CoolRack®

Thermo-Conductive Tube Modules

CoolRack® thermo-conductive metal alloy tube modules eliminate inconsistencies which occur due to inserting tubes directly into ice, dry ice, alcohol baths, water baths and other common laboratory temperature sources. Place the CoolRack module directly onto a temperature source and it will rapidly adapt to that temperature from -196°C to >+100°C. CoolRack modules ensure +/- 0.1°C temperature uniformity of all tubes when cooling, (snap)freezing or heating/thawing. Use for a variety of applications including cooling reagents such as restriction enzymes, dNTPs, antibodies and others; alcohol-free dry ice snap-freezing of tissue, virus and bacteria samples; bench top cryogenic tube sorting in liquid nitrogen; and many others. All CoolRack modules may be autoclaved, high heat sterilized or decontaminated with bleach, alcohol or other disinfectants or lab detergents. All modules may be used in all temperature sources.

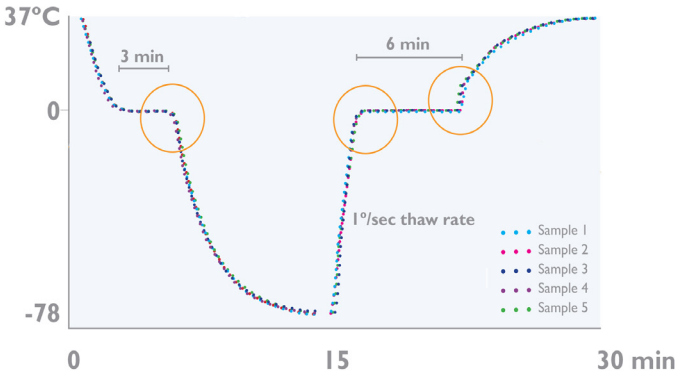
Problem: wet samples

- Non-uniform ice contact results in variable sample temperature
- Disorganized, wet samples and labels
- Shifting, sinking tubes - contamination risk
- Non-reproducible method

Solution: CoolRack

- All samples <4°C and uniform in temperature (+/- 0.1°C)
- Samples are organized, secure and dry
- All tubes are upright and indexed
- Reproducible method

CoolRack® Reproducibility



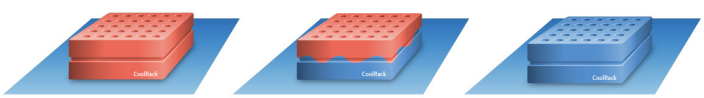
Five consecutive freeze/thaw cycles using a CoolRack CF45 module shows highly reproducible thermal profiles.

Performance test: A temperature probe was placed into a 2.0 mL cryogenic vial containing 1.0 mL of water. The tube was inserted into a CoolRack CF45 thermo-conductive module. The module was placed onto a ThermalTray platform in a 37°C water bath and allowed to equilibrate. The CoolRack CF45 module was then removed and placed onto dry ice and equilibrated to -78°C (0 - 15 minutes) and then returned to the water bath to re-equilibrate to 37°C (15 - 30 minutes). This experiment was repeated five consecutive times and temperature profiles were recorded.

Conclusion: The CoolRack CF45 module showed identical cooling profiles and phase transition (orange circles) over five consecutive freeze-thaw cycles.

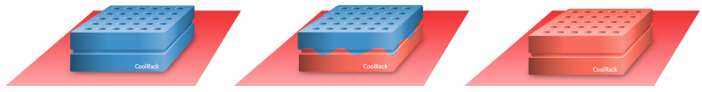
How It Works

Cooling



CoolRack on Ice: Heat from the relatively warmer CoolRack module is transferred to cooling source (wet or dry ice, cartridge, LN2) until equilibrium is reached.

Warming



CoolRack in Water Bath: Heat is transferred from water bath toward relatively cooler CoolRack until equilibrium is reached.

