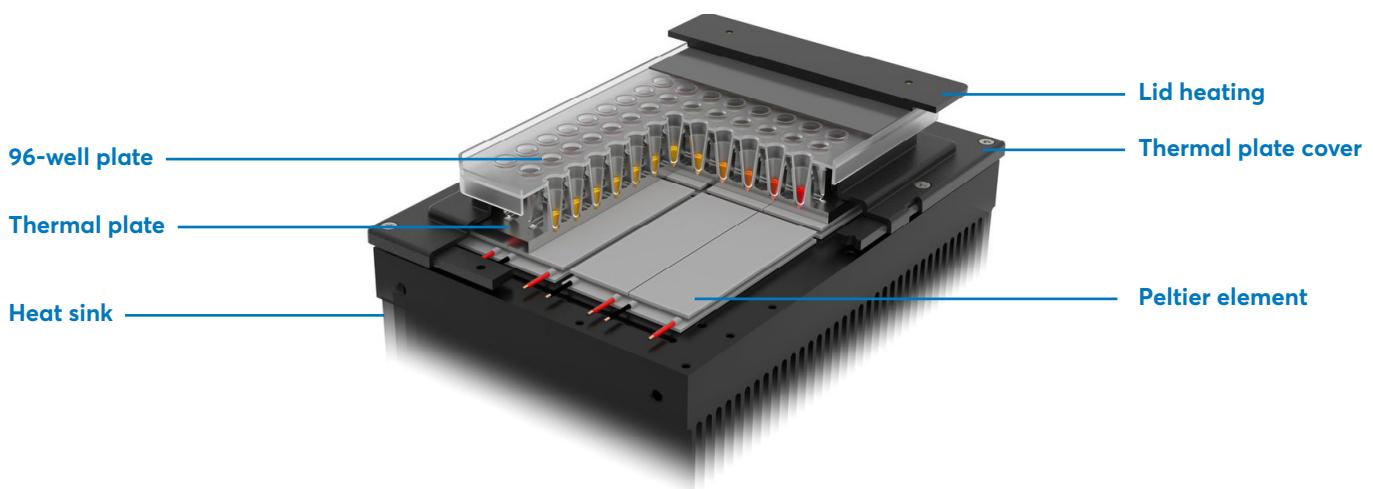
Flexible instead of sigmoid  
Identifying and applying optimal annealing temperatures has never been this easy.

#### No doubt what happens to the sample.

Ultimate temperature control  
Unmatched orchestra of thermo sensors, Peltier elements, control circuits and thermal plate design.

#### Simple to use, powerful to command.

Emulation mode & Co  
Not only workhorses but state-of-the-art features to make daily routines a pleasure.



#### Saving costs and resources.

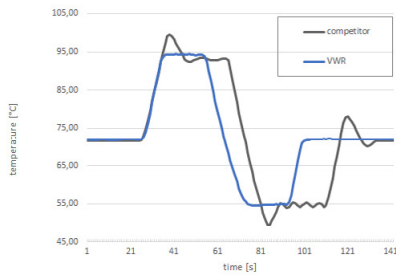
XTender<sup>96</sup> - no display needed  
The smart solution for remote control via smartphone, tablet, PC or XT<sup>96</sup> PCR cycler.

#### Supporting high-throughput.

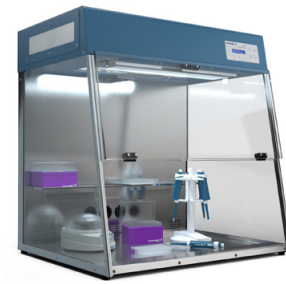
Capacity multiplied  
Control multiple cyclers centrally or select 384 well blocks with high pressure lid for reliable plate sealing.

#### PCR reagents and consumables

The choice is your's  
VWR PCR cyclers are free from restrictions regarding supplier or brand of PCR consumables or reagents.



Temperature measurements executed using calibrated, external thermal probes. Blue: VWR Doppio. Grey: other leading system.



**NO DOUBT WHAT HAPPENS TO THE SAMPLE**

**ULTIMATE TEMPERATURE CONTROL**

What makes a good thermal cycler? 'Fastest temperature ramping' is a common answer found in marketing materials and instruments' specs sheets. This is true and VWR® thermal cycler offer industry leading ramp rates of up to 5°C/s. However it's more than the dynamics of the temperature changes – it's all about their control.

Most precise temperature regulation is needed to avoid temperature over- and undershoots that will stress the polymerase or lead to unspecific primer annealing, respectively. In addition, maximal temperature homogeneity across the entire thermo plate is crucial for generating reproducible results.

Years of perfecting the orchestra of thermo sensors, Peltier elements, control circuits and thermal plate design lead to an unmatched combination of dynamics and precision of temperature control in VWR thermal cyclers – illustrated by technical specs and proven by temperature profiles recorded by external thermal probes!

**MORE THAN JUST A GRADIENT FUNCTION**

**FLEXIBLE INSTEAD OF SIGMOID**

Although supporting an established methodology, gradient PCR cyclers can differ a lot. As a rule of thumb, a higher number of control circuits that are used to adjust the temperature within the thermal plate will generate a more linear gradient temperature curve or even enable for a flexible set-up of gradient temperatures.

Being equipped with up to 16 Peltier element control circuits the VWR-family of PCR thermal cyclers is defining the highest standard of gradient PCR technology that will help researchers to establish more robust PCR protocols in shorter time.

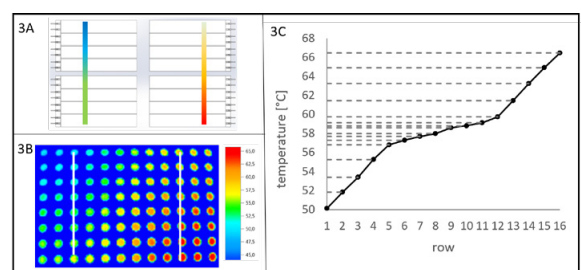
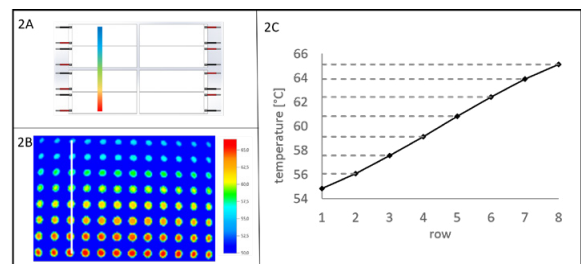
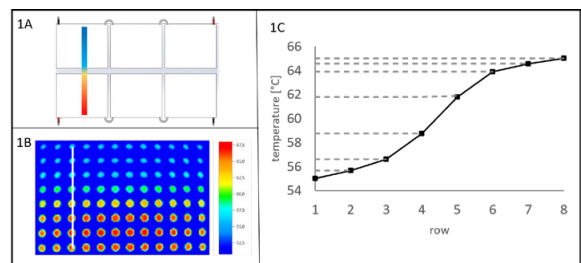
Get the full picture by reading the application note 'Establishing PCRs successfully - how advanced gradient thermal cycler technology will help to achieve efficient and robust amplification'.

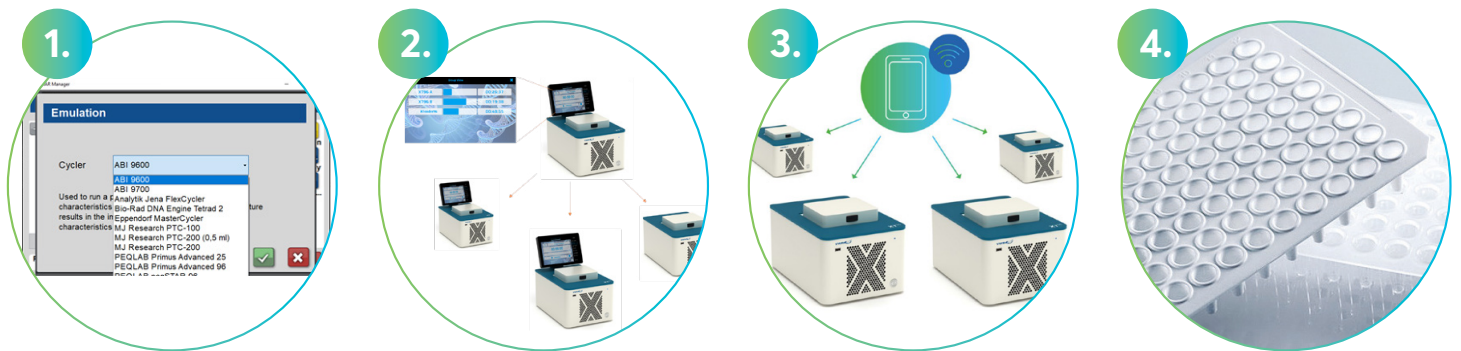
The evolution of gradient thermal cycler technology. Fig. 1A-C Using 6 Peltier elements and 2 control circuits leads to sigmoid shaped temperature curve. Realized by competitors. 2A-C Advanced technology using 8 Peltier elements and 4 control circuits leads to a linear gradient. Realized in VWR® XT<sup>96</sup> and XTender<sup>96</sup> thermal cyclers. 3A-C FlexGradient approach enabled by individual control circuits for each of the gradient zones. Realized in pEqSTAR 2X and 96X cyclers.

**KEEP YOUR SAMPLE FREE OF CONTAMINATIONS**

While a VWR® PCR thermal cycler will ensure precise temperature control for highest yields of specific PCR products it cannot discriminate relevant templates from unwanted molecules introduced by contaminated aerosols or surfaces. Using VWR® filter tips and a VWR® PCR Workstation will help to avoid contaminations substantially.

VWR® PCR Workstations provide effective UV-inactivation of surface and aerosol-bound contaminants, programmable during working and non-working hours.





### 1. SIMPLE TO USE POWERFUL TO COMMAND

#### EMULATION MODE & CO

Combining advanced technology with an intuitive, easy to operate user interface VWR® thermal cyclers offer unmatched convenience and open-up for new possibilities.

Depending on the cycler model features include: Up to date data and user management incl. GLP reporting, 500000+ program memory, USB/ Ethernet connectivity for quick data transfer/central cycler control, MP3 capability, Tm calculator or primary/replica control. The peqSTAR 96X even offers an emulation mode function: Selecting another cycler model from the drop-down menu will make the peqSTAR 96X mimicking it. Ensuring PCR protocols established earlier will provide the same results on both instruments without any optimization needed!

### 2. SAVING COSTS AND RESOURCES

#### XTENDER<sup>96</sup> - NO DISPLAY NEEDED

Making use of advanced technology, XT cyclers can be connected via Ethernet and controlled remotely by a primary XT<sup>96</sup> cycler, a PC or a mobile device (smartphone or tablet, IOS or Android). The software/app needed comes for free and provides the same intuitive user interface as the touch-sensitive, sharp 7" TFT display that the XT<sup>96</sup> cycler is equipped with.

When used as part of a remote-control configuration, the XTender<sup>96</sup> makes a perfect replica unit, having no built-in display but reduced to its core function of providing excellent PCR results, while saving costs and valuable resources.

### 3. SUPPORTING HIGH-THROUGHPUT

#### CAPACITY MULTIPLIED

For highest sample throughput the VWR® peqSTAR 384X will be the best choice. Its block does not only accommodate 384 samples but is equipped with a High-Pressure Lid (HPL) heating plate that will tightly seal each well of the PCR plate. By this any sample evaporation is effectively avoided also in the boundary area of the plate even when using adhesive sealing films or silicon mats only. Also the peqSTAR 96X is available with HPL option that will save effort and cost related to heat sealing that becomes obsolete.

For managing high-throughput in 96-well format, an unlimited number of VWR® thermal cyclers (peqSTAR 96X, XT<sup>96</sup> or XTender<sup>96</sup>) can get controlled in parallel by a central master device or a network PC using the VWR® PC-Suite that is included free of charge.

### 4. PCR REAGENTS AND CONSUMABLES

#### THE CHOICE IS YOUR'S

VWR PCR cyclers are free from restrictions regarding supplier or brand of PCR consumables or reagents and there is huge choice on [vwr.com](http://vwr.com). To identify the product that will fit your application best use the selector tools for...

- PCR Plates
- PCR Tubes and Strips
- End-point PCR Enzymes and Kits



# Which VWR PCR cycler fits best for you?

All made to provide excellent PCR results in shortest times and offering the simplest operation the Avantor range of VWR thermal cyclers is targeting different needs. Check out the below table that will help to make a smart choice.

					
	VWR XTender <sup>96</sup>	VWR XT <sup>96</sup>	VWR UNO <sup>96</sup>	VWR Doppio	VWR UNO384
Budget saving	●●●●●	●●●●○	●●○○○	●●●○○	●●○○○
Versatility	●●●○○	●●●○○	●●●●●	●●●●●	●●○○○○
Throughput	●●●●○	●●●●○	●●●●○	●●●○○	●●●●●
Block format	96	96	96	2 x 48	384
Gradient option					X
FlexGradient, Emulation mode	X	X			X
Free PC software include user management and MP3 capability					
Free mobile APP			X	X	X
High pressure lid (HPL) option	X	X		X	
Maximum ramp rate	4°C/s	4°C/s	5°C/s	5°C/s	5°C/s
Temperature homogeneity (at 72°)	≤ ± 0,35°C	≤ ± 0,35°C	± 0,2°C	± 0,2°C	± 0,2°C
PCR plastics compatability					



Solutions for discovery

## VWR<sup>®</sup> Gel Documentation & Western blot Imaging

A wide range of instruments for gel or Western blot imaging and analysis based on fluorescence, chemiluminescence or colorimetric dyes.



For your copy visit [vwr.com](http://vwr.com)

PB19057-EN

Thermal cycler, XT<sup>96</sup>

## THERMAL CYCLERS XT<sup>96</sup> AND XTENDER<sup>96</sup>

The XT family of VWR PCR thermal cyclers combines industry- and customer-inspired innovation housed in a robust, low noise design that fits on virtually any bench top. The fast ramping 96-well block is accurately controlled by eight Peltier elements ensuring reproducible PCR results and offering a gradient PCR option.

Making use of advanced technology, XT cyclers can be connected via Ethernet and controlled remotely by a primary XT<sup>96</sup> cycler, a PC or a mobile device (smartphone/tablet).

The software/app needed comes for free and provides the same intuitive user interface as the touch-sensitive, sharp 7<sup>TM</sup> TFT display that the XT<sup>96</sup> cycler is equipped with.

When used as part of a remote-control configuration, the XTender<sup>96</sup> makes a perfect replica unit, having no built-in display, but reduced to its core function of providing excellent PCR results, while saving costs and valuable resources.

Other innovative features:

- Flexible lid: Heated lid automatically adjusts to fit every PCR tube, creating pressure that prevents sample evaporation, to ensure reproducible results in every run
- Innovative block design with reduced mass allows highest temperature uniformity, and heating and cooling rates of up to max. 4 °C/s
- Precise temperature control for shortest run times, without over- and under-shoots, for best PCR results
- Gradient function (optional): Eight advanced control circuits and Peltier elements, providing an almost linear gradient - ideal for PCR optimisation
- Sharp, clear 7" TFT display, combined with intuitive software, simplifies use and suits all user expectations
- Intuitive programming: PCR-Wizard for convenient three-step, two-step, and gradient PCR programming
- Quick set-up: Select one of the 'Recently used methods' to accelerate your PCR run
- Data control: Up to 2x USB, 1x Ethernet (MS Windows®, Linux), remote control and monitoring of instruments via PC software, MP3 signal tones, and primary/replica control
- System tools at the touch of a button: Graphical or tabular programming, 'Global Program Ramp', 'Tube Control', online help, 'Quick Start' function and 'Power Fail Denaturation' for auto-restart after power failure
- XTender<sup>96</sup> is a fully equipped PCR thermal cycler without a touch screen, the ideal device controlled by a PC or from another XT<sup>96</sup> thermal cycler

Manufactured in Germany according to ISO 9001, calibrated and maintained according to NIST standards, and backed by 30 years of cycler technology expertise and experience.

All XT thermal cyclers include simple to use PC software for remote control and monitoring of instruments, as well as for creating PCR protocols on a PC.

Model	XTender <sup>96</sup>	XTender <sup>96</sup> Gradient	XT <sup>96</sup>	XT <sup>96</sup> Gradient
Block format	96x0,2 ml tubes or 96-well PCR plates			
Block homogeneity (°C)	±0,35 °C (at 72 °C)			
Cooling	8 Peltier elements per block, with long-life technology, and 8 control circuits with PT1000 temperature sensors			
Gradient temperature range (°C)	-	+30...100 °C (±0,2 °C)	-	+30...100 °C (±0,2 °C)
Heating and cooling rate (°C/sec)	Max. 4 °C/s			
Interfaces	2x USB, 1x Ethernet (MS Windows®, Linux) for remote control via PC software and XT96 master unit		2x USB, 1x Ethernet (MS Windows®, Linux), remote control and monitoring of instruments via PC software and primary/replica control	
Lid	Automatic height adjustment			
Lid temperature range (°C)	+40...110 °C			
Max. gradient	-	30 °C (±15 °C)	-	30 °C (±15 °C)
No. of programs	500 000			
Software	Graphical or tabular programming; 'Global Program Ramp'; 'Tube Control'; online help; 'Quick Start' function and 'Power Fail Denaturation' for auto-restart after power failure and MP3 signal tones		Graphical or tabular programming; 'Global Program Ramp'; 'Tube Control'; online help; 'Quick Start' function and 'Power Fail Denaturation' for auto-restart after power failure; MP3 signal tones; primary/replica control	
Temperature range	+4...105 °C			
Weight	8,3 kg (including block)		8,9 kg (including block)	
WxDxH (mm)	220x330x190 mm (closed lid)		220x330x310 mm	

Description	Pk	Cat. No.
Thermal cycler, XTender <sup>96</sup> - without touch screen, with 96-well block and standard lid, for 96x0,2 ml tubes or 96-well PCR plates - controlled by PC/Tablet or from another XT96 Thermal cycler	1	732-3657
Gradient thermal cycler, XTender <sup>96</sup> Gradient - without touch screen, with 96-well gradient block and standard lid, for 96x0,2 ml tubes or 96-well PCR plates - controlled by PC/Tablet or from another XT96 Thermal cycler	1	732-3658
Thermal cycler, XT <sup>96</sup> , with 96-well block and standard lid, for 96x0,2 ml tubes or 96-well PCR plates	1	732-1359
Gradient thermal cycler, XT <sup>96</sup> Gradient, with 96-well gradient block and standard lid, for 96x0,2 ml tubes or 96-well PCR plates	1	732-3428
Description	Pk	Cat. No.
Software upgrade		
Software upgrade XT <sup>96</sup> to XT <sup>96</sup> Gradient	1	732-3482

# PCR thermal cyclers

All made to provide excellent PCR results in shortest times and offering the simplest operation. Easy to find at **vwr.com**.

