EXPERIMENT AND ANALYSIS OF COMPARISON BETWEEN STANDARD VCRS & VCRS WITH EJECTOR SYSTEM

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Abstract : As we know that an expansion device is used in standard vapor compression refrigeration system between the condenser and the evaporator, due to this there are losses to be found in expansion process that is loss in kinetic energy and can also drastically affects the COP of system , here we have used an ejector which helps in recovery of the available work and due to this there is increment found in the suction pressure of compressor which has aided in improvising the COP of the system . To compare and investigate the enhancement with normal system a model with refrigerant R22 was developed and temperature versus environment graph was measured using thermocouples at the system parameters, at specific points the properties of refrigerant undergoing a change of state was obtained from ASHRAE and the temperature data was recorded at normal room temperature conditions , from this study we can have obtained the results that a normal VCRS cycle with respect to an Ejector system shows more losses .The results obtained in the calculation clearly shows the rise in COP between 10-15% .This analysis pinpoints the performance of compressor as well as its necessity in the conventional VCRS cycle .Parametric analysis of the VCRS with ejector indicated that COP is affected directly by the temperatures of evaporator and condenser. Additionally the rise in compressor temperature due to on – off cycle was found to be lower with respect to former system.

Index Terms **- Ejector, Vapor compression refrigeration system, COP, Household refrigerator, Hermetic reciprocating compressor, thermodynamic losses, PH diagram**