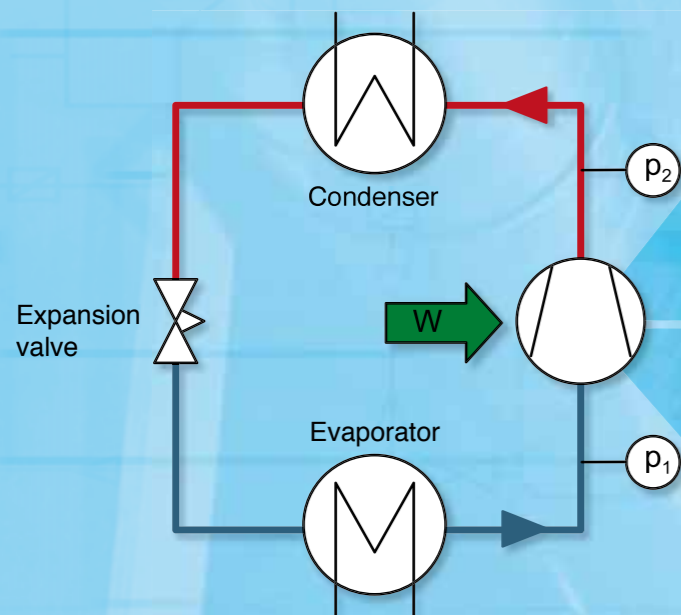


BASIC KNOWLEDGE

COMPRESSORS IN REFRIGERATION

Refrigerant compressors have the purpose of moving the vaporised refrigerant from the evaporator pressure level to the condenser pressure level. The supply of the mechanical energy to the refrigeration cycle passes through them. Generally the compressors are driven electrically, but there is also the drive via a standard internal combustion engine (vehicle air conditioning system).

A special case is the steam jet refrigeration system. Here a partial flow of the refrigerant steam is used for the compression itself. Steam jet refrigeration systems are driven thermally and can directly use alternative energy sources such as solar heat or waste heat.



The compressor in the refrigeration circuit



Open 2-cylinder compressor



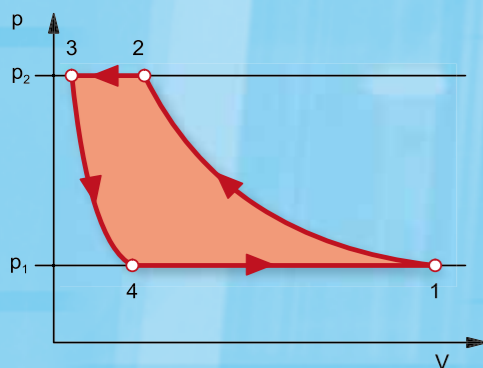
Hermetic compressor

COMPRESSOR DESIGNS IN REFRIGERATION

Piston compressor Small and medium capacities	Screw compressor Medium and high capacities	Scroll compressor Small and medium capacities	Turbo compressor Only for very high capacities	Steam jet compressor Special applications where motive steam is available

HOUSING DESIGNS

	Hermetic compressor <ul style="list-style-type: none"> Drive motor and compressor in a welded housing without seals (capsule) Cooling via intake gas Maintenance-free, must be replaced in case of a fault
	Semi-hermetic compressor <ul style="list-style-type: none"> Drive motor and compressor in a screwed housing Cooling via intake gas Can be repaired if damaged
	Open compressor <ul style="list-style-type: none"> Compressor in a screwed housing Combined intake gas and air cooling Drive via an external motor, output can be adjusted via the transmission of the belt drive Shaft feedthrough prone to failure Can be repaired if damaged



p-V diagram of the piston compressor

The processes in the cylinder can be clearly demonstrated in the p-V diagram. Here the pressure p in the cylinder is plotted above the cylinder volume V .

- 1 – 2 polytropic compression of pressure p_1 to pressure p_2
- 2 – 3 expelling the compressed gas into the pressure pipe
- 3 – 4 polytropic re-expansion of the remaining gas to intake pressure p_1
- 4 – 1 aspiration from the intake pipe