



huber

Temperature Control
in the synthetic research laboratory

Old Fashioned Method: Use of Solid CO₂ (Card Ice) or Liquid Nitrogen



Solvent Mixture	Temperature Deg C	Solvent Mixture	Temperature Deg C
p-Xylene/Liquid nitrogen	13	n-Butyl amine/Liquid nitrogen	-50
p-Dioxane/Liquid nitrogen	12	Diethyl carbitol/Dry ice	-52
Cyclohexane/Liquid nitrogen	6	n-Octane/Liquid nitrogen	-56
Benzene/Liquid nitrogen	5	Chloroform/Dry ice	-61
Formamide/Liquid nitrogen	2	Chloroform/Liquid nitrogen	-63
Aniline/Liquid nitrogen	-6	Methyl iodide/Liquid nitrogen	-66
Cycloheptane/Liquid nitrogen	-12	Carbitol acetate/Dry ice	-67
Benzonitrile/Liquid nitrogen	-13	t-Butyl amine/Liquid nitrogen	-68
Ethylene glycol/Dry ice	-15	Ethanol/Dry ice	-72
o-Dichlorobenzene/Liquid nitrogen	-18	Trichloroethylene/Liquid nitrogen	-73
Tetrachloroetane/Liquid nitrogen	-22	Butyl acetate/Liquid nitrogen	-77
Carbon tetrachloride/Liquid nitrogen	-23	Acetone/Dry ice	-78
Carbon tetrachloride/Dry ice	-23	Isopropanol/Dry ice	-78
m-Dichlorobenzene/Liquid nitrogen	-25	Isoamyl acetate/Liquid nitrogen	-79
Nitromethane/Liquid nitrogen	-29	Acrylonitrile/Liquid nitrogen	-82
o-Xylene/Liquid nitrogen	-29	Sulfur dioxide/Dry ice	-82
Bromobenzene/Liquid nitrogen	-30	Ethyl acetate/Liquid nitrogen	-84
Iodobenzene/Liquid nitrogen	-31	Ethyl methyl ketone/Liquid nitrogen	-86
Thiophene/Liquid nitrogen	-38	Acrolein/Liquid nitrogen	-88
3-Heptanone/Dry ice	-38	Nitroethane/Liquid nitrogen	-90
Acetonitrile/Liquid nitrogen	-41	Heptane/Liquid nitrogen	-91
Pyridine/Liquid nitrogen	-42	Cyclopentane/Liquid nitrogen	-93
Acetonitrile/Dry ice	-42	Hexane/Liquid nitrogen	-94
Chlorobenzene/Liquid nitrogen	-45	Toluene/Liquid nitrogen	-95
Cyclohexanone/Dry ice	-46	Methanol/Liquid nitrogen	-98
m-Xylene/Liquid nitrogen	-47	Diethyl ether/Dry ice	-100

Rondeau, R.E. (1966) Slush baths. J. Chem. Eng. Data, 11: 124.

– Use of Expensive, Restricted, Toxic and/or Carcinogenic Chemicals –



Huber Method: TC-Immersion Chiller

- ✓ Universal solution for many cooling tasks
- ✓ Rapid cooling of fluids
- ✓ Ideal for replacement of dry ice
- ✓ LED temperature display
- ✓ Easy operation with only three keys
- ✓ Compact
- ✓ Round the clock operation



Huber Unit	Solvent	Temperature Deg C
TC®45	Acetone	(-45 to +30)
TC®45	Thermal Fluid	(-45 to +100)
TC®50	Acetone	(-50 to +30)
TC®50	Thermal Fluid	(-50 to +50)
TC®100	Acetone	(-100 to +30)
TC®100	Thermal Fluid	(-50 to +40)

– Contact us for Demonstration –



| DC®30 |

Flow-through Chillers

Flow-through Chillers are designed for simple, low demand cooling applications. They are commonly used in combination with the CC-202C or CC-205B series to remove heat in order to cool a process back to room temperature.

Model	Working Temp. Range (°C)	Cooling Power (kW) at			Dimensions W x D x H (mm)	Cat.No.	G
		15°C	0°C	-20°C			
DC®30	-30...50	0,2	0,15	0,07	190 x 250 x 360	3000.0001.99	2
DC®31	-30...50	0,4	0,35	0,10	250 x 310 x 400	3001.0001.99	2
DC®32	-30...50	0,6	0,47	0,12	280 x 340 x 460	3002.0001.99	2

All units use natural refrigerant as standard

Immersion Coolers

"Dip" or "Immersion" coolers are ideal for simple cooling applications when low temperatures are required such as vapour traps or for cooling individual flasks. They are also commonly used to remove heat from the baths in the "A" and "B" series. The units with an "E" have the capability to control the temperature to a stability of $\pm 0,5$ K to DIN 12876. All models can be delivered with a flexible evaporator coil (no extra cost). The model name and Cat.No. have the suffix "F". Flexible probes & custom probes available.



| TC®100E |

| TC®50 |

| TC®45-F |

Model	Working Temperature Range (°C)	Cooling Power (kW) at				Dimensions W x D x H (mm)	Cat.No. "Standard"	Cat.No. with flexible evaporator	G
		0°C	-20°C	-30°C	-90°C				
TC®45	-45...100	0,24	0,18	0,1	—	190 x 295 x 360	3003.0001.99	3003.0003.99	2
TC®45E	-45...100	0,24	0,18	0,1	—	190 x 295 x 360	3003.0002.99	3003.0004.99	2
TC®50	-50...50	0,3	0,26	0,2	—	260 x 330 x 415	3004.0001.99	3004.0003.99	2
TC®50E	-50...50	0,3	0,26	0,2	—	260 x 330 x 415	3004.0002.99	3004.0004.99	2
TC®100	-100...40	0,16	0,15	0,14	0,07	295 x 500 x 570	3005.0043.99	3005.0045.99	2
TC®100E	-100...40	0,16	0,15	0,14	0,07	295 x 500 x 570	3005.0044.99	3005.0046.99	2

All units use natural refrigerant as standard



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