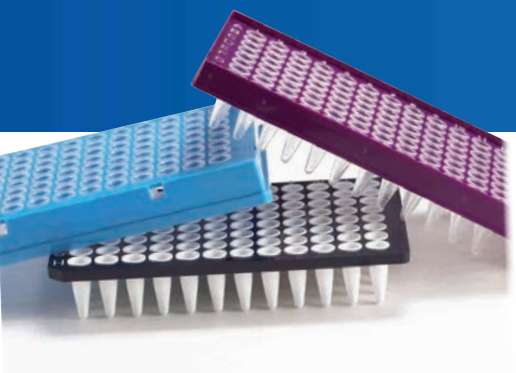
Brooks
LIFE SCIENCES

Microplate, PCR and Sealing Solutions Catalogue



4titude®
From Brooks LIFE SCIENCES

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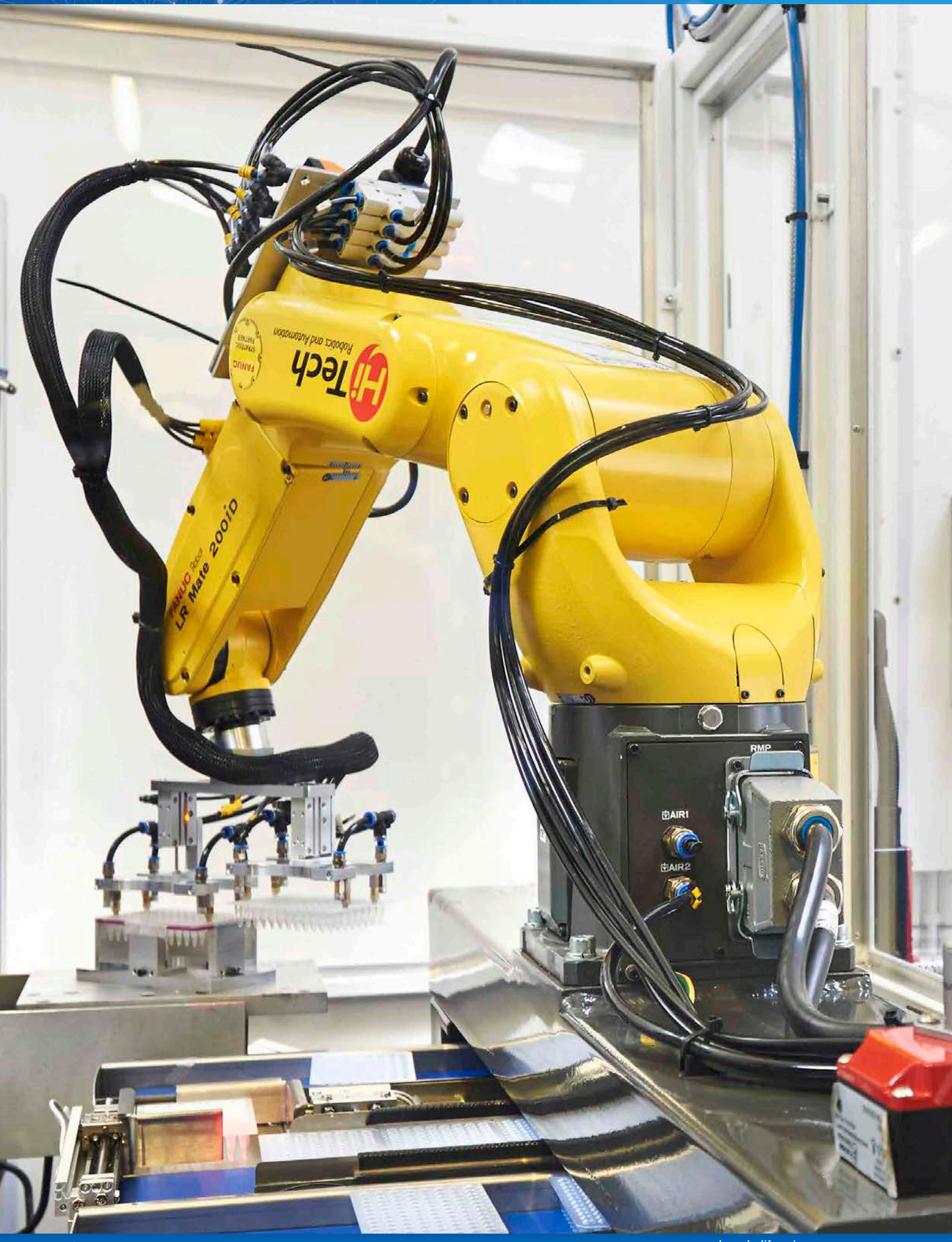
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AIR2

About Us:
Manufacturing & Quality Standards

About Us

4titude® from Brooks Life Sciences is a market leader in the design and manufacture of consumables and bench top instrumentation for a range of fields within the life sciences industry, from Research to Molecular Diagnostics.

Since inception in 2005, 4titude® has grown and developed internationally, and in 2017 became part of Brooks Life Sciences.

The state-of-the-art manufacturing facility in the UK boasts 25,000 square feet of floor space, producing consumables for a wide range of life science and medical applications, including research into combatting cancer and infectious diseases, drug development, molecular diagnostics, and forensics.

Current off-the-shelf products include PCR consumables, sealing materials and heat sealing instrumentation, microplates for cell screening and storage, and solutions for sample tracking, including barcodes and 2D data matrix codes on products.

In addition to these products, we have the capability to offer completely tailored solutions, from custom design of bespoke products, right through to tool making & manufacturing of the parts. 4titude® can offer you a complete solution from concept to completion.

Manufacturing & Quality Standards

4titude® is ISO 9001:2015 & ISO 13485:2016 certified to manufacture and supply consumables for the life sciences sector. Our management systems comply with the requirements to produce medical devices which we sell to diagnostics companies of all sizes including multi-national corporations. We also provide complete custom design solutions from prototyping to tool design and contract manufacturing.

Manufacturing Standard

- ISO 9001:2015 & ISO 13485:2016 certified
- Process validation & mapping
- Fully document controlled manufacturing processes
- Statistical analysis of production processes
- Continuous improvement programs
- Injection moulding in ISO class 7 cleanrooms
- Virgin, medical grade polymers

Quality Standard

4titude® performs visual, physical and biological tests to ensure the integrity of our consumables and that they are contamination free at all times.

- Consumables are certified free from human genomic DNA, nucleases and pyrogens
- Skirted microplates and PCR plates meet the SBS standard footprint
- PCR inhibition tests are performed on polymers used
- Leak tests are performed on every well of every PCR plate
- White-well plates are checked for background fluorescence

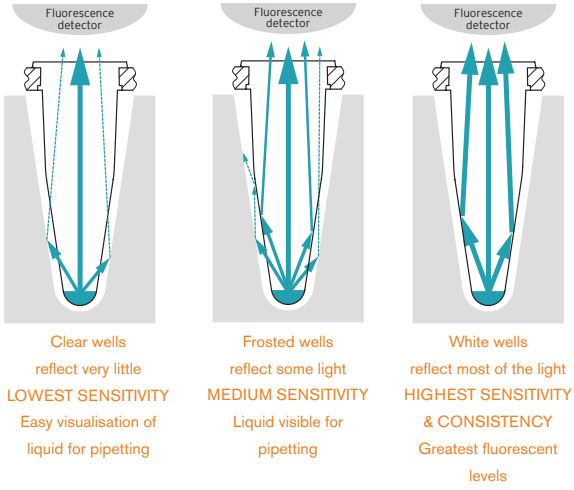
PCR Plates:
Clear, Frosted or White Wells
& Low DNA Binding Properties

Clear, Frosted or White Wells & Low DNA Binding Properties

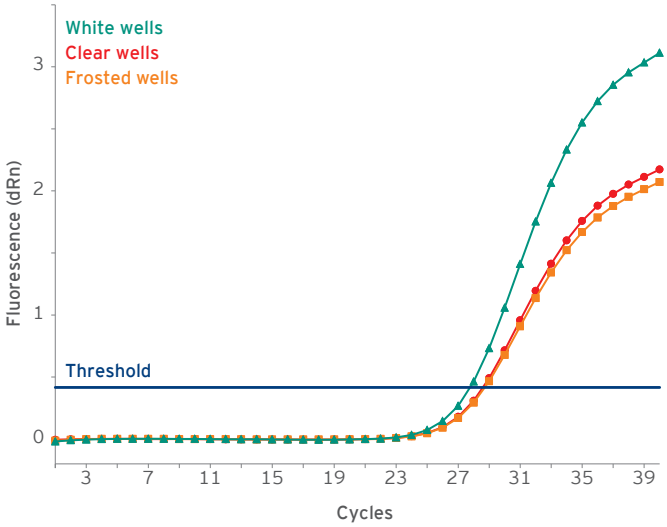
Selection of the right plastic material of your PCR consumables has a measurable effect on your (q)PCR results. 4titude® has carried out extensive research and development into our PCR consumables to offer customers a range of products suitable for the diverse applications and instruments they are required for.

Well colour options - A question of sensitivity

Well colour is often not considered when choosing a PCR plate, but can in fact have a significant impact on results. PCR plates are available in three colour options: clear, frosted and white, each of which has specific advantages and disadvantages.



Greater sensitivity in a qPCR reaction enables earlier Ct values and higher fluorescence readings.



Identical qPCR assays in plates with clear, frosted and white wells (4ti-0770/C, 4ti-0772 and 4ti-0771, respectively).
Clear and frosted wells perform similarly whereas white wells gave earlier Ct values and higher fluorescence intensity.

4titude® recommends the use of white wells, where possible, to achieve the greatest sensitivity and consistency of qPCR reactions. Another point to consider are well colour recommendations from (q)PCR instrument manufacturers, for example, Roche recommend the use of white wells on their instruments and, ABI® recommend the use of frosted wells. In addition to using the recommended well colour for your instrumentation, this must be combined with thin walled tubes for optimal heat transfer and optimal sealing to prevent evaporation.

Low DNA binding - Smarter plastics for advanced applications

Polypropylene (PP) is the best material for PCR tubes as PP is chemically inert, resistant to solvents and well suited for injection moulding, allowing for production of thin-walled tubes for optimum PCR results.

DNA has been shown to bind PP, especially at high ionic strength, despite the very hydrophobic nature of this material. This has typically not been an issue but due to progressing miniaturisation of reaction volumes and the introduction of new technologies such as NGS, ultra-low DNA binding consumables have become essential for use in sensitive assays.

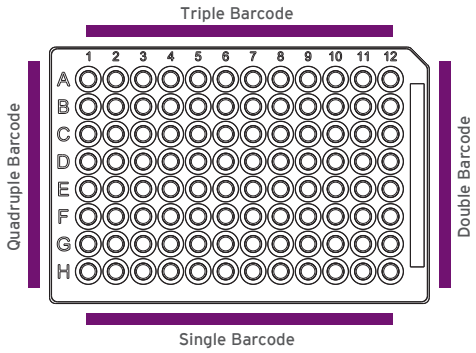
Please see our dedicated application note on low DNA binding products which can be found on our website for information outlining the characteristics of our selected low bind polymer and for the range of low-binding PCR consumables available.

Coding Options & Ethylene Oxide Treatment

Linear and 2D matrix coding - Sample tracking made easy

All skirted and semi-skirted plates are available with linear Code 128 format barcodes for identification and traceability of your samples.

The labels are highly scratch-resistant and can withstand cold storage (-80°C), temperatures of up to 100°C, and solvents such as DMSO. Single, double, triple or quadruple barcodes are available, and a variety of custom options.



Position of standard barcode labels

FrameStrip® with off-the-shelf 2D code

2D data matrix coding uses a defined number of fields to encode alphanumerical information. The code uses data redundancy so even if codes become partly destroyed, the information will be retained. 4titude® offers 2D coding on several products including FrameStrips® and PCR tubes with flat caps.

Should additional customizations not covered by our standard barcoding and 2D coding service be required, further information and our custom linear barcode request form can be found on our website.

Ethylene Oxide Treatment - Reliable consumables for forensic applications

4titude® has a stringently controlled clean-room production facility, certified according to ISO 9001 and ISO 13485, for production of PCR consumables free from DNA and RNA contamination. However, some applications require the absolute highest quality of consumables such as forensic workflows and tissue culture.

For these applications, 4titude® offer treatment of selected products with Ethylene Oxide, a technique proven to reduce traces of amplifiable DNA, for peace of mind in your reactions. Additional plate types can be treated on request.

Ethylene oxide treated plates suitable for forensic use

Brooks LIFE SCIENCES

FrameStar®
2-Component PCR Plates

FrameStar® 2-Component PCR Plates

FrameStar® 2-Component PCR Plates

FrameStar® PCR plates prevent sample loss by minimising thermal expansion during PCR, enabling reductions in PCR volumes and cost savings on reagents.

The 2-component design combines the advantages of thin walled polypropylene (PP) tubes, for optimum PCR results, with a rigid polycarbonate (PC) frame for highest thermal stability and rigidity, making them the plates of choice for any robotic workflows.

- Multiple frame colour options with clear, frosted, white or black tubes are available

  Flexible solutions for every application
- No warping due to stable polycarbonate frame

  Reliable use with stackers and liquid handlers
- Minimised thermal expansion

  Better sealing properties & reduced evaporation for improved PCR consistency
- Downscaling of reaction volumes possible

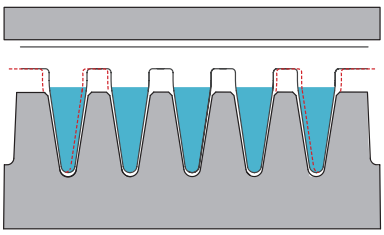
  Cost saving
- Standard and custom barcoding options available

  Error-free sample tracking
- Plates with ultra-low DNA binding properties and processing options such as ethylene oxide treatment available

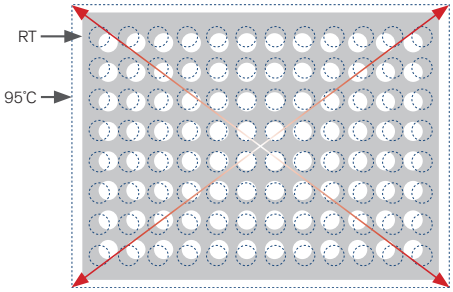
  Tailor-made solutions

Evaporation from standard PCR plates vs. FrameStar® plates

Thermal expansion of polypropylene (PP) plates leads to greater risk of evaporation from outer wells.
PP is the optimum material for PCR tubes. It provides the most efficient heat transfer, as well as an inert surface with low binding affinity to nucleic acids, proteins and other molecules. However, the material is not thermally stable in plate format, causing it to expand and contract during each PCR cycle. Such thermal expansion will weaken the plate seal and lead to sample evaporation, mainly from corner and outer wells.



Side-on view of a PCR plate in a thermal cycler. The sealed plate is sandwiched between the cycler block and the heated lid but it is only partly fixed in position at the bottom of tubes, allowing the plate to expand horizontally at the top.



Standard polypropylene plates expand by up to 2 mm during thermal cycling which leads to movement of wells away from the plate centre. This movement is most significant in corner and outer wells.

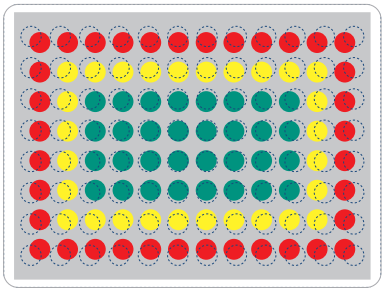
FrameStar® 2-component technology allows for reduction of assay volumes and cost.

Due to the much improved seal integrity, reaction volumes can often be reduced when using FrameStar® plates. Such downscaling of experiments can be successfully implemented without any loss of assay sensitivity or consistency and, reagent savings can be considerable.

Evaporation from standard PP plates is highest in the outer wells

Since thermal expansion and movement of wells in standard PP plates is greatest around the edges of the plates, evaporation is highest from the two outer rows of wells. The adjacent figure illustrates the level of risk of sample evaporation from different areas of PP plates. The inner 32 wells of a standard 96 well plate have low risk of evaporation whilst the risk of sample loss is much higher in the outer two rows which contain 65 per cent of the wells.

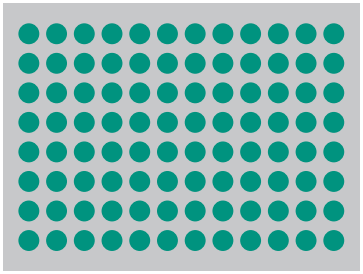
"FrameStar® plates led to significantly better results and reduced evaporation compared to standard PCR plates."
Dr. Andreas Dahl, MPI f. Molekulare Genetik, Berlin, Germany



Risk of evaporation from the outer rows (red) of a standard PP PCR plate is highest, medium level evaporation occurs in the second row (yellow) and sample loss from the inner 32 wells (green) is lowest (the dotted line represents an expanded standard PP plate).

FrameStar® 2-component plates improve consistency of PCR results

We have compared the degree of evaporation from different areas of standard PP and FrameStar® PCR plates. First, the 64 outer wells (two outer rows - above, red and yellow area) of both plate types were filled with 10 µl H2O. Plates were then sealed with a qPCR adhesive seal (code 4ti-0560) and their total weight determined before and after PCR. The experiment was repeated with a set of plates of which the inner 32 wells (green area) were filled. Table 1 shows that evaporation from outer wells of standard PP plates was 65 higher than from inner wells. As a result, evaporation causes varying changes in reaction volume across standard PP plates.
The results below show that reaction volumes remain consistent across the 96 wells (or 384 wells, data not shown) in FrameStar® plates. In contrast, the reaction volumes in standard plates differ significantly between wells during PCR. Reagent concentrations in outer rows will increase dramatically, resulting in sub-optimal reaction efficiency. In extreme cases samples may fully evaporate.



The polycarbonate frame of FrameStar® plates is more heat resistant than standard polypropylene plates which reduces thermal expansion to a minimum. For this reason seal integrity remains intact even at elevated temperatures during PCR.

FrameStar® minimises sample loss across the plate

Plate Type	Well position	Starting weight (g)	Weight post PCR (g)	Weight loss (g)	Volume loss	
					Total	Per well
FrameStar® 4ti-0710	outer 64 wells	26.230	26.193	0.037	37 µl	0.57 µl
Standard PP	outer 64 wells	17.299	17.118	0.181	181 µl	2.8 µl
FrameStar® 4ti-0710	inner 32 wells	25.841	25.824	0.017	17 µl	0.53 µl
Standard PP	inner 32 wells	17.132	17.078	0.054	54 µl	1.69 µl

Table 1: Weight and volume loss from different sections of 96 well PCR plates. Results shown are averages from 5 plates of each plate type. Volume loss from the outer wells of standard PP plates was 5-times higher than from FrameStar® plates.

Evaporation has a significant effect on the reaction conditions resulting in noticeable effects, especially for qPCR. Identical samples can exhibit significant differences in their Ct values, depending on their position on the plate.

A solution to the problem of evaporation related qPCR inaccuracies is the use of 2-component plates.

FrameStar®
384 Well Skirted PCR Plate

Polypropylene wells, polycarbonate frame, cut corner A24; working volume: <30 µl, total well capacity: 55 µl; designed for use on standard thermal cyclers

- Our FrameStar® 384 Well Skirted PCR Plates are designed for high-throughput PCR
- Compatible with the majority of 384 well block PCR, qPCR and sequencing instruments
- Rigid 2-component design eliminates warping and distortion during PCR making it ideal for use with robotic systems
- The skirt allows for labeling or barcoding

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen
- Stackable

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <30 µl working volume, 55 µl total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of the frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Recommended for low volume PCR
- Ideal for use with robotic systems
- Compatible with standard multichannel pipettes
- Compatible with the majority of 384 well block PCR, qPCR and sequencing instruments

Options

- Available with the following frame color options for the clear well variety: purple, blue, clear, green, red, and black
- Also available as a clear frame with frosted wells for use with ABI®/LifeTechnologies® qPCR instruments
- Also available as a black frame with white wells (for optimum signal-to-noise ratio when using fluorescent based assays) and as a black frame with black wells (for minimal light diffusion and interference)
- Available barcoded upon request

Specifications

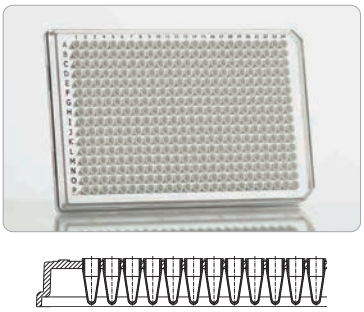
Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	10.30 ± 0.05 mm
Well depth	9.20 ± 0.10 mm
Well diameter	3.00 ± 0.10 mm
Distance to center of A1 from top edge	8.99 ± 0.25 mm
Distance to center of A1 from left edge	12.13 ± 0.25 mm
Pitch (distance between A1 and A2)	4.50 mm

Ordering Information

Code	Details				Quantity
4ti-0384	purple frame	C	clear wells		50 plates
4ti-0384/B	blue frame	C	clear wells		50 plates
4ti-0384/C	C clear frame	C	clear wells		50 plates
4ti-0384/G	green frame	C	clear wells		50 plates
4ti-0384/R	red frame	C	clear wells		50 plates
4ti-0384/X	black frame	C	clear wells		50 plates
4ti-0385	black frame	W	white wells		50 plates
4ti-0386	black frame		black wells		50 plates
4ti-0387	C clear frame	f	frosted wells		50 plates

This product is covered by one or more of the following US patents or their foreign counterparts, owned by Eppendorf AG: US Patent Nos. 7,347, 977 and 6,340,589.
FrameStar® is a registered trademark owned by 4titude®Ltd.
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73

FrameStar®
384 Well Skirted PCR Plate, Roche Style



Polypropylene wells, polycarbonate frame, cut corners A24 and P24; working volume: <30 µl, total well capacity: 55 µl; designed for use on the Roche LightCycler® 480 with 384 well block

- The dimensions of these plates are designed for optimum compatibility with the Roche LightCycler® 480, and are in a 384 well format for reaction volumes of up to 30 µl
- The rigid two-component design eliminates warping and distortion during the PCR process, making it ideal for use with robotic systems

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen
- Stackable

Wells

- Ultra-smooth, uniform, thin-walled polypropylene wells for optimum PCR and real-time (RT-qPCR) results
- <30 µl working volume, 55 µl total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Improved seal integrity due to thermal stability of frame
- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with Roche LightCycler® 480
- Recommended for low volume PCR
- Compatible with standard multichannel pipettes
- Ideal for use with robotic systems

Options

- Available as a clear polycarbonate frame with clear polypropylene wells
- Also available with white wells for optimum signal-to-noise ratio when using fluorescent based assays
- Available barcoded upon request
- Combi packs available with qPCR Seal (4ti-0560)

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	10.60 ± 0.25 mm
Well depth	9.20 ± 0.10 mm
Well diameter	3.00 ± 0.10 mm
Distance to center of A1 from top edge	8.99 ± 0.25 mm
Distance to center of A1 from left edge	12.13 ± 0.25 mm
Pitch (distance between A1 and A2)	4.50 mm

Ordering Information

Code	Details				Quantity
4ti-0380/C	C	clear frame	C	clear wells	50 plates
4ti-0381	C	clear frame	W	white wells	50 plates
Combi Pack					
4ti-0382	4ti-0381 + qPCR Seal (4ti-0560)				50 plates + 50 seals
4ti-0383	4ti-0380/C + qPCR Seal (4ti-0560)				50 plates + 50 seals

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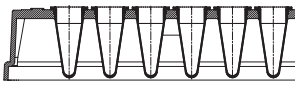
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar®
96 Well Skirted PCR Plate



Low profile, 0.1 ml polypropylene wells, polycarbonate frame, cut corner H1; working volume: <100 µl, total well capacity: 200 µl

- The low profile wells of this plate are shorter than "standard" profile wells, which decrease the "dead space" between the heated lid of the thermal cycler and the sample in the well
- Eliminates condensation forming on the side wall of the tubes, preventing reduction in PCR volume and increasing the efficiency of the reaction
- Especially recommended for reaction volumes below 20 µl
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR, and makes it ideal for use with robotic systems

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen
- Stackable

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.1 ml (100 µl) working volume, 0.2 ml (200 µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Recommended for low volume PCR
- Ideal for use with robotic systems
- Compatible with standard multichannel pipettes
- For recommended plate options depending on manufacturer, block type, and instrument please refer to the Plate Instrument Compatibility Table Page 73.

Options

- Available with the following frame color options for the clear well variety: purple, blue, clear, green, red, black, and white
- Also available with a black frame and with a clear frame for the white well variety, for optimum signal-to-noise ratio when using fluorescent based assays
- Also available as a black frame with black wells for non-PCR fluorescent applications
- Extra rigid skirt option (4ti-0960/RIG) for use with Perkin-Elmer® Sciclone, Beckman, Hamilton, and other automation systems: eliminates the robotic grip picking up more than one plate at a time
- Ethylene oxide treated option available (4ti-OX960C/SBC) for forensic use
- Ultra-low DNA binding option available (4ti-LB0960/RIG) for sensitive applications with ultra-low DNA input and for maximum DNA recovery after low temperature storage and high temperature incubation
- Available barcoded on request
- Combi packs available (for 4ti-0960) with Q-Stick™ qPCR Seal (4ti-0565)
- Clear Polystyrene Lid (4ti-0287) compatible with PCR plates & robotics

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	16.10 ± 0.05 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details			Quantity
4ti-0960	purple frame	C	clear wells	50 plates
4ti-0960/B	blue frame	C	clear wells	50 plates
4ti-0960/C	C clear frame	C	clear wells	50 plates
4ti-0960/G	green frame	C	clear wells	50 plates
4ti-0960/R	red frame	C	clear wells	50 plates
4ti-0960/X	black frame	C	clear wells	50 plates
4ti-0960/W	W white frame	C	clear wells	50 plates
4ti-0961	black frame	W	white wells	50 plates
4ti-0961/C	C clear frame	W	white wells	50 plates
4ti-0966	black frame		black wells	50 plates
4ti-OX960C/SBC	4ti-0960/C forensic use, ethylene oxide treated & barcoded			20 plates
4ti-0960/RIG	4ti-0960/X, with extra rigid skirt			50 plates
4ti-LB0960/RIG	4ti-0960/RIG, with low DNA binding properties			50 plates
Combi Pack				
4ti-0960/0565	4ti-0960 + Q-Stick™ qPCR Seal (4ti-0565)			50 plates + 50 seals

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For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73

FrameStar® 96 Well Skirted Optical Bottom PCR Plate

Low profile, flat optical bottom, 0.1ml clear polypropylene wells, clear polycarbonate frame, cut corner H1, working volume: <100µl, total well capacity: 180µl

- The FrameStar® 96 Well Skirted Optical Bottom PCR Plates (next to their counterpart within our Random Access range, 4ti-0970/RA) are currently unique in the market, being suitable for use in both microscopy and PCR
- Optical bottom plates are ideal for applications requiring single cell sorting followed by molecular biology techniques such as (q)PCR and sequencing
- The flat bottoms enable excellent stackability, making these plates well suited for small sample volume storage such as compound libraries, with no risk of damaging the seal of the plate below
- Additionally, the small well volume enables excellent sample recovery
- The low profile wells of this plate are shorter than “standard” profile wells, which decreases the “dead space” between the heated lid of the thermal cycler and the reagents in the well
- This reduces condensation forming on the side wall of the tubes, moderating changes in PCR volume and increasing the efficiency of the reaction
- This is especially recommended for reaction volumes below 20µl
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR, and makes it ideal for use with robotic systems

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen
- Stackable

Well

- Ultra-smooth, uniform, thin-walled polypropylene wells for optimum PCR and real-time (RT-qPCR) results
- <0.1ml (100µl) working volume, 0.18ml (180µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Suitable for microscopy and small volume sample storage
- Compatible with standard multichannel pipettes
- Recommended for low volume PCR
- Ideal for use with robotic systems

Options

- Also available as a Random Access plate (4ti-0970/RA) with individually detachable and sealable wells
- Available barcoded upon request

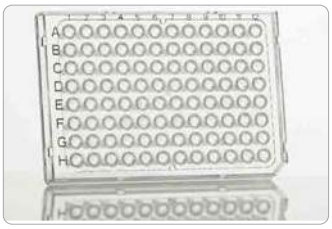
Specifications

Parameter	Value
Plate length	127.70 ± 0.25mm
Plate width	85.48 ± 0.25mm
Plate height	16.10 ± 0.25mm
Well depth	12 ± 0.10mm
Well diameter	5.46 ± 0.10mm
Distance to center of A1 from top edge	11.24 ± 0.25mm
Distance to center of A1 from left edge	14.38 ± 0.25mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details	Quantity
4ti-0970	clear wells, clear frame purple frame	50 plates

FrameStar® 96 Well Semi-Skirted PCR Plate, Roche Style



Low profile, 0.1ml polypropylene wells, polycarbonate frame, cut corner H12; working volume: <100µl, total well capacity: 200µl; designed for use on Roche LightCycler® 96 and 480 (with 96 well block)

- Our FrameStar® Roche Style plates are designed to achieve optimized assay conditions on the Roche LightCycler® 96 and 480 (with 96 well block)
- This particular style of plate is in a low profile 96-well format; perfect for reaction volumes of 10-100µl
- The wells are shorter than "standard" profile wells, which decrease the "dead space" between the heated lid of the thermal cycler and the sample in the well
- This eliminates condensation forming on the side wall of the tubes, preventing reduction in PCR volume and increasing the efficiency of the reaction
- This is especially recommended for reaction volumes below 20µl
- The semi-skirted frame allows for labeling or barcoding

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Well

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.1ml (100µl) working volume, 0.2ml (200µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Improved seal integrity due to thermal stability of frame
- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with the Roche LightCycler® 96 and 480 (with 96 well block)
- Recommended for low volume PCR
- Ideal for use with robotic systems
- Compatible with standard multichannel pipettes

Options

- Standard plate comes with clear polypropylene wells on a clear polycarbonate frame
- Also available with white wells for optimum signal-to-noise ratio when using fluorescent based assays
- Available barcoded upon request
- Combi packs available with qPCR Seal (4ti-0560) and (for 4ti-0951) with q-Stick qPCR Seal (4ti-0564)

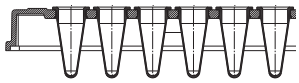
Specifications

Parameter	Value
Plate length	127.70 ± 0.25mm
Plate width	85.48 ± 0.25mm
Plate height	15.60 ± 0.25mm
Well depth	15.10 ± 0.10mm
Well diameter	5.50 ± 0.10mm
Distance to center of A1 from top edge	11.24 ± 0.25mm
Distance to center of A1 from left edge	14.38 ± 0.25mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details	Quantity
4ti-0950/C	clear wells, clear frame purple frame	50 plates
4ti-0951	white wells, clear frame	50 plates
Combi Packs		
4ti-0952	4ti-0951 + qPCR Seal (4ti-0560)	50 plates + 50 seals
4ti-0953	4ti-0950/C + qPCR Seal (4ti-0560)	50 plates + 50 seals
4ti-0951/0565	4ti-0951 + Q-Stick™ qPCR Seal (4ti-0565)	50 plates + 50 seals

FrameStar® 96 Well Semi-Skirted PCR Plate, Roche Style, High Sensitivity



Low profile, 0.1 ml polypropylene wells, polycarbonate frame, cut corner H12, working volume: <100 µl, total well capacity: 200 µl; designed for use on Roche LightCycler® 96 and 480 (with 96 well block); extra white wells for improved sensitivity in fluorescent assays

- Our FrameStar® Roche Style plates are designed to achieve optimised assay conditions on the Roche LightCycler® 96 and 480 (with 96 well block)
- This particular style of plate is in a low profile 96-well format; perfect for reaction volumes of 10-100 µl
- The wells are shorter than "standard" profile wells, which decrease the "dead space" between the heated lid of the thermal cycler and the sample in the well. This eliminates condensation forming on the side wall of the tubes, preventing reduction in PCR volume and increasing the efficiency of the reaction
- Especially recommended for reaction volumes below 20 µl
- The extra white wells allow for increased sensitivity in fluorescent assays
- The semi-skirted frame allows for labeling or barcoding

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.1 ml (100 µl) working volume, 0.2 ml (200 µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with the Roche LightCycler® 96 and 480 (with 96 well block)
- Compatible with standard multichannel pipettes
- Recommended for low volume PCR
- Ideal for use with robotic systems

Options

- Plates are available with a clear polycarbonate frame and extra white wells for improved sensitivity when using fluorescent based assays
- Combi packs available with qPCR Seal (4ti-0560)
- Available barcoded upon request

Specifications

Parameter	Value
Plate length	127.70 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.60 ± 0.05 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ct values Comparison

FrameStar® Roche Style, High Sensitivity Plate	
Ct value	17.23
Δ Ct	-3.05
Competitor R equivalent plates	
Ct value	20.28
Δ Ct	0

Ordering Information

Code	Details	Quantity
4ti-0954	C clear frame W extra white wells	50 plates
Combi Pack		
4ti-0954/0560	4ti-0954 + qPCR Seal (4ti-0560)	50 plates + 50 seals

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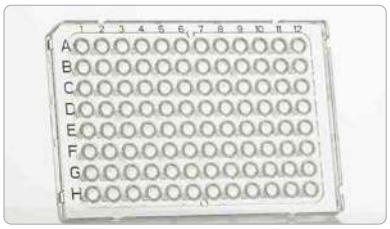
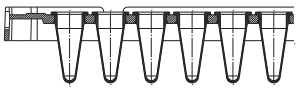
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® 96 Well Semi-Skirted PCR Plate, ABI® FastPlate Style





Low profile, 0.1 ml polypropylene wells, polycarbonate frame with upstand, cut corner A1, working volume: <100 µl, total well capacity: 200 µl; designed for use on ABI® Fast Block cyclers

- This semi-skirted low profile plate is recommended for use with ABI® Fast block thermal cyclers
- The low profile wells of this plate are shorter than "standard" profile wells, which decrease the "dead space" between the heated lid of the thermal cycler and the sample in the well
- This eliminates condensation forming on the side wall of the tubes, preventing reduction in PCR volume and increasing the efficiency of the reaction
- Especially recommended for reaction volumes below 20 µl
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR, and makes it ideal for use with robotic systems. Its skirt also allows for labeling or barcoding

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen
- Stackable

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.1 ml (100 µl) working volume, 0.2 ml (200 µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with ABI® Fast block thermal cyclers
- Compatible with standard multichannel pipettes
- Recommended for low volume PCR
- Ideal for use with robotic systems

