冰轮环境
MOON-TECH

DYNAMIC ICE-SLURRY UNIT

MOON ENVIRONMENT TECHNOLOGY CO., LTD.

CORPORATE BUSINESS

COMPANY INTRODUCTION

Committed to artificial environment control technology innovation
Committed to the comprehensive use of energy technology innovation

1956
Since 1956

000811
Stock Code

5000+
Employees

120+
Clients from Countries/Regions

GLOBAL VISION

9 Industrial Parks over the

120+ Countries /Regions


Headquarters


Vietnam Industrial Park


American Industrial Park


British Industrial Park


Malaysia Industrial Park


Baoding Industrial Park


Laishan Industrial Park


Jinan Center


Guxian Industrial Park

TECHNICAL AWARDS

Only Chinese company wins UN award for exemplary project to protect ozone layer.

22

National & provincial technological innovation platforms

72

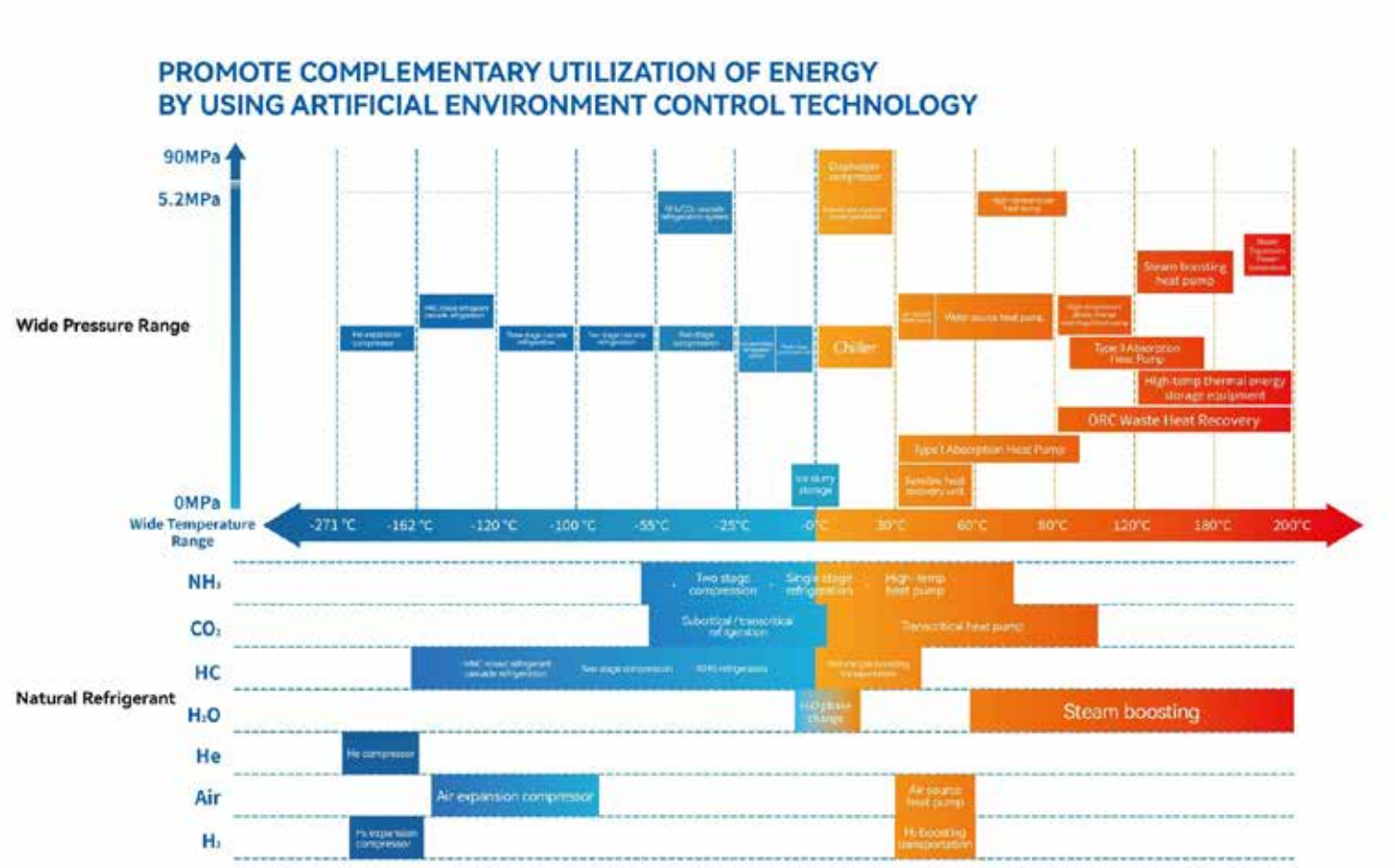
National and industrial standards

256

National, Provincial and Ministerial Scientific and Technological Achievement Awards

OUR TECHNOLOGY

Complete production line helps to provide optimal temperature and pressure conditions for all types of users around the world in a more low-carbon way.



FULL LIFE CYCLE SERVICE

MOON-TECH is committed to becoming an “intelligent cooling and heating system integration expert” in the field of artificial environment and comprehensive energy utilization technology, using a more environmentally friendly way to provide users in various industries around the world with the best “temperature” and “pressure” conditions, professional and value-added services, so as to build an interconnected world of refrigeration and heating.

