

# -40°C /-80°C /-120°C Recirculating Chiller

## Characteristic:

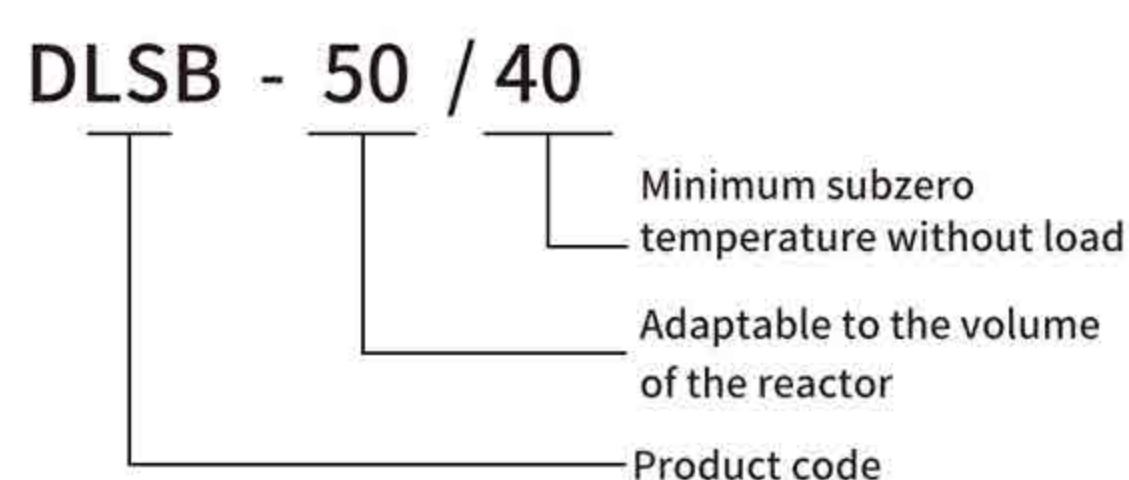
It is suitable for chemical, biological and physical tests that need to maintain low temperature conditions. It can be used in laboratories of medicine and health, food hygiene, chemical industry and colleges or research institutes. It can be used with 10L, 20L, 50L, 100L and other reactors to cool the materials in the reactor to -40°C, -60°C, -80°C, -100°C, -120°C.

- Materials field: Electron microscope, X-ray diffraction, X-ray fluorescence, magnetron sputtering, vacuum coating machine, laser.
- Chemical and biological fields: atomic absorption, ICP, ICP-MS, nuclear magnetic resonance, biological fermenter, chemical reactor (synthesizer), etc.
- The evaporator is a fully brazed plate heat exchanger.
- The circulatory system is closed and has no volatilization.
- For explosive atmospheres of type IIB, the equipment can use explosion-proof products of EXd II BT4 / EXd II CT4 grade.
- The shell is made of cold-rolled steel with electrostatic plastic spraying, which has good anti-corrosion effect.
- The equipment is equipped with a pressure gauge, which can display the pressure of the real-time refrigerant.
- Cooling type can choose air-cooled/water-cooled, also supports customized PLC control system.



DLSB-50/40

## Model Description





## Plate heat exchanger

Heat exchange efficiency, reduce the use of heat transfer medium



## Danfoss expansion valve

Immediately control the flow of refrigerant to ensure the cooling capacity



## Temp.control accuracy

Adopt PID control mode to optimize temperature control and accuracy can reach  $\pm 0.5^{\circ}\text{C}$



## Circulation pump

Using magnetic pump, low heat, simple structure, lift and flow can be customized



## Safety appliances

Using Schneider controller, with leakage protection, overcurrent various safety protection measures



## Compressor

Use brand compressors, such as Tecumseh/Danfoss/Copeland



## Quality assurance

Provide 18-month warranty after received equipment



## Data interface

Support Modbus communication protocol, optional, RS485/RS232 communication interface



