



## Amplification/PCR

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## Thermal Cyclers

### Thermal Cycler Selection Guide

Feature	1000-Series Thermal Cyclers		DNA Engine® Multi-Bay Thermal Cyclers		Personal Thermal Cyclers	
	S1000™	C1000 Touch™	DNA Engine Tetrad® 2	DNA Engine Dyad®	T100™	MJ Mini™
	page 296	page 297	page 298		page 299	page 299
Peltier-effect technology	•	•	•	•	•	•
Upgradable to real-time PCR		•				
Interchangeable sample blocks	•	•	•	•		
Number of wells	96, 96 deep, dual 48, or 384	96, 96 deep, dual 48, or 384	Varies	Varies	96	48
Gradient capability	•	•	•	•	•	•
Graphical user interface		•	•	•	•	
Full-color display		•	•	•	•	
Fast PCR protocol templates	•	•	•	•	•	•
Choice of temperature control mode	•	•	•	•	•	•
Power failure restore	•	•	•	•	•	•
Programmable ramp rates	•	•	•	•	•	•
Networking capability	•	•				
Reports on cycler use and performance		•	•	•	•	
Adjustable heated lid	•	•	•	•		•
Full-skirted plate compatibility	•	•	•	•		
Protocol autowriter		•				
USB flash drive compatibility		•			•	

## 1000-Series Thermal Cyclers

Bio-Rad 1000-series thermal cyclers offer a fully modular platform. Choose the full-featured C1000 Touch™ cycler, the basic S1000™ cycler, or a combination of both. The cyclers can accommodate different throughput needs with easily interchangeable reaction blocks.

### S1000™ Thermal Cycler

Order Info: Pg 320

The S1000 thermal cycler can be used as a stand-alone, dependable instrument for PCR. Up to three S1000 cyclers can be connected to a C1000 Touch™ thermal cycler to form a high-throughput multi-bay instrument. The S1000 cycler offers the same thermal performance as the C1000 Touch cycler, and lets you:

- Choose a reaction module that suits your needs — dual 48/48-well fast, 96-well fast, 96-deep well, or 384-well format
- Get optimal sealing using your favorite vessels and sealers with the redesigned fully adjustable heated lid



#### For More Information

Web: [www.bio-rad.com/1000\\_series](http://www.bio-rad.com/1000_series)

Request or download bulletins: 6082 and 6094

### New C1000 Touch™ Thermal Cycler

Order Info: Pg 320

### See Also

CFX96 Touch real-time PCR detection system: page 301.  
CFX384 Touch real-time PCR detection system: page 302.

The C1000 Touch cycler is the flagship of the 1000-series thermal cycling platform, offering unmatched performance for fast, reliable results and a state-of-the-art interface with new ways to optimize protocols and monitor runs.

Benefits include:

- Easily upgrade to real-time PCR using the CFX96™ or CFX384™ optical reaction module
- Quickly optimize reactions using the protocol autowriter
- Save time creating and viewing protocols using the large color touch-screen display and intuitive graphical programming
- Get answers quickly using desktop support, data logging, and run reports
- Have the convenience of sending an email notification of run completion
- Back up your data and manage and transfer files using a USB flash drive
- Have peace of mind by protecting your files with optional log-in, restricted user privileges, and secure mode for controlled environments
- Increase throughput simply and easily by daisy-chaining up to 3 additional S1000™ cyclers or adding PC control for up to 32 cyclers



#### For More Information

Web: [www.bio-rad.com/1000\\_series](http://www.bio-rad.com/1000_series)

Request or download bulletin: 6094

### Reaction Modules

Order Info: Pg 320

#### Reaction Module Specifications



Reaction Module	96-Well Fast	96-Deep Well	Dual 48/48-Well Fast	384-Well
Sample capacity	96 x 0.2 ml tubes or 1 x 96-well plate	96 x 0.2 ml tubes, 48 x 0.5 ml tubes, or 1 x 96-well plate	2 x 48 x 0.2 ml tubes or 2 x 48-well plates	1 x 384-well plate
Maximum ramp rate	5°C/sec	2.5°C/sec	4°C/sec	2.5°C/sec
Average ramp rate	3.3°C/sec	2°C/sec	3°C/sec	2°C/sec
Temperature range	0–100°C	0–100°C	0–100°C	0–100°C
Temperature accuracy	±0.2°C of programmed target at 90°C	±0.2°C of programmed target at 90°C	±0.2°C of programmed target at 90°C	±0.2°C of programmed target at 90°C
Temperature uniformity	±0.4°C well-to-well within 10 sec of arrival at 90°C	±0.4°C well-to-well within 10 sec of arrival at 90°C	±0.4°C well-to-well within 10 sec of arrival at 90°C	±0.4°C well-to-well within 10 sec of arrival at 90°C

#### Thermal Gradient (available on all reaction modules)

Gradient accuracy	±0.2°C of programmed temperature at end rows
Row uniformity	±0.4°C well-to-well (within row) within 10 sec of arrival at target temperature
Gradient range	30–100°C
Temperature differential range	1–24°C

## DNA Engine® Multi-Bay Thermal Cyclers

DNA Engine multi-bay thermal cyclers offer modular flexibility and high-throughput in a compact footprint; they are an excellent choice for multiple user laboratories. The system consists of thermal cycler chassis and interchangeable Alpha™ unit reaction modules, which swap in seconds without tools.

### For More Information

Web: [www.bio-rad.com/dnaengine](http://www.bio-rad.com/dnaengine)

Request or download bulletins: 5219, 5221, and 5277

### DNA Engine Tetrad® 2 Thermal Cycler

Order Info: Pg 320

- Compact 4-bay workhorse with an integrated computer
- Run up to 1,536-well capacity when equipped with four 384-well blocks
- Perform up to 16 independent experiments when equipped with four dual 48/48-well blocks
- Optimize reactions in a single run using the 96-well gradient-enabled block.
- Easily write new protocols with the large color screen and optional mouse



DNA Engine Tetrad 2 Thermal Cycler with Four 96-Well Blocks

### DNA Engine Dyad® Thermal Cycler

Order Info: Pg 320

- Same performance and programming interface as the DNA Engine Tetrad® 2 cycler in a smaller two-bay format
- Run up to 4 independent blocks when equipped with two dual 48/48-well blocks
- Optimize reactions in a single run using the 96-well gradient-enabled block
- Save benchspace by stacking two Dyad thermal cyclers with the rack accessory
- Easily write new protocols with the large color screen and optional mouse



DNA Engine Dyad Thermal Cycler with One 96-Well Alpha™ Unit and One 48/48 Dual Block

### Alpha™ Unit Reaction Modules

Order Info: Pg 320

The Alpha unit reaction modules feature adjustable heated lids that are manually set to optimize the sealing pressure for different types of vessels and sealers.

#### 96-Well Alpha Unit, Gradient Enabled

- Holds 96 x 0.2 ml tubes, one 96-well plate, or up to 30 x 0.5 ml tubes

#### 384-Well Alpha Unit

- Holds one 384-well plate

#### 48/48 Dual Alpha™ Unit

- Holds 48 x 0.2 ml tubes, one 48-well plate, or up to 12 x 0.5 ml tubes in each block



96-Well Alpha Unit, Gradient Enabled



48/48 Dual Alpha Unit

- Independently controllable blocks, so separate protocols may be run side by side

## Personal Thermal Cyclers

### New T100™ Thermal Cycler

Order Info: Pg 321

The T100 thermal cycler is a compact, 96-well thermal cycler that offers a comprehensive package of features, including an easy-to-use touch screen, thermal gradient, and reliable performance.

With the T100 thermal cycler, you can:

- Save time programming with the intuitive touch screen
- Get superior results faster by optimizing your PCR assays in a single run using a thermal gradient
- Save valuable benchspace with the compact design
- Keep your protocols organized using personalized folders or a USB flash drive



#### For More Information

Web: [www.bio-rad.com/T100](http://www.bio-rad.com/T100)

Request or download bulletin: 6065

#### See Also

PCR tubes, plates, and sealers: pages 311–319.

PCR reagents: pages 305–310.

MiniOpticon real-time PCR detection system: page 300.

Nucleic acid sample preparation: pages 2–8.

### MJ Mini™ Personal Thermal Cycler

Order Info: Pg 321

The MJ Mini personal thermal cycler offers exceptional performance and quality in a compact 48-well design. Features include:

- A 6 x 8 sample array that accommodates one 48-well plate, 48 x 0.2 ml tubes, 6 x 8-tube strips, or up to 12 x 0.5 ml tubes
- Thermal gradient technology that permits simultaneous incubation at 8 different temperatures to optimize reactions in a single run
- Choice of text-based or graphical protocol viewing modes
- A fully adjustable heated lid that accommodates a wide range of reaction vessels



#### For More Information

Web: [www.bio-rad.com/MJMini](http://www.bio-rad.com/MJMini)

Request or download bulletin: 5262

### Verification Probe™ Thermometer

Order Info: Pg 321

This thermometer enables evaluation of select Bio-Rad thermal cyclers and blocks. It operates independently of the thermal cycler, which is important for periodic validation required by CAP or NCCLP regulations. It includes:

- Handheld digital thermometer with 0.1°C resolution
- Probes that precisely fit in select Bio-Rad thermal cyclers
- NIST-traceable accuracy, with both probe and thermometer accurate to  $\pm 0.4^\circ\text{C}$  at  $60^\circ\text{C}$  and  $90^\circ\text{C}$
- Probe placement templates to guide probe insertion, minimize air currents, and ensure reproducible test results



#### For More Information

Web: [www.bio-rad.com/verificationprobe](http://www.bio-rad.com/verificationprobe)

## Real-Time PCR Detection Systems

### See Also

RNA isolation kits:  
pages 2–4.

Experion system:  
pages 112–116.

PCR reagents:  
pages 305–310.

PCR plastics:  
pages 311–317.

Bio-Rad's real-time PCR detection systems are available as individual systems or as upgrades to Bio-Rad's base Touch thermal cyclers. The detection systems' optical modules allow target sequence detection via fluorescence detection chemistry. Systems include a 48-well system that enables two-target detection, as well as sophisticated two- to five-target detection systems with 96 or 384 wells. See the selection guide below for comparative specifications for these real-time systems.

### Real-Time PCR Detection System Selection Guide



Feature	MiniOpticon™	NEW CFX Connect™	NEW CFX96 Touch™	NEW CFX384 Touch™
Base thermal cycler	MJ Mini™	CFX Connect	C1000 Touch™	C1000 Touch
Sample capacity	48 wells	96 wells	96 wells	384 wells
Sample volume	Up to 100 µl	Up to 50 µl	Up to 50 µl	Up to 30 µl
Light source	48 blue-green LEDs	3 filtered LEDs in optics shuttle	6 filtered LEDs in optics shuttle	5 filtered LEDs in optics shuttle
Optical detection	2 photodiodes	3 photodiodes in optics shuttle	6 photodiodes in optics shuttle	5 photodiodes in optics shuttle
Excitation range	470–500 nm	450–535 nm	450–684 nm	450–650 nm
Detection range*	523–700 nm	515–580 nm	515–730 nm	515–690 nm
Multiplex capability	Up to 2 targets	Up to 2 targets	Up to 5 targets	Up to 4 targets
FRET capability	—	•	•	•
Maximum ramp rate	2.5°C/sec	5°C/sec	5°C/sec	2.5°C/sec
Gradient capability	•	•	•	•
Gradient range	35–99°C	30–100°C	30–100°C	30–100°C
Maximum gradient span	16°C	24°C	24°C	24°C

\* Refer to system instruction manuals or bulletins 5274, 6093, 6096, and 6105 for information about useful detection ranges for specific dyes.

### MiniOpticon™ Real-Time PCR Detection System

Order Info: Pg 321

The MiniOpticon system is a two-color real-time PCR detection system built on the high-performance, gradient-enabled MJ Mini™ thermal cycler. Using a fixed array of 48 blue-green long-lasting LEDs and two filtered photodiodes, the MiniOpticon system minimizes cross talk and maximizes fluorophore excitation and detection for accurate and reproducible results.

The MiniOpticon real-time PCR detection system includes CFX Manager™ software for streamlined system operation and sophisticated data analysis. The package offers automated data quality control and tools to perform normalized gene expression using multiple reference genes and target-specific reaction efficiencies, melt curve analysis, end-point analysis, and allelic discrimination.

#### For More Information

Web: [www.bio-rad.com/minioption](http://www.bio-rad.com/minioption)

Request or download bulletins: 5843 and 5844



## **New** CFX Connect™ Real-Time PCR Detection System

Order Info: Pg 321

The CFX Connect real-time PCR detection system offers two-target analysis for SYBR® Green/EvaGreen and duplex experiments. The system incorporates innovative optical technologies with long-lasting LEDs and solid-state components to provide maximum reliability and flexibility. Included with the system is the powerful, easy-to-use CFX Manager™ software for system operation and data analysis.

- Quickly obtain results with factory-calibrated dyes, quick setup, and intuitive software
- Save time and reduce costs by optimizing assays in a single run using the thermal gradient
- Quickly and accurately validate and analyze data with the advanced analysis modules of CFX Manager software
- Analyze data when and where you want by receiving email notification with an attached data file when a run is complete
- Increase throughput and flexibility by running up to 4 instruments from 1 computer



- Import data into qbase<sup>PLUS</sup> software for access to wizard-guided statistical analysis, advanced copy number variation analysis, and global mean normalization methods

### For More Information

Web: [www.bio-rad.com/cfxconnect](http://www.bio-rad.com/cfxconnect)

Request or download bulletins: 6102, 6103, and 6105

## **New** CFX96 Touch™ Real-Time PCR Detection System

Order Info: Pg 322

The CFX96 Touch real-time PCR detection system meets all your real-time PCR needs — whether you are running your first experiment or analyzing complex gene expression studies. With five-target detection, industry-leading stand-alone functionality, superior thermal cycler performance, and easy-to-use software, the CFX96 Touch system has been designed to advance your qPCR.

