



## the leader in CO<sub>2</sub> refrigeration technology for heavy duty applications



Site-Built CO<sub>2</sub> Cascade Refrigeration Systems

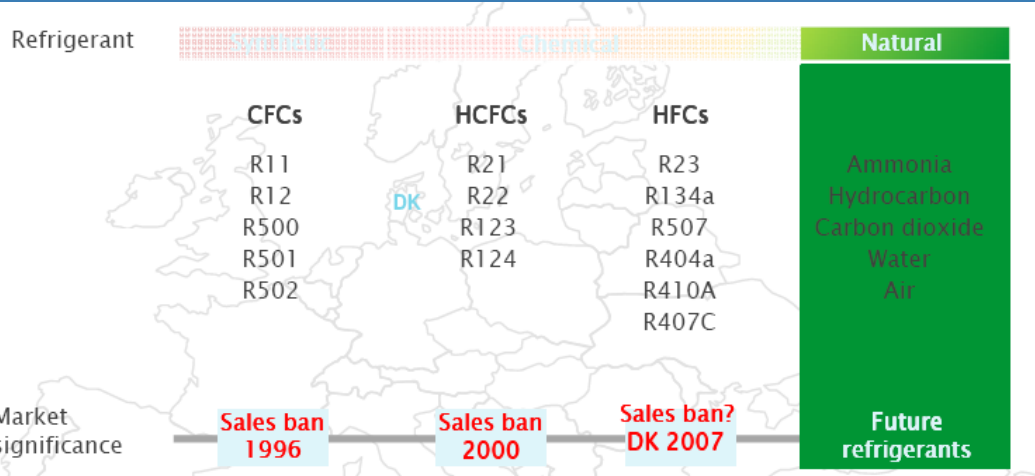


CO<sub>2</sub> Ammonia Freeze Packages (CAFP)

### Turn-Key, Equipment Supply, Engineering, Supervision and After Market Support

- “Green Field” Projects – Total Solution Provider
- Upgrade of Existing Refrigeration Plants

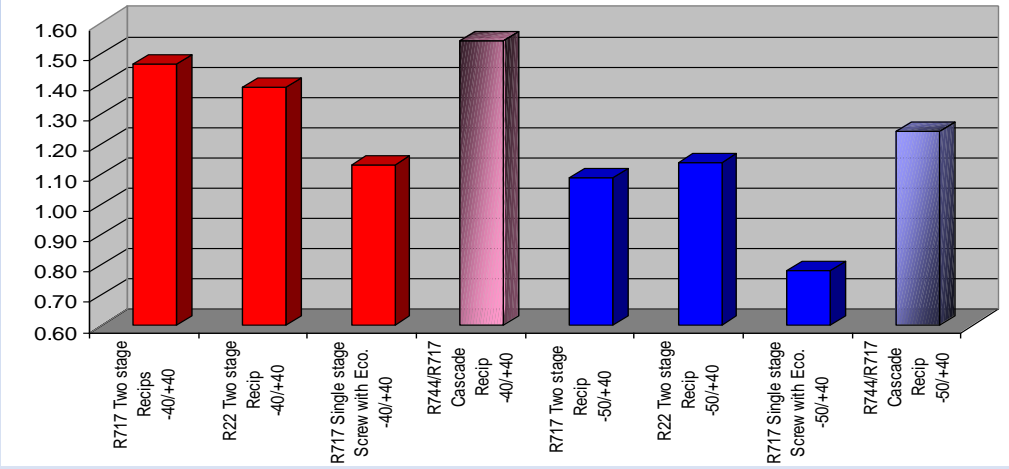
*CO<sub>2</sub> Cascade Refrigeration Systems - System of the Present and the Future....*



- CO<sub>2</sub> is a natural non-flammable refrigerant
- Major exposure to CO<sub>2</sub> does not damage products in freezers and cold storages
- Plant designs with no ammonia (toxic gas) in work, process or storage areas

- Less power consumed
- Lower cost of equipment & installation
- Easier serviceability for many plant designs and lower cost of spare parts
- Always positive system pressure → Lower contamination with air and moisture