Options

- Standard plate comes with clear polypropylene wells with a clear polypropylene frame
- Combi packs available (for 4ti-0910/C) with Q-Stick™ qPCR Seal (4ti-0565)
- Also available with white wells for optimum signal-to-noise ratio when using fluorescent based assays
- Available barcoded upon request
- Also available as a clear frame with frosted wells for use with ABI®/LifeTechnologies® qPCR instruments

Specifications

Parameter	Value
Plate length	127.70 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	16.70 ± 0.10 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details				Quantity
4ti-0910/C	C	clear frame	C	clear wells	50 plates
4ti-0910/C/10P	C	clear frame	C	clear wells	10 plates
4ti-0911	C	clear frame	W	white wells	50 plates
4ti-0912	C	clear frame	f	frosted wells	50 plates
4ti-0912/10P	C	clear frame	f	frosted wells	10 plates
Combi Pack					
4ti-0910/C/0565	4ti-0910/C+Q-Stick™ qPCR Seal (4ti-0565)				50 plates + 50 seals

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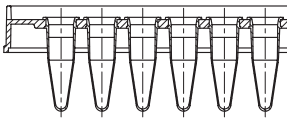
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® 96 Well Semi-Skirted PCR Plate With Upstand, ABI® Style



Standard profile, 0.2 ml polypropylene wells, polycarbonate frame with upstand, cut corner A12, working volume: <200 µl, total well capacity: 300 µl; designed for use on ABI® instruments

- This ABI® Style PCR plate offers the benefits of our 2-component design to ABI® standard block users
- This design combines the advantages of ultra-thin wall polypropylene tubes for optimum PCR results with a rigid polycarbonate skirt and deck for the highest thermal stability
- We recommend this semi-skirted plate for use with ABI® thermal cyclers and sequencers; it can be used directly with ABI® instruments with no adapters necessary
- The only case where this is not true is with the ABI Fast Block thermal cyclers; in this case, using our FrameStar® Fast Plate is recommended instead

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time quantitative PCR (RT-qPCR) results
- <0.2 ml (200 µl) working volume, 0.3 ml (300 µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Ideal for use with ABI® thermal cyclers & sequencers
- Compatible with standard multichannel pipettes
- Recommended for low volume PCR
- Ideal for use with robotic systems

Options

- Available with the following frame color options for the clear well variety: purple, blue, clear, green, red, and black
- Also available as a black frame with white wells for optimum signal-to-noise ratio when using fluorescent based assays
- Ethylene oxide treated option available for forensic use
- Available barcoded upon request
- Combi packs available (for 4ti-0730/C) with Q-Stick™ qPCR Seal (4ti-0565)

Specifications

Parameter	Value
Plate length	124.26 ± 0.25 mm
Plate width	83.97 ± 0.25 mm
Plate height	23.20 ± 0.05 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	10.495 ± 0.25 mm
Distance to center of A1 from left edge	12.63 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details			Quantity
4ti-0730	purple frame	C	clear wells	50 plates
4ti-0730/B	blue frame	C	clear wells	50 plates
4ti-0730/C	clear frame	C	clear wells	50 plates
4ti-0730/C/10P	clear frame	C	clear wells	10 plates
4ti-0730/G	green frame	C	clear wells	50 plates
4ti-0730/R	red frame	C	clear wells	50 plates
4ti-0730/X	black frame	C	clear wells	50 plates
4ti-0731	black frame	W	white wells	50 plates
4ti-OX730C/SBC	4ti-0730/C for forensic use, ethylene oxide treated, barcoded			20 plates
Combi Pack				
4ti-0730/C/0565	4ti-0730/C + Q-Stick™ qPCR Seal (4ti-0565)			50 plates + 50 seals

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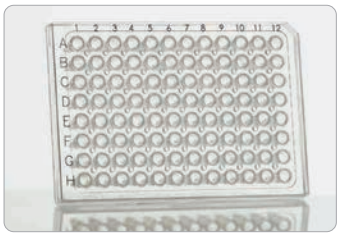
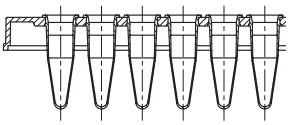
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® 96 Well Semi-Skirted PCR Plate, ABI® Style





Standard profile, 0.2 ml polypropylene wells, polycarbonate frame, cut corner A12; working volume: <200 µl, total well capacity: 300 µl; designed for use on all major cyclers, including ABI® instruments with standard 96 well blocks

- Specifically designed to be directly compatible with all major thermal cyclers, this plate can be used directly in ABI® 96 well instruments without the need for any adapters
- The rigid FrameStar® 2-component design eliminates warping and distortion during PCR, making it ideal for use with robotic systems
- The semi-skirt allows for labeling or barcoding for sample tracking

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.2 ml (200 µl) working volume, 0.3 ml (300 µl) total well capacity

Frame

- Cut corner at A12
- Rigid polycarbonate frame for added mechanical stability
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Improved seal integrity due to thermal stability of frame
- Alphanumeric grid reference to aid well and sample identification

Use

- Perfect for ABI® thermal cyclers & sequencers
- Recommended for low volume PCR
- Ideal for use with robotic systems
- Compatible with standard multichannel pipettes

Options

- Available with the following frame color options for the clear well variety: purple, blue, clear, green, red, and black
- Also available as a black frame with white wells for optimum signal-to-noise ratio when using fluorescent based assays
- Also available as a clear frame with frosted wells for use with ABI®/LifeTechnologies® qPCR instruments
- Ultra-low DNA binding option available (4ti-LB0770/C) for sensitive applications with ultra-low DNA input and for maximum DNA recovery after low temperature storage and high temperature incubation; learn more about our low binding range
- Ethylene oxide treated option available (4ti-OX770C/SBC) for forensic use
- Available barcoded upon request
- FrameStar® 96 Lid (4ti-0289) available

Specifications

Parameter	Value
Plate length	124.26 ± 0.25 mm
Plate width	83.97 ± 0.25 mm
Plate height	20.70 ± 0.10 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	10.495 ± 0.25 mm
Distance to center of A1 from left edge	12.63 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details				Quantity
4ti-0770	purple frame	C	clear wells		50 plates
4ti-0770/B	blue frame	C	clear wells		50 plates
4ti-0770/C	C clear frame	C	clear wells		50 plates
4ti-0770/C/10P	C clear frame	C	clear wells		10 plates
4ti-0770/G	green frame	C	clear wells		50 plates
4ti-0770/R	red frame	C	clear wells		50 plates
4ti-0770/X	black frame	C	clear wells		50 plates
4ti-0771	black frame	W	white wells		50 plates
4ti-0772	C clear frame	f	frosted wells		50 plates
4ti-0772/10P	C clear frame	f	frosted wells		10 plates
4ti-OX770C/SBC	4ti-0770/C for forensic use, ethylene oxide treated, barcoded				20 plates
4ti-LB0770/C	4ti-0770/C, with low DNA binding properties				50 plates

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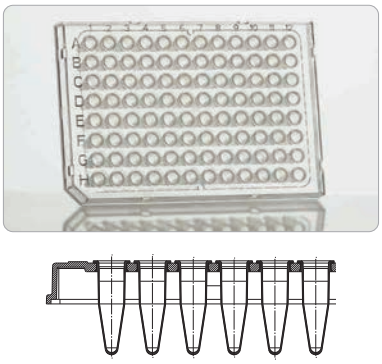
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® 96 Well Semi-Skirted PCR Plate



Standard profile, 0.2 ml polypropylene wells, polycarbonate frame, cut corner H1, working volume: <200 µl, total well capacity: 300 µl; universal semi-skirted plate designed for use on standard thermal cyclers

- The rigid FrameStar® 2-component design eliminates warping and distortion during PCR, making it ideal for use with robotic systems
- The semi-skirted allows for labeling or barcoding for sample tracking

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.2 ml (200 µl) working volume, 0.3 ml (300 µl) total well capacity

Frame

- Cut corner at H1
- Improved seal integrity due to thermal stability of frame
- Rigid polycarbonate frame for added mechanical stability
- Alphanumeric grid reference to aid well and sample identification
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results

Use

- Recommended for low volume PCR
- Ideal for use with robotic systems
- Compatible with standard multichannel pipettes

Options

- Also available with white wells for optimum signal-to-noise ratio when using fluorescent based assays
- Similar plate with a cut corner at A12 for use with ABI® thermal cyclers and sequencers available: FrameStar® 96 Well Semi-Skirted PCR Plate, ABI® Style
- Available barcoded upon request

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	20.70 ± 0.25 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details				Quantity
4ti-0900/C	C	clear frame	C	clear wells	50 plates
4ti-0901	C	clear frame	W	white wells	50 plates

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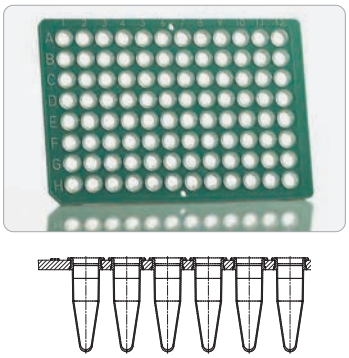
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® 96 Well Non-Skirted PCR Plate



Standard profile, 0.2 ml polypropylene wells, polycarbonate frame, cut corner H1, working volume: <200 µl, total well capacity: 300 µl; universal non-skirted plate designed for use on all major thermal cyclers

- The rigid FrameStar® 2-component design eliminates warping and distortion during PCR, meaning seal integrity is not compromised and less of your sample is lost through evaporation

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen
- Greatest compatibility with different thermal cyclers

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.2 ml (200 µl) working volume, 0.3 ml (300 µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Recommended for low volume PCR
- Compatible with standard multichannel pipettes

Options

- Available with the following frame color options for the clear well variety: purple, blue, clear, green, red, and black
- Also available as a black frame with white wells for optimum signal-to-noise ratio when using fluorescent based assays

Specifications

Parameter	Value
Plate length	120.00 ± 0.25 mm
Plate width	80.00 ± 0.25 mm
Plate height	20.70 ± 0.10 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	8.50 ± 0.25 mm
Distance to center of A1 from left edge	10.50 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details				Quantity
4ti-0710	purple frame	C	clear wells		50 plates
4ti-0710/B	blue frame	C	clear wells		50 plates
4ti-0710/C	clear frame	C	clear wells		50 plates
4ti-0710/G	green frame	C	clear wells		50 plates
4ti-0710/R	red frame	C	clear wells		50 plates
4ti-0711	black frame	W	white wells		50 plates

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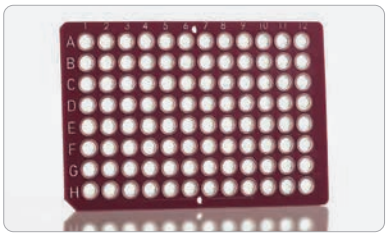
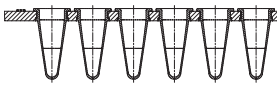
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® 96 Well Non-Skirted PCR Plate, Low Profile





Low profile, 0.1 ml polypropylene wells, polycarbonate frame, cut corner H1, working volume: <100 µl, total well capacity: 200 µl; universal non-skirted, low profile plate designed for use on all major thermal cyclers

- The low profile wells of this plate are shorter than "standard" profile wells, which decrease the "dead space" between the heated lid of the thermal cycler and the sample in the well
- This eliminates condensation forming on the side wall of the tubes, preventing reduction in PCR volume and increasing the efficiency of the reaction
- This is especially recommended for reaction volumes below 20 µl
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR, meaning seal integrity is not compromised and less of your sample is lost through evaporation

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen
- Greatest compatibility with different thermal cyclers

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- <0.1 ml (100 µl) working volume, 0.2 ml (200 µl) total well capacity

Frame

- Rigid polycarbonate frame for added mechanical stability
- Improved seal integrity due to thermal stability of frame
- Significantly reduced thermal expansion and sample evaporation for improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Recommended for low volume PCR
- Compatible with standard multichannel pipettes

Options

- Available with the following frame color options for the clear well variety: purple, blue, and clear
- Also available as a black frame with white wells for optimum signal-to-noise ratio when using fluorescent based assays

Specifications

Parameter	Value
Plate length	120.00 ± 0.25 mm
Plate width	80.00 ± 0.25 mm
Plate height	15.60 ± 0.05 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	18.50 ± 0.25 mm
Distance to center of A1 from left edge	10.50 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details				Quantity
4ti-0720	purple frame	C	clear wells		50 plates
4ti-0720/B	blue frame	C	clear wells		50 plates
4ti-0720/C	C clear frame	C	clear wells		50 plates
4ti-0721	black frame	W	white wells		50 plates

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For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Brooks LIFE SCIENCES

FrameStar® Break-A-Way Dividable 2-Component PCR Plates

FrameStar® Break-A-Way Dividable 2-Component PCR Plates

FrameStar®
Break-A-Way Dividable 2-Component PCR Plates

FrameStar® Break-A-Way & Break-2-Ways Plates

FrameStar® Break-A-Way and Break-2-Ways plates can be easily divided into smaller plate sections, ensuring no tubes are wasted.
The plates combine the advantages of the FrameStar® and FrameStrip® range as well as single tube formats. The result is PCR consumables with thin-walled polypropylene (PP) tubes for optimal PCR results with a rigid polycarbonate frame for easy and reliable handling.

The two-component design minimises evaporation allowing for the downscaling of reaction volumes and the breakability of the plates offers flexibility to suit your experiment size. Once broken down, strips remain straight and stable for ease of handling and to enable effortless sample tracking if 2D coded.

FrameStar® Break-A-Way & Break-2-Ways - Division brings flexibility!

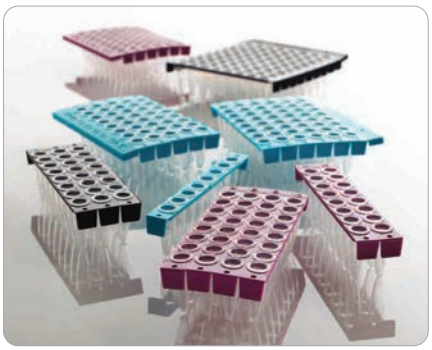
- Dividable horizontally, vertically or both
- Flexible solutions for every application
- Available as standard and low profile plates to suit your reaction volume and instrument format
- Highest instrument compatibility
- Seven frame colours with clear or white tubes available
- Colour coding for different workflows
- 2D coded options available
- Error-free sample tracking
- Plate segmentation can be automated
- Also available as pre-cut strips, see FrameStrips®, page 43

Sealing options

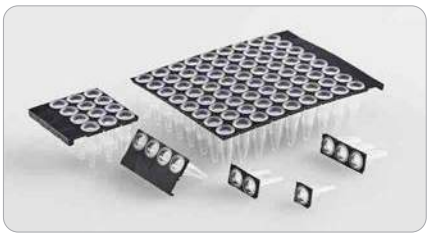
Plates can be sealed with standard heat or adhesive seals and then cut to produce individually sealed strips of wells.
Alternatively, perforated seals or Random access seals can be used depending on individual tube, 8 or 12 well strips required . Please refer to www.brookslifesciences.com for information on semi-automated, fully automated and random access heat sealers.

This product is covered by one or more of the following US patents or their foreign counterparts, owned by Eppendorf AG: US Patent Nos. 7,347, 977 and 6,340,589. FrameStar® is a registered trademark owned by 4titude®Ltd.

FrameStar® Break-A-Way and Break-2-Ways plates can be easily divided into smaller plate sections, ensuring no tubes are wasted.

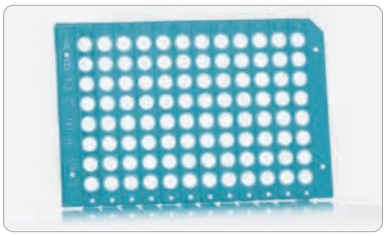


FrameStar® Break-A-Way offers you all the flexibility of tube strips, in a plate format



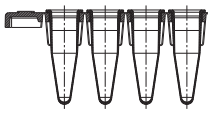
FrameStar® Break-2-Ways Plates, dividable both horizontally and vertically

FrameStar® Break-A-Way PCR Plate

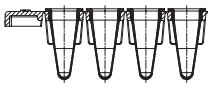


96 well semi-skirted plate, vertically scored, snaps easily into strips of 8 tubes or part plates, cut corner A12

- Our FrameStar® Break-A-Way plates utilize the 2-component design of the FrameStar® range, which combines the advantages of thin-walled polypropylene tubes for optimum PCR results and a rigid frame portion for easy and reliable handling



Standard profile
0.2 ml PP wells, working volume: <200 µl, total well capacity: 300 µlAC



Low profile
0.1 ml PP wells, working volume: <100 µl, total well capacity: 200 µl

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen
- 2-component design prevents distortion of tube strips

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Standard 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Low profile 0.1ml (100µl) working volume, with a 0.2ml (200µl) total well capacity when used with sealing options

Frame

- End tabs for easy handling and labeling
- Eliminates strip breakage
- Alphanumeric grid reference to aid well and sample identification

Use

- Rigid PCR plate that can be broken into smaller plate sections
- Fits majority of thermal cyclers
- Compatible with standard multichannel

Options

- Available with the following frame color options for the clear well variety: purple, blue, clear, green, red, black, and white
- Also available as a black frame with white wells for use with optical assays such as qPCR
- 2D coding option
- 2D code reader available

Specifications

Parameter	Value (Standard Profile)	Value (Low Profile)
Plate length	125.11 ± 0.25 mm	125.11 ± 0.25 mm
Plate width	83.22 ± 0.25 mm	83.22 ± 0.25 mm
Plate height	20.80 ± 0.05 mm	15.60 ± 0.25 mm
Well depth	20.30 ± 0.10 mm	15.10 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm	5.50 ± 0.10 mm
Distance to center of A1 from top edge	10.11 ± 0.25 mm	10.11 ± 0.25 mm
Distance to center of A1 from left edge	13.06 ± 0.25 mm	13.06 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm	9.00 mm

Ordering Information

Code Standard profile	Code Low profile	Details			Quantity
4ti-1000/P	4ti-1200/P	purple frame	C	clear wells	50 plates
4ti-1000/B	4ti-1200/B	blue frame	C	clear wells	50 plates
4ti-1000/C	4ti-1200/C	clear frame	C	clear wells	50 plates
4ti-1000/G	4ti-1200/G	green frame	C	clear wells	50 plates
4ti-1000/R	4ti-1200/R	red frame	C	clear wells	50 plates
4ti-1000/X	4ti-1200/X	black frame	C	clear wells	50 plates
4ti-1000/W	4ti-1200/W	white frame	C	clear wells	50 plates
4ti-1001	4ti-1201	black frame	W	white wells	50 plates

2D coding is available for this product. Contact us for more information

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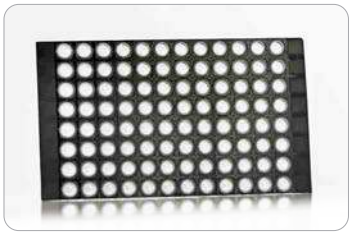
FrameStar® Break-A-Way PCR plates are not compatible with the ABI 9700 dual block thermal cycler.

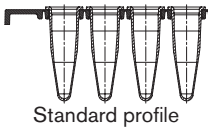
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStar® Break-2-Ways PCR Plate

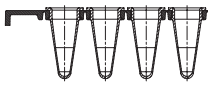


96 well rigid plate, vertically and horizontally scored, snaps easily into part plates, 8 well strips, 12 well strips, part strips or individual tubes

- 4titude FrameStar® Break-2-Ways plates allow for the most flexible, efficient and cost-effective use of FrameStar® PCR plates, ensuring not a single tube is wasted
- Our Break-2-Ways plates utilise the 2-component design of the FrameStar® range, which combines the advantages of thin-walled polypropylene tubes for optimum PCR results and a rigid frame portion for easy and reliable handling



Standard profile
0.2 ml PP wells, working volume: <200 µl, total well capacity: 300 µl



Low profile
0.1 ml PP wells, working volume: <100 µl,
total well capacity: 200 µl

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Standard 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Low profile, 0.1ml wells, <100µl working volume, with a 200µl total well capacity when used with sealing options

Use

- Plates can be broken up in both 8-strip vertical and 12-strip horizontal directions, resulting in individual strips, part strips, or even individual tubes, giving you the highest range of flexibility
- Breaking a plate is more accurate, more convenient, and safer than cutting it with scissors, as it avoids damaging the sealing rings and contamination of the wells
- Plates can be filled, sealed and separated for storage, processing or distribution
- Easy to break at any temperature
- The plate can be adapted to individual pipetting schemes without the need to waste empty wells
- Separated strips or tubes can be used for the positive control to avoid contamination of the samples
- Compatible with all instruments that fit non-skirted, standard profile plates
- NB: In some cases you may have to break off the end tabs for it to fit
- Compatible with standard multichannel pipettes

Options

- 2D coding option
- 2D code reader available

Specifications

Parameter	Value (Standard Profile)	Value (Low Profile)
Plate length	125.00 ± 0.25 mm	125.00 ± 0.25 mm
Plate width	72.0 ± 0.25 mm	72.0 ± 0.25 mm
Plate height	20.70 ± 0.05 mm	15.60 ± 0.15 mm
Well depth	20.20 ± 0.10 mm	15.10 ± 0.15 mm
Well diameter	5.46 ± 0.10 mm	5.50 ± 0.10 mm
Distance to center of A1 from top edge	4.5 ± 0.25 mm	4.50 ± 0.25 mm
Distance to center of A1 from left edge	8.5 ± 0.25 mm	8.50 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm	9.00 mm

Ordering Information

Code Standard profile	Code Low profile	Details			Quantity
4ti-1300/X	4ti-1400/X	■	black frame	C	clear wells	50 plates

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In some cases it may be required to break off the end tabs to allow for a perfect fit.

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73..

Random Access Plates:
96 well Plates with Individually Removable Wells

Random Access Plates

FrameStar® is our superior technology of making PCR plates with ultra-thin polypropylene wells fitted into a robust polycarbonate frame that provides excellent stability. Our Random Access plates develop this technology further to supply a novel 96 well plate with individually removable wells combining both flexibility and robustness.

Random Access plates provide flexibility and robustness to Molecular Diagnostics customers. 96 well plate format is suitable for high throughput reagents dispensing on liquid handling robots, while individually sealable and removable wells provide flexibility to end users to accommodate varying throughputs.

The wells are made from medical grade polypropylene which is perfectly suited for use in PCR as well as for long term storage. The exact number of wells required can be used, meaning no wastage of consumables or reagents. Empty frames are also available for tubes to be transferred to, however, frames can be re-used multiple times, depending on their application.

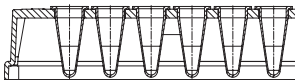
Each well clicks into place within the frame, holding it securely for use with automation and for transport. Additionally, the fit of the tubes is not compromised following a PCR run due to resistance of the rigid frame to thermal expansion.

- SBS footprint – suitable for automation
- Rigid frame – does not expand during PCR cycles allowing for RA tubes to fit tightly in the frame before and after PCR
- PP wells – low binding to nucleic acids and high solvent resistance, ideal for both PCR and storage
- Thin walled tubes – optimal heat transfer during PCR
- Individually sealed using RA seals, specifically designed RA plates – tubes can be filled, sealed and then single tubes removed
- Tubes can be removed and inserted again – ultimate flexibility

Random Access plates provide the greatest flexibility in PCR plates, affording handling of individual wells in a 96 well plate format.

Random Access 96 Well Skirted PCR Plate

Random Access 96 Well Skirted PCR Plate



Low profile, individually removable 0.1 ml polypropylene wells, rigid polycarbonate frame, cut corner H1, working volume: <100 µl, total well capacity: 200 µl

- 96 well, fully skirted, low profile format with each tube inserted separately into the plate frame, allowing for selection and removal of individual tubes from the plate
- Each tube clicks into place in the frame ensuring tubes are secure once inserted
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR
- Together with the SBS footprint, this makes the plate suitable for use with robotic systems, ideal for both small to high throughput labs
- Empty frames are available for tubes to be transferred to
- The frames can be re-used multiple times, depending on the application

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- Individually removable from the rigid frame, while the rest of the tubes can remain in storage, reducing freeze-thawing of the whole plate
- Thin walled tubes are made from PP for optimal results in (q)PCR whilst also being suitable for storage and incubation
- <100 µl working volume, <200 µl total well capacity

Frame

- Rigid polycarbonate frame provides mechanical stability of the plate
- Alphanumeric grid reference to aid well and sample identification

Use

- Ideal for use with robotic systems
- Fewer transfer steps as the same tube can be used for both (q)PCR and storage
- Each tube can still be separated after sealing
- Each tube can be individually heat sealed using the Random Access Pierce Heat Seal Strong, such as the contents of each tube is left secure from cross contamination and evaporation for storage and transfer

Options

- Empty frames are available for tubes to be transferred to; frames can be re-used multiple times, depending on the application
- The plate can be sealed in one step using our range of Random Access Heat Seals on the IntelliXseal™ fully-automated Heat Sealer or IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer (using the 4ti-0613 Random Access adapter), resulting in individually sealed tubes with pierceable seals to allow for sample access
- Available barcoded upon request
- We also offer customization of the Random Access Plates such as color coding of the individual wells; please contact us for details

Specifications

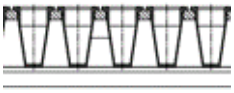
Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.50 ± 0.25 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details				Quantity
4ti-0960/RA	W	white frame	C	clear wells	50 plates
4ti-0960/RA/F	W	white frame		no wells, frame only	10 frames

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Random Access 96 Well Skirted Optical Bottom PCR Plate



Low profile, flat optical bottom, 0.1 ml clear polypropylene tubes, black rigid polycarbonate frame, cut corner H1, working volume: <100 µl, total well capacity: 180 µl

- 96 well, fully skirted, low profile format with each tube inserted separately into the plate frame, allowing for selection and removal of individual tubes from the plate
- Each tube clicks into place in the frame ensuring tubes are secure once inserted
- The Random Access 96 Well Skirted Optical Bottom PCR Plates (next to their counterpart within our FrameStar® range, 4ti-0970) are currently unique in the market, being suitable for use in both microscopy and PCR, for example, when single cell sorting is followed by molecular biology applications such as qPCR and sequencing
- Due to their flat bottoms and stackability, these plates are well suited for small sample volume storage (such as compound libraries), with no risk of damaging the seal of the plate below
- Additionally, the small well volume enables excellent sample recovery
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR
- Together with the SBS footprint, this makes the plate suitable for use with robotic systems, ideal for both small and high-throughput labs
- Empty frames are available for tubes to be transferred to. The frames can be re-used multiple times, depending on the application

Key Features

- ree from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- Individually removable from the rigid frame, while the rest of the tubes can remain in storage, reducing freeze-thawing of the whole plate
- Thin walled tubes are made from PP for optimal results in (q)PCR whilst also being suitable for storage and incubation
- <100 µl working volume, <180 µl total well capacity

Frame

- Rigid polycarbonate frame provides mechanical stability of the plate
- Alphanumeric grid reference to aid well and sample identification

Use

- Suitable for microscopy and small volume sample storage
- Ideal for use with robotic systems
- Fewer transfer steps as the same tube can be used for microscopy, (q)PCR and storage
- Each tube can still be separated after sealing
- Each tube can be individually heat sealed using the Random Access Pierce Heat Seal Strong, such as the contents of each tube is left secure from cross contamination and evaporation for storage and transfer

Options

- Also available as a FrameStar® plate (4ti-0970) with fixed wells
- Empty frames are available for tubes to be transferred to; frames can be re-used multiple times, depending on the application
- We also offer customization of the Random Access Plates such as color coding of the individual wells; please contact us for details
- Available barcoded upon request, please contact us for details
- The plate can be sealed in one step using our range of Random Access Heat Seals on the IntelliXseal™ fully-automated Heat Sealer (see page 131) or IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer (see page 135) (using the 4ti-0613 Random Access adapter), resulting in individually sealed tubes with pierceable seals to allow for sample access

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.50 ± 0.25 mm
Well depth	12.00 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details	Quantity
4ti-0970/RA	clear tubes, black frame	50 plates
4ti-0970/RA/F	black frame (no wells, frame only)	10 frames

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

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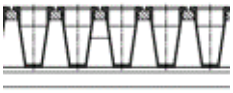
Random Access 96 Well Skirted Flat Bottom PCR Plate, 2D Coded

Low profile, flat bottom 2D coded, 0.1 ml clear polypropylene tubes, white rigid polycarbonate frame, linear barcoded, cut corner H1, working volume: <100 µl, total well capacity: 180 µl



- 96 well, fully skirted, low profile format with each tube inserted separately into the plate frame, allowing for selection and removal of individual tubes from the plate
- Each tube clicks into place in the frame ensuring tubes are secure once inserted
- We have now extended our Random Access range to include PCR plates with 2D coded flat bottoms for applications that require superior sample tracking
- In applications where it is essential for samples to be tracked throughout their processing, e.g. for diagnostic assays on clinical samples, tube labeling is a far safer and reliable method compared to cap or seal labeling (which can be misplaced, damaged or rendered unreadable after piercing)
- Our plates have a unique 2D code printed on the bottom of the well and a linear barcode on the side of the plate to allow for identification of both the plate and individual tubes within
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR
- Together with the SBS footprint, this makes the plate suitable for use with robotic systems, ideal for both small and high throughput labs
- Empty frames are available for tubes to be transferred to
- The frames can be re-used multiple times, depending on the application
- Sample tubes can be identified by the unique 2D code on the base of the wells, removed from the Random Access plate quickly and easily, and moved to another Random Access frame for downstream processing or storage
- Quick selection of desired tubes reduces the time needed for the sample plate to be out of the freezer and therefore reduces the chance of other wells defrosting in the meantime
- Flat bottom PCR plates can be stacked, allowing for optimal use of freezer space as multiple plates can be housed in the same space as a storage rack
- The 2D codes on the bottom of the wells can be read by most 2D data-matrix readers including FluidX Whole Rack Scanners
- The codes are highly scratch resistant and can withstand cold storage (-80°C), temperatures up to 100°C and solvents such as DMSO
- 2D data-matrix codes utilize data redundancy so even if codes are partly destroyed, the information will still be retained
- Each code is tested for readability and guaranteed to be unique

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- Individually removable from the rigid frame, while the rest of the tubes can remain in storage, reducing freeze-thawing of the whole plate
- Thin walled tubes are made from PP for optimal results in (q)PCR whilst also being suitable for storage and incubation
- <100 µl working volume, <180 µl total well capacity

Frame

- Rigid polycarbonate frame provides mechanical stability of the plate
- These plates are labeled with linear Code 128-format barcodes to aid identification and traceability for your samples
- Alphanumeric grid reference to aid well and sample identification

Use

- Suitable for small volume sample storage, allowing for optimal use of freezer space as multiple plates can be housed in the same space as a storage rack
- Ideal for use with robotic systems
- Fewer transfer steps as the same tube can be used for microscopy, (q)PCR and storage
- Each tube can be individually heat sealed using the Random Access Pierce Heat Seal Strong, such as the contents of each tube is left secure from cross contamination and evaporation for storage and transfer
- Each tube can still be separated after sealing

Options

- Also available as a Random Access optical bottom plate (4ti-0970/RA) with black frame, ideal for microscopy and PCR
- Empty frames are available for tubes to be transferred to; frames can be re-used multiple times, depending on the application
- We also offer customization of the Random Access Plates such as color coding of the individual wells; please contact us for details
- The plate can be sealed in one step using our range of Random Access Heat Seals on the IntelliXseal™ fully-automated Heat Sealer (see page 131) or IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer (see page 135) (using the 4ti-0613 Random Access adapter), resulting in individually sealed tubes with pierceable seals to allow for sample access

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.50 ± 0.25 mm
Well depth	12.00 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm
Code	
Size	12 x 12 px; 2 x 2 mm
Format	white on black
Content	8 digit numeric

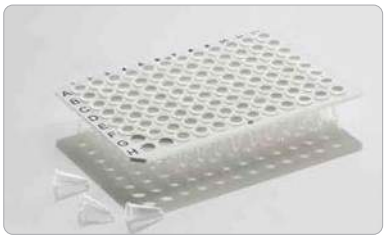
Ordering Information

Code	Details	Quantity
4ti-0975/RA	clear tubes, white frame	50 plates
4ti-0960/RA/F*	white frame (no wells, frame only)	10 frames

**Please note, /SBC must be added to 4ti-0960/RA-F to include a standard single barcode*

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Random Access 96 Well Non-Skirted PCR Plate - NEW PRODUCT!



Low profile, individually removable 0.1 ml polypropylene wells, rigid polycarbonate frame, non-skirted, cut corner H1, working volume: <100 µl, total well capacity: 200 µl

- 96 well, fully skirted, low profile format with each tube inserted separately into the plate frame, allowing for selection and removal of individual tubes from the plate.
- Each tube clicks into place in the frame ensuring tubes are secure once inserted
- The rigid polycarbonate skirt of this design eliminates warping and distortion during PCR
- SBS footprint,
- When used with Non-Skirted PCR Plate Adapter (4ti-0373), it is suitable for use with robotic systems
- Empty frames are available for tubes to be transferred to
- The frames can be re-used multiple times, depending on the application

Specifications

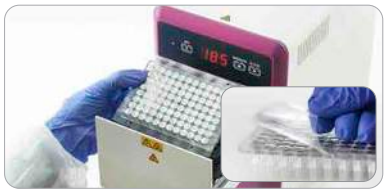
Feature	Information
Format	96 Well
Plate length	120.00 ± 0.20 mm
Plate width	80.00± 0.20 mm
Plate height	15.60 mm
Well diameter	5.50 mm
Colour (frame)	White
Colour (tube)	Clear

Ordering Information

Code	Details	Quantity
4ti-0720/RA	clear tubes, white frame	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Random Access Sealing Options



Semi-Automatic Random Access Heat Sealing

The 96 well Random Access plate can be sealed in one step using Random Access Pierce Seal Strong, 96 individual foil seal spots on a removable backing (4ti-05381/RA). These seals result in individually sealed tubes that are pierceable, allowing for sample access.

Random Access Heat Seals are currently available in sheet format for use with the IntelliXseal SA™ Semi-Automated Sheet Heat Sealer (using the 59-2005 Random Access adapter).