- Contract energy management
- Staff training
- Engineering design
- System diagnosis and upgrade
- Project planning
- Complete set of equipment
- System maintenance
- Technical consultation
- Installation and commissioning

DYNAMIC ICE - SLURRY UNIT

Water is the best refrigerant for human beings, and the water after cooling or heating can be in direct contact with the items needed by human beings without changing its physics
And chemical properties, 0°C is a natural freezing temperature, the most easy for human beings, the most friendly, the most safe!
The dynamic ice slurry uses "supercooled water" technology to cool the water to -2 ° C inside the DISU and keep it in a fluid state - supercooled
Water, and then through the ultrasonic wave to promote its crystallization, supercold water to relieve the supercold state, instantaneous generation of 0°C ice containing a certain ice crystal content
Water mixture [ice slurry] and into the tank! Ice slurry in the tank because of the density difference eventually forms ice slurry in the upper layer, 0°C water in the lower part
The natural layered state! At the lower part of 0°C , the water is re-circulated into the DISU for the ice slurry generation cycle, and the volume ratio of 70% is finally obtained
The ice slurry! For this reason, we can easily get ice slurry with low water content from the upper part, and can also get 0°C pure at the lower part
Water! The key is that DISU is the most efficient ice making method at present, and it is also the only efficient way to get 0°C water stably!
In the field of central air conditioning, DISU can also be directly applied to ice storage, and the peak-valley electricity price policy can be used to greatly reduce air conditioning operation costs
Yes. At the same time, low temperature air supply can also be achieved, and after using low temperature air supply, the size of the air pipe, the heat exchanger and the power consumption of the fan can be greatly reduced
It reduces the initial investment of the air conditioning system and is more competitive than conventional air conditioning. In the same thermal comfort conditions, low temperature delivery
The air can properly increase the temperature of indoor air conditioning and reduce the cooling load of air conditioning.
DISU can also apply ice slurry or 0°C water to dairy industry, fruit and vegetable chilled pre-cooling, low temperature (workshop) air conditioning, aquatic processing, business
Ice making and underground air conditioning and other fields! The unique 0°C ice slurry water form can bring users unprecedented experience!

ICE SLURRY (WATER) UNIT

DISU uses the world's leading supercooled water technology to dynamically generate ice crystals in real time
The mixture of ice water at 0°C , and then through repeated circulation, can finally get 70% IPF
Ice water! Because of its unique design of heat transfer and promoting crystal phase separation, it makes refrigeration change
Maximum and stable heat coefficient! The evaporation temperature on the cooling side of the DISU is not lower than that
-3 ° C, so the cooling efficiency of DISU is quite excellent. From the Angle of making cold water ratio
DISU is the only equipment that can provide 0°C water stably at present. From making ice horns
Degree comparison, DISU is the most efficient form!

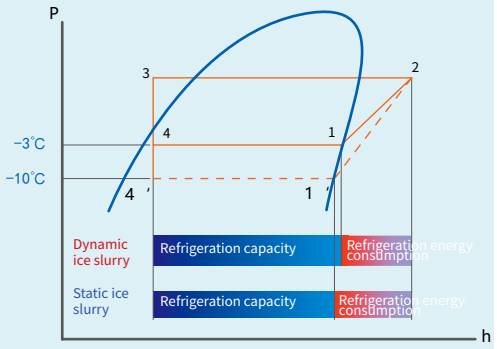
Give me a tank, I can turn **70%** of its volume into ice slurry!

DISU PRINCIPLE

DISU: The water is supercooled to -2 ° C, and then the supercooled state is relieved by ultrasonic crystallization. Law of conservation of energy: part of the water at -2 ° C releases heat to form ice crystals, and the other part of the water at -2 ° C absorbs heat to become 0 ° C water! The final result is a mixture of ice water at 0 ° C - ice slurry.

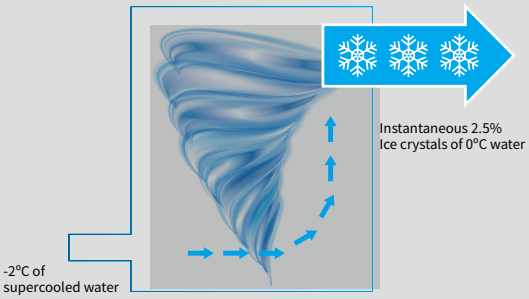
1

DISU cooling side working medium:
Direct evaporation: NH3[R717],
Freon [R22, R507A];
Evaporation temperature >=-3°C



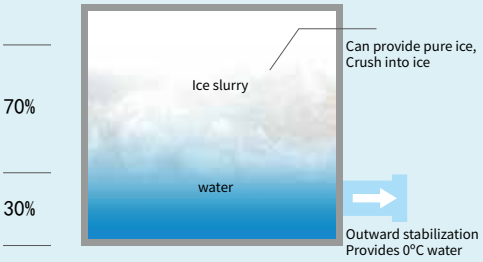
2

DISU supercooled water through ultrasound Promote the crystallization to dissolve, and get 0°C Water containing ice crystals!



3

The flocculent ice crystals obtained by DISU are of low density and naturally form layers in the tank!

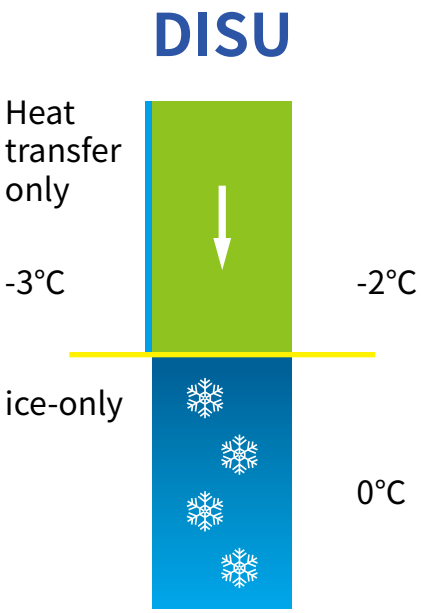


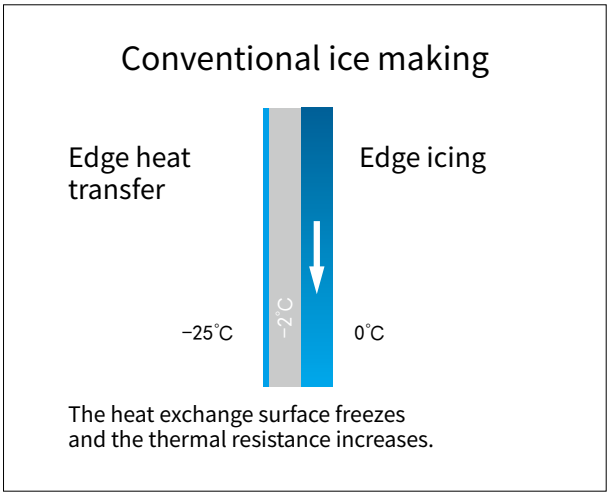
[science] : Water (H2O) does not immediately freeze when it reaches 0 ° C! Under steady state, tap water can withstand temperature to -5 ° C without freezing, and pure water can withstand temperature to -7 ° C or even lower temperature without freezing! This under standard atmospheric pressure, 0 ° C below still maintains a flowing state, we call it - supercold water!

