INTESYS
PRECISION TESTING SYSTEMS

PumpTest

Centrifugal

Electric and hydraulic testing of Centrifugal water pumps

PumpTest is a computerized system allowing automation of testing process of centrifugal water pumps and electro pumps for laboratory as well as production line.

- **Data acquisition** of hydraulic, mechanic and electric data with software Intesys PumpTEST based on LabVIEW
- **Test display** in numerical and graphic form, comparison, storing and retrieval
- **Test reports**
- **Control of servo systems and devices** of the test bench
- Connection to **external instrumentation** (**power analyzers** and **microohmeters)**
- **Sensors, actuators and special devices**
- **Design and engineering** service
- Laboratory and line testing **turn-key plants and machines**

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Data acquisition and control system and PumpTest software

It is made of a personal computer based on Windows, a controller for servosystems of the bench (valves, auxiliary pumps, etc.) and acquisition of signals and growths from the sensors and instrumentation.

PumpTest software based on LabVIEW

Volumetric capacity, suction head, delivery head, dynamic head, total head, total efficiency, motor efficiency, pump efficiency, speed, water temperature, frequency, average voltage (threefase), line voltage (single phase), R-phase current, S-phase current, T-phase current, capacitor voltage (single phase), current in auxiliary circuit (single phase), current in main circuit (single phase), average current (three phase), line current (single phase), power factor.

PumpTest software features Pumps main database, Plant synoptic view, Measurement page, Measurements database, Curves, testing reports, Automatic cycle setting and executing, Sensors calibration, Pump Leak test, NPSH measurement and calculation, Motor heat test, Electric safety test.

Controls: Regulation valves, interception valves, motor speed regulators (inverters), power supply voltage and frequency variators, cycles of testing, set of capacitor value for single-phase motors.

Standard tests: testing capacity-head-current absorption, detection of pump speed
Optional tests: windings temperature variation (temperature test), electrical safety tests required according to standards: ground circuit efficiency, insulation resistance tests, dielectric strength test, surge test, NPSH test and values processing, duty tests, leak testing with air or water.

Sensors

Design and supply of various kinds of sensors depending on the range of pumps and motors to test and the precision needed: flow electromagnetic sensors, pressure sensors and differential pressure sensors (prevalence), temperature sensors, optical sensors for detecting speed of surface and submersible pumps, noise and vibration sensors.

Power analyzers

Coming from Yokogawa or based on hardware and software modules of National Instruments to detect of electrical and mechanical growths.
Basic accuracy: 0.1% of readings
DC measurement: 0.5 Hz to 100 kHz frequency range
Measures all AC and DC parameters
Low current measurements down to 50 micro-Amps
Direct high current measurements up to 40 Amps RMS
High-speed data update (up to 10 readings per second)
Simultaneous Normal and Harmonic measurements
Split Phase and Three Phase measurements with the WT300 series
Torque and speed simultaneous measurements

Temperature test system

Automatic temperature testing without sensors while the motor is powered and loaded for current range up to 80 Amps. For higher currents PumpTEST uses high precision microohmeters

Software for temperature test management: Automatic acquisition at defined intervals, automatic end of the test at thermal steady-state, deltaT calculation, graphic curves of temperature vs. time curves with tabular values, data storing and report printing. Test for S1, S3 or S6 service factor

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Power box

The power box gives main power supply to the pumps using grid power supply or an external variable power supply system (voltage variator, frequency converter,). The connection to the pumps is done by no. 2 or 3 plugs in function of max power. Every power line has a contactor, a magnetothermic protection and a set of current sensors. It is connected to the Data acquisition and control system for current and voltage acquisition and to enable power supply to the motors. Available power from 10 to 300 KW

Variable power supply systems

Electronic systems. They are able to supply 3 times the nominal power for 1.5 seconds (suitable for motor starting peak current): available from 5 to 120 KVA nominal power models

Actuators and control devices

(Depending on customer's need) Flow control electro-pneumatic valves, Voltage variators, Frequency converters, Ac power supply generators variable in frequency and in voltage

Test bench engineering

Pump types analysis and plant basic engineering: manufacturing and mounting features for piping ,valves, auxiliary pumps and tanks. Plant Layout. Diagrams of head losses
Test norms and procedures

Hydraulics and Mechanics

Supply of tanks, piping, auxiliary pumps, valves, manipulators, systems for fittings, pump driving motors, electric and hydraulic connection systems to the pumps

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