Random Access Sealing Procedure using the IntelliXseal SA Semi-Automatic Sheet Heat Sealer (59-2000)

1. Place Random Access Plate in Heat Sealer
2. Place Random Access Seal onto the plate
3. Plate is automatically sealed, remove plate
4. Remove the backing liner from the seal

Automatic Random Access Heat Sealing

The roll-fed IntelliXseal™ Automatic Random Access Heat Sealer allows for automatic sealing of Random Access plates using Random Access Heat Seal rolls.

The roll with the indexed groups of 96 individual sealing discs is automatically fed through the heat sealer. The accurate sealing is controlled by a sensor which gets activated by optical windows in the material feed, but can also be adjusted. Sealing temperature, time of sealing and exit delay (for cooling) can be controlled via the instrument's touchscreen.

Custom versions of instrument and sealing material are possible.

Cap Mats for PCR Plates

- 96 individual caps in sheet format, blue TPE, pierceable; suitable for sealing all of our 96 well PCR plates
- The caps can be individually applied and removed once detached from the backing liner, making the mats ideally suited for use with our flexible PCR consumables, including Random Access and divisible plates
- The mats offer an alternative to adhesive and heat sealing, in particular as a temporary solution when samples need to be repeatedly accessed
- They are easily pierceable with pipette tips to access samples, and they are easily removable using 1- and 8-way decappers or, alternatively, using Brooks XPeel® if a seal is overlaid on top of the caps

Ordering Information

Semi-Automatic Random Access Heat Sealing

Code	Details	Quantity
59-2000	IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer	1 unit
59-2005	IntelliXseal SA™ Plate Support Adapter, Random Access, for low profile plates	1 unit
4ti-05381/RA	Random Access Pierce Heat Seal Strong, sheets, (127 mm x 100 mm)	100 sheets
4ti-0531/RA	Random Access Pierce Heat Seal (127 x 100 mm)	100 sheets
4ti-0521/RA-TAB	Random Access Peel Heat Seal, With Tabs (127 x 100 mm)	100 sheets
4ti-0521/RA-8	Random Access Peel Heat Seal 96/8 (127 x 100 mm)	100 sheets
4ti-0960/RA	Random Access 96 Well Skirted PCR Plate, low profile, clear wells white frame	50 plates
4ti-0753/757	Vari-Plate™ 96 Well Skirted Frame, With Vari-Strips™	50 plates
4ti-1200/P	FrameStar® Break-A-Way PCR Plate, Low Profile	50 plates
4ti-1400/X	FrameStar® Break-2-Ways PCR Plate, Low Profile	50 plates

Automatic Random Access Heat Sealing

Code	Details	Quantity
59-1000	IntelliXseal™ Automatic Random Access Heat Sealer	1 unit
4ti-0539/RA	Random Access Pierce Heat Seal Strong, roll (420 m x 100 mm, approx. 3,200 sealed PCR plates)	1 unit
4ti-0532/RA	Random Access Pierce Heat Seal (420 m x 100 mm)	1 roll
4ti-0522/RA-TAB	Random Access Peel Heat Seal, With Tabs (420 m x 100 mm)	1 roll
4ti-0522/RA-8	Random Access Peel Heat Seal 96/8 (420 m x 100 mm)	1 roll
4ti-0960/RA	Random Access 96 Well Skirted PCR Plate,low profile, clear wells white frame	50 plates
4ti-0753/757	Vari-Plate™ 96 Well Skirted Frame, With Vari-Strips™	50 plates
4ti-1200/P	FrameStar® Break-A-Way PCR Plate, Low Profile	50 plates
4ti-1400/X	FrameStar® Break-2-Ways PCR Plate, Low Profile	50 plates

Brooks LIFE SCIENCES

FrameStrip® 2-Component PCR Tube Strips

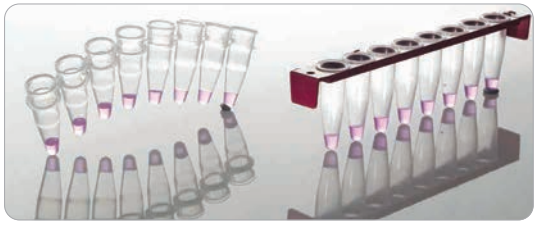
FrameStrip® 2-Component PCR Tube Strips

FrameStrip® 2-Component PCR Tube Strips

Strips of 8, clear polypropylene PCR tubes (0.2 mL or 0.1 mL) held in a rigid polycarbonate frame.

By moulding the frame portion in a more rigid polymer, the mechanical stability of FrameStrips® is greatly improved compared with traditional single piece products, as seen here.

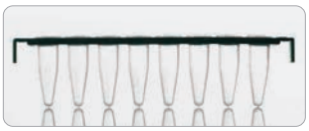
For colour coding of experiments, we offer strips with clear wells in 6 different frame colours. Additionally, for optical assays such as qPCR, we supply strips with white wells in black frames. White wells increase the signal-to-noise ratio by maximising reflection of light in fluorescent based assays.



Unlike standard tube strips, the FrameStrip® will remain straight and stable, even at elevated temperatures and when filled with liquid.

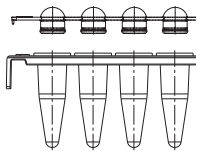
FrameStrips® are available either with cap strips (domed or optically flat) or without cap strips, and are compatible with the majority of thermal cyclers. End tabs allow for easy handling and labelling of the strips and some products are also available with an off-the-shelf 2D code, offering a vast supply of unique code combinations.

FrameStrip® 8 Well PCR Tube Strips

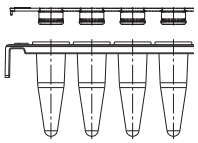


Features

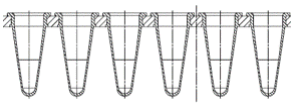
- 2-component design in an 8 well strip format
- Compatible with the majority of thermal cyclers
- Available with either domed cap strips or with flat, optically clear cap strips
- Available with off-the-shelf 2D code



FrameStrip® 8 Well PCR Tube Strips, Plus Strips of Domed Caps



FrameStrip® 8 Well PCR Tube Strips, Plus Strips of Flat Optical Caps

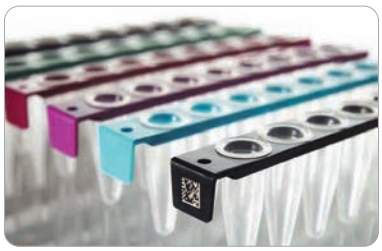


FrameStrip® 8 Well PCR Tube Strips, Low Profile

Ordering Information

FrameStrip® 8 Well PCR Tube Strips
Standard profile, 0.2 ml PP wells, PC frame, working volume: <200 µl, total well capacity: 300 µl

FrameStrip® 8 Well PCR Tube Strips, Low Profile
Low profile, 0.1 ml PP wells, PC frame, working volume: <100 µl, total well capacity: 200 µl



New Design FrameStrip® Standard profile + Domed Caps	New Design FrameStrip® Standard profile + Flat Caps	New Product FrameStrip® Standard profile (no caps)	New Product FrameStrip® Low Profile (no caps)	Quantity
4ti-0785/P	4ti-0786/P	4ti-0775/P	4ti-0789/B	120
4ti-0785/G	4ti-0786/G	4ti-0775/G	4ti-0789/XW	120
4ti-0785/B	4ti-0786/B	4ti-0775/B	4ti-0789/W	120
4ti-0785/R	4ti-0786/R	4ti-0775/R		120
4ti-0785/X	4ti-0786/X	4ti-0775/X		120
4ti-0785/X/2D	4ti-0786/X/2D	4ti-0775/X/2D		120
4ti-0785/W/2D	4ti-0786/W/2D	4ti-0775/W/2D		120
4ti-0785/XW	4ti-0786/XW	4ti-0775/XW		120
4ti-0785/M	4ti-0786/M	4ti-0775/M		120
4ti-0785/C	4ti-0786/C	4ti-0775/C		120

FrameStrips® feature a rigid polycarbonate frame for highest mechanical stability

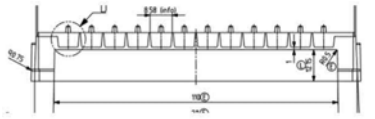
For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

FrameStrip® Adapter and Lid

A 96 format frame that fits both FrameStrips and FrameStar® Break-A-Way® plates, enabling our flexible PCR consumables to be handled in SBS format; ideal for use in automated or manual manufacturing processes.

Grippers on a robotic deck grip the FrameStrip adapter, allowing it to be handled as if it were a plate. The standard profile FrameStrips have a push fit with the adapter, ensuring they are held within the plate and do not move around or fall out during handling, thereby ensuring samples are secure throughout the lifecycle.

- SBS footprint for use with robotics – loaded frames can be handled by robotics, increasing efficiency and accuracy during kit assembly
- Dedicated lid with interference fit – samples are securely protected avoiding damage to kits during transport
- Interference fit with standard profile tubes – tubes are stable in the frame making them easier to handle and reducing the chance of errors when used with robotics
- Full Break-A-Way plates or individual FrameStrips – suitable for use in both high and low throughput environments
- Ability to 2D code end tabs – sample can be tracked from kit manufacture all the way to processing at the end user site
- Locator pins on the deck ensure FrameStrips are always loaded in the correct orientation
- Reduces human error
- Adapters can be customised into different colours for custom/OEM opportunities.



Important note: the adapters cannot be placed directly into PCR cyclers due to the height of the skirt. These adapters are designed to provide an automation friendly strip/plate support during processing, after which, the strips/plates can be removed from the adapter and placed into a PCR block.

Specification Adapter

Feature	Information
Format	96 well
Length	127.76mm ± 0.25mm
Width	85.48mm ± 0.25mm
Height (without lid)	21.25mm
Height (with lid)	24.00mm
Colour (adapter)	White
Colour (lid)	Clear

Ordering Information

Code	Details		Quantity
4ti-0370	Frame Strip® Adapter, With Lid	96 well skirted frame, white polycarbonate, cut corner H1, for use with FrameStrips®, includes FrameStrip® Adapter Lids	18 adapters + 18 lids
4ti-0371	FrameStrip® Adapter	96 well skirted frame, white polycarbonate, cut corner H1, for use with FrameStrips®	18 adapters
4ti-0292	FrameStrip® Adapter Lid	Low profile, without condensation rings, clear polystyrene, no cut corner, for use with FrameStrip® Adapter	10 lids

Non-Skirted PCR Plate Adapter

A 96 format frame that fits non-skirted PCR plates to allow for easy handling and use with automation.

- Cost and space saving design
- Clear polycarbonate
- Universal fit with non-skirted PCR plates
- Compatible with the Universal Microplate Lid
- Non-skirted PCR plates have the widest application range, fitting most cyclers
- However, they don't offer the same level of compatibility with robotic platforms and are not as multichannel pipetting friendly as fully- or semi-skirted plates are
- The 4titude Non-Skirted PCR Plate Adapter was developed to address all that, improving the overall ease of use of non-skirted plates
- 4titude adapters are manufactured in class 7 ISO certified cleanroom, and all lids are certified free of DNase, RNase, human DNA, bacterial and eukaryotic cells, dust and endotoxins/pyrogens

Key Features

- Accommodates both low and standard profile non-skirted plates
- No locator pins, ensuring compatibility with all non-skirted plates and tubestrips
- Compatible with the Universal Microplate Lid, for a quick and easy sealing solution to protect samples from contamination and evaporation

Specification Non-Skirted PCR Plate Adapter

Feature	Information
Format	96 well
Length	127.76mm ± 0.25mm
Width	85.48mm ± 0.25mm
Height (without lid)	21.2mm
Height (with lid)	24.00mm
Colour	Clear

Ordering Information

Code		Quantity
4ti-0373	Non-Skirted PCR Plate Adapter	18 adapters
Combi packs		
4ti-0372	Non-Skirted PCR Plate Adapter, With Lid, includes Universal Microplate Lid	18 adapters + lids
Compatible lids		
4ti-0290	Universal Microplate Lid, low profile, without condensation rings, clear poly-styrene, no cut corner	50 lids

Vari-Strips™ and Vari-Plates™

Vari-Strips™ & Vari-Plates™

PCR tube strips in frames - excellent flexibility

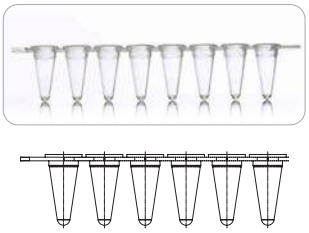
The 4titude® Vari-Strip™ and Vari-Plate™ system offers total flexibility in plate usage. It allows the user to insert or remove strips of 8 tubes from a 96 well plate frame.

- Vari-Strips™ can be used as a stand-alone product or inserted in one of two Vari-Plate™ frames for ease of handling
- Vari-Plate™ frames are available for use on Roche LightCycler® 480 and for universal use
- Pre-loaded frames are available
- Sealable using cap strips, adhesive seals or heat seals

Vari-Strips™ can be used as a stand-alone product or with a frame for ease of handling.

Vari-Strip™ 8 Well PCR Tube Strips, Low Profile

Low profile, 0.1 ml polypropylene wells, working volume: <100 µl, total well capacity: 200 µl; can be used as a stand-alone product or inserted in any of the Vari-Plate™ frames available for ease of handling



- These low profile PCR tube strips are moulded from virgin polypropylene under cleanroom conditions
- They are available in either clear polypropylene for standard PCR techniques, or in white polypropylene for use in fluorescent detection applications like qPCR, as they give the highest sensitivity and consistency as all the fluorescence signal is reflected back to the detector

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Tubes

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Low profile 0.1 ml (100 µl) working volume, with a 0.2 ml (200 µl) total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Use

- Can be used as individual strips, or in a Vari-Plate™ frame for easier handling
- Compatible with standard multichannel pipettes

Options

- Vari-Strips™ are available with clear wells
- Vari-Strips™ also available with white wells, giving the highest sensitivity and consistency for fluorescent detection during qPCR
- Combi packs available with strips of 8 flat optical caps
- Vari-Strips™ can be ordered separately or pre-loaded on Vari-Plate™ frames

Specifications

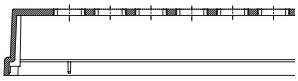
Parameter	Value
Strip length	82.00 ± 0.10 mm
Strip width	8.20 mm
Strip height	15.60
Well depth	14.20 mm
Well diameter	5.50 ± 0.10 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

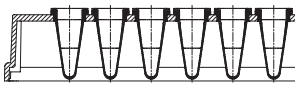
Code		Details	Quantity
4ti-0753	W	white	120 tube strips
4ti-0753/C	C	clear	120 tube strips
Combi Packs			
4ti-0754	W	4ti-0753 + strips of 8 flat optical caps	120 tube strips + 120 cap strips
4ti-0754/C	C	4ti-0753/C + strips of 8 flat optical caps	120 tube strips + 120 cap strips

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Vari-Plate™ Frames & Vari-Plates™



4ti-0757-F



4ti-0753/757 & 4ti-0753/C/757

Rigid polycarbonate frame, for use with Vari-Strips™ available for use on Roche LightCycler® 480 and for universal use

- These Vari-Plate™ frames are moulded from rigid polycarbonate for use with our polypropylene Vari-Strips™
- The Vari-Strips™ are inserted into the Vari-Plate™ frames to form a complete plate, part plate, or individual strip with an easy-to-handle frame
- As the Vari-Strips™ are interchangeable with the Vari-Plate™ frames, the frames themselves are re-usable; simply purchase more Vari-Strips™ to use
- Vari-Plate™ frames can be purchased separately, or pre-loaded with Vari-Strips™

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Frames

- Rigid polycarbonate frames, which reduce thermal expansion and sample evaporation during PCR, leading to improved consistency in PCR results
- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with standard multichannel pipettes

Options

- Available as a 96 Well Skirted Frame for universal use
- Also available as a 96 Well Semi-Skirted Frame, Roche Style for use with the Roche LightCycler® 480
- Frames can be purchased on their own or pre-loaded with Vari-Strips™
- Vari-Strips™ are available with clear wells
- Vari-Strips™ also available with white wells, giving the highest sensitivity and consistency for fluorescent detection during qPCR
- Available barcoded upon request

Specifications

Parameter	Value
Vari-Plate™ 96 Well Skirted Frame	
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	16.10 ± 0.25 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Parameter	Value
Vari-Plate™ 96 Well Semi-Skirted, Roche Style	
Plate length	127.70 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.60 ± 0.25 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code		Quantity
Vari-Plate™ 96 Well Skirted Frame		
4ti-0757-F	Empty frame	10 frames
4ti-0753/757	4ti-0757-F pre-loaded with Vari-Strips™, white	50 plates
4ti-0753/C/757	4ti-0757-F pre-loaded with Vari-Strips™, clear	50 plates
Vari-Plate™ 96 Well Semi-Skirted Frame, Roche Style		
4ti-0950W-F	Empty frame	10 frames
4ti-0753/950W	4ti-0950W-F pre-loaded with Vari-Strips™, white	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Standard PCR Plates, Strips & Tubes

Standard PCR Plates, Strips & Tubes

Standard PCR Plates, Strips & Tubes

4titude® offers a wide range of PCR consumables for low to medium throughput applications. Our standard one-piece PCR consumables are manufactured from virgin polypropylene in our Class 7 ISO certified clean-room production facility, and comply to the same stringent QC requirements as our FrameStar® range.

The ultra-thin walled tubes of our standard PCR plates maximise heat transfer and the raised rims facilitate sealing. Our range of plates includes fully skirted, semi-skirted, and non-skirted plates, available in clear or white (for qPCR), with additional colours for non-skirted plates available.

All our PCR consumables are certified free from RNase, DNase, and human genomic DNA.

These plates fit most thermal cyclers; for a complete list please see the compatibility table.

- Clean-room Injection Moulding - Class 7 ISO Certification

  No contamination and 10 fold lower amount of air particles compared to most PCR plate manufacturers

- Virgin, Medical Grade Polymers

  No leakage of substances which may have a detrimental effect on product purity

- Certified RNase-, DNase-, DNA, and Pyrogen-free

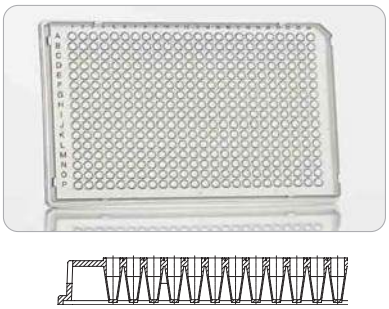
  Inhibitor free consumables

- Ultra-thin and consistent wall thickness

  Fast and precise thermal transfer

4titude®'s standard PCR plates, strips and tubes are manufactured from virgin polypropylene under ISO certified cleanroom conditions.

384 Well Skirted PCR Plate



Polypropylene, cut corner A24, working volume: <30 µl, total well capacity: 55 µl; designed for use on standard 384 well thermal cyclers

- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time quantitative PCR (RT-qPCR) results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- <30 µl working volume, 55 µl total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Recommended for low volume PCR
- Compatible with standard multichannel pipettes
- Compatible with blocks designed for 384 well PCR plates

Options

- Super clear well option available to maximize sample visibility
- Available as a FrameStar® 2-component PCR plate with the same dimensions, but with the added benefits of a polycarbonate frame that eliminates plate distortion and warping during the PCR process, leading to less evaporation and sample loss
- Also available as a frosted plate for increased qPCR signal intensities and improved detection sensitivity
- Available barcoded upon request

Specifications

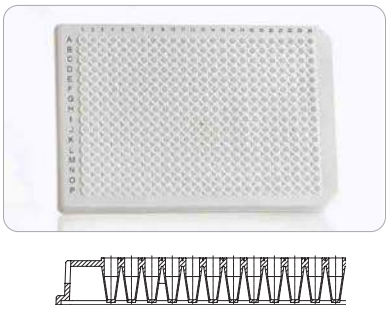
Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	10.30 ± 0.05 mm
Well depth	9.20 ± 0.10 mm
Well diameter	3.00 ± 0.10 mm
Distance to center of A1 from top edge	8.99 ± 0.25 mm
Distance to center of A1 from left edge	12.13 ± 0.25 mm
Pitch (distance between A1 and A2)	4.50 mm

Ordering Information

Code	Details		Quantity
4ti-1384	c	clear	50 plates
4ti-1387	f	frosted	50 plates
4ti-1385	w	white	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

384 Well Skirted PCR Plate, Roche Style



White polypropylene, cut corners A24 and P24; working volume: <30 µl, total well capacity: 55 µl; designed for use on the Roche LightCycler® 480 with 384 well block

- The dimensions of these plates are designed for optimum compatibility with the Roche LightCycler® 480, and are in a 384 well format for reaction volumes of up to 30 µl
- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions, and as such comply with the same stringent requirements as our FrameStar® range

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene wells for optimum PCR and real-time (RT-qPCR) results
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation
- <30 µl working volume, 55 µl total well capacity when used with sealing options
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Recommended for low volume PCR
- Compatible with standard multichannel pipettes
- Compatible with Roche LightCycler® 480 with 384 well block

Options

- Available as a plate made from white polypropylene for optimum signal-to-noise ratio when using fluorescent based assays
- Also available as a FrameStar® 2-component PCR plate with the same dimensions, but with the added benefits of a polycarbonate frame that eliminates plate distortion and warping during the PCR process, leading to less evaporation and sample loss
- Available barcoded upon request

Specifications

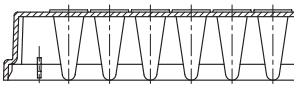
Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	10.30 ± 0.05 mm
Well depth	9.20 ± 0.10 mm
Well diameter	3.00 ± 0.10 mm
Distance to center of A1 from top edge	8.99 ± 0.25 mm
Distance to center of A1 from left edge	12.13 ± 0.25 mm
Pitch (distance between A1 and A2)	4.50 mm

Ordering Information

Code	Details		Quantity
4ti-1381	W	white	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

96 Well Skirted PCR Plate



Low profile, 0.1 ml wells, polypropylene, cut corner H1, working volume: <100 µl, total well capacity: 200 µl; universal 96 well skirted plate, designed for use on standard thermal cyclers

- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range.

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- Low profile 0.1 ml (100 µl) working volume, with a 0.2 ml (200 µl) total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with blocks designed for skirted PCR plates
- Compatible with standard multichannel pipettes

Options

- Super clear wells maximize sample visibility
- Also available as a white plate, ideal for qPCR, giving optimal signal-to-noise ratio for fluorescence-based assays
- Available barcoded upon request
- Available as a FrameStar® 2-component PCR plate with the same dimensions, but with the added benefits of a polycarbonate frame that eliminates plate distortion and warping during the PCR process, leading to less evaporation and sample loss

Specifications

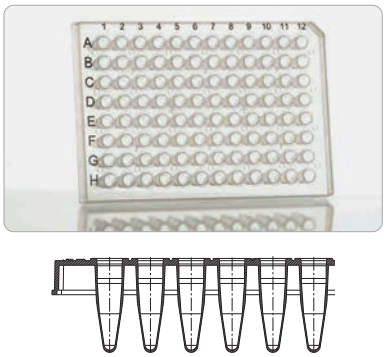
Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.50 ± 0.05 mm
Well depth	15.00 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details		Quantity
4ti-0740	C	clear	50 plates
4ti-0741	W	white	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73..

96 Well Semi-Skirted PCR Plate



Standard profile, 0.2 ml wells, polypropylene, cut corner A12, working volume: <200 µl, total well capacity: 300 µl; universal semi-skirted plate, designed for use on standard thermal cyclers

- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range.

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- Standard 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with universal standard block thermal cyclers and sequencers
- Compatible with standard multichannel pipettes

Options

- Super clear wells maximize sample visibility
- Also available as a white plate, ideal for qPCR, giving optimal signal-to-noise ratio for fluorescence-based assays
- Available barcoded upon request
- Available as a FrameStar® 2-component PCR plate with the same dimensions, but with the added benefits of a polycarbonate frame that eliminates plate distortion and warping during the PCR process, leading to less evaporation and sample loss

Specifications

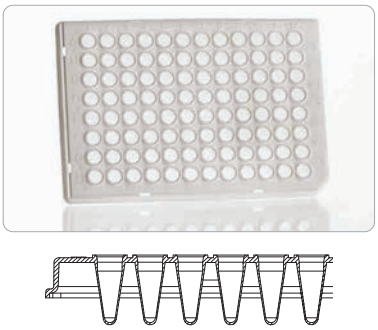
Parameter	Value
Plate length	124.42 ± 0.25 mm
Plate width	84.02 ± 0.25 mm
Plate height	20.70 ± 0.25 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	10.51 ± 0.10 mm
Distance to center of A1 from left edge	12.71 ± 0.10 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details		Quantity
4ti-0760	C	clear	50 plates
4ti-0761	W	white	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73..

96 Well Semi-Skirted PCR Plate, Roche Style



Low profile, 0.1 ml wells, polypropylene, cut corner H12, working volume: <100 µl, total well capacity: 200 µl; designed for use on Roche LightCycler 480®

- This Roche Style plate is designed to achieve optimized assay conditions on the Roche LightCycler® 480
- This particular style of plate is in a low profile 96-well format, perfect for reaction volumes of 10-100 µl
- The wells are shorter than "standard" profile wells, which decrease the "dead space" between the heated lid of the thermal cycler and the sample in the well
- This eliminates condensation forming on the side wall of the tubes, preventing reduction in PCR volume and increasing the efficiency of the reaction
- This is especially recommended for reaction volumes below 20 µl

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- Low profile 0.1 ml (100 µl) working volume, with a 0.2 ml (200 µl) total well capacity when used with sealing options

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Optimized for use with the Roche LightCycler® 480
- Compatible with standard multichannel pipettes
- Recommended for low volume PCR

Options

- Available with white wells give optimum signal-to-noise ratio when using fluorescent-based assays
- Available as a FrameStar® 2-component PCR plate with the same dimensions, but with the added benefits of a polycarbonate frame that eliminates plate distortion and warping during the PCR process, leading to less evaporation and sample loss
- Combi packs available with qPCR Seal (0560)
- Available barcoded upon request

Specifications

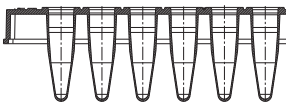
Parameter	Value
Plate length	127.70 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.60 ± 0.10 mm
Well depth	15.10 ± 0.10 mm
Well diameter	5.50 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details		Quantity
4ti-0955	W	white	50 plates
Combi packs			
4ti-0955/0560	4ti-0955 + qPCR Seal (4ti-0560)		50 plates + 50 seals

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

96 Well Semi-Skirted PCR Plate with Upstand ABI® Style



Standard profile, 0.2 ml wells, polypropylene, cut corner A12, working volume: <200 µl, total well capacity: 300 µl; designed for use on ABI® thermal cyclers

- We recommend this semi-skirted plate for use with ABI® thermal cyclers and sequencers
- It can be used directly with ABI® instruments with no adapters and no re-calibration of the instruments necessary
- The only case where this is not true is with the ABI Fast Block thermal cyclers, in which case using our FrameStar® FastPlate is recommended instead
- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time qPCR results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- Standard 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Designed for and compatible with ABI® thermal cyclers and Real Time PCR instruments
- Compatible with standard multichannel pipettes

Options

- Clear version has super clear wells for maximum sample visibility
- Also available with frosted wells for increased qPCR signal intensities and improved detection sensitivity
- Available barcoded upon request
- Available as a FrameStar® 2-component PCR plate with the same dimensions, but with the added benefits of a polycarbonate frame that eliminates plate distortion and warping during the PCR process, leading to less evaporation and sample loss

Specifications

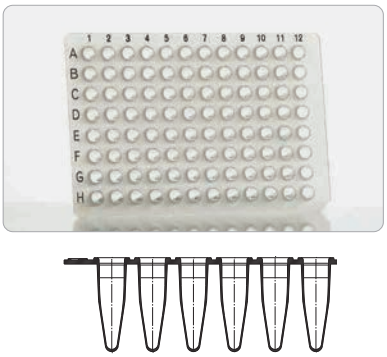
Parameter	Value
Plate length	126.00 ± 0.25 mm
Plate width	86.00 ± 0.25 mm
Plate height	22.10 ± 0.10 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	11.50 ± 0.10 mm
Distance to center of A1 from left edge	13.50 ± 0.10 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details		Quantity
4ti-0735	c	clear	50 plates
4ti-0736	f	frosted	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

96 Well Non-Skirted PCR Plate



Standard profile, 0.2 ml wells, polypropylene, cut corner H12, working volume: <200 µl, total well capacity: 300 µl; universal non-skirted plate, designed for use on standard thermal cyclers

- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with universal standard block thermal cyclers and sequencers
- Compatible with standard multichannel pipettes

Options

- Available with the following color options: clear, blue, red, green, yellow, purple, and white
- White plate ideal for qPCR, giving optimal signal-to-noise ratio for fluorescence-based assays
- Super clear well version maximizes sample visibility

Specifications

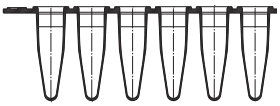
Parameter	Value
Plate length	120.00 ± 0.25 mm
Plate width	80.00 ± 0.25 mm
Plate height	20.20 ± 0.10 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	8.75 ± 0.25 mm
Distance to center of A1 from left edge	10.75 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details		Quantity
4ti-0750	C	clear	50 plates
4ti-0750-25	C	clear	25 plates
4ti-0750/P		purple	50 plates
4ti-0750/B		blue	50 plates
4ti-0750/G		green	50 plates
4ti-0750/R		red	50 plates
4ti-0750/W	W	white	50 plates
4ti-0750/Y		yellow	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Non-Skirted PCR Plate Segments



Standard profile, 0.2 ml wells, polypropylene, cut corner H12, working volume: <200 µl, total well capacity: 300 µl; 96 Well Non-Skirted PCR Plate divided into 8 well, 16 well, 24 well, 32 well or 48 well segments

- These plates are produced by dividing our 96 Well Non-Skirted PCR Plate into smaller segments, a versatile solution for when a whole PCR plate may not be needed
- All of our PCR plates are moulded from virgin polypropylene under ISO certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range

Key Features

- Subject to a strict QC procedure which includes a visual check and leak testing of every tube
- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Wells

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Maximum thermal conductivity for efficient heat transfer and precise thermal cycling
- Standard 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Raised well rims prevent cross contamination and facilitate effective sealing for reduced evaporation

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Compatible with universal standard block thermal cyclers and sequencers
- Compatible with standard multichannel pipettes

Options

- Available with the following color options: clear, blue, red, green, yellow, and purple
- Super clear well version maximizes sample visibility

Specifications

Parameter	Value
Plate length	120.00 ± 0.25 mm
Plate width	80.00 ± 0.25 mm
Plate height	20.20 ± 0.10 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	8.75 ± 0.25 mm
Distance to center of A1 from left edge	10.75± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code		Details	Quantity
4ti-0750/8	C	1 x 8 well plate segments	600 segments
4ti-0750/16	C	2 x 8 well plate segments	300 segments
4ti-0750/24	C	3 x 8 well plate segments	200 segments
4ti-0750/32	C	4 x 8 well plate segments	150 segments
4ti-0750/48	C	6 x 8 well plate segments	100 segments

Note: Codes of the clear versions are shown above.
For colour options please add the corresponding letter to the product code, e.g. order 4ti-0750/8/P for 8 well plate segments in purple.

P = purple B = blue G = green
R = red Y = yellow

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

8 Well PCR Tube Strips

Standard profile, 0.2 ml wells, clear polypropylene, working volume: <200 µl, total well capacity: 300 µl; suitable for all standard 0.2 ml block thermal cyclers

- These PCR tubes are moulded from virgin polypropylene in our UK-based Class 7 ISO certified cleanroom production facility, and comply to the same stringent requirements as our FrameStar® range
- Recommended for low to medium throughput applications

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results
- Standard 0.2 ml (200 µl) working volume, with a 0.3 ml (300 µl) total well capacity when used with sealing options
- Individually numbered tubes

Use

- Suitable for all standard 0.2 ml block thermal cyclers
- Can be cut into sections

Options

- Available with strips of domed (4ti-0780) or flat optical (4ti-0784) sealing caps*

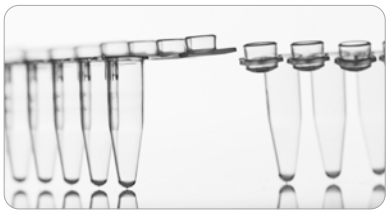
Ordering Information

Code	Details	Quantity
4ti-0781	C clear wells, without caps	125 tube strips
Code Combi Pack		
4ti-0780	4ti-0781 + strips of domed caps*	125 125 tube strips + 125 cap strips
4ti-0784	4ti-0781 + strips of flat optical caps*	125 125 tube strips + 125 cap strips

* See website for the latest Important Product Information

For recommended strip options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

8 Well PCR Tube Strips, With Attached Caps



Low profile 0.1 ml (working volume: <100 µl, total well capacity: 200 µl), clear polypropylene, with attached flat optically clear caps; and standard 0.2 ml (working volume: <200 µl, total well capacity: 300 µl), clear polypropylene, with attached domed or flat optically clear caps

- These PCR tubes with attached caps are moulded from virgin polypropylene, comply to the same stringent requirements as our FrameStar® range and are free from RNase, DNase, and human genomic DNA
- Recommended for low to medium throughput applications

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- The tubes on each strip are joined together either by three links (flat cap variety - 4ti-0792 and 4ti-0793) or by one strong link (domed cap variety - 4ti-0794) to make the strip more rigid and help reduce any chance of spillage
- Each cap is separately joined to a tube, making it impossible to either cross contaminate another tube with the wrong cap, or to lose a cap altogether

Use

- The tube strips can be easily separated by cutting the links, to make smaller sections or individual tubes
- The flat optically clear caps enable light signals, such as fluorescence, to pass through without affecting the signal, and are suitable for imaging techniques including RT-qPCR

Options

- The strips are available with either tethered flat optically clear caps or domed caps

Ordering Information

Code	Details	Quantity
4ti-0792	0.2 ml wells, with flat optical caps	120 tube strips
4ti-0793	0.1 ml wells, with flat optical caps	120 tube strips
4ti-0794	0.2 ml wells, with domed caps	120 tube strips

For recommended strip options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

4 Well PCR Tube Strips, Rotor-Gene® Style, With Caps

0.1 ml wells, clear polypropylene, with strips of 4 caps, working volume: <100 µl, total well capacity: 200 µl; designed for Qiagen/Corbett Rotor-Gene® instruments

- 4titude offers a range of PCR consumables for low to medium throughput applications
- These PCR tubes and caps are moulded from virgin polypropylene to prevent any PCR background signal
- They are especially suited for use with Qiagen/Corbett Rotor-Gene® instruments

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- Optically clear tubes ideally suited for qPCR
- Low profile 0.1 ml (100 µl) working volume, 0.2 ml (200 µl) total well capacity
- Ultra-smooth, uniform, thin-walled polypropylene tubes for optimum PCR and real-time (RT-qPCR) results

Caps

- Frosted cap extensions allow for easy handling and labeling

Use

- Designed for Qiagen/Corbett Rotor-Gene® instruments
- Tube and cap strips can be separated for individual use
- Pack of 250 strips of tubes and caps sufficient for 1,000 reactions

Ordering Information

Code	Details	Quantity
4ti-0796	clear;	250 tube strips + cap strips

For recommended strip options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Individual PCR Tubes, With Attached Caps

Standard profile, 0.2 ml wells, polypropylene, working volume: <200 µl, total well capacity: 300 µl; with either flat or domed attached caps; also available with unique 2D coded flat caps

- These PCR tubes are moulded from virgin polypropylene in our UK-based Class 7 ISO certified cleanroom production facility, and comply to the same stringent requirements as our FrameStar® range
- Recommended for low to medium throughput applications
- Our individual tubes with flat caps are also available with a unique 2D code applied to the top of each tube
- This allows for clear labeling of tubes, despite the limited space available
- Printed 2D codes allow for easy sample tracking and are more reliable than the use of adhesive stickers
- Our compact hand held barcode scanner, 4ti-4060, delivers the speed typical of laser scanners on any barcode, including both 1D and 2D codes

Key Features

- Leak tested
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Tubes

- 0.2 ml (200 µl) working volume, 0.3 ml (300 µl) total well capacity
- Snap-shut cap design

Use

- Suitable for all standard 0.2 ml block thermal cyclers

Options

- Flat and domed cap designs
- Our individual tubes with flat caps (4ti-0790) are also available with unique 2D code applied to the top of each tube (use product code 4ti-0790/2D when ordering); the barcode is suitable for low temperature storage and high temperature thermal cycling
- Our hand held barcode scanner, 4ti-4060 together with the user-friendly software allows for reliable and convenient sample management

Ordering Information

Code	Details	Quantity
4ti-0790	with flat optical cap	1000 tubes
4ti-07902D	with flat 2D coded cap	960 tubes
4ti-0795	with domed cap	1000 tubes

Compatible with all standard thermal cyclers. Please contact us for further information.

