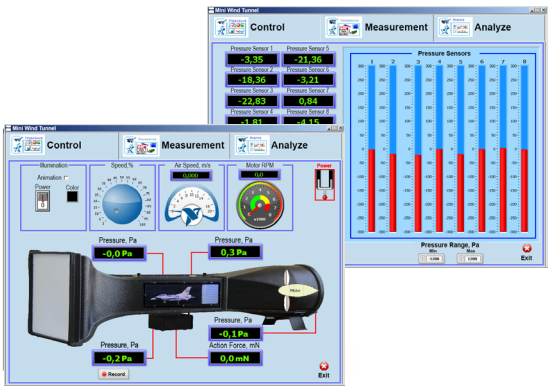
Automated Educational Mini Wind Tunnel

Overview

The automated mini wind tunnel is an accostable scientific and research laboratory bench. It can be useful for carrying out research and hands-on works in the high and secondary educational institutions. The laboratory bench should be used along with a personal computer.

The automation and control system of the wind tunnel is based on multifunctional control and measurement systems which allow taking measurement from the sensors, as well as controlling the air flow speed in the wind tunnel test section.

Measurement and control of the wind tunnel performed by special software developed in NI LabVIEW graphical programming environment.



Hands-on Works

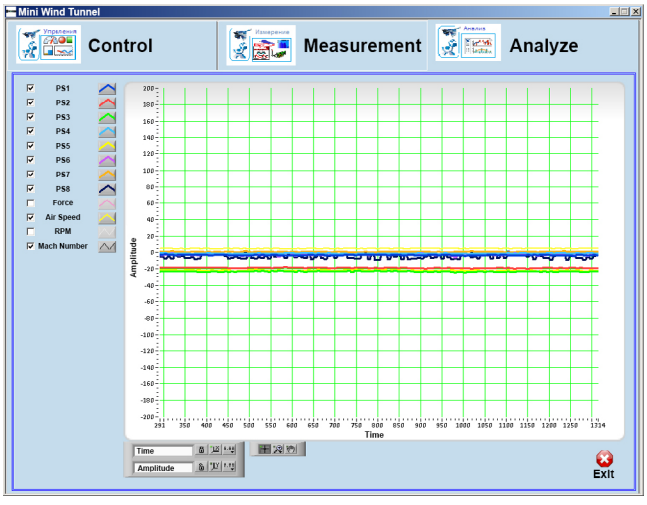
1. Wind tunnel design and operation.
2. Investigating the properties of air.
3. Measuring wind speed in the test section using Bernoulli's principle.
4. Determining the dependence of wind speed on fan speed.
5. Measuring the longitudinal force affecting the model in the test section.
6. Calculating of Mach number.

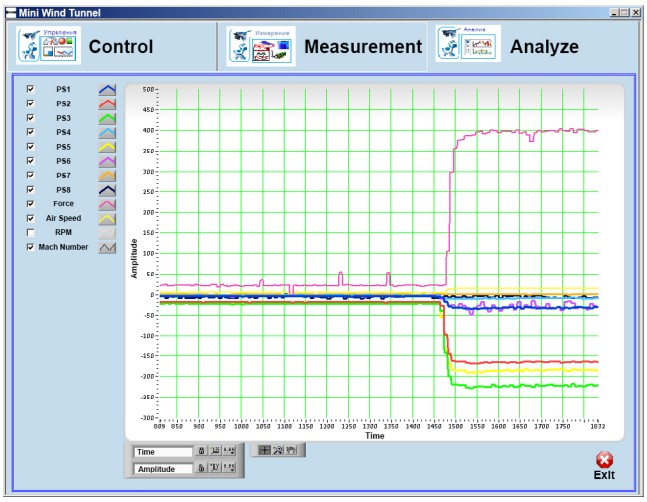
Technical Specifications

Power consumption	up to 300 W
Maximum air velocity in the test section	18 m/sec
Maximum motor rotation speed	5000 RPM
Pressure sensors array channels	8
Pressure measurement range for each channel	±7 kPa
Test section dimensions (L x W x H)	355x152x152 mm
Wind tunnel dimensions (L x W x H)	(1500x400x400) mm
Weight	net - 17 kg gross - 35 kg

Operation Conditions

Environment temperature	from +10°C to +35°C
Relative humidity	no more than 80 % at 25°C





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