The CFX96 Touch real-time PCR detection system makes it easy for you to:

- Start doing experiments right away with factory-calibrated optics and minimal setup
- Incorporate real-time PCR into your laboratory with a compact footprint and the ability to set up runs and view data traces in real time on the integrated LCD touch screen
- Fit experiments into your schedule by shortening run times with fast thermal cycling
- Save research time by optimizing experiments in a single run using a thermal gradient
- Conserve your samples and reagents with true 5-target multiplexing and optimal quantitative results using sample volumes as low as 10 µl



### For More Information

Web: [www.bio-rad.com/cfx96-pcr](http://www.bio-rad.com/cfx96-pcr)

Request or download bulletins: 6075, 6076, and 6093



## New CFX384 Touch™ Real-Time PCR Detection System

Order Info: Pg 322

The CFX384 Touch real-time PCR detection system brings flexibility and ease of use to researchers performing high-throughput real-time PCR in a 384-well format. With the ability to run without a computer, superior performance, and powerful yet easy-to-use software, the CFX384 Touch system has been designed to advance your qPCR.

The CFX384 Touch real-time PCR detection system makes it easy for you to:

- Rely on performance with an optical system that uses long-lasting solid-state technology with filtered LEDs and filtered photodiodes for precise quantification and target discrimination
- Conserve your samples and reagents by performing 4-target multiplex reactions with optimal quantitative results using sample volumes as low as 3 µl
- Quickly set up runs and monitor amplification traces in real time on the integrated LCD touch screen
- Configure the system to fit your laboratory needs by running the CFX384 Touch system in several control configurations, including integrated with the CFX automation system



- Trust your results by integrating the CFX384 Touch real-time PCR detection system with CFX Manager™ software, Security Edition to be compliant with U.S. FDA 21 CFR Part 11 regulations

### For More Information

Web: [www.bio-rad.com/cfx384-pcr](http://www.bio-rad.com/cfx384-pcr)

Request or download bulletins: 6072, 6077, and 6096

## CFX Automation System

Order Info: Pg 322

The CFX automation system works with the CFX Connect™, CFX96 Touch™ and CFX384 Touch™ real-time PCR detection systems to enable walk-away, high-throughput operation in a simplified format that does not compromise precision. The plug-and-go benchtop plate handler has the capacity to stack and load up to twenty 384-well PCR plates at a time. This system facilitates the automation of workflows, generation of large volumes of data, and rapid data analysis. It is ideally suited to meet the high-throughput requirements of today's drug discovery workflows, letting you process up to 7,680 samples in a single run of twenty 384-well plates on the CFX384 system.

The CFX automation system makes it easy to:

- Maximize laboratory throughput by integrating 1 CFX Connect, CFX96 Touch or CFX384 Touch real-time PCR detection system with hands-free running of up to 20 plates
- Improve experimental workflow and automation tasks to ensure maximum productivity
- Track samples using the integrated bar code reader
- Navigate, set up, and execute multiple PCR experiments using intuitive CFX automation control software



- Define PCR protocols for an entire plate stack at once
- Receive email notification with an attached data file or report upon completion of a single run

### For More Information

Web: [www.bio-rad.com/cfxautomation](http://www.bio-rad.com/cfxautomation)

Request or download bulletin: 5879



# Amplification Software

Bio-Rad amplification software supports multi-instrument control and collection and analysis of real-time PCR data. Probe and primer design software enables rapid design of robust real-time PCR assays.

## Amplification Software System Requirements

	Minimum	Recommended
Operating system	Windows XP Professional SP2, Windows Vista, Windows 7	Windows XP Professional SP2, Windows 7
Processor	1 GHz	2 GHz
RAM	1 GB (2 GB for Windows Vista and Windows 7)	2 GB
Hard drive space	10 GB	20 GB
Screen resolution	1,024 x 768 with true-color mode	1,280 x 1,024 with true-color mode
Drive	CD-ROM	CD-RW
USB port	2.0 Hi-Speed	2.0 Hi-Speed

### CFX Manager™ Software

Order Info: Pg 322

CFX Manager software provides experiment setup and data analysis capabilities for the CFX Connect™, CFX96 Touch™, CFX384 Touch™, and MiniOpticon™ real-time PCR detection systems. The software features customizable settings, including unique log-in names, gene and sample name libraries, and data analysis settings. The software enables you to:

- Quickly obtain real-time PCR results using the intuitive navigation and startup wizard
- Enter or edit plate information before, during, or after a run for record-keeping on your own schedule

- Analyze your results when and where you want following email notification with an attached data file when a run is finished
- Analyze multiple experiments from a single plate, each with its own analysis settings using the Well Groups feature
- Make decisions about your data faster by easily visualizing all your important run data in a single window using Custom Data View
- Use the advanced analysis tools to perform normalized gene expression using multiple reference genes and individual reaction efficiencies

#### For More Information

Web: [www.bio-rad.com/cfx-manager-software](http://www.bio-rad.com/cfx-manager-software)

### CFX Manager™ Software, Security Edition

Order Info: Pg 322

CFX Manager software, Security Edition provides important tools for compliance with U.S. FDA 21 CFR Part 11 regulations. In addition to the features of CFX Manager software, the Security Edition requires a valid Windows XP or Windows Vista username and password for login, requires a hardware protection key to be attached to a USB port on the computer, uses file encryption to ensure files cannot be opened or edited using other programs, and

allows multiple electronic signatures. The software also ensures integrity and validity are checked each time a file is opened with automatic file checking and allows read-only information displayed in the time- and date-stamped audit trail to be viewed only while the data file of interest is open.

#### For More Information

Web: [www.bio-rad.com/cfx-manager-software-security-edition](http://www.bio-rad.com/cfx-manager-software-security-edition)  
Request or download bulletin: 5690

### CFX Manager™ Software, Chinese and Russian Editions

Order Info: Pg 322

CFX Manager software, Chinese and Russian Editions work with the regional settings of the Windows XP, Windows Vista, and Windows 7 operating systems to provide localized, language-specific environments. The Chinese and Russian Editions also provide hardware protection to

CFX Manager software: a HASP hardware license (HL)-based key must be attached to a USB port on the computer to use the software in regional language mode.

#### For More Information

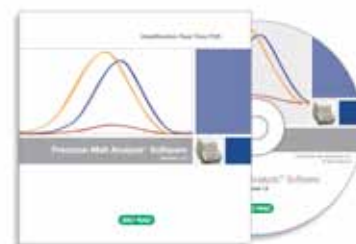
Web: [www.bio-rad.com/cfx-manager-software-chinese-edition](http://www.bio-rad.com/cfx-manager-software-chinese-edition);  
[www.bio-rad.com/cfx-manager-software-russian-edition](http://www.bio-rad.com/cfx-manager-software-russian-edition)

## Precision Melt Analysis™ Software

Order Info: Pg 322

Precision Melt Analysis software imports and analyzes data files generated from the CFX96 Touch™, CFX384 Touch™, or CFX Connect™ real-time PCR detection system to genotype samples based on the thermal denaturation properties of double-stranded DNA. The software can be used for a variety of genotyping applications, including scanning for new gene variants, screening DNA samples for SNPs, identifying insertions/deletions or other unknown mutations, and determining the percentage of methylated DNA in unknown samples. The software enables you to:

- Assign sample genotypes automatically based on cluster analysis, or manually using multiple data view options to tailor the software to the appropriate analysis
- Generate a basic representation of the different clusters based on curve shifting (homozygotes) and curve shape change (heterozygotes) using the normalized melt curves plot feature
- Compare data between multiple file runs by combining them into a single melt study — develop a standard library of melt curve runs to analyze an unlimited number of melt experiments without having to export data



- View multiple displays of the data, including a simultaneous display of the original melt curves and the normalized plot
- Export data to multiple formats, including spreadsheet, image, XML, and HTML files
- Analyze multiple experiments from a single plate using the Well Groups feature
- Arrange melt data or melt study data into a customizable report

### For More Information

Web: [www.bio-rad.com/precision-melt-analysis-software](http://www.bio-rad.com/precision-melt-analysis-software)  
Request or download bulletin: 5798

## Beacon Designer Software

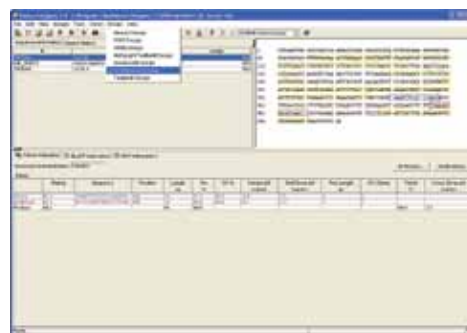
Order Info: Pg 322

Beacon Designer software from PREMIER Biosoft International generates optimal primer and probe sequences for real-time quantitative PCR assays. Primer efficiency is enhanced by avoiding template secondary structure identified by connecting to the mfold server (Zuker 2003). Beacon Designer software can be used to evaluate pre-designed primers and to design compatible oligonucleotide probes, extending the assay design. The program displays the location of primers and probes, all possible dimers, cross-dimers, and repeats, all in a graphical format.

Beacon Designer is now supplied with PrimerPlex for the design of oligonucleotides for multiplex analysis systems such as the Bio-Plex® suspension array system. Refer to page 256 for more information.

### Versatile Assay Development

- Design optimal primer-probe sets for single-tube multiplex assays using Beacon Designer software's proprietary algorithms
- Ensure SYBR® Green I assay specificity by avoiding cross-homologies identified by automatically interpreting BLAST search results
- Design HRM analysis primers for all mutation types including deletions, insertions, substitutions, and mixed mutations, along with SNPs



**Beacon Designer main window.** The drop-down menu shows the available assays: TaqMan, molecular beacon, FRET, SYBR® Green, HRMA, Scorpions, and MethyLight.

- Have comprehensive support of probe-based assays, such as TaqMan, molecular beacon, FRET, LNA, and NASBA assays, for studying differential gene expression or detecting SNPs

Beacon Designer software enables assay design for any of Bio-Rad's real-time PCR detection systems.

### For More Information

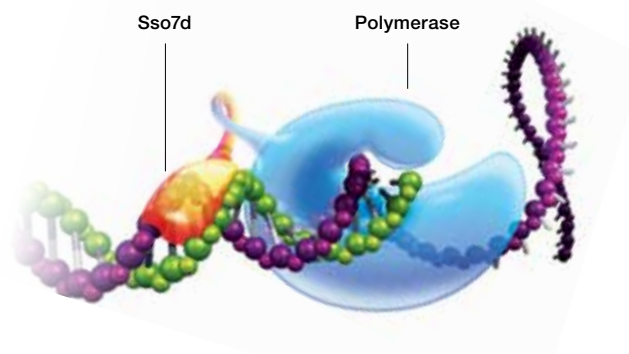
Web: [www.bio-rad.com/beacon-designer-software](http://www.bio-rad.com/beacon-designer-software)  
Request or download bulletin: 2766

## Reagents

Bio-Rad PCR reagents are specially formulated for use in reverse transcription, PCR, and real-time PCR applications with minimal optimization. All reagents are suitable for use in Bio-Rad's entire line of thermal cyclers and real-time PCR detection systems, and all demonstrate high performance over a wide dynamic range of input RNA, cDNA, genomic DNA, and plasmid DNA.

The dsDNA binding protein, Sso7d, stabilizes the polymerase-template complex, increases processivity, and provides greater speed and reduced reaction times compared to conventional DNA polymerases. Sso7d fusion polymerases are significantly more resistant to PCR inhibitors, making the SsoAdvanced™ and SsoFast™ supermixes ideal choices for challenging applications, such as direct qPCR, without the need for sample preparation.

**For More Information**  
Request or download bulletin: 6090



### PCR Reagent and Kit Selection Guide By Application\*

	Standard PCR	Real-Time qPCR with Dyes	Real-Time qPCR with Probes	High Resolution Melt Analysis	High-Fidelity, Long, or Fast PCR	Multiplexing	cDNA Synthesis for	
							Two-Step RT-PCR/ RT-qPCR	One-Step RT-PCR/ RT-qPCR
cDNA Synthesis and RT-qPCR								
iScript™ cDNA synthesis kit							•	
iScript advanced cDNA synthesis kit for RT-qPCR <b>NEW</b>								•
iScript Select cDNA synthesis kit							•	
iScript reverse transcription supermix for RT-qPCR <b>NEW</b>							•	
iScript™ one-step RT-PCR kit with SYBR® Green		•						•
iScript one-step RT-PCR kit for probes			•					•
PCR								
iProof™ high-fidelity DNA polymerase	•				•			
iProof HF/GC master mixes	•				•			
iProof high-fidelity PCR kit	•				•			
iTaq™ DNA polymerase and dNTP mix	•							
Quantitative Real-Time PCR								
SsoAdvanced™ SYBR® Green supermix <b>NEW</b>		•						
SsoFast™ EvaGreen® supermix		•						
SsoFast EvaGreen supermix with low ROX		•						
SsoFast probes supermix			•			•		
SsoFast probes supermix with ROX			•			•		
Precision melt supermix <b>NEW</b>				•				
iQ™ supermix	•		•			•		
iQ™ SYBR® Green supermix		•						
iQ multiplex powermix			•			•		
iTaq supermix with ROX			•			•		
iTaq™ SYBR® Green supermix with ROX		•						
iTaq fast supermix with ROX			•			•		
iTaq™ fast SYBR® Green supermix with ROX		•						

\* For a PCR reagent and kit selection guide by real-time instruments, please go to [www.bio-rad.com/pcrreagents](http://www.bio-rad.com/pcrreagents).