Tear-A-Way™ PCR Plates

Tear-A-Way™ PCR Plates

Tear-A-Way™ PCR Plates
Dividable Standard PCR Plates

Tear-A-Way™ 96/12 PCR Plates allow you to make full use of your gradient PCR instruments. The temperature gradient is typically created along the horizontal direction of the block, thus 12 well strips or sections are ideal.

Tear-A-Way™ plates allow for the most flexible, efficient and cost-effective use of a PCR plate. Avoid the costly use of half-empty plates or the fiddly separation of plates with scissors. Cutting plates can damage wells and sealing rings, risking evaporation and sample contamination.

Based on our standard non-skirted PCR plate (4ti-0750), Tear-A-Way™ plates can be quickly and easily divided along the perforations between the rows. The correct number of wells can be separated off for each experiment, saving time and costs.

The Tear-A-Way™ PCR plate is available perforated either in the vertical direction, tearing into 8 well strips, or in the horizontal direction, tearing into 12 well strips. Both Tear-A-Way™ versions maintain all the benefits of our standard non-skirted PCR plate, but with increased flexibility.

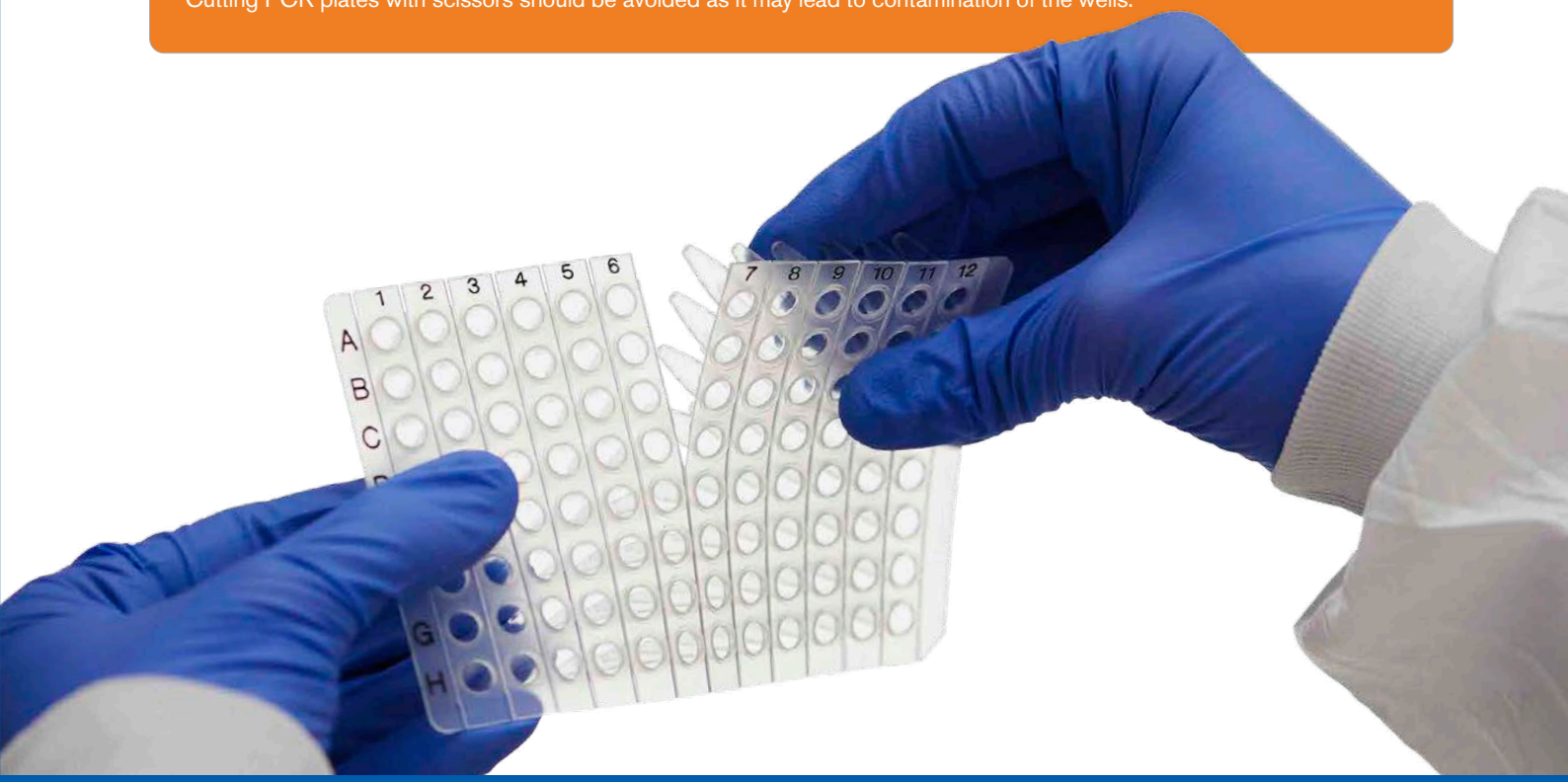
- Allows for the most flexible and efficient use of a PCR plate

  No need to run half-empty plates, so reducing costs
- Plate is perforated to enable accurate tearing into either 8 well or 12 well strips -

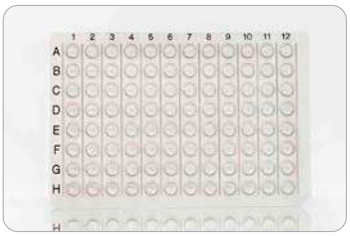
  No tricky cutting of plates with scissors risking perforating wells, damaging sealing rings and contamination
- Black grid reference on all strips — No sample identification errors
- Non-skirted plates — Universal cycler and sequencer compatibility
- 8 well version is easily divided into 24 and 48 well plates to fit a 24 or 48 well thermal cycler block
- 12 well version perfectly suited for gradient cyclers
- White version available for superior qPCR performance

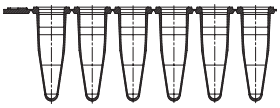
How trustworthy are your scissors?

Scissors are widely used by everyone in the lab and are typically highly contaminated with substances including bacteria and DNA.
Cutting PCR plates with scissors should be avoided as it may lead to contamination of the wells.



Tear-A-Way™ PCR Plate





96 well non-skirted PCR plate, vertically or horizontally perforated, standard profile, 0.2 ml wells, polypropylene, cut corner H12; working volume: <200 µl, total well capacity: 300 µl; tears easily into strips or part plates; universal cycler and sequencer compatibility

- Tear-A-Way™ plates allow for the most flexible, efficient and cost-effective use of a PCR plate
- Avoid the costly use of half-empty plates or the fiddly separation of plates with scissors
- Scissors are widely used by everyone in the lab for cutting diverse materials, so are typically highly contaminated with substances including bacteria and DNA
- Cutting plates with scissors should be avoided as it can perforate wells and damage sealing rings, risking evaporation and sample contamination
- Based on our 96 Well Non-Skirted PCR Plate, Tear-A-Way™ plates can be quickly and easily divided along the perforations between the rows
- The correct number of wells can be separated off for each experiment, saving time and costs
- Available perforated either vertically, tearing into 8-well strips (Tear-A-Way™ 96/8), or horizontally, tearing into 12-well strips (Tear-A-Way™ 96/12)
- The new 12-strip Tear-A-Way™ 96/12 plates allow you to make full use of your gradient PCR instruments
- The temperature gradient is typically created along the horizontal direction of the block, thus 12-well strips or sections are ideal
- All of our PCR plates are moulded from virgin polypropylene under ISO-certified cleanroom conditions in our UK-based production facility, and as such comply with the same stringent requirements as our FrameStar® range
- This plate is perforated under the same cleanroom conditions post-manufacture so it can be separated into part plates or individual strips of tubes
- The Tear-A-Way™ plate maintains all benefits of the 96 Well Non-Skirted PCR Plate, but adds extra flexibility

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/ pyrogen

Frame

- Non-skirted plates: universal cycler and sequencer compatibility
- Alphanumeric grid reference on all strips: no sample identification errors
- Plate is perforated to enable accurate tearing into 8-well or 12-well strips: no tricky cutting of plates with scissors, risking perforated wells, damaging sealing rings, and contamination

Use

- Allows for the most flexible and efficient use of a PCR plate: no need to run half-empty plates, so reducing costs
- Snaps into strips for lower throughput: cost effective

Options

- The Tear-A-Way™ 96/8 8-well version is easily divided into 24 and 48-well plates to fit a 24 or 48-well thermal cycler block
- The Tear-A-Way™ 96/12 12-well version perfectly suited for gradient cyclers
- White version available for superior qPCR performance
- Sealable with 4titude PCR cap strips, adhesive seals and heat seals

Specifications

Parameter	Value
Plate length	120.00 ± 0.25 mm
Plate width	80.00 ± 0.25 mm
Plate height	20.20 ± 0.10 mm
Well depth	20.20 ± 0.10 mm
Well diameter	5.46 ± 0.10 mm
Distance to center of A1 from top edge	8.75 ± 0.25 mm
Distance to center of A1 from left edge	10.75 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code		Details	Quantity
4ti-0750/TA	C	clear, vertically perforated, tears easily into strips of 8 tubes or part plates	50 plates
4ti-0750/W/TA	W	white, vertically perforated, tears easily into strips of 8 tubes or part plates	50 plates
4ti-0750/TA/12	C	clear, horizontally perforated, tears easily into strips of 12 tubes or part plates	50 plates

For recommended plate options depending on manufacturer, block type, and instrument please refer to the 4titude Plate Instrument Compatibility Table Page 73.

Instrument Compatibility Table

Instrument Compatibility Table

			FrameStar® 2-Component PCR Plates							
Skirt			skirted			semi-skirted				
Number of wells			384	384	96	96	96	96	96	96
Standard/Low Profile			/	/	L	L	L	S	S	S
Product code[1]/Short description			4ti-0384 FrameStar® 384	4ti-0380 FrameStar® 384 Roche	4ti-0960 FrameStar® 96	4ti-0950 & 4ti-0954 FrameStar® 96 Roche	4ti-0910 FrameStar® 96 FastPlate	4ti-0730 FrameStar® 96 ABI®	4ti-0770 FrameStar® 96 ABI®	4ti-0900 FrameStar® 96
ABI® / LIFE TECHNOLOGIES / THERMO FISHER SCIENTIFIC										
Thermal Cyclers	96 well standard block	Veriti, Proflex, Simpliamp						✓	Ⓐ	
		GeneAmp® 2700 / 2720 / 9600 / 9700						✓	Ⓐ	
	96 well FAST block	GeneAmp® 9800 FAST, Veriti FAST					Ⓐ			
	384 well block	GeneAmp® 9700, Veriti, Proflex, Multiblock system	Ⓐ							
qPCR Cyclers	96 well standard block	7000, 7300, 7500, 7700, 7900 HT						✓	Ⓐ	
		QuantStudio™ 3 / 5 / 6 / 7 / 12K, ViiA7™						✓	Ⓐ	
	96 well FAST block	StepOne								
		StepOne Plus™					Ⓐ			
		7500 FAST, 7900 HT FAST					Ⓐ			
		QuantStudio™ 3 / 5 / 6 / 7 / 12K, ViiA7™					Ⓐ			
	384 well block	QuantStudio™ 5 / 6 / 7 / 12K, ViiA7™, 7900 HT FAST	Ⓐ							
Sequencers	96 well block	3100, 3130XL, 3500, 3500XL, 3730, 3730XL						Ⓐ	✓	
	384 well block	3100, 3130XL, 3500, 3500XL, 3730, 3730XL	Ⓐ							
AGILENT / STRATAGENE										
Thermal Cyclers	96 well block	Surecycler 8800								
	384 well block	SureCycler 8800	Ⓐ							
	96 well block	Robocycler Gradient			Ⓐ					✓
qPCR Cyclers	96 well block	AriaMx			Ⓐ					
		Mx3000P™, Mx3005P™							Ⓐ	✓
		Mx4000™						✓	Ⓐ	
ANALYTIK JENA / BIOMETRA										
Thermal Cyclers	Strips only	TRIO, Tpersonal, T3 Thermocycler								
	96 well block	Flexcycler2, T1 Thermocycler, Tgradient, Tone, Tadvanced, TProfessional (Standard/Basic) Gradient/XL			Ⓐ				✓	✓
		Trobot 96, SpeedCycler2 (SP, SPR)			Ⓐ				✓	✓
	384 well block	Flexcycler2, T1 Thermocycler, Tadvanced, TProfessional, Trobot 96	Ⓐ							
qPCR Cyclers	96 well block	qTOWER³ / G / touch, Toptical							Ⓐ	✓
	384 well block	qTOWER³ 84 / 84G	Ⓐ							
BIOER TECHNOLOGIES										
Thermal Cyclers	Strips only	GeneQ								
	96 well block	Gene Touch 96							Ⓐ	✓
	384 well block	Gene Touch 384	Ⓐ							
BIO-RAD										
Thermal Cyclers	Strips only	Genecycler								
	96 well block	C1000 Touch, S1000			Ⓐ				✓	✓
		iCycler™, MyCycler™, T100							Ⓐ	✓
	384 well block	C1000 Touch, S1000	Ⓐ							
qPCR Cyclers	96 well block	CFX96 Touch, CFX96 Touch Deep Well, CFX connect			Ⓐ					
		MyiQ™, iCycler™ IQ / IQ 4 / IQ 5							Ⓐ	✓
	384 well block	CFX384 Touch	Ⓐ							
BIO-RAD MJ RESEARCH										
Thermal Cyclers	Strips only	Mini Gradient								
	96 well block	Personal								Ⓐ
		PTC100™ / 200™ / 220™ / 221™ / 225™ / 240™			Ⓐ				✓	✓
	384 well block	PTC200™ / 220™ / 221™ / 225™ / 240™	Ⓐ							

[1] Short product code shown only (without details on frame and well colour), please refer to the corresponding product page for ordering details of all variations available.
[2] For compatibility information of the Vari-Plates™ please refer to the table entry for the respective Vari-Plate™ frame.
Ⓐ Recommended option ✓ Compatible ▪ Should be compatible, please check with your specific instrument/block TA Compatible with separated Tear-A-Way™ Plates, only

FrameStar® PCR Plates, RA Plate, FrameStrips®									Standard PCR Plates and Strips												
non skirted		Break-A-Way		Break-2-Ways		skirted	strips	skirted			semi-skirted			non-skirted	strips					strips	
96	96	96	96	96	96	96	8	384	384	96	96	96	96	96	8	8	8	8	8	4	
S	L	S	L	S	L	L	S	/	/	L	S	L	S	S	S	L	S	L	S	/	
4ti-0710 FrameStar® 96	4ti-0720 FrameStar® 96	4ti-1000 FrameStar® Break-A-Way	4ti-1200 FrameStar® Break-A-Way	4ti-1300 FrameStar® Break-2-Ways	4ti-1400 FrameStar® Break-2-Ways	4ti-0960/RA Random Access 96	4ti-0785 & 4ti-0786 FrameStrip® 8 Well	4ti-1384 384 Well	4ti-1381 384 Well Roche	4ti-0740 96 Well	4ti-0760 96 Well	4ti-0955 96 Well Roche	4ti-0735 96 Well ABI®	4ti-0750 - 96 Well 4ti-0750/TA- dividable	4ti-0781 8 Well	4ti-0753 Vari-Strips™ 8 Well[2]	4ti-0792 8 Well, Attached Flat Caps	4ti-0793 8 Well, Attached Flat Caps	4ti-0794 8 Well, Attached Domed C.	4ti-0796 4 Well Rotor-Gene®	
		✓		✓			✓				✓		✓	✓	✓		✓		✓		
✓		✓		✓			✓				✓		✓	✓	✓		✓		✓		
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		④		✓			✓							TA	✓		✓		✓		
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✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			✓	✓	✓	✓	✓	✓		
								✓													

The individual instrument-plate compatibility information is for guidance only. Samples of all plates are available before purchase to ensure compatibility. Please check installed heat block, refer to instruments manual for details or contact our technical support.

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Instrument Compatibility Table

			FrameStar® 2-Component PCR Plates							
Skirt			skirted			semi-skirted				
Number of wells			384	384	96	96	96	96	96	96
Standard/Low Profile			/	/	L	L	L	S	S	S
Product code[1]/Short description			4ti-0384 FrameStar® 384	4ti-0380 FrameStar® 384 Roche	4ti-0960 FrameStar® 96	4ti-0950, 4ti-0954 FrameStar® 96 Roche	4ti-0910 FrameStar® 96 FastPlate	4ti-0730 FrameStar® 96 ABI®	4ti-0770 FrameStar® 96 ABI®	4ti-0900 FrameStar® 96
BIO-RAD MJ RESEARCH *continued*										
qPCR Cyclers	Strips only	MiniOpticon								
	96 well block	Chromo4™			✓				✓	✓
		Opticon2™			✓					
CORBETT RESEARCH										
Thermal Cyclers	96 well block	(Qiagen) Palm Cycler							✓	✓
	384 well block	(Qiagen) Palm Cycler 384	✓							
qPCR Cycl.	Strips only	Rotor-Gene series								
EPPENDORF										
Thermal Cyclers	96 well block	MasterCycler® ep / ep gradient / Pro / Pro S / nexus / nexus gradient / nexus SX1 / nexus GSX1			✓				✓	✓
		MasterCycler® nexus X2 / GX2 / GX2e / X2e								
	384 well block	MasterCycler® ep 384 / Pro 384	✓							
qPCR Cycl.	96 well block	Mastercycler™ ep realplex			✓				✓	✓
GE HEALTHCARE / AMERSHAM										
Sequencers	96 well block	MegaBACE™ 500, MegaBACE™ 1000 mark 2			✓					
	384 well block	MegaBACE™ 4000	✓							
PEQLAB / VWR										
Thermal Cyclers	Strips only	peqSTAR XS, peqSTAR 2X								
	96 well block	peqSTAR 96X			✓				✓	✓
	384 well block	peqSTAR 384X	✓							
ROCHE										
qPCR Cyclers	96 well block	LC96, LC480				✓				
	384 well block	LC480		✓						
	Strips only	Nano								
SENSOQUEST										
Thermal Cyclers	96 well block	Labcycler			✓		✓	✓	✓	✓
	384 well block	Labcycler	✓							
TAKARA										
Thermal Cycl.	96 well block	Dice touch, Gradient							✓	✓
TECHNE										
Thermal Cyclers	Strips only	3Prime, 3PrimeG, 3PrimeX								
	96 well block	Prime, PrimeG, Prime Elite, Prime Elite Satellite							✓	✓
		PCRmax Alpha cycler 1 / 2 / 4							✓	✓
		TC412, TC512, Genius, Genius Quad, Touchgene, Touchgene Gradient, Flexigene			✓				✓	✓
	384 well block	Prime, PrimeG, Prime Elite, Prime Elite Satellite	✓							
		PCRmax Alpha cycler 1 / 2 / 4	✓							
		TC412, TC512, Genius, Genius Quad, Flexigene	✓							
qPCR Cycl.	96 well block	Quantica			✓					

[1] Short product code shown only (without details on frame and well colour), please refer to the corresponding product page for ordering details of all variations available.
[2] For compatibility information of the Vari-Plates™ please refer to the table entry for the respective Vari-Plate™ frame.

✓ Recommended option ✓ Compatible ▪ Should be compatible, please check with your specific instrument/block TA Compatible with separated Tear-A-Way™ Plates, only.

	FrameStar® PCR Plates, RA Plate, FrameStrips®								Standard PCR Plates and Strips												
	non skirted		Break-A-Way		Break-2-Ways		skirted	strips	skirted			semi-skirted			non-skirted	strips					strips
	96	96	96	96	96	96	96	8	384	384	96	96	96	96	96	8	8	8	8	8	4
	S	L	S	L	S	L	L	S	/	/	L	S	L	S	S	S	L	S	L	S	/
	4ti-0710 FrameStar® 96	4ti-0720 FrameStar® 96	4ti-1000 FrameStar® Break-A-Way	4ti-1200 FrameStar® Break-A-Way	4ti-1300 FrameStar® Break-2-Ways	4ti-1400 FrameStar® Break-2-Ways	4ti-0960/RA Random Access 96	4ti-0785 & 4ti-0786 FrameStrip® 8 Well	4ti-1384 384 Well	4ti-1381 384 Well Roche	4ti-0740 96 Well	4ti-0760 96 Well	4ti-0955 96 Well Roche	4ti-0735 96 Well ABI®	4ti-0750 - 96 Well 4ti-0750/TA- dividable	4ti-0781 8 Well	4ti-0753 Vari-Strips™ 8 Well[2]	4ti-0792 8 Well, Attached Flat Caps	4ti-0793 8 Well, Attached Flat Caps	4ti-0794 8 Well, Attached Domed C.	4ti-0796 4 Well Rotor-Gene®
				✓		✓											④		✓		
	✓	✓	✓		✓		✓	✓			✓	✓			✓	✓	✓	✓	✓		
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	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			✓	✓	✓	✓	✓		
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			④		✓			✓							TA	✓		✓		✓	
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The individual instrument-plate compatibility information is for guidance only. Samples of all plates are available before purchase to ensure compatibility. Please check installed heat block, refer to instruments manual for details or contact our technical support.

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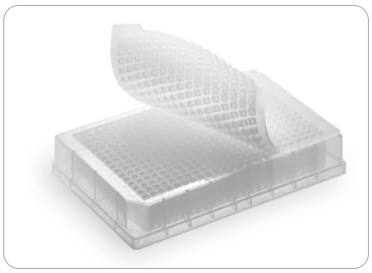
Storage Microplates

384 Square Deep Well Storage Microplate



190 µl square wells, V shaped bases, clear polypropylene

- This plate is designed for high density sample collection and storage, for a wide array of applications within cell biology, molecular biology and drug discovery
- The V shaped wells allow for complete sample retention with pipettes, and are ultra-flat for a completely uniform seal, either with adhesive or heat seals, or with our accompanying silicone sealing mat (4ti-0139)
- Our plates are manufactured in cleanroom facilities which are certified free of RNase, DNase, human genomic DNA and endotoxins
- We use only the highest medical grade virgin polypropylene with high resistance against chemicals such as DMSO, phenol, and chloroform

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO
- Autoclavable
- Free from DNase, RNase, human genomic DNA, and endotoxin

Wells

- Square wells, to make the best use of space, and to improve mixing
- Conical V-bottoms

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Clear plate, perfect for storage applications
- Temperature range for use: -80°C to 120°C
- Best for precipitation, centrifugation and small volume recovery due to the conical V bottom, as the liquid gathers at the lowest point of the V for easy pipetting
- Stackable
- Suitable for adhesive and heat sealing

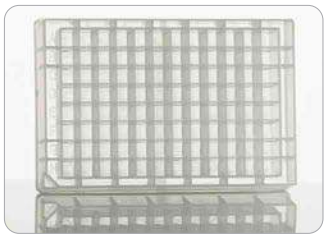
Options

- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request
- A clear silicone sealing mat (4ti-0139) is also available to fit this product, with 384 sections to correspond with the wells of this plate

Ordering Information

Code	Details	Quantity
4ti-0147	clear plates	100 plates
Related Products		
4ti-0139	silicone sealing cap mat	50 mats

96 Square Deep Well Storage Microplate



1.2 ml and 2.2 ml square wells, U and V shaped bottom, clear polypropylene

- These storage plates are designed for high density sample collection and storage for a wide array of applications within cell biology, molecular biology and drug discovery
- They come in three formats: 1.2 ml volume U shaped well plates (4ti-0126), 2.2 ml volume V shaped (4ti-0132), and 2.2 ml volume U shaped (4ti-0136) plates
- All of these plates are ultra-flat for a completely uniform seal, either with adhesive or heat seals, or with our accompanying silicone sealing mat (4ti-0137)
- These plates are manufactured in cleanroom facilities which are certified free of RNase, DNase, human genomic DNA and endotoxins
- We use only the highest medical grade virgin polypropylene with high resistance against chemicals such as DMSO, phenol, and chloroform

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO
- Autoclavable
- Free from RNase, DNase, human genomic DNA and endotoxins

Wells

- Conical V-bottoms (4ti-0132) and U-shaped bottoms (4ti-0126 and 4ti-0136)
- Square wells, to make the best use of space, and to improve mixing

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Clear plate, perfect for storage applications
- Temperature range for use: -80°C to 120°C
- Best for precipitation, centrifugation and small volume recovery due to the conical V bottom, as the liquid gathers at the lowest point of the V for easy pipetting
- U-shaped bottom plates are best for washing, mixing and pelleting and give high surface area
- Stackable
- Suitable for adhesive and heat sealing

Options

- Available with a U-shaped bottom in 1.2 ml and 2.2 ml
- Also available with a V-shaped bottom in 2.2 ml
- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request
- A clear silicone sealing mat (4ti-0137) is also available to fit these plates

Ordering Information

Code	Details	Quantity
4ti-0126	1.2 ml wells, U shaped bases	10 x 10 plates
4ti-0132	2.2 ml wells, V shaped bases	10 x 5 plates
4ti-0136	2.2 ml wells, U shaped bases	5 x 10 plates
Related Products		
4ti-0137	Silicone Sealing Cap Mat	50 mats

96 Round Deep Well Storage Microplate

1.2 ml or 2.0 ml round wells, U-shaped bottom, clear polypropylene

- These 96 deep well storage microplates are suitable for many manual and automated protocols, such as the Illumina® library and sample preparations, due to the plates' SBS footprint
- Additionally, they are suitable for use on magnetic plates for bead separation protocols
- Our round deep well storage microplates are available in two types of well volumes: 1.2 ml wells (4ti-0120) and 2.0 ml wells (4ti-0130)
- Both of these plates are ultra-flat for a completely uniform seal, either with our adhesive or heat seals, or with our accompanying silicone sealing mats (4ti-0135 mat for the 1.2 ml plate ; 4ti-0138 mat for the 2.0 ml plate)
- Our plates are manufactured in cleanroom facilities which are certified free of RNase, DNase, human genomic DNA and endotoxins
- We use only the highest medical grade virgin polypropylene with high resistance against chemicals such as DMSO, phenol, and chloroform

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO
- Autoclavable
- Free from RNase, DNase, human genomic DNA and endotoxins

Wells

- Round wells, suitable for most applications as they reduce droplet effects and wicking
- U-shaped bottoms

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Clear plate, perfect for storage applications
- Suitable as a collection plate from filter systems
- Temperature range for use: -80°C to 120°C
- U-shaped bottom plates are best for washing, mixing and pelleting and give high surface area
- Stackable
- Suitable for adhesive and heat sealing

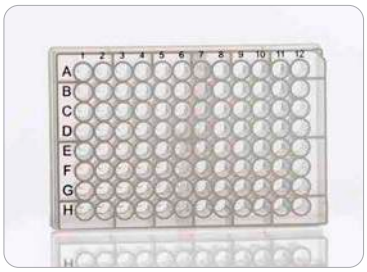
Options

- Available with 1.2 ml and 2.0 ml wells
- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request
- 2 clear silicone sealing mats (4ti-0135 and 4ti-0138) are also available to fit these plates

Ordering Information

Code	Details	Quantity
4ti-0120	1.2 ml wells	50 plates
4ti-0130	2.0 ml wells	50 plates
Related Products		
4ti-0135	Silicone Sealing Cap Mat, white	100 mats
4ti-0138	Silicone Sealing Cap Mat, clear	50 mats

96 Round Deep Well Storage Microplate, For Magnetic Separators



1 ml round wells, V-shaped bottom, clear polypropylene

- These 96 deep well storage microplates are especially designed for use with magnetic separators for bead separation protocols
- Due to the special shape of the stacking ribs, the plate sits much lower on the magnetic separator than standard round well plates thus facilitating the speed and efficiency of the separation process
- The plates are ultra-flat for a completely uniform seal; sealing possible with either adhesive or heat seals

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO
- Autoclavable
- Free from RNase, DNase, human genomic DNA and endotoxins

Wells

- Round wells: suitable for most applications, as they reduce droplet effects and wicking
- V-shaped bottom

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Perfect fit to magnetic separators: the magnetic beads separate perfectly into e.g. a ring (if a ring magnet is used) allowing easy removal of supernatant from the center of the well by manual or automated pipetting
- Replaces the 96-well storage plates, round well, 0.8 ml (MIDI plate, Fisher Scientific® part number AB-0859), in e.g. Illumina® protocols
- Best for small volume recovery due to the V-shaped bottom, as the liquid gathers at the lowest point of the V for easy pipetting
- Compatible with plate readers and ideal for use with automation
- Temperature range for use: -80°C to 120°C

Options

- Ultra-low DNA binding option available (4ti-LB0125) for sensitive applications with ultra-low DNA input and for maximum DNA recovery after low temperature storage and high temperature incubation
- Available barcoded upon request
- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Silicone sealing cap mat (4ti-0124) available separately: efficiently prevents cross contamination and sample evaporation to ensure a high degree of sample security

Ordering Information

Code	Details	Quantity
4ti-0125	Clear plates	50 plates
4ti-LB0125	Clear, low binding plates	50 plates
Related Products		
4ti-0124	Silicone Sealing Cap Mat	50 mats

96 Round Well Storage Microplate

200 µl, 300 µl, 330 µl or 350 µl round wells, U or V shaped bottom, clear polypropylene; also available as a low binding plate with ultra-low DNA binding properties

- These shallow 96 well storage microplates are particularly suitable for collection and preservation of samples widely used in cell biology research, molecular biology research, and drug discovery
- Four formats of this plate are available: a U-bottom plate with 300 µl or 330 µl well volumes (4ti-0110 and 4ti-0116 respectively), and a V-bottom plate with 200 µl or 330 µl well volume (4ti-LB0109 and 4ti-0117 respectively)
- Also available as a low binding plate with ultra-low DNA binding properties (4ti-LB0109) for sensitive applications such as Next Generation Sequencing sample preparation
- All of these plates are ultra-flat for a completely uniform seal, either with adhesive or heat seals, or with our accompanying silicone sealing mat (4ti-0138)
- These plates are manufactured in cleanroom facilities which are certified free of RNase, DNase, human genomic DNA and endotoxins
- We use only the highest medical grade virgin polypropylene with high resistance against chemicals such as DMSO, phenol, and chloroform

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO
- Autoclavable
- Free from RNase, DNase, human genomic DNA and endotoxins
- Low binding option made of selected low bind polymers, no coating is used to achieve the binding characteristics; they feature stacking ribs under the deck for improved stability, strengthening the plate for use in robotic automation applications

Wells

- Conical V-bottoms (4ti-LB0109 and 4ti-0117) and U-shaped bottoms (4ti-0110 and 4ti-0116)
- Round wells, suitable for most applications as they reduce droplet effects and wicking

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Clear plate, perfect for storage applications
- Suitable as a collection plate from filter systems
- Temperature range for use: -80°C to 120°C
- Best for precipitation, centrifugation and small volume recovery due to the V-shaped bottom, as the liquid gathers at the lowest point of the V for easy pipetting
- U-shaped bottom plates are best for washing, mixing and pelleting and give high surface area
- Stackable
- Suitable for adhesive and heat sealing

Options

- Available with a U-shaped bottom in 300 µl and 330 µl, and with V-shaped bottom in 200 µl and 330 µl
- Ultra-low DNA binding option available (4ti-LB0109) for sensitive applications with ultra-low DNA input and for maximum DNA recovery after low temperature storage and high temperature incubation; learn more about our low binding range (not suitable for use on PCR blocks)
- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request
- A clear silicone sealing mat (4ti-0138) is also available to fit these plates

Ordering Information

Code	Details	Quantity
4ti-LB0109	200 µl wells, V shaped bases, low binding	50 plates
4ti-0110	300 µl wells, U shaped bases	100 plates
4ti-0116	350 µl wells, U shaped bases	10 x 10 plates
4ti-0117	330 µl wells, V shaped bases	10 x 10 plates
Related Products		
4ti-0138	Silicone Sealing Cap Mat	50 mats

Reservoir Plate

Pyramid channel bottom, clear polypropylene

- Our Reservoir Plates are perfect for storing volumes of samples to be pipetted into other microplates for further applications
- Both plate formats - open format and 12 column format - are compatible with standard 12 and 96 well channel pipettes, and are suitable for automated systems, for instance the PerkinElmer® Sciclone® NGS Workstation
- These plates are manufactured in cleanroom facilities which are certified free of RNase, DNase, human genomic DNA and endotoxins
- We use only the highest medical grade virgin polypropylene with high resistance against chemicals such as DMSO, phenol, and chloroform
- Pyramid channel bases are best for small volume recovery
- The standard SBS footprint ensures its compatibility with automation

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO
- Stackable
- Free from RNase, DNase, human genomic DNA and endotoxins

Channels

- Pyramid channel bottom, perfect for maximum sample retrieval; both the open format plate (4ti-0133) and the 12 channel plate (4ti-0131) have pyramid bases
- Rectangular channels (4ti-0131), to ensure the best use of space and allow the use of multichannel pipettes

Frame

- SBS footprint

Use

- Perfect for maximum sample retrieval; even the smallest volume can be retrieved as it gathers in the base of the pyramid, and can be easily taken in by a pipette
- Compatible with plate readers and ideal for use with automation
- Suitable as a collection plate from filter systems
- Temperature range for use -80°C to 120°C

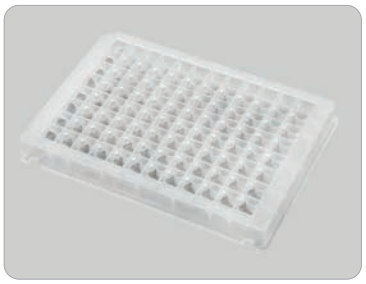
Options

- Available barcoded upon request
- Non-sterile as standard, sterilization available upon request; contact us for details and pricing

Ordering Information

Code	Details	Quantity
4ti-0131	21 ml channels	5 x 5 plates
4ti-0133	290 ml open format	5 x 5 plates

New Product! 96 Square Well Microplate, KingFisher™ Style



200 µl square wells, V-shaped bottom, clear polypropylene.

