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Abstract	:	A CO2 laser of longitudinal excitation flowing type has been designed and constructed. It is a typical laser in which the excitation of CO2 molecules is obtained by an electric discharge and the resonant excitation with nitrogen. The addition of helium to the mixture of N2 -CO2 in a CW laser increases the output power by a factor of more than 5. A plasma tube is designed with a water jacket coaxially surrounding the central portion of the plasma tube for circulating the chilled water around it. The cathode cylinder and the anode pins made of steel are sealed inside the tube. A suitable power supply, proper sealing windows at the ends of the tube, the precision mounts for the mirrors, the water circulation and the gases supply systems have 1 been arranged. A wooden stand has been designed to fix the plasma tubthe mirror mounts. for the stable and vibration free CO2 laser
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