

# Opteon™ XP40

- Replaces R404A
- ASHRAE #: R-449A
- HFC/HFO blend: R32 / R125 / R1234yf / R134a (24.3%/24.7%/25.3%)
- ODP: Zero Ozone Depletion Potential
- GWP: 1397 (AR4)
- ASHRAE safety: A1 non-flammable
- Glide: ~4-5K
- Can be topped off while servicing (do not mix with R-404A)
- Compatible with POE lubricants
- Compressor approvals: Bitzer, Emerson, Frascold, Dorin, Danfoss, Tecumseh



# Opteon™ XP40 (R449A)

Used in New convenience stores

Co-op

Integrated Power Packs (IPP),

Copeland Scrolls

Danfoss electronic valves

RDM controllers

Costan cases with EPTA coils

Triple stage booster pack operating HT, MT and LT



Chinese Supermarket

2 x triple-stage externally compounded booster systems with integrated heat recovery

Each pack containing four LT, two MT, and one HT compressors, with independent variable speed drives was controlled by advanced custom software, delivering smooth and reliable suction pressures.



# Opteon™ XP40 (R449A)

## Retrofit of Waitrose Stores

### First store 2015

- Two HT packs, 1 LT made in 2004 , Copeland Scroll compressors. LT pack connected to 6 in-store cabinets and 1 cold store. HT packs connected to 18 cabinets, 3 refrigerated counters and 3 cold rooms for storage.
- 1<sup>st</sup> retrofit took place overnight on the 12th July 2015.
- The other two packs were retrofitted on consecutive nights, without causing any disruption to the trading floor during the store's opening hours.

- 8.7% Energy saving on MT, 3% on LT, 6.6% overall.

“No component changes, no oil changes and similar system operating parameters made the retrofit very straightforward and fast once the R-404A had been Recovered”

significant opportunity for Waitrose to lower its CO2e emissions and help to achieve the target set out in its Carbon Plan.

2016 Store conversion programme to replace 404A with Opteon XP40

Wait



## Industrial Applications for Opteon XP40

Working with all the major UK contractors

Many now have at least one system on

Opteon XP40 (R449A)

Food Processing

Cold Stores Medium and Low Temperature

1. Speciality Foods – condensing units
2. Turkey production and Storage
3. Duck production and Storage
4. Central Pack Freezer room
5. Frozen Food Storage

 **Opteon™ XP40**  
Refrigerant (R-449A)

Problem solver  
low GWP Op

- Excellent efficiency and performance
- Quick and easy replacement
- ASHRAE A1, non-flammable
- One third the GWP of R-404A
- Widely available and supported by component manufacturers

“Opteon™ XP40 – the best  
solution for my customer”

David Wilkinson  
General Manager  
GEA Refrigeration UK Ltd

[www.opteon.com](http://www.opteon.com)



BITZER Software v6.4.3 rev1302

Project: Mode Options Window

United Kingdom English SI

Semi-hermetic Reciprocating Compressors

Mode: Refrigeration and Air con

Refrigerant: R449A

Reference temperature: Mean temperature

Series: Standard

Compressor type: Single Compressor

Motor version: all

Compressor selection: Cooling capacity 16 kW

Operating point: Evaporating SST -35 °C, Condensing SDT 40 °C

Operating conditions: Liq sub. (in condenser) 0 K, Suct. gas superheat 10 K, Useful superheat 5 K, Operating mode Auto, Capacity Control 100%, Power supply 50Hz

Result Limits Technical Data Dimensions Information Documentation

Additional cooling/ Limitations (see Limits + T. Data): \*According to EN12900 (20°C suction gas temp., 0K liquid subcooling)

Compressor	6HE-28Y-40P	6GE-34Y-40P
Capacity steps	100%	100%
Loading capacity	10.00 kW	18.91 kW
Cooling capacity *	16.01 kW	20.2 kW
Evaporator capacity	14.54 kW	18.33 kW
Power input	11.50 kW	13.43 kW
Current (400V)	24.5 A	26.8 A
Voltage range	380-420V	380-420V
Condenser Capacity	26.5 kW	32.3 kW
COP/EER	1.26	1.37
COP/EER *	1.49	1.61
Mass flow	411 kg/h	519 kg/h
Operating mode	Standard	Standard

Bitzer

BITZER Software v6.4.3

Project: Mode Options Window

Semi-hermetic Screw Compressors HS

Series: all

Refrigerant: R449A

Reference temperature: Mean temperature

Compressor selection: Cooling capacity 100 kW

Operating point: Evaporating SST -35 °C, Condensing SDT 35 °C

Operating conditions: Liq sub. (in condenser) 0 K, Suct. gas superheat 15 K, Useful superheat 5 K, Additional cooling Automatic, Max. discharge gas temp. Auto, Power supply 50Hz, Power voltage Standard (400V)

