



CUBO2 Smart Transcritical Condensing units

Field Experience

Indy Saund – Beijer Ref

# CO<sub>2</sub> systems – The evolution



2004

**CUBO<sub>2</sub>**  
plus<sub>2</sub>



2015

**CUBO<sub>2</sub>**  
smart<sub>2</sub>



2018

## CUBO2 Smart - Application

### Application:

CUBO2 Smart is a range of CO2 transcritical condensing unit suited for small cooling demand, (Convenience Store / Petrol station / Restaurant / ...) that meet the needs to be Eco-friendly and sustainable.

Available in medium and low temperature application

Capacity	0 → 9 kW	@ -10°C
Capacity	0 → 6,5 kW	@ -30°C

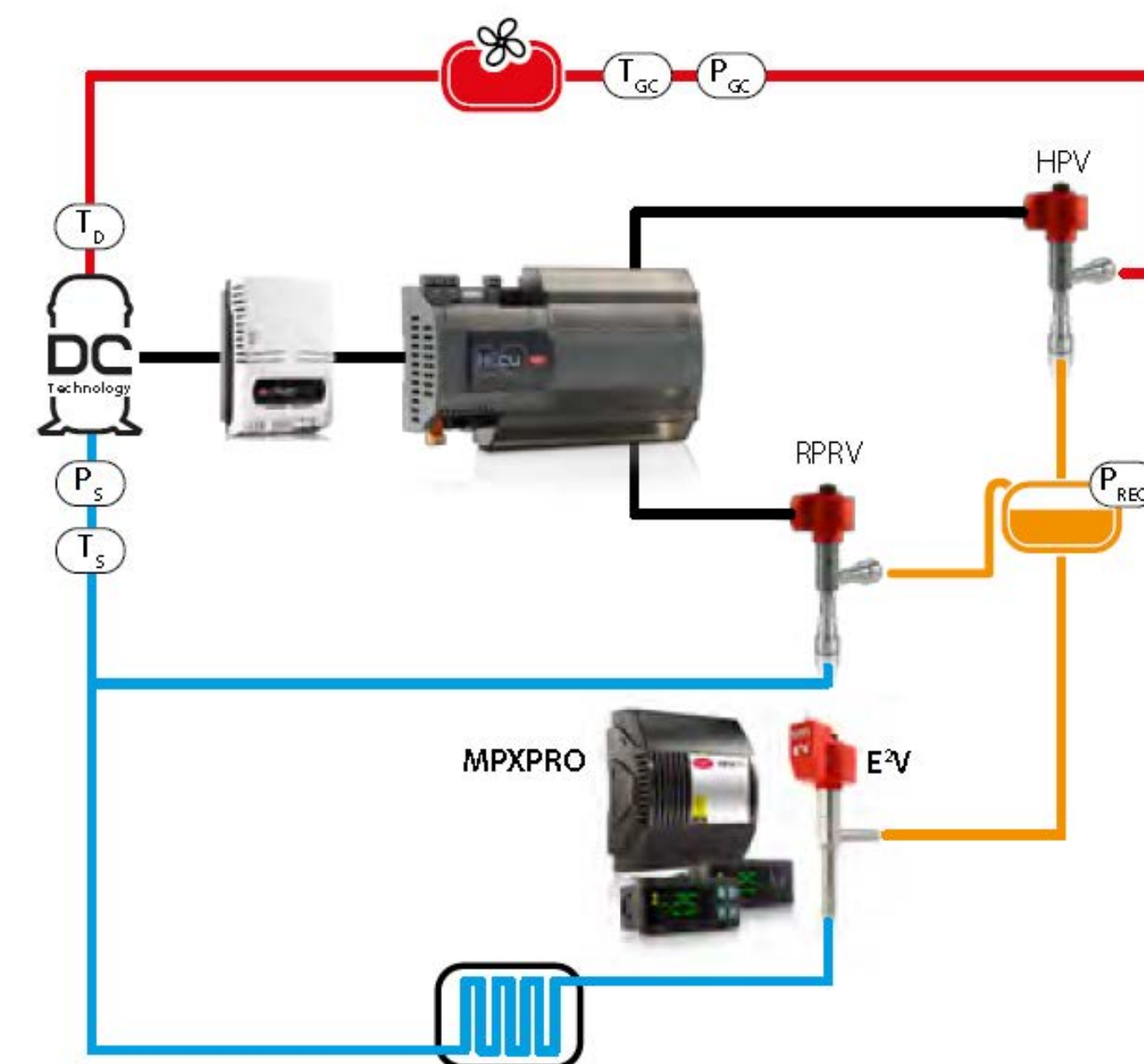
 **CUBO**  
smart 2



## CUBO2 Smart - Features

### Features:

- DC Brushless Rotary compressor
- Capacity modulation 25% - 100%
- EC Fans
- Small footprint
- K65 connections
- Design pressure: 120bar (high pressure side) / 80bar (liquid and suction line)
- Open to all Control Systems in Market



