Capacity control with RSH system

The thermal load of many applications can change considerably and a refrigerating system should be able to adapt to the mutated conditions. The maximum number of start stop cycles and the minimum running time of the compressor impose some limitations, therefore the simple start-stop regulation may not be the most efficient method to follow precisely the system load fluctuations. These limitations determine the minimum and maximum pressure reached in the evaporator. The higher is the pressure difference, the higher is the amount of energy wasted.
The exclusive RSH capacity control system developed by Frascold allows the system designer to reduce substantially the total energy consumption of the system. The new RSH system solves completely the problems of the traditional capacity control system based on a permanent or pulsing choke of the suction of the cylinder head, avoiding the overheat of the valve plates and the accumulation of oil in the cylinder head, therefore it can be used for long periods of time in a wide range of operating conditions without damaging the compressor. The RSH system reduces by 50% the capacity of each cylinder head where is installated, therefore the possible capacity control steps are:

2 cylinder compressors
50% - 100%

4 cylinder compressors
1 x RSH: 75% - 100%
2 x RSH: 50% - 75% - 100%

6 cylinder compressors
1 x RSH: 83% - 100%
2 x RSH: 66% - 83% - 100%
3 x RSH: 50% - 66% - 83% - 100%

8 cylinder compressors
1 x RSH: 87,5% - 100%
2 x RSH: 75% - 87,5% - 100%
3 x RSH: 62,5% - 75% - 87,5% - 100%
4 x RSH: 50% - 62,5% - 75% - 87,5% - 100%

Compared to a traditional CC capacity control system, the new RSH system offers the possibility to regulate the capacity with more steps and without time limitation, therefore it is able to follow the fluctuations of the system load more effectively and improve the total system efficiency substantially.

Features and advantages

- Enhanced system efficiency and reliability
- Greater reduction of compressor on-off cycles
- Enhanced suction pressure stability
- Greater number of regulating steps
- No time operation limit
- No increase in vibration and noise compared to full load operation
- No overheating on discharge
- No oil carry-over