



# Flygt A-C Series Custom Pump Test Facility

VALIDATING GUARANTEED HYDRAULIC PERFORMANCE

# Guaranteed Performance Proven at the Largest Indoor Pump Test Facility in North America.



**At Flygt, we're focused on performance.** That's why we do more than manufacture world-class pumps at our plant in Pewaukee, Wisconsin, USA. We test them there, too. By investing in exclusive in-house testing capabilities, we can test some of the world's largest pumps. As a result, we can verify the performance and energy efficiency of these pumps for a guarantee.

At the center of our test facility is an industry-leading 440,000-gal (1,665 m<sup>3</sup>) wet pit area designed for testing the largest pumps. Running alongside this is a dry pit test area, a bank of guide rails for submersible pump testing, and an above ground dry pit test area for conducting semi-closed loop tests on pumps up to 16 inches (40 mm). These facilities allow us to test in accordance with the Hydraulic Institute and ISO standards, and/or any contract-specific requirements.



## Verifying Pump Efficiency

In order to verify the industry leading efficiency of Flygt A-C pumps, power measurement is either accomplished via calibrated torque meters or calibrated power meters in conjunction with a calibrated shop motor or efficiency tested job motor. In addition, a string test can be executed to verify performance with the job motor and VFD. Vibration and noise measurement are also available during the factory performance test.