- Suitable for use with KingFisher Flex, Apex and Presto
- Ultra-flat deck and standard SBS footprint ensures its compatibility with automation

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO

Wells

- Conical V-bottoms
- Square wells, to make the best use of space, and to improve mixing

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Stackable
- Compatible with KingFisher system

Options

- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request

Ordering Information

Code	Details	Quantity
4ti-0151	200 µl wells, V shaped bases	50 plates

New Product! 96 Square Deep Well Microplate, KingFisher™ Style

2.0 ml square wells, V-shaped bottom, clear polypropylene.

- Suitable for use with KingFisher Duo Prime, Flex, Apex and Presto
- Designed for use with magnetic bead separators
- Ultra-flat deck and standard SBS footprint ensures its compatibility with automation

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO

Wells

- Conical V-bottoms
- Square wells, to make the best use of space, and to improve mixing

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Stackable
- Compatible with KingFisher system

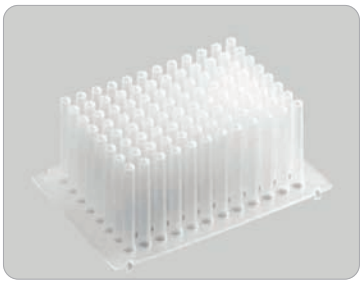
Options

- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request

Ordering Information

Code	Details	Quantity
4ti-0150	2.0 ml wells, V shaped bases	50 plates

New Product! 96 Tip Comb for Deep Well Magnets, KingFisher™ Style



Clear polypropylene.

- Suitable for use with KingFisher Flex, Apex and Presto

Key Features

- Made from polypropylene, a material with very low biomolecular binding characteristics, a high temperature tolerance and resistance to many standard laboratory chemicals, including DMSO

Use

- Suitable for use with 96 deep well magnets
- Compatible with KingFisher system

Options

- Non-sterile as standard, sterilization available upon request; contact us for details and pricing
- Available barcoded upon request

Ordering Information

Code	Details	Quantity
4ti-0152	96 format tip comb, clear polypropylene	100 combs

Assay Microplates

Vision Plate™ 384 Well

190 µm clear base imaging microplate, black frame

- Vision Plates™ have been designed for high content screening (HCS) assays in drug development and related areas
- They are also suitable for homogeneous assays, employing fluorescence intensity, FRET and TR-FRET where measurements are bottom-read
- The high-quality optical base plate assures the necessary accuracy and consistency for automated high throughput systems, generating optimum signal-to-noise ratios
- Using state-of-the-art manufacturing technology, we have developed a product which offers several key advantages to the end user
- Vision Plates™ are assembled using unique patented laser welding technology which reduces autofluorescence and does not inhibit cell growth
- Available with 190 µm polystyrene base
- Available TC treated: our advanced tissue-culture (TC) treatment method evenly coats each well for optimal cell adhesion properties for highest reproducibility between wells, plates and batches

Key Features

- Leak free
- Free from DNase, RNase, human genomic DNA, and cyto-toxic

Wells

- Optimum signal-to-noise ratios
- Good cell adhesion
- Wicking and bubble formation eliminated

Frame

- SBS footprint
- Alphanumeric grid reference

Use

- Recommended for confocal microscopy due to reduced cross-talk and superior base flatness
- Reduced autofluorescence ensures their suitability for fluorescent assays
- Suitable for assays that measure absorbance in the visible light range (400-900 nm wavelengths)
- Suitable for colorimetric assays
- Suitable for homogeneous assays
- Suitable for use in BMG lab tech, Molecular Devices, Promega Glomax and other plate readers
- Suitable for adhesive and heat sealing: our Moisture Barrier Seal 384 (4ti-0516/384) is recommended as it is optically clear and allows repeated imaging without removal, reducing contamination risks

Options

- Available with 190 µm polystyrene base
- All plates come sterilized, apart from 4ti-0204
- TC treated option available (4ti-0201)
- Collagen 1 treated option available (4ti-0205)
- Poly D-Lysine treated option available (4ti-0206)
- Available barcoded upon request

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	14.35 ± 0.25 mm
Well depth	11.35 ± 0.25 mm
Well diameter	3.70 ± 0.10 mm
Distance to center of A1 from top edge	8.99 ± 0.25 mm
Distance to center of A1 from left edge	12.13 ± 0.25 mm
Pitch (distance between A1 and A2)	4.50 mm

Ordering Information

Code	Details	Quantity
4ti-0201	sterile, TC treated	24 plates + 24 lids
4ti-0203	sterile	30 plates
4ti-0204	non-sterile, untreated	30 plates
4ti-0205	sterile, Collagen 1 treated	24 plates + 24 lids
4ti-0206	sterile, Poly D-Lysin treated	24 plates + 24 lids
Lids		
4ti-0280	384 Well Microplate Lid	100 lids
4ti-0281	384 Well Microplate Lid, sterile	100 lids

Vision Plate™ 96 Well

190 µm clear base imaging microplate, black frame

- Vision Plates™ have been designed for high content screening (HCS) assays in drug development and related areas
- They are also suitable for homogeneous assays, employing fluorescence intensity, FRET and TR-FRET where measurements are bottom-read
- The high-quality optical base plate assures the necessary accuracy and consistency for automated high throughput systems, generating optimum signal-to-noise ratios
- Vision Plates™ are assembled using unique patented laser welding technology which reduces autofluorescence and does not inhibit cell growth
- Available with 190 µm polystyrene base
- Available TC treated: our advanced tissue-culture (TC) treatment method evenly coats each well for optimal cell adhesion properties for highest reproducibility between wells, plates and batches

Key Features

- Leak free
- Free from DNase, RNase, human genomic DNA, and cyto-toxic

Wells

- Optimum signal-to-noise ratios
- Good cell adhesion
- Wicking and bubble formation eliminated

Frame

- SBS footprint
- Alphanumeric grid reference

Use

- Recommended for confocal microscopy due to reduced cross-talk and superior base flatness
- Reduced autofluorescence ensures their suitability for fluorescent assays
- Suitable for assays that measure absorbance in the visible light range (400-900 nm wavelengths)
- Suitable for colorimetric assays
- Suitable for homogeneous assays
- Suitable for use in BMG lab tech, Molecular Devices, Promega Glomax and other plate readers
- Suitable for adhesive and heat sealing: our Moisture Barrier Seal 96 (4ti-0516/96) is recommended as it is optically clear and allows repeated imaging without removal, reducing contamination risks

Options

- Available with 190 µm polystyrene base
- All plates come sterilized, apart from 4ti-0224
- TC treated option available (4ti-0221)
- Collagen 1 treated option available (4ti-0225)
- Poly D-Lysine treated option available (4ti-0226)
- Available barcoded upon request

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	14.35 ± 0.25 mm
Well depth	10.8 ± 0.25 mm
Well diameter	6.3 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details	Quantity
4ti-0221	sterile, TC treated	24 plates + 24 lids
4ti-0223	sterile	30 plates
4ti-0224	non-sterile, untreated	30 plates
4ti-0225	sterile, Collagen 1 treated	24 plates + 24 lids
4ti-0226	sterile, Poly D-Lysin treated	24 plates + 24 lids
Lids		
4ti-0282	96 Well Microplate	80 lids
4ti-0283	96 Well Microplate Lid, sterile	80 lids

Vision Plate™ 24 Well

190 µm clear base imaging microplate, black frame

- Vision Plates™ have been designed for high content screening (HCS) assays in drug development and related areas
- They are also suitable for homogeneous assays, employing fluorescence intensity, FRET and TR-FRET where measurements are bottom-read
- The high-quality optical base plate assures the necessary accuracy and consistency for automated high throughput systems, generating optimum signal-to-noise ratios
- Using state-of-the-art manufacturing technology, we have developed a product which offers several key advantages to the end user
- Vision Plates™ are assembled using unique patented laser welding technology which reduces autofluorescence and does not inhibit cell growth
- Available with 190 µm polystyrene base
- Available TC treated: our advanced tissue-culture (TC) treatment method evenly coats each well for optimal cell adhesion properties for highest reproducibility between wells, plates and batches

Key Features

- Leak free
- Free from DNase, RNase, human genomic DNA, and cyto-toxic

Wells

- Optimum signal-to-noise ratios
- Good cell adhesion
- Wicking and bubble formation eliminated

Frame

- SBS footprint
- Alphanumeric grid reference

Use

- Recommended for confocal microscopy due to reduced cross-talk and superior base flatness
- Reduced autofluorescence ensures their suitability for fluorescent assays
- Suitable for assays that measure absorbance in the visible light range (400-900 nm wavelengths)
- Suitable for colorimetric assays
- Suitable for homogeneous assays
- Suitable for use in BMG lab tech, Molecular Devices, Promega Glomax and other plate readers
- Suitable for adhesive and heat sealing: our Moisture Barrier Seal 24 (4ti-0516/24) is recommended as it is optically clear and allows repeated imaging without removal, reducing contamination risks

Options

- Available with 190 µm polystyrene base
- All plates come sterilized, apart from 4ti-0244
- TC treated option available (4ti-0241)
- Collagen 1 treated option available (4ti-0245)
- Poly D-Lysine treated option available (4ti-0246)
- Available barcoded upon request

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.00 ± 0.25 mm
Well depth	12.50 ± 0.25 mm
Well diameter	14.50 ± 0.10 mm
Distance to center of A1 from top edge	15.74 ± 0.25 mm
Distance to center of A1 from left edge	18.88 ± 0.25 mm
Pitch (distance between A1 and A2)	18.00 mm

Ordering Information

Code	Details	Quantity
4ti-0241	sterile, TC treated	24 plates + 24 lids
4ti-0243	sterile	30 plates
4ti-0244	non-sterile, untreated	30 plates
4ti-0245	sterile, Collagen 1 treated	24 plates + 24 lids
4ti-0246	sterile, Poly D-Lysin treated	24 plates +24 lids
Lids		
4ti-0284	24 Well Microplate	80 lids
4ti-0286	384 Well Microplate Lid, sterile	80 lids

UltraVision™ Plate 384 Well

Ultra-clear based imaging microplate, black frame

- The main advantage of using UltraVision™ Plates is in the optically ultra-clear base of the plate, which gives superior results by delivering low absorbance and high transmission, together with low background signals
- Not only this, but due to its incredible optical clarity, the ultra-clear base of the UltraVision™ Plate delivers improved transmission of signals at low wavelengths compared to standard optical films (see graph below)
- It allows DNA measurements at 260/280 nm wavelengths in a medium or high throughput

Key Features

- Free from DNase, RNase and human genomic DNA

Base

- Ultra-clear base improves transmission for low wavelengths
- Optimum signal-to-noise ratios
- Peel-back film on the base for scratch free surface

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Suitable for adhesive and heat sealing

Options

- Available barcoded upon request
- Low profile lid available (4ti-0280)

Ordering Information

Code	Details	Quantity
4ti-0214	non-sterile	30 plates
Lids		
4ti-0280	384 Well Microplate Lid	100 lids

UltraVision™ Plate 96 Well

Ultra-clear based imaging microplate

- The main advantage of using UltraVision™ Plates is in the optically ultra-clear base of the plate, which gives superior results by delivering low absorbance and high transmission, together with low background signals
- Not only this, but due to its incredible optical clarity, the ultra-clear base of the UltraVision™ Plate delivers improved transmission of signals at low wavelengths compared to standard optical films (see graph below)
- It allows DNA measurements at 260/280 nm wavelengths in a medium or high throughput

Key Features

- Free from RNase, DNase and human genomic DNA

Base

- Ultra-clear base improves transmission for low wavelengths
- Optimum signal-to-noise ratios

Frame

- Alphanumeric grid reference to aid well and sample identification

Use

- Suitable for adhesive and heat sealing

Options

- Available barcoded upon request
- Lid available (4ti-0290)

Ordering Information

Code	Details	Quantity
4ti-0234	non-sterile, clear	30 plates
Lids		
4ti-0290	Universal Microplate Lid	50 lids

24 Well Assay Plate

1.88 ml round wells, flat base, polystyrene, cut corner A1

- The 4titude 24 well polystyrene assay plates have flat bottom wells and have been designed for fluorescence applications
- The plates give optimum results for most top-reading instruments and conform to standard SBS footprint
- Black plates have a low background fluorescence and minimize light scattering
- This high quality plate assures the necessary accuracy and consistency for automated high throughput systems

Key Features

- Made from polystyrene, a hard material with optical clarity
- Non-sterile as standard
- Leak-free
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Flat bottom wells, designed for optical imaging and cell culture application
- Round wells, for reduced droplet effects and wicking

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Best used for cell culture, fluorescence, luminescence, imaging and light assays, ELISA, and homogeneous assays
- Compatible with plate readers and ideal for use with automation

Options

- Available as a black microplate, ideal for low background fluorescence; it minimizes light scattering, suitable for fluorescent and light assays and imaging, recommended for top reading fluorescence instrumentation
- Sterilization available upon request
- Available barcoded upon request
- Our Moisture Barrier Seal 24 (4ti-0516/24) is recommended as sealing option, as it is optically clear and allows repeated imaging without removal, reducing contamination risks
- Lids available

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	15.00± 0.25 mm
Well depth	12.50 ± 0.25 mm
Well diameter	14.50 ± 0.10 mm
Distance to center of A1 from top edge	15.74 ± 0.25 mm
Distance to center of A1 from left edge	18.88 ± 0.25 mm
Pitch (distance between A1 and A2)	18.00 mm

Ordering Information

Code	Details	Quantity
4ti-0262	black	100 plates
Lids		
4ti-0284	24 Well Microplate Lid	80 lids
4ti-0286	24 Well Microplate Lid, sterile	80 lids

96 Well Assay Plate

0.35 ml round wells, flat base, polystyrene, cut corner A1/H1

- The 4titude 96 well black assay plate has been specifically designed for fluorescence and scintillation applications
- It is also suitable for homogeneous assays employing fluorescence intensity, FRET and TR-FRET where measurements are top-read
- This high quality plate assures the necessary accuracy and consistency for automated high throughput systems, generating optimum signal to noise ratios
- The white assay microplates have been designed for luminescence applications, such as Luciferase Reporter Assays
- The white plate maximises signal intensity in cases of low signal from some or all the wells, and it is designed to give optimum results for most top reading instruments, and to conform to standard SBS footprint

Key Features

- Made from polystyrene, a hard material with optical clarity
- Leak-free
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Flat bottom wells, suitable for optical imaging and cell culture application
- Round wells, for reduced droplet effects and wicking

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Best used for cell culture, fluorescence, luminescence, imaging and light assays, ELISA, and homogeneous assays
- Recommended for top reading fluorescence instrumentation
- Compatible with plate readers and ideal for use with automation

Options

- Available as a black plate, for low background fluorescence and minimum light scattering
- Also available as a white microplate, for low background fluorescence and minimization of light scattering; suitable for fluorescent and light assays and imaging, and recommended for top reading fluorescence instrumentation
- Non-sterile as standard; sterilization available upon request
- Available barcoded upon request
- Our Moisture Barrier Seal 96 (4ti-0516/96) is recommended as sealing option, as it is optically clear and allows repeated imaging without removal, reducing contamination risks
- Lids available

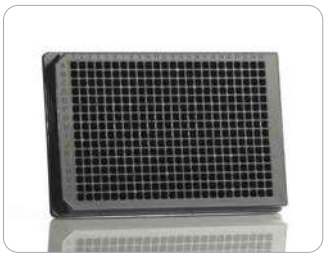
Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	14.35 ± 0.25 mm
Well depth	10.8 ± 0.25 mm
Well diameter	6.3 ± 0.10 mm
Distance to center of A1 from top edge	11.24 ± 0.25 mm
Distance to center of A1 from left edge	14.38 ± 0.25 mm
Pitch (distance between A1 and A2)	9.00 mm

Ordering Information

Code	Details	Quantity
4ti-0263	black	100 plates
4ti-0273	white	100 plates
Lids		
4ti-0282	96 Well Microplate Lid	80 lids
4ti-0283	96 Well Microplate Lid, sterile	80 lids

384 Well Assay Plate



0.12 ml rounded square wells, flat base, polystyrene, cut corner A1/P1

- The 4titude 384 well black assay plate has been specifically designed for fluorescence and scintillation applications
- It is also suitable for homogeneous assays employing fluorescence intensity, FRET and TR-FRET where measurements are top-read
- This high quality plate assures the necessary accuracy and consistency for automated high throughput systems, generating optimum signal to noise ratios
- The 384 well white solid bottom assay microplate has been specifically designed for luminescence applications, such as Luciferase Reporter Assays
- It reduces well-to-well crosstalk, and the solid white color boosts signal in cases of low signal from some or all the wells
- The non-treated clear microplate is ideal for colorimetric assays and sample storage
- The rounded square wells eliminate wicking (capillary action)
- The flat bottom is ideal for optical reading

Key Features

- Made from polystyrene, a hard material with optical clarity
- Leak-free
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Wells

- Flat bottom wells, suitable for optical imaging and cell culture application
- Rounded square wells, to ensure the best use of space

and improve sample mixing, suitable for small volumes

- Wicking and bubble formation eliminated

Frame

- Alphanumeric grid reference to aid well and sample identification
- SBS footprint

Use

- Best used for cell culture, fluorescence, luminescence, imaging and light assays, ELISA, and homogeneous assays
- Recommended for top reading fluorescence instrumentation
- Compatible with plate readers and ideal for use with automation
- Suitable for use in BMG labtech, Molecular Devices, Promega Glomax and other plate readers; for full instrument compatibility please contact us

Options

- Black assay microplate, for low background fluorescence and minimum light scattering
- White microplate, for low background fluorescence and minimization of light scattering; suitable for fluorescent and light assays and imaging, and recommended for top reading fluorescence instrumentation
- The clear microplate offers the best solution for absorption, ELISA, spectophotometric and colorimetric assays, and storage applications
- Non-sterile as standard; sterilization available upon request
- Available barcoded upon request
- Our Moisture Barrier Seal 384 (4ti-0516/384) is recommended as sealing option, as it is optically clear and allows repeated imaging without removal, reducing contamination risks
- Lids available

Specifications

Parameter	Value
Plate length	127.76 ± 0.25 mm
Plate width	85.48 ± 0.25 mm
Plate height	14.35 ± 0.25 mm
Well depth	11.35 ± 0.25 mm
Well diameter	3.70 ± 0.10 mm
Distance to center of A1 from top edge	8.99 ± 0.25 mm
Distance to center of A1 from left edge	12.13 ± 0.25 mm
Pitch (distance between A1 and A2)	4.50 mm

Ordering Information

Code	Details	Quantity
4ti-0254	clear	100 plates
4ti-0264	black	100 plates
4ti-0274	white	100 plates
Lids		
4ti-0280	384 Well Microplate Lid	100 lids
4ti-0281	384 Well Microplate Lid, sterile	100 lids

Heat Sealing Solutions

Heat Sealing Solutions

Sealing Solutions

Integration friendly

4titude® offers the widest range of plate sealing solutions available on the market. You can choose between sealing with strip caps, mats, lids, adhesive seals in strip or plate format, and heat seals in flexible formats up to plate size. The choice of an optimised sealing solution is particularly important for (q)PCR because thermal cycling can be associated with evaporation of reaction reagents.

Heat Sealing & Adhesive Sealing

Dependent on your application requirements we offer a wide selection of materials to choose from within both our adhesive seal and heat seal ranges. You have the option to choose your seal based on a wide variety of properties offered, including peelability, pierceability, gas permeability, optical clarity, temperature stability and solvent resistance.

The best sealing results can be obtained by using flat rigid plates like FrameStar® plates and heat seals, using reliable, high quality sealing instruments for seal application, like the IntelliXseal SA™ Semi-Automated Sheet Heat Sealer or the a4S Automated Roll Heat Sealer.

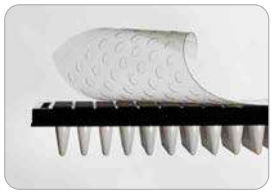
Alternatively, popular adhesive seals need to be applied well using a seal roller or seal applicator.

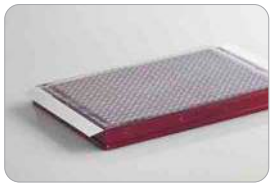
4titude® seals are produced and processed under strictly controlled environmental conditions and according to our ISO standard manufacturing. All of our seals are DNase, RNase, human genomic DNA, dust, endotoxin/pyrogen free. Dimensional and functional tests are performed on all production lots. If your seal of choice is not offered sterile as a stock product, then please contact us; we can offer custom sterilisation of any seals if required.

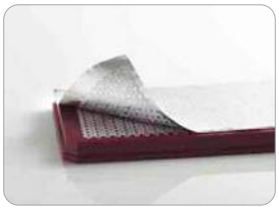
Caps, Lids & Mats

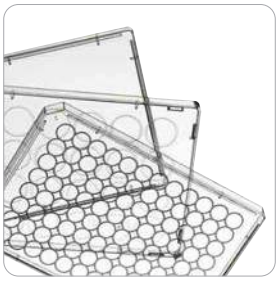
As an alternative to sealing films, 4titude® offers multiple types of cap strips and individual well cap mats for sealing of both plates and tubes - domed and flat, strips of 8, strips of 12, and our new optically superior CrystalStrips™.

A variety of rigid polystyrene lids are available for PCR plates and microplates, as well as silicone sealing mats for our storage plate range. We offer lids that are compatible with our FrameStar® PCR plate range, and all assay plate ranges including the Vision Plate™ range and UltraVision™ Plates. The silicone cap mats are for use with our storage plates, and come in a variety of formats depending on the plate.









Heat Sealing Consumables & Instrumentation

Heat sealing is the gold standard method of plate and tube sealing. It prevents sample loss and maximises sample security, by ensuring a complete seal and preventing evaporation, leakage and contamination.

The sealing performance of heat seals is superior to all other methods including cap, mat and adhesive sealing. The variability of sealing integrity seen when using adhesive seals, caps or mats is reduced. The optimised sealing performance of a heat seal allows the use of smaller reagent volumes, leading to reagent cost savings and thus making heat sealing the most cost efficient sealing method for a wide range of applications.

Heat seals are available as sheets, for manual or semi-automatic heat sealers, as well as in different roll formats for automated sealers. 4titude® sealing consumables are compatible with a wide range of heat sealers, please refer to the Instrument Compatibility Table on Page 73.

Depending on throughput, we recommend our IntelliXseal™ SA Semi-Automatic Sheet Heat Sealer (page 133) or a4S™ Automated Roll Heat Sealer (page 129) for applying your heat seal.

In addition to instruments and consumables we also offer a Thermal Test Film for the optimisation and troubleshooting of heat sealing applications.

Economic efficiency

Investing in heat sealing solutions leads to a per plate reduction of sealing costs for all applications including storage, PCR and qPCR as shown in the table below for (q) PCR. The cost is further reduced by changing to the use of rolls seals rather than sheet seals.

Benefit of Heat Sealing	Why this is important
Enables a tight seal around each sample through melding of seal with sealing rings	Maintains sample integrity and minimizes evaporation
Achieves a consistent seal across the plate through unrivalled optimised sealing performance of 4titude heat sealers	Provides the ability to use the whole plate; Eliminates any potential for variation between wells as a result of evaporation
Fast and convenient application through touch of a button	Ability to seal a number of plates quickly and efficiently
No sample contamination through sealing materials, as seal surface is identical to well material	Sample contamination may affect the sample and resulting experiment

Save your time

The application of heat seals is also easier and faster than when using caps or adhesive seals. Typical sealing times of a semi-automatic heat sealer, such as the 4titude® IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer, are around 2.5 seconds. A fully automatic roll heat sealer, such as the 4titude® a4S Automatic Roll Heat Sealer, allows for sealing cycle times of less than 15 seconds.

Set your standard

Reproducible sealing quality can be guaranteed by standardising the sealing parameters: time, temperature and pressure. 4titude® offers the widest choice of heat seal materials available, with sheet formats for manual or semi-automatic heat sealers and roll formats for automated heat sealers.

Choose your application

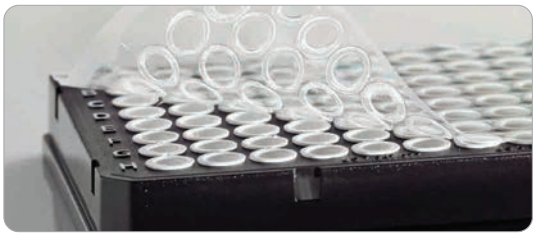
Depending on the material of the plate (PP, PE, PS, COC, PC), the presence of solvents like DMSO in your sample and the storage or application temperatures required, we can offer a wide range of seals covering 100% DMSO storage and sealing integrity temperatures between -200°C to +120°C.

Custom sealing materials or sizes can be produced, please contact us at 4ti-info@brooks.com.

Highest quality standards

Our seals are produced according to our ISO standard manufacturing. All of our seals are DNase, RNase, human genomic DNA, dust, endotoxin and pyrogen free. If your seal of choice is not offered sterile as a stock product then please contact us as we can offer custom sterilisation of any seals if required.

Clear Heat Seal



*110°C with pressurised heated lid

Peelable heat sealing film, optically clear; suitable for qPCR and optical applications

- Heat sealing offers a 100% effective method for plate sealing for a complete seal integrity, as well as being quick and cost effective
- Our Clear Heat Seal is an optically clear laminate film forming a peelable seal to polypropylene, polyethylene, polystyrene, polycarbonate and cyclic olefin copolymer (COC) plate
- Samples can also be accessed by pre-piercing with a blade, needle or our Pierce Plate (4ti-0398)
- The optical clarity of this seal enables its use for sealing plates required for imaging use, including fluorescent detection methods such as qPCR and colorimetric assays
- The Clear Heat Seal forms a complete seal to a plate enabling both low temperature uses, including low temperature storage, and high temperature uses, such as PCR (when used with a pressurized heated lid)
- This seal demonstrates moderate solvent resistance and can be utilized for short term compound storage at room temperature
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer
- Our sheet seals are inter-leaved with paper sheets to help denote which side is the sealing side and aid removal of one sheet at a time from the pack
- For applications requiring high tensile strength (e.g. bead mill applications) please see our Clear Heat Seal Plus

Key Features

- Peelable
- Seal integrity range: -80°C to 80 °C (to 110°C with a pressurized heated PCR lid)
- Optically clear
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Applications: imaging, fluorescent detection, and colorimetric assays
- Suitable for PCR and qPCR
- Seals polypropylene, polyethylene, polystyrene, polycarbonate and cyclic olefin copolymer (COC) plates

Options

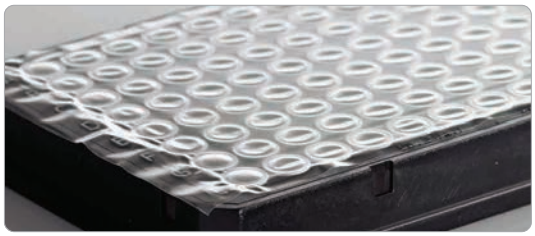
- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilization available upon request
- Also available with our FrameSeal™ technology, a disposable, rigid, plastic frame perfect for use with a robotic gripper to be used within an automation cell

Ordering Information

Code	Details	Quantity
4ti-0540	roll (500 m x 78 mm, approx. 4,200 seals)[1]	1
4ti-0540/80	roll (80 m x 78 mm, approx. 640 seals)[1]	1
4ti-0540/REMP	roll (500 m x 78 mm, approx. 4,200 seals)[3]	1
4ti-0540S	sample roll (5 m x 78 mm)[1]	1
4ti-0542	roll (350 m x 115 mm, approx. 4,400 seals)[2]	1
4ti-0542/REMP	roll (350 m x 115 mm, approx. 4,400 seals)[4]	1
4ti-0542S	sample roll (5 m x 115 mm)[2]	1
4ti-0541	sheets (125 mm x 78 mm)	100

[1] Compatible with 4titude® a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2] Compatible with Agilent (Velocity 11) PlateLoc® ·
[3] Compatible with REMP Portrait Heat Sealer (PHS) ·
[4] Compatible with REMP Landscape / Stacking Heat Sealers (LHS / SHS)

Clear Weld Heat Seal Mark 2



Optically clear heat sealing film, non-peelable, difficult to pierce; suitable for qPCR, optical applications and storage

- Heat sealing offers a 100% effective method for plate sealing for a complete seal integrity, as well as being quick and cost effective
- Our Clear Weld Heat Seal Mark 2 is an optically clear polymer film forming a permanent seal to polypropylene plates

Seal Integrity Temperature Range -80°C 110°C*

*Once autoclaved, not recommended for PCR

Autoclavable

- The optical clarity of this seal enables its use for sealing plates required for imaging use, including fluorescent detection methods such as qPCR and colorimetric assays
- The Clear Weld Heat Seal Mark 2 forms a complete seal to a plate, enabling both low and very high temperature uses, including low temperature storage and high temperature incubations
- This seal is suitable for PCR/qPCR, even without the use of a pressurised heated lid, and is 100% effective when used in water bath thermal cyclers
- The permanent nature of this 100% effective seal renders it suitable for the storage and disposal of hazardous material
- Clear Weld Heat Seal Mark 2 demonstrates a good solvent resistance and can be utilized for long term compound storage
- Samples can be accessed by pre-piercing with a blade, needle or our Pierce Plate (4ti-0398)
- Available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Permanent seal
- Difficult to pierce
- Non-peelable
- Seal integrity range: -80°C to 110°C
- DMSO and solvent resistant
- Autoclavable (121°C)* Once autoclaved, not recommended for PCR applications
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Applications: suitable for PCR and qPCR, long term storage, and disposal of hazardous materials
- Seals polypropylene plates
- Compatible with water bath thermal cyclers

Options

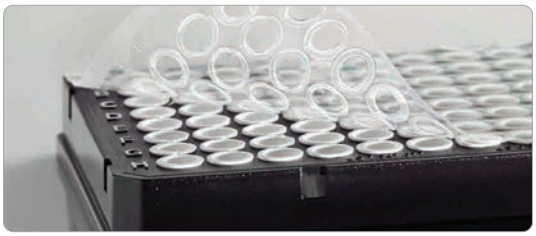
- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request
- Also available with our FrameSeal™ technology, a disposable, rigid, plastic frame perfect for use with a robotic gripper to be used within an automation cell

Ordering Information

Code	Details	Quantity
4ti-0573	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0573/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0573S	sample roll (5 m x 78 mm)[1]	1sample roll
4ti-0574	roll (500 m x 115 mm, approx. 6,250 seals)[2]	1roll
4ti-0574S	sample roll (5 m x 115 mm) [2]	1sample roll
4ti-0575**	sheets 125 mm x 78 mm	100 sheets
4ti-0575/FS	Clear Weld Heat Seal Mark 2 FrameSeal™ stackable frames	50 frames

[1] Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®
**Seals are inter-leaved with paper sheets. This helps to denote which side is the sealing side, plus aids removal of one sheet at a time from the pack

Clear Heat Seal Plus



High tensile strength heat sealing film, optically clear, peelable; suitable for bead mill applications

- Heat sealing offers a 100% effective method for plate sealing for a complete seal integrity, as well as being quick and cost effective
- Our Clear Heat Seal Plus is a clear polymer film forming a peelable seal to polypropylene, polystyrene and cyclic olefin copolymer (COC) plates
- The excellent tensile strength of this seal enables its use for sealing of microplates during homogenisation or disruption of seeds or other material such as bead mill applications
- Clear Heat Seal Plus forms a complete seal to a plate also enabling short term sample storage
- The Clear Heat Seal Plus is thicker than our standard Clear Heat Seal for application requiring high tensile strength, but is not as suitable for optical applications due to decreased transmission through the thicker sealing layers
- For optical applications please refer to our Clear Heat Seal
- Available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Peelable
- Seal integrity range: -80°C to 80°C (110°C with a pressurized heated lid)
- High tensile strength for bead mill applications
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Applications: suitable for bead mill applications and PCR

Options

- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in two roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request

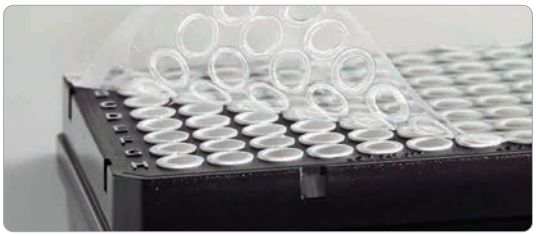
Ordering Information

Code	Details	Quantity
4ti-0549	roll (250 m x 78 mm, approx. 2,100 seals)[1]	1 roll
4ti-0549/S	sample roll (5 m x 78 mm)[1]	1sample roll
4ti-0548	roll (250 m x 115 mm, approx. 3,140 seals)[2]	1 roll
4ti-0548/S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-05481	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with Agilent (Velocity 11) PlateLoc®