CoolRack® Sample Tube Modules

CoolRack® M microfuge tube modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-163 BCS-165 BCS-164	CoolRack M6 CoolRack M6, green CoolRack M6, orange	1.5 mL or 2.0 mL tubes	6	Cylindrical	6.0 x 4.3 x 3.8 cm	11.1 mm	32.7 mm	17.8 mm	17.8 mm
BCS-125 BCS-125G BCS-125O	CoolRack M15 CoolRack M15, green CoolRack M15, orange	1.5 mL or 2.0 mL tubes	15	Cylindrical	10.2 x 6.4 x 3.8 cm	11.1 mm	32.7 mm	17.8 mm	17.8 mm
BCS-127	CoolRack M15-PF	1.5 mL tubes	15	Conical	10.2 x 6.4 x 3.8 cm	11.1 mm	35.3 mm	17.8 mm	17.8 mm
BCS-535	CoolRack XT M24*	1.5 mL or 2.0 mL tubes	24	Cylindrical	12.8 x 8.5 x 3.8 cm	11.1 mm	32.7 mm	17.8 mm	17.8 mm
BCS-108	CoolRack M30	1.5 mL or 2.0 mL tubes	30	Cylindrical	12.0 x 10.2 x 3.8 cm	11.1 mm	32.7 mm	17.8 mm	17.8 mm
BCS-128	CoolRack M30-PF	1.5 mL tubes	30	Conical	12.0 x 10.2 x 3.8 cm	11.1 mm	35.3 mm	17.8 mm	17.8 mm
BCS-137	CoolRack M30-PF, 500ul	500 uL tubes	30	Conical	12.0 x 10.2 x 3.8 cm	11.1 mm	35.3 mm	17.8 mm	17.8 mm
BCS-102	CoolRack M90	1.5 mL or 2.0 mL tubes	90	Cylindrical	26.8 x 11.2 x 3.8 cm	11.1 mm	32.7 mm	17.8 mm	17.8 mm
BCS-116	CoolRack M96ID**	1.5 mL or 2.0 mL tubes	96	Cylindrical	25.4 x 15.2 x 3.8 cm	11.1 mm	32.7 mm	17.8 mm	17.8 mm

*SBS-Compatible ** CoolRack M96ID has A-H and 1-12 row and column indexing

CoolRack® CF cryogenic vial and FACS tube modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-126	CoolRack CF15	15 cryogenic vials	15	Cylindrical	10.2 x 6.4 x 3.8 cm	12.7 mm	32.7 mm	17.8 mm	17.8 mm
BCS-534	CoolRack XT CFT24*,**	24 cryogenic vials	24	Cylindrical	12.8 x 8.5 x 3.8 cm	12.7 mm	32.7 mm	17.8 mm	17.8 mm
BCS-138	CoolRack CFT30**	1.5 mL or 2.0 mL cryogenic vials or 12x75 FACS tubes	30	Cylindrical	12.0 x 10.2 x 3.8 cm	12.7 mm	32.7 mm	17.8 mm	17.8 mm
BCS-105	CoolRack CF45	45 cryogenic vials or FACS tubes	45	Cylindrical	17.3 x 9.7 x 3.8 cm	12.7 mm	32.7 mm	17.8 mm	17.8 mm

*SBS-Compatible **"gripping" wells for one-hand vial opening/closing

CoolRack® PCR plate, strip well or tube modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-529	CoolRack XT PCR96*	One 96-well PCR plate, strip wells, tubes	96	Tapered	12.7 x 8.6 x 2.5 cm	ø	13.2 mm	9.0 mm	9.0 mm
BCS-523	CoolRack XT M-PCR*	6 strip wells(PCR) and 12 x 1.5 or 2.0 mL microfuge tubes(M)	48(PCR) 12(M)	Tapered(PCR) Cylindrical(M)	12.7 x 8.6 x 3.8 cm	ø 11.1 mm	13.2 mm 32.7 mm	9.0 mm 14.0 mm	9.0 mm 20.3 mm
BCS-538	CoolRack XT PCR384*	One 384-well plate	384	Tapered	12.7 x 8.6 x 1.9 cm	ø	7.6 mm	4.5 mm	4.5 mm

*SBS-Compatible ø well comprises an 18 degree taper for conical PCR style tubes and tube arrays

CoolRack® 96 2D barcode storage tube modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-231	CoolRack 96x0.5ml	0.5 mL 2D storage tubes	96	Cylindrical	13.1 x 8.9 x 3.6 cm	8.4 mm	24.6 mm	9.0 mm	9.0 mm
BCS-149	CoolRack 96x1ml	1.4 mL 2D storage tubes	96	Cylindrical	13.2 x 8.9 x 4.3 cm	11.1 mm	32.7 mm	14.0 mm	17.8 mm

CoolRack® SV cell therapy injectable ampule modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-265	CoolRack SV10	10 mL injectable cell therapy ampules	12	Cylindrical	12.7 x 8.6 x 3.8 cm	23.6 mm	27.9 mm	25.9 mm	32.1 mm
BCS-266	CoolRack SV2	2 mL injectable cell therapy ampules	12	Cylindrical	12.7 x 8.6 x 3.8 cm	16.0 mm	24.0 mm	27.0 mm	30.0 mm