## CUBO2 Smart – KEY factors

- Easy Installation
- Easy Commissioning
- Reduced refrigerant charge
- Few Steps and the unit is ready to cool



## Case Study 1

### LIDL installation Switzerland

#### **CUBO2 Smart – UMT T 067 MTDX**

- Cold Room 25m<sup>2</sup>
- 1 evaporator 4,33kW
- T evap -9°C / Room Temp. 0°C
- Max Amb. Temp. 32°C

#### **CUBO2 Plus – UMT 120 BTDX**

- Freezer Room 48m<sup>2</sup>
- 1 evaporator 8kW
- T evap -32°C / Room Temp. -24°C
- Max Amb. Temp. 32°C

**CO<sub>2</sub> charge: 6kg**



## Case Study 2

### Installation Sweden – Helsingborg

**Customer:** Örestads Kyl AB ( Löddeköping )

**Enduser:** Sundsgårdens Folkhögskola ( Government own school )

**Application:** Cooling rooms for Kitchen in a school

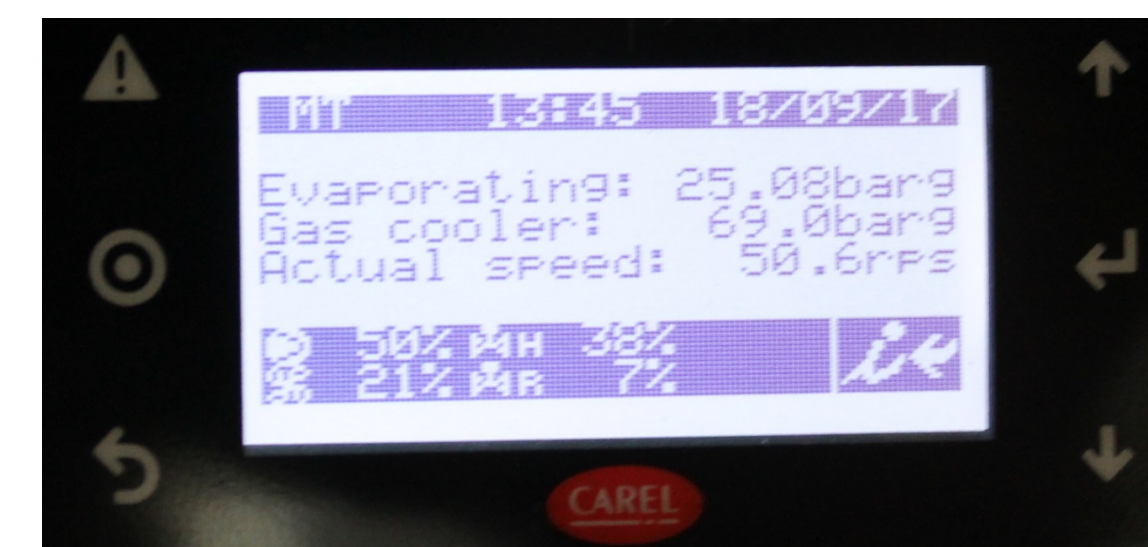
**Location:** Helsingborg

The kitchen will open and be ready 2017-09-18

**CO<sub>2</sub> charge: 4kg**

#### CUBO2 Smart – 2x UMT T 045 MTDX

- 4 evaporators 2kW/each, AIA –LUVE NEX-27D (85bar)
- T evap -6°C / Room Temp. 4°C
- Max Amb. Temp. 30°C
- Carel Ultracella
- Carel EXP-valves



## Case Study 3

### Installation Norway – Riska Bo

**Customer:** XXX  
**Enduser:** XXX  
**Application:** Cooling rooms  
**Location:** Riska Bo  
Start-up of the units on May 2017.

**CO<sub>2</sub> charge: 5kg**

#### **CUBO2 Smart – UMT T 045 MTDX**

- 3 Cold rooms 1,5kW/each, AIA –LUVE NEX-27D (85bar)
- T evap -7°C / Room Temp. 2°C, 4°C, 8°C
- Max Amb. Temp. 28°C
- Carel ULTRACella + Carel EXP-valves





## CUBO2 Smart – +35°C option

Adiabatic system (suggested for ambient temperature > +35°C)

An experimental field test has been conducted in the SCM FRIGO test rig during the summer period (24rd July – 5th August).

