



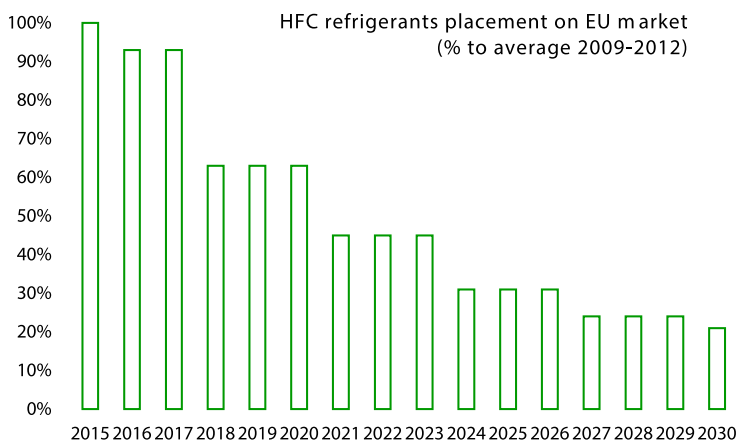
**frigoteknika**  
GROUP

## PROPANE PACK SYSTEM

GENERAL INFORMATION

HFC refrigerants traditionally used in chillers and heat pumps are subject to phase down in EU, US, China and other countries due to high GWP (Global warming potential) value. The goal is to decrease CO<sub>2</sub> equivalent. The total HFC placement on the EU market will be gradually reduced to 31% of the baseline (average placement in 2009-2012) in 2024. The owners of HFC charged chillers will face:

- Higher taxes for refrigerant charge
- Higher fees for leakages
- Higher refrigerant prices
- Higher components cost



### Standard Configuration

- Hermetic compressors
- Microchannel condensers
- Brazed plate evaporators and superheaters



# PROPANE PACK SYSTEM

TECHNICAL INFORMATION

MODEL	COMPRESSOR		FAN			ELECTRICAL			CONNECTIONS			CABIN
	MODEL	KW	DIAMETER	QTY.	SPEED	VOLTAGE	MAX. CURR.	MAX. POWER	SUCT.	LIQUID	QTY.	
<b>SCROLL</b>	<b>COPELAND</b>											
IMP-SM21-B014CD	ZB25KCU-TFMN ZB31KCU-TFMN	14,4	450	2	940 rpm	380V/3PH/50HZ	24,5	7,01 kW	35	16	1	S20
IMP-SM21-B023CD	ZB49KCU-TFMN	23,6	500	2	940 rpm	380V/3PH/50HZ	34,9	10,12 kW	35	18	1	S20
IMP-SM21-B032CD	ZB49KCU-TFMN	35,4	500	3	940 rpm	380V/3PH/50HZ	57	15,24 kW	42	22	1	S30
IMP-SM21-B047CD	ZB49KCU-TFMN	47,2	500	4	940 rpm	380V/3PH/50HZ	76	20,32 kW	54	28	1	S40

MODEL	COMPRESSOR	CAPACITY (Watt)							CABIN
	MODEL	-30	-25	-20	-15	-10	-5	0	
<b>SCROLL</b>	<b>COPELAND</b>								
IMP-SM21-B014CD	ZB25KCU-TFMN ZB31KCU-TFMN	5,30	6,9	8,7	10,8	13,3	16,1	19,4	S20
IMP-SM21-B023CD	ZB49KCU-TFMN	8,92	11,4	14,5	17,8	21,8	27,0	31,0	S20
IMP-SM21-B032CD	ZB49KCU-TFMN	13,36	17,1	21,6	26,8	32,7	40,5	47,1	S30
IMP-SM21-B047CD	ZB49KCU-TFMN	17,84	23,0	28,9	35,7	43,6	54,0	64,8	S40

