

4titude® Heat Sealing Consumables Comparison & Instrument Compatibility Table

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Name	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	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	6	6	7	8	7	7	8	9	9	9	5	Details see Sealing Brochure page		
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/room temperature compound storage with DMSO & other organic solvents	Compound storage Sample shipping	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	Application		
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	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	Easily pierceable Resistant to DMSO Re-sealable with another Pierce Seal Colour print identifies non-sealing surface	Easily pierceable Resistant to DMSO Re-sealable with another Pierce 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	Special Properties		
Seal Integrity Min Temperature	-80°C	-80°C	-20°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 Min Temperature		
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)	40°C	120°C	120°C	120°C	110°C	110°C	110°C	80°C	100°C material integrity (not seal)	Seal Integrity Max Temperature		
Pierceable			✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	Pierceable		
Peelable	✓				✓	✓	✓			✓	✓	✓	✓	✓	Peelable		
RNase/DNase free	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	RNase/DNase free		
Material	Laminate	Laminate	Polymer	Laminate	Laminate	Laminate	Laminate	Foil	Foil	Foil	Foil	Laminate	Woven material	Laminate	Material		
Seals to	PP, PE, PS, PC, COC	PP	PP, PE, PS, COC	PP, PS, COC	PP, COC	PP, PE, COC	PP	PP, PS	PP, COC	PP, PS, PC	PP, PS, PC	PP	PP, PS, COC	PP, PE, PS, COC	Seals to		
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	175-185°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 96 Well PP Plates		
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	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 384 Well PP Plates		
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	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	Sealing parameters with Vision Plates™		
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								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-0585		4ti-0530	4ti-0538	4ti-0535	4ti-0545	4ti-0590	4ti-0598	4ti-0540/SLIT	Roll, 78 mm width ¹		
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		Roll, 78 mm width, short roll ¹		
Sample roll, 78 mm width	4ti-0540S	4ti-0573S	4ti-0580S	4ti-0549/S	4ti-0520S	4ti-0585S		4ti-0530S	4ti-0538S	4ti-0535S	4ti-0545S	4ti-0590S	4ti-0598S		Sample roll, 78 mm width ¹		
Compatible with Agilent (Velocity 11) PlateLoc®								Compatible with Agilent (Velocity 11) PlateLoc®									
Roll, 115 mm width	4ti-0542	4ti-0574	4ti-0582	4ti-0548	4ti-0522	4ti-0586		4ti-0532	4ti-0539	4ti-0537	4ti-0546	4ti-0592			Roll, 115 mm width ²		
Sample roll, 115 mm width	4ti-0542S	4ti-0574S	4ti-0582S	4ti-0548/S	4ti-0522S	4ti-0586S		4ti-0532S	4ti-0539S	4ti-0537S		4ti-0592S			Sample roll, 115 mm width ²		
Compatible with REMP Portrait Heat Sealer (PHS)								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					Roll, 78 mm width, large core ³		
Compatible with REMP Landscape Stacking Heat Sealers (LHS / SHS)								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					Roll, 115 mm width, large core ⁴		
Compatible with 4titude® 4s3 Semi-Automatic Sheet Heat Sealer Thermo Fisher ALPS™ 25 and ALPS™ 50 KBiosystems E-Fly 2 REMP EasySealer								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-0587	4ti-0543	4ti-0531	4ti-05381	4ti-0536	4ti-0547	4ti-0591	4ti-0597	4ti-0541/SLIT	Sheets ⁵		
Compatible with 4titude® 4s3 Semi-Automatic Sheet Heat Sealer								Compatible with 4titude® 4s3 Semi-Automatic Sheet Heat Sealer									
Random Access seals, sheets									4ti-05381/RA						Random Access seals, sheets ⁶		

* 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.