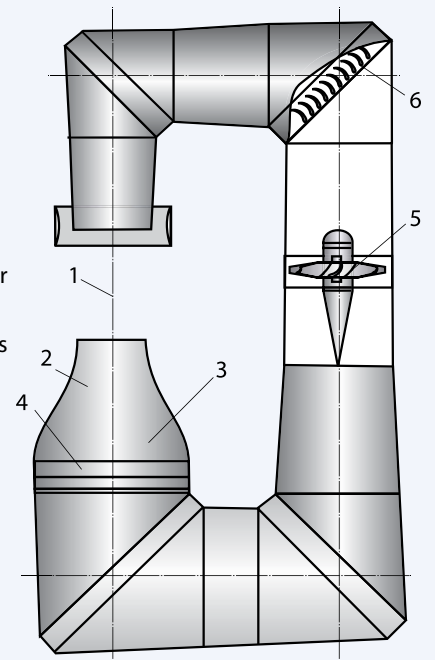




## Main Technical Parameters

|  |                        |
|--|------------------------|
| Flow velocity .....                      | 5...40 m/s             |
| Flow direction .....                     | upwards                |
| Re number per 1 m .....                  | up to $2.4 \cdot 10^6$ |
| Static pressure .....                    | atmospheric            |
| Dynamic pressure .....                   | up to 0.75 kPa         |
| Stagnation temperature .....             | ambient                |
| Angle of attack ( $\alpha$ ) range ..... | 0...360°               |
| Side slip angle ( $\beta$ ) range .....  | 0...360°               |
| Test section sizes:                      |                        |
| Nozzle diameter .....                    | 4.5 m                  |
| Test section length .....                | 7.5 m                  |

1. Test section
2. Nozzle
3. Honeycomb
4. Stillingchamber
5. Compressor
6. Turningblades



## General Description

T-105 is a vertical, continuous-operation, closed-layout wind tunnel with a round open test section. A fan driven by an electric motor of 450 kW generates the flow.

The wind tunnel is designed to investigate spin modes by testing dynamically similar models of aircraft and other flight vehicles in free flight. It is also widely used for investigations of aerodynamic characteristics of flight vehicles and their elements using special equipment with balance complexes.



## Capabilities

The following types of tests can be carried out in T-105:

- Determination of motion parameters of dynamically similar models at vertical descending mode;
- Determination of aerodynamic characteristics of aircraft models at the attack and slip angle range from 0 up to 360° with and without rotation;
- Determination of aerodynamic characteristics of helicopter main rotors (from one up to two rotors in different combinations, including one-rotor, coaxial, longitudinal and lateral configurations);
- Determination of aerodynamic characteristics of helicopter and convertorplane models with main rotor models with the ground-simulation screen;
- Determination of aerodynamic characteristics of airship models with propeller models, balloons and parachute systems;
- Determination of aerodynamic characteristics of the models of one-rotor helicopter control devices;
- Investigations of industrial objects models under exposure to the wind;
- Measurements of pressure distribution along the model surface including that of the rotating blades;
- Measurements of the velocity fields close to the flight vehicle models;
- Different types of visualization of the flow on the model surface and in the area close to the model.



## Technological Advantages

- Vertical flow enabling free flight spin testing.
- Open test section, which allow convenient access to the tested models.

## Application

Investigations of spin modes and aerodynamic characteristics of multi-purpose aircraft at angles of stall (e.g. Su-27, MiG-29, Il-96, Tu-204, Tu-334). Development of aerodynamic layout of helicopters Mi-26, Mi-38, Mi-34, Mi-28, Ka-32, Ka-50, Ka-62.