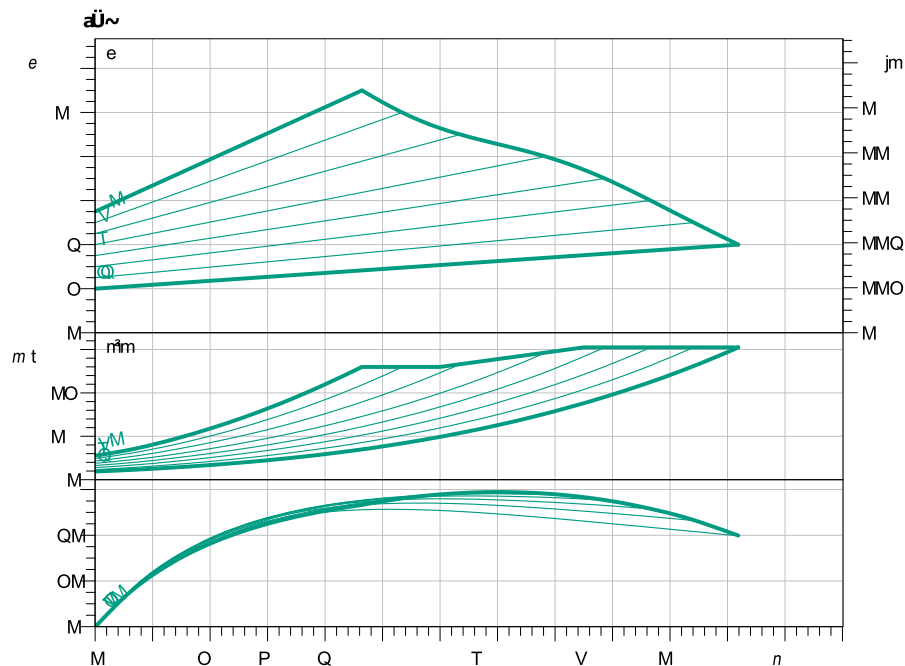
# PROPANE PACK SYSTEM

TECHNICAL INFORMATION

## Hydraulic Kit Pump

Pump Model	: WILO YONOS MAXO 30/0,5-12M
Rated Power	: 200 W
Speed	: 1000 - 4800 rpm
Power Consumption	: 10 - 305 W
Current Consumption	: 0,15 - 1,33 A

## Pump Curves



## Plate Heat Exchanger

Model	: SWEP P80Hx30/1P
Heat Load	: 14 kW
Total Heat Transfer Area	: 1,68 m <sup>2</sup>
<b>Propane Side</b>	
Fluid	: R290 (Propane)
Evaporation Temperature	: -8°C
Superheating	: 5 K
Outlet Temperature	: -3°C
Flow Rate	: 0,053 kg/s
Pressure Drop	: 9,93 kPa
<b>Water Side</b>	
Fluid Side	: Propylene Glycol - Water (30.0 %)
Inlet Temperature	: 0°C
Outlet temperature	: -4°C
Flow Rate	: 3,4 m <sup>3</sup> /h
Pressure Drop	: 36,4 kPa

# CARBONPACK

GENERAL INFORMATION

## DESIGN

CARBONPACK series has been developed specially for supermarket applications. HT and LT compressors are presented on two floors in a solid frame. Attention was paid for to parts need to be replaced were easily accessible during maintenance. Safety precautions were much strengthened due to the high pressures. 2 stage protection provided with safety valves and switches in 4 separate pressure zones. Easy maintenance is provided by adding pressure distributors to the pressure zones. A compact design is provided besides the convenience production with the use of K65 grade copper pipes.



## Thanks to the cabin developed for the outdoor environments;



- Quiet operation with acoustic insulation
- Durable frame for outdoor conditions
- Precautions to provide service maintenance at bad weather conditions
- Special design for Gas Cooler integration