## Customizable PLC

Using Siemens PLC+HMI to program the PLC control system, you can write 5 programs, each with up to 40 segments



## Closed circulation system

It is not easy to absorb moisture at low temperature, prolonging the service life of heat transfer fluid

## Cooling type

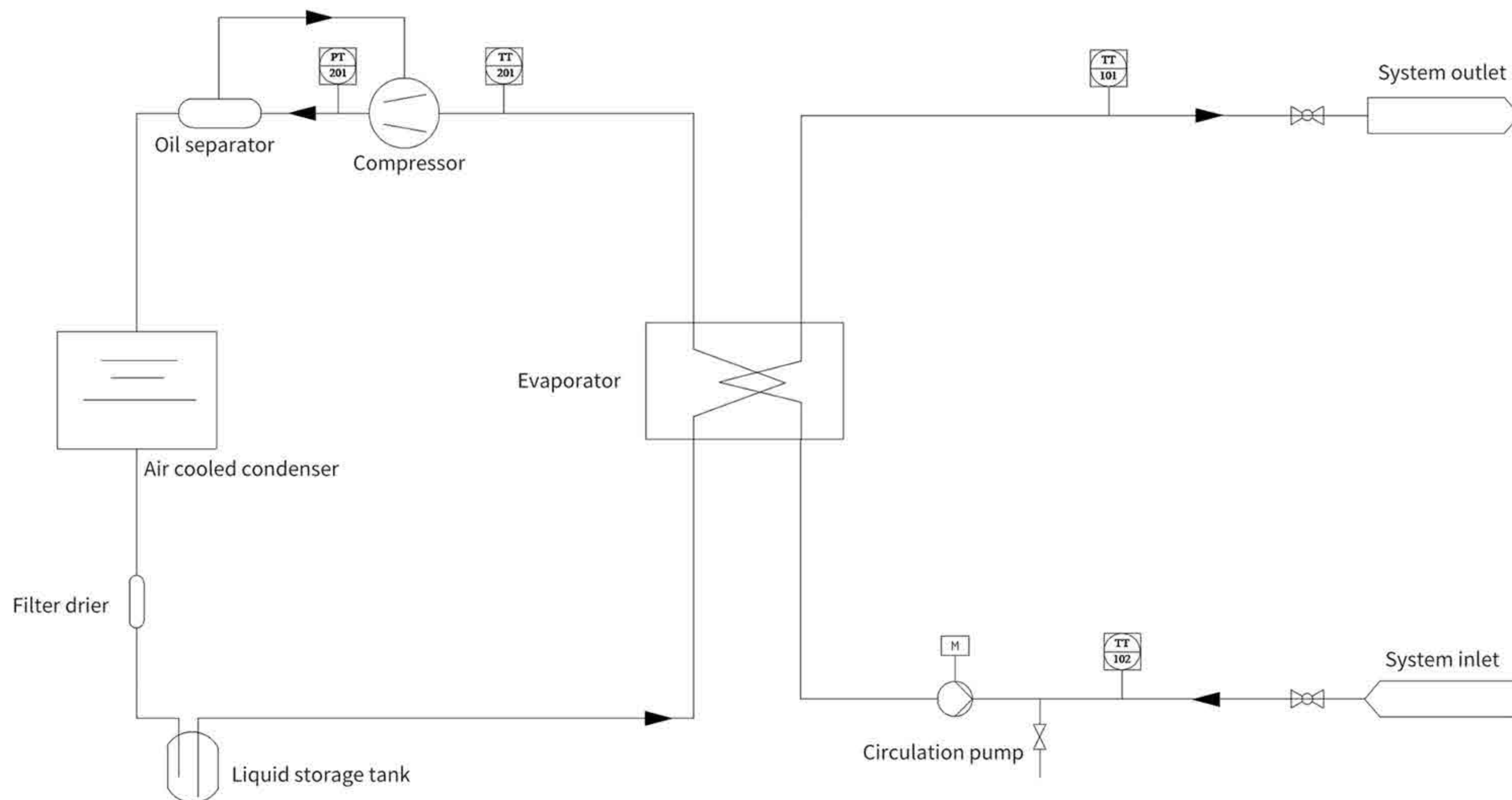
The default is air cooling, and the water cooling system can be customized according to user needs