DISU PECULIARITY

High efficiency ice making

DISU will cool the water to -2°C , and then remove the supercold state by means of ultrasonic crystallization promotion. Law of conservation of energy: part of the -2°C water releases heat to form ice crystals, and the other part of the -2°C water absorbs heat to become 0°C water! The final result is a mixture of ice water at 0 ° C - ice slurry.





DISU is more efficient than traditional ice making

COP= Cooling capacity/power consumption

40%

Super cold storage

During DISU operation, the water generated 0°C ice slurry underwent a phase change process! The latent heat of water curing.

Latent heat of water curing: 334kj / kg

Specific heat of water: C=4.2kj/kg.°C

344/4.2=

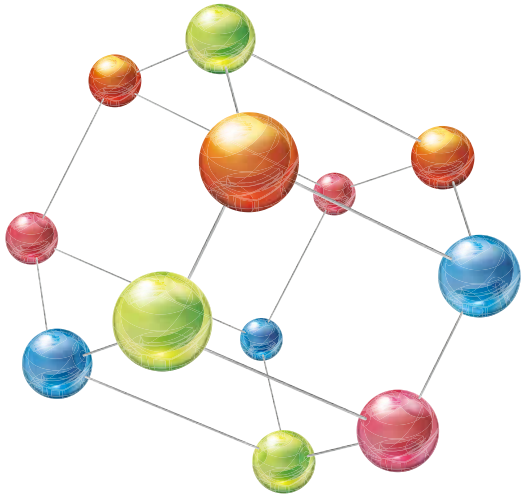
80

Eighty times

The heat absorbed by 1kg of 0°C ice into 0°C water can reduce 1kg of 80°C water to 0°C !

Rapid cooling

The ice slurry generated by DISU is flocculent soft ice, that is, there are many fiber pores between the ice crystal particles, and these pores are filled with a large amount of 0°C water, which increases the heat exchange area of ice and water invisibly. Therefore, when water above 0°C comes into contact with the ice slurry, the ice slurry will instantly melt to maintain a 0°C environment!



Chilled 0°C

The ice slurry produced by DISU is naturally chilled to 0 ° C, and at standard atmospheric pressure, the ice slurry mixture can be used to calibrate temperature sensors for scientific departments! In addition, 0 ° C is also known as the natural food preservation temperature! Can maintain the original taste of food and preserve nutrients!

