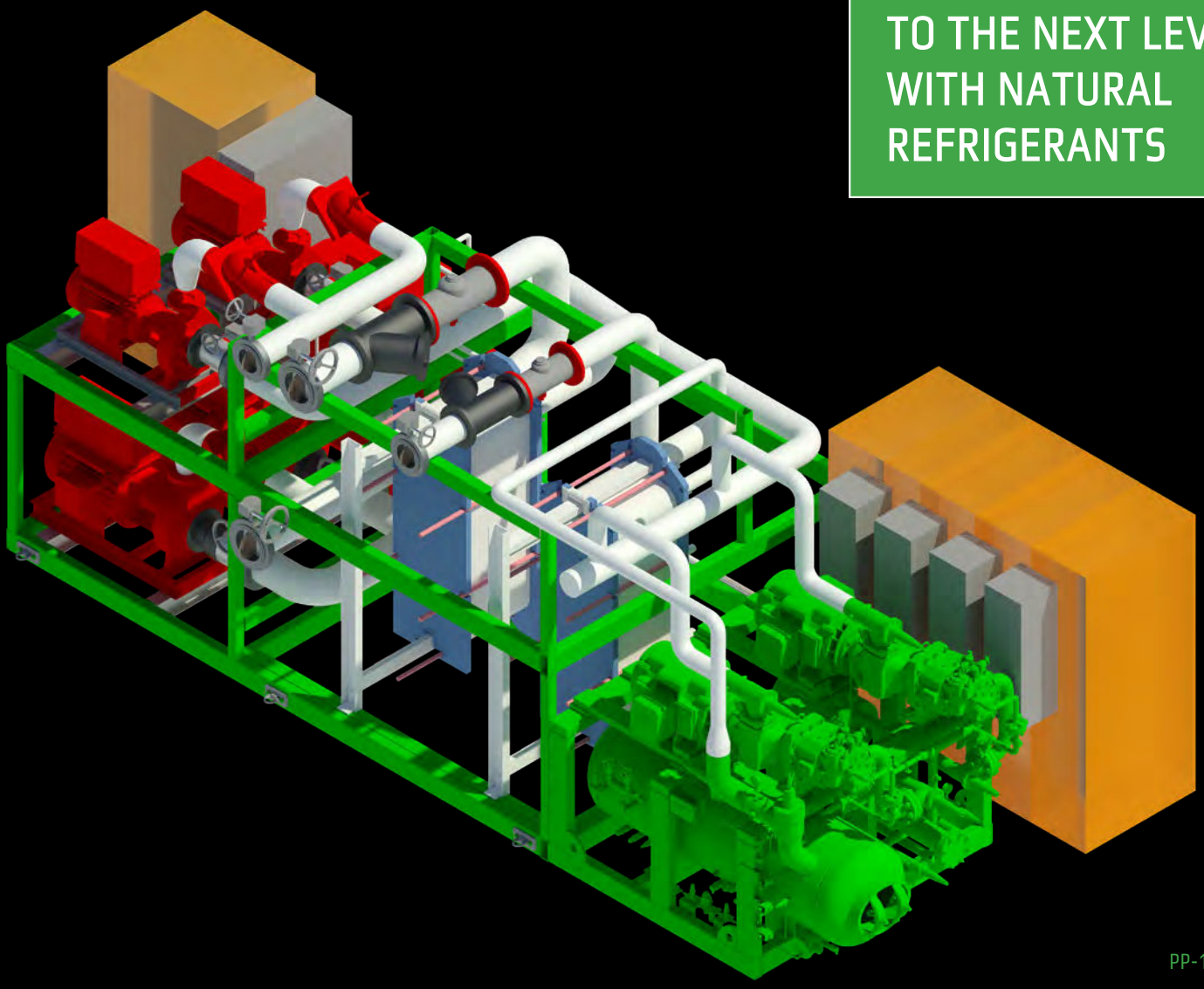
GreenPack
PACKAGED SYSTEMS

TAKING INDUSTRIAL PROCESS COOLING TO THE NEXT LEVEL WITH NATURAL REFRIGERANTS



PP-100-2

GreenPack Delivers Advanced Cooling

VaCom and **BITZER** have combined innovative technologies and approaches to transform the Industrial Refrigeration equipment industry. **VaCom GreenPack** paves the way to unprecedented energy efficiency, reliability, and longevity with its use of natural refrigerants. The VaCom GreenPack is perfect for practical applications in industrial facilities, including process space cooling and heating, ice rinks, food production, and process equipment cooling. By using a low refrigerant charge per ton of refrigeration and incorporates the most advanced heat exchangers in the market, the VaCom GreenPack delivers high heat transfer performance efficiency. It is installed with BITZER Ammonia Compressor Package (ACP) advanced multi-screw compressors (fixed or variable Vi), VFDs, shell & tube evaporator with direct-expansion design, choice of heat rejection equipment and an integrated VaCom control system for a turnkey, plug & play approach.

