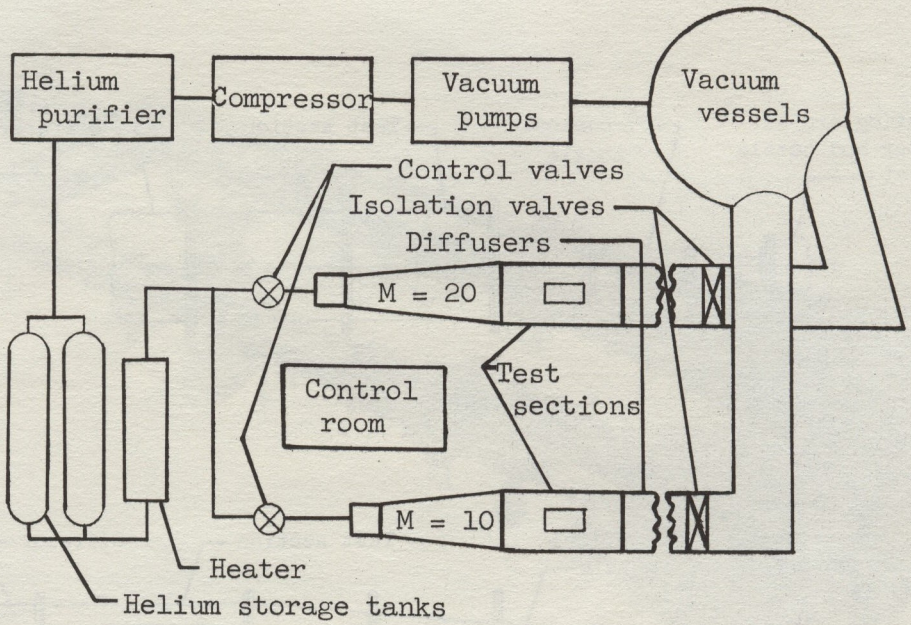
LANGLEY HYPERSONIC AEROELASTICITY TUNNELS



The Langley hypersonic aeroelasticity tunnels are located in Building 1247B and are under the direction of the Dynamic Loads Division. The tunnels are used for research and development of aeroelastic, thermal, and dynamic problems at hypersonic speeds. The test medium is helium, heated by a gas-fired storage-type heater. Model mounting consists of a sting; angle of attack of model can be changed during a run. Tunnels consist of two legs - Mach number 20 and Mach number 10 having axisymmetric contoured nozzles. Test-section diameter of Mach number 10 leg is 37 inches with 30-inch usable test core. Test-section diameter of Mach number 20 leg is 60 inches with 34-inch usable test core. It exhausts into a vacuum tank. Examples of operating conditions for each of the two legs are as follows:

Mach number	10	20
Velocity, fps	5700 to 8190	5760 to 8280
Stagnation pressure, psia	100 to 4000	500 to 4000
Stagnation temperature, ^{o}R	540 to 1110	540 to 1110
Dynamic pressure, lb/sq ft	200 to 6900	100 to 920
Reynolds number per foot	0.6×10^6 to 57×10^6	1.0×10^6 to 18×10^6
Running time (maximum), sec	20	20