## Reverse Transcription Reagents

Bio-Rad's reverse transcription reagents are formulated for efficient reverse transcription across a broad linear dynamic range. The potent RNase A inhibitors in the reagents protect RNA during setup and reverse transcription. Reagents have flexible input RNA capacity to suit different experimental needs and are optimized for gene expression analysis using real-time qPCR.

### For More Information

Web: [www.bio-rad.com/RTreagents](http://www.bio-rad.com/RTreagents)

### Two-Step Reverse Transcription Reagents

Order Info: Pg 323

#### NEW iScript™ Advanced cDNA Synthesis Kit for RT-qPCR

- Increased qPCR data throughput and cost effectiveness from a single 20 µl reverse transcription (RT) reaction
- Superior sensitivity and broad linear dynamic range for RT (7.5 µg–100 fg)
- 2-tube kit (5x iScript reaction mix and iScript reverse transcriptase) for ease of use and reduced reaction setup time
- Optimized blend of oligo(dT) and random primers ensures complete and unbiased RNA sequence representation
- RNase H+ MMLV reverse transcriptase (preblended with RNase inhibitor) delivers high sensitivity for real-time RT-qPCR and eliminates additional RNase H+ step
- Potent blend of RNaseA inhibitor protects RNA during setup and RT
- Short 35 min protocol allows fast qPCR data generation



iScript Advanced cDNA Synthesis Kit for RT-qPCR



iScript Reverse Transcription Supermix for RT-qPCR

### For More Information

Request or download bulletin: 6125

#### iScript Reverse Transcription Supermix for RT-qPCR

- 1-tube format for simple and fast setup, and reduced pipetting variability
- Liquid format at –20°C offers superior stability and eliminates freeze/thaw cycle
- Superior sensitivity and broad linear dynamic range for RT (1 µg–100 fg)
- Optimized blend of oligo(dT) and random primers ensures complete and unbiased RNA sequence representation
- RNase H+ MMLV reverse transcriptase (preblended with RNase inhibitor) delivers high sensitivity for real-time RT-qPCR and eliminates additional RNase H+ step
- Potent blend of RNaseA inhibitor protects RNA during setup and RT
- Short 40 min protocol allows fast qPCR data generation

### For More Information

Request or download bulletin: 6031

#### iScript cDNA Synthesis Kit

- 2-tube kit (5x iScript reaction mix and iScript reverse transcriptase) for ease of use and reduced reaction setup time
- Superior sensitivity and broad linear dynamic range for RT (1 µg–100 fg)
- Optimized blend of oligo(dT) and random primers ensures complete and unbiased RNA sequence representation
- RNase H+ MMLV reverse transcriptase (preblended with RNase inhibitor) delivers high sensitivity for real-time RT-qPCR and eliminates additional RNase H+ step
- Potent blend of RNaseA inhibitor protects RNA during setup and RT
- Short 40 min protocol allows fast qPCR data generation

### For More Information

Request or download bulletin: 2894

**iScript Select cDNA Synthesis Kit**

- 5-tube kit (random primers, oligo[dT], 5x iScript Select reaction mix, iScript reverse transcriptase, and gene-specific primer-enhancer solution)
- Choice of priming strategy

- Reliable synthesis of long cDNA >6 kb in length
- Superior sensitivity and broad linear dynamic range for RT (1 µg–1 pg)

**For More Information**

Request or download bulletin: 2894

**One-Step RT-qPCR Reagents**

Order Info: Pg 323

Benefits of iScript™ one-step kits:

- Provide powerful combination of iScript RNase H+ reverse transcriptase and antibody-mediated hot-start iTaq™ DNA polymerase
- Are ideal for rapid, high-throughput gene expression analysis

**iScript™ One-Step RT-PCR Kit with SYBR® Green**

- For use on a broad range of real-time PCR instruments
- Extremely sensitive detection (100 ng–1 pg) of input RNA

**iScript One-Step RT-PCR Kit for Probes**

- For use with all types of hybridization probes, including dual-labeled oligonucleotide probes, FRET probes, and molecular beacons
- Extremely sensitive detection (1 µg–1 pg) of input RNA

**For More Information**Web: [www.bio-rad.com/RTreagents](http://www.bio-rad.com/RTreagents)

Request or download bulletin: 3066

## Real-Time qPCR Reagents

Bio-Rad's patented Sso7d fusion enzyme technology delivers high processivity and inhibitor tolerance. Antibody-mediated hot-start polymerases in qPCR reagents enable instant activation and higher specificity. A wide choice of fast, standard, or universal cycling conditions is available. Reagents are formulated for optimal performance on a variety of real-time instruments.

**For More Information**Web: [www.bio-rad.com/supermixes](http://www.bio-rad.com/supermixes)**Real-Time qPCR Supermixes for SYBR® Green and EvaGreen® Dyes**

Order Info: Pg 323

**NEW SsoAdvanced™ SYBR® Green Supermix**

- Robust formulation delivers performance across a broad range of standard and fast cycling conditions
- Sso7d fusion polymerase and optimized buffer deliver fast reaction times via instant polymerase activation and rapid polymerization kinetics to generate exceptional qPCR results in less than 30 min
- Increased resistance to PCR inhibitors ensures maximum efficiency, sensitivity, and reproducibility
- Advanced formulation tolerates a broad range of reaction conditions, primer concentrations, and temperature ranges

**For More Information**

Request or download bulletin: 6136



SsoFast EvaGreen Supermix

**SsoFast™ EvaGreen® Supermix**

- Inhibitor tolerance and enhanced processivity with Sso7d fusion polymerase
- EvaGreen's robust formulation ensures maximum efficiency, sensitivity, and reproducibility for qPCR
- Instant polymerase activation and rapid polymerization kinetics deliver fast qPCR results

**For More Information**

Request or download bulletin: 5816

### SsoFast EvaGreen Supermix with Low ROX

- Blended with ROX for optimal performance on Applied Biosystems standard and fast 7500 real-time PCR instruments

#### For More Information

Request or download bulletin: 5919

### iQ™ SYBR® Green Supermix

- Analysis of low-, medium-, and high-abundance target genes with superior sensitivity and efficiency
- Formulated for maximum SYBR® Green I stability and performance in a wide variety of real-time PCR instruments
- Antibody-mediated hot-start polymerase for quick activation and increased specificity

#### For More Information

Request or download bulletin: 2764

### iTaq™ Fast SYBR® Green Supermix with ROX

- Developed and validated for Applied Biosystems standard and fast 7500 and Stratagene real-time PCR instruments
- Compatible with standard and fast thermal cycling protocols

#### For More Information

Request or download bulletin: 5737

### iTaq™ SYBR® Green Supermix with ROX

- Developed and validated for Applied Biosystems 7000, 7300, 7700, 7900, StepOne, and StepOne Plus real-time PCR instruments
- Increased specificity and reduced primer-dimers with antibody-mediated hot-start polymerase

#### For More Information

Request or download bulletin: 3065



iQ™ SYBR® Green Supermix

### EpiQ™ Chromatin SYBR® Green Supermix

- Robust formulation delivers superior sensitivity and efficiency for qPCR from genomic DNA templates
- Protocol is optimized for difficult real-time qPCR reactions for high GC amplicons
- Supermix contains fluorescein and ROX and is compatible with all real-time PCR instruments except Applied Biosystems 7000, 7300, 7700, and 7900 models (additional ROX can be added by ordering the dye separately, catalog #172-5858)

Please refer to page 310 for more details about the EpiQ chromatin analysis kit.

#### For More Information

Request or download bulletin: 6020

### SsoFast Probes Supermix

- Robust, simultaneous detection of up to 2 different gene targets using fluorogenic probes
- Compatible with fast or standard cycling protocols
- Inhibitor-tolerant polymerase suitable for analyzing difficult samples

#### For More Information

Request or download bulletin: 5869

## High Resolution Melt (HRM) Analysis Reagents

Order Info: Pg 324

### NEW Precision Melt Supermix

- Optimized formulation containing EvaGreen dye delivers robust PCR and HRM performance
- Sensitive and effective discrimination of all 4 SNP classes across a broad range of amplicons
- Accurate detection of CpG methylation status for epigenetic studies
- Exceptional room temperature stability for high-throughput HRM studies
- Reliable performance on any HRM-capable thermal cycler



#### For More Information

Web: [www.bio-rad.com/supremixes](http://www.bio-rad.com/supremixes)

Request or download bulletins: 5798 and 6137



## Real-Time qPCR Supermixes for Probes

Order Info: Pg 324

### For More Information

Web: [www.bio-rad.com/supermixes](http://www.bio-rad.com/supermixes)

#### SsoFast™ Probes Supermix with ROX

- Developed and validated for Applied Biosystems standard and fast 7900HT real-time PCR instruments

### For More Information

Request or download bulletin: 6051

#### iQ™ Supermix

- Maximum efficiency and sensitivity for qPCR using fluorogenic probes
- Reliable amplification over a wide dynamic range of human genomic and plasmid DNA concentrations
- Contains antibody-mediated hot-start iTaq™ DNA polymerase for quick activation and increased specificity

### For More Information

Request or download bulletin: 2764

#### iQ Multiplex Powermix

- Robust supermix formulated for sensitive and efficient multiplex qPCR
- Reliable quantification of up to 4 targets (expression levels can vary up to 10<sup>6</sup>-fold between target genes) or up to 5 targets
- Linearity over 6 orders of magnitude of input cDNA and 4 orders of magnitude of input genomic DNA
- Suitable for a wide variety of applications, including gene expression analysis, SNP genotyping, SNP analysis, GMO detection, and viral load detection

### For More Information

Request or download bulletin: 5348



iQ™ SYBR® Green Supermix

#### iTaq Fast Supermix with ROX

- Developed and validated for Applied Biosystems 7500 standard and fast and Stratagene real-time PCR instruments
- Compatible with standard and fast thermal cycling conditions
- Antibody-mediated iTaq DNA polymerase provided in a convenient 2x supermix

### For More Information

Request or download bulletin: 5737

#### iTaq Supermix with ROX

- Developed and validated for Applied Biosystems 7000, 7300, 7700, 7900, StepOne, and StepOne Plus real-time PCR instruments
- Sensitive and accurate detection over 6 orders of magnitude
- Hot-start iTaq DNA polymerase in optimized buffer for simplex and duplex qPCR

### For More Information

Request or download bulletin: 3065

## Standard PCR Reagents

Order Info: Pg 325

### For More Information

Web: [www.bio-rad.com/standardpcrreagents](http://www.bio-rad.com/standardpcrreagents)

#### iProof™ High-Fidelity DNA Polymerase

- A high-fidelity DNA polymerase with 52-fold more accuracy than Taq DNA polymerase
- Unique *Pyrococcus*-like proofreading enzyme is fused to a dsDNA binding protein, Sso7d
- Long and fast PCR applications — fragments up to 37 kb are amplified in less time (15–30 sec/kb) and with less enzyme (0.25–1 U/reaction)
- Convenient 2x supermix formats available with GC high fidelity buffer

### For More Information

Request or download bulletin: 5211

#### dNTP Mix

- Formulated for consistency and higher efficiency in PCR and real-time PCR
- Robust dNTP solution withstands multiple rounds of freeze-thawing and temperature cycling

#### iTaq™ DNA Polymerase

- Antibody-mediated hot-start DNA polymerase for quick 3 min activation at 95°C
- Polymerase prevents nonspecific amplification and primer-dimers in both PCR and real-time PCR applications

### For More Information

Request or download bulletin: 2779



## Reagents

### Real-Time qPCR Reagents

[www.bio-rad.com/pcrreagents](http://www.bio-rad.com/pcrreagents)

#### ROX Passive Reference Dye

- Formulated as a 50x concentrated stock solution for use on ABI 7000, 7300, 7700, and 7900 real-time PCR instruments
- For instruments that use 580–585 nm excitation for passive reference, such as Stratagene Mx3000P, Mx3005P, and Mx4000, and ABI 7500 real-time PCR instruments, treat as a 750x concentrated solution
- An internal reference is not required for any Bio-Rad real-time detection system



#### For More Information

Web: [www.bio-rad.com/coreagents](http://www.bio-rad.com/coreagents)

## Chromatin Analysis Reagents

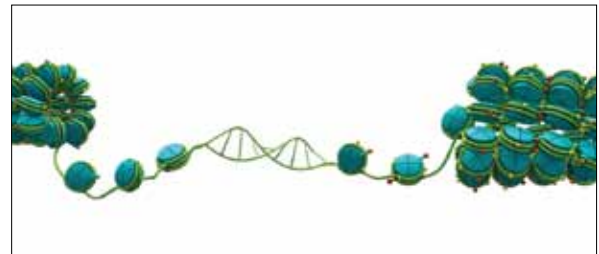
Order Info: Pg 325

#### EpiQ™ Chromatin Analysis Kit

- Novel assay generates quantitative chromatin structure information with strong correlation to gene expression levels
- Quantitative assessment of chromatin structure of target genes in cultured cells
- Kit discriminates open, actively transcribed chromatin regions from closed, transcriptionally silent regions
- In situ chromatin digestion, genomic DNA purification, and real-time PCR all combined in one workflow
- Short assay time — assessment of chromatin structure can be accomplished in less than 6 hr
- Small sample requirement — as little as  $5 \times 10^4$  cells are required to perform analysis

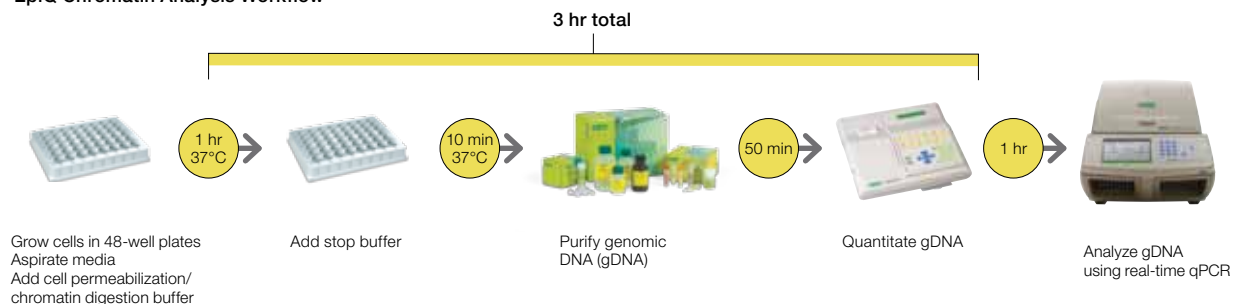


EpiQ Chromatin Analysis Kit



Chromatin consists of DNA spooled around complexes of histone protein molecules called nucleosomes (■).

