

RESIDENTIAL APARTMENT BLOCK

HYDRAULIC VVVF MRL LIFT MODERNISATION



BACKGROUND

Over the past two years, Hydratec has been working with one of its major customers to improve the reliability of two hydraulic Machine-Room-Less (MRL) lifts in a private residential block.

Working with our client, the reliability has been improved, but there were still ongoing complaints from the residents about the excessive noise created by the power units during up travel. The noise was transmitted throughout the building and was disturbing residents' sleep to such an extent that the majority of them, who were able, were using the stairs. The design of the original building gave rise to some of the noise problems; the lift well is a steel structure within a steel stairwell with thin sheet cladding on the outside. The cladding provided little in the way of an acoustic barrier, and as previously mentioned, the original power units were very noisy during up travel.

OUR BRIEF

Hydratec was tasked with significantly reducing the noise levels whilst at the same time improving the reliability and safety of the lifts. This created several challenges:

- The original power units were of a vertical design with a very small footprint of 400mm square
- The noise levels of similar hydraulic systems were very much in line with the existing unit
- No option to relocate the power unit outside the lift well
- Restricted space for the new controller

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LIFT MODERNISATION

OUR SOLUTION

We knew that in order to reduce noise levels we would need a VVVF drive. Our experience has shown that ALGI produce the quietest VVVF hydraulic drive currently available. Fortunately, they also produce a vertical 'Tower' power unit with a footprint of less than 400mm square. The ALGI VVVF drive uses the Danfoss LD302 series inverters; it is certified to drive the motor without contactors – this not only reduced the controller size but also removed the motor contactor noise.

Lester Controls manufactured a very compact controller which would fit into the architrave. We were able to wall mount the inverter to save more space, so the end result is a very compact unit. Drive adjusting and programming is safely carried out using a flying lead type remote programming module, which can also be plugged into a laptop.



	OLD UNIT	NEW UNIT
Lobby area up dB(A)	71	53
Lobby area down dB(A)	52	52
Inside Car up dB(A)	68	46
Inside Car down dB(A)	42	48

THE FINAL OUTCOME

Hydratec began the project in April; it was completed on time and to budget in May. Our before and after sound readings showed very significant reductions in sound levels during up travel of 18 dBA in the lobby area. In the down direction, the noise levels were the same. The only overall increase in noise level was during down travel within the car, where we found a 6 dBA increase, due to the motor running in the down direction.

Although we were presented with some interesting challenges, we believe the outcome exceeded everyone's expectations. The lift has proven to be exceptionally reliable for our customer; the residents are now back to using the lift regularly and benefitting from undisturbed sleep at night. They are now looking to secure funds to complete the works on the second lift in the near future.



If you have a particular hydraulic problem or are looking for special solutions, please give Hydratec a call. We are the most experienced hydraulic lift specialist and we pride ourselves on our reputation within the industry.

Hydratec can help with:

Project management
Consultancy
Hydraulic repairs
Installation and modernisation
Valve conversions
Lift jacks
Power units
Control valves
Airblast oil cooling systems
Oil/water heat exchange systems
Ram seals
Hoses
Inverters
Energy efficient drives
Rupture valves
SAFed (Supplementary testing)
Electronic Control Boards
Oil changes
Oil and hazardous waste disposal
Spares



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