BENEFITS OF SUPERHEAT RECOVERY ON CHILLERS - A CASESTUDY FOR A HOTEL INSTALLATION

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ABSTRACT

A novel vented double wall tube-tube heat exchanger (TTHE) was recently commissioned on a chiller. The 66 TR chiller installed in a hotel in Mumbai is used to provide chilled water for air conditioning purpose. Superheat from compressed refrigerant vapours of the semi-hermetic reciprocating chillers was used to heat the tap water from 30^{o}C to 65^{o}C. The benefits of incorporating superheat recovery water heater (SHRWH) in the refrigerant circuit of the chillers will be presented in the paper.

Superheat recovery to generate hot water from chillers used for air conditioning purpose leads to significant increase in cooling capacity and cooling COP of chiller while eliminating the energy requirement for generating hot water. This can lead to reduction in CO_2 released and favourably address the global warming issues.

Practical experiences of commissioning of the TTHE on the 66 TR capacity R-22 based chillers will be presented. The SHRWH unit installed at Hotel Fariyas, Mumbai, is saving about 80 litres of diesel per day for last three months apart from savings due to 20% increase in cooling COP and while simultaneously achieving a 30% increase in cooling capacity. Payback calculated for this installation is less than three months.

KEYWORDS

Tube-Tube Heat Exchanger (TTHE), Superheat Recovery Water Heater (SHRWH), Chillers