#### EpiQ Chromatin Analysis Workflow



## PCR Plastic Consumables

Bio-Rad thin-wall PCR tubes, PCR plates, sealers, and accessories are precisely manufactured for optimal fit and cycling performance in a variety of thermal cyclers and real-time PCR instruments, including all Bio-Rad platforms. These high-quality consumables are suitable for a wide variety of applications. Bio-Rad tubes, tube caps, and PCR plates are molded, inspected, and packaged in a Class 100,000 or 10,000 cleanroom environment to prevent possible nucleic acid or nuclease contamination, then process sampled and tested to be negative for DNase, RNase, and human DNA.

### For More Information

Web: [www.bio-rad.com/pcrplastics](http://www.bio-rad.com/pcrplastics)

Request or download bulletin: 6090

### Instrument Compatibility of PCR Plastic Consumables

Catalog #	0.2 ml Tubes			384-Well Plates	
	Individual High-Profile	Strips High-Profile	Strips Low-Profile	Hard-Shell® Standard	Hard-Shell 480
	TBI-0201, TFI-0201, TWI-0201 page 313	TBC-xxxx, TBS-xxxx* page 313	TLS-08xx* page 313	HSP-3xxx* page 317	HSR-48xx* page 317
<b>Thermal Cycler</b>					
Bio-Rad C1000™, C1000 Touch™, S1000™	•	•	•	•	•
Bio-Rad DNA Engine®, Tetrad®, Tetrad 2, Dyad®, Dyad Disciple™, PTC-100®	•	•	•	•	•
Bio-Rad T100™, MyCycler™, iCycler®	•	•			
Bio-Rad MJ Mini™	•	•	•		
Applied Biosystems 0.2 ml tube cyclers (2720, 9700, Veriti)	•	•			
Applied Biosystems 0.1 ml tube cyclers (9800 fast, Veriti fast)			•		
Applied Biosystems 384-well cyclers (9700, Veriti)				•	•
Eppendorf Mastercycler series	•	•	•	•	•
<b>Real-Time PCR Instrument</b>					
Bio-Rad CFX Connect™, CFX96™, CFX96 Touch™, CFX384™, ** CFX384 Touch™**			•	•	•
Bio-Rad iCycler iQ®, iQ™5, MyiQ™, MyiQ™2		•			
Bio-Rad Chromo4™		•	•		
Bio-Rad DNA Engine Opticon®, Opticon 2			•		
Bio-Rad MiniOpticon™**			•		
Applied Biosystems standard systems (7300, 7500, 7900HT, ViiA7)		•		•	•
Applied Biosystems fast systems (7500 fast, 7900HT fast, StepOne, StepOnePlus, ViiA7)			•	•	•
Eppendorf Mastercycler ep realplex		•	•		
Stratagene (Agilent) Mx series		•			
Corbett (QIAGEN) Rotor-Gene	•				
Roche LightCycler 480					•
<b>Other Instruments</b>					
Applied Biosystems DNA sequencers (3100, 3700, 3730)				•	
Idaho Technology LightScanner				•	

continues

## Instrument Compatibility of PCR Plastic Consumables (cont.)

Catalog #	48- and 96-Well Plates							
	Hard-Shell Semi-Skirted High-Profile	Hard-Shell Skirted Low-Profile	Multiplate™ Unskirted High-Profile	Multiplate™ Unskirted Low-Profile	iQ™ Semi-Skirted High-Profile	Concord™ Skirted Low-Profile	Microseal® Semi-Skirted High-Profile	Microseal Skirted Low-Profile
	HSS-xxxx* page 315	HSP-9xxx* page 315	MLP-xxxx* page 314, 315	MLL-xxxx* page 314, 316	223-9441 page 316	CON-9601 page 316	MSS-xxxx* page 316	MSP-9xxx* page 316
<b>Thermal Cycler</b>								
Bio-Rad C1000, C1000 Touch, S1000	•	•	•	•	•	•		•
Bio-Rad DNA Engine, DNE Engine Tetrad, DNA Engine Tetrad 2, DNA Engine Dyad, Dyad Disciple, PTC-100	•	•	•	•	•	•		•
Bio-Rad MyCycler			•		•			
Bio-Rad T100, iCycler	•		•		•			
Bio-Rad MJ Mini			•	•				
Applied Biosystems 0.2 ml tube cyclers (2720, 9700, Veriti)	•		•		•		•	
Applied Biosystems 0.1 ml tube cyclers (9800 fast, Veriti fast)				•				
Eppendorf Mastercycler series	•	•	•	•	•	•		•
<b>Real-Time PCR Instrument</b>								
Bio-Rad CFX Connect, CFX96, CFX96 Touch		•		•				•
Bio-Rad iCycler iQ, iQ5, MyiQ, MyiQ2	•		•		•			
Bio-Rad Chromo4	•	•	•	•	•			•
Bio-Rad DNA Engine, Opticon, Opticon 2		•		•				•
Bio-Rad MiniOpticon**				•				
Applied Biosystems standard systems (7500, 7900HT, ViiA7)	• Except ViiA7		• Except 7900HT		• Except 7900HT		•	
Applied Biosystems fast systems (7500 fast, 7900 fast, ViiA7)				• Except 7500 fast				
Eppendorf Mastercycler <i>ep realplex</i>	•	•	•	•	•			•
Stratagene (Agilent) Mx series	•		•		•			
<b>Other Instruments</b>								
Applied Biosystems DNA sequencers (3100, 3700, 3730)	•		•				•	
Idaho Technology LightScanner		•	•	•				•

\* Go to the page numbers shown for the list of catalog numbers containing this prefix.

\*\* CFX384, CFX384 Touch, and MiniOpticon real-time PCR detection systems are factory calibrated for white tubes and white-well plates. White plastics are recommended due to their superior signal-to-noise ratio. Using clear tubes or clear-well plates on these instruments will require user calibration.

## Thin-Wall PCR Tubes

### PCR Tubes and Strips

Order Info: Pg 326

#### Individual PCR Tubes, 0.2 ml and 0.5 ml

These high-profile PCR tubes have double-locking caps that won't pop open during cycling. PCR volume ranges are 5–125 µl for 0.2 ml tubes and 10–200 µl for 0.5 ml tubes. Tubes with flat, frosted caps for easy labeling are available in both 0.2 ml and 0.5 ml sizes (not suitable for real-time PCR). The 0.5 ml individual tubes with attached caps are available in resealable plastic bags of 100 tubes.

##### For More Information

Web: [www.bio-rad.com/pcrtubes](http://www.bio-rad.com/pcrtubes)



#### PCR Tube and Cap Strips

Both tubes and caps are available in strips of 8 or 12 for use in 48-well and 96-well sample blocks.

- Tight sealing and convenient handling for multiple samples
- Choice of domed or flat optical cap strips

#### High-Profile 0.2 ml PCR Tube Strips

Recommended reaction volumes are 5–125 µl.

Tube strips and domed cap strips are also available packaged together in convenient bags sufficient for 96 samples. The resealable bags protect unused tubes and caps from accidental contamination.



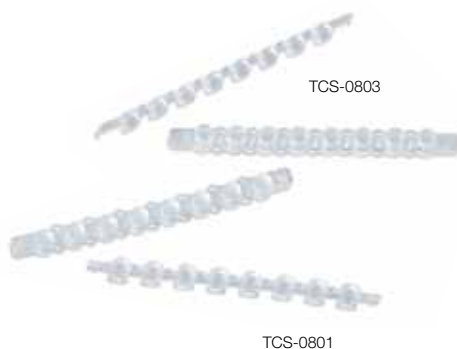
#### Low-Profile 0.2 ml PCR Tube Strips

These tubes reduce the potential for condensate formation and also allow greater light capture in fluorescence assays, such as those performed in real-time PCR. Low-profile tubes are ideal for use in fast and low-volume PCR reactions. Overall height, including flat optical caps and 96-place rack, is 18.3 mm. Tube height is 15.5 mm. Low-profile tubes are available in opaque white for optical applications.



#### Flat and Domed Cap Strips for 0.2 ml PCR Tubes and PCR Plates

These cap strips provide extremely tight sealing of all Bio-Rad 0.2 ml PCR tubes and plates during thermal cycling and cold storage. Flat cap strips feature ultraclear upper surfaces, which are ideal for fluorescence applications. Average light transmittance is 1.7-fold higher than with standard-clarity domed cap strips. Flat caps are available in strips of 8 and domed caps are available in strips of 8 or 12. Use of a capping tool is recommended for proper sealing of caps on tubes or plates.



##### For More Information

Web: [www.bio-rad.com/pcrstrips](http://www.bio-rad.com/pcrstrips)

### Capping Tools and Racks

Order Info: Pg 326

#### 96-Place PCR Tube Rack and Cover

These stackable storage units for tubes and unskirted and semi-skirted PCR plates provide a stable platform for preparing or centrifuging reactions.

#### PCR Tube Rack

The PCR tube rack conforms to ANSI/SBS standards and provides a stable platform for PCR tubes and 96-well plates.

#### Easy Cap™ Tool

The Easy Cap tool provides the pressure necessary to achieve a tight seal, one tube at a time, when capping individual or strip tubes. The narrow end securely fastens domed caps to 0.2 ml tubes or 96-well PCR plates. The wide end firmly holds thin-wall 0.5 ml tubes to prevent accidental crushing when opening or closing. The side slot allows easy opening of tight-fitting caps without generating aerosols.

#### Strip Cap Tool

This tool quickly and easily seals 8- and 12-cap strips on PCR plates or tubes. A grooved channel on one side is designed to seal domed caps, while the flat edge on the opposite side seals flat caps. For best results, seal tube strips while they are in a thermal cycler block or in a 96-place rack.

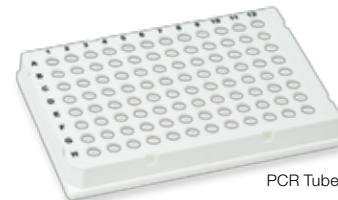
#### For More Information

Web: [www.bio-rad.com/plasticaccessories](http://www.bio-rad.com/plasticaccessories)

96-Place PCR  
Tube Racks  
and Covers



Easy Cap Tool



PCR Tube Rack



Strip Cap Tool

## PCR Plates

### Multiplate™ 48-Well PCR Plates

Order Info: Pg 326

The versatile, unskirted design and 48-well format make these Multiplate unskirted PCR plates ideal for laboratories using 48-well blocks on Bio-Rad instruments. The plates are suitable for reaction volumes of 5–125 µl. The polypropylene construction of Multiplate PCR plates confers very low protein binding and excellent preservation of sample volume. When less than a full plate is needed, these plates can be easily cut with scissors to the required size. Two plate styles are available:

- **High-profile (20.7 mm) wells, clear color** — designed to fit in most thermal cyclers
- **Low-profile (15.5 mm) wells, clear color or white** — optimized for fast PCR and low-volume reactions

#### For More Information

Web: [www.bio-rad.com/48wellplates](http://www.bio-rad.com/48wellplates)



Multiplate High-Profile 48-Well Unskirted PCR Plate



Multiplate Low-Profile 48-Well Unskirted PCR Plate

**Hard-Shell® 96-Well PCR Plates**

Order Info: Pg 326

Hard-Shell PCR plates are specifically designed to withstand the stresses of heat sealing, thermal cycling, and robotic handling. The patented two-component design features a skirt and deck molded from a rigid, thermostable polymer. The thin-wall wells are molded of virgin polypropylene selected for low DNA binding. These plates can withstand  $-80^{\circ}\text{C}$  storage and high centrifugation forces, making them convenient for alcohol precipitations. Uniform wells reduce well-to-well variability in optical assays.