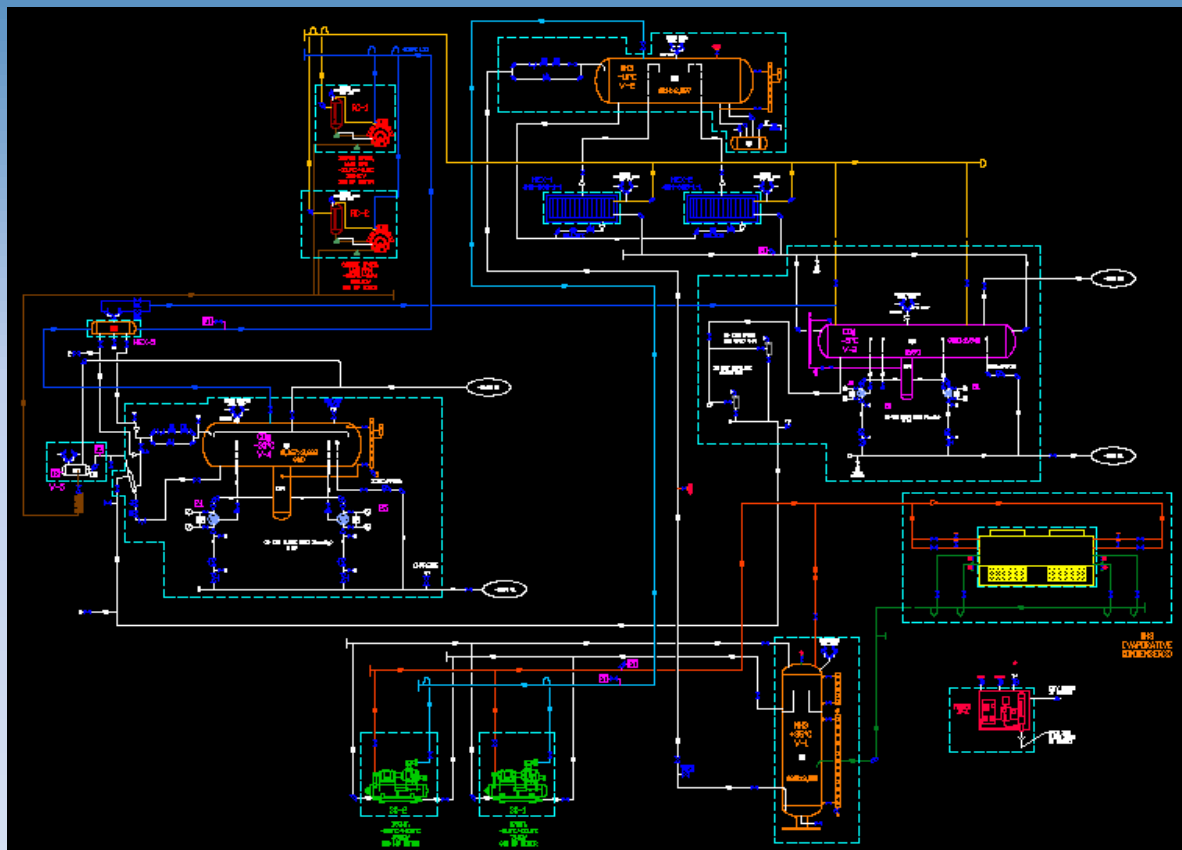
### Comparison different plant types





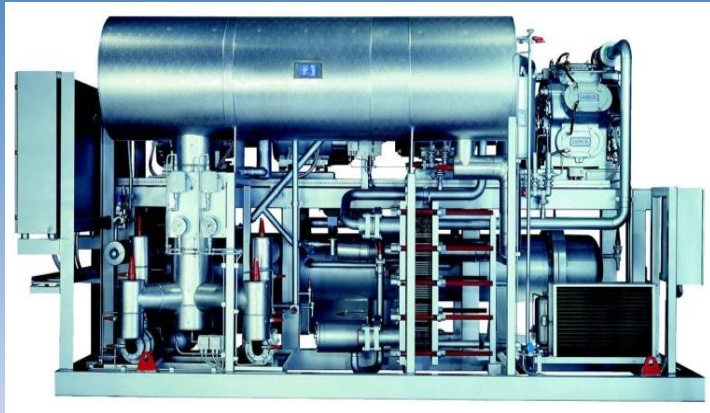
## OUR TYPICAL SITE-BUILT CO<sub>2</sub> AMMONIA CASCADE REFRIGERATION SYSTEM

- CO<sub>2</sub> compressor packages (complete)
- Ammonia compressor packages (complete)
- Ammonia receiver (complete on skid)
- Automatic air-purger (loose)
- Ammonia evaporative condenser (loose)
- Surge drum for CO<sub>2</sub> condensers (complete on skid)
- CO<sub>2</sub> condensers (loose)
- Intermediate temperature CO<sub>2</sub> pump recirculation package (complete on skid)
- Low-temperature CO<sub>2</sub> pump recirculation package (complete on skid)
- Automatic oil rectifier system for CO<sub>2</sub> compressors (packaged partly)
- Suction super-heater for CO<sub>2</sub> compressors
- MCC and Control System
- Complete lot of valves & Controls for field installation
- Air coolers, blast / contact freezer, IQF freezers, etc.
- Planning, Design & Engineering
- Comprehensive documentation including installation, operation and maintenance instructions, test certificates, certified U1/U3 reports, etc.
- Specialist Engineer for supervision of installation & start-up





