

## 超低温冷冻箱(柜)



设备制冷采用自复叠制冷技术原理，压缩机采用进口品牌，制冷单元采用自有知识产权的核心，油分采用99.9%以上的高效分离效果；控制阀体采用进口全封闭性阀体，焊接采用高银焊材焊接，确保制冷主机使用寿命，降低设备运行故障，减少设备运行维护成本。

超低温箱体一般采用风冷冷凝设计，大容积采用水冷冷凝设计，不锈钢内腔，温度分布均匀，开门可采用掀背式或立式开门方式，可采用液

压或气缸顶升辅助开门提高设备安全性；箱体底部可采用加强结构，高承重能力。箱体保温采用高密聚氨酯发泡，厚度可达 250mm, 降低设备热损，提高设备能效。

箱体采用 SUS304 内胆、加厚保温层、柜体内部设置风道和不锈钢叶轮风扇，达到无霜要求，也可采用自然对流换热方式。使用温度范围： $-60^{\circ}\text{C}\sim-150^{\circ}\text{C}$ ，设备广泛应用于生物、化工、血浆、疫苗、菌种、生物样本等低温保存。

设备主要应用于制药行业、科研院所等行业；

箱体可按业主需求容积、温度定制；

### 设备特点：

- 1: 采用自复叠制冷技术制冷技术；设备体积减少。
- 2: 采用本公司自主研发制冷单元，制冷剂无泄漏，延长设备使用年限；
- 3: 采用原装进口压缩机，具有运行平稳，噪音低，功率小，能耗低，寿命长。
- 4: 超低温度，降温平稳；
- 5: 恒温采用热气平衡，节约能源；采用电热恒温，温度精度高；

- 6: 热交换通道、风机叶轮/内胆均采用食品级 SUS316 制作，满足行业需求要求；
- 7: 西门子 PLC+HMI/Deepcold 自开发控制板，施耐德电器；保障设备运行可靠性，运行状态一目了然；（选配）
- 8: 压缩机采用小功率，电源配置简单，适合研究所、医疗机构、院校方便使用；
- 9: 能定制防爆机型功能；

### 应用范围图谱：



### 型号定义：

DC/FH (V) ① - ② / ③ / ④ / ⑤ / ⑥ / ⑦ / ⑧ / ⑨

### 型号说明：

DC/FH:蒂珀克®卧式超低温冰柜（冷柜）；DC/FV:蒂珀克®立式超低温冰柜（冷柜）；

备注：①~③为基础型号，④~⑨为扩展型号； 例如：DC/FH1-110/11/12/06/W/3/S/V

DC/FH(FV)	1	2	3	4	5	6	7	8	9	说明
蒂珀克										蒂珀克®FH卧式超低温冰柜（冷柜） FV立式超低温冰柜（冷柜）
制冷原理	1									单机自覆叠
	2									双级覆叠
	3									三级覆叠
	4									单机双级覆叠
适用温度（℃）：	080									表示制冷温度-80℃；依此类推；
有效容积（*10 <sup>n</sup> L）	30									03~3L（10 <sup>0</sup> *3=3）；15~50L（10 <sup>1</sup> *5=5）；以此类推；>10L以上取整，00~<1L；
机组名义功率(HP)：	03									03表示3P;依此类推；
冷凝方式	W									水冷
	F									风冷
系统电压(V)	2									系统电压220V
	3									系统电压380V
压缩机形式	S									半封闭压缩机
	T									全封闭压缩机
恒温方式	E									电热恒温模式
	F									热氟恒温模式
	V									电磁阀控制制冷模式
	N									无恒温模式
箱体材质	00									碳钢
	04									SUS304
	16									SUS316
	01									其他材质
DC/FH(FV)	1	2	3	4	5	6	7	8	9	说明

## **Ultralow Temperature Refrigerator (Freezer)**

This equipment applies the auto-cascade refrigerating technology and compressor of import brand. Refrigerating unit applies the core of independent intellectual property, and oil content applies high-efficiency separating effect above 99.9%; Control valve applies the imported closed valve with high-silver welding material for welding to ensure the life service of principal refrigerating machine, reduce the operation failure of equipment and decrease the operation maintenance cost of

Ultra low temperature refrigerator applies the forced-air cooling structure with stainless steel chamber to ensure an uniform temperature distribution. Refrigerator's door can be opened in both hatch-back mode and vertical mode, supported by the hydraulic or cylinder jacking system to enhance the safety of opening door; Refrigerator bottom applies the reinforced structure to ensure a high weight capacity. Refrigerator insulation applies the high density polyurethane foam with the thickness reaches 250mm to reduce the heat waste of equipment and enhance the energy efficiency of equipment.

