

DuPont™ ISCEON® REFRIGERANTS

CASE STUDY- COMPUTER ROOM

Conversion of Liebert Close Control Computer Room Air Conditioning to DuPont™ ISCEON® MO59 (R417A)

The customer has a large number of Liebert Air Conditioning systems running on R22 and wanted to replace ozone depleting chemicals on site as soon as possible. The systems are operated to provide close control cooling and humidity in the computer suites.

Each Liebert Cooling System comprising of twin Carrier semi-hermetic compressors, mounted one above the other to the left hand side of the unit. Room temperature is controlled via a forced air DX evaporator and a water cooled condenser all housed within the self contained unit. Each circuit is charged with 9.4kg of R-22.

Conversion of the Liebert DX A/C system was carried out successfully and without modifications to the system or Lubricant. Adjustment of the Expansion Valve Superheat setting was made where necessary to optimise the system.

Power consumption usage was monitored from the outset by British Energy. leaving one compressor on R22 and converting the other to ISCEON® MO59 on the same system. This gave a fair comparison of ISCEON® MO59 against R22 on both energy consumption and performance parameters for the duration of the trial.

ISCEON® MO59 Comparison with R22

- R22 charge 9.5kg per system, ISCEON® MO59 charge 8.5kg per system.
- Energy consumption was 10 -12% lower with ISCEON® MO59.
- The average Superheat was 8.5°K, being above the critical level of 6° necessary to avoid the possibility of liquid flooding into the compressor.
- The Compressor Discharge Temperature was measured at 61°C, being lower than R-22.

Conclusion:

Conversion of this system to ISCEON® MO59 as the recommended direct replacement for R-22 in DX systems proved effective and straightforward.

The system operated well after conversion, without any noticeable performance loss.

A significant energy saving was gained from the conversion to ISCEON® MO59 making it a viable and financially beneficial alternative to R22.

Following the success of ISCEON® MO59 the other Liebert units on site have been converted.

The conversion from R-22 to ISCEON® MO59 has enabled the customer to replace Ozone Depleting Substances ahead of legislation and without the need for major capital expenditure on new equipment. By virtue of a reduction in power consumed ISCEON® MO59 will also aid a reduction in CO2 emissions as required by the Kyoto Protocol.

This case study has been updated to reflect name changes - Originally written January 2001

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