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# CARBONPACK

TECHNICAL INFORMATION

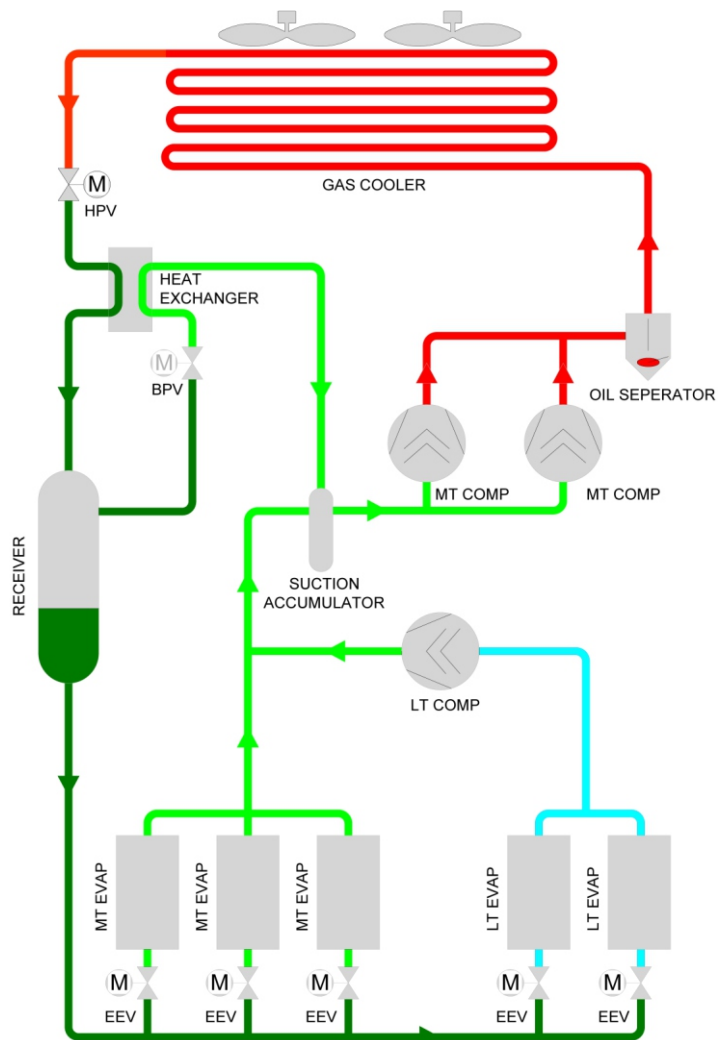
MODEL	B0028C0	B0032C0	B0040C0	B0043C0	B0047C0
COMPRESSOR MT/LT	2/1	2/2	3/1	3/2	3/3
MT CAPACITY (kW) min/max	11/52	8/43	12/77	10/68	8/59
LT CAPACITY (kW)	8	16	8	16	24
RECEIVER VOLUME (L)	100	100	150	150	150
CONNECTIONS - Liquid	5/8"	5/8"	5/8"	5/8"	5/8"
CONNECTIONS - MT Suction	3/4"	3/4"	3/4"	3/4"	3/4"
CONNECTIONS - LT Suction	1/2"	1/2"	1/2"	1/2"	1/2"
Frequency Inverter	MT: Included (30-70HZ) / LT : Optional				
Length (mm)	2.100	2.100	2.500	2.500	2.700
Width (mm)	1.100	1.100	1.300	1.300	1.300
Height (mm)	2.000	2.000	2.000	2.000	2.000
Weight (kg)	1.100	1.220	1.350	1.480	1.640

## MAIN EQUIPMENT

- Transcritical CO<sub>2</sub> Compressors
- High Capacity Oil Separator with Reservoir
- Electronic High Pressure Valve
- Flash Gas By-pass Valve
- Heat Exchangers
- Suction Accumulator
- Liquid Line and Suction Line Filter Dryers
- Double Safety Valve in Each Pressure Zone
- Electronic Oil Level Regulators
- Pressure Switches in Pressure Zones
- Electrical Panel with Electronic Controller
- Frequency Control at MT Compressors

## OPTIONAL EQUIPMENT

- Heat Recovery
  - External Casing with Acoustic Insulation
  - Gas Cooler
  - Frequency Control at LT Compressor
  - Parallel Compressor
  - Ejector
- ◆ Heat recovery unit, which can be installed on high pressure side, offers to use the heat produced according to your needs.
- ◆ The optional parallel compressor allows the system to be more efficient in high ambient conditions.
- ◆ The system is much more efficient with the use of parallel compressor and ejector options combination at tropical ambient conditions.



# CO<sub>2</sub> CONDENSING UNIT

GENERAL INFORMATION

We have developed a range of CO<sub>2</sub> transcritical condensing units that use inverter technology with the Carel Hecu smart control strategy to give lower energy consumption than traditional HFC solutions.

This compact condensing unit comes factory pre-set making it easy to install and maintain. With a GWP of 1, R744 systems provide a long term environmentally friendly solution.



