Cold Plate

economy and ecology in supermarkets

SWEP ColdPlate

A DOVER COMPANY

Cold Plate | efficiency

Environmental and commercial support

Many synthetic refrigerants have unwanted global warming and ozone depletion effects, and system manufacturers and specifiers are increasingly favoring natural refrigerants such as CO_2. Although CO_2 presents technical challenges, SWEP has already built up expertise in CO_2 from more than 100 supermarket installations. SWEP knows how to keep costs down and reliability high.

Favorable characteristics

Non-toxic and non-flammable, CO_2 is a very suitable refrigerant for applications such as supermarket chiller cabinets. Nevertheless, its physical characteristics impose tough demands on equipment that must operate from -50°C to 5°C at up to 45 bar. Our brazed plate heat exchangers (CBEs) are designed specifically to operate economically and reliably to protect the cooled food chain in supermarkets.

Economic and performance advantages

Refrigeration can account for up to 50% of supermarket energy consumption. Our optimized CBEs enable CO_2-based systems to recover much of the energy used for cooling and re-use it for heating, resulting in a high coefficient of performance (COP).
Pumped CO_2 circulation also has advantages over typical brine-based systems. The faster response time increases flexibility, while pipe diameters and pumps are smaller, which saves capital and running costs as well as valuable retail space.

Comply with legal requirements

Environmental and other standards applying to supermarket cooling installations are being applied with more and more force, including legislation on the critical charge. Systems based on CO_2 and the low-holdup volume in CBEs enable you to plan and purchase now, ready for the future.

CBE CO_2 | systems

For supermarkets of all sizes

We offer a comprehensive range to meet the needs of food cabinet producers, and supermarkets of all sizes in all climatic conditions. In particular, the low holdup volumes of our CBEs help to minimize critical charges across these applications. For typical LT and MT capacity requirements, our standard products perform efficiently, safely and reliably at up to 45 bar. For heat recovery in transcritical installations, we offer proven CBEs for working pressures up to 140 bar. For additional safety, our ECO B16-U is available for working pressures up to 70 bar – without heavy support – on request.

Heat Recovery

As environmental, legal and financial pressures rise, it is becoming increasingly important to recover and reuse heat from supermarket cooling systems. Our CBEs are highly cost-effective in this role, in terms of both capital and running costs, and the B16-U is tailored to the transcritical operation required.

Cascade

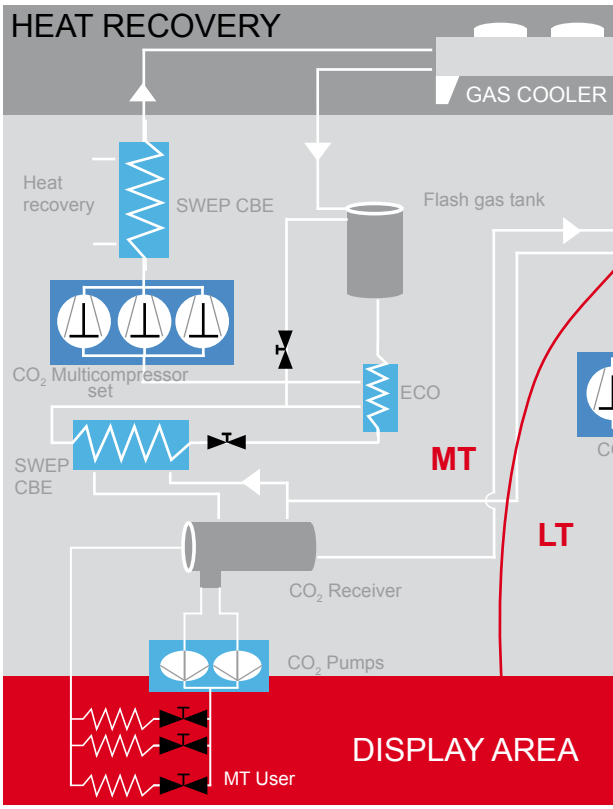
R404A/CO_2 systems minimize the use of HFC refrigerants and employ standard pressure lines (31 bar). Our B80-M, B200-M and B400-M, with a maximum working pressure of 45 bar, are a safe and economical choice. Our B16-U, which is approved for operation at up to 140 bar, is suitable for CO_2-only cascade systems that operate transcritically with condensing units at very high pressure.