Quick search  
by selector





UNO96/Doppio

## THERMAL CYCLERS

The VWR® thermal cycler family combines high quality engineering with a comprehensive range of block formats. The UNO cycler is designed around a powerful, yet easy to use, software interface, and uses the same platform for both 96-well and 384-well formats. The Doppio, with two independent high speed 48-well blocks in one system, offers the optimum solution for maximum flexibility within a minimum footprint. The Ristretto is a compact personal cycler with the highest flexibility, having a universal block that can be loaded with either 32x0,2 ml tubes or 16x0,5 ml tubes with flat caps. Because of the special design of the heated lid, the height adjusts automatically to the different tube sizes.

- Outstanding performance: Thermal plate with impressive thermal characteristics; powerful Peltier elements with Long Life Technology; heat sink with cooling fans with magnetic bearing enabling rapid temperature change control of up to 5 °C/s (3 °C/s for Ristretto)
- Reliable, reproducible results: 8, 2x8 or 16 Peltier elements control the temperature row by row, enabling an outstanding block homogeneity of  $\pm 0,2$  °C and the choice of absolute linear gradients and independent lane control
- Simple to use: Sharp, clear TFT display and intuitive touch screen commands
- Data control: Up to 4x USB (1x USB Ristretto), 1x Ethernet (MS Windows®, Linux), remote control and monitoring of instruments via PC software, MP3 signal tones, user calls via email and master/slave control

All systems include simple to use PC software for remote control and monitoring of instruments, plus creating PCR protocols on the PC.

FlexGradient technology (option for UNO and Doppio only): With the temperature of the 8 rows each individually controlled, select between a perfectly linear temperature gradient (ideal for PCR optimisation), or independent lane control (ideal for the use of different primer pairs in the same run).

System tools at the touch of a button: Graphical or tabular programming, 'Global Program Ramp', 'Gradient Control', 'Tube Control', Emulation mode, online help, 'Quickstart' function and 'Power Fail Denaturation' for auto-restart after power failure.

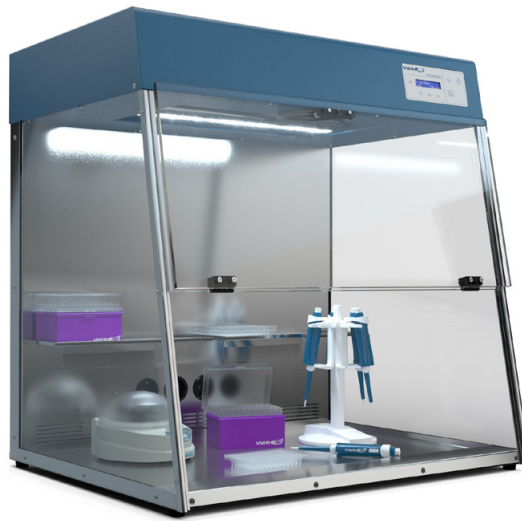
High specification remote control: State of the art technology, with VWR 'PCR Cycler Master Software'; receive notifications via email, or use the system MP3 player.

Emulation mode (UNO and Doppio only): For easy transfer of PCR protocols.

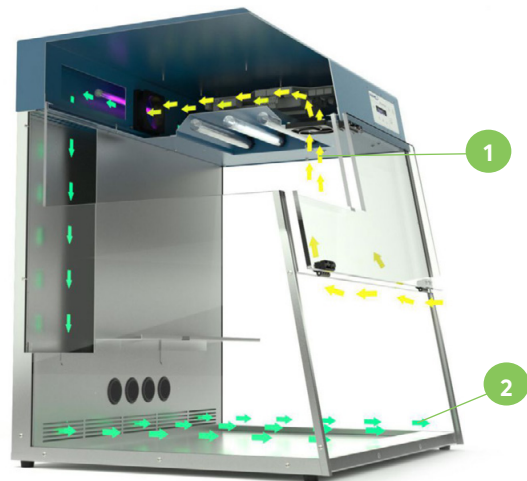
Engineered and manufactured in Germany according to ISO 9001, calibrated and maintained according to NIST standards, and backed with more than 20 years of cycler expertise and experience.

Model	UNO96	UNO96 HPL	UNO96 HPL Gradient	UNO96 Gradient	UNO384	Doppio	Doppio Gradient	Ristretto
Block accuracy (°C)	±0,1 °C							
Block homogeneity (°C)	±0,2 °C at 72 °C							
Display	Touch-sensitive TFT display (800x480 pixels, 16:9, 65536 colours)							
Gradient temperature range (°C)	-		+35...105 °C				+35...105 °C	-
Heating and cooling rate (°C/sec)	Max. 5 °C							
Interfaces	4x USB, 1x Ethernet (MS Windows®, Linux)							1x USB, 1x Ethernet (MS Windows®, Linux)
Lid temperature range (°C)	+40...120 °C							
Programs	Unlimited number of programs via network PC or USB memory sticks: internal memory for 500000 typical PCR protocols							
Temperature range (°C)	+4...105 °C							

Description	Pk	Cat. No.
Thermal cycler, UNO96, with 96-well universal block and standard lid for 96x0,2 ml tubes, 96-well PCR plates or 48x0,5 ml tubes with flat caps	1	732-2548
Thermal cycler, UNO96 HPL, with 96-well universal block and high pressure lid (HPL, 100–250 N) for 96x0,2 ml tubes, 96-well PCR plates or 48x0,5 ml tubes with flat caps	1	732-2914
Gradient thermal cycler, UNO96 HPL Gradient, with 96-well universal gradient block and high pressure lid (HPL, 100–250 N) for 96x0,2 ml tubes, 96-well PCR plates or 48x0,5 ml tubes with flat caps	1	732-2915
Gradient thermal cycler, UNO96 Gradient, with 96-well universal gradient block and standard lid for 96x0,2 ml tubes, 96-well PCR plates or 48x0,5 ml tubes with flat caps	1	732-2549
Thermal cycler, UNO384, with 384-well block and high pressure lid for 384-well PCR plates	1	732-2550
Thermal cycler, Doppio, with 2x48-well universal blocks and standard lids for 48x0,2 ml tubes or 24x0,5 ml tubes with flat caps per block	1	732-2551
Gradient thermal cycler, Doppio Gradient, with 2x48-well universal gradient blocks and standard lids for 48x0,2 ml tubes or 24x0,5 ml tubes with flat caps per block	1	732-2552
Thermal cycler, Ristretto, with 32-well universal block and standard lid, for 32x0,2 ml tubes, 4x0,2 ml 8-strips, or 16x0,5 ml tubes with flat caps	1	732-2553



PCR workstation



PCR workstation  
 1. Yellow arrows display contaminated air from the outside (door is open)  
 2. Green arrows show the air flows inside the PCR workstation with UV air recirculatory

**PCR WORKSTATION**

The VWR® PCR Workstation offers dual decontamination action by UV inactivation of airborne and surface-bound contaminants and, therefore, represents an ideal environment for PCR sample preparation and other sensitive protocols. Stainless steel housing, front and side panels made of 8 mm Makrolon® protects from UV irradiation.

- Active decontamination of work surface during non working time by UV irradiation
- Additional inactivation of aerosol-bound contaminants by shielded UV Air Recirculator during operation
- Contaminant prevention thanks to antimicrobial stainless steel work surface
- Function indicator for UV Air Recirculator tube
- Displays operating time of UV tubes allowing timely replacement for constant UV intensity
- Removable shelves provide additional storage space for reaction tubes, pipettes or racks on the rear panel
- Four internal power outlets for operating laboratory equipment, such as mini centrifuges or vortexers, allow the combination of several working steps without interruption of the workflow
- Electromagnetic safety mechanism stops UV irradiation if front panel is opened

**Large area for stress-free working:** Provides ample space and the possibility to accommodate bench top equipment, the VWR® PCR Workstation allows the combination of several working steps without change of location, thereby minimising the risk of cross-contamination.

TÜV tested, safety certified. Made in Germany.

Model	PCR workstation Pro
Lighting	1x white light tube internal (15 W)
Shelves	2x UV (254 nm) for effective surface decontamination, 25 W 1x UV (254 nm) for decontamination of air during work, 8 W

Description	WxDxH ext. (mm)	Pk	Cat. No.
VWR® PCR Workstation, work surface (WxD): 720x540 mm, EU-plug	750x620x780	1	732-2541
VWR® PCR Workstation, work surface (WxD): 720x540 mm, UK-plug	750x620x780	1	732-2542

Description	Pk	Cat. No.
<b>Accessories</b>		
Light source, air recirculator or HEPA/UV system, white light, 15 W	1	732-2543
Light source, interior, UV light (254 nm), 25 W	2	732-2544
Light source, air recirculator or HEPA/UV system, UV light (254 nm), 8 W	1	732-2545
Dust filters for air recirculator	10	732-2546

# Reagents

You will find here a variety of high quality Avantor DNA Polymerases optimised for specific applications (Taq, glycerol-free Taq, Hot start and High Fidelity enzymes) and ready to use master mixes. Complete your PCR reaction workflow needs with specific Avantor PCR reagents as dNTPs, PCR buffers, PCR clean-up, DNA loading buffer and DNA ladders for electrophoresis gels



## Application Guide

	Taq DNA Polymerase	Glycerol-free Taq DNA Polymerase	Red Taq DNA Polymerase	Taq Plus 2X Master Mix	Taq DNA Polymerase Master Mix	Red Taq DNA Polymerase Master Mix	TEMPase Hot Start DNA Polymerase	Glycerol-free TEMPase Hot Start DNA Polymerase	TEMPase Hot Start Master Mix K + C	Blue TEMPase Hot Start Master Mix K + C	GC-rich DNA Target kit	GC TEMPase Master Mix I + II	Multiplex TEMPase Master Mix	Fast HiFi DNA Polymerase	Fast HiFi DNA Polymerase 2X Master Mix
Application	Standard PCR				Hot Start					Special PCR			Hi Fi		
Routine PCR	●		●	●	●	●	●	●	●	●					
High throughput	●	●	●	●	●	●	●	●	●	●					
Automation		●						●							
GC-rich DNA templates							●				●	●		●	●
Multiplex PCR							●						●		
Sequencing														●	●
Genotyping	●	●	●	●	●	●	●	●	●	●			●		
Cloning	●						●							●	●
Mutagenesis														●	●
Freeze-drying		●						●						●	●
Low abundance targets							●	●	●	●	●	●	●		
Forensics													●		
DNA fingerprinting													●		
Colony PCR	●	●	●	●	●	●	●	●	●	●	●	●			
Gene expression							●	●	●	●	●	●			
Microbial detection							●	●	●	●	●	●	●		
NGS applications														●	●
Product example	733-1301	733-1817	733-1323	733-2598	733-2546	733-2542	733-1331	733-2553	733-2581	733-2585	733-2567	733-2561	733-2569	733-2882	733-2886

● Recommended ● Suitable

## Technical Guide

	Taq DNA Polymerase	Glycerol-free Taq DNA Polymerase	Red Taq DNA Polymerase	Taq Plus 2X Master Mix	Taq DNA Polymerase Master Mix	Red Taq DNA Polymerase Master Mix	TEMPase Hot Start DNA Polymerase	Glycerol-free TEMPase Hot Start DNA Polymerase	TEMPase Hot Start Master Mix K + C	Blue TEMPase Hot Start Master Mix K + C	GC-rich DNA Target kit	GC TEMPase Master Mix I + II	Multiplex TEMPase Master Mix	Fast HiFi DNA Polymerase	Fast HiFi DNA Polymerase 2X Master Mix
Feature	Standard PCR				Hot Start					Special PCR			Hi Fi		
Direct gel loading						●				●					
Pipetting visualisation			●			●				●					
Proof reading activity														●	●
dUTP incorporation	●	●	●	●	●	●	●	●	●	●	●	●	●		
3'- A overhang	●	●	●	●	●	●	●	●	●	●	●	●	●		
<b>Technical data</b>															
Fidelity versus Taq				1X				1X			< 1X	< 1X	1X		< 60X
Amplicon size				≤ 5 kb				≤ 5 kb				≤ 5 kb			≤ 11.5 kb
Elongation speed				35-100 nt/s				35-100 nt/s				35-100 nt/s			75-100 nt/s
Processivity				60 nt				60 nt				60 nt			
5'-3' exonuclease activity	●	●	●	●	●	●	●	●	●	●	●	●	●		
<b>Performance</b>															
Fidelity	+	+	+	+	+	+	+	+	+	+	+	+	+	+++	+++
Specificity	+	+	+	++	+	+	++	++	++	++	++	++	++	++	++
Sensitivity	+	+	+	+	+	+	++	++	++	++	++	++	++	+	+
Yield	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++

+ High ++ Very High +++ Excellent

**TAQ DNA POLYMERASE**



VWR® Taq DNA Polymerase is an ultra-pure, thermostable, recombinant DNA polymerase, which provides robust PCR performance in a wide range of PCR applications, without time-consuming optimisation. The enzyme is isolated from *Thermus aquaticus*, and has a molecular weight of approximately 94 kDa. VWR® Taq DNA Polymerase has both a 5' to 3' DNA polymerase and a double strand 5' to 3' exonuclease activity. It leaves an A overhang, which makes the enzyme ideal for TA cloning.

- Ideal choice for routine applications
- High performance, thermostable DNA polymerase
- Optimal for TA cloning

**Taq DNA polymerase concentration:** 5 Units/μl

**10X Key Buffer:** Tris-HCl pH 8,5; (NH<sub>4</sub>)<sub>2</sub>SO<sub>2</sub>, 15 mM MgCl<sub>2</sub>, 1% Tween® 20

**10X Extra Buffer:** Tris-HCl pH 8,3; KCl, 15 mM MgCl<sub>2</sub>, 1% Triton™ X-100

**10X Mg-Free Key Buffer:** Tris-HCl pH 8,5; (NH<sub>4</sub>)<sub>2</sub>SO<sub>2</sub>, 1% Tween® 20

**10X Mg-Free Extra Buffer:** Tris-HCl pH 8,3; KCl, 1% Triton™ X-100

EU = Units

VWR® Taq DNA Polymerase is usually supplied with either or both Key Buffer and Extra Buffer. Key Buffer (NH<sup>4+</sup>) gives a superior amplification signal (high yield) minimising the need for optimisation of the Mg<sup>2+</sup> concentration, or the annealing temperature in most primer-template systems. Extra Buffer is a traditional potassium (K<sup>+</sup>) buffer. Extra Buffer promotes high specificity, but careful optimisation of primer annealing temperatures and Mg<sup>2+</sup> concentrations may be required.

Description	Taq DNA Polymerase 5U/μl 250 units	Taq DNA Polymerase 5U/μl 500 units	Taq DNA Polymerase 5U/μl 1000 units	Taq DNA Polymerase 5U/μl 2.500 units	Taq DNA Polymerase 5U/μl 5.000 units	Taq DNA Polymerase 5U/μl 10000 units	Taq DNA Polymerase 5U/μl 1000 units	Taq DNA Polymerase 5U/μl 2.500 units	Taq DNA Polymerase 5U/μl 10.000 units	Taq DNA Polymerase 5U/μl 1000 units	Taq DNA Polymerase 5U/μl 10.000 units	
Amplicon size	≤ 5kb											
Application	Standard amplification											
Buffer composition	10x Key Buffer, 10x Extra Buffer and 25 mM MgCl <sub>2</sub>						10x Key Buffer Mg-free and 25 mM MgCl <sub>2</sub>			10x Extra Buffer and 25 mM MgCl <sub>2</sub> Detergent free	10x Key Buffer and 25 mM MgCl <sub>2</sub> Detergent free	10x Key Buffer, 10x Extra Buffer and 25 mM MgCl <sub>2</sub> Detergent free
Concentration	5 U/μl											
Exonuclease activity	5' → 3'											
Features							Mg-free			Detergent free		
Format	Enzyme with/without buffer											
High fidelity	No											
Hot start												
Processivity	Standard											
Product overhang	3' A											
Size	1 x 0.05 ml + 3 x 1.5 ml	1 x 0.1 ml + 3 x 1.5 ml	2 x 0.1 ml + 6 x 1.5 ml	5 x 0.1 ml + 15 x 1.5 ml	10 x 0.1 ml + 9 x 5 ml	3 x 0.667 ml + 18 x 5 ml	2 x 0.1 ml + 4 x 1.5 ml	5 x 0.1 ml + 10 x 1.5 ml	3 x 0.667 ml + 12 x 5 ml	2 x 0.1 ml + 4 x 1.5 ml	3 x 0.667 ml + 18 x 5 ml	
Storage conditions	20 °C (long term), + 4 °C (6 months)											
Units	250	500	1000	2500	5000	10000	1000	2500	10000	1000	10000	

Description	Pk	Cat. No.
Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	250 EU	733-1300
Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	500 EU	733-1301
Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	1.000 EU	733-1302
Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	2.500 EU	733-1819
Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	5.000 EU	733-1820
Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	10.000 EU	733-1303
Taq DNA Polymerase, 10X MgCl <sub>2</sub> -free Key Buffer, 25 mM MgCl <sub>2</sub>	1.000 EU	733-1312
Taq DNA Polymerase, 10X MgCl <sub>2</sub> -free Key Buffer, 25 mM MgCl <sub>2</sub>	2.500 EU	733-1313
Taq DNA Polymerase, 10X MgCl <sub>2</sub> -free Key Buffer, 25 mM MgCl <sub>2</sub>	10.000 EU	733-2009
Taq DNA Polymerase, 10X MgCl <sub>2</sub> -free Extra Buffer, 25 mM MgCl <sub>2</sub>	1.000 EU	733-1305
Taq DNA Polymerase, 10X Tween-free Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Triton-free Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	1.000 EU	733-1307
Taq DNA Polymerase, 10X Tween-free Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Triton-free Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	10.000 EU	733-1823



**TAQ DNA POLYMERASE MASTER MIX**



VWR® Taq DNA Polymerase Master Mix is a ready to use 1,1X or 2X reaction mix. Simply add primers, template and water to carry out primer extensions and other molecular biology applications.

Tests = Reactions

Description	Taq DNA Polymerase 1,1X Master M 1,5 mM MgCl <sub>2</sub> 500 reactions	Taq DNA Polymerase 1,1X Master Mix 1,5 mM MgCl <sub>2</sub> 2500 reactions	Taq DNA Polymerase 1,1X Master Mix 2 mM MgCl <sub>2</sub> 2500 reactions	Taq DNA Polymerase 2X Master Mix 1,5 mM MgCl <sub>2</sub> 500 reactions	Taq DNA Polymerase 2X Master Mix 1,5 mM MgCl <sub>2</sub> 2500 reactions	Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 500 reactions	Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 2500 reactions
Amplicon size	≤ 5kb						
Application	Standard amplification						
Concentration	1.1x			2x			
Exonuclease activity	5' →3'						
Format	Mastermix incl. dNTPs						
High fidelity	No						
Hot start	No						
Processivity	Standard						
Product overhang	3' A						
Size	15 x 1.5 ml	75 x 1.5 ml		10 x 1.25 ml	50 x 1.25 ml	10 x 1.25 ml	50 x 1.25 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)						
Units	500 r Mix 500	2500 r Mix 2500		500 r Mix 500	2500 r Mix 2500	500 r Mix 500	2500 r Mix 2500

Description	Pk	Cat. No.
Taq DNA Polymerase 1,1X Master Mix, 1,5 mM MgCl <sub>2</sub>	500 Tests	733-2540
Taq DNA Polymerase 1,1X Master Mix, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-1314
Taq DNA Polymerase 1,1X Master Mix, 2,0 mM MgCl <sub>2</sub>	2.500 Tests	733-1315
Taq DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	500 Tests	733-2542
Taq DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-1316
Taq DNA Polymerase 2X Master Mix, 2,0 mM MgCl <sub>2</sub>	500 Tests	733-2543
Taq DNA Polymerase 2X Master Mix, 2,0 mM MgCl <sub>2</sub>	2.500 Tests	733-1317

**VWR® TAQ DNA POLYMERASE GLYCEROL FREE**



VWR Taq DNA Polymerase Glycerol Free 5U/μl is a thermostable recombinant DNA polymerase, which exhibits very high activity in primer extension and other molecular biology applications. The enzyme is isolated from *Thermus aquaticus* and has a molecular weight of approximately 94 kDa.