Tall Tube Modules

CoolRack® tall tube modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-539	CoolRack XT 5ml	5 mL centrifuge tubes	12	Conical	12.7 x 8.6 x 5.0 cm	16.5 mm	48.7 mm	28.0 mm	28.0 mm
BCS-232	CoolRack L	15 mL centrifuge tubes	12	Cylindrical	13.7 x 9.5 x 11.8 cm	17.5 mm	105.4 mm	25.4 mm	30.5 mm
BCS-153	CoolRack 15ml	15 mL centrifuge tubes	9	Cylindrical	8.9 x 8.9 x 10.7 cm	17.1 mm	106.7 mm	26.7 mm	26.7 mm
BCS-154	CoolRack 50ml	50 mL centrifuge tubes	4	Cylindrical	8.9 x 8.9 x 10.7 cm	29.5 mm	101.6 mm	40.6 mm	40.6 mm

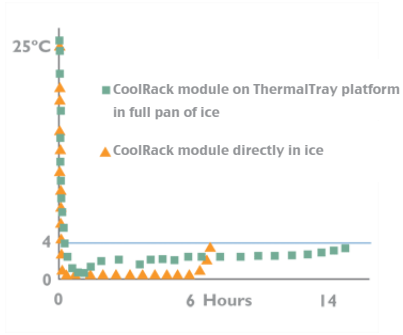
CoolRack® V blood collection tube modules

Item No.	Description	For Use With	Wells	Well Shape	Dimensions (L x W x H)	Well Dia.	Well Depth	Row Spacing	Column Spacing
BCS-235	CoolRack LV	13 mm or 16 mm blood tubes	12	Cylindrical	13.7 x 9.5 x 9.6 cm	16.6 mm	83.3 mm	25.4 mm	30.5 mm
BCS-155	CoolRack V13	13x100 mm blood tubes or 5 mL cryogenic vials	9	Cylindrical	8.9 x 8.9 x 8.4 cm	13.0 mm	83.8 mm	26.7 mm	26.7 mm
BCS-157	CoolRack VS13	13x75 mm blood tubes	9	Cylindrical	8.9 x 8.9 x 6.1 cm	13.0 mm	61.0 mm	26.7 mm	26.7 mm
BCS-156	CoolRack V16	16x100 mm blood tubes	9	Cylindrical	8.9 x 8.9 x 8.4 cm	16.0 mm	83.8 mm	26.7 mm	26.7 mm

CoolRack® Versatility and Performance

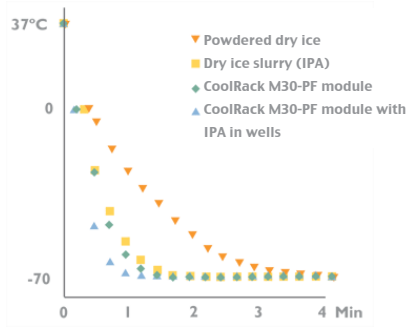
Cooling On Ice

- Adapts from ambient (25°C) to <4°C in 60-90 seconds*
- Samples and labels stay dry, organized, uniform in temperature
- Hours of ice cooling without direct ice contact
- Reproducible method



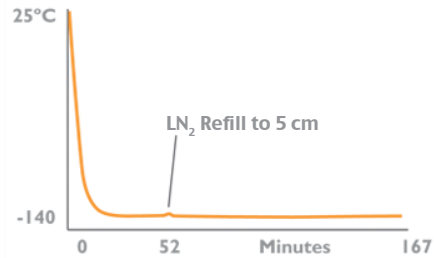
Freezing, Snap-Freezing On Dry Ice

- Adapts from ambient (25°C) to -78°C in 5-7 minutes*
- Eliminates ethanol – cost savings, no hazardous waste, no "sunk" tubes
- Samples are upright and organized as they snap freeze
- Equal or better freezing rate as compared to direct immersion into dry ice or alcohol slurry
- Consistent and reproducible method



In Liquid Nitrogen (LN2)

- Adapts from ambient (25°C) to approximately -150°C in 12-14 minutes*
- Samples are upright and organized as they flash freeze
- No direct contact between sample and LN2
- Consistent and reproducible method



Heating and Thawing

CoolRack modules are compatible with heat sources such as:

- waterbaths
- incubators
- hot plates
- ovens

**Average cooling rate from room temperature*

Complete Systems for Cell Therapy

CoolCell® SV2 Stem Cell Cryopreservation System

Item No.	Description	For Use With
BCS-172CS	CoolCell SV2 Stem Cell Cryopreservation System	2 mL injectable cell therapy ampules. System provides controlled sample preparation and cryopreservation of stem cell and cell therapy products.

CoolCell® SV10 Stem Cell Cryopreservation System

Item No.	Description	For Use With
BCS-262CS	CoolCell SV10 Stem Cell Cryopreservation System	10 mL injectable cell therapy ampules. System provides controlled sample preparation and cryopreservation of stem cell and cell therapy products.

biocision

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