

PumpTest Air

Test benches for rotary vanes vacuum/pressure pumps and air liquid vacuum pumps



Vacuum level from 0,01 mBar to 1 Bar abs

Also testing positive pressure up to 10 Bar G (compressors)

Air capacity measurements from 100 to 70,000 NI/min

Torque measurement up to 1000 Nm - Power up to 120 KW

Driving of pump through electric motor and drive for speed varying 0-4000 RPM

Comes with pipes and automatic valves for pressure and capacity regulation

PC based control and data acquisition system

Intesys PumpTestAir® Software for test bench automation, data acquisition, data management, reports

Testing results given in mass and volumetric engineering unit referred to environmental condition (temperature and humidity)

(Optional) Calibration circuit ref. UNI EN ISO 5167

Mechanics Mechanical equipment made of painted iron composed by a driving electric motor, an adjusting surface for pump fixing, a torque sensor mounted between 2 joints, safety protections. The speed of the motor can vary from 0 to 4000 RPM, max power is 120 KW.



Valves, tanks and piping No 1 automatic adjusting valve ND 40 + No 1 automatic adjusting valve ND 150 mounted on suction port of the pump for vacuum and capacity variation

Piping is made of flexible rubber pipes, hard pipes, flanges, tanks made in stainless steel AISI 304 to be wall mounted. For liquid ring pump testing the bench is equipped with a condenser tank on outlet port.



Sensors Air flow sensors are thermal mass flowmeters, accuracy 1.4% o.r. (of readings), 4..30 mA output, LCD display, range 100 to 6000 NI/min (ND40) and 5000 to 70000 NI/min, calibration certificate **No 1 high precision vacuum transducer**, range 0,01 mbar Abs to 1 bar Abs, class 0.1 o.r.



No 1 pressure transducer range -1...3 bar G class 0.1%

No 2 temperature sensors type PT100 sensori di temperatura, range da 0 to 400 °C

No 2 torque sensor range 10 to 1000 Nm class 0.1% f.s. to be mounted between driving motor and vacuum pump

Power electric panel: with electronic bidirectional motor drive and all electric components for supply, control and protect of all electric devices and motors of the bench

Control pulpit with manual controls for adjusting valves, selection of rotating sense of the pump, speed variation of the motor, data acquisition and control system (Windows based personal computer based on Windows and National Instruments electronics), digital displays for motor speed (RPM), torque (Nm), temperature (°C), alarms lamps and switch buttons.



Intesys PumpTest-V Software based on LabVIEW

Intesys PumpTEST-V software acquires and process of following growths: no 2 air flow values, no 2 pressure values, no 2 vacuum values, no 2 temperature values, no 1 torque value, n° 1 speed value (RPM).

The graphic user interface (GUI) is made of Plant Synoptic page, Curves page, Pump data page, Measurements page, Reports page

Pump data page: diplays and allows definition of data and measurements which defines a testing process: General data, ,Pump data, Testing condition data, Measurements at various RPM. Every Data page can contain up to 5 previously stored tests .

Measurements: volumetric pump air capacity referred to environmental condition [l/min], Vacuum [bar], Output pressure [bar], Torque [Nm], Power of the pump [kW], rotating speed [1/min], no 3 temperatures [°C], Mass capacity [NI/min] e [m³/h], % of humidity

Curves page allows the user to plot up to 48 curves coming from Pump Data page. All graphics are printable. Reports page allows the user to manage reports with Headers and General Data, values in tabular format, reports in graphical form and additional graphical prints (pressure curve during a sample tank emptying and test of timing needed to reach a vacuum value).

Calibration equipment for flow measurements

sensors Made of normalized orifices and water hydrometer UNI EN ISO 5167, ± 1% accuracy of readings from 30% to 100% of full scale value. It comes with software and tables for calculation and calibration in mass flow unit and volumetric flow unit based on air density, air temperature, atmospheric pressure, humidity