VWR Taq DNA Polymerase Glycerol Free has both a 5'→3' DNA polymerase and a 5'→3' exonuclease activity. The enzyme lacks a 3'→5' exonuclease activity (no proofreading ability). VWR Taq DNA Polymerase Glycerol Free leaves an A' overhang, which makes the enzyme ideal for TA cloning.

Description	Taq DNA Polymerase Glycerol Free 5U/μl 100.000 units	Taq DNA Polymerase Glycerol Free 5U/μl 375.000 units	Taq DNA Polymerase Glycerol Free 5U/μl 2.000.000 units	Taq DNA Polymerase Glycerol Free 5U/μl 5.000 units	Taq DNA Polymerase Glycerol Free 5U/μl 1.000 units
Amplicon size	≤ 5kb				
Application	Standard amplification, Freeze-drying				
Buffer composition	No buffer			25 mM MgCl <sub>2</sub>	10x Key Buffer, 10x Extra Buffer and 25 mM MgCl <sub>2</sub>
Concentration	5 U/μl				
Exonuclease activity	5' →3'				
Features	Glycerol free				
Format	Enzyme with/without buffer				
High fidelity	No				
Hot start	No				
Processivity	Standard				
Product overhang	3' A				
Size	20 x 1 ml	1 x 75 ml	Bulk	10 x 0.1 ml	2 x 0.1 ml + 6 x 1.5 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)				
Units	100000	375000	2000000	5000	1000

Description	Pk	Cat. No.
Taq DNA Polymerase Glycerol Free 5U/μl 100.000 units	20ml	733-2406
Taq DNA Polymerase Glycerol Free 5U/μl 375.000 units	75 ml	733-3843
Taq DNA Polymerase, glycerol-free, 200 000 units	200.000 EU	733-2038
Taq DNA Polymerase, glycerol-free, 25 mM MgCl <sub>2</sub>	5.000 EU	733-1999
Taq DNA Polymerase, glycerol-free, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	1.000 EU	733-1817

**VWR® RED TAQ DNA POLYMERASE**

VWR® Red Taq DNA Polymerase is a blend of Taq DNA polymerase combined with an inert red dye. The dye enables quick visual recognition of reactions to which enzyme has been added, as well as confirmation of complete mixing.



- Ideal choice for routine applications
- High performance, thermostable DNA polymerase
- Optimal for TA cloning

**Taq DNA polymerase concentration:** 5 Units/μl

**10X Key Buffer:** Tris-HCl pH 8,5; (NH<sub>4</sub>)<sub>2</sub>SO<sub>2</sub>, 15 mM MgCl<sub>2</sub>, 1% Tween® 20

EU = Units

VWR® Taq DNA Polymerase is usually supplied with Key Buffer. Key Buffer (NH<sup>4+</sup>) gives a superior amplification signal (high yield) minimising the need for optimisation of the Mg<sup>2+</sup> concentration, or the annealing temperature in most primer-template systems.

Description	"Taq RED DNA Polymerase 5U/μl 500 units"	"Taq RED DNA Polymerase 5U/μl 1.000 units"	"Taq RED DNA Polymerase 5U/μl 2.500 units"	"Taq RED DNA Polymerase 5U/μl 10.000 units"
<b>Amplicon size</b>	≤ 5kb			
<b>Application</b>	Standard amplification			
<b>Buffer composition</b>	10x Key Buffer, 10x Extra Buffer and 25 mM MgCl <sub>2</sub>			"10x Key Buffer, 10x Extra Buffer and M25 mM gCl <sub>2</sub> "
<b>Concentration</b>	5 U/μl			
<b>Exonuclease activity</b>	5' →3'			
<b>Features</b>	Visible dye			
<b>Format</b>	Enzyme with/without buffer			
<b>High fidelity</b>	No			
<b>Hot start</b>				
<b>Processivity</b>	Standard			
<b>Product overhang</b>	3' A			
<b>Size</b>	1 x 0.1 ml + 3 x 1.5 ml	2 x 0.1 ml + 6 x 1.5 ml	5 x 0.1 ml + 15 x 1.5 ml	3 x 0.667 ml + 18 x 5 ml
<b>Storage conditions</b>	20 °C (long term), + 4 °C (6 months)			
<b>Units</b>	500	1000	2500	10000

Description	Pk	Cat. No.
Red Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	500 EU	<b>733-2408</b>
Red Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	1.000 EU	<b>733-2409</b>
Red Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	2.500 EU	<b>733-1323</b>
Red Taq DNA Polymerase, 10X Key Buffer (15 mM MgCl <sub>2</sub> ), 10X Extra Buffer (15 mM MgCl <sub>2</sub> ), 25 mM MgCl <sub>2</sub>	10.000 EU	<b>733-1834</b>



**RED *Taq* DNA POLYMERASE MASTER MIX**

VWR® Red *Taq* DNA Polymerase Master Mix, which also contains an inert red dye, can be directly loaded onto an agarose gel without addition of electrophoresis loading buffers.

Tests = Reactions

Description	Red Taq DNA Polymerase 1.1X Master Mix 1.5 mM MgCl <sub>2</sub> 500 reactions	Red Taq DNA Polymerase 1.1X Master Mix 1.5 mM MgCl <sub>2</sub> 2500 reactions	Red Taq DNA Polymerase 1.1X Master Mix 2 mM MgCl <sub>2</sub> 500 reactions	Red Taq DNA Polymerase 1.1X Master Mix 2 mM MgCl <sub>2</sub> 2500 reactions	Red Taq DNA Polymerase 2X Master Mix 1.5 mM MgCl <sub>2</sub> 500 reactions	Red Taq DNA Polymerase 2X Master Mix 1.5 mM MgCl <sub>2</sub> 2500 reactions	Red Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 5000 reactions	Red Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 10.000 reactions	Red Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 20 000 reactions	Red Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 500 reactions	Red Taq DNA Polymerase 2X Master Mix 2 mM MgCl <sub>2</sub> 2500 reactions
Amplicon size	≤ 5kb										
Application	Standard amplification										
Concentration	1.1x					2x					
Exonuclease activity	5' → 3'										
Features	Direct loading										
Format	Mastermix incl. dNTPs										
High fidelity	No										
Hot start	Standard										
Processivity	3' A										
Product overhang	3' A										
Size	15 x 1.5 ml	75 x 1.5 ml	15 x 1.5 ml	75 x 1.5 ml	10 x 1.25 ml	50 x 1.25 ml	25 x 5 ml	28 x 9 ml	1 x 500 ml	10 x 1.25 ml	50 x 1.25 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)										
Units	500 r Mix 500	2500 r Mix 2500	500 r Mix 500	2500 r Mix 2500	500 r Mix 500	2500 r Mix 2500	5000 r Mix 5000	10000 r Mix 10000	20000 r Mix 20 000	500 r Mix 500	2500 r Mix 2500

Description	Pk	Cat. No.
Red <i>Taq</i> DNA Polymerase 1.1X Master Mix, 1,5 mM MgCl <sub>2</sub>	500 Tests	733-2544
Red <i>Taq</i> DNA Polymerase 1.1X Master Mix, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-1318
Red <i>Taq</i> DNA Polymerase 1.1X Master Mix, 2,0 mM MgCl <sub>2</sub>	500 Tests	733-2545
Red <i>Taq</i> DNA Polymerase 1.1X Master Mix, 2,0 mM MgCl <sub>2</sub>	2.500 Tests	733-1319
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	500 Tests	733-2546
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-1320
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	5.000 Tests	733-2130
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	10.000 Tests	733-2131
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 1,5 mM MgCl <sub>2</sub>	20.000 Tests	733-2132
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 2,0 mM MgCl <sub>2</sub>	500 Tests	733-2547
Red <i>Taq</i> DNA Polymerase 2X Master Mix, 2,0 mM MgCl <sub>2</sub>	2.500 Tests	733-1321



Taq Plus 2x Master Mix

**TAQ PLUS 2X MASTER MIXES**

VWR® *Taq* Plus is an optimised format of *Taq* DNA polymerase master mix and, therefore, is a good alternative to *Taq* DNA polymerase and *Taq* DNA polymerase master mix.

- Ready to use 2X master mix for greater convenience
- Significantly reduced set-up time
- Increased specificity compared to *Taq* DNA polymerase master mix
- Reduced risk of contamination

Ensures increased specificity and improved PCR performance, even on difficult templates. These reagents are suitable for standard PCR applications, screening and high throughput testing.

This PCR master mix is composed of *Taq* DNA polymerase and an optimised buffer system, including dNTPs and magnesium chloride (1,5 mM).

Description	Taq Plus 2x Master Mix 1.5 mM MgCl2 100 reactions	Taq Plus 2x Master Mix 1.5 mM MgCl2 500 reactions	Taq Plus 2x Master Mix 1.5 mM MgCl2 2500 reactions	Taq Plus 2x Master Mix 1.5 mM MgCl2 5000 reactions
Amplicon size	≤ 4kb			
Application	Standard amplification			
Concentration	2x			
Exonuclease activity	5' →3'			
Format	Mastermix incl. dNTPs			
High fidelity	No			
Hot start	Standard			
Processivity	3' A			
Product overhang	3' A			
Size	2 x 1.25 ml	10 x 1.25 ml	50 x 1.25 ml	25 x 5 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)			
Units	100	500	2500	5000

Description	Pk	Cat. No.
Taq Plus 2X master mix, 2x1,25 ml	100 Tests	<b>733-2597</b>
Taq Plus 2X master mix, 10x1,25 ml	500 Tests	<b>733-2598</b>
Taq Plus 2X master mix, 50x1,25 ml	2.500 Tests	<b>733-2599</b>
Taq Plus 2X master mix, 25x5 ml	5.000 Tests	<b>733-2600</b>



**TEMPASE HOT START DNA POLYMERASE**

VWR® TEMPase Hot Start DNA Polymerases are highly stable polymerases, featuring higher specificity, superior sensitivity and greater yields compared to standard DNA polymerases. These features make them well suited for the detection of low abundance targets. Other uses include screening, amplification of GC-rich sequences, multiplex PCR, direct PCR and qPCR. A glycerol-free TEMPase Hot Start DNA Polymerase is also available for automation and freeze drying.

The GC-Rich Template kit is specifically designed for difficult GC-rich sequences. Combined with TEMPase, GC buffers I and II promote excellent amplification. The kit is designed for initial testing before using one of the GC-TEMPase 2X Master Mixes.

VWR® TEMPase DNA polymerases generally include two different buffers, Key Buffer and Combination Buffer, which are each suited to different PCR requirements. Key Buffer (NH<sup>4+</sup>) gives a superior amplification signal (high yield), and minimises the need for optimisation of the Mg<sup>2+</sup> concentration or the annealing temperature in most primer-template systems. Combination Buffer is a mixture of K<sup>+</sup> and NH<sup>4+</sup>. It combines high specificity with good product yield and high tolerance to optimisation of primer annealing temperatures and Mg<sup>2+</sup> concentrations, due to its balanced ammonium-potassium formulation. Each buffer contains 15 mM MgCl<sub>2</sub> (1,5 mM in final volume). Additional MgCl<sub>2</sub> for easy optimisation is included in a separate vial.

Description	TEMPase HotStart DNA Polymerase 5U/µl 500 units	TEMPase HotStart DNA Polymerase 5U/µl 2500 units	TEMPase HotStart DNA Polymerase 5U/µl 10.000 units	TEMPase HotStart DNA Polymerase Glycerol Free 5U/µl 500 units	TEMPase HotStart DNA Polymerase Glycerol Free 5U/µl 2500 units	
Amplicon size	≤ 5kb					
Application	Standard amplification, Low-quality template, Multiplex			Standard amplification, Freeze-drying		
Buffer composition	10x Key Buffer, 10x Combination Buffer and 25 mM MgCl <sub>2</sub>			25 mM MgCl <sub>2</sub>	10x Key Buffer and 25 mM MgCl <sub>2</sub>	10x Combination Buffer and 25 mM MgCl <sub>2</sub>
Concentration	5 U/µl					
Exonuclease activity	5' → 3'					
Features	Glycerol free					
Format	Enzyme with/without buffer					
High fidelity	No					
Hot start	Chemically modified					
Processivity	Standard					
Product overhang	3' A					
Size	1 x 0.1 ml + 3 x 1.5 ml	5 x 0.1 ml + 15 x 1.5 ml	3 x 0.667 ml + 18 x 5 ml	1 x 0.1 ml + 1 x 1.5 ml	5 x 0.1 ml + 5 x 1.5 ml	5 x 0.1 ml + 10 x 1.5 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)					
Units	500	2500	10000	500	2500	

Description	Pk	Cat. No.
TEMPase Hot Start DNA Polymerase, 5 U/µl, with 10X Key Buffer, 10X Combination Buffer and MgCl <sub>2</sub>	500 EU	<a href="#">733-1331</a>
TEMPase Hot Start DNA Polymerase, 5 U/µl, with 10X Key Buffer, 10X Combination Buffer and MgCl <sub>2</sub>	2.500 EU	<a href="#">733-1333</a>
TEMPase Hot Start DNA Polymerase, 5 U/µl, with 10X Key Buffer, 10X Combination Buffer and MgCl <sub>2</sub>	10.000 EU	<a href="#">733-1838</a>
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, without buffers	500 Tests	<a href="#">733-2552</a>
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, without buffers	2.500 Tests	<a href="#">733-2553</a>
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, with 10X Key Buffer and MgCl <sub>2</sub>	2.500 Tests	<a href="#">733-2556</a>
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, with 10X Combination Buffer and MgCl <sub>2</sub>	2.500 Tests	<a href="#">733-2559</a>



**TEMPASE HOT START 2x MASTER MIX**

TEMPase Hot Start DNA Polymerase Master Mix and Blue TEMPase Master Mix offer easy reaction assembly at room temperature, reduced set-up time and fewer handling steps, which lead to increased reproducibility. As a consequence TEMPase Hot Start DNA Polymerase Master Mix is highly suited to standard tests.

The blue loading dye in Blue TEMPase Hot Start DNA Polymerase Master Mix facilitates direct gel loading, and eliminates the need for separate loading dye - no need for time-consuming sample preparation before electrophoresis.

Multiplex 2x Master Mix is composed of TEMPase Hot Start DNA Polymerase and a specialised buffer system designed for multiplex PCR.

TEMPase Hot Start DNA Polymerase Master Mix and Blue TEMPase Master Mix are available in two variations, either based on Key Buffer (Master Mix K) or Combination Buffer (Master Mix C) to suit different PCR requirements. Additional MgCl<sub>2</sub> is included in the kit to enable optimisation.

Description	TEMPase Hot Start DNA Polymerase 2X Master Mix A 1.5 mM MgCl <sub>2</sub> 2500 reactions	TEMPase Hot Start DNA Polymerase 2X Master Mix C 1.5 mM MgCl <sub>2</sub> 2500 reactions	Blue TEMPase Hot Start DNA Polymerase 2X Master Mix A 1.5 mM MgCl <sub>2</sub> 2500 reactions	Blue TEMPase Hot Start DNA Polymerase 2X Master Mix C 1.5 mM MgCl <sub>2</sub> 2500 reactions	Multiplex TEMPase 2X Master Mix 1.5 mM MgCl <sub>2</sub> 2500 reactions
Amplicon size	≤ 5kb				
Application	Standard amplification, Low-quality template, Multiplex				Standard amplification, Multiplex
Buffer composition	Based on Ammonium buffer	Based on Combination buffer	Based on Ammonium buffer	Based on Combination buffer	25 mM MgCl <sub>2</sub>
Concentration	2x				
Exonuclease activity	5' → 3'				
Features	Direct loading				
Format	Mastermix incl. dNTPs				
High fidelity	No				
Hot start	Chemically modified				
Processivity	Standard				
Product overhang	3' A				
Size	50 x 1.25 ml				50 x 1.25 ml + 3 x 1.5 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)				
Units	2500 r Mix 2500				

Description	Pk	Cat. No.
TEMPase Hot Start 2X Master Mix, with Master Mix K, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-2582
TEMPase Hot Start 2X Master Mix, with Master Mix C, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-1840
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix K, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-2585
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix C, 1,5 mM MgCl <sub>2</sub>	2.500 Tests	733-1841
Multiplex TEMPase Hot Start 2X Master Mix, 1,5 mM MgCl <sub>2</sub> with separate vial of MgCl <sub>2</sub>	2.500 Tests	733-2569



Fast HiFi DNA polymerase 2 U/μl

### FAST HIFI DNA POLYMERASE, 2 U/ML

Fast HiFi DNA Polymerase 2 U/μl is a proofreading DNA polymerase displaying the following features; high fidelity >60X Taq DNA Polymerase, ability to amplify problematic DNA targets, such as those with low to high GC content and ability to perform amplification on long DNA targets. It is recommended for applications, which require extremely high fidelity such as cloning/sub-cloning, NGS applications and mutagenesis.

- High fidelity: >60X Taq Fidelity
- 3'→5' proofreading exonuclease activity
- Processes up to 18 kb from complex templates (eg. Human gDNA)
- Good coverage on DNA templates with low to high GC content
- Fast extension rate: 10 s/kb

Fast HiFi DNA Polymerase 2 U/μl exhibits both 5'→3' DNA polymerase activity and 3'→5' proof reading exonuclease activity enabling this polymerase to correct base pair mismatches. It is supported with 5X Fast HiFi Buffer allowing robust amplification on DNA targets with low to high GC content and long DNA targets.

For difficult amplicons, such as GC-rich DNA samples, those with complex secondary structures or long amplicons, the addition of 1 to 2 M Betaine enhancer solution is recommended.

For more convenient handling Fast HiFi DNA Polymerase 2 U/μl is also available as a 2X master mix.

