

ABSTRACT

When low-temperature gas (for example, ethylene gas at -60°C or lower) is compressed, the thermal contraction of the housing, in particular, the thermal contraction at one end (an end having an intake port) of the housing, can be absorbed, and thus a decrease in the clearance between the rotating shaft and the bearing can be prevented (the clearance can be maintained at an appropriate value (a predetermined value)), thereby preventing seizing up of radial bearing at the location (portion) in question. There is provided a centrifugal compressor (10) that supports a rotating shaft (11) having a multi-stage impeller (12) through bearings (15 and 22) and is provided with a housing having an intake port, at one end of the rotating shaft (11) in the longitudinal direction, for taking in working fluid; wherein at least one groove (23) extending along the length of the rotating shaft (11) is provided in an area positioned at one end of the housing (14b) and at the outside in the radial direction of the bearings (15 and 22).