D I S U

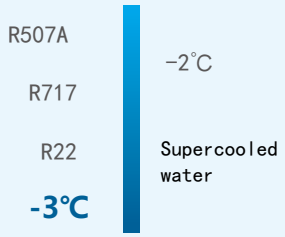
High efficiency ice making

Extreme cooling

Super cold storage

Chilled 0°C

DISU PRODUCT

Direct evaporation system	Indirect evaporation system
	

Product naming

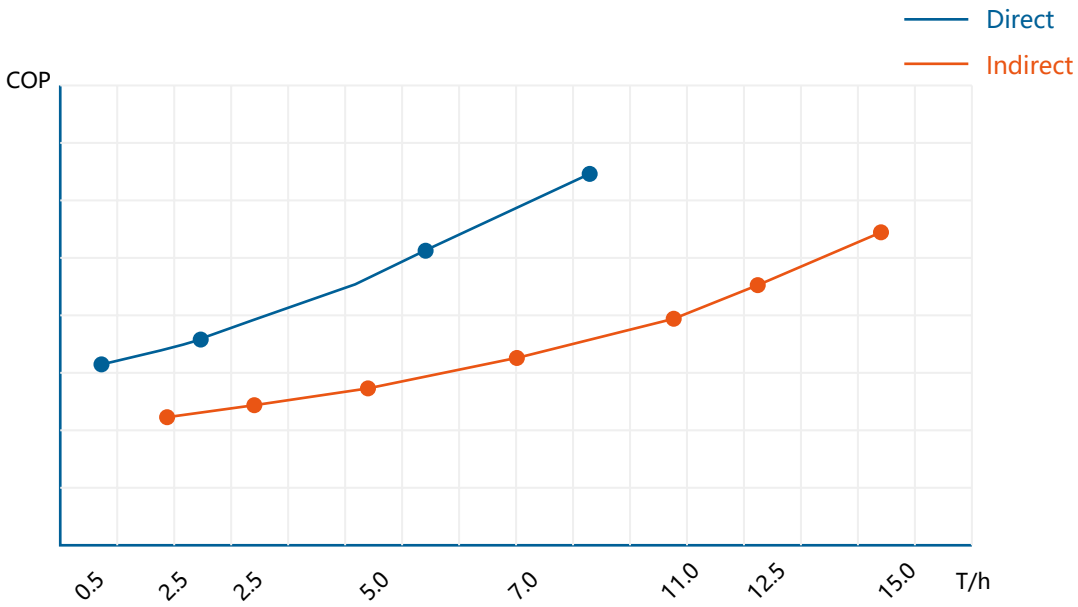
DISU-D-012

24Hour Continuous ice production unit ton

D Stands for direct evaporation

R Represents indirect evaporation mode

Product profile



Direct evaporation type dynamic ice slurry (water) unit

Model number			DISU-D-012	DISU-D-060	DISU-D-105	DISU-D-144	DISU-D-180
Ice making condition		℃	-3/45	-3/35			
Ice making capacity		T/24h	12	60	105	144	180
Cooling capacity of air conditioning condition		kW/RT	77/22	351/100	610/173	913/260	1264/360
Use electricity			3N 50HZ 380V				
Matching two conditions Host parameter	Air conditioning condition	kW/RT	Integrated				1264/360-Frequency conversion
	Ice making condition						900/256-Frequency conversion
Matching waterway module						WU-144Waterway module	WU-180Waterway module
Match cooling tower/ evaporative cooling parameters			Integrated	Entrance 33℃, Exit 28℃, Flow rate 75m³/h	Entrance 33℃, Exit 28℃, Flow rate 125m³/h	Entrance 33℃, Exit 28℃, Flow rate 190m³/h	*Heat emission: 1470kW/418RT
Working medium	Cold side		R507/R22/R717				
	Cold measure the amount of charge	kg	120	425	550	800	1000
	Hot side		Tap water or softened water				
	Water quality standard		Not lower than GB 5749-2006				
Cooling mode			Air cooling	Water-cooling			Evaporative cooling
Cooling medium temperature		℃	-15～+35	13.5~33			-15~33
Total system input power under ice making conditions		kW	24.8	89.7	159	226	267
Total system input power under air-conditioning condition		kW	27	91.8	161.3	228.5	270
Under ice making conditions Mass inlet and outlet temperature	Cold side	℃	Entrance：-3，Exit：-3				
	Hot side	℃	Entrance：+0.3，Exit：0				
Design pressure	Cold side	Mpa	High tension：2.3，Low pressure：1.7				
	Hot side		1.0				
Unit dimensions（L*W*H）		mm	3150X2485X2735	3540X2680X3080	4100X3200X3590	4990X3430X3905	4505X2275X4185
Unloaded		kg	～3950	～6500	～7200	～9660	～9500
Operating weight		kg	～4250	～7100	～7900	～11260	～11500

Direct - Waterway module parameter table

Model number		WU-144	WU-180
Use electricity		3N 50HZ 380V	
Medium		Water	
Water quality standard		Not lower than GB 5749-2006	
Rated flow	M³/h	240	310
Unit dimensions（L*W*H）	mm	3415X2253X2690	3250X2100X2550
Unloaded	kg	～2700	～2850
Operating weight	kg	～3200	3350

Indirect evaporative dynamic ice slurry unit

Model number			DISU-R-060	DISU-R-120	DISU-R-180	DISU-R-270	DISU-R-300	DISU-R-360
Rated ice production		T/24h	60	120	180	264	300	360
Use electricity			3N 50HZ 380V					
Matching two conditions Host parameter	Air conditioning condition	kW/RT	100	200	300	450	500	600
	Ice making condition		75	150	225	335	375	450
Matching waterway module			WU-R-060	WU-R-120	WU-R-180	WU-R-270	WU-R-300	WU-R-360
Working medium	Cold side		20% Glycol aqueous solution					
	Water quality standard		Not lower than GB 5749-2006					
	Hot side		Tap water or softened water					
Rated flow	Cold side	M^3/h	120	240	320	480	530	640
	Hot side		100	200	290	440	490	590
Ice making process Outlet temperature	Cold side	℃	Entrance：-3，Exit：-1					
	Hot side		Entrance：+0.3，Exit：0					
Design pressure	Cold side	Mpa	1.0					
	Hot side		1.0					
Unit dimensions（L*W*H）		mm	2450X1455X2460	3100X1700X2340	4000X1965X2935	4100X2200X3300	4100X2200X3300	4100X2200X3300
Unloaded		kg	~2650	~3390	~6600	~8020	~8285	~8900
Operating weight		kg	~3450	~4700	~8500	~10490	~10880	~11600

Indirect - Waterway module parameter table

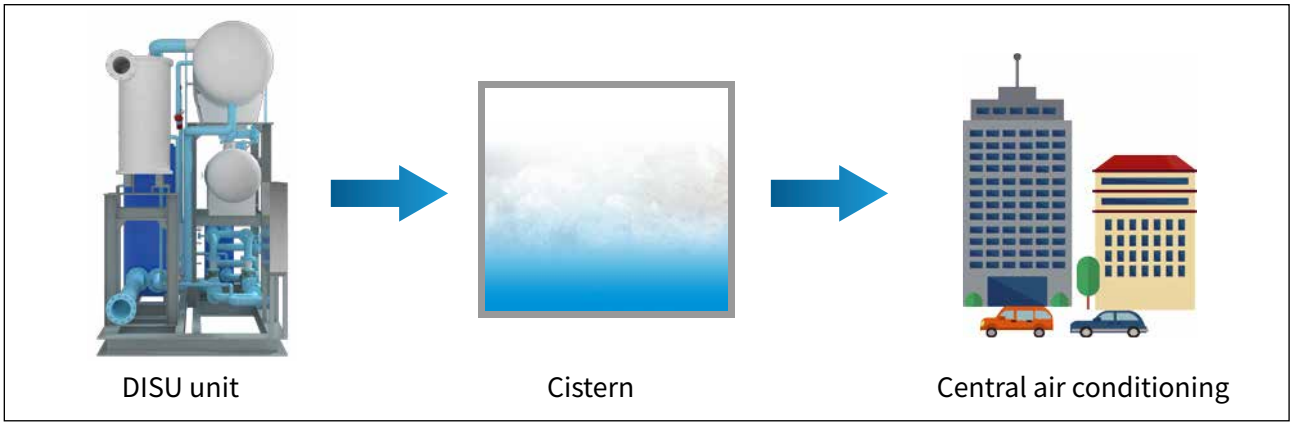
Model number			WU-R-060	WU-R-120	WU-R-180	WU-R-270	WU-R-300	WU-R-360
Rated ice production			3N 50HZ 380V					
Medium	Cold side		20% Glycol aqueous solution					
	Hot side		Water					
	Water quality standard		Not lower than GB 5749-2006					
Rated flow	Cold side	M^3/h	120	240	320	480	530	640
	Hot side		100	200	290	440	490	590
Unit dimensions（L*W*H）		mm	2600X1600X2400	3500X1750X2500	4050X1900X2570	4627X2204X2785	4627X2204X2785	4750X2204X2785
Net weight		kg	~1500	~2000	~2950	~3600	~3650	~3800
Operating weight		kg	~3000	~3700	~4500	~5100	~5200	~5300