Refrigerator applies SUS304 liner and thickened insulation layer with the air channel and stainless steel paddle-wheel

fan mounted inside so as to reach the frost-free requirement, which can also apply the mode of natural-convection heat transfer. Using temperature range:-60°C~-150°C. It can be widely applicable to the low temperature storage for biology, chemical engineering, blood plasma, vaccine, bacteria, biological samples etc.

This equipment is mainly applied to the pharmaceutical industry, research institutes etc.

Refrigerator's capacity and temperature can be customized as per customers' demand.

### **Equipment Feature:**

- 1: It adopts ARC technology refrigeration technology; the equipment volume is reduced.
- 2: Self-overlapping uses the company's refrigeration units of its own research and development to extend the useful life of equipment
- 3: Adopting the original imported compressor with features of a smooth operation, low noise, low power, low energy consumption and long life.
- 4: Ultra-low temperature and stable and rapid cooling;
- 5: Thermostat uses hot air balance with energy conservation; electric thermostat is used with high temperature accuracy;

6: Heat exchange channel, fan impeller / liner are made of food-grade SUS316 to meet the demands of industry;

7: Controlling system professionally developed by Siemens PLC+HMI or Deepcold , Schneider Electric to ensure the reliability of equipment operation;

8: Compressor has low power and power supply configuration is simple, which are suitable for research institutes, medical institutions and institutions;

9: It can customize the function of anti-explosion models

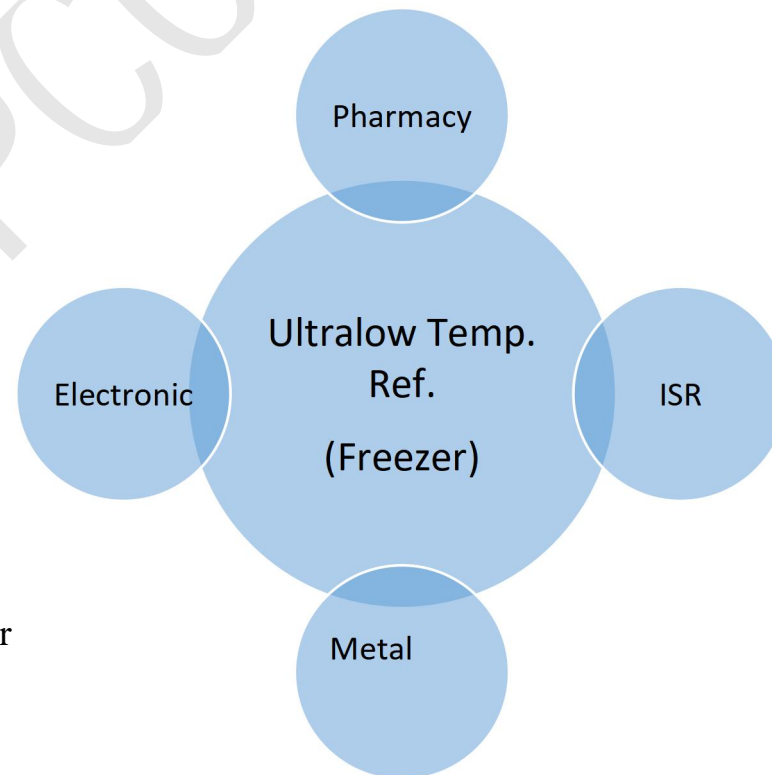
### Applicable Industry Guide:

#### Model Definition:

DC/FH (V) ① - ② / ③ / ④ / ⑤ / ⑥ / ⑦ / ⑧ / ⑨

Model Definition:

DC/FH: Deepcold<sup>®</sup> Horizontal Ultralow Temperature Freezer



DC/FV:Deepcold<sup>®</sup> Vertical Ultralow Temperature Freezer;

Remarks: ①~③ are basic models, ④~⑨ are expanding model;