[2]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube

Clear Heat Seal 3730



Thin polyester heat sealing film, easily pierceable with autosampler needles/ABI® 3730; suitable for PCR, qPCR and optical applications

- Heat sealing offers a 100% effective method for plate sealing for a complete seal integrity, as well as being quick and cost effective
- Our Clear Heat Seal 3730 is an optically clear polyester backed film, forming a pierceable seal to polypropylene, polyethylene, polystyrene and cyclic olefin copolymer (COC) plates

- The optical clarity of this seal enables its use for sealing plates required for imaging use, including fluorescent detection methods such as qPCR and colorimetric assays
- Its pierceability renders it useful for automation and for use on needle, capillary and tip based liquid handling systems
- Effective on the ABI® 3730 capillary sequencer, removing the need for the use of expensive septa mats
- The Clear Heat Seal 3730 forms a complete seal to a plate enabling moderately low and high temperature uses, including PCR when using a pressurized heated lid thermal cycler
- Demonstrates a moderate solvent resistance and can be utilized for short term compound storage
- This seal is only available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer
- A perforated roll is available, for easy removal of sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer

Key Features

- Permanent seal
- Easily pierceable with autosampler needles/ABI® 3730
- Seal integrity range: -20°C to 80°C (or 110°C when used with pressurized heated PCR lid)
- Moderate solvent resistance
- Optically clear
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene, polyethylene, polystyrene and cyclic olefin copolymer (COC) plates
- Suitable for capillary sequencers and automated liquid handlers, e.g. ABI® 3730
- Suitable for PCR and qPCR, and short term storage

Options

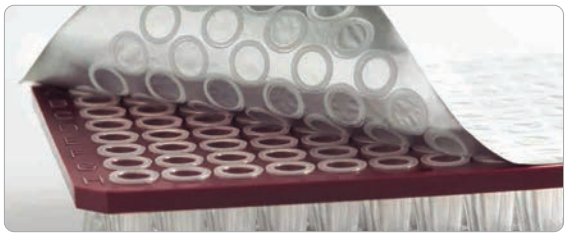
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Sheet format: 125 x 78 mm, available from a roll with 1,000 perforated sheets; seals all SBS plate formats, from 12 well to 1536 well
- Non-sterile as standard; sterilization available upon request

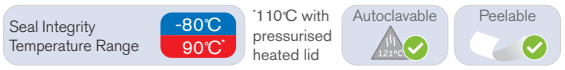
Ordering Information

Code	Details	Quantity
4ti-0580	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0580/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0580S	sample roll (5 m x 78 mm)[1]	1sample roll
4ti-0582	roll (500 m x 115 mm, approx. 6,250 seals)[2]	1roll
4ti-0582S	roll (5 m x 115 mm)[2]	1roll
4ti-0581	sheets (125 mm x 78 mm) on perforated roll	1000 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®

Peel Heat Seal





Peelable heat sealing foil; suitable for low temperature storage, high temperature uses and PCR

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Our Peel Heat Seal is a laminate seal compatible with polypropylene plates
- It can be removed from polypropylene plates by peeling, even with a plate which has been removed directly from -80°C storage
- Peel Heat Seal forms a complete seal to a plate enabling very low temperature uses, including very low temperature storage, and high temperature uses, such as PCR (when used with a pressurised heated lid)
- The seal demonstrates moderate solvent resistance and can be utilised for short term compound storage at room temperature
- The seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Peelable from polypropylene and COC plates
- Seal integrity range: -80°C to 90°C (110°C when used with pressurised heated lid)
- Good solvent resistance including DMSO
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Suitable for short term room temperature storage
- Suitable for very low temperature storage

Options

- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request

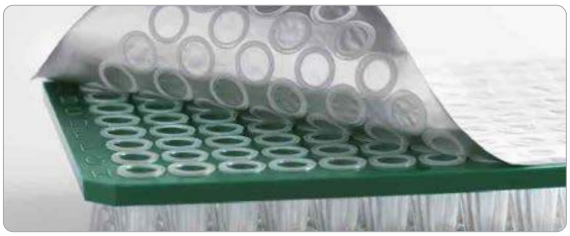
Ordering Information

Code	Details	Quantity
4ti-0520	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0520/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0520S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0522	roll (500 m x 115 mm, approx. 6,250 seals)[2]	1 roll
4ti-0522S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-0521	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube

[2]Compatible with Agilent (Velocity 11) PlateLoc®

Universal Peel Heat Seal



Peelable heat sealing foil with wide material compatibility; suitable for low temperature storage, high temperature uses and PCR

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Our Universal Peel Heat Seal is a laminate seal compatible with PP, PE, PS, COC and PC plates, providing the highest flexibility in plate material choice
- Sample access is possible by peeling from the compatible materials and also by piercing the seal with needles, but not with plastic tips
- It is resealable by applying another Universal Peel Heat Seal directly on top of a previously pierced seal
- Universal Peel Heat Seal forms a complete seal to a plate enabling low temperature uses as well as high temperature uses, such as PCR (when used with a pressurised heated lid)
- The seal demonstrates moderate solvent resistance
- Use of Universal Peel Heat Seal makes roll changes unnecessary even for customers using different microplate materials, because with minor adjustments of sealing parameters all common microplate materials can be sealed to
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Pierceable with needle, but not with standard pipette tips
- Peelable
- Seal integrity temperature range: -80°C to 90°C (110°C when used with a pressurized heated lid)
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Suitable for low temperature sample storage and high temperature uses, such as PCR
- Compatible with PP, PE, PS, COC and PC plates
- Wide material compatibility allows for high throughput sealing of different plates without the need for roll changes
- Resealable by applying another Universal Peel Heat Seal directly on top of a previously pierced seal

Options

- Sheet format: 125 mm x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in two roll dimensions, to suit your choice of automatic heat sealing equipment

Ordering Information

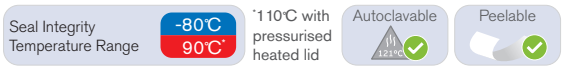
Code	Details	Quantity
4ti-0523	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0523S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0524	roll (500 m x 115 mm, approx. 6,250 seals)[2]	1 roll
4ti-0524S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-05231	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube

[2]Compatible with Agilent (Velocity 11) PlateLoc®

Random Access Peel Heat Seal

Peelable heat sealing foil, 96 individual seals with tabs, or 12 strips each covering 8 wells; suitable for very low temperature storage/ high temperature uses/PCR



- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Our Random Access Peel Heat Seal is a laminate seal compatible with polypropylene plates, featuring 96 individual foil seal spots or 12 strips of individual spots on a removable backing
- These seals result in individually sealed tubes/strips, and they can be removed from polypropylene plates by peeling, even with a plate which has been removed directly from -80°C storage
- Random Access Peel Heat Seal forms a complete seal to a plate enabling very low temperature uses, including very low temperature storage, and high temperature uses, such as PCR (when used with a pressurised heated lid)
- The seal demonstrates moderate solvent resistance and can be utilized for short term compound storage at room temperature
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer (using the 4ti-0613 Random Access adapter)

Key Features

- 96 individual foil seal spots or 12 strips of 8 spots on a removable backing
- 4 pin holes for exact positioning in special adapters of the IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Peelable from polypropylene and COC plates
- Seal integrity range: -80°C to 90°C (110°C when used with pressurized heated lid)
- Good solvent resistance including DMSO
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Suitable for short term room temperature storage
- Suitable for very low temperature storage
- Best used in combination with our Random Access plates and Break-A-Way plates

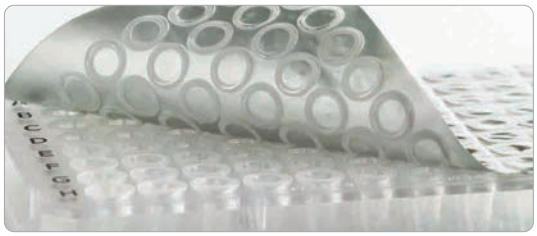
Options

- Available as 96 individual seals with tabs per sheet
- Also available as 12 strips of 8 individual seals per sheet
- Sheet format: 127 x 100 mm
- Non-sterile as standard; sterilization available upon request

Ordering Information

Code	Details	Quantity
4ti-0521/RA-TAB	96 individual seals with tabs, sheets (127 x 100 mm)	100 sheets
4ti-0521/RA-8	12 strips, each covering 8 wells, sheets (127 x 100 mm)	100 sheets

DMSO Resistant Peel Heat Seal



Seal Integrity Temperature Range -80°C 40°C

Peelable

Solvent resistant heat sealing foil, peelable; suitable for low and room temperature compound storage

- Our DMSO Resistant Peel Heat Seal is a foil seal compatible with polypropylene and forming an excellent seal to cyclic olefin copolymer (COC) plates
- The solvent resistance of this seal enables its use for low and room temperature compound storage in Dimethyl Sulfoxide (DMSO) and organic solvents
- 100% DMSO can be stored at room temperature for 12 months without deterioration of the seal
- It forms a weld seal to polyethylene plates and cannot be peeled off
- Access is by piercing using a blade, needle, or a 4titude Pierce Plate (4ti-0398)
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer
- The sheet seals are inter-leaved with paper sheets to help denote which side is the sealing side and to aid removal of one sheet at a time from the pack

Key Features

- Permanent seal to polyethylene
- Peelable seal to polypropylene and COC
- Seal integrity range: -80°C to 40°C
- High solvent resistance, including 100% DMSO
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Suitable for long term storage

Options

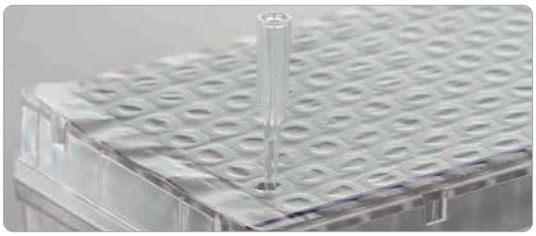
- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0585	roll (500 m x 78 mm, approx. 4,200 seals)[1]	1 roll
4ti-0585/100	roll (100 m x 78 mm, approx. 800 seals)[1]	1 roll
4ti-0585/REMP	roll (500 m x 78 mm, approx. 4,200 seals)[3]	1 roll
4ti-0585S	sample roll 5 m x 78 mm)[1]	1 sample roll
4ti-0586	roll (500 m x 115 mm, approx. 6,200 seals)[2]	1 roll
4ti-0586/REMP	roll (500 m x 115 mm, approx. 6,200 seals)[4]	1 roll
4ti-0586S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-0587	sheets (125 mm x 78 mm) on perforated roll	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®
[3]Compatible with REMP Portrait Heat Sealer (PHS)
[4]Compatible with REMP Landscape / Stacking Heat Sealers (LHS/SHS)

Pierce Heat Seal



Pierceable heat sealing foil, high solvent resistance, resealable, suitable for PCR/storage/shipping

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Pierce Heat Seal is compatible with polypropylene and polystyrene plates
- This seal demonstrates good solvent resistance and can be used for low temperature and room temperature compound storage in DMSO and organic solvents
- Pierce Heat Seal can be pierced with a pipette tip manually, or by a liquid handling robot
- This seal can be resealed by applying another Pierce Seal straight on top of a previously pierced seal
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer
- A blue stripe on the sheet foils clearly indicates the non-sealing surface, for ease of seal orientation and handling
- Pierce Heat Seal sheets are also available with a printed grid reference on the non-sealing surface

Key Features

- Pierceable
- Resealable
- Seal integrity range: -20°C to 120°C
- Good solvent resistance
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene and polystyrene plates
- Suitable for long term storage

Options

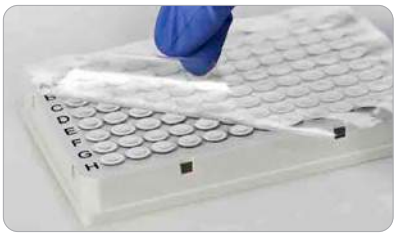
- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Available with printed grid reference (in sheet format, 4ti-0531/GR)
- Non-sterile as standard; sterilisation available upon request
- Custom printing available on request

Ordering Information

Code	Details	Quantity
4ti-0530	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0530/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0530/REMP	roll 610 m x 78 mm, approx. 5,000 seals)[3]	1 roll
4ti-0530S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0532	roll (500 m x 115 mm, approx. 6,200 seals)[2]	1 roll
4ti-0532/REMP	roll (500 m x 115 mm, approx. 6,200 seals)[4]	1 roll
4ti-0532S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-0531	sheets (125 mm x 78 mm)	100 sheets
4ti-0531/GR	sheets *as above*, with printed grid reference	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®
[3]Compatible with REMP Portrait Heat Sealer (PHS)
[4]Compatible with REMP Landscape / Stacking Heat Sealers (LHS/SHS)

Random Access Pierce Heat Seal



Pierceable heat sealing foil, 96 individual seals in sheet format, high solvent resistance, resealable; suitable for PCR/storage/shipping

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Random Access Pierce Heat Seal is compatible with polypropylene and polystyrene plates, featuring 96 individual foil seal spots on a removable backing

- This seal demonstrates good solvent resistance and can be used for low temperature and room temperature compound storage in DMSO and organic solvents
- These seals result in individually sealed tubes, and they can be pierced with a pipette tip manually, or by a liquid handling robot
- Random Access Pierce Heat Seal can be resealed by applying another Random Access Pierce Seal straight on top of a previously pierced seal
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer

Key Features

- 96 individual foil seal spots on a removable backing
- Pierceable
- 4 pin holes for exact positioning in special adapters of the IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Resealable
- Seal integrity range: -20°C to 120°C
- Good solvent resistance
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene and polystyrene plates
- Suitable for long term storage
- Best used in combination with our Random Access plates

Options

- Sheet format: 127 x 100 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0531/RA	sheets (127 x 100 mm)	100 sheets

Pierce Heat Seal Strong

Strong heat sealing foil, peelable from COC plates, pierceable, suitable for PCR, sample shipping, compound storage

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Pierce Heat Seal Strong is compatible with polypropylene and COC plates
- This seal is peelable from COC plates and gives a weld seal to polypropylene plates
- Demonstrating good solvent resistance it can be used for low temperature and room temperature compound storage in DMSO and organic solvents
- The seal can be pierced with a pipette tip manually, or by a liquid handling robot
- Applications include PCR, sample shipping, low and room temperature compound storage with DMSO and other organic solvents
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Pierceable
- Peelable from COC plates
- Seal integrity range: -20°C to 120°C
- Good solvent resistance
- Gives a weld seal to polypropylene plates
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene and COC plates
- Recommended for PCR, sample shipping, low and room temperature compound storage with DMSO and other organic solvents
- Suitable for long term storage

Options

- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in two roll dimensions: 610 m x 78 mm, and 500 m x 115 mm
- Custom printing available upon request
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0538	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0538S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0539	roll (500 m x 115 mm, approx. 6,200 seals)[2]	1 roll
4ti-0539S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-05381	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®

Random Access Pierce Heat Seal Strong

Sheets of 96 foil seal spots for sealing of individual wells, suitable for storage and PCR, pierceable

- Random Access Pierce Heat Seal Strong features 96 individual foil seal spots on a removable backing
- These seals result in individually sealed tubes that are pierceable, allowing for sample addition straight into pre-dispensed reagents, without fiddly removal of the seal
- Random Access Pierce Heat Seal Strong is compatible with polypropylene and COC plates
- This seal is peelable from COC plates and gives a weld seal to polypropylene plates
- Demonstrating good solvent resistance, it can be used for low temperature and room temperature compound storage in DMSO and organic solvents
- The seal can be pierced with a pipette tip manually, or by a liquid handling robot
- Applications include sample shipping, storage and PCR
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer (using the 4ti-0613 Random Access adapter)
- The 96 well Random Access plate can be sealed in one step resulting in individually sealed tubes that are pierceable, allowing for sample access

Key Features

- 96 individual foil seal spots on a removable backing
- 4 pin holes for exact positioning in special adapters of the IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Seals polypropylene (weld seal) and COC (peelable seal) plates
- Pierceable
- Seal integrity range: -20°C to 120°C
- Good solvent resistance
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Recommended for PCR, sample shipping, low and room temperature compound storage with DMSO and other organic solvents
- Best used in combination with our Random Access 96 Well Skirted PCR Plate (4ti-0960/RA)

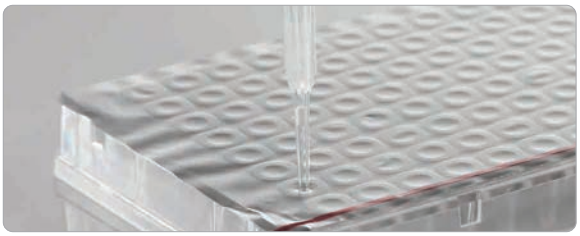
Options

- Sheet format: 127 mm x 100 mm

Ordering Information

Code	Details	Quantity
4ti-05381/RA	sheets (127 mm x 100 mm)	100 sheets
4ti-0539/RA	roll (420 m x 100 mm, approx. 3,200 sealed PCR plates)	1 roll

Foil Heat Seal



Aluminium heat sealing foil, resealable, peelable, pierceable; suitable for compound storage, PCR

- Our Foil Heat Seal is compatible with polypropylene and polystyrene plates
- This seal demonstrates moderate solvent resistance and can be used for low temperature compound storage in DMSO and organic solvents and short term room temperature storage
- The Foil Heat Seal can be pierced with a pipette tip, manually or by liquid handling robots, or it can be removed by peeling
- It can be resealed by applying another Foil Heat Seal directly on top of a previously pierced seal
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer
- A red stripe on the sheet foils clearly indicates the non-sealing surface, for ease of seal orientation and handling

Key Features

- Pierceable
- Peelable
- Resealable
- Seal integrity range: -20°C to 110°C
- Moderate solvent resistance
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene and polystyrene plates
- Suitable for short term storage

Options

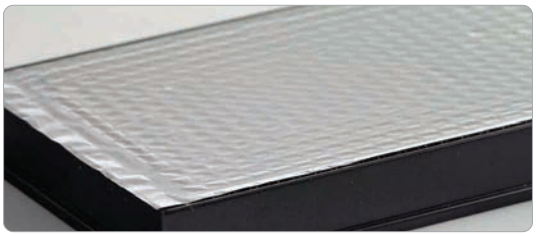
- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0535	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0535/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0535/REMP	roll (610 m x 78 mm, approx. 5,000 seals)[3]	1 roll
4ti-0535S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0537	roll (500 m x 115 mm, approx. 6,200 seals)[2]	1 roll
4ti-0537/REMP	roll (500 m x 115 mm, approx. 6,200 seals)[5]	1 roll
4ti-0537S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-0536	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®
[3]Compatible with REMP Portrait Heat Sealer (PHS)
[4]Compatible with REMP Landscape / Stacking Heat Sealers (LHS/SHS)

Polystyrene Foil Heat Seal



Peelable heat sealing foil, seals to polystyrene plates, resealable, pierceable; suitable for compound storage

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Our Polystyrene Foil Heat Seal produces a stronger seal to polystyrene plates than our standard Foil Heat Seal
- Compatible with polypropylene, polystyrene and polycarbonate plates
- This seal demonstrates moderate solvent resistance and can be used for low temperature compound storage, in DMSO and organic solvents, and short term room temperature storage
- Polystyrene Foil Heat Seal can be pierced with a pipette tip manually, by a liquid handling robot, using the 4titude Pierce Plate (4ti-0398), or it can be removed by peeling. It can be resealed by applying another Polystyrene Foil Heat Seal directly on top of a previously pierced seal
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Pierceable
- Peelable
- Resealable foil on foil
- Seal integrity range: -20°C to 110°C
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene, polystyrene and polycarbonate plates
- Suitable for short term storage
- Suitable for low temperature compound storage

Options

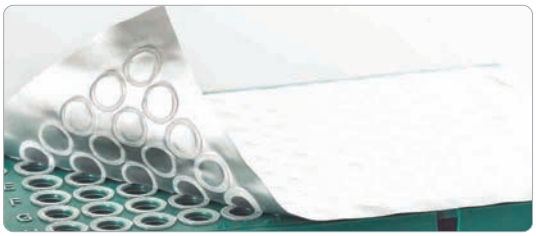
- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0545	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1 roll
4ti-0545/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0545S	sample roll (5 m x 78 mm)	1 sample roll
4ti-0546	roll (500 m x 115 mm, approx. 6,200 seals)[2]	1 roll
4ti-0547	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube
[2]Compatible with Agilent (Velocity 11) PlateLoc®

Thermal Bond Heat Seal



Heavy duty heat sealing foil, peelable; suitable for long term storage, transportation

- Heat sealing offers a 100% effective method of plate sealing, for complete seal integrity, as well as being quick and cost effective
- Our Thermal Bond Heat Seal is a heavy duty laminate foil seal suitable for providing a very strong, but peelable seal
- Compatible with polypropylene plates to provide a high degree of sample protection
- Demonstrates very good solvent resistance and can be used for very low temperature compound storage, in DMSO and organic solvents, and long term room temperature storage such that it is recommended as suitable for sample transportation
- The seal can be pierced only by using a blade or using the 4titude Pierce Plate (4ti-0398)
- The seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Peelable
- Seal integrity range: -200°C to 110°C
- High solvent resistance
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Recommended for PCR, including with water bath thermal cyclers
- Seals polypropylene plates
- Suitable for long term storage and transportation
- Suitable for very low temperature storage

Options

- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Non-sterile as standard; sterilisation available upon request

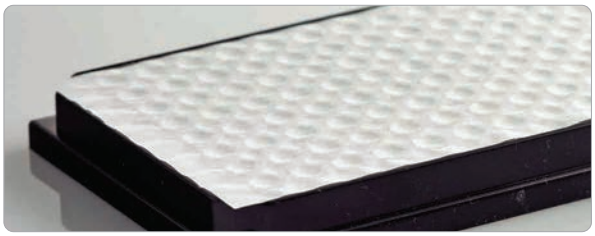
Ordering Information

Code	Details	Quantity
4ti-0590	roll (500 m x 78 mm, approx. 4,200 seals)[1]	1 roll
4ti-0590/100	roll (100 m x 78 mm, approx. 800 seals)[1]	1roll
4ti-0590S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0592	roll (300 m x 115 mm, approx. 3,700 seals)[2]	1 roll
4ti-0592S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-0591	sheets (125 mm x 78 mm)	100 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube

[2] Not compatible with Agilent (Velocity 11) PlateLoc®

Gas Permeable Heat Seal Mark 2



Heat sealing membrane, limits evaporation, peelable, pierceable; suitable for cell culture, seed and insect storage

- Heat sealing offers a 100% effective method for plate sealing for a complete seal integrity, as well as being quick and cost effective
- Our Gas Permeable Heat Seal Mark 2 is made from a woven material and is designed for use in cell culture, due to its porous nature
- The small pore size (<20 µm) of this material enables gas exchange, per 24 hours of >20 g/m², whilst evaporation is reduced to a minimum
- Compatible with polypropylene, polystyrene and cyclic olefin copolymer (COC) plates
- It can be removed by peeling, or it can be pierced with a pipette tip manually, using a liquid handling robot or with our Pierce Plate (4ti-0398)
- Gas Permeable Heat Seal Mark 2 can be utilised for effective overnight incubations, during which it demonstrates significant reductions in evaporation compared to lids
- It can also be used for insect and seed storage as it enables gas exchange, whilst providing an inert surface with no adhesive to interfere with the well contents
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in multiple roll formats compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Peelable
- Pierceable
- Seal integrity range: -20°C to 80°C
- Gas permeability rate: 180 m³/m²/day
- Moisture vapour transmission rate: 20 g/m²/day
- Autoclavable (121°C)
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene, polystyrene and cyclic olefin copolymer (COC) plates
- Suitable for cell culture, overnight incubations, as well as insect and seed storage

Options

- Sheet format: 125 x 78 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: available in a variety of roll dimensions, to suit your choice of automatic heat sealing equipment
- Available sterile from stock: sterile variations have /ST added to the end of their product code

Ordering Information

Code	Details	Quantity
4ti-0598	roll (610 m x 78 mm, approx. 5,000 seals)[1]	1roll
4ti-0598/122	roll (122 m x 78 mm, approx. 1,000 seals)[1]	1 roll
4ti-0598S	sample roll (5 m x 78 mm)[1]	1 sample roll
4ti-0599	roll (500 m x 115 mm, approx. 6,200 seals)[2]	1 roll
4ti-0599S	sample roll (5 m x 115 mm)[2]	1 sample roll
4ti-0597	sheets (125 mm x 78 mm)	100 sheets
4ti-0597/ST	sheets *as above*, sterile	10x10 sheets

[1]Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube

[2]Compatible with Agilent (Velocity 11) PlateLoc®

Gas Permeable Clear Heat Seal

Peelable heat sealing film, optically clear, with 3mm slits for gas transfer; suitable for insect studies, seed storage

- Heat sealing is a quick and cost effective method of plate sealing
- Our Gas Permeable Clear Heat Seal is based on our Clear Heat Seal, with the addition of 3mm slits across the width of the seal
- These slits render the seal gas permeable, whilst retaining evaporation to a minimum, compared to the use of lids
- The Gas Permeable Clear Heat Seal is compatible with polypropylene, polyethylene, polystyrene and cyclic olefin copolymer (COC) plates
- The seal can be removed by peeling, or it can be pierced with a pipette tip manually, using a liquid handling robot or with our Pierce Plate (4ti-0398)
- The Gas Permeable Clear Heat Seal has a wider seal integrity temperature range, from -80°C to 110°C, than our Gas Permeable Heat Seal Mark 2
- It can be used for insect and seed storage, as it enables gas exchange, whilst providing an inert surface with no adhesive to interfere with the well contents
- This seal is available as sheets, for use with manual and semi-automated sealers, such as our IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Also available in roll format compatible with specified automated heat sealers, such as our a4S Automatic Roll Heat Sealer

Key Features

- Peelable
- Seal integrity range: -80°C to 110°C
- 3mm slits for gas transfer
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Seals polypropylene, polyethylene, polystyrene and cyclic olefin copolymer (COC) plates
- Suitable for insect and seed storage

Options

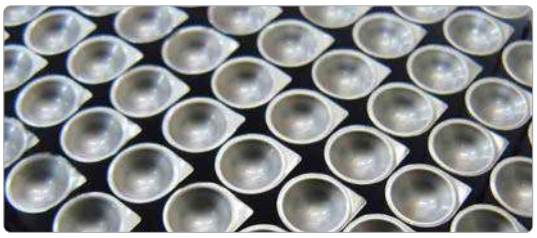
- Sheet format: 125 x 78mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates, from 12 well to 1536 well
- Roll format: 500m x 78mm; approx. 4,200 seals
- Non-sterile as standard; sterilization available upon request

Ordering Information

Code	Details	Quantity
4ti-0540/SLIT	roll (500m x 78mm, approx. 4,200 seals)[1]	1 roll
4ti-0540/SLIT/S	sample roll (5m x 78mm)	1sample roll
4ti-0541/SLIT	sheets (125 x 78mm)	100 sheets

Compatible with 4titude a4S Automatic Roll Heat Sealer / Thermo Fisher ALPS 300™ and ALPS 3000™ / KBiosystems Wasp™ / KBioscience FlexiSeal and Cube

FluidX AirFilm 96



AirFilm was designed for the heat sealing of 96 well microplates or 96 format cluster tubes, preserving sample integrity and audit trail in compound library and other high-throughput applications

- 96 individual sealing spots on a backing liner
- Creates an air-tight seal
- Peelable and pierceable
- “Embossed” seal construction
- Available with or without tabs for easy peeling
- For use with heat sealers
- Heat sealing offers a 100% effective method of microplate and tube sealing, for complete seal integrity, as well as being quick and cost effective
- FluidX AirFilm 96 was designed for the heat sealing of 96 well microplates or 96 format cluster tubes, preserving sample integrity and audit trail in compound library and other high-throughput applications
- This is a foil-based heat seal which consists of 96 individual round seals held on a convenient to handle sealing sheet
- The seal is applied using a manual or semi-automated heat sealer, such as the 4titude IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- After sealing, the microplate frame or the rack can be removed to leave 96 individually sealed wells or tubes
- The individual seals can be removed as required, by hand or using forceps, via the seal removal tab; no polymer residue is left on the well/tube following removal
- The individual seals can also be pierced with a pipette tip manually, using a liquid handling robot

Key Features

- Peelable
- Pierceable
- Seals polypropylene
- 96 individual foil-based seals held on an easy to handle sealing sheet
- Good solvent resistance, including DMSO
- Free from DNase, RNase, and human genomic DNA, endotoxin/pyrogen free

Use

- Air-tight sealing that works as an impenetrable barrier for added sample security
- Compatible with 96 well microplates and 96 format racked tubes
- For use with manual or semi-automated heat sealers, such as the 4titude IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer
- Tabs for easy removal: hold the tube and peel the tab upwards with forceps or fingers
- Engineered to come away cleanly, leaving no residue, for easy resealing
- Suitable for long term storage and sample shipping
- Suitable for high temperature incubations
- Suitable for cryogenic storage*

Options

- Sheet format: individual spots with tabs for easy peeling
- Sheet format: individual spots without tabs

Ordering Information

Code	Details	Quantity
66-1001	with tab for manual peeling	50 sheets
66-1021	without tab	50 sheets

*Not for use in liquid phase nitrogen

Heat Sealing Consumables Comparison & Instrument Compatibility Table

	Clear Heat Seals				Peelable Heat Seals		
Name	Clear Heat Seal	Clear Weld Heat Seal Mark 2	Clear Heat Seal 3730	Clear Heat Seal Plus	Peel Heat Seal	Universal Peel Heat Seal	DMSO Resistant Peel Heat Seal
Specifications							
Application	qPCR Short term compound storage	PCR, esp. water bath cyclers qPCR Storage & disposal of hazardous materials	qPCR and for use with ABI 3730 Sequencer	Homogenisation or disruption of seeds or other material, e.g. bead mill applications	Low temperature compound storage Short term room temperature compound storage (<5 days) PCR	Low temperature compound storage High temperature applications PCR	Low/room temperature compound storage with DMSO & other organic solvents
Special Properties	Good optical clarity Moderate solvent resistance	Good optical clarity Resistance to DMSO	Good optical clarity Some solvent resistance	High tensile strength	Can be peeled directly from -80°C freezer Moderate resistance to solvents at room temperature	Moderate solvent resistance Re-sealable with another Universal Peel Heat Seal	Can be peeled directly from -80°C freezer High resistance to solvents even at elevated temperatures
Seal Integrity Min Temperature	-80°C	-80°C	-20°C	-80°C	-80°C	-80°C	-80°C
Seal Integrity Max Temperature	80°C (or 110°C with pressurised heated PCR lid)	110°C	80°C (or 110°C with pressurised heated PCR lid)	80°C (or 110°C with pressurised heated PCR lid)	90°C (or 110°C with pressurised heated PCR lid)	90°C (or 110°C with pressurised heated PCR lid)	40°C
Pierceable			✓			(✓)	
Peelable	✓			✓	✓	✓	✓
RNase/DNase free	✓	✓	✓	✓	✓	✓	✓
Material	Laminate	Polymer	Polymer	Polymer	Laminate	Laminate	Laminate
Seals to	PP, PE, PS, PC, COC	PP	PP, PE, PS, COC	PP, PS, COC	PP, COC	PP, PE, PS, PC, COC	PP, PE, COC
Sealing parameters with 96 Well PP Plates	175-185°C 2-3 s	175-185°C 2-3 s	165-175°C 3 s	175-185°C 2-3 s	175-185°C 3 s	175°C 2 s	175-185°C 3 s
Sealing parameters with 384 Well PP Plates	165-180°C 3 s	170-175°C 2-3 s	165-175°C 2 s	165-180°C 3 s	170-175°C 2-3 s	175°C 2 s	170-175°C 2-3 s
Sealing parameters with Vision Plates™	185-200°C 3 s	N/A	175-185°C 2-3 s	185-200°C 3 s	N/A	180°C 2 s	N/A
Product Codes/Instrument Compatibility							
Compatible with 4titude® a4S Automatic Roll Heat Sealer | Thermo Fisher ALPS 300™ and ALPS 3000™ | KBiosystems Wasp™ and Chameleon™ | KBioscience FlexiSeal and Cube							
Roll, 78 mm width	4ti-0540	4ti-0573	4ti-0580	4ti-0549	4ti-0520	4ti-0523	4ti-0585
Roll, 78 mm width, short roll*	4ti-0540/80	4ti-0573/122	4ti-0580/122		4ti-0520/122		4ti-0585/100
Sample roll, 78 mm width	4ti-0540S	4ti-0573S	4ti-0580S	4ti-0549/S	4ti-0520S	4ti-0523S	4ti-0585S
Compatible with Agilent (Velocity 11) PlateLoc®							
Roll, 115 mm width	4ti-0542	4ti-0574	4ti-0582	4ti-0548	4ti-0522	4ti-0524	4ti-0586
Sample roll, 115 mm width	4ti-0542S	4ti-0574S	4ti-0582S	4ti-0548/S	4ti-0522S	4ti-0524S	4ti-0586S
Compatible with REMP Portrait Heat Sealer (PHS)							
Roll, 78 mm width, large core	4ti-0540/REMP						4ti-0585/REMP
Compatible with REMP Landscape | Stacking Heat Sealers (LHS / SHS)							
Roll, 115 mm width, large core	4ti-0542/REMP						4ti-0586/REMP
Compatible with 4titude® IntelliXseal™ SA Semi-Automatic Sheet Heat Sealer | Thermo Fisher ALPS™ 25 and ALPS™ 50 | KBiosystems E-Fly 2 | REMP EasySealer							
Sheets	4ti-0541	4ti-0575	4ti-0581	4ti-05481	4ti-0521	4ti-05231	4ti-0587
Compatible with 4titude® IntelliXseal™ SA Semi-Automatic Sheet Heat Sealer							
Random Access, sheets					4ti-0521/RA-TAB 4ti-0521/RA-8		
Compatible with 4titude® IntelliXseal™							
Random Access, roll, 100 mm width					4ti-0522/RA-TAB		

* For use with the 4titude® a4S Automatic Roll Heat Sealer when using lower roll position and the optional dust cover for protection of the roll · ** NOT compatible with Agilent (Velocity 11) PlateLoc®