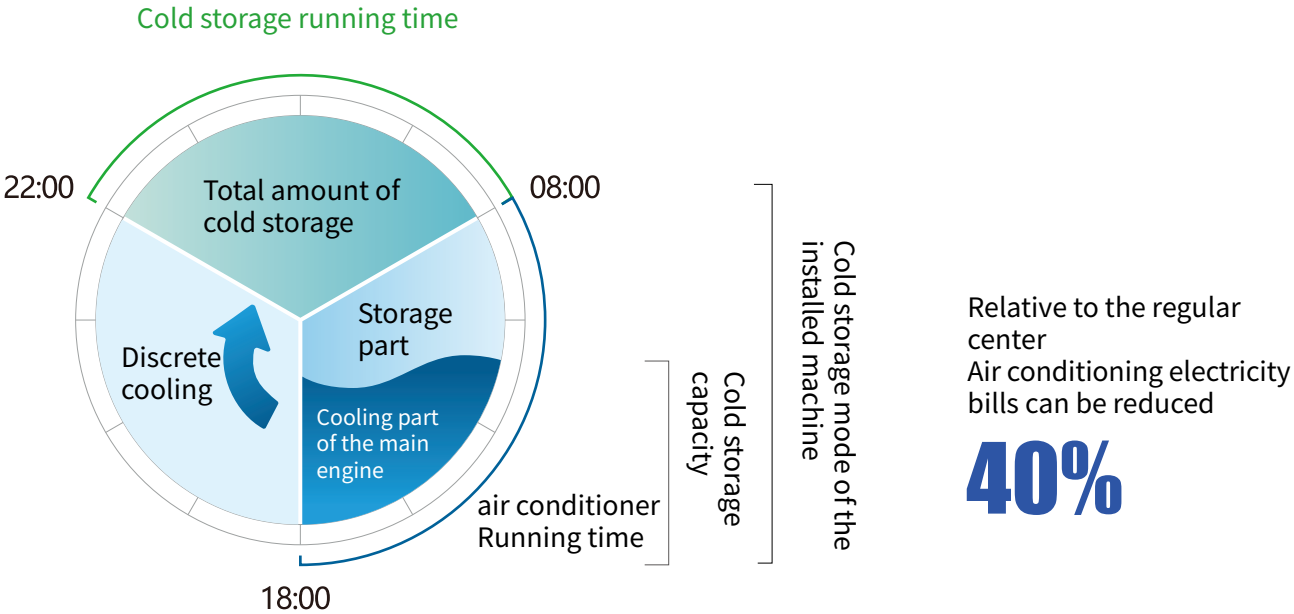
CENTRAL AIR CONDITIONING

DISU can be widely used in office buildings, commercial complexes, star hotels and other buildings in the central air conditioning system!

1: DISU always maintains full load efficient ice slurry production in operation, and the COP on the side of the cold source unit can reach the highest [no partial load state]; The end of the air conditioner can dynamically extract the cold amount from the ice slurry according to the load change, and truly achieve stepless regulation.

2: DISU can make full use of the peak-valley electricity price policy to achieve fee reduction, and efficiently produce ice slurry during the grain-price electricity period; When the peak value power period from the ice slurry to the end of the centralized cooling, at this time the main engine does not run! The DISU storage mode significantly reduces the electricity bills customers pay during the cooling season.





Relative to the regular center
Air conditioning electricity bills can be reduced

40%

Conclusion: DISU can save more than 40% of electricity compared with conventional air conditioning system, and the investment recovery ratio is no more than 3 years! More than 20% more efficient than conventional ice coil ice storage systems, Within 10% higher investment cost!

DAIRY APPLICATION

DISU can be widely used in dairy processing plants! Its efficient production of ice slurry, and to the milk collection tank, pasteurization, aging tank and storage stable supply of 0°C ice water, ultimately can control the milk temperature within 4°C , to meet the international leading quality requirements! At the same time DISU full load energy storage characteristics can greatly reduce dairy production costs!

Milk collection		Production
	Bus sterilization	
Aging		Storage

0°C water stable external supply:

Dynamic ice slurry unit is always efficient full load operation, when the production load is lower than the capacity of the unit, the excess cold capacity will be converted into ice slurry storage in the water tank! When the production load is higher than the capacity of the unit, the ice slurry stored in the water tank will also become another unit, and the dynamic ice water unit will achieve joint cooling output! As long as there is ice slurry, the external water temperature can be stabilized at 0 ° C!

Efficient COP operation

The corresponding evaporation temperature of the dynamic ice slurry unit is only -3°C , and the unit runs fully under the two modes of single storage and side storage and side supply.

COP is achievable for refrigeration compressors 3.8!

Use peak-valley electricity price to realize energy storage

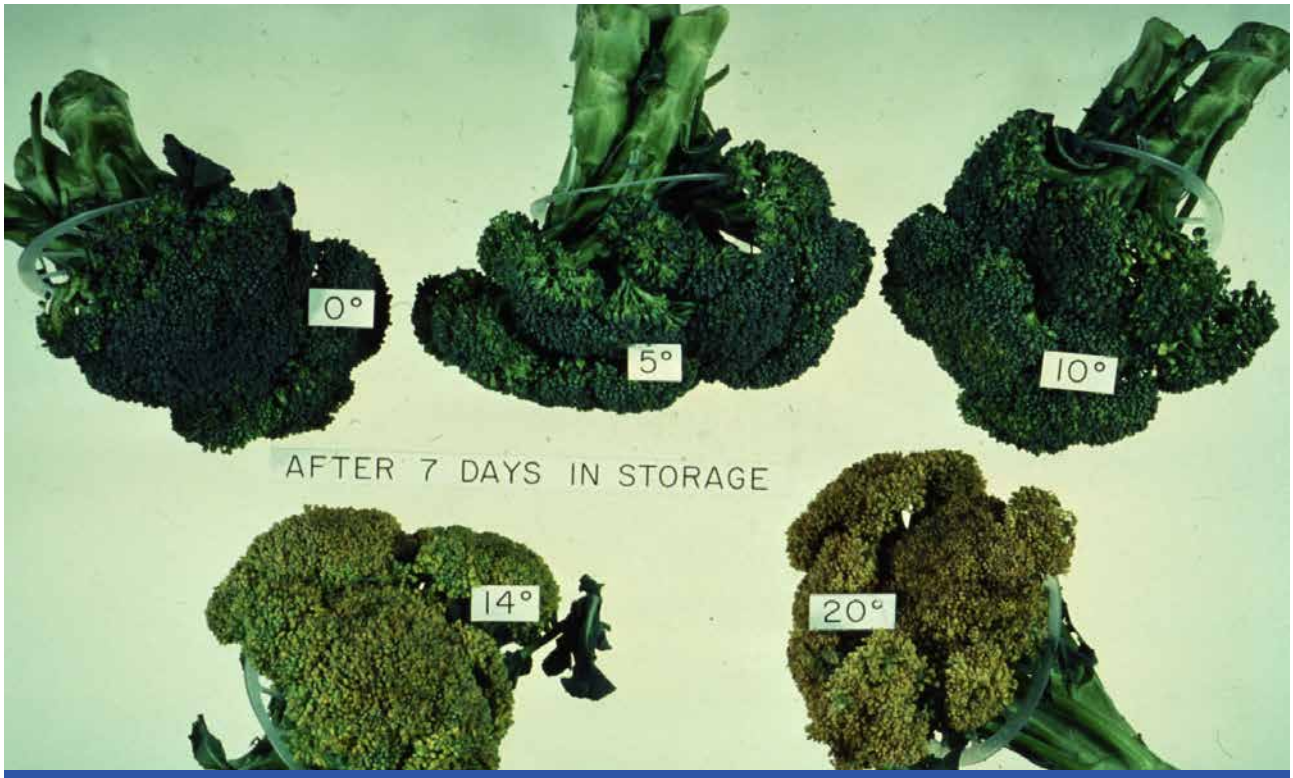
In the dairy production process, the load fluctuates frequently, and the end load is low at night, which happens to be the peak and valley electricity price. Therefore, DISU carries out full load ice storage during this period, and releases ice slurry to the outside during the peak electricity price during the day, which can greatly reduce the operating costs of enterprises

