



Packaged Chillers

Many large airconditioning applications require Chilled Water and depend on '**Packaged Chillers**' to provide the chilled water. Such a chiller is typically mounted on a frame and comprises a compressor with its drive motor, a condenser (air or water cooled) and a shell & tube heat exchanger. Depending on the type of compressor used these chillers can be classified as a **Reciprocating Chiller**, a **Screw Chiller** or a **Centrifugal Chiller**. Where the Absorption system is used, the chillers are called **Absorption Chillers**.

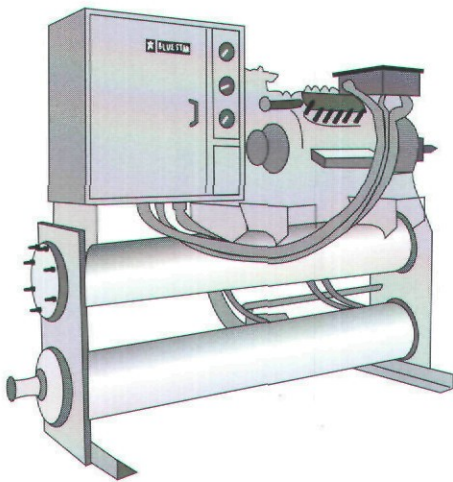


Fig. 28. Reciprocating Chiller

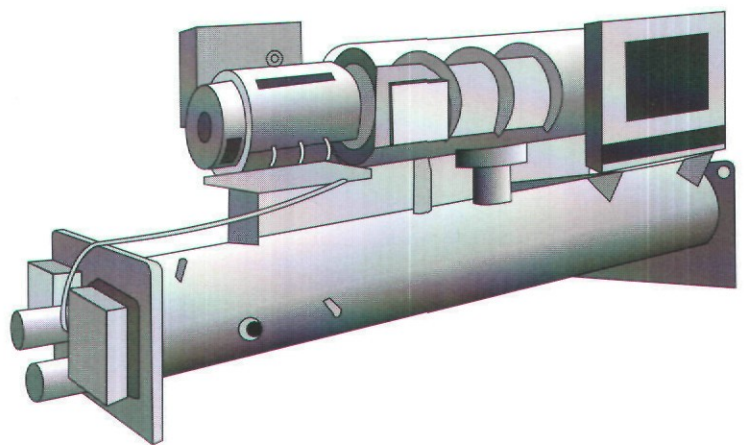


Fig. 29. Screw-type Chiller

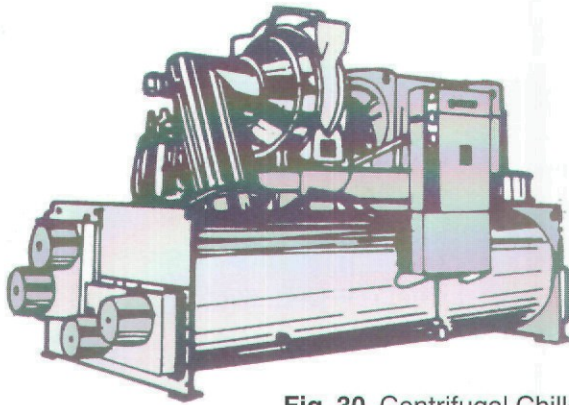


Fig. 30. Centrifugal Chiller

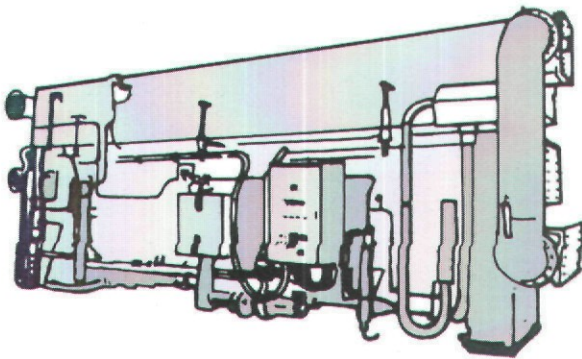


Fig. 31. Absorption Chiller

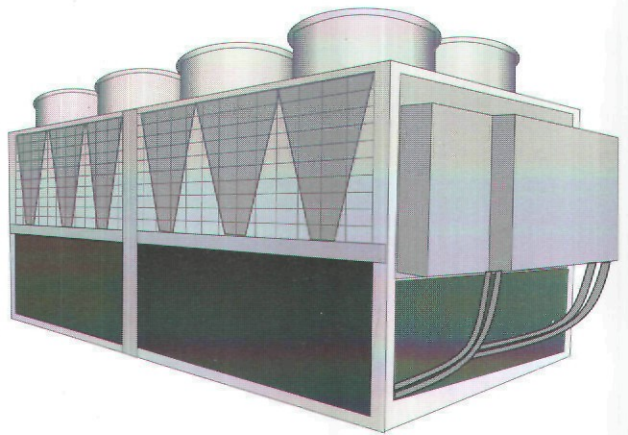


Fig. 32. Air-cooled Chiller



Let us take a look at how these chillers compare with each other:

Table 3. Comparison of Chiller types

	Scroll	Reciprocating	Screw	Centrifugal	Absorption
Typ appl. (TR)	30-100	40-300	>300	>500	>500
Refrigerant	R22	R22/R134A	R22/R134A/R407C	R123/R22/R134A	Water
Energy efficiency	Good	Good	V Good	V Good	Poor (Good only if waste heat used or cheap natural gas available).
Initial cost per ton	Low	Low	High	High	Highest
Maintenance Friendliness	Easy	Easy	Needs Spl. Competence	Complicated	Complicated

Installation Tips

A few precautions are to be taken when installing Chillers:

Air cooled chillers

- Do not have obstructions on top of chillers (for top discharge units)
- Have at least 1 metre clearance on all sides adjacent to the chillers
- Support chiller weights on reinforced building structure and not on slabs
- Ensure all electrical switch gear are in weather proof enclosures
- Provide adequate vibration isolation between chiller and building by using vibration absorbing pads or springs

Water cooled chillers

- Have at least 1 to 1.5 metres clearance between units
- Leave space equal to condenser length for tube cleaning