Sample types: gDNA, plasmid DNA, bacterial DNA, λDNA and other DNA templates

Description	Fast HiFi DNA Polymerase 2 U/μl 100 units	HiFi DNA Polymerase 2 U/μl 500 units	Fast HiFi DNA Polymerase 2 U/μl 1000 units	Fast HiFi DNA Polymerase 2 U/μl 2500 units
Amplicon size	18 kb for gDNA			
Application	Standard amplification, Cloning (high fidelity), Long PCR, NGS library amplification			
Buffer composition	10X Fast HiFi Buffer + 25 mM MgCl			
Concentration	2 U/μl			
Exonuclease activity	5' →3' 3' →5'			
Features	Proof ready activity, Long template			
Format	Enzyme with/without buffer			
High fidelity	Yes			
Hot start	No			
Processivity	Fast			
Product overhang	No			
Size	1x0,05 ml + 2x1,5 ml	1x0,25 ml + 3x1,5 ml	2x0,25 ml + 6x1,5 ml	5x0,25 ml + 14x1,5 ml
Storage conditions	20 °C (long-term), +4 °C (6 months)			
Units	100	500	1000	2500

Description	Pk	Cat. No.
Fast HiFi DNA Polymerase 2 U/μl, 100 U	100 EU	733-2880
Fast HiFi DNA Polymerase 2 U/μl, 500 U	500 EU	733-2881
Fast HiFi DNA Polymerase 2 U/μl, 1000 U	1.000 EU	733-2882
Fast HiFi DNA Polymerase 2 U/μl, 2500 U	2.500 EU	733-2883



HiFi DNA polymerase 2x master mix

### FAST HiFi DNA POLYMERASE, 2X MASTER MIX, VWR®

Fast HiFi DNA Polymerase 2 U/μl is a proofreading DNA polymerase displaying the following features; high fidelity >60X Taq DNA Polymerase, ability to amplify problematic DNA targets, such as those with low to high GC content and ability to perform amplification on long DNA targets. It is recommended for applications, which require extremely high fidelity such as cloning/sub-cloning, NGS applications and mutagenesis.

- All-in-one 2x master mix for great convenience
- High fidelity: >60X Taq Fidelity
- 3'→5' proofreading exonuclease activity
- Processes up to 11 kb from complex templates (eg. Human gDNA)
- Good coverage on DNA templates with low to high GC content
- Fast extension rate: 10 s/kb

Fast HiFi DNA Polymerase 2x master mix is a ready to use 2x reaction mix composed of Fast HiFi DNA Polymerase and an optimised buffer system including dNTPs and Magnesium chloride, allowing robust amplification on DNA target with low to high GC content and long DNA targets. Fast HiFi DNA Polymerase exhibits both 5'→3' DNA polymerase activity and 3'→5' proofreading exonuclease activity enabling this polymerase to correct base pair mismatches.

For difficult amplicons, such as GC-rich DNA samples, those with complex secondary structures or long amplicons, the addition of 1 to 2 M Betaine enhancer solution is recommended.

Fast HiFi DNA Polymerase 2x master mix is recommended for applications, which require extremely high fidelity such as cloning/sub-cloning, NGS applications and mutagenesis.

Sample types: gDNA, plasmid DNA, bacterial DNA, λDNA and other DNA templates

Description	Fast HiFi DNA Polymerase 2x Master Mix 100 reactions	Fast HiFi DNA Polymerase 2x Master Mix 500 reactions	Fast HiFi DNA Polymerase 2x Master Mix 2500 reactions	Fast HiFi DNA Polymerase 2x Master Mix 5000 reactions
Amplicon size	11 kb for gDNA			
Application	Standard amplification, Cloning (high fidelity), Long PCR, NGS library amplification			
Concentration	2x			
Exonuclease activity	5' →3' 3' →5'			
Features	Proof ready activity, Long template			
Format	Mastermix incl. dNTPs			
High fidelity	Yes			
Hot start	No			
Processivity	Fast			
Product overhang	No			
Size	2 x 1.25 ml	10 x 1.25 ml	50 x 1.25 ml	25 x 5 ml
Storage conditions	20 °C (long term), + 4 °C (6 months)			
Units	100 r Mix 100	500 r Mix 500	2500 r Mix 2500	5000 r Mix 5000

Description	Pk	Cat. No.
Fast HiFi DNA Polymerase, 2X master mix, 100 reactions	100 Tests	733-2884
Fast HiFi DNA Polymerase, 2X master mix, 500 reactions	500 Tests	733-2885
Fast HiFi DNA Polymerase, 2X master mix, 1000 reactions	2.500 Tests	733-2886
Fast HiFi DNA Polymerase, 2X master mix, 2500 reactions	5.000 Tests	733-2887





ExoCleanUp

**ONE-STEP PCR CLEAN-UP, EXOCLEANUP FAST**

VWR ExoCleanUp FAST PCR reagent is a one-step PCR clean-up reagent for optimal sequencing results, consisting of a balanced combination of a heat-labile exonuclease I (HL-ExoI) and a recombinant shrimp alkaline phosphatase (rSAP).

- Designed to clean-up PCR products in 5 minutes
- No need for spin columns or magnetic beads
- Treatment improves downstream applications, such as DNA sequencing and SNP analysis

Treatment of amplified PCR products with this reagent helps to remove residual primers and single-stranded DNA, and inactivates excess dNTPs by dephosphorylation. After enzymatic treatment at 37 °C for a minimum of 2 minutes, this reagent is completely inactivated by heating at 80 °C for a minimum of 3 minutes.

Description	ExoCleanUp FAST PCR clean-up reagent			
Method/Format	Enzymatic clean-up			
Prep Size	Scalable			
Refine target molecule	Amplified/modified DNA			
Sample size	1 × 0,2 ml	1 × 1 ml	10 × 1 ml	4 × 1 ml
Sample type	PCR and other enzymatic reactions			
Target molecule	DNA			

Description	Pk	Cat. No.
ExoCleanUp FAST PCR clean-up reagent	100 Tests	733-2592
ExoCleanUp FAST PCR clean-up reagent	500 Tests	733-2593
ExoCleanUp FAST PCR clean-up reagent	5,000 Tests	733-2594
ExoCleanUp FAST PCR clean-up reagent	2,000 Tests	733-2849



Fast extract DNA solution

**FAST EXTRACT DNA SOLUTION, VWR®**

The fast extract DNA solution provides rapid and efficient extraction of PCR-ready DNA from mammalian tissues. DNA is ready in eight minutes. The one-reagent protocol is divided into two simple heating steps, which can be directly followed by PCR analysis, such as screening and genotyping.

- One-reagent set-up
- Rapid eight-minute protocol
- PCR-ready DNA
- DNA extracts from mammalian tissues and bacteria
- Non-toxic reagents
- Automation-friendly

DNA can be extracted from many different sample types e.g. mouse tails or ears, saliva, bacteria and mammalian tissues. The one-reagent DNA extraction set-up is easily scaled and can be conducted by robotic automation platforms. Depending on the sample size, the DNA extraction can be performed in PCR tubes or in 1,5 ml tubes, using either a thermocycler or a heating block.

Prep size: 100 µl

Method/format: DNA extraction

Description	Pk	Cat. No.
VWR® fast extract DNA solution, 8 min, 100 reactions	100 Tests	733-2876
VWR® fast extract DNA solution, 8 min, 500 reactions	500 Tests	733-2877



Fast extract genotyping PCR kit

### FAST EXTRACT GENOTYPING PCR KIT, VWR®

The fast extract genotyping PCR kit consist of fast extraction DNA solution and VWR® Red Taq DNA polymerase 2X Master mix. This kit is ideal for genotyping of DNA extracted fom mammalian tissues, saliva or bacteria and provides PCR-ready DNA in eight minutes and genotyping results in less than one and half an hour.

- Kit for genotyping
- Reagents for DNA extraction and PCR
- Rapid eight-minute extraction protocol
- PCR-ready DNA
- DNA extracts from mammalian tissues
- Red loading dye within PCR master mix for direct gel loading

The Fast Extract DNA Solution provides rapid and efficient extraction of PCR-ready DNA from mammalian tissues. DNA is ready in eight minutes. The one-reagent protocol is divided into two simple heating steps, which can be directly followed by PCR analysis using Red Taq DNA Polymerase 2X Master Mix. DNA extraction set-up is easily scaled and can be conducted by robotic automation platforms. Depending on the sample size, the DNA extraction can be performed in PCR tubes or in 1,5 ml tubes, using either a thermocycler or a heating block.

Red Taq DNA polymerase 2X Master mix is a ready to use 2X reaction mix. Simply add primers, the extracted DNA to the PCR reaction mix to successfully carry out PCR. The red dye and stabiliser within the master mix formulation enables the user to load amplified PCR samples directly to the DNA gel. The red dye also provides visualisation of pipetting and mixing.

Prep size: 100 + 25 µl

Method/format: Genotyping - DNA extraction + PCR

Description	Pk	Cat. No.
VWR® fast extract genotyping PCR kit, 100 reactions	100 Tests	733-2878
VWR® fast extract genotyping PCR kit, 500 reactions	500 Tests	733-2879

### WATER, PCR GRADE

Ultrapure water, free of endonuclease-, nicking-, and exonuclease activity, free of human DNA.

- Convenient 5 ml aliquots
- Tested for contaminating activities

Storage at room temperature. Long term storage at -20 °C.

Product expiry at -20 °C is stated on the label.

Description	Pack type	Pk Info	Pk	Cat. No.
Water, PCR grade	Plastic tube	6x5 ml	1 KIT	733-2573

### DNTPS

Ready to use molecular biology grade dNTP mixes and dNTP sets. The dNTP mix is designed to save hands-on time for researchers, and reduce the possibility of contamination by reducing pipetting. dNTP solutions are also available in sets of four individual dNTPs, each 100 mM. Both are convenient for use in DNA polymerisation reactions, DNA labelling and sequencing processes.

- Available as pre-mixed 10 or 25 mM solutions, or as sets of individual 100 mM dNTP solutions
- Both pre-mixed and sets have been functionally tested in PCR
- Purity >99% by HPLC
- Supplied in solution at pH 7,3 to 7,5



dNTP mix, 10 mM

Description	Pk	Cat. No.
dNTP mix, 10 mM of each dA, dC, dG, and dT, 2x500 µl	1.000 µl	733-1363
dNTP set, separate vials of dA, dC, dG, dT, each 100 mM, 4x250 µl	1 SET	733-1364
dNTP mix, 25 mM of each dA, dC, dG, and dT, 2x1 ml	2.000 µl	733-1854
dNTP set, separate vials of dA, dC, dG, dT, each 100 mM, 16x250 µl	1 SET	733-1855



10X Key Buffer

### PCR BUFFERS

An optimal buffer system is critical for the performance of successful PCR. VWR® Taq DNA Polymerase kits generally include two different buffers, Key Buffer and Extra Buffer, which are suited for different PCR needs. All buffers contain Tris and 15 mM MgCl<sub>2</sub> (1,5 mM MgCl<sub>2</sub> final concentration). Additional MgCl<sub>2</sub> for easy optimisation is included in a separate vial.

**Key Buffer:** Key Buffer (NH<sup>4+</sup>) gives a superior amplification signal (high yield) and minimises the need for optimisation of the Mg<sup>2+</sup> concentration or the annealing temperature in most primer-template systems.

**Extra Buffer:** Extra Buffer is the traditional potassium (K<sup>+</sup>) buffer. Extra Buffer promotes high specificity. Careful optimisation of primer annealing temperatures and Mg<sup>2+</sup> concentrations may be required.

**Combination Buffer:** Combination Buffer is a proprietary mixture of K<sup>+</sup> and NH<sup>4+</sup>. It combines high specificity with good product yield and high tolerance to optimisation of primer annealing temperatures and Mg<sup>2+</sup> concentrations due to its balanced ammonium-potassium formulation.

**Buffers for GC-rich templates:** Combined with VWR® TEMPase the GC buffers promote excellent amplification results with targets of varying degrees of GC content. This confirms that the choice of buffer is crucial for any successful amplification.

Description	Key Buffer	Extra Buffer	Combination Buffer
Application		Standard amplification	
Concentration		10x	
Size		3 x 1.5 ml	
Storage conditions		20 °C (long term), + 4 °C (6 months)	

Description	Pk	Cat. No.
10X Key Buffer, 15 mM MgCl <sub>2</sub>	1 SET	733-1349
10X Extra Buffer, 15 mM MgCl <sub>2</sub>	1 KIT	733-2303
10X Combination Buffer, 15 mM MgCl <sub>2</sub>	1 SET	733-1352



5X Betaine enhancer solution

### BETAINE ENHANCER, 5 M (5X)

Betaine enhancer is especially effective when used with high GC-rich regions or templates with a high degree of secondary structures. It has a decreasing effect on the primer melting temperature.

Description	Pk	Cat. No.
5X Betaine enhancer solution, 5 M, 5x1 ml	5 ml	733-1361
5X Betaine Enhancer solution, 5 M, 100x10 ml	1 KIT	733-2450
5X Betaine Enhancer solution, 5 M, 10x100 ml	1 KIT	733-2451



DNA loading dyes

### DNA LOADING BUFFERS

These DNA loading dyes are used to load DNA samples to agarose or SDS DNA gels for gel electrophoresis.

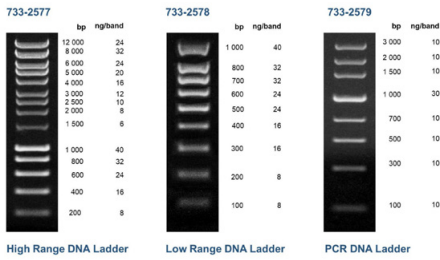
Suitable for TAE, TBE, SB and LB electrophoresis buffers.

EC Regulation No. 1907/2006 (REACH).

Each kit contains 5x1 ml.

Store at -20 °C for *in vitro* use only.

Description	Colour	Pk	Cat. No.
Loading dye 5X	Red	1 KIT	733-2574
Loading dye 5X	Blue	1 KIT	733-2575
Loading dye 5X	Orange	1 KIT	733-2576



DNA ladder 100 BP

**DNA LADDERS FOR AGAROSE AND POLYACRILAMIDE GELS**

VWR DNA ladders are supplied in a loading buffer that is ready to use on agarose and polyacrylamide DNA gels. The ladders are suitable with TBE, TAE, SB and LB electrophoresis systems.

- Supplied in loading buffer, ready to use directly on the gel
- Mass-calibrated bands for DNA quantification
- PCR DNA ladder has a 1000 bp band that is extra bright to serve as reference point

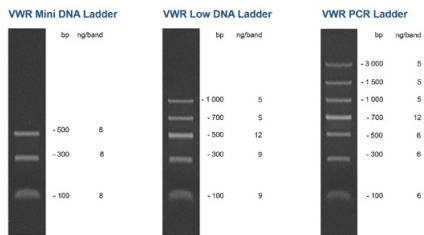
High range DNA ladder molecular range: 200 to 12000 bp; mass-calibrated bands from 6 to 40 ng/band for DNA quantification.

Low range DNA ladder molecular range: 100 to 1000 bp; mass-calibrated bands from 8 to 40 ng/band for DNA quantification.

PCR DNA ladder molecular range: 100 to 3000 bp; mass-calibrated bands from 10 to 30 ng/band for DNA quantification.

Each DNA ladder is supplied in 0,5 ml packs sufficient for 250 lanes.

Description	Pk	Cat. No.
High range DNA ladder, 200 to 12000 bp, sufficient for 250 lanes (loading 2 µl per gel), 1x0,5 ml	1 KIT	733-2577
Low range DNA ladder, 100 to 1000 bp, sufficient for 250 lanes (loading 2 µl per gel), 1x0,5 ml	1 KIT	733-2578
PCR ladder, 100 to 3000 bp, sufficient for 250 lanes (loading 2 µl per gel), 1x0,5 ml	1 KIT	733-2579



Low DNA ladder

**DNA LADDERS FOR AGAROSE AND SDS GELS**

VWR DNA ladders are convenient dsDNA ladders supplied in a loading buffer, which are ready to use on agarose and SDS DNA gels.

- Ready to use loading buffer
- For direct loading and easy visualisation
- Suitable with TBE and TAE electrophoresis systems
- Clear, distinct bands
- Blue dye front running at 100 to 300 bp at 0,5 to 1,5% agarose

Supplied in 0,5 ml packs for 100 lanes.

Description	Pk	Cat. No.
Mini DNA ladder, 100 – 500 bp	100 Tests	733-2601
Low range DNA ladder, 100 – 1000 bp	100 Tests	733-2602
PCR ladder, 100 – 3000 bp	100 Tests	733-2603

# From sample to sequence

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From manual to automated processes

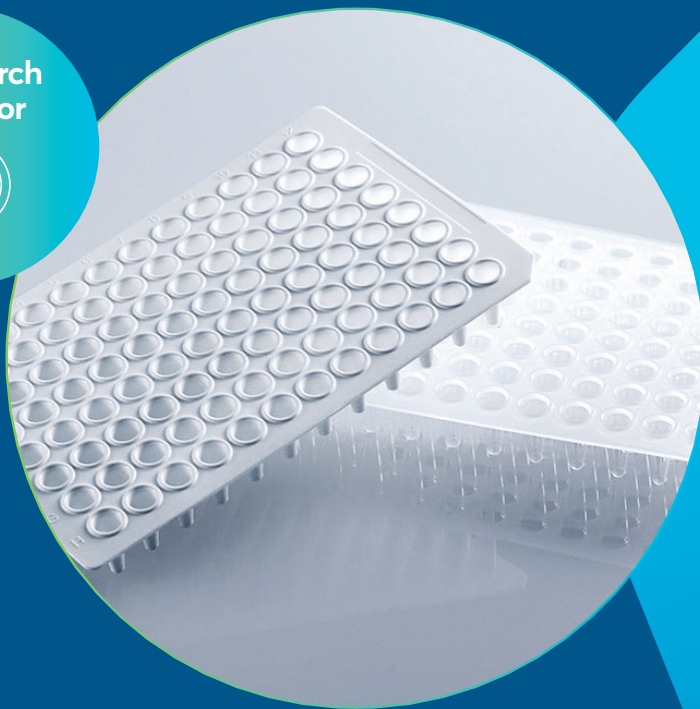
Increase your throughput and gain more insight while saving costs and time.



# PCR consumables

Good quality at reasonable price?  
Easy to find at **vwr.com**. Will it fit  
your application or PCR instrument?  
Use these selector tools!

Quick search  
by selector

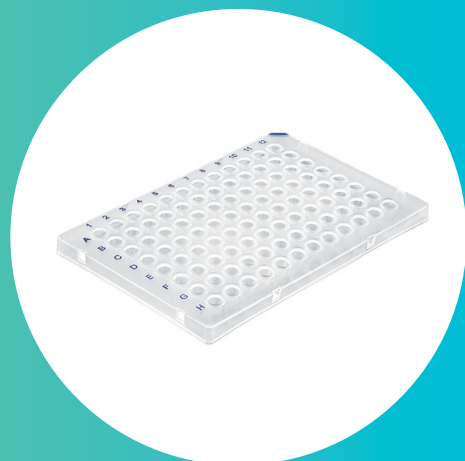


[Click here to select PCR tubes and strips](#)

[Click here to search for PCR plates](#)

# PCR consumables

Provide your PCR reactions with the perfect housing, and take advantage of our huge choice of PCR consumables. Injection-moulded from virgin polypropylene, and quality tested thoroughly, VWR Collection PCR tubes, strips and plates come in all shapes and formats to fit your needs, as well as our adhesive sealing films and foils, available in variety of materials to suit your PCR/qPCR applications.