CHILLED FRUITS AND VEGETABLES

DISU can be widely used in high-end fruit and vegetable pre-cooling industry! It can neutralize respiratory heat and maintain the best 0°C freezing temperature in the first time after picking fruits, vegetables and flowers, on the one hand: the original umami of fruits and vegetables can be preserved to the maximum! On the other hand, fruits, vegetables and flowers are relatively uniced.
More than double the retention time of pulp precooling! The current ice slurry pre-cooling is divided into two forms: ice slurry immersion pre-cooling and low temperature and high humidity pre-cooling, you can choose the corresponding way according to different pre-cooling objects!

Immersion type

Low temperature and high humidity

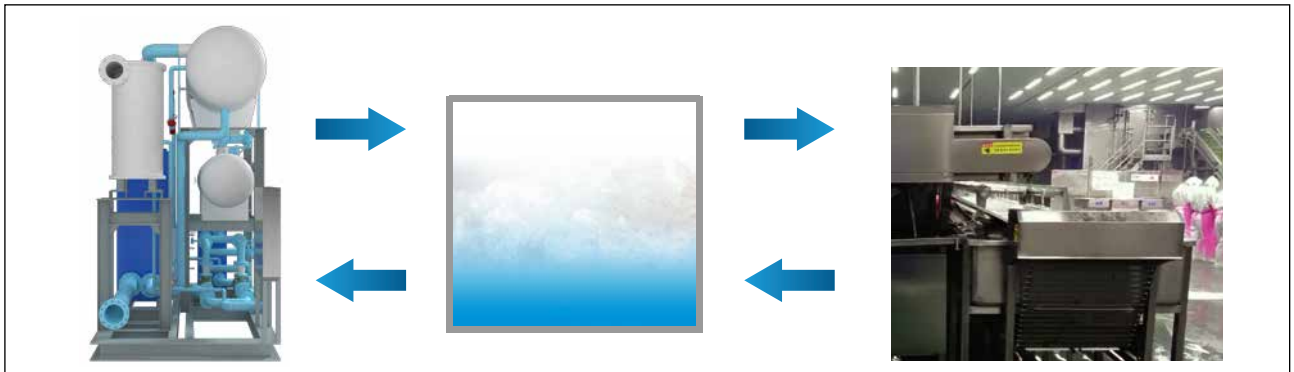


Broccoli precooling contrast

WORKSHOP (PROCESSING) AIR CONDITIONING

DISU can be widely used in food processing workshop air conditioning and chemical, pharmaceutical production line air conditioning and other fields, space temperature requirements +10°C ~ +18°C .
DISU method: efficient preparation of ice slurry, and 0°C water stably transported to the workshop surface cooler, after heat exchange through part of the ice slurry to 0°C water, forming a cycle! The dynamic ice slurry method can replace the original freon and ethylene glycol air conditioning system, but water as the refrigerant to the workshop heat exchange! In addition, DISU can still use the peak and valley electricity price policy to make ice slurry when the low price of the evening price, during the day, affordable electricity, peak price electricity from the ice slurry to the workshop cooling! Can greatly reduce the production cost of enterprises! DISU uses water as refrigerant + energy storage, more efficient, more economical and safer!

DISU is less expensive to operate than conventional air conditioners **40%**



Note: If the plant already uses DISU in its existing ice water process, the ice water system of the shop air conditioning can be incorporated with it!

AQUATIC PRODUCT PROCESSING

DISU can be widely used in aquatic chilled quick cooling and reprocessing fields! DISU efficiently generates 0°C ice slurry, using the characteristics of multi-fiber pore structure in the ice slurry [large heat exchange area], can quickly cool the newly caught aquatic live products to 0°C , retaining the original nutrition and quality! In the process of aquatic products processing, ice slurry can achieve pre-cooling of processed products and workshop air conditioning and other processes! For offshore or ocean fishing, we can provide small sea ice slurry generating units! For making ice slurry from sea water on ships!