The **VaCom HeatPack** heat recovery system is specifically designed to maximize waste heat retrieval. In combination with the VaCom GreenPack packaged system, the endless applications yield minimal energy consumption along with extremely low charge of refrigerant ammonia.

VaCom GreenPack systems are utilizing our industry leading control algorithms and integration strategies, maintaining VaCom's renowned reputation for energy efficiency and optimization. Every VaCom GreenPack system comes equipped with our Refrigeration Optimization System - completely complimentary - to help maximize our customers' investments.

VaCom GreenPack	Conventional Systems
• Factory Built controlled environment, design to your needs • Natural Refrigerant with DX NH3 System • Less jobsite labor means lower cost • Less NH3 Charge means lower risk • Process side uses pumped fluid (such as glycol, water, or CO2 volatile brine)	• Flooded system or higher charge • Plate & frame evaporator and condenser - less reliable and more prone to leaks • Expensive on-site electrician for wiring connections • Process side uses pumped ammonia

Features	Benefits
Direct Expansion Design	Ultra Low-Charge Design
Shell & Tube Condenser	Rugged with Reduced Possibility of Fouling
Ammonia	Environmentally friendly
No Flooded Receiver	Small Footprint with Diminished Risk of Ammonia Release
Packaged BITZER Compressors	No Requirement for Hot Gas Bypass with Minimal Turndown
Compressor Skid Design	High Reliability Coupled with Low Vibration
GreenPack Oil Recovery	Automatic Oil Recovery and Transfer to Compressor
Flexible Heat of Rejection	Standard Shell & Tube Condenser or - Fluid Cooler, Plate & Frame, Air-Cooled or Evaporative Condensers
VaCom Engineering Support	Exceptional Design Services
Application Flexibility	Low-Charge System Provides Complete Containment

Model Number Nomenclature

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

Series

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

Heat of Rejection **S:** Shell & Tube / **F:** Fluid Cooler **E:** Evaporative Condenser / **P:** Plate & Frame

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

Starter Panel **S:** Soft-Starter / **V:** VFD

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

BITZER ACP Model Number

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

VaCom HeatPack - Heat Recovery Package

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

Evaporator **V:** Vertical Shell & Tube / **H:** Horiz. Shell & Tube

G	P	S	9	5	9	3	K	2	C	-	V	S	-	H	V	D

Controller **V:** VaCom Vault Control / **R:** VaCom rPRO Control

Part of the VaCom Standard Configurable Smart Refrigeration Solutions

Packaged System Components

Compressor

BITZER, the world's leading compressor and pressure vessel manufacturer, has expanded to meet the demands of the industrial refrigeration market with a series of screw compressor packages designed specifically for ammonia. The BITZER Ammonia Compressor Package (ACP) is custom designed for the highly efficient, natural refrigerant solutions of today.