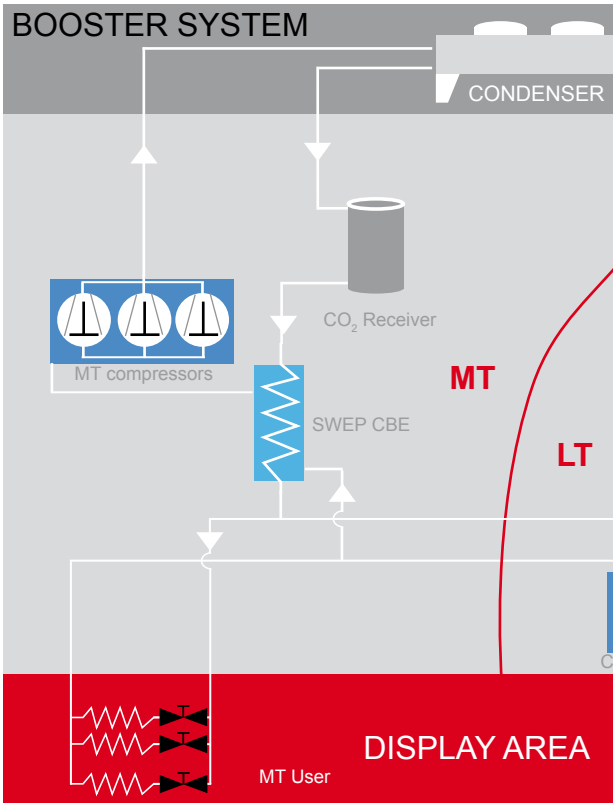
Booster systems

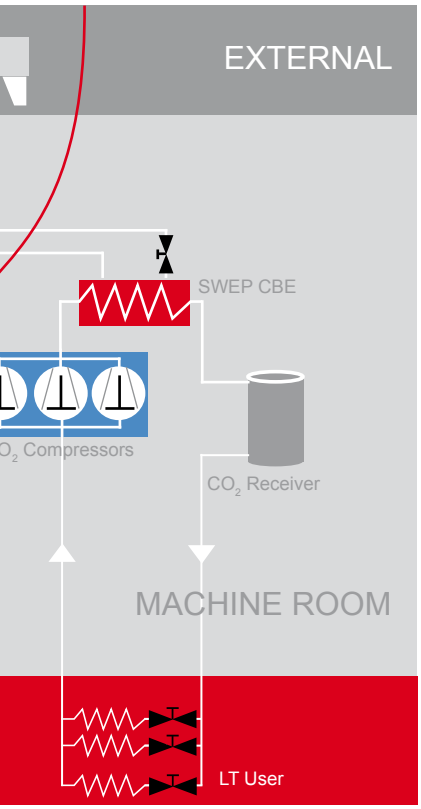
Our B16-U and B12-U ranges are effective economizers for sub-cooling the liquid line for the display cases. They achieve low flash-gas values, which increases performance, and the smaller diameter liquid lines make them an economical solution.

