

4titude® Heat Sealing Consumables Comparison & Instrument Compatibility Table

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	Clear Heat Seals				Peelable Heat Seals					Pierceable Heat Seals			Foil Heat Seals			Gas Permeable 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			96 INDI™ Heat Seal	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
Details see Sealing Brochure page	5	5	6	5	6	6	7			8	7	7	8	9	9	9	5
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			Compound storage Sample shipping Low temperature storage and high temperature incubations	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
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			96 perforated individual sealing caps in a foil frame Can be resealed Good solvent resistance, including DMSO	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 m³/m²/day Moisture vapour transmission: 20g/m²/day	3 mm slits across entire surface of seal makes this permeable to gases
Seal Integrity Min Temperature	-80°C	-80°C	-20°C	-80°C	-80°C	-80°C	-80°C			-195°C	-20°C	-20°C	-20°C	-20°C	-200°C	-20°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			120°C	120°C	120°C	110°C	110°C	110°C	80°C	100°C material integrity (not seal)
Pierceable			✓			(✓)				✓	✓	✓	✓	✓		✓	✓
Peelable	✓			✓	✓	✓	✓			✓			✓	✓	✓	✓	✓
RNase/DNase free	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
Material	Laminate	Polymer	Polymer	Polymer	Laminate	Laminate	Laminate			Laminate	Foil	Foil	Foil	Foil	Laminate	Woven material	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			PP	PP, PS	PP, COC	PP, PS	PP, PS, PC	PP	PP, PS, COC	PP, PE, PS, COC
4s3™ and a4S sealing parameters																	
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			175°C 3 s	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
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			N/A	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
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			N/A	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
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				4ti-0530	4ti-0538	4ti-0535	4ti-0545	4ti-0590	4ti-0598	4ti-0540/SLIT
Roll, 78 mm width, short roll*	4ti-0540/80	4ti-0573/122	4ti-0580/122		4ti-0520/122		4ti-0585/100				4ti-0530/122		4ti-0535/122	4ti-0545/122	4ti-0590/100	4ti-0598/122	
Sample roll, 78 mm width	4ti-0540S	4ti-0573S	4ti-0580S	4ti-0549/S	4ti-0520S	4ti-0523S	4ti-0585S				4ti-0530S	4ti-0538S	4ti-0535S	4ti-0545S	4ti-0590S	4ti-0598S	
Compatible with Agilent (Velocity 11) PlateLoc®																	
Roll, 115 mm width	4ti-0542	4ti-0574	4ti-0582	4ti-0548	4ti-0522	4ti-0524	4ti-0586				4ti-0532	4ti-0539	4ti-0537	4ti-0546	4ti-0592**	4ti-0599	
Sample roll, 115 mm width	4ti-0542S	4ti-0574S	4ti-0582S	4ti-0548/S	4ti-0522S	4ti-0524S	4ti-0586S				4ti-0532S	4ti-0539S	4ti-0537S		4ti-0592S**	4ti-0599S	
Compatible with REMP Portrait Heat Sealer (PHS)																	
Roll, 78 mm width, large core	4ti-0540/REMP						4ti-0585/REMP				4ti-0530/REMP		4ti-0535/REMP				
Compatible with REMP Landscape Stacking Heat Sealers (LHS / SHS)																	
Roll, 115 mm width, large core	4ti-0542/REMP						4ti-0586/REMP				4ti-0532/REMP		4ti-0537/REMP				
Compatible with 4titude® 4s3™ 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			4ti-0543	4ti-0531	4ti-05381	4ti-0536	4ti-0547	4ti-0591	4ti-0597	4ti-0541/SLIT
Compatible with 4titude® 4s3™ Semi-Automatic Sheet Heat Sealer																	
Random Access, sheets												4ti-05381/RA					
Compatible with 4titude® a4S™ Automatic Random Access Heat Sealer																	
Random Access, roll, 100 mm width													4ti-0539/RA				

* 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®

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