More efficient than sheet ice 30%

SLAUGHTERING INDUSTRY

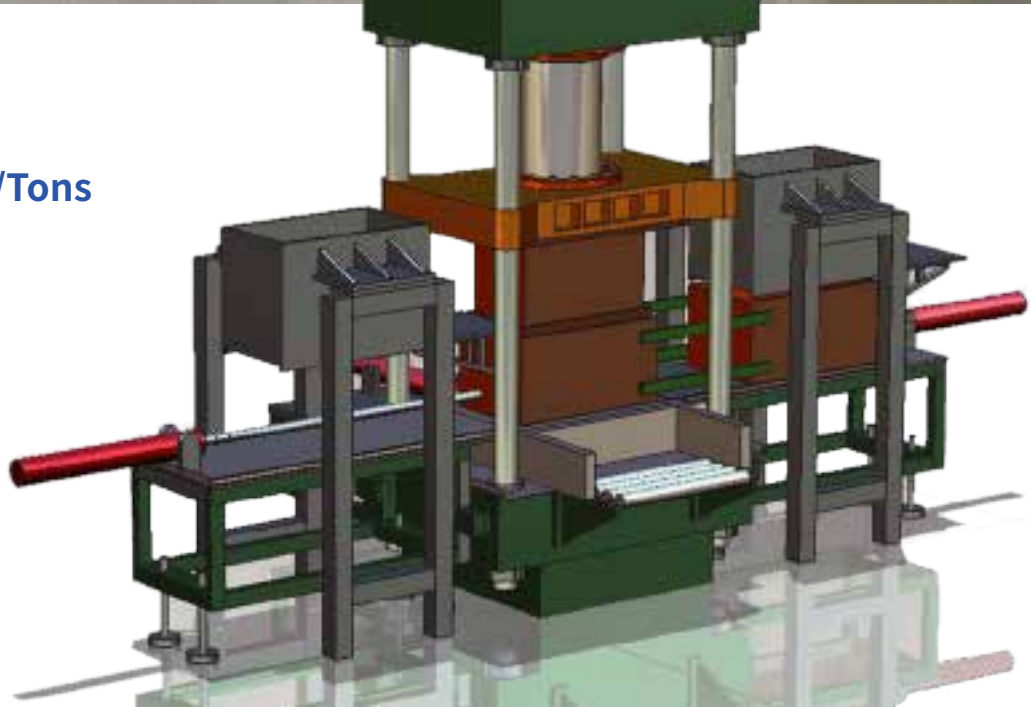
DISU is widely used in the poultry and livestock slaughtering and processing industry! Chickens, ducks and other birds need to be pre-cooled after dipping, and the ice slurry generated by the application of DISU can cool the chicken body to less than 4 ° C within 95MIN, meeting the international quality requirements! Because the evaporation temperature of DISU refrigeration is only -3 ° C. In pork slaughtering plants, DISU can be used in processes such as acid removal and workshop air conditioning! Higher efficiency and lower cost than traditional acid removal process!

Less power than a conventional ice machine 50%

ICE MAKING INDUSTRY

DISU can replace traditional forms of ice making and reduce power consumption by more than 30%! DISU efficiently generates ice slurry and then imports it into the mold, and then extrudes the residual water in the ice slurry through a special press to finally make ice bricks! Molds can be customized according to customer requirements! DISU uses only 43kWh of electricity for a single ton of pure ice! In addition, DISU can use the peak and valley electricity price to automatically generate ice slurry in the low electricity range at night, and then centrally press the ice during the day, which can further reduce the cost of ice production! If the user needs ice at random, DISU can achieve on demand! Therefore, DISU ice making is the most advanced, economical and scientific way at present.

