

Plug and Play Cold Storage at Brisbane's Rocklea Markets

With rising costs of equipment and labour, LU-VE Contardo has designed a "plug and play" refrigeration unit for cold stores which can be assembled and installed quickly. All the necessary components and cabling are built-in so there is less down-time and overall installation costs are reduced.

The first of these new units was installed at Central Park Produce in Brisbane's Markets, at Rocklea, just 11 km from the CBD. It includes a fruit and vegetable market, flower market, a commercial centre and the Brisbane's MarketPlace retail market precinct.

In March *Celsius* we reported on the installation of a new supermarket refrigeration rack for LU-VE Contardo for the new Freshland Asian supermarket at Box Hill by Doug Collins, a refrigeration mechanic and electrical contractor from Broadmeadow who is very good with

a welding rod. He's just as adept with electrical wiring, according to John Mignano, LU-VE's managing director.

"It's a complete refrigeration system in a box," he said.

"Overall the cost is lower than if a company bought a basic condensing unit and then all the extras they'd need. Added to that, a good refrigeration electrician will charge around \$75/h. Next you've got to spend time explaining to him how you want the system wired and which fans need to come on first.

"In this unit that's already done. Time's money today on site. If you've got a few men/installers on the go then they are each costing you a minimum \$50/h," Mignano said.

"The less time you spend installing, the better off you are."

Apparently the unit had been recommended to Central Park Produce by the orchardists Plunkett of Shepparton in Victoria. "We have supplied ammonia evaporators to Plunketts who have progressively added on to their cold-storage facility for the last 10 years. They've been happy with the LU-VE performance and it is trust and respect built up over the years based on sound reliable performance with all growers along the mighty Murray river that gives them the confidence to try new equipment put forward by LU-VE.

"Our 75 kW Plug and Play Refrigeration Unit can also be adapted to an air cooled glycol chiller with the addition of a suitable evaporator.

"It's a quiet unit because its sound attenuated and enclosed on all sides.

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Bruce Brewster at Central Park Produce's selling store

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"The unit was assembled with a standard LU-VE 75 kW air cooled condenser and two hermetic compressors that can operate from +10 sst to -20sst compressors.

It can be used in all types of food applications and is weather-proofed with a powder coated finish for outdoor applications.

Carl Rachele owns and manages Central Park Produce and has been a market agent for 23 years. "We have a selling store and two sheds and mainly sell apples, pears and stone fruit at the Brisbane markets," he told *Celsius*.

"We sourced the refrigeration contractor, Sunstate Refrigeration, locally. Their services were reasonably priced and they completed the installation in late November last year.

"The markets are open every single morning. They're a commercial market generally but they are open to the public as well.

"Before the LU-VE unit we had no refrigeration system installed. What's happening now is market agents like ourselves are beginning to refrigerate our own selling floors.

"In the past we used to put our fruit in cold rooms in a warehouse. We'd bring the fruit up on to the selling floor in the morning would have to go back into cold rooms again at night. It got to a stage where there is not a lot of orders come off the selling floors. The market now is more like a large display area."

Bruce Brewster is project supervisor at Sunstate Refrigeration and has 24 years in the industry.

"As a company we mainly specialise in

installing and refrigerating cold stores," he said.

"Carl Rachele had the condensing unit mounted on a frame before we got involved with the project. All we had to do was install the refrigeration plumbing to the two evaporators, hang them on the ceiling of the cold store, attach condensate drains and connect the wiring.

"They're are pretty restricted where market agents can put refrigeration equipment at the markets. There's nothing that can be left on the ground outside the store area, so it is mounted off the ground at the back of the selling store.

"We didn't have to put any control system on to the unit - it came with its own controls and a small wiring diagram."

The LU-VE unit is a basic pump-down system with two hermetic compressors.

The cold store was made of 100 mm sandwich panel with roof suspensions through the centre. Because the walls butted in against the side of the room and only way the evaporators could be supported was from the building itself. "We assembled a roof brace so the only way the evaporators would fall down was if the building itself fell down," Brewster said.

"It took a day for the evaporators to be installed and two days to connect the pipe work and then a day to commission it.

"Installation of all the equipment including condensate drains and the hanging of the two evaporators using wire straps, took longer than the pipe work.

"Condensate runs from a 40 mm pipe through the back wall by gravity to a drain outside.

"The temperature inside the cold store is set between 2-4°C.

"We have done a couple of other cold stores at the markets that are slightly larger than this but not much. They don't have large efficient evaporators like LU-VE's to circulate the air. With the LU-VE evaporators air circulates right through all of the fruit boxes and Sacks so fruit at the bottom of the pile are kept the same temperature as boxes at the top.

Brewster considers that with some of these smaller evaporators you don't get that air flow and you do not get an even temperature.

"Sometimes I think it's a lot of expense just to cool down some fruit, but I

suppose if you can keep the product at least one more week you are making money," Brewster said

"Most of the fruit in here is citrus and seasonal in another couple more months.

"Pears are just coming in now and apples are all year round.

"Within the LU-VE control panel that came with the unit each fan has its own circuit breaker and NCB contactor in a lot of the smaller commercial units you would have a contactor with a thermal overload but very rarely see one with its own MCB contactor. So you could actually isolate each individual 3 phase fan or disconnect and work on it without any danger.

"The timer is a delay between compressor one and two so that we don't get both starting up at the same time. They've got defrosts on them but we didn't need heaters. They're just off-cycle defrost, the fans stay running and, it's not normally necessary to put heaters on when the room temperature is above 0°C," Brewster said.

"This unit will last for a very long time because if one compressor fell over or a condenser fan fell over, there's still enough capacity in this room to keep them going. Some of the equipment you see at the markets you are lucky if it lasts 10 years, because other agents don't generally get them serviced as often as they probably should."

The installation was done professionally and took a short time once the unit was secured in a framework up above the back entrance, according to Carl Rachele.

"Sunstate just needed to hook up the plumbing and the electrics which they did in a few days," he said.

"It's quite simple to use and efficient. We are quite happy with it. I'd never heard of LU-VE before. I'm the first in the Brisbane market to have one.

"The system has been working successfully and we haven't had a problem.

"During the day if we have fruit displayed in the cold room it will get a bit cold and we will turn the system off for a while. It's just that it becomes a bit uncomfortable if you have buyers in there. We will then just switch it back on again and the temperature comes down very quickly."

Acknowledgement

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Left hand view of the LU-VE Plug and Play Unit



Two LU-VE Evaporators NHI 587 N 3 with 25k W capacity