For example: DC/FH1-110/11/12/06/W/3/S/V

DC/FH(FV)	1	2	3	4	5	6	7	8	9	Remarks
Deepcold										Deepcold®FH:Horizontal Ultralow Temperature Freezer FV:Vertical Ultralow Temperature Freezer;
Ref. Prin.	1									ARC
	2									Double-Stage Cascade
	3									Three-Stage Cascade
	4									Single-Machine Double-Stage Cascade
Temp. (°C) :	080									For example:080~-80°C; and so on;
Eff. Cap. (*10 <sup>n</sup> L)		30								03~3L (10 <sup>0</sup> *3=3) ; 15~50L (10 <sup>1</sup> *5=5) ; And so on;
Unit Nom. Power(HP) :			03							For example: 03 indicates 3HP; 15 indicates 15HP, and so on;
Condensation Mode								W		Water Cooling
								F		Forced-air Cooling
System Voltage(V)								2		220Vac
								3		380Vac
Compressor Mode								S		Semi-Hermetic Compressor
								T		Total-Hermetic Compressor
Constant Temperature Mode								E		Electric Mode
								F		Hot Fluorine Mode
								V		Electromagnetic Valve Simple Control Mode
								N		No Temperature Control Mode
Stove body materials									00	Plain Carbon Steel
									04	SUS304
									16	SUS316
									01	Other
DC/FH(FV)	1	2	3	4	5	6	7	8	9	Remarks



## 配置说明: Configuration Table

型号规格 Model	DC/FH1-150/05	DC/FH1-150/15	DC/FH1-150/21	DC/FH1-150/22	DC/FH1-120/25	DC/FH1-100/31
有效容积 (L) Effective Capacity	5	50	100	200	500	1000
温度 (°C) Temp.	-80°C~-150°C		-80°C~-150°C		-80°C~-120°C (具体咨询)	
压缩机名义功率 (HP) Compressor power	2		5~7		10~25	
压缩机品牌 Compressor brand	泰康、恩布拉科 Tecumseh/Embraco		泰康/富士豪/比泽尔 Tecumseh/Frascold/Bitzer			
冷凝方式 Condensation Mode	风冷 Forced-air Cooling		风冷/水冷 Forced-air Cooling/Water Cooling		水冷 Water Cooling	
制冷方式 Ref. mode	直冷 Direct cooling		直冷/风冷 Direct cooling/Air-cooled		风冷 Air-cooled	
风量 Blowing Rate	无 Nothing		按照用途可具体咨询Deepcold; please consult Deepcold for details;			
制冷剂 Refrigerants	DC/FH(V)1型制冷剂均为DEEPCOLD环保混合型制冷剂 DC/FH(V)1refrigerants are all DEEPCOLD environment-friendly compound ref.					
加热功率 (W) Heating Power	1000 (220Vac)		2500 (220V)		6000 (220V)	
温度均匀性 (°C) Temp. uniformity	±5°C		±5°C/±3°C (风冷)		±2°C	
温度精度 Temp. accuracy (°C)	±2°C					
控制方式 Control system	Deepcold自开发系统+5寸/7寸/10寸HMI (选配) Deepcold independently developed system +5 inch/7 inch/10 inch HMI. (Optional)					
数据记录 Data record	温度历史曲线记录、参数设定、报警记录、设备运行状态记录; 选配项目: 远程控制、配方设置; Optional :Temperature historical curve record, parameter setting, alarm record, equipment operation state record; Remote control, formula setting;					
安全防护 Safety Protection	相序错相断相保护、漏电保护器、压缩机内保护、过载保护; 系统压力保护, 过热保护装置、传感器故障保护等多种安全保障功能 Configured with various safety protection functions e.g. phase sequence, phase dislocation, open-phase protection, electric leakage protection, compressor inner protection, overload protection, overheat protection device, sensor failure protection etc.; Configured with various safety protection functions e.g.					
总功率 (KW) Total Power	2 (220/380V)		6~8 (220/380V)		18~28 (380V)	
框架 Framework	标准: 冷轧板钣金喷漆; 选配: SUS304钣金 Standard: Cold-Rolled Sheet Metal Plate Spraying Plastics; Optional: SUS304 Metal Plate					
外形尺寸 (MM) (L*W*H) External Dimension	750*800*1200		800*1000*1350		具体咨询Deepcold;	
	尺寸仅供参考, 尺寸大小与制冷机组布置方式有关; Dimension shall be for reference only, dimension is relating to arrangement form of refrigerating unit;					
其他选配 Other Options	1: 加热控温采用SSR (SCR); 2: 防爆功能; 3: 其他按照客户需求定制配置; 1. Heating temperature control applies SSR; 2. Explosion proof function; 3. Other customized configuration as per customers' demand;					