Pierceable Heat Seals		Foil Heat Seals			Gas Permeable Heat Seals	
Pierce Heat Seal	Pierce Heat Seal Strong	Foil Heat Seal	Polystyrene Foil Heat Seal	Thermal Bond Heat Seal	Gas Permeable Heat Seal Mark 2	Gas Permeable Clear Heat Seal
PCR Compound storage Sample shipping	PCR Compound storage Sample shipping	Low temperature compound storage Short-term room temperature compound storage PCR	Low temperature compound storage Short-term room temperature compound storage PCR	Low temperature transportation & storage PCR, esp. water bath cyclers Storage of organic solvents, acids & alkalines	Cell culture Over night incubation Seed and insect storage	Storage e.g. for seeds or insects
Easily pierceable Resistant to DMSO Re-sealable with another Pierce Heat Seal Colour print identifies non-sealing surface	Easily pierceable Resistant to DMSO Re-sealable with another Pierce Heat Seal Colour print identifies non-sealing surface	Re-sealable with another Foil Seal Resistant to DMSO Colour print identifies non-sealing surface	Re-sealable with another Foil Seal Resistant to DMSO	Very strong seal with PP Resistant to DMSO and other solvents	Small pore size of 20 µm allows gaseous exchange & limits evaporation Gas permeability: 180 m^3/m^2/day Moisture vapour transmission: 20g/m^2/day	3 mm slits across entire surface of seal makes this permeable to gases
-20°C	-20°C	-20°C	-20°C	-200°C	-20°C	-80°C
120°C	120°C	110°C	110°C	110°C	80°C	100°C material integrity (not seal)
✓	✓	✓	✓		✓	✓
		✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓
Foil	Foil	Foil	Foil	Laminate	Woven material	Laminate
PP, PS	PP, COC	PP, PS	PP, PS, PC	PP	PP, PS, COC	PP, PE, PS, COC
160-175°C 2 s	170-180°C 2 s	165-180°C 2 s	165-180°C 2 s	170-180°C 2-3 s	170°C 2 s	175-185°C 2-3 s
160-175°C 2 s	170-180°C 2 s	165-175°C 2-3 s	165-175°C 2-3 s	160-170°C 2 s	170°C 2 s	165-180°C 3 s
185-200°C 3 s	180-200°C 3 s	185-200°C 3 s	185-200°C 3 s	N/A	170°C 2 s	185-200°C 3 s
4ti-0530	4ti-0538	4ti-0535	4ti-0545	4ti-0590	4ti-0598	4ti-0540/SLIT
4ti-0530/122		4ti-0535/122	4ti-0545/122	4ti-0590/100	4ti-0598/122	
4ti-0530S	4ti-0538S	4ti-0535S	4ti-0545S	4ti-0590S	4ti-0598S	4ti-0540/SLIT/S
4ti-0532	4ti-0539	4ti-0537	4ti-0546	4ti-0592**	4ti-0599**	
4ti-0532S	4ti-0539S	4ti-0537S	4ti-0546/S	4ti-0592S**	4ti-0599S**	
4ti-0530/REMP		4ti-0535/REMP				
4ti-0532/REMP		4ti-0537/REMP				
4ti-0531	4ti-05381	4ti-0536	4ti-0547	4ti-0591	4ti-0597	4ti-0541/SLIT
4ti-0531/RA	4ti-05381/RA					
4ti-0532/RA	4ti-0539/RA					

Thermal Test Film

Thermal Test Film

Thermosensitive colour-forming film; for evaluation of consistent temperature across a heating block; to be used in conjunction with roll fed or sheet fed heat sealing instruments

- 4titude® Thermal Test Film (TTF) can be used in conjunction with a roll fed (e.g. a4S Automatic Roll Heat Sealer) or sheet fed (e.g. IntelliXseal SA™ Semi-Automatic Sheet Heat Sealer) heat sealer
- It checks the uniformity and reproducibility of the heat sealing block of the instrument
- The film can be used to effectively test the temperature of the heating block between 160°C and 200°C

Key Features

- The Thermal Test Film has a thermosensitive colour-forming layer plus a protective layer, both attached to the base material
- Depending on the temperature applied to the film, a colour is produced in varying density and hue, giving a perfect image of heat distribution across the heating block of your heat sealer
- The colour varies according to dwell time and temperature
- The shorter the duration, the paler and more blueish the colour
- The longer the duration, the more saturated and reddish the colour

Specifications

Parameter	Value
Sealing temperature range	160 °C to 200 °C
Recommended ambient temperature	15 °C to 30 °C
Recommended ambient humidity	35% RH to 80% RH

Ordering Information

Code	Details	Quantity
4ti-0640	sheets (125 x 80 mm)	25 sheets
4ti-0641	starter kit, contents: 10 sheets (125 x 80 mm) and 1 silicone pad	1 kit
4ti-0642	roll kit, contents: 1 roll (1 m x 80 mm) and 1 silicone pad	1 kit

Thermal Test Film Colour Chart

Temperature/ Duration	150°C	160°C	170°C	180°C	190°C	200°C	210°C
1 second							
10 seconds							
60 seconds							

Note: This colour chart is just an example based on the results of the tests performed in our laboratories. Before using the Thermal Test Film, a similar chart needs to be created that is based on your actual measurement conditions

Automatic Roll Heat Sealers

Automatic Roll Heat Sealers

a4S™ Automatic Roll Heat Sealer

The a4S enables up to 5,000 perfect seals without manual user intervention, providing a true walk-away system. The main advantage of the a4S is that it is powered by electric motors, with no requirement for any air supply. This enables the a4S to generate a reliable and consistent sealing pressure, resulting in superior seal uniformity.
In addition, it provides the user the flexibility to use this instrument without the need for an external air supply, enabling ease-of-use as a stand-alone unit on a lab bench or within integrated robotic set-ups.
Consistent sealing is achieved through a fixed high sealing pressure and accurate time and temperature controls, ensuring reproducible seal uniformity on the widest range of plates. The high-performance heating block design enables rapid heating with no delay between seals, and provides a uniform temperature across the entire heating block. The a4S sealer is compatible with a wide range of SBS footprint plates, including all PCR plate formats from 96 to 1536 wells, assay plates, deep well storage plates and microplates. The a4S sealer can be used with the wide range of sealing materials that 4titude offers, including gas permeable seals with no further instrument modificaiton, enabling a wide range of applications.

Colour touch screen with intuitive user interface - ease of use

- Unrivalled sealing performance and consistency; 5,000 perfect seals without intervention
- SiLA compatible; Easy integration into robotic systems
- Powerful electric motor generates consistent sealing pressure for superior sealing uniformity
- High-performance heating block design generates uniform temperature across entire heating block

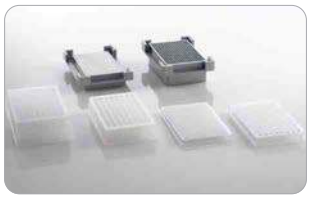
FEATURES

- Powerful electric motor drives plate sealing mechanism
- SiLA compatible
- Compatible with a wide range of plates and seals; 2 positions for different roll sizes
- Variable time and temperature controls
- Seal cycle time < 15 seconds
- High-performance heating block design
- Colour touch screen with intuitive user interface
- Unlimited password protected protocols
- Auto standby mode
- Optional roll cover
- 2 year warranty

BENEFITS

- Reliable and consistent sealing pressure; Superior sealing uniformity; No requirement for any air supply
- Easy integration into robotic systems through plug & play
- Flexibility with a wide range of consumables including gas permeable seals without instrument modification
- Enables optimization of any seal / plate type
- Time-saving
- Rapid heating, no delay between seals; Uniform temperature across entire heating block, +/- 1 degree edge-to-edge, corner-to-corner
- Ease of use, saving time
- Save personalised and SOP-set temperatures and times
- Energy-saving; prolongs component life
- Seal protection for sensitive applications
- Instrument reliability

Providing The Perfect Solution For Automated Heat Sealing



Compatibility with a wide range of plate types - two adapters supplied for optimal sealing results, with custom adapters available on request

Plug and Play Robotic Integration

All 4titude® sealing instruments are compliant with SiLA standards for rapid integration of automated systems (www.sila-standard.org). This means they can be "plug and play" connected with other instruments, such as readers, robotic arms and liquid handlers, to give a custom automated system without the need to write expensive custom drivers.

The a4S heat sealer is extremely versatile leaving you the freedom to expand and reconfigure your systems such as adding robotic plate handling.

- Full communication protocol available — operate the instrument and record sealing conditions for each seal using the RS232 communication port
- SiLA compatible — quick and easy integration with other SiLA compliant devices using the SiLA driver

SiLA Rapid Integration®

Technical Specifications

Parameter	Specification
Dimensions (W x L x H) *Please note: Additional space is required if large seal rolls are used*	230 x 507 x 276 mm
Sealing Temperature Range	100-195°C
Sealing Time Range	0.1-10 sec
Weight (without roll)	27 kg
Power Supply	V in: AC 100-240 V V out: DC 24 V 320 W
Power Consumption	700 W (max)
Working Temperature Range	10-30°C
Operating Humidity (RH)	0-85%
Connection	RS-232 serial port, USB port

Ordering Information

a4S Automatic Roll Heat Sealer
Includes: Power cord, manual, plate support adapters A (4ti-0665-2) and B (4ti-0665-3), 24 months parts and labour warranty

Code	Details	Quantity
4ti-0665	a4S Automatic Roll Heat Sealer	1

Accessories Code

4ti-0665-1	a4S Seal Loading Tool	1
4ti-0665-2	a4S Plate Support Adapter A	1
4ti-0665-3	a4S Plate Support Adapter B	1
4ti-0665-4	a4S Roll Holder Set Contents: spindle, clamping wheels, locking nuts, O-rings	1
4ti-0665-5	a4S Vacuum Cups, Front, clear, set of 2	2
4ti-0665-6	a4S Vacuum Cups, Back, black, set of 2	2
4ti-0665-8	a4S Clear Plastic Roll Dust Cover	1
4ti-0665-41	SiLA driver for a4S heat sealer	1

Flexibility of seal material choice - 4titude® offers a wide range of sealing films and foils

IntelliXseal™ - COMING SOON!

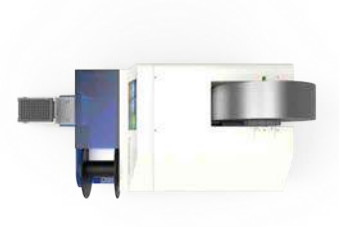
The IntelliXseal is an automated roll heat sealer for higher throughput capable of sealing individual wells or tubes, enabling researchers to leverage the benefits of the 4titude Random Access range whilst maintaining the gold standard heat sealing provided by the 4titude a4S.

CONCEPT
Random access utilizes a plate with individually removable wells, together with seals consisting of individual foil seal spots. This enables sealing of individually accessible tubes and thereby provides flexibility for single access or placement of tubes within a rack. In addition, the IntelliXseal also has the ability to seal custom shaped consumables with custom shaped seals to accomodate tailor-made needs.

The resulting individual access of tubes and consumables through sealing of individual tubes and custom shaped consumables enables high throughput manufacturing but shipment of individual product. End-users can then utilize tubes individually as needed by taking one well at a time.

FEATURES

- Individual sealing of plate wells or tubes
- Colour touch screen with intuitive user interface
- Variable time and temperature controls
- Compatibility with wide range of plates and seals
- Ability to seal custom shapes with custom seals
- Unlimited password protected protocols
- SiLA compatible
- Rapid heating
- Auto standby mode
- 2 year warranty



BENEFITS

- Enables individual access to plate wells or tubes and allows high throughput manufacturing but shipment of individual product
- Ease of use, saving time
- Enables optimization of any seal and plate type
- Enables specific requirements and unique applications
- Custom potential for tailor-made consumables
- Save personalised and SOP-set temperatures and times
- Easy integration into robotic systems through plug & play
- Fast start-up time; Block uniformity maintained to ±1°C
- Energy saving; prolongs component life
- Instrument reliability

A solution for:

- **Diagnostic Kit Manufacturers**
- **Oligonucleotide Production**
- **Synthetic Biology**
- **Sample Storage**
- **Random Access Users**
- **Antibody Extraction**

Ordering Information

IntelliXSeal
Includes: Power cord, manual, plate support adapters, 24 months parts and warranty.

Code	Details	Quantity
59-1000	IntelliXseal	1

Accessories Code

59-1001	IntelliXseal Seal Loading Tool	1
59-1004	IntelliXseal Plate Support Adapter, A	1
59-1003	IntelliXseal Waste Collection Core	1
59-1002	IntelliXseal Spindle Support	1

IntelliXseal™ SA Semi-Automatic Sheet Heat Sealer

IntelliXseal™ SA Semi-Automatic Sheet Heat Sealer

IntelliXseal™ SA Semi-Automatic Sheet Heat Sealer

The IntelliXseal™ SA is a semi-automatic sheet heat sealer which is compatible with a wide range of seals and plates of differing designs and heights.

With variable temperature and time settings, sealing conditions are easily optimised to produce a 100% tight seal, eliminating sample loss.

Plate and seal are placed on the holder, the "*Operate*" button pressed and the drawer automatically closes. The sealing process is controlled by an electric mechanism.

Heat sealers provide a mechanism for controlled plate sealing, eliminating variation and giving consistent sealing every time.

FEATURES

- Variable time and temperature control
- Simple, three button operation
- Real-time temperature display
- Auto stand-by function and switch-off mode
- Compatible with all SBS microplates
- Small footprint
- RS-232 serial port
- SiLA compatible
- 12 month warranty

BENEFITS

- Enables optimization of any seal / plate type
- Ease of use
- Rapid heating element enables fast start-up, saving time
- Conserves energy by reducing temperature of heating element down to 60°C or switching off after defined time
- Flexibility for wide range of consumables, eg competitor plates
- Minimal bench space
- Enables full integration within robotic automation systems
- Easy integration with SiLA compliant devices using SiLA driver
- Instrument reliability

The IntelliXseal™ SA Is Compatible With A Wide Range Of Seals & Plates Of Differing Designs & Heights

Adapters

The IntelliXseal SA employs a unique and cost saving adapter system

- Deep well plates and most other skirted plates can be sealed on the standard plate support adapter (59-2001)
- For all other 96 well PCR plates, an additional plate support adapter (59-2003, optional extra) must be used
- Both adapters can also be combined for easier handling of shallow plates such as 384 well PCR plates.
- For best sealing results with Random Access seals, 8 different adapters are available to offer the perfect plate support and seal alignment

59-2001 Plate Support Adapter, Standard

59-2003 Plate Support Adapter, PCR 96

Sealing Aids

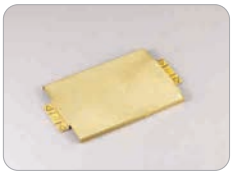
- For better sealing of films which have a tendency to curl, 4titude® offers sealing aids
- A sealing frame for use with all other plate designs is supplied when ordering the optional 59-2003 plate support adapter

59-2005 Plate Support Adapter, Random Access, Low Profile

Plate Formats

The following plate formats can be used with the appropriate plate adapter:

- Standard SBS footprint PP & PS plates & deepwell blocks
- PCR plates (skirted, semi-skirted and non-skirted formats)



59-2008 Weighted Sealing Platen

59-2009 Sealing Frame

Technical Specifications

Parameter	Specification
Dimensions (W x L x H)	181 x 275 x 310 mm
Sealing Temperature Range	60-200°C
Sealing Time Range	0-10 sec
Weight	9 kg
Power Supply	110/230V
Power Consumption	300 W (max)
Connection	RS-232 serial port

Ordering Information

IntelliXseal SA Semi-Automatic Sheet Heat Sealer
Includes: Power cord, manual, standard plate support adapter (59-2001), 12 months parts and labour warranty

Code	Details	Quantity
59-2000	IntelliXseal SA	1

Accessories

Code	Details	Quantity
59-2001	IntelliXseal SA Plate Support Adapter, Standard, supplied with the unit, for skirted 96 and 384 well plates	1 adapter
59-2002	IntelliXseal SA Plate Support Adapter, Roche 1536, for Roche 1536 well PCR plates	1 adapter
59-2003	IntelliXseal SA Plate Support Adapter, PCR 96, for 96 well PCR plates	1 adapter
59-2004	IntelliXseal SA Plate Support Adapter, PCR 384, for 384 well PCR plates	1 adapter
59-2005	IntelliXseal SA Plate Support Adapter, Random Access, low profile, for low profile plates	1 adapter
59-2006	IntelliXseal SA Plate Support Adapter, Storage 96 and 384; for 96 and 384 well storages plates	1 adapter
59-2007	IntelliXseal SA Plate Support Adapter, PCR 96 MPL, for 4ti-LB0109 and 96 well PCR plates	1 adapter
59-2008	IntelliXseal SA Weighted Sealing Platen	1plated
59-2009	IntelliXseal SA™ Sealing Frame, for use with Plate Support Adapter, PCR 96 (59-2003)	1 frame

XPeel® Automated Plate Seal Remover

XPeel® Automated Plate Seal Remover

XPeel® Automated Plate Seal Remover

XPeel automatically removes seals from a wide range of microplate types with the single touch of a button.

A robust and elegantly-simple automated system, XPeel eliminates the need for repetitive, manual removal of plate seals and enables the adoption of the gold-standard operating model (sealed plates, no lids).

The patented XTape® removal medium eliminates the need for mechanical removal mechanisms which are often prone to failure. XPeel is highly reliable and can be used manually or integrated into automated systems with external robotics.

KEY FEATURES

Compatible with Virtually All Plate Types and Seal Types

- XPeel can be used with a wide variety of microplates, including full-skirted PCR plates, low-base microplates and deep-well (up to 2ml) plates
- XPeel is compatible with a variety of full-plate seals, including heat and pressure applied seals
- Uses proprietary XTape to de-seal microplates, up to 400 seal removals per XTape roll

Preserves Sample Integrity

- Eliminates cross contamination common with manual seal removal techniques
- Supports Quality Control measures requiring samples to be sealed until their moment of use
- XPeel holds the plate down whilst the seal is peeled away from the plate, eliminating another contamination issue
- Operating mode minimizes plate or seal damage
- Integrated seal removal verification feature reduces plate handling errors

Easy to Use, Easy to Integrate

- Can be used as a standalone system, or integrated into automated and robotic workflows via Serial RS232 remote interface
- One-touch, push-button operation to de-seal plates makes XPeel an ideal standalone device for busy laboratories
- Capacity to remove up to 200 plate seals per hour
- Robust, time-proven device with hundreds of units placed globally in a range of manual and automated environments

	XPeel® Automated Plate Seal Removal
Seal Removal Capacity	Up to 400 per XTape® Roll
Seal Verification Sensor	Reflective with Sensitivity Adjustment
Communication	Serial RS232
Motion Parameters	XTape Adhere Time, De-seal Speed, Plate Output Orientation, Begin Peel Location
General Parameters	Auto XTape Advance, Plate Verification, Menu Language
Weight	35kg (76lbs)
Power Requirements	115VAC, 4A, 60Hz 230VAC, 2A, 50Hz
Throughput	Up to 200 Plate Seal Removals per Hour

Ordering Information

XPeel Automated Plate Seal Remover
Includes: Power cord, manual, plate support adapters, 12 months parts and warranty.

Code	Details	Quantity
XP-A_100V	XPeel® - Automated Plate Seal Removal 100V version for Asia	1
XP-A_115V	XPeel® - Automated Plate Seal Removal 115V version for North America	
XP-A_230V	XPeel® - Automated Plate Seal Removal 230V version for Europe	1

Compatible Tapes	Details	Quantity
X-Tape_2000	De-Sealer Adhesive; 5 rolls	1

Adhesive Sealing Consumables & Sealing Accessories

Adhesive Sealing Consumables & Sealing Accessories

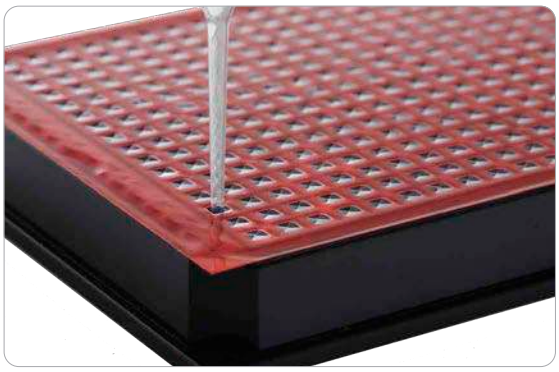
Adhesive seals provide a versatile, yet robust, method for protecting samples. The seals are supplied as sheets and some are also available in roll format. Most adhesive seals are supplied with convenient tabs on both ends for easy application and removal. These tabs also enable easy peeling to remove a seal without leaving adhesive residue on the sealing surface.

All our seals are produced and processed under strictly controlled environmental conditions and certified free from DNase, RNase and human genomic DNA.

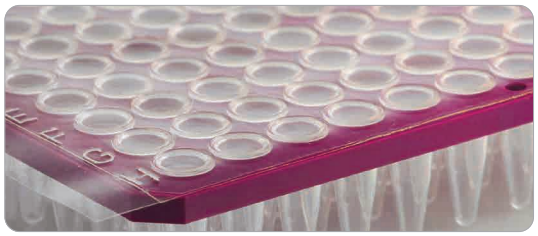
To choose the most suitable seal, please refer to the comparison table on page 158 which describes the recommended applications and technical features of each seal.

To obtain the best sealing results with adhesive seals, we strongly recommend the use of high quality plates with raised rim sealing rings for optimal sealing integrity and guaranteed flatness. All 4titude® PCR plates are designed with these features.

To improve seal application by ensuring even pressure is applied, we offer a seal roller and a seal applicator, for complete and secure application of all our adhesive seals. We also offer supplementary products like the compression pad, for details see page 157.



PCR Seal



Clear adhesive film, strong adhesive, peelable; suitable for PCR and optical applications; available as a full sheet, perforated for tearing into 8 well strips or 12 well strips

- Our PCR Seal is a durable transparent polyester film with a strong adhesive layer
- The seal enables a high integrity and efficiently prevents sample evaporation
- Recommended for PCR, qPCR, and other optical applications (e.g. fluorescence or colorimetric measurements) as well as sample storage
- The PCR Seal is also available in two flexible formats with perforated sheets, to enable tearing into 8 well and 12 well strips, respectively
- Allows for sealing of complete 96 well plates, but also individual or multiple Tear-A-Way™ or Break-A-Way™ strips, perfectly complementing these products
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Non-pierceable, please refer to our PCR Foil Seal Strong for a pierceable variant
- Peelable
- Seal integrity range: -20°C to 110°C
- Non-sterile
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: PCR, qPCR
- Removal: features adhesive-free end tabs for easy removal, will not leave a sticky residue on the plate surface following removal

Options

- Sheet format: 135 x 80 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates
- Perforated sheet format: 115 x 100 mm, for tearing into 8 well strips
- Perforated sheet format: 137 x 71 mm, for tearing into 12 well strips

Ordering Information

Code	Details	Quantity
4ti-0500	sheets (135 mm x 80 mm)	100 sheets
4ti-0500/8	perforated sheets (115 m x 100 mm) perforated for tearing into part plates or 8 well strips	100 sheetd
4ti-0500/12	perforated sheets (137 mm x 71 mm) perforated for tearing into part plates or 12 well strips	100 sheets

Q-Stick™ qPCR Seal

Adhesive film with 96 optically clear windows, peelable, suitable for qPCR and optical applications

- These unique seals combine the strong sealing integrity of our PCR Seal with improved optical properties, thanks to the 96 adhesive-free windows
- The seal is made of a durably transparent polyester film, and a strong adhesive is applied across the seal, apart from the 96 round windows
- The Q-Stick™ seal is recommended for qPCR and other optical applications, such as fluorescence or colorimetric measurements
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Non-pierceable
- Peelable
- Seal integrity range: -20°C to 110°C
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: qPCR, plate readers
- For 96-well microplates only
- Removal: will not leave a sticky residue on the plate surface following removal
- Suitable for cutting to fit part plates

Options

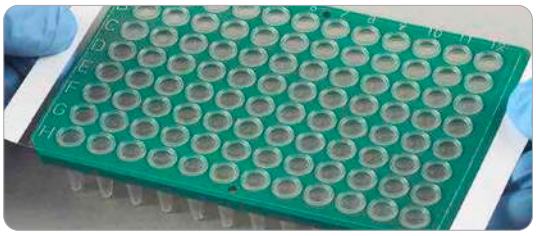
- Sheet format: 133 x 76 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates with 96 round wells
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0565**	sheets (133 mm x 76 mm)	100 sheets

**Not available for purchase in or onwards distribution to the USA

qPCR Seal



Optically clear adhesive film, pressure activated adhesive, peelable; suitable for qPCR and other imaging techniques including crystallization

- Optically clear seal specifically developed for optical applications, particularly qPCR
- It is non sticky when removed from the packaging; this aids handling when wearing gloves
- The adhesive is contained within small capsules, allowing light to pass through to ensure the optical clarity of the seal
- When the seal is in position, pressure can be applied to burst the capsules, releasing a strong adhesive only where the seal touches the raised well rims of the plate - the rest of the seal area above the wells remains optically clear

Key Features

- Non-pierceable
- Peelable
- Seal integrity range: -80°C to 110°C
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: qPCR and other fluorescent applications, plate readers, microscopy and protein crystallization (96 or 384 well)
- Removal: will not leave a sticky residue on the plate surface following removal
- Replacement for: ABI® MicroAmp Optical Adhesive film, Absolute qPCR plate seals and Roche LightCycler® sealing foils

Options

- Sheet format: 140 x 77 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates with 96 round wells
- Roll format: 100 m x 80 mm, approx. 700 seals
- Non-sterile as standard; sterilisation available upon request

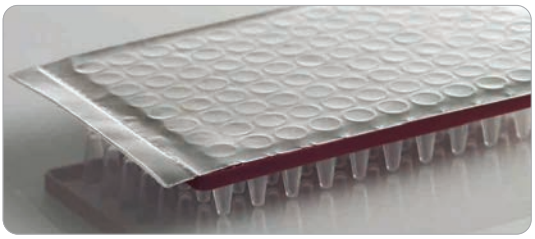
Specifications

- This is a pressure-activated seal: the adhesive is released when pressure is applied firmly and evenly to the seal
- Our Adhesive Seal Roller and Adhesive Seal Applicator are ideal for use with this product
- We also recommend the use of our Optical Film Compression Pad during PCR with this product

Ordering Information

Code	Details	Quantity
4ti-0560	sheets (140 mm x 77 mm)	100 sheets
4ti-0561	rolls (100 m x 80 mm, approx. 700 seals)	1 roll
4ti-0561S	sample roll (5 m x 80 mm)	1 sample roll

PCR Foil Seal



Pierceable adhesive aluminium foil, strong adhesive, peelable; suitable for high temperature applications

- This aluminium foil seal has a strong acrylic adhesive which produces a seal of high integrity
- It was developed for PCR and other high temperature applications due to its effectiveness in preventing sample evaporation
- The PCR Foil Seal is pierceable; when pierced, the foil tears in an irregular manner which prevents the formation of a vacuum
- Perforated end tabs for easy application and removal by peeling
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Pierceable
- Peelable
- Seal integrity range: -40°C to 120°C
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: PCR, incubation, storage
- Suitable for cutting to fit part plates

Options

- Sheet format: 130 x 80 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0550	sheets (130 mm x 80 mm)	100 sheets

PCR Foil Seal Strong

Adhesive aluminium foil, strong adhesive, peelable, pierceable; suitable for high temperature incubations and low temperature storage

- Our PCR Foil Seal Strong is a pierceable aluminium foil seal with a strong acrylic adhesive, recommended for PCR and low temperature storage
- This seal features all of the advantages of our PCR Seal, but in a pierceable format
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Pierceable
- Peelable
- Seal integrity range: -80°C to 110°C
- Non-sterile
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: PCR, high temperature incubations, low temperature sample storage

Options

- Sheet format: 137 x 80 mm
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0500FL	sheets (137 mm x 80 mm)	100 sheets

DMSO Resistant Foil

Peelable adhesive foil, strong adhesive, high solvent resistance; suitable for long term storage

- This aluminium foil seal has a chemically resistant silicone adhesive layer to produce a seal with high levels of solvent resistance, including to Dimethyl Sulfoxide (DMSO)
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Non-pierceable
- Peelable
- Seal integrity range: -20°C to 80°C
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: long-term plate storage, samples containing <80% Dimethyl Sulfoxide (DMSO) can be stored for up to 5 years
- Removal: this seal will not leave a sticky residue on the plate surface following removal
- Suitable for cutting to fit part plates

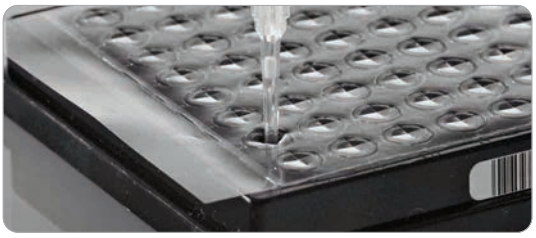
Options

- Sheet format: 122 x 80 mm, to fit all standard SBS footprint plates, PCR and qPCR plates and part plates, microplates, assay and storage plates
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0512	sheets (122 mm x 80 mm)	100 sheets

Pierceable Film



Strong adhesive seal cross-cut windows, peelable, pierceable; suitable for 96 well plates (auto samplers, HPLC, sequencers)

- This strong adhesive seal was developed to facilitate easy sample removal with a manual or automated system
- The seal is optically clear, being made from a transparent polyester film, and has a strong adhesive applied across the underside of the seal, except for 96 round windows which align to the 96 wells of a plate

- The optical windows are cross-cut, allowing for easy access to the sample wells with a tip or probe with minimal pressure
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Pierceable
- Peelable
- Seal integrity range: -20°C to 110°C
- Non-sterile
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: sample application or retrieval, for use in automated systems and sample analyzers such as HPLC and DNA sequencers
- Removal: will not leave a sticky residue on the plate surface following removal
- Suitable for cutting to fit part plates
- Replacement for: ABI® septa mats on capillary sequencers and to replace silicone and EVA storage plate cap mats

Options

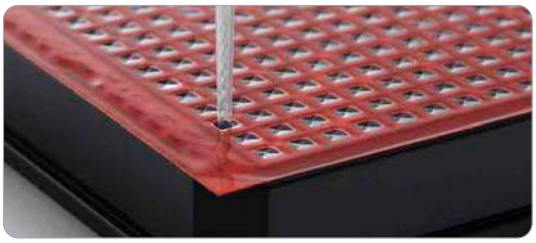
- Sheet format: 135 x 77 mm, to fit all standard SBS footprint PCR and qPCR plates, microplates, assay and storage plates with 96 round wells
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0566*	sheets (135 mm x 77 mm)	100 sheets

**Not available for purchase in or onwards distribution to the USA*

Pierceable Film 384



Strong adhesive seal with cross-cut windows, red adhesive, peelable, pierceable; suitable for 384 square well plates

- This strong adhesive seal was developed to facilitate easy sample removal with a manual or automated system
- A red adhesive is applied across the underside of the seal, except for 384 windows which align to the 384 wells of a plate
- The optical windows are cross-cut, allowing for easy access to the sample wells with a tip or probe with minimal pressure
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Pierceable
- Peelable
- Seal integrity range: -80°C to 120°C
- Adhesive-free windows avoid clogging of tips or needles during piercing
- Pre-slit well centres for access to samples with no force needed for piercing
- No cross contamination
- Good solvent and DMSO resistance
- Non-sterile
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: sample application or retrieval, for use in automated systems and sample analyzers such as HPLC and DNA sequencers

Options

- Sheet format: 117 x 80 mm, to fit all standard SBS footprint plates, microplates, assay and storage plates with 384 wells with rounded square wells
- Non-sterile as standard; sterilisation available upon request

Ordering Information

Code	Details	Quantity
4ti-0566/384	sheets (117 mm x 80 mm)	100 sheets

Moisture Barrier Seal 24, 96, 384

Gas permeable adhesive film, optically clear, with adhesive free windows, peelable, pierceable, sterile; suitable for cell culture

- This unique seal has optically clear adhesive free windows; these windows can be imaged through, and also allow for gas exchange
- The clear film is made of a porous material which allows for a uniform air and CO_2 exchange, whilst acting as a moisture barrier and preventing evaporation
- The seal is coated with a strong adhesive (except for the optical windows) which has a high sealing integrity
- This ensures a reliable seal and prevention of well-to-well contamination
- The gas permeable seal enables long term incubations without intervention, whilst allowing for imaging through the optically clear windows
- Can reduce the risk of sample contamination, evaporation and can improve your experimental workflow
- Use of this seal within plate readers can prevent moisture release into the sensitive equipment
- A number of plate reader manufacturers recommend the use of the 4titude Moisture Barrier Seal 24,96,384 (Gas Permeable Moisture Barrier Seal)
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Pierceable
- Peelable
- Seal integrity range: -20°C to 80°C
- Gas permeability rate: 0.6 m^3/m^2/day
- Moisture vapour transmission rate: 1 g/m^2/day
- Optically clear for imaging
- Sterile
- Free from RNase and DNase

Use

- Applications: plate readers, eukaryotic cell culture, bacterial cell culture, long-term incubation, live cell assays, confocal microscopy

Options

- Sheet format: 140 x 80 mm (4ti-0516/24) and 137 x 80 mm (4ti-0516/96 and 4ti-0516/384)
- Available with 24/96/384 adhesive free windows for use with 24/96/384 well plates

Ordering Information

Code	Details	Quantity
4ti-0516/24*	sheets (140 mm x 80 mm), with 24 adhesive free windows	5 packs x 10 sheets
4ti-0516/96*	sheets (137 mm x 80 mm), with 96 adhesive free windows	5 packs x 10 sheets
4ti-0516/384*	sheets (137 mm x 80 mm), with 384 adhesive free windows	5 packs x 10 sheets

**Not available for purchase in or onwards distribution to the USA*

Air-O-Seal

Gas permeable adhesive seal, peelable; suitable for cell culture

- Our Air-O-Seal is a gas permeable adhesive seal which seals assay and tissue culture plates, microplates and storage plates
- The Air-O-Seal prevents evaporation and contamination whilst enabling cells to breathe. It is made of a non-woven fiber with an acrylate adhesive layer for effective sealing
- The seal has a low moisture transfer rate and a porosity enabling gas exchange
- Due to its paper-based material it should not be used in wet conditions
- Suitable for cell culture and enables long term culture with significantly reduced evaporation
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Peelable
- Seal integrity range: -20°C to 40°C
- Gas permeability rate: 8,900 m^3/m^2/day
- Moisture vapour transmission rate (very low): 4,200 g/m^2/day
- Air porosity: 10 sec/100 cc/in^2
- RNase/DNase free