## Optional explosion-proof

For explosive atmospheres of type IIB, the equipment can use EXd II BT4 / EXd II CT4 grade explosion-proof products

# Flow Chart And Curve

## Single Compressor-PID:



The heat transfer medium is in a closed system with an expander, and the heat transfer medium in the expansion vessel does not participate in the circulation, effectively reducing the risk of the heat transfer medium absorbing moisture and volatilizing during operation. .

## Temp. Curve:

温度曲线图

产品名称:	低温冷却循环泵	环境湿度:	25
产品型号:	DLSB-50/40	测试员:	001
产品编号:	20210728001	测试日期:	2021-07-28

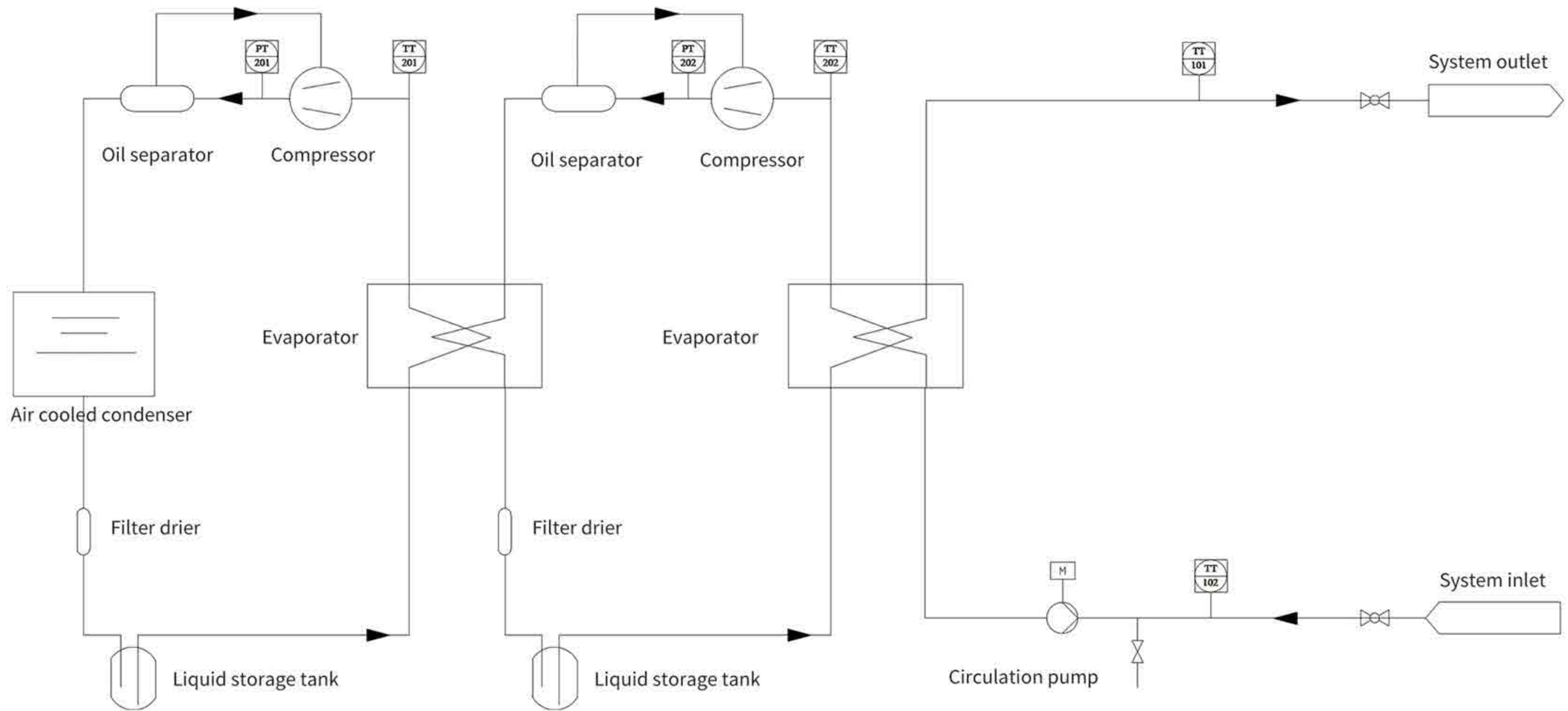
单位: °C



DLSB-50/40 measured temperature control curve in no-load state



## Cascade Model PID:



## Optional Connecting Tube

Project / Product	Silicone Rubber Tube	Foam Silicone Insulation Hose	Stainless Steel Circulation Tube
Operating range	-100°C~120°C	-120°C~200°C	-120°C~300°C
Connection size	3/4"	3/4"	3/4"
Length	2.0m (length can be customized)		



