

# HYDROELITE

## FEATURES

### Features validated by others



Many third parties had undertaken independent measurements to test the claims for the outstanding HydroElite features. All of them confirmed the exceptional performance of HydroElite systems.

One example is FERROVIE NORD, company that manages the railway network in North Italy. Their measurements show that for same car nominal speed, the floor to floor travel time in up direction dropped from 20 to 14 seconds which is 42.86% difference. Mainly because of this improvement, the average trips in up direction has increased from 248 to 377 or 34.22% which means **without increasing the speed, the lift has increased it's traffic capacity.**

The energy consumption per trip dropped from 75 to 45 Wh **which is 66.67% in energy savings.**

**FERROVIENORD**  
Business Unit Elevators and Escalators

Saronno / Italy,  
Nov18th, 2015

**Energy Consumption of Hydraulic Elevators**

The tested lifts are installed at the railway station of Quarto Oggiaro / Milan, Italy. The measurement system has been programmed in order to register the energy absorbed by the whole lift and the number of trips performed.  
Tested lifts: Qo-01 and Qo-04  
Test period: Qo-01: from November 3rd to 16th, 2015. Qo-04: from October 19th to November 3rd, 2015

| Lift Data                         |                        |
|-----------------------------------|------------------------|
| Indirect side acting reverse lift |                        |
| Number of cylinders               | 1                      |
| External cylinder diameter        | 177.8 mm               |
| Internal cylinder diameter        | 166.6 mm               |
| Thickness of cylinder wall        | 5.6 mm                 |
| External piston diameter          | 130 mm                 |
| Thickness of piston wall          | 5 mm                   |
| Total length of piston            | 2800 mm                |
| Piston travel                     | 2317.5 mm              |
| Cabin travel                      | 4.635 m                |
| Number of stops                   | 2                      |
| Number of ropes                   | 6 x 10 mm 6 + 19s + FC |
| Max. static pressure              | 34.1 bar               |
| Vacuum pressure                   | 18.6 bar               |
| Capacity                          | 14 persons             |
| Cabin weight                      | 1050 kg                |
| Car frame weight                  | 600 kg                 |
| Weight 1st operator               | 270 kg                 |
| Weight 2nd operator               | 145 kg                 |
|                                   | 145 kg                 |

| Technical Characteristics of Drive Systems |                         |                     |
|--|-------------------------|---------------------|
| Drive unit motor + pump                    | Traditional power unit* | Hydroware VIDI      |
| Electrical control panel                   | XXX                     | Hydroware 3G1       |
| Electric motor                             | Submerged               | External air-cooled |
| Pump delivery                              | 210 l/min               | 125 l/min           |
| Power requested                            | 18.4 KW                 | 11 KW               |
| Nominal current                            | 46 A                    | 25 A                |
| Starting current                           | 69 A                    | 35 A                |
| Travel speed                               | 0.52 m/sec              | 0.52 m/sec          |

| Energy Efficiency    |                         |                |
|----------------------|-------------------------|----------------|
| Test days            | Traditional power unit* | Hydroware VIDI |
| Total KWh absorbed   | 12                      | 15             |
| Total complete trips | 223                     | 253            |
| Complete trips / day | 2975                    | 5651           |
| KWh absorbed / day   | 248                     | 377            |
| Watt absorbed / day  | 19                      | 17             |
|                      | 75                      | 45             |

| Travel Time         |                         |                |
|---------------------|-------------------------|----------------|
| Time / trip (sec)** | Traditional power unit* | Hydroware VIDI |
|                     | 20                      | 14             |

\* Drive System with electric motor, submerged pump and soft starter  
\*\* The time per trip is the arithmetic mean of 10 consecutive measurements



**CERTIFIED**