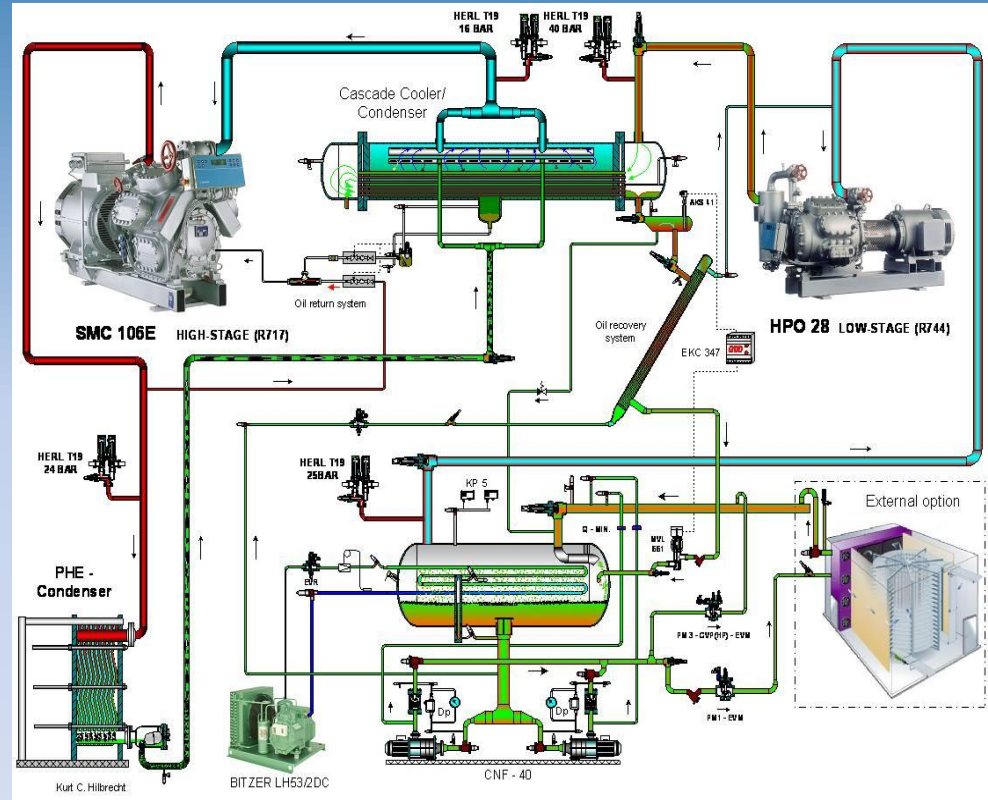
## THE CO<sub>2</sub> AMMONIA FREEZE PACKAGE (CAFP)



- Very small foot-print
- Ideal for freezing applications; blast freezing, contact freezing, IQF-freezers, ice-cream freezers, etc.

**Includes**

- Comprehensive documentation including installation, operation and maintenance instructions, test certificates, certified U1/U3 reports, etc.
- Specialist Engineer for start-up



## REFERENCE LIST - CO2 (R744) INSTALLATIONS

YEAR	LOCATION	APPLICATION	Low temperature		Medium Temperature		High Temperature	
			Capacity kW <sub>r</sub>	Temp. degC	Capacity kW <sub>r</sub>	Temp. degC	Capacity kW <sub>r</sub>	Temp. degC
2004	Agger Fish, Brooklyn, NY	Plate Freezers	176	-53				
2005	US Cold Storage Ph1, Bethlehem, PA	Storage			1,020	-34	580	-7
2005	Flint River Services, Savannah, GA	Storage			528	-28	528	-3
2006	Lincoln Cold Storage, Lincoln, NE	Plate Freezers	1,421	-50				
2006	US Cold Storage Ph1, Fresno, CA	Storage / Blast Freezers	774	-50	1,583	-32	739	-7
2006	US Cold Storage Ph2, Bethlehem, PA	Storage			1,055	-34	545	-7
2007	US Cold Storage Ph1, Lake City, FL	Storage			1,319	-32	440	-7
2007	US Cold Storage Ph3, Bethlehem, PA	Storage			1,055	-34	457	-7
2007	Border Cold Storage, Pharr, TX	Storage					1,125	-7
2008	US Cold Storage Ph1, Hazelton, PA	Storage			1,220	-32	440	-7
2008	Unitherm Food Systems, Bristow, OK	IQF Freezer	88	-51				
2008	Circle Foods, San Diego, CA	Storage / IQF Freezers	1,470	-39	211	-23		
2008	US Cold Storage Ph1, Lebanon, IN	Storage			1,456	-34	510	-7
2008	US Cold Storage Ph1, Turlock, CA	Storage			1,435	-34	503	-7
2009	US Cold Storage Ph2, Fresno, CA	Storage / Blast Freezers	190	-50	1,023	-32	591	-7
2010	Frialsa, Mexico City, Mexico	Storage / Blast Freezers			1,825	-32	91	-7
2010	US Cold Storage Ph2, Hazelton, PA	Storage			816	-32	211	-7
2010	P.A.T.E, Tepatitlan, Mexico	Blaster Freezers			1,055	-40		
2010	Wegmans Food Markets, Pottsville, PA	Storage					3,517	-7
2010	Marigold, Thailand (CAFP-400)	IQF Freezers	400	-50				