Evaporator

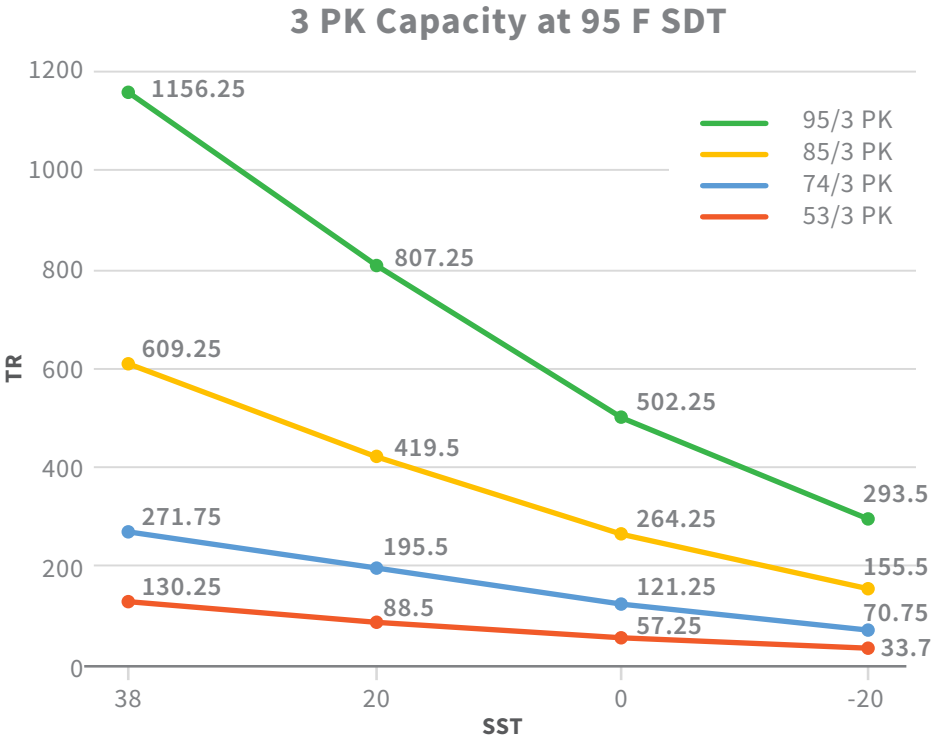
Unlike traditional vertical shell & tube heat exchanger VaCom GreenPack's refrigerant flow is regulated by a pulse valve and flow is controlled based on the superheat of the refrigerant.

Heat of Rejection

The VaCom GreenPack is installed with a standard shell & tube heat exchanger for condensing. However, VaCom can provide other heat of rejection equipment such as an evaporative condenser, air-cooled condenser, or adiabatic air-cooled condenser to meet application requirements.

Automated Oil Recovery

The VaCom GreenPack is designed with an oil ejector for automatic oil drainage and recovery.



Series	Compressor Model	Condensing Temp. (˚F)	Evaporating Temp. (˚F)	Capacity (TR)	Heat Recovery (BTU/Hour)	Heat Recovery Water Flow at 120 ˚F (GPM)
SCP-1	SCP8583K-1	95	20	127	129,624	3
	SCP8593K-1	95	20	141	143,913	4
	SCP9593K-1	95	20	237.5	242,407	8
	SCP95103K-1	95	20	265.9	271,394	9
ACP85	ACP8551K-3C	95	20	229.4	124,145	4
	ACP8561K-3C	95	20	268.2	163,057	6
	ACP8571K-3C	95	20	323.8	330,490	8
	ACP8581K-3C	95	20	382.3	390,199	12
	ACP8591K-3C	95	20	422.9	431,638	15
ACP95	ACP9593K-2C	95	20	475.1	484,917	17
	ACP95103K-2C	95	20	531.7	542,686	19
	ACP9593K-3C	95	20	712.6	727,324	25
	ACP95103K-3C	95	20	797.6	814,080	28

Model	Sizes (TR)	Water Flow with 10˚F TD (GPM)	Saturated Suction Temp of NH3 Refrigerant (˚F)	Vapor/liquid NH3 Volumetric Displacement (CFM)	Heat Recovery Water Flow at 120 ˚F (GPM)
GPS8551K2C-	220	528	33	458	267
GPS8561K2C-	254	610	33	528	285
GPS8571K2C-	306	734	33	636	278
GPS8581K2C-	330	792	33	686	334
GPS8591K2C-	347	833	33	722	373
GPS9573K2C-	381	914	33	792	457
GPS9593K2C-	390	936	33	811	468
GPS95103K2C-	459	1,102	33	955	551
GPS8551K3C-	506	1,214	33	1052	607
GPS8561K3C-	520	1,248	33	1082	624
GPS8571K3C-	585	1,404	33	1217	702
GPS8581K3C-	665	1,596	33	1383	798
GPS8591K3C-	742	1,781	33	1543	890
GPS9573K3C-	768	1,843	33	1597	922
GPS9593K3C-	997	2,393	33	2074	1196
GPS95103K3C-	1113	2,671	33	2315	1336

Packaging Energy Efficiency

Benefits vary based on local guidelines and requirements for the energy efficiency of industrial process systems. California has some of the most stringent constraints in the United States for energy efficiency of industrial cooling systems, as defined in Building Energy Efficiency Standards - Title 24. Regardless of the challenge, the VaCom GreenPack can still meet or exceed the rigorous California Title 24 requirements. Choosing the most energy-efficient and robust industrial packaged system can offer lower energy costs, reduced downtime, extended asset life cycle, coupled with reliable operation.

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