Compatibility Table : PCR plate with Cyclers

	Standard Profile									Low Profil									
	non-skirted		Semi Skirted						non-skirted		Semi Skirted					Full Skirted			
	Natural	White	Natural			White			Natural	White	Natural		White			Natural		White	
	VWR1732-3753	VWR1732-3754	VWR1732-3755	VWR1732-3756	VWR1732-3757	VWR1732-3758	VWR1732-3759	VWR1732-3757	VWR1732-3760	VWR1732-3761	VWR1732-3762	VWR1732-3763	VWR1732-3764	VWR1732-3765	VWR1732-3766	VWR1732-3767	VWR1732-3768	VWR1732-3769	VWR1732-3770
ABI Applied Biosystems																			
7500	•	•	•	•		•	•	•	•	•	•	•	•	•					
7700	•	•	•	•		•	•	•	•										
7500 Fast	•	•										•	•	•					
7900 HT	•	•	•	•		•	•	•	•			•	•	•					
MiniAmp			•	•		•	•	•	•										
MiniAmp Plus			•	•		•	•	•	•										
ProFlex				•	•	•	•	•	•										
Quant Studio™ 96-well			•	•		•	•	•	•										
Quant Studio™ 96-well fast										•	•	•	•	•					
SimpliAmp			•	•		•	•	•	•										
Step One Plus			•	•		•	•	•	•			•	•	•					
Veriti 0.1 ml												•	•	•					
Veriti 0.2 ml			•	•		•	•	•	•										
ViiATM 7			•	•		•	•	•	•	•	•	•	•	•					
Agilent																			
AriaMx										•	•						•	•	•
Mx3000P	•	•																	
Mx3005P	•	•																	
Analytik Jena / Biometra																			
qTower																	•	•	•
Tadvanced	•	•	•	•		•	•	•	•	•	•						•	•	•
TOne	•	•	•	•		•	•	•	•	•	•						•	•	•
TRobot	•	•	•	•		•	•	•	•	•	•						•	•	•
Axygen																			
MaxyGene II	•	•	•	•		•	•	•	•	•	•						•	•	•
Bio-Rad																			
C1000/C1000 Touch	•	•	•	•		•	•	•	•	•	•						•	•	•
CFX Connect			•	•		•	•	•	•	•	•						•	•	•
CFX Touch			•	•		•	•	•	•	•	•						•	•	•
S1000	•	•	•	•		•	•	•	•	•	•						•	•	•
T100	•	•	•	•		•	•	•	•										
Eppendorf																			
Mastercycler®	•	•	•	•		•	•	•	•	•	•						•	•	•
Mastercycler® ep	•	•								•	•						•	•	•
Mastercycler® ep Realplex	•	•								•	•	•	•	•			•	•	•
Mastercycler® Gradient	•	•	•	•		•	•	•	•										
Mastercycler® Nexus	•	•	•	•		•	•	•	•										
Roche																			
LightCycler 480															•	•			
LightCycler 96															•	•			
Takara																			
TP 3000	•	•	•	•		•	•	•	•	•	•	•	•	•			•	•	•
VWR																			
UNO96	•	•	•	•		•	•	•	•	•	•	•	•	•			•	•	•
UNO96 HPL	•	•	•	•		•	•	•	•	•	•	•	•	•			•	•	•
XT96	•	•	•	•		•	•	•	•	•	•	•	•	•					





PCR plate 96W semi skirted 0,2 ml

### PCR/QPCR PLATES, 96-WELLS, PLASTIC

PCR Plates are available in variety of styles to fit most thermal cyclers in the market.

- Broad thermal cycler compatibility
- High-contrast, black alphanumeric indexing for easy well identification
- Crystal-clear wells to easily verify sample volume
- Ultra-thin, uniform wells with optimal heat transfer and higher reaction efficiency
- Plate sealing options like film, foil, silicone mats and strip caps which reduce sample evaporation

Each plate is designed to meet or exceed the specifications and performance of plates supplied by the original equipment manufacturer.

Manufactured from high-clarity, ultra-pure polypropylene, meets FDA 21 CFR 177.1520 & USP Class VI. Certified free of detectable DNase, RNase, DNA, PCR inhibitors, and tested pyrogen-free.

Bar-coded semi-skirted and full-skirted plates available.

Description	No. of wells	Profile	Skirt	Well volume (ml)	Well colour	Frame colour	Barcoded	Pk	Cat. No.
<b>Standard profile</b>									
PCR plates, cut corner A12	96	Standard	Non-skirted	0,2	Natural	Natural	No	50	732-3753
PCR plates, cut corner A12	96	Standard	Non-skirted	0,2	White	White	No	50	732-3754
PCR plates, cut corner A12	96	Standard	Semi-skirted	0,2	Natural	Natural	No	50	732-3755
PCR plates, cut corner A12	96	Standard	Semi-skirted	0,2	Natural	Natural	Yes	50	732-3756
PCR plates, cut corner A12	96	Standard	Semi-skirted	0,2	White	White	No	50	732-3757
PCR plates, cut corner A12	96	Standard	Semi-skirted, raised rim	0,2	Natural	Natural	No	50	732-3758
PCR plates, cut corner A12	96	Standard	Semi-skirted, raised rim	0,2	Natural	Natural	Yes	50	732-3759
PCR plates, cut corner A12	96	Standard	Semi-skirted, raised rim	0,2	White	White	No	50	732-3760
<b>Low profile</b>									
PCR plates, cut corner H1	96	Low	Fully skirted	0,1	Natural	Natural	No	50	732-3768
PCR plates, cut corner H1 96	96	Low	Fully skirted	0,1	Natural	Natural	Yes	50	732-3769
PCR plates, cut corner H1 96	96	Low	Fully skirted	0,1	White	White	No	50	732-3770
PCR plates, cut corner H12 96	96	Low	Non-skirted	0,1	Natural	Natural	No	50	732-3761
PCR plates, cut corner H12 96	96	Low	Non-skirted	0,1	White	White	No	50	732-3762
PCR plates, cut corner A1, ABI Fast Block	96	Low	Semi-skirted	0,1	Natural	Natural	No	50	732-3763
PCR plates, cut corner A1, ABI Fast Block	96	Low	Semi-skirted	0,1	Natural	Natural	Yes	50	732-3764
PCR plates, cut corner A1, ABI Fast Block	96	Low	Semi-skirted	0,1	White	White	No	50	732-3765
PCR plates, cut corner H12 ,Roche LC	96	Low	Semi-skirted	0,1	White	White	No	50	732-3766
PCR plates, cut corner H12, Roche LC	96	Low	Semi-skirted	0,1	White	White	Yes	50	732-3767



PCR tubes and strips

**STRIPS OF PCR TUBES AND CAPS**

These PCR tube strips and caps are made of PP resin and are designed to fit most popular brands of thermal cyclers.

- Certified free from DNase, RNase and human DNA
- Manufactured from polypropylene under strict quality control guidelines

Available with domed or flat caps.

Description	Colour	Capacity (ml)	Pk	Cat. No.
<b>PCR tubes</b>				
8-tube strips for PCR, with detached domed cap strip	Clear	0,2	250	732-1521
8-tube strips for PCR, with hinged domed cap strip	Clear	0,2	125	732-0546
8-tube strips for PCR, with individually attached domed caps, break-apart	Clear	0,2	120	732-0545
8-tube strips for PCR, with individually attached, optically clear, flat caps	Assorted	0,2	120	732-3609
8-tube strips for PCR, with separate domed cap strip	Clear	0,2	125	732-3485
12-tube strips for PCR, with separate domed 12-cap strip	Clear	0,2	80	732-0554
12-tube strips for PCR, without caps	Clear	0,2	80	732-0552
<b>qPCR tubes</b>				
4-tube strips, for Qiagen Rotorgene, with caps	Natural	-	250	732-1506
8-tube strips for qPCR, low profile, with individually attached, optically clear, flat caps	Clear	0,1	120	211-0339
8-tube strips for qPCR, low profile, with individually attached, optically clear, flat caps and opaque white wells	White	0,1	120	731-0367
8-tube strips for qPCR, low-profile, with individually attached, optically clear, flat caps, break-apart	Clear	0,1	120	732-3499
8-tube strips for qPCR, with individually attached, optically clear, flat caps	Clear	0,2	120	732-3608
8-tube strips for qPCR, with attached, optically clear, hinged flat cap strip	Clear	0,2	125	211-0381
8-tube strips for qPCR, with separate flat 8-cap strip	Clear	0,2	125	732-3610
8-tube strips for qPCR, without caps	White	0,2	125	732-3391
8-tube strips for qPCR/PCR, with detached flat cap strip	Clear	0,2	250	732-1520
8-tube strips for qPCR/PCR, with individually attached, optically clear, flat caps, break-apart	Clear	0,2	120	211-0338
8-tube strips for qPCR/PCR, without caps	Clear	0,2	125	732-1517
8-tube strips for qPCR/PCR, without caps	Clear	0,2	125	732-3484
<b>Cap strips only</b>				
8-cap strips, domed	Clear		125	732-0550
8-cap strips, domed, for 0,2 ml tube strips	Clear		125	732-1518
8-cap strips, flat, for qPCR, fitting tube strip 732-3391 & 732-1517	Clear		125	732-1519
12-cap strips, domed	Clear		80	732-0553



PCR tubes and strips

**PCR TUBES, 0,2 ML**

These PCR tubes with caps are made of PP resin and are designed to fit most popular brands of thermal cyclers.

- Certified free from DNase, RNase and human DNA
- Manufactured from polypropylene under strict quality control guidelines

Available with domed or flat caps.

Environmentally preferable attribute		Low Manufacturing Impact, Sustainable Packaging		
Description	Colour	Capacity (ml)	Pk	Cat. No.
Individual PCR tubes, with attached flat caps	Clear	0,2	1.000	732-0548
Individual PCR tubes, with attached domed caps	Clear	0,2	1.000	732-0547

**PCR PLATES, 96-WELL, SEMI-SKIRTED**

PCR Plates are available in variety of styles to fit most thermal cyclers in the market.

- Broad thermal cycler compatibility
- High-contrast, black alphanumeric indexing for easy well identification
- Crystal-clear wells to easily verify sample volume
- Ultra-thin, uniform wells with optimal heat transfer and higher reaction efficiency
- Plate sealing options like film, foil, silicone mats and strip caps which reduce sample evaporation

Each plate is designed to meet or exceed the specifications and performance of plates supplied by the original equipment manufacturer.

Manufactured from high-clarity, ultra-pure polypropylene, meets FDA 21 CFR 177.1520 & USP Class VI. Certified free of detectable DNase, RNase, DNA, PCR inhibitors, and tested pyrogen-free.

Bar-coded semi-skirted and full-skirted plates available.

Description	No. of wells	Profile	Skirt	Well volume (ml)	Well colour	Frame colour	Barcoded	Pk	Cat. No.
ABI® type, corner- A12	96	Standard	Semi-skirted	0,2	Crystal clear	Clear	Yes	100	211-0283
ABI® type, corner- A12	96	Low	Semi-skirted, raised rim	0,2	Crystal clear	Clear	Yes	10	732-3487
ABI® type, corner- A12	96	Low	Semi-skirted, raised rim	0,2	Crystal clear	Assorted	No	10	732-3488
ABI® type, corner- A12	96	Low	Semi-skirted, raised rim	0,1	Crystal clear	Clear	No	10	732-3489
FAST® type, corner- A1	96	Low	Semi-skirted, raised rim	0,1	Crystal clear	Clear	No	10	732-3491
LightCycler® type	96	Low	Semi-skirted, raised rim	0,1	Crystal clear	Clear	Yes	10	732-3495
LightCycler® type	96	Low	Semi-skirted, raised rim	0,1	Crystal clear	White	Yes	10	732-3496
ABI® type, corner- A12	96	Low	Semi-skirted, raised rim	0,2	Crystal clear	Clear	Yes	10	732-3490
Straight side, corner- A12	96	Low	Semi-skirted, raised rim	0,2	Crystal clear	Clear	Yes	10	732-3494

**PCR PLATES, 96-WELL, NON-SKIRTED**

PCR Plates are available in variety of styles to fit most thermal cyclers in the market.

- Broad thermal cycler compatibility
- High-contrast, black alphanumeric indexing for easy well identification
- Crystal-clear wells to easily verify sample volume
- Ultra-thin, uniform wells with optimal heat transfer and higher reaction efficiency
- Plate sealing options like film, foil, silicone mats and strip caps which reduce sample evaporation

Each plate is designed to meet or exceed the specifications and performance of plates supplied by the original equipment manufacturer.

Manufactured from high-clarity, ultra-pure polypropylene, meets FDA 21 CFR 177.1520 & USP Class VI. Certified free of detectable DNase, RNase, DNA, PCR inhibitors, and tested pyrogen-free.

Bar-coded semi-skirted and full-skirted plates available. Non-skirted item 3410-00 is also available in 24 and 48 well sizes.

No. of wells	Profile	Skirt	Well colour	Frame colour	Pk	Cat. No.
96	Low	Non-skirted	Clear	Clear	20	732-3486



732-2387



732-2388

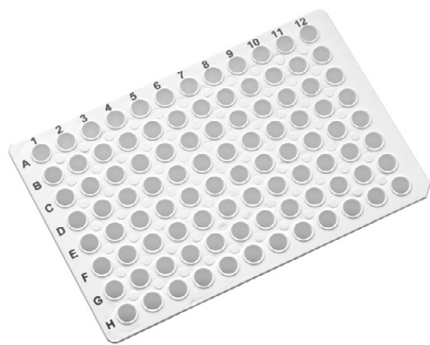
### PCR PLATES, 96-WELL

PP. These PCR plates are compatible with most thermal cyclers.

- Smooth, thin, uniform well walls ensure accurate thermal transfer
- Plates are thin and flexible
- Certified free from DNase, RNase and human genomic DNA
- Printed alphanumeric labelling and cut corner simplifies plate orientation and sample identification

Description	No. of wells	Profile	Skirt	Well volume (ml)	Well colour	Barcoded	Pk	Cat. No.
<b>With coloured lettering</b>								
PCR plate	96	Standard	Non-skirted	0,20	Clear	No	100	732-2387
PCR plate, recommended for automation	96	Standard	Semi-skirted	0,20	Clear	Yes	100	732-2390
PCR plate	96	Low	Non-skirted	0,15	Clear	No	100	732-2386
PCR plate, recommended for automation	96	Low	Semi-skirted	0,15	Clear	Yes	100	732-2388
PCR plate, recommended for automation	96	Low	Semi-skirted, raised rim	0,15	Clear	Yes	100	732-2389
PCR plate	96	Standard	Non-skirted	0,20	White	No	100	732-3388
PCR plate	96	Low	Non-skirted	0,15	White	No	100	732-3387
PCR plate, recommended for automation	96	Low	Semi-skirted	0,15	White	Yes	100	732-3389
PCR plate, recommended for automation	96	Low	Semi-skirted, raised rim	0,15	White	Yes	100	732-3390
PCR plate	96	Low	Fully skirted	0,10	Purple	No	100	211-0302
<b>Without coloured lettering</b>								
PCR plate	96	Standard	Non-skirted	0,20	Clear	No	100	211-0262
PCR plate, raised well	96	Standard	Non-skirted	0,20	Clear	No	100	211-0269
PCR plate	96	Low	Fully skirted	0,10	Clear	No	100	211-0297
PCR plate	96	Standard	Non-skirted	0,20	Assorted	No	100	211-0263
PCR plate	96	Standard	Non-skirted	0,20	Blue	No	100	211-0264
PCR plate	96	Standard	Non-skirted	0,20	Green	No	100	211-0265
PCR plate	96	Standard	Non-skirted	0,20	Purple	No	100	211-0266
PCR plate	96	Standard	Non-skirted	0,20	Red	No	100	211-0267
PCR plate	96	Standard	Non-skirted	0,20	Yellow	No	100	211-0268
PCR plate	96	Standard	Fully skirted	0,20	Assorted	No	100	211-0298
PCR plate	96	Low	Fully skirted	0,10	Blue	No	100	211-0300
PCR plate	96	Standard	Fully skirted	0,20	Green	No	100	211-0301
PCR plate	96	Low	Fully skirted	0,10	Red	No	100	211-0303
PCR plate	96	Standard	Fully skirted	0,20	Yellow	No	100	211-0304

Description	Colour	Pk	Cat. No.
<b>Cap strips only</b>			
8-cap strips, domed	Clear	125	732-0550
8-cap strips, domed, for 0,2 ml tube strips	Clear	125	732-1518
8-cap strips, flat, for qPCR, fitting tube strip 732-3391 & 732-1517	Clear	125	732-1519



**qPCR PLATES, 96-WELL**

PP. These white qPCR plates and optically-clear cap closures are suitable for Real-Time qPCR applications. White qPCR plates are designed to enable sensitive and accurate fluorescence detection. When used together with ultra-clear caps or optical seals, these products will increase sensitivity and reduce variability in qPCR assays.

- Smooth, thin, uniform well walls ensure accurate thermal transfer
- Wells are slightly raised to accept optically-clear strip caps or sealing film
- Certified free from DNase, RNase and human genomic DNA

Working capacity: 200 µl

No. of wells	Profile	Skirt	Well volume (ml)	Well colour	Frame colour	Pk	Cat. No.
96	Standard	Non-skirted	0,2	White	White	100	211-0313
96	Low	Fully skirted	0,2	White	White	100	211-0315
96	Standard	Semi-skirted	0,2	White	White	100	211-0317

Description	Pk	Cat. No.
<b>Accessories</b>		
Optically clear 8-cap strips for Real-Time PCR plates	125	211-0350

**PCR PLATES, 384-WELL, SKIRTED**

PCR Plates are available in variety of styles to fit most thermal cyclers in the market.

- Broad thermal cycler compatibility
- High-contrast, black alphanumeric indexing for easy well identification
- Crystal-clear wells to easily verify sample volume
- Ultra-thin, uniform wells with optimal heat transfer and higher reaction efficiency
- Plate sealing options like film, foil, silicone mats and strip caps which reduce sample evaporation

Each plate is designed to meet or exceed the specifications and performance of plates supplied by the original equipment manufacturer.

Manufactured from high-clarity, ultra-pure polypropylene meets FDA 21 CFR 177.1520 & USP Class VI. Certified free of detectable DNase, RNase, DNA, PCR inhibitors, and tested pyrogen-free.

Bar-coded semi-skirted and full-skirted plates available.

<b>Environmentally preferable attribute</b>	Low Manufacturing Impact, Sustainable Packaging
---------------------------------------------	-------------------------------------------------

Description	No. of wells	Skirt	Well colour	Frame colour	Barcoded	Pk	Cat. No.
ABI® type, one-notch, corner- A24	384	Fully skirted	Crystal clear	Clear	No	10	732-3422



**PCR PLATES, 384-WELL**

PP. These PCR plates are compatible with most thermal cyclers, and are ideal for high throughput screening thermal cycler applications.