43
KWh/Tons

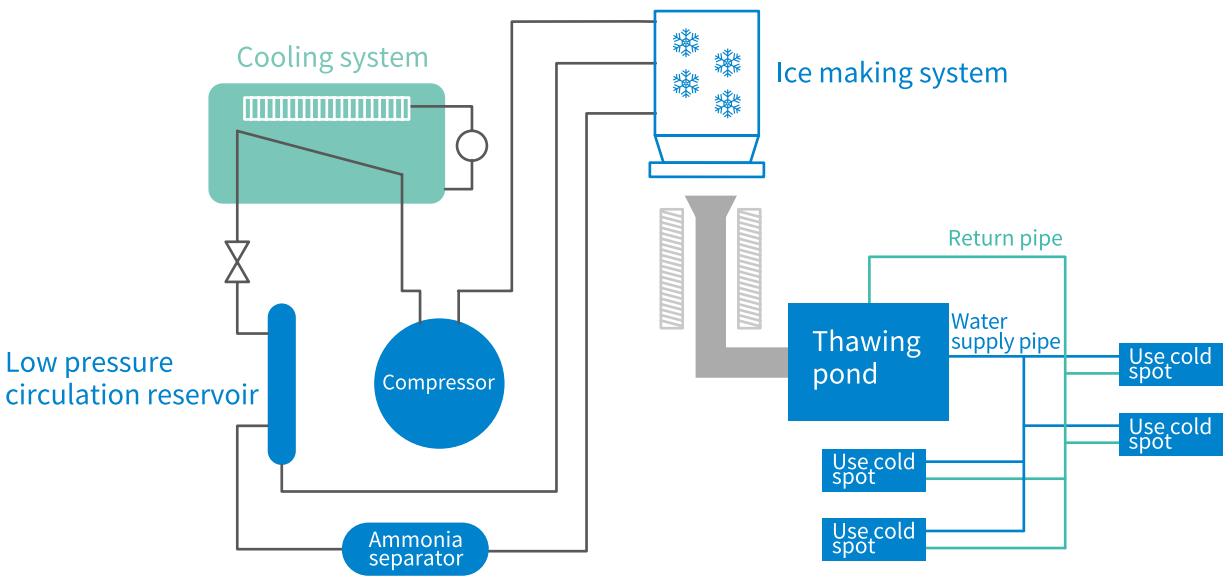


DOWNHOLE COOLING

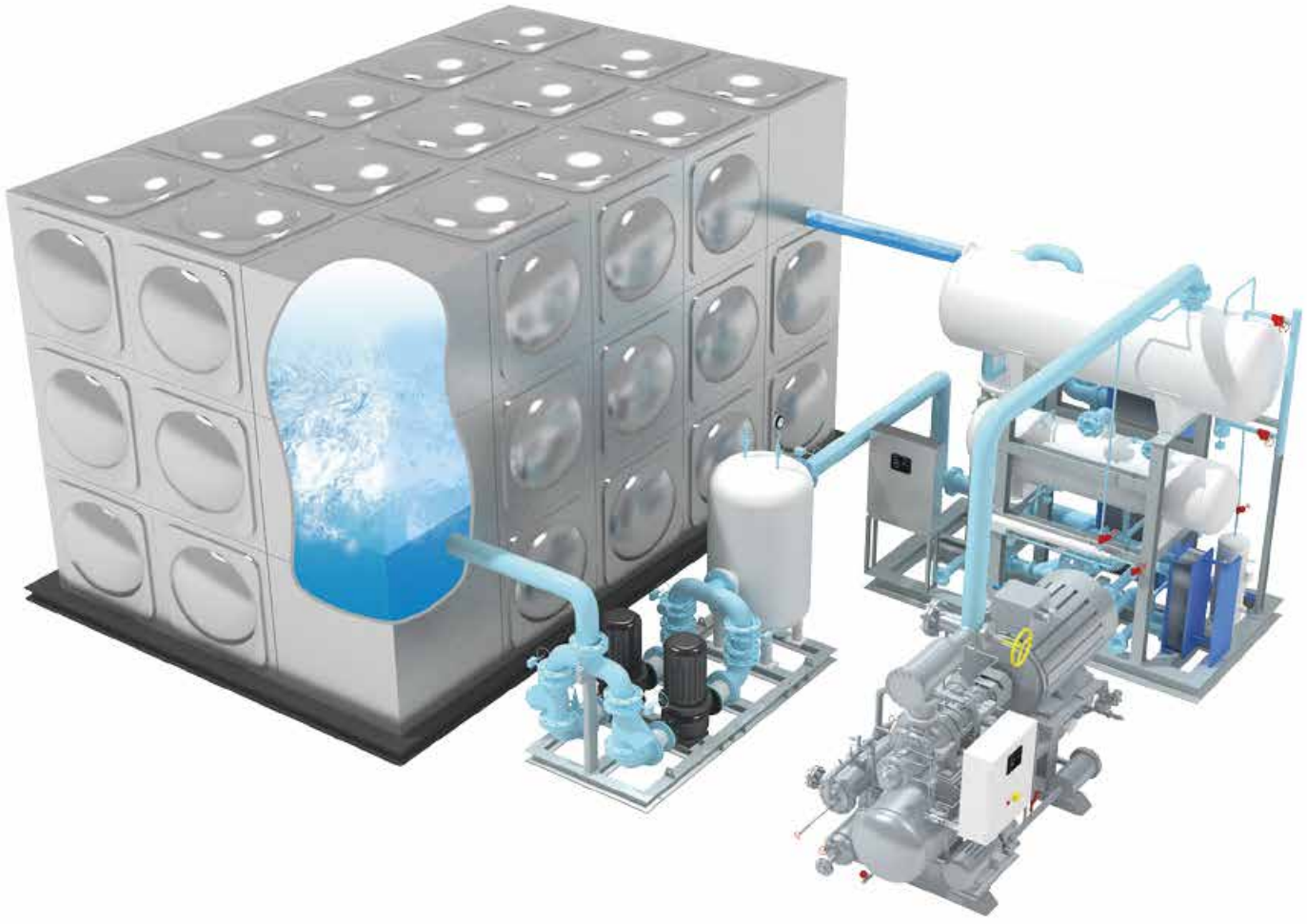
The ice slurry generated by the DISU can be used in the field of downhole cooling, and the overall power consumption is 50% less than the conventional ice machine form! The evaporation temperature of the cooling side of DISU is only -3°C during full load operation, and the COP value of the unit can reach 3.3, and DISU is the most efficient form of ice making at present! The DISU generates ice slurry and uses a highly efficient ice extraction device to drop the ice slurry with low water content into the screw propeller and finally into the mine! The unique multi-fiber hole form of the ice slurry is more suitable for neutralizing heat damage in the well, and temperature control is more timely! Finally, DISU has a single ice production more characteristics, a single can do 260T/ day! More efficient ice making!

DISU is better than regular The ice machine solution saves more than 50% of electricity

50%



APPLICATION CASE



Application case

Foshan National Torch Innovation Park

Shenzhen Hengyu waterfront City

Foxconn Group Shenzhen Longhua factory D13 building

Dongguan Di optical Electronics Co., LTD

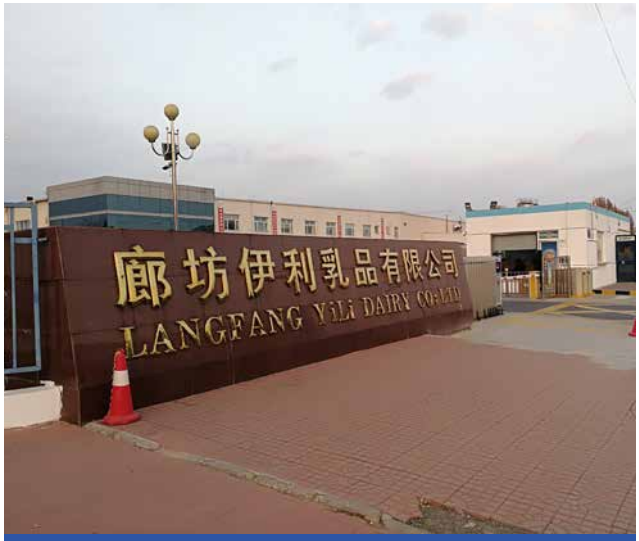
Huiyang Sea Paradise Food Co., LTD

Fuzhou Baolong Vientiane Square

Shenzhen Weiwu bright biological Co., LTD

Shenzhen Art Center

Application case



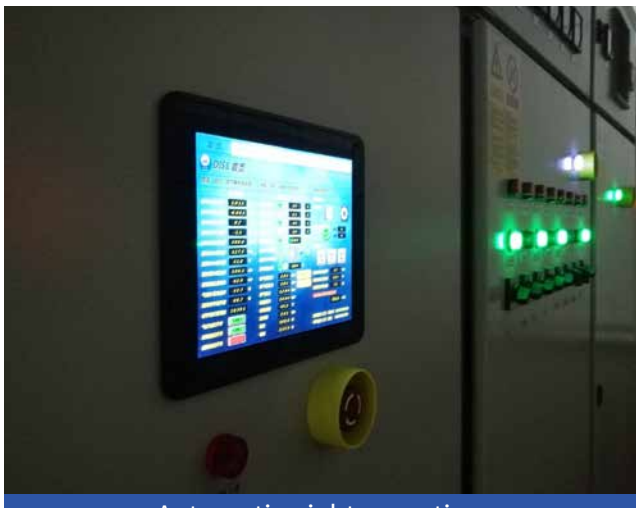
Langfang Yili

Zhaodong Yili

Yunnan Yili

Workshop scene

Vitch milk



Automatic night operation

冰轮环境
MOON-TECH

BUILD AN INTERCONNECTED COOLING AND HEATING WORLD
LET SMART ENERGY BENEFIT YOU AND ME

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@moontechrefrigeration

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