

## **LT2.3 3 Position Paper**

### **Appendix 1 - Liège testing - Overall Benefits**

#### **Test Bench trials**

- Can check how well current pumps and control panels are performing and to see if we can adapt these to optimise performance, use less energy and produce fewer emissions.
- We can trial different configurations of such equipment to look for efficiencies and optimal ways to deploy these re-configurations in different hydrological and operational scenarios i.e. partner and other organisation's pumping systems and conditions.
- It can provide useful information to organisations assessing their pumping needs prior to investment choices and highlight 'emerging' evidence of the benefits of switching to smarter control systems. Allied to the tank testing (specific pumps and control systems) this can be a very cost effective service available to them.

#### **Validates (or challenges) manufacturers claims.**

- Allows waterway management organisations (WMO's) to optimise their pumping based on lab / actual data compared to manufacturers claims.
- Performance testing at different / fuller range of operating conditions than manufacturers can offer.
- More 'bespoke' validation of manufacturers 'generic' claims / assertions.
- Can tailor pump & control configurations to achieve the carbon efficiencies suggested we can attain through the lab testing and modelling.
- Lab effectively forces / enables water managers to carry out this early stage checks.
- Provides this service to potential purchasers - WMO's like Canal & River Trust, Waterways Ireland and Voies Navigables de France, or smaller organisations such as canal restoration societies - saving them valuable time and expense analysing their current and future pumping operations.

#### **Assured quality of the testing**

- Tests follow the procedure of testing ISO9906 characterisation which 'guarantees' the quality of testing. Manufacturers (using the Labs or receiving results from tests) can trust the information received is high quality & meets industry accepted ISO9906 test standards.
- Meets Grade 1 of the 3 grades this consists of - this is the most we can sensibly claim - but is a very good grade to achieve and is enough to satisfy the types of organisations we want to support.
- Can include in standard report template produced as part of lab tests.
- Verification of overarching efficiencies provided by smart control systems
- Can test 'soft start' units - how these can be applied to deliver efficiencies through 'smoother' start-ups / shut-downs.
- Helps identify efficiencies to be gained from using smart pumps & controllers, variable speed drives (VSD) and the optimum configurations of these.
- Can test of auto tune features.

#### **The University's Computational Modelling Calibrated simulation system**

- Extends the range of info we have/ collect from real tests.
- Calculated results to date have been very close to results of real tests.
- Can assess the optimum ways to integrate SCADA / networking functionality of sites (overarching controls)