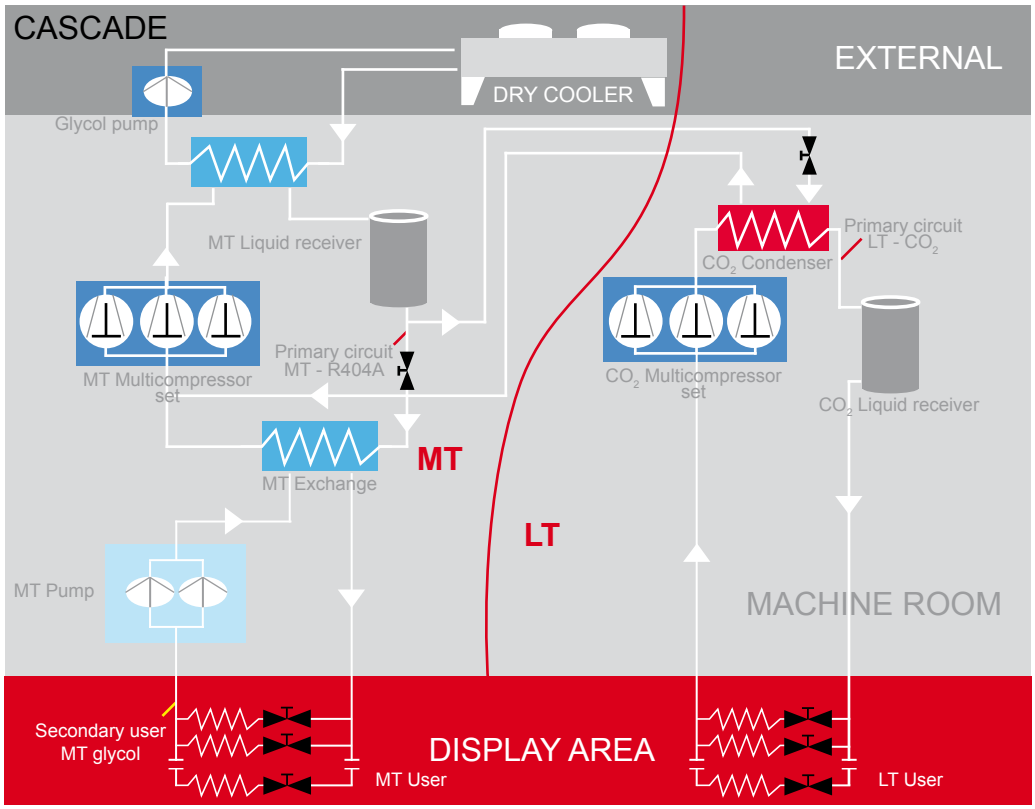
Pumped CO_2

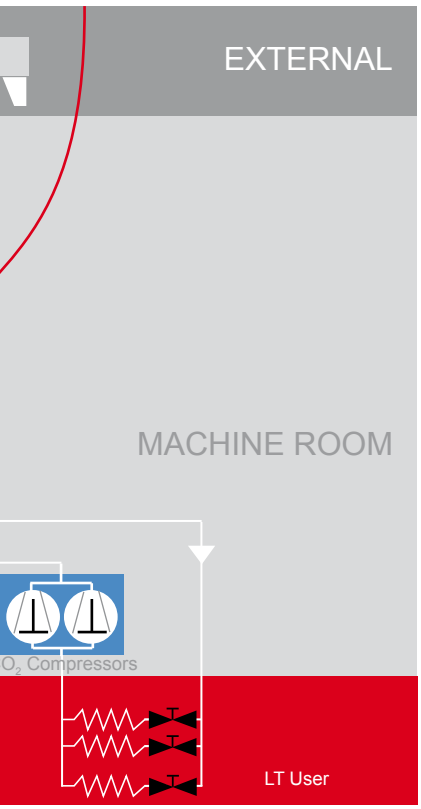
In indirect systems using pumped CO_2, the high vapor density of CO_2 imposes a lower load on the pump compared with secondary fluids such as glycol, saving energy and expense. Our B200-M, B400-M and B500-M models are ideal heat exchangers for these systems.