## Standard Configuration



- Toshiba DC Brushless Rotary Compressor with Inverter Modulation 25%-100%
- EC Fans
- K65 Connections
- 120 Bar (High Pressure side) / 80 Bar (Liquid Line) / 80 Bar (Suction)

# CO<sub>2</sub> CONDENSING UNIT

TECHNICAL INFORMATION

## Medium Temperature

Model	Compressor	Performance at amb. +32°C	Tev (°C)					Connections K65		MRA A	P max W
			-15	-10	-5	0	5	Gas	Liquid		
SM 030 CO2	DY30	Qo (W)	2181	2548	2939	3362	3826	3/8"	3/8"	14.5	3300
		Pel (W)	1419	1444	1456	1452	1430				
		*COP	1.54	1.76	2.02	2.32	2.68				
		V / Ph / Hz	230 / 1+N+PE / 50								

Model	Compressor	Performance at amb. +32°C	Tev (°C)					Connections K65		MRA A	P max W
			-15	-10	-5	0	5	Gas	Liquid		
SM 045 CO2	DY45	Qo (W)	3293	3847	4437	5077	5778	3/8"	3/8"	20.2	4650
		Pel (W)	2142	2180	2198	2192	2159				
		*COP	1.54	1.76	2.02	2.32	2.68				
		V / Ph / Hz	230 / 1+N+PE / 50								

Model	Compressor	Performance at amb. +32°C	Tev (°C)					Connections K65		MRA A	P max W
			-15	-10	-5	0	5	Gas	Liquid		
SM 067 CO2	DY67	Qo (W)	4722	5502	6359	7280	8251	3/8"	3/8"	28.7	6630
		Pel (W)	3090	3174	3234	3272	3285				
		*COP	1.53	1.73	1.97	2.23	2.51				
		V / Ph / Hz	230 / 1+N+PE / 50								

Model	Compressor	Performance at amb. +32°C	Tev (°C)					Connections K65		MRA A	P max W
			-15	-10	-5	0	5	Gas	Liquid		
SM 0100 CO2	RY100	Qo (W)	7047	8211	9491	10866	-	1/2"	3/8"	18.3	12700
		Pel (W)	4612	4737	4827	4827	-				
		*COP	1.53	1.73	1.97	2.25	-				
		V / Ph / Hz	400 / 3 / 50								

## Low Temperature

Model	Compressor	Performance at amb. +32 °C	Tev (°C)			Connections K65		MRA A	P max W
			-30	-25	-20	Gas	Liquid		
SL0 030 CO2	DY30	Qo [W]	3343	3662	3904	3/8"	3/8"	26.8	6160
		Pel (W)	2147	2149	2153				
		*COP	1.56	1.70	1.81				
		V/Ph/Hz	230 / 1+N+PE / 50						



Model	Compressor	Performance at amb +32 °C	Tev (°C)			Connections K65		MRA A	P max W
			-30	-25	-20	Gas	Liquid		
SL0 045 CO2	DY45	Qo [W]	5049	5331	5700	3/8"	3/8"	38.2	7360
		Pel (W)	3242	3250	3242				
		*COP	1.56	1.64	1.76				
		V/Ph/Hz	230 / 1+N+PE / 50						

Model	Compressor	Performance at amb +32 °C	Tev (°C)			Connections K65		MRA A	P max W
			-30	-25	-20	Gas	Liquid		
SL0 067 CO2	DY67	Qo [W]	6599	7268	7797	3/8"	3/8"	55.2	10620
		Pel (W)	4902	4994	5097				
		*COP	1.35	1.46	1.53				
		V/Ph/Hz	230 / 1+N+PE / 50						

## MAIN EQUIPMENT

- Speed controlled BLDC Toshiba rotary compressor
- Medium pressure vessel
- High pressure valve
- Filter dryer incl. Sight glass
- 2 service valves
- Insulation on suction and medium pressure side
- Powder-coated frame
- Control electronics
- Air-cooled gas cooler
- Water-cooled plate heat exchange (on-site installation)

## ACCESSORIES

- Check valve and safety valve 60/80 bar  
(In relation to the design pressure of the evaporator)

