

ABSTRACT

In a compression/expansion unit (30) serving as a fluid machine, both a compression mechanism (50) and an expansion mechanism (60) are housed in a single casing (31). An oil supply passageway (90) is formed in a shaft (40) by which the compression mechanism (50) and the expansion mechanism (60) are coupled together. Refrigeration oil accumulated in the bottom of the casing (31) is drawn up into the oil supply passageway (90) and is supplied to the compression mechanism (50) and to the expansion mechanism (60). Surplus refrigeration oil, which is supplied to neither of the compression and expansion mechanisms (50) and (60), is discharged out of the terminating end of the oil supply passageway (90) which opens at the upper end of the shaft (40). Thereafter, the surplus refrigeration oil flows into an oil return pipe (102) from a lead-out hole (101) and is returned back towards a second space (39). This reduces the amount of heat input to the fluid flowing through the expansion mechanism from the surplus refrigeration oil which has not been utilized to lubricate the compression and expansion mechanisms.