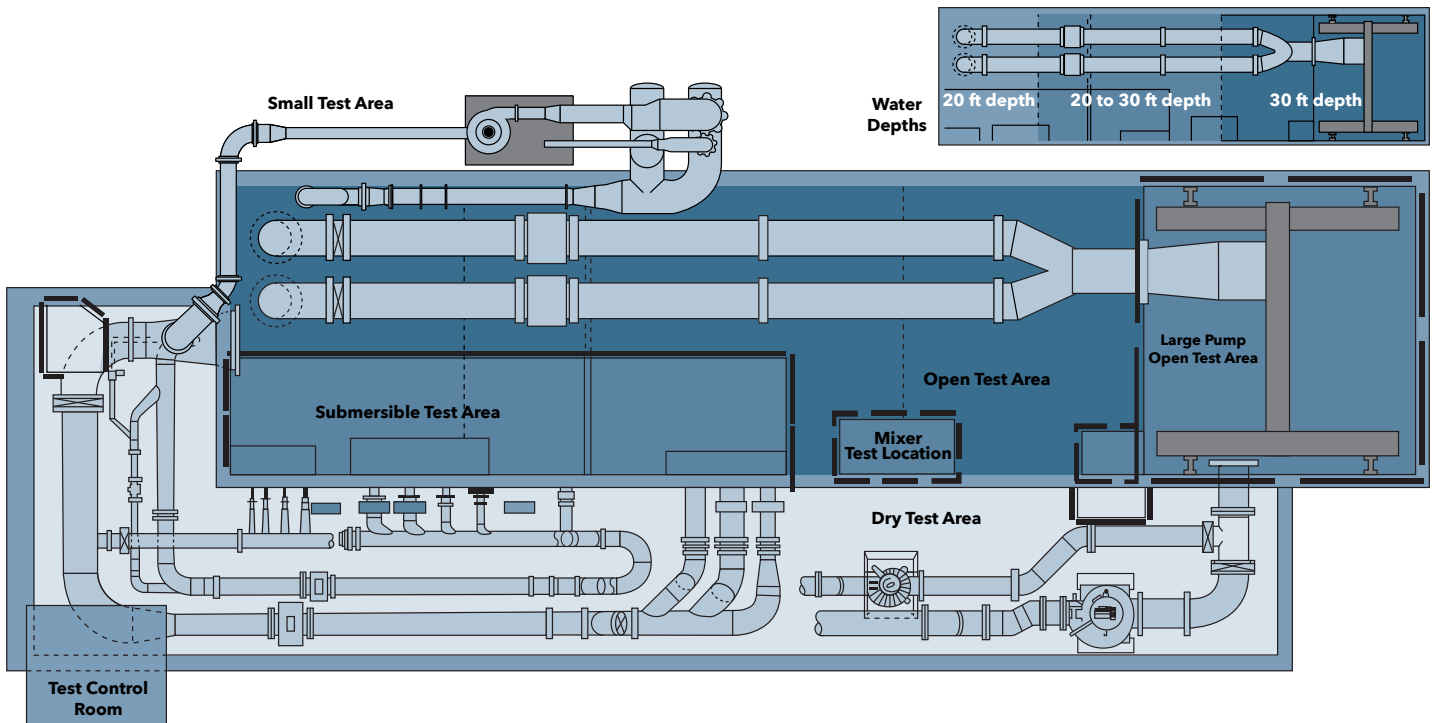


## Closed Loop Model Testing

For pumps that are too large to be tested at our Pewaukee facility, closed loop scale model testing is available. Closed loop scale model testing is also utilized to accurately determine NPSH requirements for pumps with low NPSH requirements. A vacuum is pulled on the pump suction to test for pump NPSH requirements that are below atmospheric conditions.

## Flygt Pewaukee Test Capabilities

Flow	300,000 GPM (68,000 m <sup>3</sup> /h)
Pressure	150 psi or higher with knock down valve
Power	5,800 HP ( 4,325 kW)
Lifting	60 ton
Voltage	up to 15,000 V
Frequency	60 Hz and 50 Hz
Shop VFDs	50 HP to 5,800 HP (37 kW to 4325 kW)
Shop Motors and Gear Boxes	up to 3,000 HP (2,250 kW)
Flowmeters	4 (qty) x 36" (914 mm) magnetic flow meters on the main test loop
	2" to 30" (50 mm to 762 mm) venturi flow meters
	10" to 30" (254 mm to 762 mm) venture flow meters



The wet pit test area is 100 ft (30.5 m) long, 24 ft (7.3 m) wide, 30 ft (9.1 m) deep on the deep end, and 20 ft (6.1 m) deep on the shallow end. The sump holds approximately 440,000 gallons (1665 m<sup>3</sup>) of water.

# The Flygt Advantage: Guaranteed Performance

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**GUARANTEED PERFORMANCE** - our extensive testing experience minimizes risks for our customers and delivers peace of mind, as it guarantees our pump performance is accurately verified and working according to agreed parameters.

**CRITICAL SPEED ANALYSIS** - performed on every rotor to ensure that the first critical speed is well above the pump operating speeds.

**MECHANICAL DESIGN ANALYSIS** - performed on every pump to determine the proper shaft size, bearing spans, wall thickness, bolting sizes and quantities, and other critical design features.

**FEA & CFD ANALYSIS** - in-house Finite Element Analysis and Computerized Fluid Dynamics analysis are available to ensure that there are no system resonant frequency or hydraulic concerns.

**STARTUP ANALYSIS** - determines the optimal starting sequence between the pump, motor and control valve, and confirms the ability of the drive to start the pump under any number of possible circumstances. Available upon request.

**EXPERIENCED CUSTOM DESIGNS** - every order is custom designed to match the specific pump configuration, mechanical design, hydraulic requirements and materials of construction dictated by the application and the contract documents.

**PUMP QUALITY** - all pump components and assemblies are inspected and documented in accordance with Flygt ISO 9000 certified quality program. Any special contract requirements are incorporated into the Inspection and Test Plan developed for each contract.

**MODEL TEST DATA** - the high efficiency hydraulics for each pump design have been extensively model tested over the full range of impeller diameters/tilts. Model testing in a closed loop system provides accurate measurement of all pump performance characteristics along with NPSHr values, hydraulic thrust values and the development of three quadrant curves (Karman-Knapp curves).

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Flygt is a brand of Xylem, whose 16,500 employees are addressing the most complex issues in the global water market.

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