- White-well option allows increased fluorescent signal strength
- Black alphanumeric labeling for easy well identification
- Color-coded skirts with clear or white wells
- Low-cost, user-readable bar code option

**Hard-Shell Low-Profile 96-Well Skirted PCR Plates**

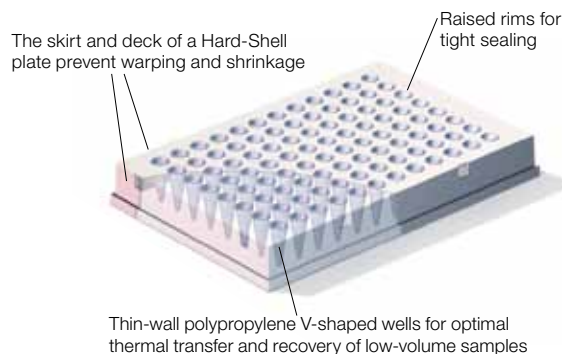
- Reaction volumes of 5–125  $\mu\text{l}$  (200  $\mu\text{l}$  maximum)
- Low-profile (16.05 mm) wells optimized for low-volume reactions and fast PCR
- Full skirt for robotic handling and labeling surface
- Footprint and well spacing that match ANSI/SBS standard dimensions
- Bar-coded plates are available

**Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates**

- Reaction volumes of 5–125  $\mu\text{l}$  (350  $\mu\text{l}$  maximum)
- High-profile (20.75 mm) wells that fit most thermal cyclers, real-time PCR detection systems, and DNA sequencers
- Warp-free half-height skirt for improved robotic handling
- Bar-coded plates are available

**For More Information**Web: [www.bio-rad.com/96wellplates](http://www.bio-rad.com/96wellplates)

Request or download bulletin: 5496



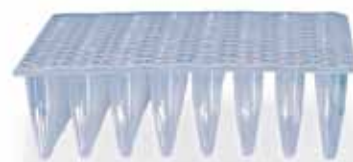
Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plate

**Multiplate™ 96-Well PCR Plates**

Order Info: Pg 327

**Multiplate High-Profile 96-Well Unskirted PCR Plates**

The single-component polypropylene construction of Multiplate PCR plates confers very low protein binding and excellent retention of sample. When less than a full plate is needed, these plates are easily cut with scissors to the required size. The plates are suitable for PCR volumes of 5–125  $\mu\text{l}$ .



Multiplate High-Profile 96-Well Unskirted PCR Plate

### Multiplate Low-Profile 96-Well Unskirted PCR Plates

Multiplate low-profile PCR plates combine the unskirted feature of the original Multiplate plate and are 5 mm lower in overall height. The lower height (15.50 mm) reduces the potential for condensate formation and offers advantages for fast PCR, low-volume reactions, and light capture in fluorescence assays such as real-time PCR. A rigid top surface provides firm handling, while still allowing the plate to be cut for use in other formats.



Multiplate Low-Profile 96-Well Unskirted PCR Plate

**For More Information**

Web: [www.bio-rad.com/96wellplates](http://www.bio-rad.com/96wellplates)

### iQ™ High-Profile 96-Well Semi-Skirted Real-Time PCR Plates

Order Info: Pg 327

These semi-skirted, high-profile PCR plates are optimized for iQ™5, iCycler iQ®, MyiQ™2, and MyiQ™ real-time PCR detection systems. The semi-skirted design adds stiffness and a labeling surface. Plates are perforated every three columns for easy setup of triplicate reactions.



**For More Information**

Web: [www.bio-rad.com/96wellplates](http://www.bio-rad.com/96wellplates)

### Microseal® 96-Well PCR Plates

Order Info: Pg 327

#### Microseal High-Profile 96-Well Semi-Skirted PCR Plates

These PCR plates are designed for Applied Biosystems 0.2 ml tube cyclers, standard real-time PCR systems, and DNA sequencers. They are not recommended for use in Bio-Rad thermal cyclers because the raised ridges around the plate prevent proper sealing in these instruments.



Microseal High-Profile 96-Well Semi-Skirted PCR Plate

#### Microseal Low-Profile 96-Well Skirted PCR Plates

These PCR plates feature single-component construction and a skirted design that is suitable for high-throughput plate handling. The robot-friendly design features low-binding polypropylene construction, locator holes, and flat vertical sidewalls for secure handling and easy bar coding. Raised rims around wells provide an excellent surface for tight sealing with a variety of sealing methods, and allow easy release of the sealer from the plate. Bar-coded plates are also available.



Microseal Low-Profile 96-Well Skirted PCR Plate

**For More Information**

Web: [www.bio-rad.com/96wellplates](http://www.bio-rad.com/96wellplates)

### Concord™ Low-Profile 96-Well Skirted Polycarbonate PCR Plates

Order Info: Pg 327

Concord 96-well PCR plates have a thin-wall polycarbonate construction that allows excellent heat transfer. A minimum sample volume of 20 µl is recommended for oil-free cycling with these plates.



**For More Information**

Web: [www.bio-rad.com/96wellplates](http://www.bio-rad.com/96wellplates)



**Hard-Shell® 384-Well Standard PCR Plates**

Order Info: Pg 327

Hard-Shell PCR plates are designed to withstand the stresses of thermal cycling and robotic handling. The patented two-component design provides superior stability and flatness, allowing precise positioning for automation. Features include:

- Reaction volumes of 1–30 µl (50 µl maximum)
- Extremely uniform wells that reduce well-to-well variability in optical assays, such as those performed in real-time PCR
- Compatibility with most 384-well thermal cyclers, real-time PCR detection systems, and DNA sequencers
- White-well option for increased fluorescent signal strength
- Color-coded skirts with clear or white wells
- Warp-free skirt and deck for improved robotic handling



- Footprint and well spacing that match ANSI/SBS standard dimensions
- Low-cost, user-readable bar code option

**For More Information**

Web: [www.bio-rad.com/384wellplates](http://www.bio-rad.com/384wellplates)  
Request or download bulletin: 5496

**Hard-Shell® 384-Well 480 PCR Plates**

Order Info: Pg 327

Hard-Shell 384-well 480 PCR plates are optimized to work on the Roche LightCycler 480 and a range of Bio-Rad and Applied Biosystems instruments. They are designed to withstand the stresses of thermal cycling and robotic handling. The two-component design provides superior stability and flatness. Features include:

- Reaction volumes of 1–30 µl (50 µl maximum)
- Extremely uniform wells that reduce well-to-well variability in real-time PCR
- Warp-free skirt and deck for improved robotic handling
- Black alphanumeric labeling for easy well identification



- Footprint and well spacing that match ANSI/SBS standard dimensions
- Bar-coded at row A side; available in clear or white well

**For More Information**

Web: [www.bio-rad.com/384wellplates](http://www.bio-rad.com/384wellplates)  
Request or download bulletin: 5496

**Microseal® 384-Well Skirted PCR Plates**

Order Info: Pg 327

Microseal 384-well skirted PCR plates feature single-component construction and are ideal for high-throughput thermal cycling applications.

- Bar coding option is available
- Footprint and well spacing match ANSI/SBS microplate standards

**For More Information**

Web: [www.bio-rad.com/384wellplates](http://www.bio-rad.com/384wellplates)

## Sealers

Effective sealing is essential for PCR and qPCR reactions. Besides cap strips (page 313), Bio-Rad offers many sealing options to best fit your needs.

### PCR Plate Sealers

Order Info: Pg 328



Microseal 'C' Optical Seals



Microseal 'B' Adhesive Seals



Microseal 'A' Film

Sealing Roller



Optical Compression Pad



Microseal 'F' Foil



96-Well PCR Plate Sealing Mat

#### Microseal® 'C' Optical Seals

Microseal 'C' optical seals are optically clear adhesive films designed for optical assays, such as those performed in real-time PCR. They can be used for microplates with raised well rims.

#### Microseal 'B' Adhesive Seals, Optically Clear

Microseal 'B' seals provide an adhesive-based sealing option for thermal cycling using thin-wall PCR plates. The strong adhesive layer ensures secure sample storage (as low as  $-40^{\circ}\text{C}$  and up to  $110^{\circ}\text{C}$ ) or transport before or after cycling, as well as tight sealing during thermal cycling when supplemental pressure is applied by a heated lid. This clear polyester film allows easy inspection of sample wells and effective light transmission for optical assays. The sealing surface is protected from contamination by a peel-away release liner. Perforated end-tabs allow removal of overhanging film for automation and other applications. Accessories include:

- **Optical compression pad (96-well)** — enhances the seal integrity of Microseal 'B' clear seals when used in real-time PCR detection systems
- **Optical film sealing kit** — contains 100 Microseal 'B' clear seals and an optical compression pad

#### Microseal 'A' Film

Microseal 'A' film quickly and effectively seals the full range of Bio-Rad PCR plates and tubes. The pliant inner layer is designed to seal tightly during cycling, yet to release smoothly to minimize the risk of aerosol formation and cross-contamination of samples. A peel-away release liner protects the sealing surface from contamination (not suitable for real-time qPCR). An optional sealing roller provides a quick way to firmly seal Microseal 'A' film on an entire array of wells.

#### Microseal 'F' Foil

These aluminized foil seals work from  $-80^{\circ}\text{C}$  to  $105^{\circ}\text{C}$ . Thin enough to pierce with a pipet tip for recovery of samples from individual wells, they are suitable for use with automated systems, such as the ABI 3700 DNA analyzer. In addition to cold storage applications, they can be used for thermal cycling for sample volumes of  $25\ \mu\text{l}$  (96-well) or  $5\ \mu\text{l}$  (384-well).

#### 96-Well PCR Plate Sealing Mats

These reusable mats are convenient for sealing 96-well PCR plates; they are not suitable for real-time qPCR.

#### Pressure Pad

This foam pad with magnet distributes lid pressure uniformly on sealing film on plates used in thermal cyclers.

#### Optical Sealing Tape

An adhesive-based sealing option for optical assays demanding a low-fluorescent background. Recommended for the Idaho Technology LightScanner system.

#### For More Information

Web: [www.bio-rad.com/sealers](http://www.bio-rad.com/sealers)

**Sealing Pads for Automation**

Order Info: Pg 328

**Microseal® 'P' and 'P+' Sealing Pads**

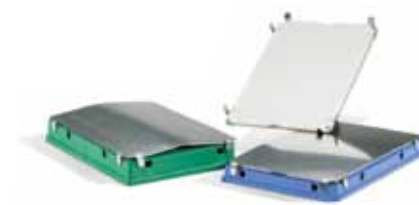
These reusable sealing pads are designed to adhere to a motorized heated lid. Use 'P' pads with Power Bonnet™ lids, and 'P+' pads with Moto Alpha™ units. Microseal 'P+' pads provide improved sealing of low-volume reactions — as low as 5 µl in 96-well plates and 1 µl in 384-well plates. Each pad may be used for approximately 25 runs.

**Auto-Sealing Lids for PCR Plates**

These lids are reusable automation-friendly sealers that prevent evaporation and contamination during reaction assembly and seal tightly for thermal cycling when the cyclers lid is closed. They can be reused up to 50 times. The lids are constructed of metal with an attached compressible pad. Two varieties are available: a self-releasing arched lid and an arched lid with wide tabs for robotic grippers.

**For More Information**Web: [www.bio-rad.com/sealers](http://www.bio-rad.com/sealers)

Microseal 'P+' Sealing Pad



Auto-Sealing Lids

**Chill-out™ Liquid Wax**

Order Info: Pg 328

Chill-out liquid wax provides an excellent vapor barrier that may be used instead of mineral oil in thermal cyclers without heated lids. After cycling, the tubes are chilled below 10°C to harden the wax. The solid layer protects samples from spills or aerosol formation, but is easy to penetrate with a pipet tip for sample retrieval. Chill-out liquid wax is available in a clear formulation for use in fluorescence assays, such as those performed in real-time PCR, and a bright red formulation, easily visible when recovering reaction products (not recommended for sealing Microseal® 384-well PCR plates).

**For More Information**Web: [www.bio-rad.com/sealers](http://www.bio-rad.com/sealers)**Frame-Seal™ Incubation Chambers**

Order Info: Pg 328

Frame-Seal incubation chambers are easy-to-use, strongly adhesive hybridization chambers with flexible plastic coverslips. They provide vapor-tight sealing for FISH, colonies, in situ PCR, and PRINS and allow samples to be recovered easily. The seal withstands temperatures up to 97°C. Frame-Seal chambers should be used with plain (unprinted) glass slides. Slides with highly hydrophobic ink patterns (such as Teflon) are not recommended for use with Frame-Seal chambers. They are UV-treatable for inactivation of contaminating DNA.