Use

- Application: bacterial and eukaryotic cell culture

Options

- Sheet format: 135 x 80 mm
- Available sterile (4ti-0517/ST)

Ordering Information

Code	Details	Quantity
4ti-0517	sheets (135 mm x 80 mm)	100 sheets
4ti-0517/ST	as above, sterile	10 x 10 sheets

Microplate Seal

Low strength adhesive film, transparent, peelable; suitable for short term storage

- This transparent polyester-based film has a low strength adhesive
- It is designed as a low-cost sealing option, and useful for temporary storage and as a cover for applications such as centrifugation
- End tabs allow for easy application and removal
- This seal is removable without residue on the plate
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Non-pierceable
- Peelable
- Seal integrity range: -20°C to 80°C
- Free from DNase, RNase, and human genomic DNA

Use

- Applications: sample storage (aqueous samples only)
- Suitable for all plate types

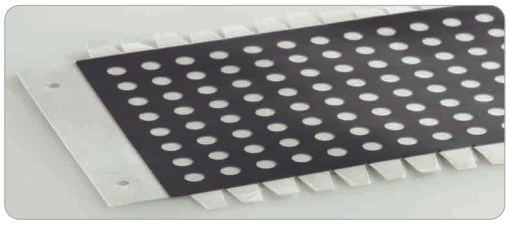
Options

- Sheet format: 130 x 80 mm

Ordering Information

Code	Details	Quantity
4ti-0510	sheets (130 mm x 80 mm)	100 sheets

InterSeal



Double sided adhesive film, black, with 96 holes and a protective liner, peelable; suitable for re-sealing without the need for a heat sealer

- A double sided black adhesive microplate film to facilitate the sealing, accessing (piercing) and resealing of Vari-Strips™ (4ti-0753) prior to PCR
- The strips or plates are filled with reagents and sealed with Pierce Heat Seal (4ti-0530) resulting in lowest evaporation and best possible long-term storage
- With the use of a pierceable seal, samples can easily be added at the point of diagnostic use
- The protective InterSeal makes sure there will be no damage to the Pierce Heat Seal during transportation
- The InterSeal is overlaid and the strips or plates processed with a cutter into individually sealed strips
- The strips can then be transported and opened at a customer site by peeling off the protective layer of the InterSeal and accessing the sample through the Pierce Heat Seal
- Can then be resealed with a foil or film which is applied to the exposed black adhesive without the need for a heat sealer
- For all adhesive seals, the best sealing results are achieved using the hand held Adhesive Seal Roller (4ti-0502)

Key Features

- Peelable
- Resealable
- Seal integrity range: -20°C to 110°C
- Free from RNase and DNase

Use

- Applications: ideal for kit manufactures to allow flexible access to individual wells

Options

- Sheet format: 148 x 98 mm, to fit all SBS footprint 96 well plates, designed to work with Vari-Plate™, Break-A-Way™, and Tear-A-Way™ plate ranges

Ordering Information

Code	Details	Quantity
4ti-0519	sheets (148 mm x 98 mm)	100 sheets

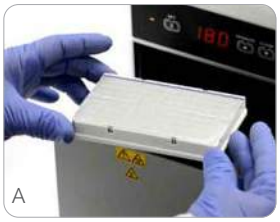
Typical Molecular Diagnostic workflows - Example

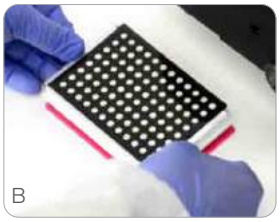
At the kit manufacturer

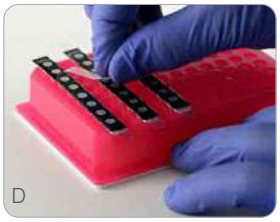
- The plate (e.g. Vari-Plate™ Frame loaded with Vari-Strips™, e.g. 4ti-0753/C/757) is filled with reagents on a robotic system
- The filled plate is sealed with a pierceable heat seal (e.g. Pierce Seal, 4ti-0530) resulting in lowest evaporation and best possible long-term storage (A)
- The protective InterSeal is placed on top of the pierceable seal to make sure there will be no damage of the seal during transportation (B)
- The sealed plate is cut into strips - the pre-filled strips are ready for transport, e.g. to the point of diagnostic use (C)

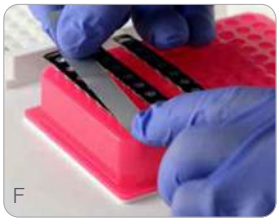
At the point of diagnostic use

- The InterSeal protective layer is removed making the pierceable seal accessible (D)
- The sample is added to the pre-filled strip by piercing the seal (E)
- The strips can easily be resealed with foil or film strips by applying to the exposed black adhesive without the need for a heat sealer (F)
- After resealing, the strips are ready for PCR analysis









Adhesive Seal Roller & Adhesive Seal Applicator

Our Adhesive Seal Roller & Adhesive Seal Applicator ensure even pressure is applied across the adhesive seal for a complete application to the plate

- To obtain the best sealing results when using our adhesive seals, we strongly recommend the use of the Adhesive Seal Roller (4ti-0502) or Adhesive Seal Applicator (4ti-0503)
- Both application tools ensure even pressure is applied across the adhesive seal for complete and secure application to your plate, across every well
- The handle of the Adhesive Seal Roller is made of a durable plastic, with a semi-hard padded rolling wheel
- The straight rigid sides of the small-sized Adhesive Seal Applicator allow for even pressure application
- When applying adhesive seals to 384 well plates, we recommend using the application tools in conjunction with our FrameStar® 384 Holder (4ti-0391) to support the 384 well plates during seal applications, and to give a level base

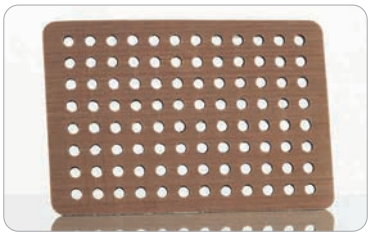
Ordering Information

Code	Details	Quantity
4ti-0502	roller, red; 1 roller	1 roller
4ti-0503	applicator, blue; 1 applicator	1 applicator

Support Adapters to Improve Performance

Optical Film Compression Pad

A silicone foam mat laminated to a non-stick PTFE film, to be used with adhesive seals, compatible with heated lid cyclers



- When used in conjunction with an adhesive seal - for instance the qPCR Seal (4ti-0560) - and a thermal cycler heated lid, the pad enhances the adhesion between the seal and the PCR plate
- This in turn improves results by reducing sample evaporation
- The 96 holes align with the wells of the PCR plate, ensuring the mat is compatible with qPCR instrumentation which image through the top of the well

Ordering Information

Code	Details	Quantity
4ti-0563	brown pad	5 pads

Pierce Plate

Metal block with 96 pins, suitable for piercing every well of a heat or adhesive sealed 96 well plate

- This useful tool is a machine-engineered metal block with 96 pins aligned central to each well of a 96 well plate
- The pierce plate's 96 pins pierce every well of a heat or adhesive-sealed 96 well PCR or microplate (pierceable seals only)
- Enables instant access to samples with a single or multichannel pipette or automated system
- The Pierce Plate can be cleaned between uses to avoid contamination by using most cleaning agents that are suitable for use on aluminium e.g. RNase removal solutions, bleach or UV treatment

Ordering Information

Code	Details	Quantity
4ti-0398	black	1 plate

Adhesive Sealing Consumables Comparison Table

	Clear Seals			Foil Seals			Cross-cut Seals	
Name	PCR Seal	Q-Stick™ qPCR Seal	qPCR Seal	PCR Foil Seal	PCR Foil Seal Strong	DMSO Resistant Foil	Pierceable Film	
Specifications								
Application	PCR	qPCR, fluorescence 96-well microplates only	qPCR & other fluorescent applications Imaging techniques incl. crystallisation Plate readers, microscopy	PCR & sample storage Incubations	High temperature incubations & low temperature storage	Microplate sealing containing solvents incl. DMSO	Sample application or retrieval 96 well plates only	
Special Properties	Good optical clarity	Discreet optical windows for 96-well plates	Good optical clarity	Irregular tearing when pierced prevents formation of vacuum	Strong adhesive	High solvent resistance	Cross-cut reduces tip or probe becoming clogged	
Seal Integrity Min Temperature	-20°C	-20°C	-80°C	-40°C	-80°C	-20°C	-20°C	
Seal Integrity Max Temperature	110°C	110°C	110°C	120°C	110°C	80°C	110°C	
Gas Permeability Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Moisture Vapour Transmission Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Sterile								
Pierceable				✓	✓		✓	
Peelable	✓	✓	✓	✓	✓	✓	✓	
RNase/DNase free	✓	✓	✓	✓	✓	✓	✓	
Product Codes								
Code	4ti-0500	4ti-0565	4ti-0560	4ti-0550	4ti-0500FL	4ti-0512	4ti-0566	
Format	Sheets	Sheets	Sheets	Sheets	Sheets	Sheets	Sheets	
Dimensions	135 mm x 80 mm	133 mm x 76 mm	140 mm x 77 mm	130 mm x 80 mm	137 mm x 80 mm	122 mm x 80 mm	135 mm x 77 mm	
Code	4ti-0500/8		4ti-0561					
Format	Perforated sheets		Roll					
Dimensions	115 mm x 100 mm		100 m x 80 mm					
Code	4ti-0500/12		4ti-0561/S					
Format	Perforated sheets		Sample roll					
Dimensions	137 mm x 71 mm		5 m x 80 mm					
Code	4ti-0500/HP		4ti-0560/HP					
Format	Half plate sheets		Half plate sheets					
Dimensions	70 mm x 80 mm		70 mm x 77 mm					

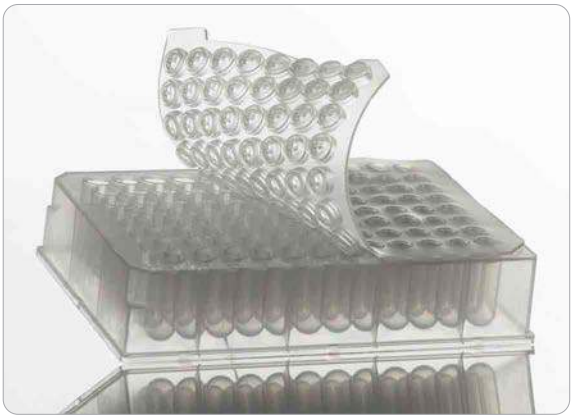
Cross-cut Seals	Permeable Seals				
Pierceable Film 384	Moisture Barrier Seal 24, 96, 384	Air-O-Seal	Microplate Seal	InterSeal	**Name**
					Specifications
Sample application or retrieval 384 well plates only	Eukaryotic cell culture, bacterial culture and long-term live assays Suitable for use on plate readers	Bacterial or cell culture	Aqueous sample storage	Diagnostic kit production	**Application**
Cross-cut reduces tip or probe becoming clogged Good solvent resistance, including DMSO	Gas permeable that allows air and CO_2 exchange, but prevents moisture evaporation Optically clear	Very low moisture transfer rate Suitable for bacterial or cell culture Air porosity: 10 sec/100 cc/in^2	Medium strength transparent seal	Two sealing surfaces Optical windows	**Special Properties**
-80°C	-20°C	-20°C	-20°C	-20°C	**Seal Integrity Min Temperature**
120°C	80°C	80°C	80°C	110°C	**Seal Integrity Max Temperature**
N/A	0.6 m^3/m^2/day	8,900 m^3/m^2/day	N/A	N/A	**Gas Permeability Rate**
N/A	1 g/m^2/day	4,200 g/m^2/day	N/A	N/A	**Moisture Vapour Transmission Rate**
	✓	✓			**Sterile**
✓	✓				**Pierceable**
✓	✓	✓	✓	✓	**Peelable**
✓	✓	✓	✓	✓	**RNase/DNase free**
					Product Codes
4ti-0566/384	4ti-0516/24	4ti-0517	4ti-0510	4ti-0519	**Code**
Sheets	Sheets	Sheets	Sheets	Sheets	**Format**
117 mm x 80 mm	140 mm x 80 mm	135 mm x 80 mm	130 mm x 80 mm	148 mm x 98 mm	**Dimensions**
	4ti-0516/96	4ti-0517/ST			**Code**
	Sheets	Sheets, sterile			**Format**
	137 mm x 80 mm	135 mm x 80 mm			**Dimensions**
	4ti-0516/384				**Code**
	Sheets				**Format**
	137 mm x 80 mm				**Dimensions**
					Code
					Format
					Dimensions

Caps, Lids and Mats

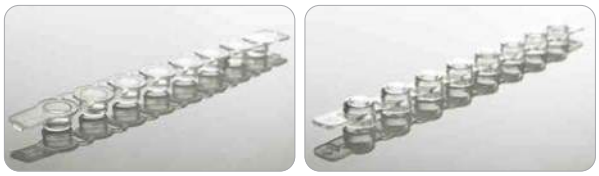
Caps, Lids and Mats

As an alternative to sealing films, 4titude® offers multiple types of cap strips for sealing both plates and tubes - domed, flat, strips of 8, strips of 12, and our new optically superior CrystalStrips™.

A variety of rigid polystyrene lids are available for PCR plates and microplates, including lids compatible with our FrameStar®, Vision Plate™ and UltraVision™ Plate ranges. 4titude® also stock silicone sealing mats for use with our storage plate ranges and in a variety of formats depending on the well size, number and shape.



Strips of 8 &12 Sealing Caps



Clear polypropylene sealing caps, available as strips of 8 caps (domed or flat optical) and strips of 12 caps (flat optical)

- Compatible with our tube strips and 96 well PCR plates
- These strips are moulded from virgin polypropylene in our UK-based Class 7 ISO certified clean-room production facility, and comply to the same stringent requirements as our FrameStar® range

Key Features

- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- Flat caps are optically clear for fluorescence detection (e.g. qPCR)
- Easy to apply
- Large end tabs for easy removal
- Labeled for orientation

Options

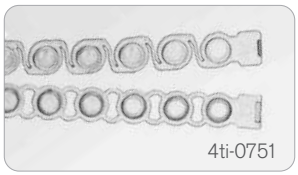
- Strips of 8 flat optical caps (4ti-0751/4ti-0783)*: for use with our FrameStar® PCR plates (including FrameStar® Break-A-Way), FrameStrips®, Vari-Strips™ and general PCR plates, as well as with PCR tube strips (4ti-0781)
- Strips of 8 domed caps (4ti-0752/4ti-0782)*: for use with our FrameStar® PCR plates (including FrameStar® Break-A-Way), FrameStrips®, Vari-Strips™ and general PCR plates, as well as with PCR tube strips (4ti-0781)
- Strips of 12 flat optical caps (4ti-0788): recommended for use with our Tear-A-Way™ 96/12 PCR Plates and FrameStar® Break-2-Ways Plates to allow for flexible sample usage; not compatible with low profile plates

Ordering Information

Code	Details	Quantity
4ti-0751	strips of 8 flat optical caps	300 cap strips
4ti-0783	*as above*	125 cap strips
4ti-0752	strips of 8 domed caps	300 cap strips
4ti-0782	*as above*	125 cap strips
4ti-0788	strips of 12 flat optical[1] caps *Note: Not compatible with low profile plates*	200 cap strips

[1]Recommended for use with our Tear-A-Way™ 96/12 PCR Plates and FrameStar® Break-2-Ways Plates to allow for flexible sample usage; not compatible with low profile plates

CrystalStrip™



Strips of 8 flat optical caps, crystal clear; designed for low volume applications such as low volume qPCR

- With the new CrystalStrips™ 4titude® offers the perfect supplement to the existing range of PCR Cap Strips
- Due to their improved optical properties and evaporation-safe fit, the strips are ideally suited for applications where small volumes are used, e.g. low volume qPCR

Key Features

- Made of a special polymer with improved optical properties leading to high transmission rates; ideally suited for small samples with low signal intensity
- Reduced shrinking during heating and cooling phases; very tight sealing
- Highest flexibility between the pitch of the individual caps
- Variations in the pitch of any 96 well plate are accommodated, the caps can easily be aligned to the corresponding tubes as they allow for more independent movement
- Free from DNase, RNase, human genomic DNA, and endotoxin/pyrogen

Use

- For use with our FrameStar® PCR plates (including FrameStar® Break-A-Way), FrameStrips® and general PCR plates

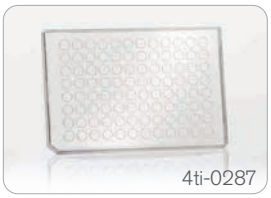
Ordering Information

Code	Details	Quantity
4ti-0755	strips of 8 flat optical caps crystal clear[1]	300 cap strips
4ti-0755/120	*as above*	120 cap strips

For use with our our FrameStar® PCR plates (including FrameStar® Break-A-Way), FrameStrips® and general PCR plates

FrameStar® products are covered by one or more of the following US patents or their foreign counterparts, owned by Eppendorf AG: US Patent Nos. 7,347,977 and 6,340,589. FrameStar® is a registered trademark owned by 4titude®Ltd.

PCR Plate Lids, FrameStar® Lids and Microplate Lids


4ti-0287


4ti-0289

Rigid polystyrene lids for PCR plates, Vision Plates™ and assay plates

- Designed to give a quick and easy sealing solution to protect samples from contamination and evaporation

Ordering Information

PCR Plate Lids & FrameStar® Lids

Code	Name	For use with	Profile	Cut corner	Cond. rings*	Sterile	Quantity
4ti-0285	Ultra-Low Universal Lid	The majority of PCR plates available	Ultra-Low	No	No	No	100 lids
4ti-0288	PCR Plate Lid	The majority of PCR plates available	Low	H1	No	No	50 lids
4ti-0287	FrameStar® 96 NGS Lid	FrameStar® 96 Well Skirted PCR Plate, Extra Rigid (4ti-0960/RIG)	Low	H1	Yes	No	50 lids
4ti-0289	FrameStar® 96 Lid	FrameStar® 96 Well Semi-Skirted PCR Plate, ABI® Style (4ti-0770)	Low	A12	No	No	50 lids

Microplate Lids

Code	Name	For use with	Profile	Cut corner	Cond. rings*	Sterile	Quantity
4ti-0280	Microplate 384 Lid	Vision Plates™ and assay plates	Low	A1/P1	No	No	100 lids
4ti-0281	Microplate 384 Lid, Sterile	Vision Plates™ and assay plates	Low	A1/P1	No	Yes	100 lids
4ti-0282	Microplate 96 Lid	96 well Vision Plates™ and assay plates	Low	A1/H1	Yes	No	80 lids
4ti-0283	Microplate 96 Lid, Sterile	96 well Vision Plates™ and assay plates	Low	A1/H1	Yes	Yes	80 lids
4ti-0284	Microplate 24 Lid	24 well Vision Plates™ and assay plates	Low	A1	Yes	No	80 lids
4ti-0286	Microplate 24 Lid, Sterile	24 well Vision Plates™ and assay plates	Low	A1	Yes	Yes	80 lids
4ti-0290	Universal Microplate Lid	Vision Plates™ and assay plates	Low	No	No	No	50 lids

* Condensation rings

Auto-Sealing PCR Plate Lid

Low profile, with integrated compression pad, white, no cut corner, for PCR applications on integrated instruments

- Developed to support fully automated sealing in the absence of specific instrumentation
- Meets the needs of customers using integrated platforms that often lack suitable heat sealing instrumentation especially when low throughput is needed
- Specialised alternative to standard lids: while standard lids protect reagents, the Auto-Sealing PCR Lid helps minimise reagent evaporation during longer incubations
- Universal fit: due to the lack of cut corners, the lid can be applied to most plates, showing good sealing results when pushed down onto the plate

Key Features

- Rigid polycarbonate frame padded with an elastic foam
- No cut corners
- Stackable

Use

- Suitable for automation
- Universal fit to PCR plates
- Recommended when full sealing automation is required in the absence of dedicated instrumentation
- Suitable for low throughput workflows
- Alternative to heat sealing, when heat sealing materials and instrumentation are not an option
- Alternative to standard lids for longer incubations

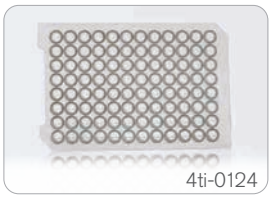
Specifications

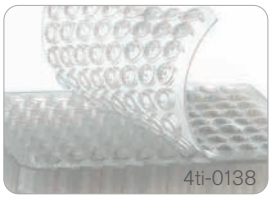
Parameter	Value
Lid length	128.10 ± 0.10 mm
Lid width	85.80 ± 0.10 mm
Lid height	8.20 ± 0.05 mm

Ordering Information

Code	Details	Quantity
4ti-0291	lids	20 lids

Sealing Cap Mats





Silicone rubber or TPE mats, durable to high temperatures; for sealing storage plates to protect samples from evaporation

- The clear cap mats are made of silicone rubber, a material that is highly durable to high temperatures, and so can be used to seal storage plates being used for high-temperature storage to protect samples from evaporation
- 4titude silicone mats are DNase/RNase and pyrogen-free to meet the highest standard of both laboratory experiment and clinical diagnostics
- All our clear silicone cap mats are pierceable

Ordering Information and Key Features

Code	Name	For use with	Colour	Pierceable	Quantity
4ti-0124	96 Round Well Sealing Cap Mat	96 Round Deep Well Storage Microplate, For Magnetic Separators (4ti-0125) only	Clear	Yes	50 mats
4ti-0137	96 Square Well Sealing Cap Mat	96 Square Deep Well Storage Microplate (e.g. 4ti-0126, 4ti-0132, and 4ti-0136)	Clear	Yes	50 mats
4ti-0138	96 Round Well Sealing Cap Mat	96 Round Well Storage Microplates (4ti-LB0109, 4ti-0110, 4ti-0116, 4ti-0117) and 96 Round Deep Well Storage Microplate (4ti-0130)	Clear	Yes	50 mats
4ti-0139	384 Square Well Sealing Cap Mat	384 Square Deep Well Storage Microplate (4ti-0147)	Clear	Yes	50 mats
4ti-0135	96 Round Well Sealing Cap Mat	96 Round Deep Well Storage Microplate (4ti-0120) only	White	No	100 mats

Cap Mat for PCR Plates

96 individual caps in sheet format, blue TPE, pierceable; suitable for sealing all of our 96 well PCR plates

- These caps in sheet format are universally compatible with our 96 well PCR plates
- The caps can be individually applied and removed once detached from the backing liner, making the mats ideally suited for use with our flexible PCR consumables, including Random Access and divisible plates
- The mats offer an alternative to adhesive and heat sealing, in particular as a temporary solution when samples need to be repeatedly accessed
- They are easily pierceable with pipette tips to access samples, and they are easily removable using 1- and 8-way decappers or, alternatively, using Brooks XPeel® if a seal is overlaid on top of the caps

Key Features

- Caps made from TPE mounted on an easily removable backing liner
- Pierceable with pipette tips

Use

- Universal fit to 96 well PCR plates
- Ideally suitable for use with Random Access and divisible PCR plates
- Applications: endpoint PCR, storage
- Not recommended for qPCR
- Alternative to adhesive and heat sealing, as temporary sealing solution when sample access must be done multiple times
- Caps perform equivalently to polypropylene cap strips during 25 cycle PCR
- The 96 caps can be applied all at once or individually
- The 96 caps can be removed all at once using Brooks XPeel® (a seal must be placed on top of the caps), or individually using 1- or 8-way decappers

Ordering Information

Code	Details	Quantity
4ti-0778	blue	50 mats

Custom Capabilities & TubeMarker™

Custom Capabilities & TubeMarker™

Custom Capabilities for OEM Diagnostic Kit and Medical Device Manufacturing

Our management team brings decades of development expertise to any custom project. Our experience in working with partners worldwide has placed us as the company of choice for introducing practical solutions to changing workflows, using innovative design and bespoke manufacture.

Our commitment to quality is reflected in our ISO certified management system which is applied at all levels, from manufacture, to technical support, to packaging and delivery.

4titude® has an integrated quality management system where products undergo a wide range of QC inspections. We constantly perform visual, physical and biological tests to ensure both the absence of contaminants, as well as the integrity of the products. Our DIN EN ISO 9001:2015 & ISO 13485:2016 certifications are endorsements of our excellent manufacturing practices.

The ultimate quality of any product is dependent not only on the design of the component to be produced, but also the accuracy, construction and precision of the tooling and manufacturing processes.

4titude®'s highly skilled engineers have extensive knowledge and experience in the design and manufacture of precision components for the life science industry.

By working with our in-house engineers we can offer a completely integrated project management service to ensure there is a smooth transition from initial project idea through to finished product. We aim to help enhance end products, reduce overall part and production costs, and streamline assembly within manufacturing. Whatever your custom requirement, you will receive ongoing support and advice from a designated sales contact, our QC department and Customer Services team.

We understand the costs and complexities involved with OEM products and would be happy to discuss a range of solutions for your project. Please contact us to discuss your specific requirements in detail and complete confidence.

Custom and OEM Services Overview

- Product design and manufacturing for injection-moulded parts
- Instrumentation design and manufacture: Heat sealers, press tools, cutters, liquid handling instrumentation
- Heat and adhesive sealing: Custom material design and manufacture
- Sample tracking solutions: Custom applications and specifications for linear and 2D coding
- Surface treatment options
- Sterilisation options
- Packaging choices
- Specified QC procedures

TubeMarker™2

Tube labels or stickers are no longer required for sample identification - TubeMarker™2 is designed to print text, 1D linear barcodes, 2D data matrix codes and / or graphics directly onto most polypropylene sample storage and general-purpose laboratory tubes. Using Thermal Pixel Printing technology, TubeMarker™2 prints directly onto the surface of tubes sized from 0.5ml to 50ml.

Clear and durable marking with consistently legible text and barcodes printed at high resolutions is easier and faster than marking by hand. TubeMarker's permanent printing is resistant to water, alcohols (methanol, ethanol, isopropanol), DMSO*, haematoxylin, liquid nitrogen and mechanical abrasion.

Printed information is stable over a wide temperature range from -196°C to 100°C and markings do not transfer when tubes are manually handled.

The TubeMarker™2 delivery package contains tube adapters with hole diameters 8.5mm, 11.5mm and 12.7mm. These are compatible with most commonly-used tubes. Other adapters are available to order separately, please specify at time of ordering.

KEY FEATURES

- TubeMarker™2 prints directly on the surface of plastic laboratory and sample storage tubes in seconds
- Most 0.5ml to 50ml tubes with a smooth surface can be printed
- Adjustable tube support platform allows printing on tubes without a lip or collar
- Tube profiles created in the TubeMarker™2 software can be saved for future reference and sample tracking
- Adjustable sled pivot point improves overall print quality for larger tubes and labels
- Wide range of adapters available for differing diameter tubes

Flexible Label Printing to Suit Your Needs

- Tubes can be marked with any orientation
- TubeMarker can print text, 1D linear barcodes, 2D datamatrix codes and graphic files (monochrome .bmp, .gif, .tiff) such as logos
- Several lines of text can be printed, such as: sample name, your name, date, time etc.
- All TrueType fonts available on the connected PC can be printed
- Font size and type will determine the maximum available printable content

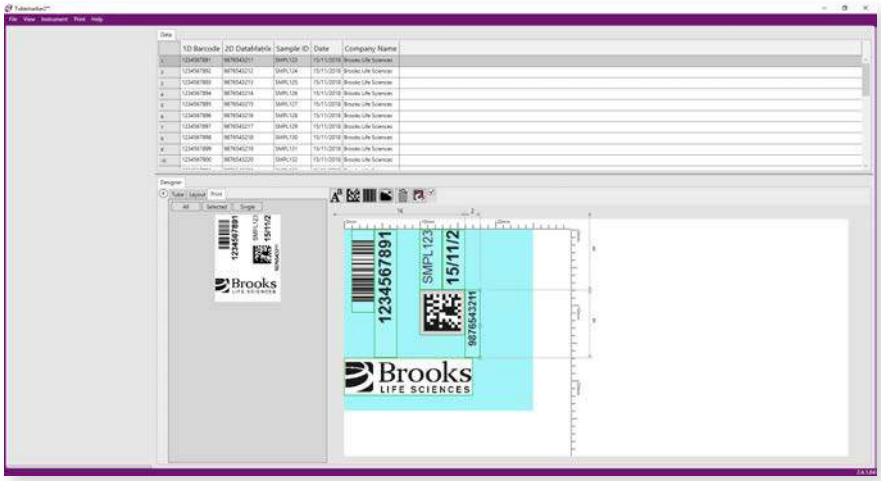
High-Quality and Durable Printing

- Thermal Pixel Printing technology produces clearer and more durable marking than marker pens
- Metallic blue, black and white ink ribbons are available for a range of colored tubes and colored contents
- Printing straight onto the tube surface is much easier than marking by hand or adhesive label
- Quick and easy to change ink ribbon
- Marking resistant to 70% ethanol, 70% isopropanol, >98% methanol, DMSO*, pure haematoxylin, liquid nitrogen & mechanical abrasion**
- Printing is temperature resistant from -196°C (liquid nitrogen) to 100°C
- 300m ink ribbon will mark up to 100,000 tubes*

**dependent on size of label print*

	TubeMarker™2 Sample Tube Labelling System
Communication	USB port
Print Method	Thermal Pixel Printing
Label Detail	Print height: 6mm, Print width: 40mm, Any print orientation
Tube Compatibility	Most plastic laboratory tubes 0.5 to 50ml
Dimensions L x W x H	280mm x 270mm x122mm
Electrical	V in: AC 100-240V V out: DC 18V
Weight	4.8kg

**blue ribbon resistant to 70% DMSO, black & white ribbons resistant to 100% DMSO*



Ordering Information

Code	Details	Quantity
4ti-0680-1	TubeMarker™ 2 Includes Tube Adapters 4ti-0681, 4ti-0683 and 4ti-0684	1
4ti-0681	Tube Adapter for 1.5 ml/2 ml tubes, hole diameter 11.5 mm	1 adapter
4ti-0683	Tube Adapter for 2D cluster tubes and for 0.5 ml tubes, hole diameter 8.5 mm	1 adapter
4ti-0684	Tube Adapter for cryo tubes, hole diameter 12.7 mm	1 adapter
4ti-0685-1	Tube Adapter for 2 ml screw cap tubes, hole diameter 10.4 mm	1 adapter
4ti-0685-2	Tube Adapter for 15 ml tubes, hole diameter 18 mm	1 adapter
4ti-0685-3	Tube Adapter for 50 ml tubes, hole diameter 30 mm	1 adapter
4ti-0685-4	Tube Adapter for Matrix tubes, hole diameter 8.2 mm	1 adapter
4ti-0685-5	Tube Adapter for 0.2 ml tubes, hole diameter 6.4 mm	1 adapter
4ti-0686	TubeMarker™ Ribbon, metallic blue, 300 M x 40 mm	1 roll
4ti-0688	TubeMarker™ Ribbon, white, 300 M x 40 mm	1 roll
4ti-0689	TubeMarker™ Ribbon, black, 300 M x 40 mm	1 roll
4ti-0689-1	TubeMarker™ Ribbon, black, universal, 300 M x 40 mm	1 roll

4titude Product Portfolio Summary

4titude Product Portfolio Summary

2-Component PCR Consumables, including

- FrameStar® 384/96 well PCR plates
- FrameStar® Break-A-Way and Break-2-Ways dividable PCR plates
- Random Access Plates - plates with 96 individually removable wells
- FrameStrip® 2-component PCR tube strips

Sealing solutions, including

- Heat sealing consumables
- Heat sealing instrumentation
- Adhesive sealing consumables
- Cap Strips, Lids & Mats

Standard PCR Consumables, including

- 384/96 well PCR plates
- Tear-A-Way™ dividable 96 well plates
- 96 well plate segments of 8 to 48 wells
- 8 well PCR tube strips - standard/low profile, without/with attached caps
- 4 well PCR tube strips
- Individual tubes

Processing options

- Barcoding, including linear Code 128 barcodes, 2D codes & custom solutions - enhance sample traceability and identification
- Ethylene Oxide Treatment for complete removal of any amplifiable DNA - for forensic applications
- Low Binding Products made of selected low bind polymers for sensitive applications such as Next Generation Sequencing sample preparation

Instrumentation

- TubeMarker™2 - designed to directly print text, linear barcodes, 2D codes and graphics on plastic laboratory tubes
- 4LAB™ - automated, high-precision low volume pipetting system
- Heat Sealing instrumentation - a4S™, IntelliXseal SA / IntelliXseal Heat Sealers
- Hand Held Barcode Scanner & Barcode Rack Scanner
- Plate cutter - air pressure operated, semi-automatic instrument, to be used to create strips or partial plates from e.g. FrameStar® Break-A-Way plates

Microplates, including

- Storage and reservoir plates - polypropylene, 384/96 wells, round/square wells, flat/U-shaped/V-shaped bottom
- Assay plates - solid flat bottom wells, 384/96/24 wells, black/white/clear polystyrene
- Vision Plates™ - clear flat bottom wells, 384/96/24 wells, black polystyrene

PRODUCT INDEX

Notes

Notes

About Brooks:

Brooks is a leading worldwide provider of automation and cryogenic solutions for multiple markets including semiconductor manufacturing and life sciences. Brooks' technologies, engineering competencies and global service capabilities provide customers speed to market and ensure high uptime and rapid response, which equate to superior value in their mission-critical controlled environments. Since 1978, Brooks has been a leading partner to the global semiconductor manufacturing market as a provider of precision automation and cryogenic vacuum solutions. Since 2011, Brooks has applied its automation and cryogenics expertise to meet the sample storage needs of customers in the life sciences industry, through Brooks Life Sciences. Brooks Life Sciences offerings include a broad range of products and services for on-site infrastructure for sample management at temperatures of 20°C to -190°C, as well as comprehensive outsource service solutions across the complete life cycle of biological samples including collection, transportation, processing, storage, protection, retrieval and disposal. Brooks is headquartered in Chelmsford, MA, with operations in North America, Europe and Asia.

Ordering Information

For ordering information please contact your local Brooks Life Sciences representative.

EU	Email: BLSS.Europe.Orders@brooks.com	Tel: Europe +44.0.161.777.2000
US	Email: BLSS.NA.Orders@brooks.com	Tel: North America +1.858.527.7080