- Smooth, thin, uniform well walls ensure accurate thermal transfer
- Wells are slightly raised to accommodate sealing mats, films or foils
- Plates are skirted to allow barcoding, and include a frosted labelling area
- Lot tested and certified free from DNase, RNase and human genomic DNA
- Printed alphanumeric labelling simplifies plate and sample identification

Working capacity: 25 µl

No. of wells	Skirt	Well colour	Frame colour	Pk	Cat. No.
384	Fully skirted	Clear	Clear	100	211-0305

Selection Guide by Product Application : Sealing Films

Product Description	EU Catalog No.	Non-Skirted / Raised-Rim Microplates	Flat-Top Microplates	Dual Component (Polycarbonate/Polypropylene)	PCR 8-Tube Strips / Strip Wells / Single Plate Row	PCR	qPCR (Real-Time)	Short-Term Storage/Incubation/ELISA	Long-Term Storage	Cell/Tissue/Bacterial Culture	Protein Crystallography	HPLC	Fluorescence/Luminescence	Sonication
VWR® Heat-Resistant Films for Real-Time qPCR, Ultra-Clear Polyester, Raised Rim	391-1295	•	•	•			•							
VWR® Heat-Resistant Films for Real-Time qPCR, Ultra-Clear Polyester	391-1258		•	•			•							
VWR® Polyolefin Films with Silicone Adhesive for qPCR, Storage, and Protein Crystallization	391-0189	•	•				•		•		•	•		
VWR® Polyolefin Silicone Film	391-0624	•	•				•		•		•	•		
VWR® Heat-Resistant Strip Films for PCR	731-0321		•			•								
VWR® Heat-Resistant Polypropylene Film for Raised-Rim Plates	391-1294	•				•								
VWR® Ultimate Seal Films for PCR and Microplates	391-0622	•	•			•								
VWR® Heat-Resistant Films for PCR, Polypropylene	391-1254		•			•								
VWR® Heat-Resistant Films for PCR, Polypropylene	391-1255		•			•								
VWR® Aluminum Foils for PCR and Cold Storage	391-1256		•	•		•			•					
VWR® Aluminum Foils for PCR and Cold Storage	391-1257		•	•		•			•					
VWR® Aluminum Foils for 96- and 384-Well Plates	391-1281		•			•			•					
VWR® Aluminum Foils for 96- and 384-Well Plates	391-1282	•				•			•					
VWR® Precut Pierceable Vinyl Films for Robotics	391-1286		•									•		•
VWR® Precut Pierceable Vinyl Films for Robotics	391-1287		•									•		•
VWR® Clear-Zone Pierceable Films for Robotics	391-1264		•									•		
VWR® Adhesive Sealing Films in Roll Format for Automated Sealers	731-0307		•			•			•					
VWR® Adhesive Sealing Films in Roll Format for Automated Sealers	731-0308		•				•		•		•	•		
Adhesive sealing film qPCR/storage	391-0644	•	•				•		•		•	•		
Adhesive sealing foil strips pierc. PCR	391-0637		•		•	•								
Adhesive sealing film strips PE PCR	391-0638		•		•	•								
Adhesive sealing foil roll piercab. PCR	391-0641	•	•			•								
Adhesive sealing film PCR/storage large	391-0643		•			•								

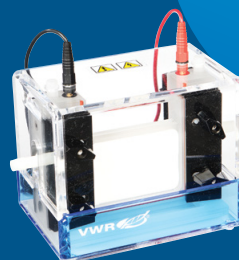


Solutions for discovery

VWR® electrophoresis

Instruments, reagents and accessories for

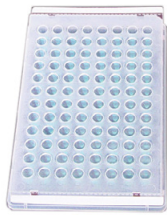
- Nucleic acid electrophoresis
- Protein electrophoresis
- Blotting
- Bio imaging



For your copy visit  
[vwr.com](http://vwr.com)

Selection Guide by Product Attribute : Sealing Films

Product Description	EU Catalog No.	Functional Temperature Range	Sterile	Rnase/Dnase Free	Chemically Resistant	Pierceable	Optically Clear	Transparent	Light Blocking	Breathable	Film / Foil Thickness	Adhesive, Thickness
VWR® Heat-Resistant Films for Real-Time qPCR, Ultra-Clear Polyester, Raised Rim	391-1295	-40°C to +120°C		●			●				Polyester 50.8µm 2mil	Acrylic 29.2µm 1.15mil
VWR® Heat-Resistant Films for Real-Time qPCR, Ultra-Clear Polyester	391-1258	-40°C to +120°C		●			●				Polyester 50.8µm 2mil	Acrylic 29.2µm 1.15mil
VWR® Polyolefin Films with Silicone Adhesive for qPCR, Storage, and Protein Crystallization	391-0189	-80°C to +105°C		●	●		●				Polyolefin 50.8µm 2mil	Silicone 50.8µm 2mil
VWR® Polyolefin Silicone Film	391-0624	-80°C to +105°C	●	●	●		●				Polyolefin 50.8µm 2mil	Silicone 50.8µm 2mil
VWR® Heat-Resistant Strip Films for PCR	731-0321	-40°C to +120°C		●				●			Polypropylene 50.8µm 2mil	Acrylic 26.7µm 1.05mil
VWR® Heat-Resistant Polypropylene Film for Raised-Rim Plates	391-1294	-40°C to +120°C		●				●			Polyester 50.8µm 2mil	Acrylic 41.9µm 1.65mil
VWR® Ultimate Seal Films for PCR and Microplates	391-0622	-20°C to +120°C		●				●			Polyester 50.8µm 2mil	Acrylic 41.9µm 1.65mil
VWR® Heat-Resistant Films for PCR, Polypropylene	391-1254	-40°C to +120°C		●				●			Polypropylene 50.8µm 2mil	Acrylic 24.1µm .95mil
VWR® Heat-Resistant Films for PCR, Polypropylene	391-1255	-40°C to +120°C		●				●			Polypropylene 50.8µm 2mil	Acrylic 24.1µm .95mil
VWR® Aluminum Foils for PCR and Cold Storage	391-1256	-80°C to +120°C		●	●	●			●		Aluminum foil 35.6µm 1.4mil	Acrylic 27.9µm 1.1mil
VWR® Aluminum Foils for PCR and Cold Storage	391-1257	-80°C to +120°C		●	●	●			●		Aluminum foil 35.6µm 1.4mil	Acrylic 27.9µm 1.1mil
VWR® Aluminum Foils for 96- and 384-Well Plates	391-1281	-80°C to +120°C		●		●			●		Aluminum foil 38.1µm 1.5mil	Acrylic 37.6µm 1.48mil
VWR® Aluminum Foils for 96- and 384-Well Plates	391-1282	-80°C to +120°C		●		●			●		Aluminum foil 38.1µm 1.5mil	Acrylic 37.6µm 1.48mil
VWR® Precut Pierceable Vinyl Films for Robotics	391-1286	-40°C to +90°C					●	●			Vinyl 88.9µm 3.5mil	Acrylic 17.8µm 0.7mil
VWR® Precut Pierceable Vinyl Films for Robotics	391-1287	-40°C to +90°C	●				●	●			Vinyl 88.9µm 3.5mil	Acrylic 17.8µm 0.7mil
VWR® Clear-Zone Pierceable Films for Robotics	391-1264	-40°C to +90°C					●	●			Polyethylene 69.9µm 2.75mil	Acrylic 26.7µm 1.05mil
VWR® Adhesive Sealing Films in Roll Format for Automated Sealers	731-0307	-80°C to +120°C		●		●			●		Aluminum foil 38.1µm 1.5mil	Acrylic 37.6µm 1.48mil
VWR® Adhesive Sealing Films in Roll Format for Automated Sealers	731-0308	-80°C to +105°C		●	●		●				Polyolefin 50.8µm 2mil	Silicone 50.8µm 2mil
Adhesive sealing film qPCR/storage	391-0644	-80°C to +105°C		●	●		●				Polyolefin 50.8µm 2mil	Silicone 50.8µm 2mil
Adhesive sealing foil strips pierc. PCR	391-0637	-20°C to +120°C		●		●			●		Aluminum Foil 50.8µm 2mil	Acrylic 36.8µm 1.45mil
Adhesive sealing film strips PE PCR	391-0638	-20°C to +120°C		●				●			Polypropylene 50.8µm 2mil	Acrylic 41.9µm 1.65mil
Adhesive sealing foil roll piercab. PCR	391-0641	-20°C to +120°C		●		●			●		Aluminum Foil 50.8µm 2mil	Acrylic 36.8µm 1.45mil
Adhesive sealing film PCR/storage large	391-0643	-20°C to +120°C		●				●			Polyester 50.8µm 2mil	Acrylic 41.9µm 1.65mil



### ADHESIVE PCR FILM SEALS

These heat resistant 74,9 µm thick films are designed for thermal cycling applications. Polypropylene films are not pierceable. For PCR applications, where piercing with pipette tips or robotic probes is required for product recovery, use aluminium foil films. For Real-Time PCR applications, where maximum optical clarity is required, use optically-clear polyester films.

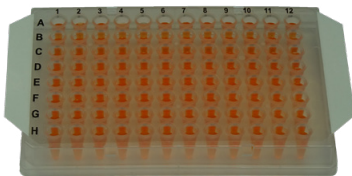
- Recommended for temperatures from -40 to +120 °C
- Certified free from DNase, RNase and nuclease

Each film LxD: 135,1x79,4 mm with sufficient sealing area for all PCR plates.

Length with end tabs removed: 123,1 mm

\* stronger, thicker adhesive and cut to fit raised-rim plates

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Adhesive PCR film seals	Transparent	-	74,9	100	391-1254
Adhesive PCR film seals	Transparent	+	74,9	100	391-1255
Adhesive PCR film strips to seal 2x8 wells	Transparent	-	74,9	200	731-0321
Adhesive PCR film seals*	Transparent	-	92,7	100	391-1294



Adhesive sealing films for PCR and storage

### ADHESIVE SEALING FILMS FOR PCR AND STORAGE

Polyester seals feature a strong adhesive to minimize evaporation during PCR and storage applications.

- Ideal for PCR & storage
- Certified DNase- and RNase- free
- Temperature range is -40 to +120 °C
- Non-pierceable
- Minimizes evaporation

Removes easily without leaving adhesive residue.

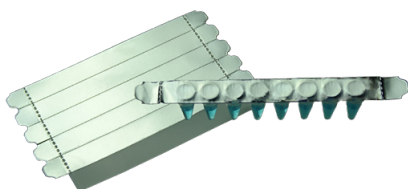
Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Sealing film	Transparent	-	92,7	100	391-0622
Sealing film, large	Transparent	-	92,7	100	391-0643

### ALUMINUM SEALING STRIPS FOR 8-STRIP PCR TUBES

Easier to apply and remove as compared to standard molded PCR strip caps.

- Ideal for PCR
- User-friendly alternative to strip-caps; no sore thumbs and fingers guaranteed
- Seals a single 8-well row of a 96-well plate or a single PCR 8-tube strip
- Certified DNase- and RNase-free
- 2.0 mil pierceable foil
- Recommended temperature range from -20 to +120 °C

6 strips are precut on a continuous liner for ease of use.

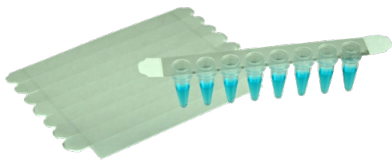


Aluminum sealing strips for 8-strip PCR tubes

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
1x8 sealing strips	Light blocking	-	87,6	300	391-0637



### ADHESIVE SEALING STRIPS FOR 8-STRIP PCR TUBES



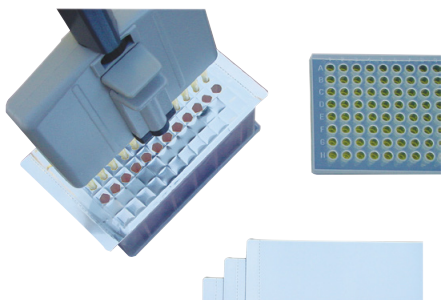
Easier to apply and remove as compared to standard molded PCR strip caps.

- Ideal for PCR and storage
- Alternative to strip-caps; no sore thumbs and fingers guaranteed
- Seals a single 8-well row of a 96-well plate or a single PCR 8-tube strip
- Certified DNase- and RNase-free
- 2.0 mil transparent PE film
- Recommended temperature range from -20 to +120 °C

8 strips are precut on a continuous liner for ease of use.

Adhesive sealing strips for 8-strip PCR tubes

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
1x8 sealing strips	Transparent	-	92,7	400	391-0638



### ADHESIVE PCR FOIL SEALS

These soft, non permeable 63,5 µm thick aluminium foils, with strong medical grade adhesive, eliminate the need for heat sealing devices or mats during thermal cycling. Compared to other aluminium foils, these foils have less tendency to roll back on themselves when removing the backing paper, and fit well to the plate during application.

- Recommended for temperatures from -80 to +120 °C
- Easily pierceable with pipette tips and robotic probes
- Excellent vapour barrier, virtually no sample evaporation
- Certified free from DNase, RNase and nuclease

Each foil LxD: 142,9x82,6 mm with sufficient sealing area for all PCR plates.

Length with end tabs removed: 125,4 mm

Sterile product is packed in tamper-evident bags of 25/bag.

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Aluminium foils	Light blocking	+	63,5	50	391-1257
Aluminium foils	Light blocking	-	63,5	100	391-1256



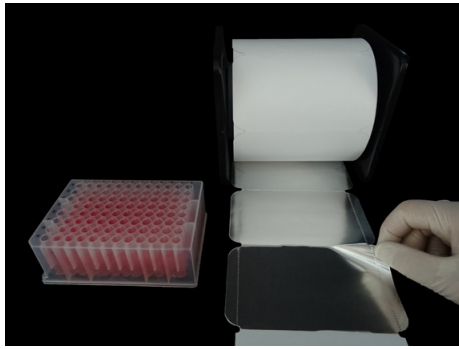
### ALUMINIUM FOIL SEALS FOR PCR AND STORAGE (96- AND 384-WELL PLATES)

Aluminium foils, 75,7 µm thick, for use with 96- or 384-well plates. Fit inside the rim of raised rim plates. These foils have one partial-width end tab. Available non sterile only.

- Recommended for temperatures from -80 to +120 °C
- Certified free from DNase, RNase and nucleic acids

Each foil LxD: 127,0x77,8 mm, including single 9,5 mm end tab.

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Aluminium foils for 96-well plates	Light blocking	-	75,7	100	391-1282
Aluminium foils for 384-well plates	Light blocking	-	75,7	100	391-1281



Adhesive sealing foil roll

### ALUMINIUM FOIL SEALS FOR PCR

Precut aluminum foil seals on a roll for PCR applications. Supplied on a roll with holder for ease of use.

- Ideal for PCR
- Rapidly seal microplates; faster than applying single sheeted film
- 2 mil pierceable foil
- Certified DNase- and RNase-free
- Recommended temperature range from -20 to +120 °C

Self-standing, non-slip dispenser is supplied for ease of use.

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Sealing foil, roll format	Light blocking	-	87,6	500	391-0641



### SEALING FILM FOR AUTOMATION

Adhesive sealing film or foil rolls constructed on plastic cores, for use with high throughput automated microplate sealers.

- Continuous rolls - no splices
- Film or foil does not extend beyond edge of plastic core
- Robust static-free packaging provides protection during shipment and facilitates accurate alignment and adhesion

#### Sealing film for qPCR, sitting-drop protein crystallisation, HTS and cold storage

Clear polyolefin with ultra-strong, pressure-sensitive silicone adhesive for qPCR, sitting-drop protein crystallisation, HTS, storage and general incubation applications.

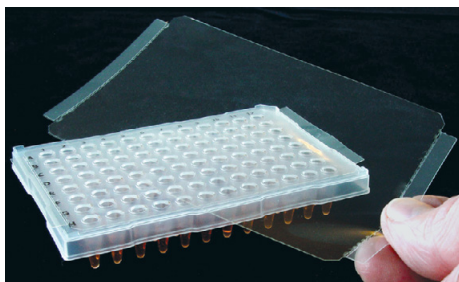
- DMSO resistant
- Nuclease-, nucleic acid- and pyrogen-free
- Provides as strong a bond to the plate as heat sealing films without the drawbacks of heat

#### Sealing foil for PCR, HTS and cold storage

Pierceable aluminium foil with pressure-sensitive acrylic adhesive for PCR, HTS and cold storage.

- DMSO resistant
- Easily pierceable for sample recovery
- Nuclease-, nucleic acid- and pyrogen-free

Description	Optical property	Sterile	Temp. range (°C)	Thickness (µm)	Pk	Cat. No.
Sealing film, polyolefin, DNase- and RNase-free	Optically clear	-	-80...+105	101,6	1 Roll	731-0308
Sealing foil, aluminium	Light blocking	-	-80...+120	75,7	1 Roll	731-0307



### ULTRA-CLEAR FILMS FOR QPCR

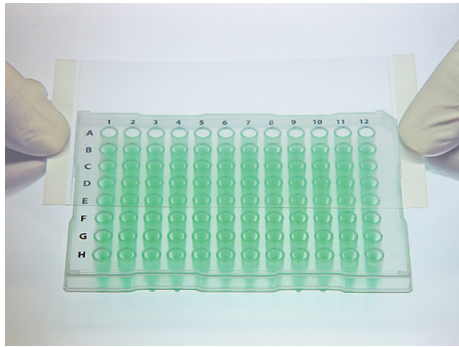
Transparent polyester films with strong, non absorbing, non fluorescing, medical grade adhesive for superior performance in qPCR applications. Supplied non sterile.

- Recommended for temperatures from -40 to +120 °C
- Ultra-high optical clarity
- Certified free from DNase, RNase and nuclease

Each film LxD: 142,9x79,4 mm

Length with end tabs removed: 121,9 mm

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Optically-clear	Optically clear	-	80,0	100	391-1258
Optically-clear, for raised rim plates	Optically clear	-	80,0	100	391-1295



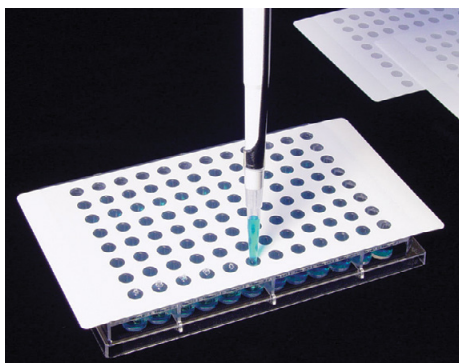
**SEALING FILMS, NON-TACKY, FOR QPCR, STORAGE AND CRYSTALLISATION**

50 µm polyolefin films with 50 µm inert encapsulated silicone adhesive. Especially suited for qPCR, storage and protein crystallisation applications. The encapsulated silicone adhesive is non tacky until pressed against the sealing surface, at which time adhesive is released only in sealing areas to form the strongest available heat resistant seal around each well on the plate.

- High optical clarity, minimal to no autofluorescence
- Chemically inert; no extractables except at extreme pH; DMSO resistant for HTS
- Heat resistant, recommended for temperatures from -80 to +105 °C
- Certified free from DNase, RNase, and nucleic acid

Sized to fit within the edges of raised-rim 96-well plates (76,2x133,4 mm). Two end tabs assist in positioning the film on the plate.