**For More Information**Web: [www.bio-rad.com/sealers](http://www.bio-rad.com/sealers)

## Thermal Cyclers

### 1000-Series Thermal Cyclers

Catalog # Description

S1000 Thermal Cycler		Pg 296
184-2000	<b>S1000 Thermal Cycler Chassis</b> , includes power cord; does not include reaction module	
185-2148	<b>S1000 Thermal Cycler with Dual 48/48 Fast Reaction Module</b> , includes S1000 thermal cycler chassis, dual 48/48 fast reaction module	
185-2196	<b>S1000 Thermal Cycler with 96-Well Fast Reaction Module</b> , includes S1000 thermal cycler chassis, 96-well fast reaction module	
185-2197	<b>S1000 Thermal Cycler with 96-Deep Well Reaction Module</b> , includes S1000 thermal cycler chassis, 96-deep well reaction module	
185-2138	<b>S1000 Thermal Cycler with 384-Well Reaction Module</b> , includes S1000 thermal cycler chassis, 384-well reaction module	

#### Accessories

184-8000	<b>USB Cable</b> , for use with C1000, C1000 Touch, and S1000 thermal cyclers
184-9000	<b>Tube Frame</b> , supports individual 0.2 ml tubes in the C1000, C1000 Touch, and S1000 dual 48- and 96-well reaction modules
184-9001	<b>Tube Frame</b> , supports individual 0.2 ml tubes in the C1000 Touch and S1000 96-deep well reaction module
184-9010	<b>Touch-Screen Protector</b> , for use with C1000 Touch thermal cycler, 2
184-1001	<b>1000-Series Connectivity Kit</b> , includes mouse, mouse pad, USB key

C1000 Touch Thermal Cycler		Pg 297
184-1100	<b>C1000 Touch Thermal Cycler Chassis</b> , includes USB flash drive, power cord; does not include reaction module	
185-1148	<b>C1000 Touch Thermal Cycler with Dual 48/48 Fast Reaction Module</b> , includes C1000 Touch thermal cycler chassis, dual 48/48 fast reaction module, USB flash drive	
185-1196	<b>C1000 Touch Thermal Cycler with 96-Well Fast Reaction Module</b> , includes C1000 Touch thermal cycler chassis, 96-well fast reaction module, USB flash drive	
185-1197	<b>C1000 Touch Thermal Cycler with 96-Deep Well Reaction Module</b> , includes C1000 Touch thermal cycler chassis, 96-deep well reaction module, USB flash drive	
185-1138	<b>C1000 Touch Thermal Cycler with 384-Well Reaction Module</b> , includes C1000 Touch thermal cycler chassis, 384-well reaction module, USB flash drive	

Reaction Modules		Pg 297
184-0148	<b>Dual 48/48 Fast Reaction Module</b> , independent dual 48-well reaction module, fits C1000, C1000 Touch, and S1000 thermal cyclers, gradient enabled	
184-0196	<b>96-Well Fast Reaction Module</b> , fits C1000, C1000 Touch, and S1000 thermal cyclers, gradient enabled	
184-0197	<b>96-Deep Well Reaction Module</b> , fits C1000, C1000 Touch, and S1000 thermal cyclers, gradient enabled	
184-0138	<b>384-Well Reaction Module</b> , fits C1000, C1000 Touch, and S1000 thermal cyclers, gradient enabled	

### DNA Engine Multi-Bay Thermal Cyclers

DNA Engine Tetrad 2 and Dyad Thermal Cyclers*		Pg 298
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PTC-0240G	<b>DNA Engine Tetrad 2 Thermal Cycler Chassis</b> , does not include Alpha units (requires 4)
PTC-0220G	<b>DNA Engine Dyad Dual-Bay Thermal Cycler Chassis</b> , does not include Alpha units (requires 2)
<b>Single-Block Alpha Units</b>	
ALS-1296GC	<b>96-Well Alpha Unit with Hot Bonnet Heated Lid</b> , holds one 96-well plate, 96 x 0.2 ml tubes, or up to 30 x 0.5 ml tubes
ALS-1238GC	<b>384-Well High-Capacity Alpha Unit with Hot Bonnet Heated Lid</b> , holds one 384-well microplate
<b>Dual-Block Alpha Units</b>	
ALD-1244GC	<b>48/48 Dual Alpha Unit with Two Heated Lids</b> , includes 2 independent blocks, each block holds 48 x 0.2 ml tubes, one 48-well plate, or up to 12 x 0.5 ml tubes

#### Cycling Accessories

VPT-0300	<b>Verification Probe Thermometer</b> , 0–100°C range, ±0.4°C accuracy; order with appropriate probe kit(s)
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#### Dyad Disciple Accessories

DAK-0241	<b>Rack Accessory</b> , for stacking DNA Engine Dyad/Dyad Disciple system in a vertical configuration
DAK-0242	<b>Baffle Accessory</b> , provides spacing for proper airflow in DNA Engine Dyad/Dyad Disciple system in a horizontal configuration
DAK-0001	<b>Dyad Disciple USB Accessory Kit</b> , connects 2 Dyad Disciple cyclers to a PC for remote operation, includes USB hub, 5 USB cables
DAK-0000	<b>Dyad Disciple Power Strip Accessory Kit</b> , allows DNA Engine Dyad/Dyad Disciple cycler pair to operate from a single 220 V outlet, includes power strip, 2 power cords

\* DNA Engine multi-bay thermal cyclers accommodate a wide range of reaction vessels and sealers; see pages 311–312 for a selection guide.

## Personal Thermal Cyclers

Catalog # Description

### T100 Thermal Cycler

Pg 299

- 186-1096 **T100 Thermal Cycler**, includes 96-well thermal cycler, power cord, tube support ring  
186-2000 **Tube Support Ring**, extra tube support ring for use with individual tubes in the T100 thermal cycler, 2  
186-3000 **Touch-Screen Protector**, for use with T100 thermal cycler, 2

#### Recommended Consumables

- 170-8890 **iScript cDNA Synthesis Kit**, 25 x 20 µl reactions, includes 5x iScript reaction mix, iScript reverse transcriptase, nuclease-free water  
170-8870 **iTaq DNA Polymerase**, 5 U/µl, includes 250 U polymerase, 1.25 ml 10x PCR buffer (200 mM Tris-HCl, pH 8.4, 500 mM KCl), 1.25 ml 50 mM MgCl<sub>2</sub> solution  
172-5301 **iProof High-Fidelity DNA Polymerase**, 2 U/µl, 100 U, includes 5x reaction buffers, MgCl<sub>2</sub> solution, DMSO  
HSS-9601 **Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates**, clear shell, clear well, 25 plates  
MLP-9601 **Multiplate High-Profile 96-Well Unskirted PCR Plates**, clear, 25 plates  
MSB-1001 **Microseal 'B' Adhesive Seals**, optically clear, package of 100 seals  
TBS-1201 **12-Tube Strips without Caps (0.2 ml)**, clear, 100 strips (1,200 PCR tubes)  
TCS-1201 **Domed 12-Cap Strips**, for 0.2 ml PCR tubes and plates, clear, 200  
TWI-0201 **PCR Tubes with Domed Caps (0.2 ml)**, clear, 1,000

### MJ Mini Personal Thermal Cycler

Pg 299

- PTC-1148C **MJ Mini 48-Well Personal Thermal Cycler**, with adjustable heated lid, holds 48 x 0.2 ml tubes, 6 x 8-tube strips, one 48-well plate, or 12 x 0.5 ml tubes

#### Recommended Consumables

- TWI-0201 **PCR Tubes with Domed Caps (0.2 ml)**, clear, 1,000  
TFI-0201 **PCR Tubes with Flat Caps (0.2 ml)**, clear, 1,000  
TLS-0801 **Low-Profile 8-Tube Strips without Caps (0.2 ml)**, clear, 120 strips (960 PCR tubes)  
TCS-0801 **Domed 8-Cap Strips**, for 0.2 ml PCR tubes and plates, clear, 120  
TCS-0803 **Optical Flat 8-Cap Strips**, for 0.2 ml PCR tubes and plates, ultraclear, 120  
TBI-0502 **PCR Tubes with Flat Caps (0.5 ml)**, clear, 800 (8 bags of 100)  
MLL-4801 **Multiplate Low-Profile 48-Well Unskirted PCR Plates**, 8 x 6 format, clear, 50 plates

### Verification Probe Thermometer

Pg 299

- VPT-0300 **Verification Probe Thermometer**, 0–100°C range, ±0.4°C accuracy; order with appropriate probe kit(s)  
VPK-0005 **Probe Kit**, for VPT-0300, fits 0.5 ml blocks, NIST-traceable  
VPK-0002 **Probe Kit**, for VPT-0300, fits 0.2 ml blocks, NIST-traceable  
VPK-0384 **Probe Kit**, for VPT-0300, fits 384-well blocks, NIST-traceable

## Real-Time PCR Detection Systems

### MiniOpticon Real-Time PCR Detection System

Pg 300

- CFB-3120 **MiniOpticon Real-Time PCR Detection System**, includes optical housing, MJ Mini thermal cycler, analysis software  
184-5003 **CFX Manager Software, MiniOpticon**, includes CFX Manager software, installation CD, quick guides, instruction manual for MiniOpticon system

#### Accessories

- TLS-0851 **Low-Profile 8-Tube Strips without Caps (0.2 ml)**, white, 120 strips (960 PCR tubes)  
TCS-0803 **Optical Flat 8-Cap Strips**, for 0.2 ml PCR tubes and plates, ultraclear, 120  
MLL-4851 **Multiplate Low-Profile 48-Well Unskirted PCR Plates**, white, 50 plates  
170-9799 **Real-Time PCR Applications Guide**

### CFX Connect Real-Time PCR Detection System

Pg 301

- 185-5200 **CFX Connect Real-Time PCR Detection System**, includes CFX Connect thermal cycler chassis, CFX Connect optical reaction module, CFX Manager software, license for qbase<sup>PLUS</sup> software, communication cable, reagents, consumables  
185-5201 **CFX Connect Real-Time PCR Detection System**, includes CFX Connect thermal cycler chassis, CFX Connect optical reaction module, CFX Manager software, license for qbase<sup>PLUS</sup> software, communication cable

#### Accessories

- HSP-9601 **Hard-Shell Thin-Wall 96-Well Skirted PCR Plates**, white shell, clear well, 50 plates  
MSB-1001 **Microseal 'B' Adhesive Seals**, optically clear, package of 100 seals  
170-9799 **Real-Time PCR Applications Guide**

## Ordering Information

### Amplification Software

www.bio-rad.com

Catalog #	Description	
<b>CFX96 Touch Real-Time PCR Detection System</b>		<b>Pg 301</b>
184-5096*	<b>CFX96 Optical Reaction Module</b> , for use with C1000 Touch thermal cycler chassis, includes CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable, reagents, consumables	
184-5097*	<b>CFX96 Optical Reaction Module</b> , for use with C1000 Touch thermal cycler chassis, includes CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable	
185-5196	<b>CFX96 Touch Real-Time PCR Detection System</b> , includes C1000 Touch thermal cycler chassis, CFX96 optical reaction module, CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable, reagents, consumables	
185-5195	<b>CFX96 Touch Real-Time PCR Detection System</b> , includes C1000 Touch thermal cycler chassis, CFX96 optical reaction module, CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable	
<b>Accessories</b>		
TLS-0801	<b>Low-Profile 8-Tube Strips without Caps (0.2 ml)</b> , clear, 120 strips (960 tubes)	
TCS-0803	<b>Optical Flat 8-Cap Strips</b> , for 0.2 ml PCR tubes and plates, ultraclear, 120	
HSP-9601	<b>Hard-Shell Thin-Wall 96-Well Skirted PCR Plates</b> , white shell, clear well, 50 plates	
MSB-1001	<b>Microseal 'B' Adhesive Seals</b> , optically clear, package of 100 seals	
170-9799	<b>Real-Time PCR Applications Guide</b>	
* Order to upgrade an existing C1000 or C1000 Touch thermal cycler.		
<b>CFX384 Touch Real-Time PCR Detection System</b>		<b>Pg 302</b>
184-5384*	<b>CFX384 Optical Reaction Module</b> , for use with C1000 Touch thermal cycler chassis, includes CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable, reagents, consumables	
184-5385*	<b>CFX384 Optical Reaction Module</b> , for use with C1000 Touch thermal cycler chassis, includes CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable	
185-5484	<b>CFX384 Touch Real-Time PCR Detection System</b> , includes C1000 Touch thermal cycler chassis, CFX384 optical reaction module, CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable, reagents, consumables	
185-5485	<b>CFX384 Touch Real-Time PCR Detection System</b> , includes C1000 Touch thermal cycler chassis, CFX384 optical reaction module, CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable	
<b>Accessories</b>		
HSP-3805	<b>Hard-Shell 384-Well Standard PCR Plates</b> , clear shell, white well, 50 plates	
MSB-1001	<b>Microseal 'B' Adhesive Seals</b> , optically clear, package of 100 seals	
170-9799	<b>Real-Time PCR Applications Guide</b>	
* Order to upgrade an existing C1000 or C1000 Touch thermal cycler.		
<b>CFX Automation System for Real-Time PCR</b>		<b>Pg 302</b>
184-5072	<b>CFX Automation System</b> , includes robotic plate handler, base tray, bar code scanner, CFX automation control software CD	

## Amplification Software

<b>CFX Manager Software</b>		<b>Pg 303</b>
184-5000	<b>CFX Manager Software</b> , includes installation CD, quick guides, instruction manual	
184-5003	<b>CFX Manager Software, MiniOpticon</b> , includes CFX Manager software, installation CD, quick guides, instruction manual for MiniOpticon system	
<b>CFX Manager Software, Security Edition</b>		<b>Pg 303</b>
184-5001	<b>CFX Manager Software, Security Edition</b> , includes 1 user license, installation CD, HASP HL key	
184-5005	<b>CFX Manager Software, Security Edition</b> , includes 5 user licenses, 5 installation CDs, 5 HASP HL keys	
184-5010	<b>CFX Manager Software, Security Edition</b> , includes 10 user licenses, 10 installation CDs, 10 HASP HL keys	
<b>CFX Manager Software, Chinese and Russian Editions</b>		<b>Pg 303</b>
184-5008	<b>CFX Manager Software, Chinese Edition</b> , includes 3 user licenses, installation CD, 3 HASP HL keys	
184-5028	<b>CFX Manager Software, Russian Edition</b> , includes 3 user licenses, installation CD, 3 HASP HL keys	
<b>Precision Melt Analysis Software</b>		<b>Pg 304</b>
184-5025	<b>Precision Melt Analysis Software</b> , includes 2 user licenses, installation CD, 2 HASP HL keys, melt calibration kit	
184-5015	<b>Precision Melt Analysis Software Only</b> , includes 2 user licenses, installation CD, 2 HASP HL keys	
184-5020	<b>Melt Calibration Kit</b> , includes melt calibration DNA standard, melt primers, precision melt supermix	
<b>Beacon Designer Probe/Primer Design Software</b>		<b>Pg 304</b>
170-8734	<b>Beacon Designer Probe/Primer Design Software</b> , includes installation CD, quick guide	