Silicone Rubber Tube



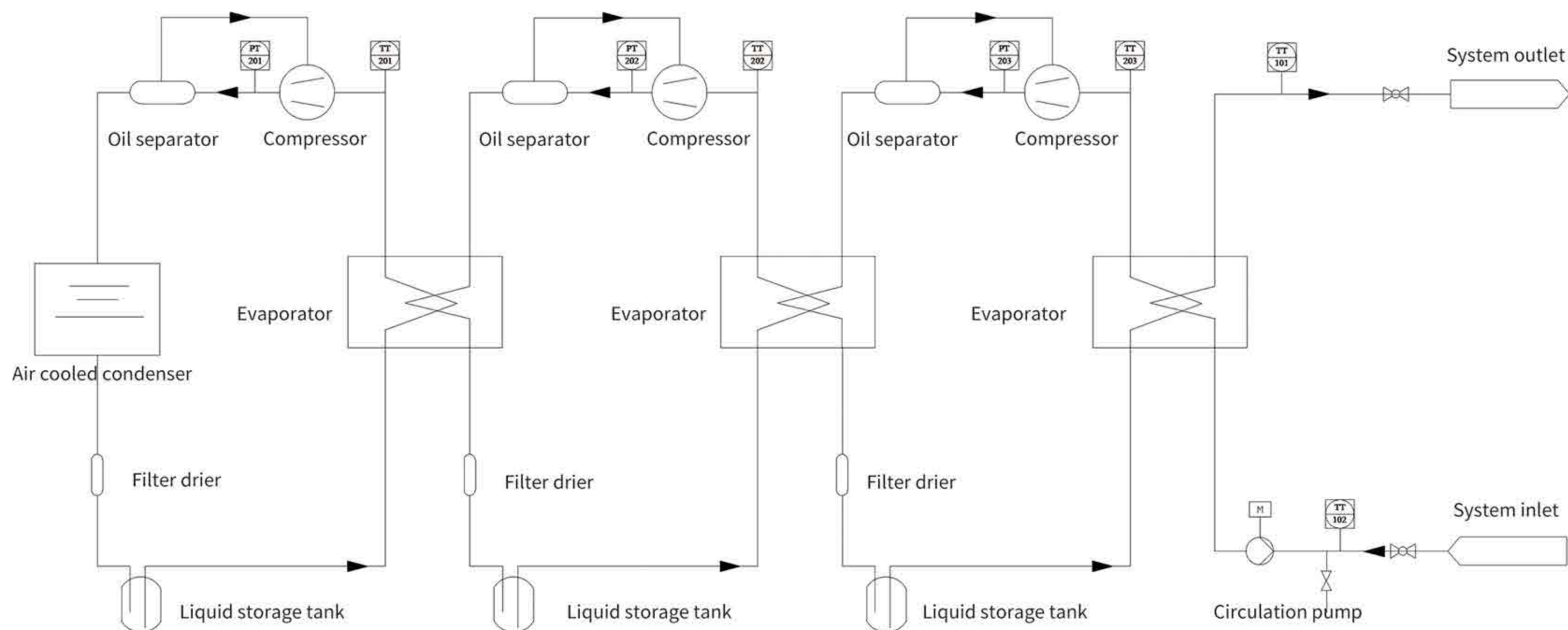
Foam Silicone Insulation Hose



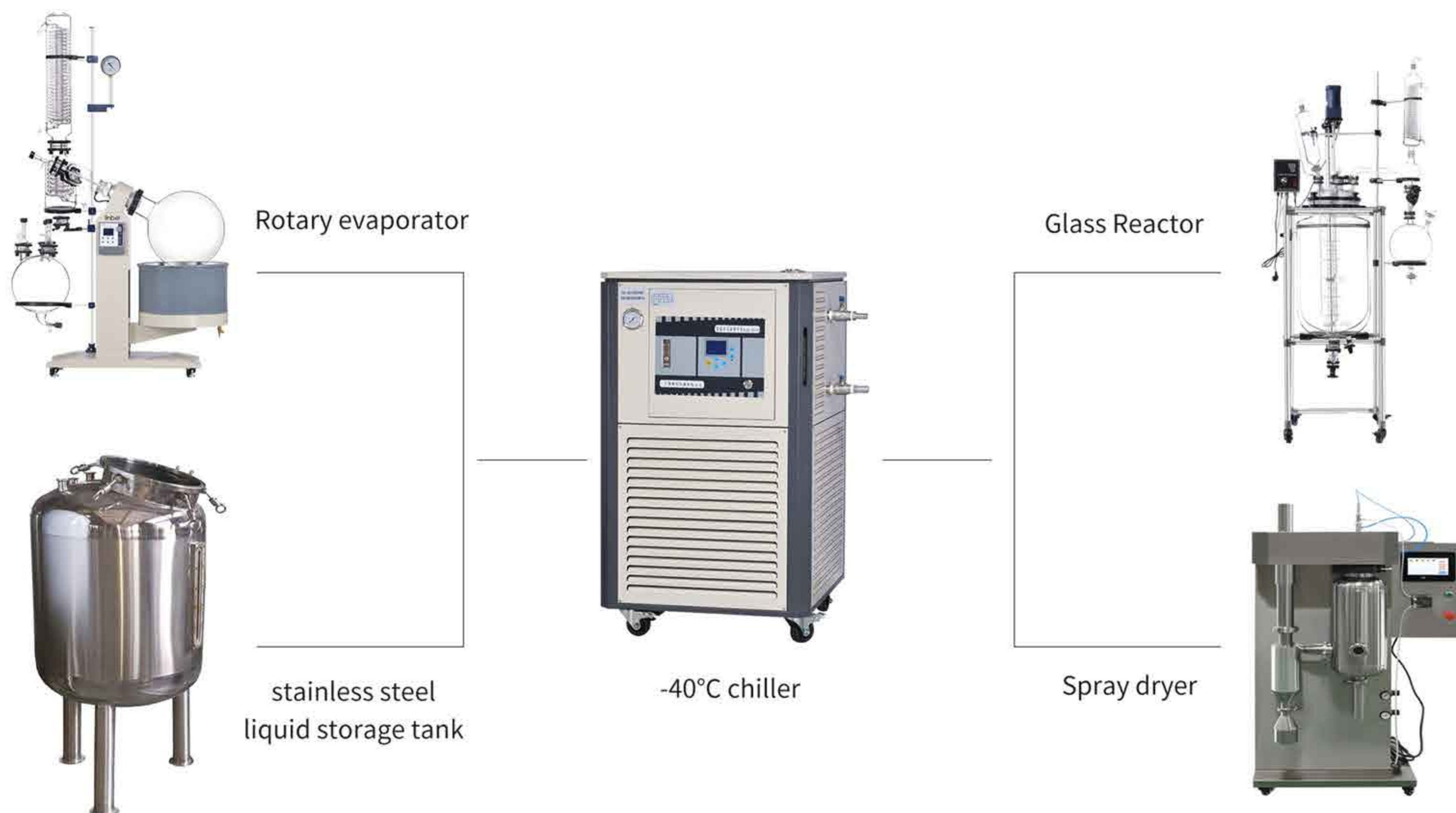
Stainless Steel Circulation Tube

# Flow Chart And Combination Device

## Triple Cascade Model-PID:

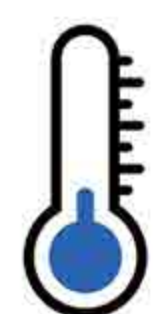


## Common Combination Device



# Technical Parameters

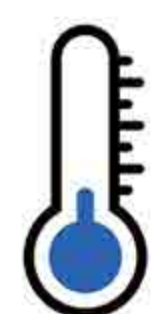
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**-40°C~RT**  
(DLSB-series)

Product number	DLSB-10/40	DLSB-30/40	DLSB-50/40	DLSB-100/40	DLSB-200/40	DLSB-300/40	
Temp.range	-40°C-RT; ±0.5°C						
Voltage	220V ~50/60Hz	380V (optional 3Phase 220V / 480V) ~50/60Hz					
Power(kW)	1.3	3.0	5.0	6.5	8.0	13	