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Sealing film	Optically clear	-	101,6	100	391-0189
Sealing film	Optically clear	+	101,6	50	391-0624
Sealing film	Optically clear	-	101,6	25	391-0644



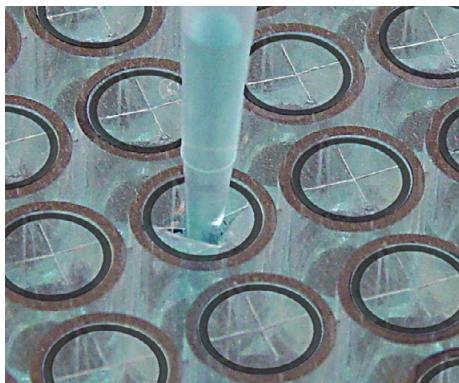
**PIERCEABLE FILMS FOR ROBOTICS, CLEAR-ZONE**

With a polyethylene top layer and inert white polypropylene and acrylic adhesive sublayer, this easy-piercing sealing film allows direct sample recovery with single or multichannel pipettors and robotic probes.

- Clear zone above each well is free of adhesive
- Minimise sample exposure to adhesive
- Recommended temperature range -40 to +90 °C

The adhesive-free zone above each well prevents adhesive fouling of the pipette tip or robotic probe, minimising the amount of adhesive that comes into contact with the sample. Suitable for 96-well plates only.

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Clear-Zone films	Transparent	-	96,6	50	391-1264



**PRECUT PIERCEABLE VINYL FILMS FOR ROBOTICS**

These 106,7 µm thick vinyl films with 20 µm adhesive layer are designed for temporary protection of samples in 96-well plates from contamination and evaporation.

- Protect samples and limit evaporation short-term
- Precut flaps bend inward without fouling probes or tips
- Flaps close for continued protection after sampling
- Recommended temperature range -40 to +90 °C

A precut pattern over each well separates the film into four flaps that bend inward easily when pushed by a robotic probe or pipette tip, allowing access to the sample without coring or adhesive fouling. The resilient flaps regain their original position after sampling for continued sample protection. For long-term sample protection after sampling, a continuous film should be applied as a second layer. Suitable for sealing all standard 96-well plates.

Each film LxD: 145,5x79,4 mm

Description	Optical property	Sterile	Thickness (µm)	Pk	Cat. No.
Precut vinyl films	Transparent	-	106,7	100	391-1286
Precut vinyl films	Transparent	+	106,7	50	391-1287



**PCR RACKS, REVERSIBLE**

- PCR side of the rack has 168 wells that can hold 8-well or 12-well tube strips, or one 0,2 ml tube per well
- Opposite side of the rack has 40 wells that can hold 0,5 ml tubes
- Both sides of the rack have 12 wells that can hold 1,5 ml tubes
- Simple to use, removable hinged lid snaps in place on either side of the rack

Designed to hold 0,2; 0,5 or 1,5 ml tubes.

Assorted pack includes one each of blue, green, purple, yellow and orange.

Description	Colour	Pk	Cat. No.
PCR racks	Assorted colours	5	211-0198



Microcentrifuge tubes

**MICROCENTRIFUGE TUBES, HIGH PERFORMANCE**

These tubes are made from USP Class VI PP, which ensures a clear view of the pellet. They incorporate a high strength wall, and can be centrifuged to twice the g-force that most other microcentrifuge tubes can withstand.

- Amber coloured for light-sensitive substances
- Ideal for vortexing and shaking tables
- RNase-, DNase- and endotoxin-free
- Engraved graduations ensure accuracy
- Fit all common rotors
- Ideal for phenol/chloroform extractions

These tubes also feature flat, pierceable, frosted caps and a side labelling surface. The ergonomically designed caps, with smooth surfaces, help reduce the potential for repetitive strain injuries.

Steam autoclavable at 121 °C and freezable to -80 °C.

Manufactured in a Class 100000 cleanroom environment

Manufactured under ISO 13485:2016 and ISO 9001:2015 quality management systems

Assorted pack contains 100 tubes each of green, blue, red, orange and yellow in separate bags.

Because tubes have a tightly fitting cap, they should not be used for boiling.

Capacity (ml)	Type	Colour	Version	RCF max. (xg)	Pk	Cat. No.
<b>0,5 ml tubes</b>						
0,5	With attached lid	Natural	Graduated, conical bottom, non sterile	35000	1.000	525-1172
0,5	With attached lid	Assorted	Graduated, conical bottom, non sterile	35000	1.000	525-1170
0,5	With attached lid	Blue	Graduated, conical bottom, non sterile	35000	1.000	525-1171
0,5	With attached lid	Green	Graduated, conical bottom, non sterile	35000	1.000	525-1177
0,5	With attached lid	Orange	Graduated, conical bottom, non sterile	35000	1.000	525-1173
0,5	With attached lid	Purple	Graduated, conical bottom, non sterile	35000	1.000	525-1174
0,5	With attached lid	Red	Graduated, conical bottom, non sterile	35000	1.000	525-1175
0,5	With attached lid	Yellow	Graduated, conical bottom, non sterile	35000	1.000	525-1176
<b>1,5 ml tubes</b>						
1,5	With attached lid	Natural	Graduated, conical bottom, non sterile	40000	500	525-1164
1,5	With attached lid	Amber	Graduated, conical bottom, non sterile	40000	500	525-1161
1,5	With attached lid	Assorted	Graduated, conical bottom, non sterile	40000	500	525-1167
1,5	With attached lid	Blue	Graduated, conical bottom, non sterile	40000	500	525-1162
1,5	With attached lid	Green	Graduated, conical bottom, non sterile	40000	500	525-1163
1,5	With attached lid	Orange	Graduated, conical bottom, non sterile	40000	500	525-1165
1,5	With attached lid	Purple	Graduated, conical bottom, non sterile	40000	500	525-1166
1,5	With attached lid	Red	Graduated, conical bottom, non sterile	40000	500	525-1168
1,5	With attached lid	Yellow	Graduated, conical bottom, non sterile	40000	500	525-1169



Microcentrifuge tubes

### DISPOSABLE MICROCENTRIFUGE TUBES

These tubes are made from USP Class VI PP.

- Amber coloured for light-sensitive substances
- RNase-, DNase- and endotoxin-free
- Engraved graduations ensure accuracy
- Caps will not pop open during centrifuging
- Caps can be penetrated by a syringe

These tubes also feature flat, pierceable, frosted caps and a side labelling surface.

Autoclavable at 121 °C and freezable to -80 °C.

Manufactured in a Class 100000 cleanroom environment

Manufactured under ISO 13485:2016 and IS O 9001:2015 quality management systems

Assorted pack contains 100 tubes each of red, orange, yellow, green and blue.

Capacity (ml)	Type	Colour	Version	RCF max. (×g)	Pk	Cat. No.
<b>0,5 ml tubes</b>						
0,5	With attached cap	Natural	Graduated, conical bottom, non sterile	20000	1.000	525-1220
0,5	With attached cap	Amber	Graduated, conical bottom, non sterile	20000	1.000	525-1246
0,5	With attached cap	Assorted	Graduated, conical bottom, non sterile	20000	1.000	525-1222
0,5	With attached cap	Blue	Graduated, conical bottom, non sterile	20000	1.000	525-1250
0,5	With attached cap	Green	Graduated, conical bottom, non sterile	20000	1.000	525-1251
0,5	With attached cap	Orange	Graduated, conical bottom, non sterile	20000	1.000	525-1248
0,5	With attached cap	Purple	Graduated, conical bottom, non sterile	20000	1.000	525-1249
0,5	With attached cap	Red	Graduated, conical bottom, non sterile	20000	1.000	525-1221
0,5	With attached cap	Yellow	Graduated, conical bottom, non sterile	20000	1.000	525-1247
<b>1,5 ml tubes</b>						
1,5	With attached cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1126
1,5	With attached cap	Natural	Graduated, conical bottom, sterile	20000	500	525-1178
1,5	With attached cap	Amber	Graduated, conical bottom, non sterile	20000	500	525-1223
1,5	With attached cap	Assorted	Graduated, conical bottom, non sterile	20000	500	525-1230
1,5	With attached cap	Blue	Graduated, conical bottom, non sterile	20000	500	525-1228
1,5	With attached cap	Green	Graduated, conical bottom, non sterile	20000	500	525-1229
1,5	With attached cap	Orange	Graduated, conical bottom, non sterile	20000	500	525-1225
1,5	With attached cap	Purple	Graduated, conical bottom, non sterile	20000	500	525-1227
1,5	With attached cap	Red	Graduated, conical bottom, non sterile	20000	500	525-1226
1,5	With attached cap	Yellow	Graduated, conical bottom, non sterile	20000	500	525-1224
<b>2,0 ml tubes</b>						
2,0	With attached cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1136
2,0	With attached cap	Amber	Graduated, conical bottom, non sterile	20000	500	525-1127
2,0	With attached cap	Assorted	Graduated, conical bottom, non sterile	20000	500	525-1135
2,0	With attached cap	Blue	Graduated, conical bottom, non sterile	20000	500	525-1133
2,0	With attached cap	Green	Graduated, conical bottom, non sterile	20000	500	525-1134
2,0	With attached cap	Orange	Graduated, conical bottom, non sterile	20000	500	525-1129
2,0	With attached cap	Purple	Graduated, conical bottom, non sterile	20000	500	525-1131
2,0	With attached cap	Red	Graduated, conical bottom, non sterile	20000	500	525-1130
2,0	With attached cap	Yellow	Graduated, conical bottom, non sterile	20000	500	525-1128



Microcentrifuge Tubes with Socket Screw-Cap

**MICROCENTRIFUGE TUBES WITH SOCKET SCREW CAPS**

These clear, high grade PP tubes are ideal for sample processing applications.

- RNase-, DNase- and endotoxin-free

Excellent for freezer storage or secure sample handling. Screw caps incorporate silicone O-rings for a leakproof seal and accept colour coded inserts. Inserts snap into the top of the cap and create a flush surface. Tubes are available with standard or loop caps, which tether the cap to the tube.

Caps and tubes are steam autoclavable at 121 °C and freezable to -80 °C.

Manufactured in a Class 100000 cleanroom environment

Manufactured under ISO 13485:2016 and ISO 9001:2015 quality management systems

Sterile tubes are sterilised by gamma irradiation SAL 10<sup>-6</sup> (ISO 11137).

Capacity (ml)	Type	Colour	Version	RCF max. (xg)	Pk	Cat. No.
<b>Tubes with green colour caps in separate resealable bags</b>						
0,5	With green screw cap	Natural	Non graduated, conical bottom, non sterile	20000	500	525-1231
0,5	With green screw cap	Natural	Non graduated, freestanding, non sterile	20000	500	525-1233
1,5	With green screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1236
1,5	With green screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1237
2,0	With green screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1240
2,0	With green screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1241
<b>Sterile tubes with attached natural colour caps</b>						
0,5	With natural screw cap	Natural	Non graduated, conical bottom, sterile	20000	500	525-0642
0,5	With natural screw cap	Natural	Non graduated, freestanding, sterile	20000	500	525-0644
1,5	With natural screw cap	Natural	Graduated, conical bottom, sterile	20000	500	525-0646
1,5	With natural screw cap	Natural	Graduated, freestanding, sterile	20000	500	525-0648
2,0	With natural screw cap	Natural	Graduated, conical bottom, sterile	20000	500	525-0650
2,0	With natural screw cap	Natural	Graduated, freestanding, sterile	20000	500	525-0652
<b>Tubes with green colour loop style caps</b>						
0,5	With green loop style screw cap	Natural	Non graduated, conical bottom, non sterile	20000	500	525-1234
0,5	With green loop style screw cap	Natural	Non graduated, freestanding, non sterile	20000	500	525-1235
1,5	With green loop style screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1238
1,5	With green loop style screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1239
2,0	With green loop style screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1243
2,0	With green loop style screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1244



Microcentrifuge tubes

### MICROCENTRIFUGE TUBES WITH FLAT SCREW CAPS

These tubes are made from ultra-clear USP Class VI PP that allows easy viewing of contents.

- RNase-, DNase- and endotoxin-free
- Engraved graduations ensure accuracy
- Fit most common rotors
- Smooth surface for applying labels

These tubes feature universal screw threads for use with most popular brand screw caps. Low profile caps include an ethylene propylene O-ring, ensuring a leakproof seal.

Tubes and caps are autoclavable at 121 °C and freezable to -80 °C.

Manufactured in a Class 100000 cleanroom environment

Manufactured under ISO 13485:2016 and ISO 9001:2015 quality management systems

Sterile tubes are radiation sterilised SAL 10<sup>-6</sup> (ISO 11137). Certificate available for every lot.

Tubes are packed 500 per bag. Assorted pack of caps (525-1187) contains equal quantities of red, orange, yellow, blue and green.

Capacity (ml)	Type	Colour	Version	RCF max. (xg)	Pk	Cat. No.
<b>Non sterile microcentrifuge tubes with natural colour caps in separate resealable bags</b>						
0,5	With natural screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1144
0,5	With natural screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1157
1,5	With natural screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1145
1,5	With natural screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1158
2,0	With natural screw cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1146
2,0	With natural screw cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1160
<b>Sterile microcentrifuge tubes with natural colour caps attached</b>						
0,5	With natural screw cap	Natural	Graduated, conical bottom, sterile	20000	500	525-1140
0,5	With natural screw cap	Natural	Graduated, freestanding, sterile	20000	500	525-1155
1,5	With natural screw cap	Natural	Graduated, conical bottom, sterile	20000	500	525-1141
1,5	With natural screw cap	Natural	Graduated, freestanding, sterile	20000	500	525-1159
2,0	With natural screw cap	Natural	Graduated, conical bottom, sterile	20000	500	525-1143
2,0	With natural screw cap	Natural	Graduated, freestanding, sterile	20000	500	525-1156
<b>Microcentrifuge tubes only</b>						
0,5	Without cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1137
0,5	Without cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1147
1,5	Without cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1138
1,5	Without cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1148
2,0	Without cap	Natural	Graduated, conical bottom, non sterile	20000	500	525-1139
2,0	Without cap	Natural	Graduated, freestanding, non sterile	20000	500	525-1149

Colour	Pk	Cat. No.
<b>Flat screw caps for microcentrifuge tubes</b>		
Assorted	500	525-1187
Blue	500	525-1180
Green	500	525-1179
Natural	500	525-1186
Orange	500	525-1183
Purple	500	525-1181
Red	500	525-1182
White	500	525-1185
Yellow	500	525-1184

**J.T.BAKER® TIPS TYPE HT CO-RE**




J.T.Baker® tips suitable for third party robotic instruments Hamilton\* Microlab Star\*, Nimbus\*, and other robotic instruments using the same pipetting head (CO-RE).

With conductive robotic tips from Avantor, even small volumes can be dosed with high precision and without contamination. Conductivity enables the system to recognize the filling height and will provide a minimal immersion of the tip into the liquid, in order to ensure safe pipetting and dispensing.

Conductive tips are produced under cleanroom conditions and tested from independent laboratories to be free of DNA, DNase, RNase and PCR inhibitors. J.T.Baker tips HT CO-RE are available with or without filter and in CE-IVD marked version for clinical diagnostic applications.



Single tray of 96 tips.

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
 50 µl	No	No	No	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-0003</b>
50 µl	Yes	No	No	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-2003</b>
50 µl	No	No	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-0105</b>
50 µl	Yes	No	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-2105</b>
50 µl	No	Yes	No	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-1005</b>
50 µl	Yes	Yes	No	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-3005</b>
50 µl	No	Yes	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-1105</b>
50 µl	Yes	Yes	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49010-3105</b>
 300 µl	No	No	No	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49008-0003</b>
300 µl	Yes	No	No	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49008-2003</b>
300 µl	No	No	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49008-0105</b>
300 µl	Yes	No	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49008-2105</b>
300 µl	No	Yes	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49008-1105</b>
300 µl	Yes	Yes	Yes	Yes	Black	12x 5 racks, 96 each, blistered	5.760	<b>49008-3105</b>
 1000 µl	No	No	No	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-0005</b>
1000 µl	Yes	No	No	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-2005</b>
1000 µl	No	No	Yes	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-0105</b>
1000 µl	Yes	No	Yes	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-2105</b>
1000 µl	No	Yes	No	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-1005</b>
1000 µl	Yes	Yes	No	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-3005</b>
1000 µl	No	Yes	Yes	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-1105</b>
1000 µl	Yes	Yes	Yes	Yes	Black	8x 5 racks, 96 each, blistered	3.840	<b>49009-3105</b>

\* Hamilton, Microlab Star and Nimbus® are registered trademarks of Hamilton company.



**J.T.BAKER® TIPS TYPE TE**

J.T.Baker® tips suitable for third party robotic instruments Tecan\* and other OEM workstations.




J.T.Baker tips type TE are available in conductive and non-conductive version, with or without filter, and in CE-IVD marked version for clinical diagnostic applications.

The tips are manufactured under cleanroom conditions and are free of DNA, DNase, RNase and PCR inhibitors (blistered tips only).

In addition to the standard line, Avantor offers new wide bore robotic tips that have been developed with a 50% wider opening through which particularly viscous samples such as cell cultures, blood samples, macromolecules or oils can be pipetted gently and at high recovery rate.



Conductive, 1000 µl, wide bore

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
								
50 µl	No	No	No	Yes	Black	18× 10 racks, 96 each, cardboard, S-Tray	17.280	49006-0000
50 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49006-0006
50 µl	Yes	No	No	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49006-2006
50 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49006-0007
50 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49006-0106
50 µl	Yes	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49006-2106
50 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49006-0107
50 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49006-1106
50 µl	Yes	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49006-3106
50 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49006-1107
								
200 µl	No	No	No	Yes	Black	18× 10 racks, 96 each, cardboard, S-Tray	17.280	49002-0000
200 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49002-0006
200 µl	Yes	No	No	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49002-2006
200 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49002-0007
200 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49002-0106
200 µl	Yes	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49002-2106
200 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49002-0107
200 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49002-1106
200 µl	Yes	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49002-3106
200 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49002-1107
								
1000 µl	No	No	No	Yes	Black	10× 10 racks, 96 each, cardboard, S-Tray	9.600	49003-0000
1000 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49003-0006
1000 µl	Yes	No	No	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49003-2006
1000 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49003-0007
1000 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49003-0106
1000 µl	Yes	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49003-2106
1000 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49003-0107
1000 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49003-1106
1000 µl	Yes	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, S-Tray	2.304	49003-3106
1000 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered, C-Tray	2.304	49003-1107

\* Tecan, Tecan Freedom Evo and Tecan Fluent are registered trademarks of Tecan company.




Conductive, 1000 µl, tray.



J.T.Baker® tips type TE are suitable for use on Tecan® Freedom EVO (typically uses tips in S-Tray = hanging tray), Tecan Fluent (typically uses tips in C-Tray for ANSI/SLAS format tip box) and other OEM robotic instruments.

The validation of the tips on the instrument for specific applications is within the responsibility of the user.