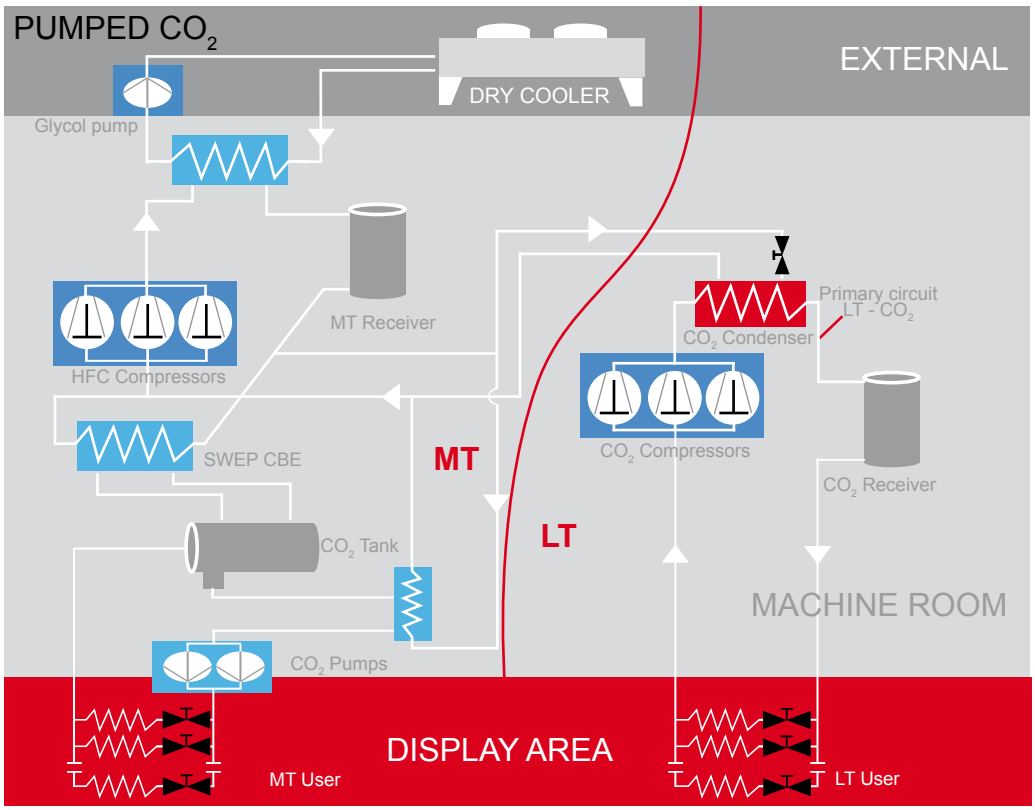





EXTERNAL
SWEP CBE
CO_2 Compressors
CO_2 Receiver
MACHINE ROOM
LT User


CASCADE
EXTERNAL
DRY COOLER
Glycol pump
MT Liquid receiver
MT Multicompressor set
Primary circuit MT - R404A
MT Exchange
MT
LT
MT Pump
CO_2 Condenser
Primary circuit LT - CO_2
CO_2 Multicompressor set
CO_2 Liquid receiver
MACHINE ROOM
Secondary user MT glycol
DISPLAY AREA
MT User
LT User


EXTERNAL
MACHINE ROOM
CO_2 Compressors
LT User


PUMPED CO_2
EXTERNAL
DRY COOLER
Glycol pump
MT Receiver
HFC Compressors
SWEP CBE
MT
LT
CO_2 Tank
CO_2 Pumps
CO_2 Condenser
Primary circuit LT - CO_2
CO_2 Compressors
CO_2 Receiver
MACHINE ROOM
DISPLAY AREA
MT User
LT User

Cold Plate | products

Discount

Plug-in display cases are being replaced by centralized CO_2-based systems with heat recovery. Our B16-U CBE, designed to work safely and efficiently at up to 140 bar, is ideal for systems providing up to 80 kW MT and 10 kW LT cooling. Systems can also be configured with a cascade heat exchanger to limit the requirement for HFC (hydrofluorocarbon) refrigerants. SWEP has developed the B80-M for this role.

Supermarket

The cooling capacity required (50-250 kW MT, 10-50 kW LT) favors centralized systems with heat recovery. We offer CBEs that are designed specifically for this role and perform economically in direct or indirect operation. Our B200-M and B400-M CBEs are ideal for indirect systems using CO_2 as a single phase pumpable fluid, which are increasingly popular for both LT and MT duty.

Hypermarket

Our B400-M and B500-M heat exchangers provide an economical and versatile solution for cooling capacities up to 500 kW MT and 100 kW LT. Parallel configurations are available to enable pumped CO_2 systems achieve the highest capacities. Our B16-U, approved for operation at up to 140 bar, is ideal for recovering heat from high-pressure transcritical systems.

Fully tested and approved

Our CBEs are delivered with full traceability and verified functionality, with third-party approvals such as PED, ULC and KHK. We leak- and pressure-test all heat exchangers for both internal and external leakage at a pressure higher than the maximum working pressure. Certificates accompany deliveries on request.

HEX	DISCOUNT
B80-M	● CO_2 pump Cascade
B200-M	
B400-M	
B500-M	
B16-U	● Heat recovery
B12-U/ B16-U	
B120-M	

T	SUPERMARKET	HYPERMARKET
	ECO	ECO
	CO_2 pump Cascade	
	CO_2 pump Cascade	CO_2 pump Cascade
		CO_2 pump Cascade
	Heat recovery ECO	ECO
	ECO	ECO
	ECO	ECO

SWEP is the world's leading supplier of compact brazed heat exchangers (CBEs). These products are used where heat needs to be transferred efficiently in air conditioning, refrigeration, heating and industrial applications. SWEP has annual sales of USD 250 million and is close to its customers, with representation in more than 50 countries and its own dedicated sales force in more than 20 countries. Highly efficient production units in Sweden, Switzerland, the USA, Malaysia, Slovakia and China enable SWEP to serve customers all over the world. SWEP is part of the global Dover Corporation, which is a multi-billion-dollar, NYSE-traded, diversified manufacturer of a wide range of proprietary products and components for industrial and commercial use.

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