Result Limits Technical Data Dimensions Information Documentation

Additional cooling/ Limitations (see Limits + T. Data): \*According to EN12900 (10K suction gas superheat, 0K liquid subcooling)

Compressor	HSN8571-125-40P	HSN8591-160-40P
Capacity steps	100%	100%
Loading capacity	83.7 kW	106.0 kW
Cooling capacity *	79.4 kW	100.5 kW
Evaporator capacity	79.0 kW	100.1 kW
Power input	63.0 kW	83.3 kW
Current (400V)	112.3 A	141.0 A
Voltage range	380-415V	380-415V
Condenser Capacity	123.9 kW	156.9 kW
COP/EER	1.26	1.20
COP/EER *	1.34	1.29
Mass flow LP	2101 kg/h	2661 kg/h
Mass flow HP	2101 kg/h	2661 kg/h
Operating mode	Standard	Standard
Liquid temp.	32.6 °C	32.6 °C
Oil volume flow	2.30 m³/h	3.60 m³/h
Cooling method	External	External
Oil cooler outlet	60.7 °C	62.5 °C
Oil cooler load	22.8 kW	32.4 kW
Discharge gas temp. w/o cooling	114.2 °C	118.7 °C

Product Selection Software - [Compressor]

File Options View Tools Windows Help

Main Menu: Product Information

Compressors

Model: 2DA3F23KL-TFE Refrigerant: R-449A Frequency: 50 Search By Model Search By Condition

Exclude Obsolete Product Type: Discus Modulation: Voltage Code: TFE (500-3-5)

RLA (MCC1.4) (Amps): 9.1 RLA (MCC1.56) (Amps): 8.1 MCC (Amps): 12.7 LRA (Amps): 49.0

Settings: Default Setting Const. Return Gas Temp. (°C) Const. Compressor Superheat (K)

Temperature Pressure Dew Point Mid Point

Inputs: Evaporator Temperature (°C): -31.7 Compressor Capacity (W): 8,840 Performance Factor: 1.0

Condensing Temperature (°C): 40.6

Return Gas Temperature (°C): 18.3

Evaporator Superheat (K): 48.3

Compressor Superheat (K): 48.3

Total Subcooling (K): 0.0

Isentropic Efficiency (%): 63.2

Liquid Temp. (°C): 38.2

Discharge Temp. (°C): NA

Cond. Heat Rejection (W): 8,160

EMERSON Climate Technologies

Product Information Annual Energy Analysis CO2 Booster System Tools

Date: May 19, 2015 Engineering Units: SI (Metric) Version: 1.0.46 (2)

Dimensions: Length: 1360 mm Width: 660 mm Height: 650 mm

	Surface reserve [%]	Surface [m²]	Air [m³/h]	Motor technology	Motor capacity per motor [kW]	Current per motor [A]
5.2F/14-ANW50.E	14.3	38.5	5000	AC	0.47	2.20
5.2H/17-ANW50.E	9.3	30.8	5140	AC	0.47	2.20
X 040.1/2-40.A-18...	15.9	32.7	5100	AC	0.19	0.85
X 040.1/2-70.A-18...	21.1	38.8	5100	AC	0.19	0.85
X 031.1/3-40.A-18...	16.9	38.8	4260	AC	0.09	0.40
X 031.1/3-70.A-18...	13.4	31.8	4530	AC	0.09	0.40
0.2F/27-ANW50.E	9.5	38.8	6100	AC	0.23	1.05
0.2D/24-ANW50.E	3.1	38.8	6100	AC	0.23	1.05
5.2H/14-ANW50.E	44.0	51.4	5140	AC	0.47	2.20
45.2J/17-ANW50.E	34.3	38.4	5140	AC	0.47	2.20
1.2F/34-ANW50.E	9.1	31.8	4665	AC	0.09	0.41
1.2H/37-ANW50.E	4.8	31.8	4665	AC	0.09	0.41
X 031.1/4-70.A-18...	26.8	31.8	6320	AC	0.09	0.40
X 031.1/3-40.A-18...	18.1	39.8	4320	EC	0.07	0.63
X 031.1/3-70.A-18...	12.9	31.8	4500	EC	0.07	0.63
X 040.1/2-40.A-18...	12.9	32.7	5980	EC	0.17	1.30
0.2H/17-ANS0.E	48.3	40.3	6640	AC	0.62	1.45
X 040.1/2-70.A-18...	17.9	29.4	6100	EC	0.17	1.30
40.2F/24-ANW50.E	47.7	49.1	6140	AC	0.23	1.05

GUNTER

Print ... Car