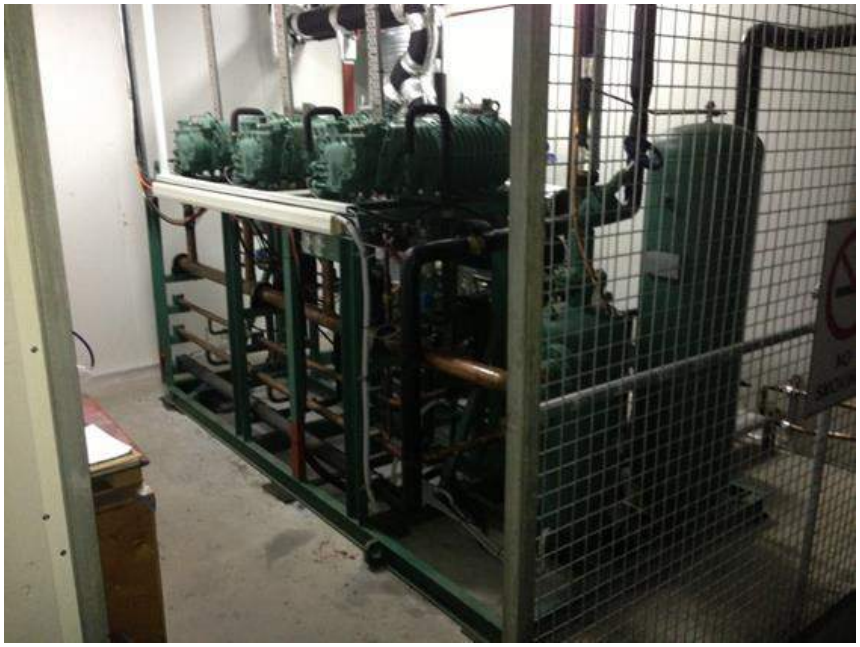
ENGAS HYDROCARBON REFRIGERANT INSTALLATION REPORT FOR LIDCOMBE ICE PTY LTD NEW SOUTH WALES AUSTRALIA



INDUSTRIAL FREEZER ROOM STORAGE FACILITY

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LIDCOMBE ICE – Industrial Storage Facility

INTRODUCTION

Lidcombe Ice is a major provider in the Sydney area to industrial, commercial and retail customers of high quality food grade ice.

The Directors and Senior Management contacted Engas Australasia and requested assistance for the commissioning of a new refrigeration system which they had decided to operate on hydrocarbon refrigerant.

Acting as third party consultants the engineers at Engas Australasia studied the design, recommended some minor changes and offered a design brief for the correct Engas Hydrocarbon Refrigerant for this installation.

Engas spent several days on site assisting with the commissioning of the new Freezer Room Installation, advising on control system changes and on other areas pertinent to the Engas product range. We worked closely with the senior management, and their main refrigeration contractor Mathew Laurie of Great Lakes Ice Pty Ltd who installed the equipment.

THE MAIN CHILLING PLANT

The important information for the Lidcombe Ice Installation is as follows:

1) The storage facility is located in an Industrial in New South Wales.

2) The system comprises of four rooms, two with single evaporators (31 & 40 Kw) and two rooms with dual evaporators. (31 Kw each evaporator)

3) The rooms are powered by three Bitzer Semi-hermetic screw compressors (104 Kw each) and three 130 Kw remote condensers.

4) Each room can hold 1000 pallets.

5) The total power draw for this system is 130 amps per phase. A saving of around 28 % compared to R404a.

6) The Engas Hydrocarbon Refrigerant in use is M50.

7) The business owner saved over $100,000.00 as he was able to avoid an upgrade to his electrical mains cable to the premises. Due to the lower full load amps when using hydrocarbon refrigerant.

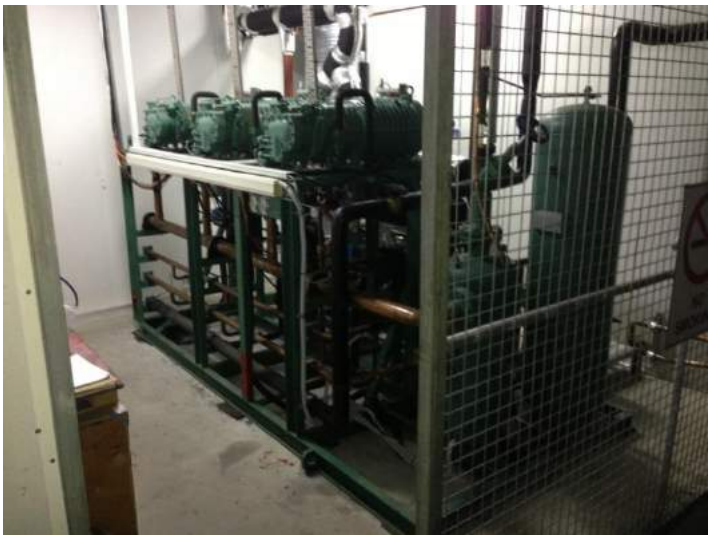
8) The plant room is ventilated with spark proof extract fans.

9) The electrical mains supply distribution board is located in a separate room. Away from the plant room.

10) Hydrocarbon Gas detectors are in all rooms throughout the facility.

Before and after energy consumption data is not available as this Freezer Room system has operated on Engas M50 Hydrocarbon Refrigerant since it was first commissioned. The savings based on full load amps and historical performance for our M50 on this type of equipment equates to around 28%.

The refrigeration system installed at this site is a direct system. For larger systems we would insist on using a secondary loop system with Engas M50 as the primary refrigerant and propylene glycol/water as the secondary refrigerant. Propylene glycol is a natural refrigerant and is suitable for use around areas where food is being stored.



MAIN PLANT ROOM - Bitzer Screw Compressors

Single Bitzer Screw Compressor

ONE OF THE FOUR FREEZER ROOMS

ELECTRICALS AND CONTROLS

All mains power, control panels, VSD/VFD's are located in a separate location, isolated from the main refrigerant plant.

Both the main plant room and the power/control room are restricted access areas, with only qualified trained personnel given access. Log book entries of access to these areas are maintained.
The complete site is designated a non-smoking area.

ONGOING MAINTENANCE & SAFETY

The ongoing success and safety of this type of installation is absolutely dependent on care and maintenance by fully qualified engineers and technicians.

Engas Australasia insist that only fully trained, qualified refrigeration personnel who have been properly trained in the safe use and correct application of hydrocarbon refrigerants should carry out service and maintenance work on this type of equipment.

- End of the Report -