Cooling capacity (w)	25°C	2800	6000	12000	14000	22000	28000
	-20°C	2060	4100	6200	8500	10000	14190
	-40°C	650	1100	2200	2800	3500	4800
Temp.Sensor	PT100						
Safety protection	Overvoltage, time delay, overcurrent, overheating, leakage						
Refrigerant	R404A / R448						
Evaporator type	Plate heat exchange						
Circulation pipe size (DN)	15	15	20	20	25	25	
Fan type	Outer Rotor Axial Fan						
Cooling type	Air cooling (water cooling is optional)						
Compressor power (kW)	1.125	2.25	4.5	5.25	7.5	9.75	
Current (A)	5.1	6	9	11	15	20	
Tank volume (L)	7	10	17	35	100	100	
Lift (m)	6	6	12	12	9.7	9.7	
Flow (L/min)	25	25	35	35	97	97	
Dimensions(mm)	620*540*920	710*580*1050	770*670*1180	970*800*1350	1200*970*1600	1400*970*1680	
Weight (Kg)	120	156	220	268	430	490	
PLC	Control System		Siemens S7-200smartPLC				
	Programming		Can write 5 programs, each with up to 40 steps				
	Control mode		Material temperature and equipment outlet temperature can be switched				
	Protocol		Modbus RTU protocol RS485 interface (optional RS232 Ethernet)				
	Operation panel		7-inch Siemens color touch screen (10-inch optional)				
	Data output		Support U disk data export, can export temperature data in TXT format				
Install list	2 sets of matching valves, a roll of raw material belt / 2 stainless steel insulation hoses / an operation manual						