## Reagents

### Reverse Transcription Reagents

Catalog # Description

#### Two-Step Reverse Transcription Reagents

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##### iScript Advanced cDNA Synthesis Kit

- 170-8842 **iScript Advanced cDNA Synthesis Kit for RT-qPCR**, 50 x 20 µl reactions, includes 200 µl 5x iScript advanced reaction mix, 50 µl iScript advanced reverse transcriptase
- 170-8843 **iScript Advanced cDNA Synthesis Kit for RT-qPCR**, 250 x 20 µl reactions, includes 1,000 µl 5x iScript advanced reaction mix, 250 µl iScript advanced reverse transcriptase

##### iScript Reverse Transcription Supermix for RT-qPCR

- 170-8840 **iScript Reverse Transcription Supermix for RT-qPCR**, 25 x 20 µl reactions, includes 100 µl 5x iScript RT supermix and iScript RT supermix no-RT control
- 170-8841 **iScript Reverse Transcription Supermix for RT-qPCR**, 100 x 20 µl reactions

##### iScript cDNA Synthesis Kit

- 170-8890 **iScript cDNA Synthesis Kit**, 25 x 20 µl reactions, includes 5x iScript reaction mix, iScript reverse transcriptase, nuclease-free water
- 170-8891 **iScript cDNA Synthesis Kit**, 100 x 20 µl reactions

##### iScript Select cDNA Synthesis Kit

- 170-8896 **iScript Select cDNA Synthesis Kit**, 25 x 20 µl reactions, includes 5x iScript Select reaction mix, iScript reverse transcriptase, oligo(dT) mix, random primer mix, gene-specific primer (GSP) enhancer solution, nuclease-free water
- 170-8897 **iScript Select cDNA Synthesis Kit**, 100 x 20 µl reactions

#### One-Step RT-qPCR Reagents

Pg 307

##### iScript One-Step RT-PCR Kit with SYBR Green

- 170-8892 **iScript One-Step RT-PCR Kit with SYBR Green**, 50 x 50 µl reactions, includes iScript reverse transcriptase for one-step RT-PCR, 2x SYBR Green RT-PCR reaction mix, nuclease-free water
- 170-8893 **iScript One-Step RT-PCR Kit with SYBR Green**, 200 x 50 µl reactions

##### iScript One-Step RT-PCR Kit for Probes

- 170-8894 **iScript One-Step RT-PCR Kit for Probes**, 50 x 50 µl reactions, includes iScript reverse transcriptase for one-step RT-PCR, 2x probes RT-PCR reaction mix, nuclease-free water
- 170-8895 **iScript One-Step RT-PCR Kit for Probes**, 200 x 50 µl reactions

### Real-Time qPCR Reagents

#### Real-Time qPCR Supermixes for SYBR Green and EvaGreen Dyes

Pg 307

##### SsoAdvanced SYBR Green Supermix

- 172-5260 **SsoAdvanced SYBR Green Supermix**, 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, Sso7d fusion polymerase, MgCl<sub>2</sub>, SYBR Green I, stabilizers
- 172-5261 **SsoAdvanced SYBR Green Supermix**, 500 x 20 µl reactions
- 172-5262 **SsoAdvanced SYBR Green Supermix**, 1,000 x 20 µl reactions
- 172-5264 **SsoAdvanced SYBR Green Supermix**, 2,500 x 20 µl reactions
- 172-5265 **SsoAdvanced SYBR Green Supermix**, 5,000 x 20 µl reactions

##### SsoFast EvaGreen Supermix

- 172-5200 **SsoFast EvaGreen Supermix**, 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, Sso7d fusion polymerase, MgCl<sub>2</sub>, EvaGreen dye, stabilizers
- 172-5201 **SsoFast EvaGreen Supermix**, 500 x 20 µl
- 172-5202 **SsoFast EvaGreen Supermix**, 1,000 x 20 µl
- 172-5203 **SsoFast EvaGreen Supermix**, 2,000 x 20 µl
- 172-5204 **SsoFast EvaGreen Supermix**, 2,500 x 20 µl reactions
- 172-5205 **SsoFast EvaGreen Supermix**, 5,000 x 20 µl reactions

##### SsoFast EvaGreen Supermix with Low ROX

- 172-5210 **SsoFast EvaGreen Supermix with Low ROX**, 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, Sso7d fusion polymerase, MgCl<sub>2</sub>, ROX passive reference dye, stabilizers
- 172-5211 **SsoFast EvaGreen Supermix with Low ROX**, 500 x 20 µl reactions
- 172-5212 **SsoFast EvaGreen Supermix with Low ROX**, 1,000 x 20 µl reactions
- 172-5213 **SsoFast EvaGreen Supermix with Low ROX**, 2,000 x 20 µl reactions, 20 ml bottle



## Ordering Information

### Reagents

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Catalog #	Description
<b>iQ SYBR Green Supermix</b>	
170-8880	<b>iQ SYBR Green Supermix</b> , 100 x 50 µl reactions, 2x real-time PCR mix contains 100 mM KCl, 40 mM Tris-HCl, pH 8.4, 0.4 mM each dNTP (dATP, dCTP, dGTP, dTTP), 50 U/ml iTaq DNA polymerase, 6 mM MgCl <sub>2</sub> , SYBR Green I, 20 nM fluorescein, stabilizers
170-8882	<b>iQ SYBR Green Supermix</b> , 500 x 50 µl reactions
170-8884	<b>iQ SYBR Green Supermix</b> , 1,000 x 50 µl reactions
170-8885	<b>iQ SYBR Green Supermix</b> , 2,000 x 50 µl reactions
170-8886	<b>iQ SYBR Green Supermix</b> , 2,500 x 50 µl reactions
170-8887	<b>iQ SYBR Green Supermix</b> , 5,000 x 50 µl reactions
<b>iTaq Fast SYBR Green Supermix with ROX</b>	
172-5100	<b>iTaq Fast SYBR Green Supermix with ROX</b> , 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, iTaq DNA polymerase, 6 mM Mg <sup>2+</sup> , SYBR Green I, ROX passive reference dye, stabilizers
172-5101	<b>iTaq Fast SYBR Green Supermix with ROX</b> , 500 x 20 µl reactions
172-5102	<b>iTaq Fast SYBR Green Supermix with ROX</b> , 1,000 x 20 µl reactions
172-5103	<b>iTaq Fast SYBR Green Supermix with ROX</b> , 2,000 x 20 µl reactions, 20 ml bottle
<b>iTaq SYBR Green Supermix with ROX</b>	
172-5850	<b>iTaq SYBR Green Supermix with ROX</b> , 200 x 50 µl reactions, 2x real-time PCR mix contains 0.4 mM each of dATP, dCTP, dGTP, and dTTP, 50 U/ml iTaq DNA polymerase, 6 mM Mg <sup>2+</sup> , SYBR Green I, ROX reference dye, stabilizers
172-5851	<b>iTaq SYBR Green Supermix with ROX</b> , 500 x 50 µl reactions
172-5852	<b>iTaq SYBR Green Supermix with ROX</b> , 1,000 x 50 µl reactions
172-5853	<b>iTaq SYBR Green Supermix with ROX</b> , 2,000 x 50 µl reactions, 50 ml bottle
<b>EpiQ Chromatin SYBR Green Supermix</b>	
172-5404	<b>EpiQ Chromatin SYBR Green Supermix</b> , 500 x 20 µl reactions, 5 ml, 2x real-time PCR mix contains dNTPs, iTaq DNA polymerase, MgCl <sub>2</sub> , SYBR Green I, ROX passive reference dye, fluorescein, stabilizers
172-5405	<b>EpiQ Chromatin SYBR Green Supermix</b> , 1,000 x 20 µl reactions, 10 ml
<b>High Resolution Melt (HRM) Analysis Reagents</b>	
<b>Pg 308</b>	
<b>Precision Melt Supermix</b>	
172-5110	<b>Precision Melt Supermix</b> , 200 x 20 µl reactions, 2 x 1 ml, 2x real-time PCR mix contains dNTPs, iTaq DNA polymerase, MgCl <sub>2</sub> , EvaGreen dye, stabilizers
172-5112	<b>Precision Melt Supermix</b> , 1,000 x 20 µl reactions, 10 x 1 ml
<b>Real-Time qPCR Supermixes for Probes</b>	
<b>Pg 309</b>	
<b>SsoFast Probes Supermix</b>	
172-5230	<b>SsoFast Probes Supermix</b> , 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, Sso7d fusion polymerase, MgCl <sub>2</sub> , stabilizers
172-5231	<b>SsoFast Probes Supermix</b> , 500 x 20 µl reactions
172-5232	<b>SsoFast Probes Supermix</b> , 1,000 x 20 µl reactions
172-5233	<b>SsoFast Probes Supermix</b> , 2,000 x 20 µl reactions, 20 ml bottle
<b>SsoFast Probes Supermix with ROX</b>	
172-5250	<b>SsoFast Probes Supermix with ROX</b> , 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, Sso7d fusion polymerase, MgCl <sub>2</sub> , ROX passive reference dye, stabilizers
172-5251	<b>SsoFast Probes Supermix with ROX</b> , 500 x 20 µl reactions
172-5252	<b>SsoFast Probes Supermix with ROX</b> , 1,000 x 20 µl reactions
172-5253	<b>SsoFast Probes Supermix with ROX</b> , 2,000 x 20 µl reactions, 20 ml bottle
<b>iQ Supermix</b>	
170-8860	<b>iQ Supermix</b> , 100 x 50 µl reactions, 2x real-time PCR mix contains 100 mM KCl, 40 mM Tris-HCl, pH 8.4, 0.4 mM each dNTP (dATP, dCTP, dGTP, dTTP), 50 U/ml iTaq DNA polymerase, 6 mM MgCl <sub>2</sub> , stabilizers
170-8862	<b>iQ Supermix</b> , 500 x 50 µl reactions
170-8864	<b>iQ Supermix</b> , 1,000 x 50 µl reactions
<b>iQ Multiplex Powermix</b>	
172-5848	<b>iQ Multiplex Powermix</b> , 50 x 50 µl reactions, 2x real-time PCR mix contains dNTPs, 11 mM MgCl <sub>2</sub> , iTaq DNA polymerase, stabilizers
172-5849	<b>iQ Multiplex Powermix</b> , 200 x 50 µl reactions
<b>iTaq Fast Supermix with ROX</b>	
172-5105	<b>iTaq Fast Supermix with ROX</b> , 200 x 20 µl reactions, 2x real-time PCR mix contains dNTPs, iTaq DNA polymerase, 6mM Mg <sup>2+</sup> , ROX passive reference dye, stabilizers
172-5106	<b>iTaq Fast Supermix with ROX</b> , 500 x 20 µl reactions
172-5107	<b>iTaq Fast Supermix with ROX</b> , 1,000 x 20 µl reactions
172-5108	<b>iTaq Fast Supermix with ROX</b> , 2,000 x 20 µl reactions, 20 ml bottle
<b>iTaq Supermix with ROX</b>	
172-5854	<b>iTaq Supermix with ROX</b> , 200 x 50 µl reactions, 2x real-time PCR mix contains 0.4 mM each of dATP, dCTP, dGTP, and dTTP, 50 U/ml iTaq DNA polymerase, 10 mM Mg <sup>2+</sup> , ROX reference dye, stabilizers
172-5855	<b>iTaq Supermix with ROX</b> , 500 x 50 µl reactions
172-5856	<b>iTaq Supermix with ROX</b> , 1,000 x 50 µl reactions
172-5857	<b>iTaq Supermix with ROX</b> , 2,000 x 50 µl reactions, 50 ml bottle

Catalog # Description

**Standard PCR Reagents**
**Pg 309**
**iProof High-Fidelity DNA Polymerase, Master Mixes, and Buffers**

172-5300	<b>iProof High-Fidelity DNA Polymerase</b> , 2 U/μl, 20 U, includes 5x reaction buffers, MgCl <sub>2</sub> solution, DMSO
172-5301	<b>iProof High-Fidelity DNA Polymerase</b> , 2 U/μl, 100 U
172-5302	<b>iProof High-Fidelity DNA Polymerase</b> , 2 U/μl, 500 U
172-5330	<b>iProof High-Fidelity PCR Kit</b> , 2 U/μl, 50 U, includes 5x reaction buffers, MgCl <sub>2</sub> solution, DMSO, dNTPs, λ DNA, 1.3 and 10 kb primers, DNA standard
172-5331	<b>iProof High-Fidelity PCR Kit</b> , 2 U/μl, 200 U
172-5310	<b>iProof HF Master Mix</b> , 100 x 50 μl reactions, includes 2x master mix (0.04 U/μl), DMSO (for highest fidelity with most templates)
172-5311	<b>iProof HF Master Mix</b> , 500 x 50 μl reactions
172-5320	<b>iProof GC Master Mix</b> , 100 x 50 μl reactions, includes 2x master mix (0.04 U/μl), DMSO (for GC-rich templates)
172-5321	<b>iProof GC Master Mix</b> , 500 x 50 μl reactions
172-5391	<b>5x iProof HF Buffer</b> , 1.5 ml (for highest fidelity with most templates)
172-5392	<b>5x iProof GC Buffer</b> , 1.5 ml (for GC-rich templates)
172-5393	<b>5x iProof HPLC HF Buffer</b> , 1.5 ml
172-5394	<b>5x iProof HPLC GC Buffer</b> , 1.5 ml