A test unit model UMTT 100 MTDX has been installed outside equipped with an Eco-mesh adiabatic kit. The unit have operated 24 hours a day, 7 days a week continuously.

Data 04/08/2017

Boundary conditions:

Max temperature registered on the unit air inlet: 38°C

Average Relative Humidity: 66%

Max relative humidity: 88%

Max wind 17 km/h



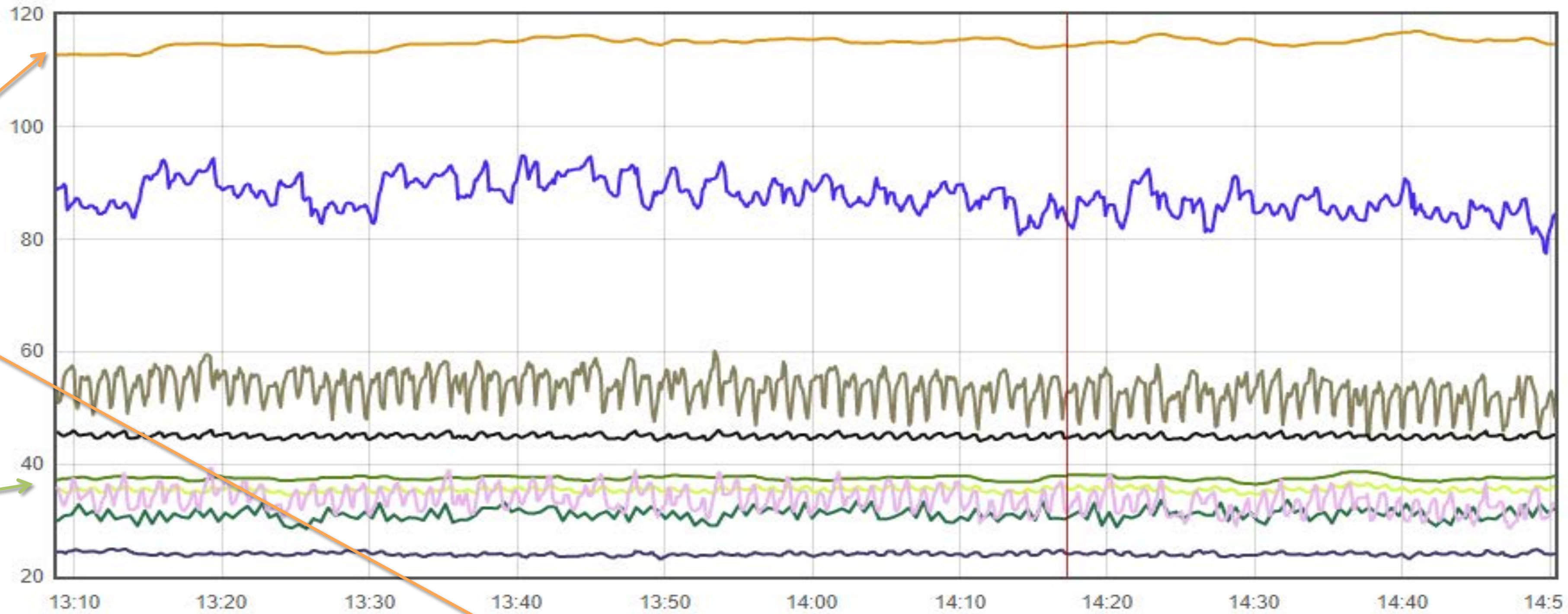
Start Time

Period



MADE IN ITALY

You can't view more than 10 analog variables



04-08-2017 14:17:16

Ambient temperature C-Store... = 30.43°C

External temperature = 37.98°C

RPRV valve opening = 31.40%

Gas cooler pressure =  $\emptyset$  82.5 bar

Discharge gas temperature B... = 114.42°C

HPV valve opening = 52.81%

Receiver pressure = 44.60barg/psig

Evaporator pressure = 24.02bar

Liquid temperature = 33.72°C

Compressor rotor speed [rps] = 83.19rps

## CUBO2 Smart – MARKET

Up to date we delivered more than 200 units worldwide

↪ Experience and knowledge shared between 330 branches in 33 countries!



Smart and Green CO<sub>2</sub> solutions!

**BEIJER REF**

**CUBO<sub>2</sub> smart** **SCM**



ATMO  
sphere

Thank you very much!