# Technical Parameters

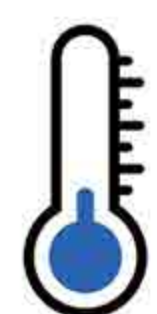


**-80°C~RT**  
(DLSB-series)

Product number	DLSB-5/80	DLSB-10/80	DLSB-20/80	DLSB-40/80	DLSB-50/80	DLSB-100/80	DLSB-200/80	DLSB-300/80	
Temp.range	-80°C-RT; ±0.5°C								
Voltage	110V/220V ~50/60Hz		220V~50/60Hz	3Phase-220V/380V/460V ~50/60Hz					
Power(kW)	1.6	2.3	3.5	5.6	10	13	16	20	
Cooling capacity (w)	25°C	1200	2000	3200	6000	12000	16000	22000	29000
	0°C	900	1700	2600	5200	10000	13000	20000	25000
	-40°C	700	1100	2064	4100	7300	9000	10000	14000
	-60°C	400	850	1400	2300	4000	5200	6200	8000
	-80°C	120	450	650	1200	2000	2800	3500	5000
Temp.Sensor	PT100								
Safety protection	Overvoltage, time delay, overcurrent, overheating, leakage								
Refrigerant	R404A / R23								
Circulation pipe size (DN)	15	15	15	20	20	20	25	25	
Cooling type	Air cooling (water cooling is optional)								
Compressor power (kW)	1.5	3	4.5	5.25	9	9	15	19.5	
Current (A)	7	13	20	23	30	30	30	38	
Tank volume (L)	5	7	10	10	17	35	100	100	
Lift (m)	3	8	8	11	11	11	15	15	
Flow (L/min)	15	25	25	35	35	35	180	180	
Dimensions(mm)	600*480*700	770*670*1180	810*710*1240	810*710*1240	970*800*1245	970*800*1345	1400*970*1580	1400*970*1780	
Weight (Kg)	95	210	250	255	330	350	570	590	
PLC	Control System		Siemens S7-200smartPLC						
	Programming		Can write 5 programs, each with up to 40 steps						
	Control mode		Material temperature and equipment outlet temperature can be switched						
	Protocol		Modbus RTU protocol RS485 interface (optional RS232 Ethernet)						
	Operation panel		7-inch Siemens color touch screen (10-inch optional)						
	Data output		Support U disk data export, can export temperature data in TXT format						
Install list	2 sets of matching valves, a roll of raw material belt / 2 stainless steel insulation hoses / an operation manual								

# Technical Parameters

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**-120°C~RT**  
(DLSB-series)

Product number	DLSB-10/120	DLSB-30/120	DLSB-50/120	DLSB-100/120	DLSB-200/120	DLSB-300/120	DLSB-500/120	
Temp.range	-120°C-RT; ±0.5°C							
Voltage	220V~50/60Hz	380V (optional 3Phase 220V / 480V) ~50/60Hz						
Power(kW)	3.6	7.1	14	15.2	24	30.5	36	
Cooling capacity (w)	25°C	4380	7875	15750	18375	46789	58882	78750
	0°C	4100	7100	14600	17275	35841	39811	56300
	-40°C	3200	5596	11000	13100	14078	17400	33050
	-80°C	1200	2800	3542	5522	7623	10324	20600
	-120°C	250	450	600	900	1100	1500	2200
Temp.Sensor	PT100							
Safety protection	Overvoltage, time delay, overcurrent, overheating, leakage							
Refrigerant	R404A、R23、F14							
Evaporator type	Plate heat exchange							
Circulation pipe size (DN)	15	15	20	20	25	25	32	
Fan type	Outer Rotor Axial Fan							
Cooling type	Air cooling (water cooling is optional)							
Compressor power (kW)	3.375	6.75	13.5	14.6	22.5	29.25	33.75	
Current (A)	15	30	44/27	30	73/45	95/58	110/67	
Tank volume (L)	7	10	17	35	100	100	300	
Lift (m)	8	8	12	12	10	10	15	
Flow (L/min)	20-25	20-25	30	30	60	60	180	
Dimensions(mm)	970*800*1250	970*800*1250	1500*960*1300	1500*960*1500	1900*1040*1820	1900*1040*1820	3000*1300*2080	
Weight (Kg)	330	350	560	600	830	830	1600	
PLC	Control System		Siemens S7-200smartPLC					
	Programming		Can write 5 programs, each with up to 40 steps					
	Control mode		Material temperature and equipment outlet temperature can be switched					
	Protocol		Modbus RTU protocol RS485 interface (optional RS232 Ethernet)					
	Operation panel		7-inch Siemens color touch screen (10-inch optional)					
	Data output		Support U disk data export, can export temperature data in TXT format					
Install list	2 sets of matching valves, a roll of raw material belt / 2 stainless steel insulation hoses / an operation manual							