



Main Technical Parameters

Flow velocity U_0	2...100 m/s
Re number per 1 m	up to $6.9 \cdot 10^6$
Total pressure	atmospheric
Dynamic pressure	up to 6.3 kPa
Stagnation temperature	ambient
Test section sizes:	
Cross-section	1x1 m
Length	4 m

Turbulent fluctuations level in test section of:

Streamwise velocity:

 at U_0 up to 60 m/s
 ≤ 0.04 % |

at U_0 from 60 up to 100 m/s
 ≤ 0.07 % |

Transverse velocity:

at U_0 up to 60 m/s
 ≤ 0.06 % |

at U_0 from 60 up to 100 m/s
 ≤ 0.08 % |

1. Settling chamber	3. Test section	5. Safety screen	7. Fan
2. Nozzle	4. Diffuser	6. Adjustable guide-vanes	8. Deturbulizing screens

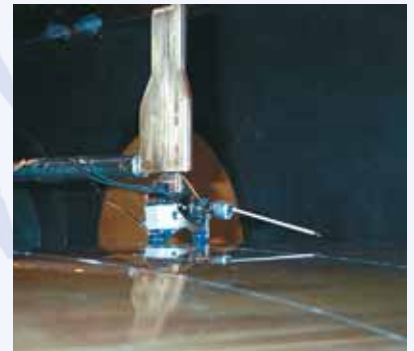
EXPERIMENTAL FACILITY OF TsAGI

SUBSONIC WIND TUNNEL

General Description

T-124 Wind Tunnel is a low turbulent low noise subsonic facility designed to carry out the fundamental and applied researches as well as to perform activities focused on enhancement and progress of the aero-physical researches methodology.

T-124 WT is a continuous operation closed-loop layout facility supplied with axial fan and closed test section. The velocity field uniformity and the low turbulence of flow are provided by special means, including the high contraction ratio, the application of diffuser with small aperture angles, the installation of deturbulizing screens inside the settling chamber, the shaped adjustable guide-blades and the precise polishing the wind tunnel duct internal surface. All primary wind tunnel components, except the test section and the fan one, are made of wood, the advantage which of is high noise-absorbing feature. The WT square profile test section is made of metal and has windows on the lateral walls. The boundary layer growth along the WT test section is compensated by special variable cross-section inserts.

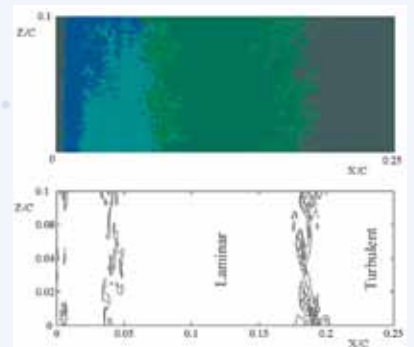
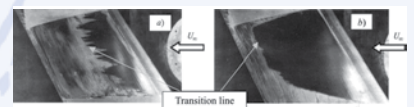


Capabilities

T-124 WT provides the following experimental studies to be carried out:

- Thermoanemometric measurements in boundary layer and in free stream;
- Evaluation of aerodynamic characteristics of tested aircraft and its components models by use of six-component strain gage balance;
- Measuring the pressure distribution on the model surface, the tests section walls as well as the pressure from different pressure heads;
- Visualizing the Laminar Turbulence Transition (LTT) by different optical techniques.

T-124 is equipped with state-of-the-art control and data acquisition complex. The data acquisition and processing can be carried out directly in the course of experiment.



Technological Advantages

- Low levels of vortical and acoustic free stream disturbances and possibility to control their variations.
- Possibility to study flows with blowing and suction of air through model surface.
- Low power consumption.

Application

T-124 WT is used to research experimentally the LTT and the flow laminarization as well as to study other methods of aerodynamic drag reduction, to analyze the developed turbulent flows, the vortical and the separated flows and to perform investigations in area of micro-aviation.