**dNTP Mix**

170-8874	<b>dNTP Mix</b> , 200 μl premixed solution, contains 10 mM each dNTP (dATP, dCTP, dGTP, dTTP)
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**iTaq DNA Polymerase**

170-8870	<b>iTaq DNA Polymerase</b> , 5 U/μl, includes 250 U polymerase, 1.25 ml 10x PCR buffer
170-8875	<b>iTaq DNA Polymerase</b> , 5 U/μl, includes 5,000 U polymerase, 25 ml 10x PCR buffer, 25 ml 50 mM MgCl <sub>2</sub> solution

**ROX Passive Reference Dye**

172-5858	<b>ROX Passive Reference Dye</b> , 0.5 ml
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**MgCl<sub>2</sub>**

170-8872	<b>MgCl<sub>2</sub> Solution</b> , 50 mM, 1.25 ml
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**Chromatin Analysis Reagents**
**Pg 310**

172-5400	<b>EpiQ Chromatin Analysis Kit</b> , 50 preparations, contains components for chromatin digestion, analysis, and genomic DNA purification, and 2x real-time PCR mix for 500 x 20 μl reactions
172-5401	<b>EpiQ Chromatin Analysis Kit</b> , 100 preparations, 1,000 x 20 μl reactions
172-5402	<b>EpiQ Chromatin Preparation Kit</b> , 50 preparations, contains components for chromatin digestion, analysis, and genomic DNA purification prior to real-time PCR analysis
172-5403	<b>EpiQ Chromatin Preparation Kit</b> , 100 preparations
172-5404	<b>EpiQ Chromatin SYBR Green Supermix</b> , 500 x 20 μl reactions, 5 ml, 2x real-time PCR mix contains dNTPs, iTaq DNA polymerase, MgCl <sub>2</sub> , SYBR Green I, ROX passive reference dye, fluorescein, stabilizers
172-5405	<b>EpiQ Chromatin SYBR Green Supermix</b> , 1,000 x 20 μl reactions, 10 ml

## PCR Plastic Consumables

### Thin-Wall PCR Tubes

Catalog # Description

#### PCR Tubes and Strips

Pg 313

#### Individual PCR Tubes with Attached Caps (0.2 ml)

TFI-0201	PCR Tubes with Flat Caps (0.2 ml), clear, 1,000
TWI-0201	PCR Tubes with Domed Caps (0.2 ml), clear, 1,000

#### Individual PCR Tubes without Caps (0.2 ml)

TBI-0201	PCR Tubes without Caps (0.2 ml), clear, 1,000
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#### Individual PCR Tubes with Attached Caps (0.5 ml)

TBI-0501	PCR Tubes with Flat Caps (0.5 ml), clear, 1,000 (2 bags of 500)
TBI-0502	PCR Tubes with Flat Caps (0.5 ml), clear, 800 (8 bags of 100)

#### High-Profile Tube Strips without Caps (0.2 ml)

TBS-0201	8-Tube Strips without Caps (0.2 ml), clear, 120 strips (960 PCR tubes)
TBS-1201	12-Tube Strips without Caps (0.2 ml), clear, 100 strips (1,200 PCR tubes)

#### Low-Profile 8-Tube Strips without Caps (0.2 ml)

TLS-0801	Low-Profile 8-Tube Strips without Caps (0.2 ml), clear, 120 strips (960 PCR tubes)
TLS-0851	Low-Profile 8-Tube Strips without Caps (0.2 ml), white, 120 strips (960 PCR tubes)

#### Domed Cap Strips

TCS-0801	Domed 8-Cap Strips, for 0.2 ml PCR tubes and plates, clear, 120
TCS-1201	Domed 12-Cap Strips, for 0.2 ml PCR tubes and plates, clear, 200

#### Optical Flat Cap Strips

TCS-0803	Optical Flat 8-Cap Strips, for 0.2 ml PCR tubes and plates, ultraclear, 120
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#### High-Profile Polypropylene Tube Strips with Domed Cap Strips (0.2 ml)

TBC-0802	8-Tube Strips and Domed Cap Strips (0.2 ml), clear, 20 bags of 12 x 8-tube strips and 12 x 8-cap strips (1,920 PCR tubes and 1,920 caps)
TBC-1202	12-Tube Strips and Domed Cap Strips (0.2 ml), clear, 20 bags of 8 x 12-tube strips and 8 x 12-cap strips (1,920 PCR tubes and 1,920 caps)

#### Capping Tools and Racks

Pg 314

TRC-9601	PCR Tube Racks, ANSI/SBS standard, white, 10
TRC-0501	96-Place Racks, with covers, for PCR tubes and unskirted and semi-skirted microplates, assorted colors, 5
ECT-1000	Easy Cap Tool, ensures tight seal for 0.2 ml PCR tubes or 96-well microplates
ECT-2000	Strip Cap Tool, for sealing 8- and 12-cap strips on PCR plates or tubes

### PCR Plates

#### Multiplate 48-Well PCR Plates

Pg 314

MLP-4801	Multiplate High-Profile 48-Well Unskirted PCR Plates, clear, 50 plates
MLL-4801	Multiplate Low-Profile 48-Well Unskirted PCR Plates, clear, 50 plates
MLL-4851	Multiplate Low-Profile 48-Well Unskirted PCR Plates, white, 50 plates

#### Hard-Shell 96-Well PCR Plates

Pg 315

Description	Clear Wells	White Wells	Black Wells
<b>Hard-Shell Low-Profile 96-Well Skirted PCR Plates</b>			
White shell, 50 plates	HSP-9601	HSP-9655	—
Red shell, 50 plates	HSP-9611	—	—
Yellow shell, 50 plates	HSP-9621	—	—
Blue shell, 50 plates	HSP-9631	HSP-9635	—
Green shell, 50 plates	HSP-9641	HSP-9645	—
Black shell, 50 plates	HSP-9661	HSP-9665	HSP-9666
White shell, bar-coded, 50 plates	HSP-9901	HSP-9955	—
White shell, bulk pack of 400 plates	HSP-9601B	—	—
<b>Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates, 25 plates</b>			
Clear shell	HSS-9601	—	—
Green shell	HSS-9641	—	—
Black shell	—	HSS-9665	—
Clear shell, bar-coded	HSS-9901	—	—

Catalog # Description

**Multiplate 96-Well PCR Plates**

**Pg 315**

**Multiplate High-Profile 96-Well Unskirted PCR Plates**

MLP-9601 Multiplate High-Profile 96-Well Unskirted PCR Plates, clear, 25 plates  
MLP-9651 Multiplate High-Profile 96-Well Unskirted PCR Plates, white, 25 plates  
MLP-9631 Multiplate High-Profile 96-Well Unskirted PCR Plates, blue, 25 plates

**Multiplate Low-Profile 96-Well Unskirted PCR Plates**

MLL-9601 Multiplate Low-Profile 96-Well Unskirted PCR Plates, clear, 25 plates  
MLL-9651 Multiplate Low-Profile 96-Well Unskirted PCR Plates, white, 25 plates

**iQ 96-Well PCR Plates**

**Pg 316**

223-9441 iQ High-Profile 96-Well Semi-Skirted PCR Plates, 25 plates

**Microseal 96-Well PCR Plates**

**Pg 316**

**Microseal High-Profile 96-Well Semi-Skirted PCR Plates**

MSS-9601 Microseal High-Profile 96-Well Semi-Skirted PCR Plates, clear, 25 plates

**Microseal Low-Profile 96-Well Skirted PCR Plates**

MSP-9601 Microseal Low-Profile 96-Well Skirted PCR Plates, clear, 50 plates  
MSP-9605 Microseal Low-Profile 96-Well Skirted PCR Plates, bar-coded, clear, 50 plates

**Concord 96-Well PCR Plates**

**Pg 316**

CON-9601\* Concord Low-Profile 96-Well Skirted Polycarbonate PCR Plates, clear, 25 plates  
CVR-9601 Dust Covers, for Concord polycarbonate PCR plates, nonsealing, 25 covers

\* Not recommended for use with <sup>35</sup>S.

**Hard-Shell 384-Well Standard PCR Plates**

**Pg 317**

Description	Clear Wells	White Wells	Black Wells
<b>Hard-Shell 384-Well Standard PCR Plates</b>			
Clear shell, 50 plates	HSP-3801	HSP-3805	—
White shell, 50 plates	HSP-3851	—	—
Red shell, 50 plates	HSP-3811	—	—
Yellow shell, 50 plates	HSP-3821	—	—
Blue shell, 50 plates	HSP-3831	—	—
Green shell, 50 plates	HSP-3841	—	—
Black shell, 50 plates	—	HSP-3865	HSP-3866
Clear shell, bar-coded, 50 plates	HSP-3901	HSP-3905	—
Clear shell, bulk pack of 500 plates	HSP-3801B	—	—

Catalog # Description

**Hard-Shell 384-Well 480 PCR Plates**

**Pg 317**

**Hard-Shell 384-Well 480 PCR Plates**

HSR-4805 Hard-Shell 384-Well 480 PCR Plates, clear shell/white well PCR plate for Roche LightCycler 480 real-time PCR system, bar-coded, rigid 2-component design, 50 plates  
HSR-4805K Hard-Shell 384-Well 480 PCR Plates Kit, for use with Roche LightCycler 480 real-time PCR system, includes 100 bar-coded clear shell/white well PCR plates (2 packs of #HSR-4805) and 100 Microseal 'C' optical seals (#MSC-1001)  
HSR-4801 Hard-Shell 384-Well 480 PCR Plates, clear shell/white well PCR plate for Roche LightCycler 480 real-time PCR system, bar-coded, rigid 2-component design, 50 plates  
HSR-4801K Hard-Shell 384-Well 480 PCR Plates Kit, for use with Roche LightCycler 480 real-time PCR system, includes 100 bar-coded clear shell/white well PCR plates (2 packs of #HSR-4801) and 100 Microseal 'C' optical seals (#MSC-1001)

**Microseal 384-Well Skirted PCR Plates**

**Pg 317**

Description	50 Plates	Bar-Coded, 50 Plates
<b>Microseal 384-Well Skirted PCR Plates</b>		
Clear	MSP-3842	MSP-3846
White	MSP-3852	—
Black	MSP-3862	—

## Ordering Information

### PCR Plastic Consumables

www.bio-rad.com

## Sealers

Catalog #

Description

### PCR Plate Sealers

Pg 318

MSC-1001	<b>Microseal 'C' Optical Seals</b> , 100 seals
MSA-5001	<b>Microseal 'A' Film</b> , 50 seals
MSB-1001	<b>Microseal 'B' Adhesive Seals</b> , optically clear, 100 seals
MSF-1001	<b>Microseal 'F' Foil</b> , 100 seals
MSR-0001	<b>Sealing Roller</b> , for film seals
ADR-3296	<b>Optical Compression Pad</b> , for improved film sealing of 96-well plates in DNA Engine Opticon 2 and Chromo4 systems
ADR-5001	<b>Pressure Pad</b> , uniformly distributes lid pressure for sealing film
MSO-1001	<b>Optical Film Sealing Kit</b> , for 96-well plates, includes optical compression pad, 100 Microseal 'B' clear adhesive seals
223-9442	<b>96-Well PCR Plate Sealing Mats</b> , 5
223-9444	<b>Optical Sealing Tape</b> , 100 sheets

### Sealing Pads for Automation

Pg 319

#### Microseal 'P' and 'P+' Pads

MSP-1001	<b>Microseal 'P' Pads</b> , reusable, for Power Bonnet lids, 10
MSP-1002	<b>Microseal 'P+' Pads</b> , reusable, for Moto Alpha unit lids, 10
MSP-1003	<b>Microseal 'P' Replacement Pads</b> , for MSL-2032, reusable, 10

#### Auto-Sealing Lids for PCR Plates

MSL-2012	<b>Flat Auto-Sealing PCR Plate Lids</b> , reusable, 4
MSL-2022	<b>Arched Auto-Sealing PCR Plate Lids</b> , reusable, 4
MSL-2032	<b>Arched Auto-Sealing PCR Plate Lids with Wide Tabs</b> , reusable, 4

### Chill-out Liquid Wax

Pg 319

CHO-1401	<b>Chill-out Liquid Wax</b> , red, 100 ml
CHO-1404	<b>Chill-out Liquid Wax</b> , red, 1 L
CHO-1411	<b>Chill-out Liquid Wax</b> , clear, optical grade, 100 ml
CHO-1414	<b>Chill-out Liquid Wax</b> , clear, optical grade, 1 L

### Frame-Seal Incubation Chambers

Pg 319

SLF-0201	<b>Frame-Seal Incubation Chambers</b> , 9 x 9 mm, 25 µl capacity, coverslips included, 100
SLF-0601	<b>Frame-Seal Incubation Chambers</b> , 15 x 15 mm, 65 µl capacity, coverslips included, 100
SLF-1201	<b>Frame-Seal Incubation Chambers</b> , 17 x 28 mm, 125 µl capacity, coverslips included, 100
SLF-3001	<b>Frame-Seal Incubation Chambers</b> , 19 x 60 mm, 300 µl capacity, coverslips included, 100