WIDE BORE

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
								
1000 µl	No	No	No	Yes	Black	10x 10 racks, 96 each, cardboard, S-Tray	9.600	49033-0000
1000 µl	No	No	No	Yes	Black	12x 2 racks, 96 each, blistered, S-Tray	2.304	49033-0006
1000 µl	No	No	Yes	Yes	Black	12x 2 racks, 96 each, blistered, S-Tray	2.304	49033-0106
1000 µl	No	Yes	Yes	Yes	Black	12x 2 racks, 96 each, blistered, S-Tray	2.304	49033-1106
1000 µl	Yes	Yes	Yes	Yes	Black	12x 2 racks, 96 each, blistered, S-Tray	2.304	49033-3106
1000 µl	No	No	No	No	Clear	10x 10 racks, 96 each, cardboard, S-Tray	9.600	49133-0000

CLEAR TIP

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
								
50 µl	No	No	No	No	Clear	18x 10 racks, 96 each, cardboard, S-Tray	17.280	49106-0000
50 µl	No	Yes	Yes	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49106-1106
50 µl	Yes	Yes	Yes	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49106-3106
								
200 µl	No	No	No	No	Clear	18x 10 racks, 96 each, cardboard, S-Tray	17.280	49102-0000
200 µl	No	No	No	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49102-0006
200 µl	No	Yes	Yes	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49102-1106
200 µl	Yes	Yes	Yes	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49102-3106
								
1000 µl	No	No	No	No	Clear	10x 10 racks, 96 each, cardboard, S-Tray	9.600	49103-0000
1000 µl	No	No	No	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49103-0006
1000 µl	No	Yes	Yes	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49103-1106
1000 µl	Yes	Yes	Yes	No	Clear	12x 2 racks, 96 each, blistered, S-Tray	2.304	49103-3106

TIP BOX

Description	Pk	Cat. No.
Tip box for C-Tray 1000 µl tips	5	45009-2000
Tip box for C-Tray 50 and 200 µl tips	10	45009-3000

\*Tecan, Tecan Freedom Evo and Tecan Fluent are registered trademarks of Tecan company.



Conductive, 1000 µl, in tip box



**J.T.BAKER® TIPS TYPE MP**

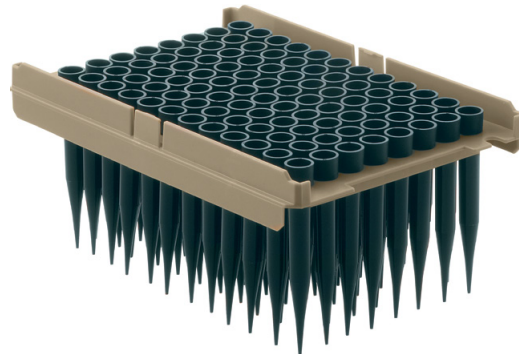
Available in conductive version, with filter, non-sterile, and in CE-IVD marked version for clinical diagnostic applications.

- Manufactured under cleanroom conditions (cleanroom Class 8)
- State of the art quality control
- Barcoded trays for automated identification
- Free of DNA, DNase, RNase and PCR inhibitors
- Ideal for high throughput analysis
- Packed in blisters

The tips are suitable for use with Roche MagNA Pure\* instruments.

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
1000 µl	No	No	Yes	Yes	Black	8× 5 racks, 96 each, blistered	3.840	<b>49209-0105</b>
1000 µl	Yes	No	Yes	Yes	Black	8× 5 racks, 96 each, blistered	3.840	<b>49209-2105</b>

\* Roche MagNA Pure® is a registered trademark of Roche company.





Conductive, 300 µl, tray.

**J.T.BAKER® TIPS TYPE ST**

J.T. Baker® tips suitable for third party robotic instruments Stratec and other OEM workstations.

Available in conductive version, with or without filter, and in CE-IVD marked version for clinical diagnostic applications. J.T.Baker® tips type ST are suitable for use on Euroimmun Analyzer and other robotic instruments using the same pipetting head.

The validation of the tips on the instrument for specific applications is within the responsibility of the user.

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
 300 µl	No	No	No	Yes	Black	18× 10 racks, 96 each, cardboard	17.280	<b>49000-0000</b>
300 µl	No	No	No	Yes	Black	12× 2 racks, 96 each, blistered	2.304	<b>49000-0006</b>
300 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered	2.304	<b>49000-1106</b>
300 µl	Yes	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered	2.304	<b>49000-3106</b>
 1100 µl	No	No	No	Yes	Black	10× 10 racks, 96 each, cardboard	9.600	<b>49001-0000</b>
1100 µl	No	No	Yes	Yes	Black	12× 2 racks, 96 each, blistered	2.304	<b>49001-0106</b>
1100 µl	No	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered	2.304	<b>49001-1106</b>
1100 µl	Yes	Yes	Yes	Yes	Black	12× 2 racks, 96 each, blistered	2.304	<b>49001-3106</b>



Sample tips, blue.



Reagent tips, clear.





**J.T.Baker® tips type DX**

J.T.Baker® tips suitable for use on third party robotic instruments Dynex\*.

Available in non-conductive version, without filter, in container rack and in CE-IVD marked version for clinical diagnostic applications. With a modern production line and under cleanroom conditions, the tips are manufactured to provide the highest quality specifications for compatibility and cleanliness.

- For use with DSX\* and DS2\* instruments
- Packaging unit: 4x 108 tips
- Sample tips volume: 300 µl
- Reagent tips volume: 20 to 1300 µl

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
 300 µl	No	No	No	No	Blue	1x 4 racks, 108 each	432	49136-0000
300 µl	Yes	No	No	No	Blue	1x 4 racks, 108 each	432	49136-2000
 1300 µl	No	No	No	No	Clear	1x 4 racks, 108 each	432	49137-0000
1300 µl	Yes	No	No	No	Clear	1x 4 racks, 108 each	432	49137-2000

\* Dynex, Dynex DSX and Dynex DS2 are registered trademarks of Dynex Technologies company.



Conductive, 1200 µl, rack.


**J.T.BAKER® TIPS TYPE OLA**

Robotic tips for efficient sample processing.

Modern healthcare institutes require the highest standards from their partners. Avantor offers conductive tips that are suitable for use in OLA 2500 and AutoMate 1250/2550 instruments, in order to provide a smooth production flow and high quality results.

- Volume: 20 µl to 1200 µl
- Quantity per rack: 140 tips (sealed)
- Rigid rack for optimized tip acceptance in the OLA 2500 and AutoMate 1250/2550
- Packed: 8x 140 tips

The validation of the tips on the instrument for specific applications is within the responsibility of the user.

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
 1200 µl	No	No	No	Yes	Black	1x 8 racks, 140 each, foiled	1.120	49044-0000
1200 µl	No	No	Yes	Yes	Black	1x 8 racks, 140 each, foiled	1.120	49044-0100





**J.T.BAKER® TIPS TYPE QG**

J.T.Baker® tips suitable for use on third party robotic instruments QIAgility\*.

Type QG tips are available in conductive version, with filter, non-sterile.

- Manufactured under cleanroom conditions (cleanroom class 8)
- State of the art quality control
- Free of DNA, DNase, RNase and PCR inhibitors
- Ideal for high-throughput analysis and DNA purification
- Packed in blister

The validation of the tips on the instrument for specific applications is within the responsibility of the user.

Volume	CE-IVD	Sterile	Filter	Conductive	Tip colour	Packed	Pk	Cat. No.
 50 µl	No	No	Yes	Yes	Black	12x 2 racks, 96 each, blistered	2.304	49018-0106
 200 µl	No	No	Yes	Yes	Black	12x 2 racks, 96 each, blistered	2.304	49002-0106

\* QIAgility is a registered trademark of QIAGEN company.

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**THERMOSHAKER, THERMAL SHAKE TOUCH**

The Thermal Shake Touch is designed for applications that require consistent, precise results. With heating and shaking capabilities, this low profile unit uses interchangeable blocks to accommodate a wide variety of tubes and microplates. The LCD touch screen enables faster setting of temperature, speed and time, which can all be viewed at once. Display features on-screen help topics with operational tips. Touch screen is compatible with rubber gloves used in laboratories.

- Easy to use 4,3" colour LCD touch screen allows the user to save, and visibly track progress through the live status bar, for five user-defined programs, each with five individual steps
- Suitable for rapid heating, high speed shaking and a pulse mode feature, ideal for quick vortex applications
- Timer with audible alarm, 1 minute to 99 hours, 59 minutes, heat function will automatically shut off if the unit recognises an internal issue
- USB port can transfer information to a flash drive for data logging, program storage and software updates

Program control capabilities allow user-programmable operation for automated use and memory for five separate, five-step programs. Adjustable temperature ramp rate feature separately defines the heating rates in increments of 0,5 °C/min. Single-point calibration mode for maximum temperature accuracy, the single-point calibration procedure allows the user to calibrate up to six different defined temperatures. Constructed from a high quality heat and chemically resistant polymer, so the housing remains cool to the touch throughout normal operating temperatures. Maximum temperature-limiting function ensures the temperature will not exceed user-defined limits, allowing control of temperature-sensitive samples. A hot top warning illuminates when the temperature reaches 40 °C, and remains on until the unit is cooled below 40 °C.

The unit's enhanced electronics and temperature sensor provide accurate, dependable temperature settings across the operating range of 5 to 35 °C, (maximum 80% relative humidity, non condensing). Applications include cell cultures, DNA, RNA and protein studies.

Supplied with 1,5 ml block (460-0210), rack and cover, additional blocks must be ordered separately. Note that Eppendorf Thermomixer R® blocks are compatible with the VWR® Thermal Shake Touch. Model with NIST traceable certificate is also available, this includes a 3-point NIST traceable calibration. The traceable certificate includes actual calibration measurement data and uncertainty. The calibration laboratory is ISO/IEC 17025 compliant.

\*RT = Ambient

\*\* Microtube blocks include a removable rack and cover



<b>Model</b>	Thermal Shake Touch
<b>Heating speed (°C/min)</b>	5 °C/min
<b>Orbit (mm)</b>	3 mm
<b>Speed accuracy (%)</b>	±2%
<b>Speed range (min<sup>-1</sup>)</b>	300 - 3000 min <sup>-1</sup>
<b>Temperature accuracy (°C)</b>	±1 °C (between 20 and 45 °C) ±2 °C (above 45 °C)
<b>Temperature control range (°C)</b>	RT* +4...100 °C
<b>Weight (kg)</b>	4,4 kg
<b>WxDxH (mm)</b>	248x260x132 mm

Description	Pk	Cat. No.
Thermal Shake Touch, EU-plug	1	460-0202
Thermal Shake Touch, UK-plug	1	460-0204
Thermal Shake Touch, CH-plug	1	460-0206
Thermal Shake Touch, NIST certificate, EU-plug	1	460-0203
Thermal Shake Touch, NIST certificate, UK-plug	1	460-0205
Thermal Shake Touch, NIST certificate, CH-plug	1	460-0207

Description	Well size (mm)	For	No. of holes	Depth (mm)	Pk	Cat. No.
<b>Interchangeable blocks for Thermal Shake Touch and Cooling Thermal Shake Touch</b>						
Interchangeable tube block	Ø 7,9	30x0,5 ml tubes**	30	24,6	1	460-0209
Interchangeable tube block	Ø 11,1	24x1,5 ml tubes**	24	35,3	1	460-0210
Interchangeable tube block	Ø 11,5	24x2,0 ml tubes**	24	35,3	1	460-0211
Interchangeable tube block	Ø 12,3	24x12 mm tubes	24	35,3	1	460-0212
Interchangeable tube block	Ø 12,6	24x2,0 ml cryotubes	24	30,5	1	460-0213
Interchangeable tube block	Ø 16,8	9x5 ml Eppendorf tubes	9	49	1	460-0329
Interchangeable tube block	Ø 30,0	4x50 ml conical tubes	4	100,9	1	460-0215
Interchangeable tube block	Ø 17,3	9x15 ml conical tubes	9	104,4	1	460-0214
Interchangeable PCR plate thermal block with lid	Ø 6,4	96x0,2 ml PCR tubes	96	12,7	1	460-0330
Interchangeable 384 well PCR plate thermal block with lid	Ø 4,0	1x384-well PCR microplate	384	8,1	1	460-0331
Interchangeable thermal microplate block with lid	129,5x78,7	1x96-well microplate	1	23	1	460-0208



**THERMO SHAKERS, COOLING THERMAL SHAKE TOUCH**

The cooling thermal shake touch is designed for applications that require consistent, precise results. With heating, cooling and shaking capabilities, this low profile unit uses interchangeable blocks to accommodate a wide variety of tubes and microplates. The LCD touch screen enables faster setting of temperature, speed and time, which can all be viewed at once. Display features on-screen help topics with operational tips. Touch screen is compatible with rubber gloves used in laboratories.

- Easy to use 4,3" colour LCD touch screen allows the user to save and visibly track progress through the live status bar for five user-defined programs, each with five individual steps
- Suitable for rapid heating, cooling and high speed shaking and a pulse mode feature, ideal for quick vortex applications
- Timer with audible alarm, 1 minute to 99 hours, 59 minutes, heat function will automatically shut off if the unit recognises an internal issue
- USB port can transfer information to a flash drive for data logging, program storage and software updates

Program control capabilities allow user-programmable operation for automated use and memory for five separate, five-step programs. Adjustable temperature ramp rate feature separately defines the heating and cooling rates in increments of 0,5 °C/min. Single-point calibration mode for maximum temperature accuracy, the single-point calibration procedure allows the user to calibrate up to six different defined temperatures. Constructed from a high quality heat and chemical resistant polymer, so the housing remains cool to the touch throughout normal operating temperatures. Maximum temperature-limiting function



ensures the temperature will not exceed user-defined limits, allowing control of temperature-sensitive samples. A hot top warning illuminates when the temperature reaches 40 °C, and remains on until the unit is cooled below 40 °C.

The unit's enhanced electronics and dual-temperature sensors provide accurate, dependable temperature settings across the operating range of 5 to 35 °C, (maximum 80% relative humidity, non condensing). Applications include cell cultures, DNA, RNA, hybridisation and protein studies.

Supplied without blocks, blocks must be ordered separately. Note that Eppendorf Thermomixer R® blocks are compatible with the VWR® Cooling thermal shake touch. Model with NIST traceable certificate is also available, this includes a 3-point NIST traceable calibration. The traceable certificate includes actual calibration measurement data and uncertainty. The calibration laboratory is ISO/IEC 17025 compliant.

\*\* Microtube blocks include a removable rack and cover

Model	Cooling Thermal Shake Touch		
Cooling rate (°C/min)	Above ambient: 2 - 3 Below ambient: 0,5 - 1,0	Above ambient: 2 - 3 °C/min Below ambient: 0,5 - 1,0 °C/min	Above ambient: 2 - 3 Below ambient: 0,5 - 1,0
Heating speed (°C/min)	5		
Orbit (mm)	3		
Speed accuracy (%)	±2		
Speed range (min <sup>-1</sup> )	300 - 3000		
Temperature accuracy (°C)	±0,5 (between 20 and 45) ±2 (below 20 and above 45)		
Temperature control range (°C)	From 17 below ambient to 100		
Weight (kg)	4,4		
WxDxH (mm)	248x260x132		

Description	Pk	Cat. No.
<b>Thermo shakers</b>		
Cooling thermal shake touch, EU-plug	1	460-0196
Cooling thermal shake touch, UK-plug	1	460-0198
Cooling thermal shake touch, CH-plug	1	460-0200
<b>Thermo shaker with NIST traceable certificate</b>		
Cooling thermal shake touch, EU-plug, NIST certificate	1	460-0197
Cooling thermal shake touch, UK-plug, NIST certificate	1	460-0199
Cooling thermal shake touch, CH-plug, NIST certificate	1	460-0201

Description	Well size	For	No. of holes	Depth	Pk	Cat. No.
<b>Interchangeable blocks for Thermal Shake Touch and Cooling Thermal Shake Touch</b>						
Interchangeable tube block	Ø 7,9 mm	30x0,5 ml tubes**	30	24,6 mm	1	460-0209
Interchangeable tube block	Ø 11,1 mm	24x1,5 ml tubes**	24	35,3 mm	1	460-0210
Interchangeable tube block	Ø 11,5 mm	24x2,0 ml tubes**	24	35,3 mm	1	460-0211
Interchangeable tube block	Ø 12,3 mm	24x12 mm tubes	24	35,3 mm	1	460-0212
Interchangeable tube block	Ø 12,6 mm	24x2,0 ml cryotubes	24	30,5 mm	1	460-0213
Interchangeable tube block	Ø 16,8 mm	9x5 ml Eppendorf tubes	9	49 mm	1	460-0329
Interchangeable tube block	Ø 30,0 mm	4x50 ml conical tubes	4	100,9 mm	1	460-0215
Interchangeable tube block	Ø 17,3 mm	9x15 ml conical tubes	9	104,4 mm	1	460-0214
Interchangeable PCR plate thermal block with lid	Ø 6,4 mm	96x0,2 ml PCR tubes	96	12,7 mm	1	460-0330
Interchangeable 384 well PCR plate thermal block with lid	Ø 4,0 mm	1x384-well PCR microplate	384	8,1 mm	1	460-0331
Interchangeable thermal microplate block with lid	129,5x78,7 mm	1x96-well microplate	1	23 mm	1	460-0208

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### THERMOSHAKER, THERMAL SHAKE *LITE*

The combination of heating/cooling and shaking makes the Thermal Shake *lite* microtube shaking incubator ideal for many life science research applications in molecular biology, biochemistry and clinical chemistry. Its compact footprint incorporates an intuitive control panel with large multicolour display, allowing users to easily program and view temperature, time and speed settings.

- Choice of eight interchangeable aluminium blocks accommodate PCR plates and tubes ranging from 0,2 to 15 ml
- Fine tune speed control
- Rapid heating and cooling
- Compact footprint

Supplied without blocks, blocks must be ordered separately.

<b>Model</b>	Thermal Shake <i>lite</i>
<b>Heating speed (°C/min)</b>	6,5 °C/min
<b>Orbit (mm)</b>	3 mm
<b>Speed range (min<sup>-1</sup>)</b>	300 - 1500 min <sup>-1</sup>
<b>Temperature accuracy (°C)</b>	±0,5 °C
<b>Temperature control range (°C)</b>	14 °C below ambient to 100 °C
<b>Weight (kg)</b>	8,5 kg
<b>WxDxH (mm)</b>	330x166x240 mm

Description	Pk	Cat. No.
Thermal Shake <i>lite</i>	1	460-0249

Description	For	No. of holes	Pk	Cat. No.
<b>Heating blocks, aluminium, designed for 1,5 ml tubes</b>				
Aluminium block	0,5 ml tubes	54	1	460-0251
Aluminium block	1,5 ml tubes	40	1	460-0250
Aluminium block	0,5 and 1,5 ml tubes	26 + 24	1	460-0255
Aluminium block	2,0 ml tubes	40	1	460-0256
Aluminium block	15 mm tubes	24	1	460-0253
Aluminium block	0,2 ml PCR tubes or plates	96	1	460-0252
Aluminium block	Water bath block (115x73x38 mm)	-	1	460-0254
Aluminium block	96-well ELISA plate	-	1	460-0257

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