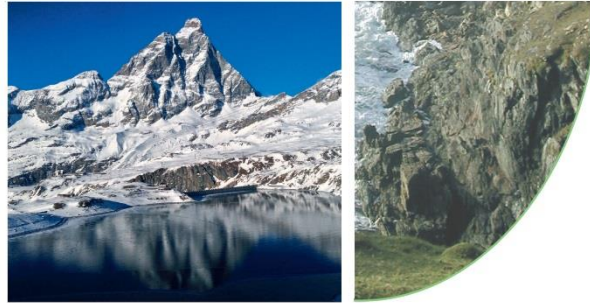




*Climate change: melting glaciers, diminishing water resources, trapped sunrays increase global warming*



# **NEW CO2 COMPACT MONOBLOCK SYSTEMS FOR FRESH OR FROZEN FOOD STORAGE**

**L. BULGARELLI  
ZANOTTI S.p.A.**



## CO2 COMPACT MONOBLOCK SYSTEMS FOR FRESH OR FROZEN FOOD STORAGE IN COLD ROOMS AND OTHER APPLICATIONS

Lorenzo Bulgarelli  
Development Manager, Zanotti S.p.A.  
Tel.: +39 0376 555109, E-mail: [l-bulgarelli@zanotti.com](mailto:l-bulgarelli@zanotti.com)

### Abstract

CO2 plants, with single or double stage compressors for transcritical cycle, in the classic Zanotti configuration, wall mounted monoblock type, for medium/large storage coldrooms for fresh or frozen products.

### Introduction

For some time we have grown accustomed to hear about CO2 as a refrigerant used in our refrigerating applications.

The main use is so far related to the construction of multi compressor packs used in the supermarket sector.

As a consequence, the main development of components has occurred in this field and it has entered in the state of the art.

Zanotti, more than fifty years ago, began its activity focusing on the Monoblock for refrigeration.

Why should not we suggest as well a new solution, that's to say a new CO2 monoblock whose configuration is for several people already a standard approach?

The plant solutions have been adapted to the monoblock needs.

Basically, we have developed a system in which the single or double stage compressor is compactly integrated with the gas cooler with its intercooler, and if necessary, with liquid receiver, valves and control panel.



The range consists currently of two units for medium and 4 units for low temperature.

The 2 systems for medium temperature are equipped with a single stage transcritical compressor, whereas the other 4 ones for low temperature are provided with double stage compressor with intercooler built-in the system.

From the point of view of the frame, the result is not yet definitive, but anyway good.

**Functioning parameters:**

Transcritical compressor CD2S360  
Coldroom Temperature  $-19^{\circ}\text{C}$   
Evaporating pressure 16 bar  
Evaporating temperature  $-24,5^{\circ}\text{C}$   
Air inlet Temperature g.c.  $32^{\circ}\text{C}$   
Gas cooler pressure 86 bar  
CO2 outlet temp. from gas cooler  $34,2^{\circ}\text{C}$   
Refrigerant charge 3,5 kg

A different application, already tested, concerns the connection of the condensing unit to the icemaker you can in the next slide:



**Functioning parameters:**

700 kg/24h capacity  
Ice Temperature  $-13^{\circ}\text{C}$   
Transcritical compressor CD2S360  
Evaporating temperature  $-18^{\circ}\text{C}$   
Total superheat 17K  
Gas cooler pressure: 88 bar  
Gas cooler outlet temperature  $34,5^{\circ}\text{C}$   
Refrigerant charge 3,75 kg