

PROJECTX N° 013

“APPLY SCIENTIFIC PRINCIPLES TO PRACTICAL VAPOUR COMPRESION SYSTEMS”

PRESENTATION



Promoting school:

South & City College Birmingham
Birmingham. United Kingdom



A. GENERAL DESCRIPTION

Title of the ProjectX

APPLY SCIENTIFIC PRINCIPLES TO PRACTICAL VAPOUR COMPRESSION SYSTEMS

Core area

GENERAL / KNOWLEDGE **THERMODYNAMICS**

PARTICULAR / ACTIVITY: **OPERATION OF VAPOUR COMPRESSION SYSTEMS**

Promoting school

SCCB

Schools participants in the revision of the ProjectX

LYSEE ISAAC NEWTON
SCCB

Reference to ECVET Credit System and EQF / NQF

ECVET	EQF	REFERENCE TO NATIONAL QUALIFICATIONS (NQF)						
		Spain	Finland	Romania	Portugal	UK	Turkey	France
2	4	4	4	3	4	3	4	4

Learning Outcomes achieved (to be developed in the future related with ECVET credit system)

1. Describe the function of an evaporator as defined by the pressure enthalpy chart
2. Distinguish on a typical DX evaporator the importance of the areas of latent and sensible heat using the pressure enthalpy chart as a reference
3. Describe the function of a condenser as defined by the pressure enthalpy chart
4. Distinguish on an air-cooled condenser the importance of the areas of latent and sensible heat using the pressure enthalpy chart as a reference
5. Describe the function of a compressor as defined by the pressure enthalpy chart
6. Describe the impact of superheat at the compressor inlet
7. Describe the function of a metering device as defined by the pressure enthalpy chart

Time that is necessary to do the ProjectX (in hours)

Theory: 28 hours
Practice: 40 hours

Link to real companies in your region (it is just informative)

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|-------------------------------|-----------------------|
| 1. NAME: RICHMOND ASSOCIATES | WORKPLACE: TECHNICIAN |
| 2. NAME: AIR COMPRESSORS LTD. | WORKPLACE: TECHNICIAN |



B. THEORY

Objectives of the theoretical Knowledge

1. Operating conditions on systems performance
2. Control properties of vapour compression systems using psychrometric charts
3. Range of air conditioning systems in use
4. Ideal storage conditions for a range of products

List of activities

1. Theory – Pipe characteristics: Learners will be provided with standard charts with pipe characteristics and expected to select the correct materials relevant to the task
2. Practical – System performance: Standard characteristics charts will be studied to interpret the data relevant to this unit and systems
3. Install, test and commission installation work: Learners will be expected to use the criteria laid out for this unit to install the system, inspect it to obtain real data and compare it with standard charts

C. PRACTICE

Brief description of the Practice

Learners will be taught to set up systems to meet the industry requirements and indeed install systems to customer satisfaction. All learners will be provided the opportunity to assemble the systems with the parts supplied to ensure that tools and equipment are correctly used and learners are familiar with the system and selection of tools. Using the tools and equipment the learners will set the equipment up to visually inspect, test and install the system. As part of the qualification the learners will have to complete the course documentation relevant to the unit and to the Summit Skills Standards

Steps or activities to be performed by the student

- First: Measure and record the high and low pressures and the temperature of the liquid and suction lines
- Second: Plot data onto a pressure enthalpy chart
- Third: Calculate the refrigeration effect and the done work
- Fourth: Calculate the coefficient of performance



D. DETAILED DESCRIPTION OF LEARNING OUTCOMES.

Learning Outcome:	Application of the standard units and measurement
Knowledge	
-	Know the standard units of measurement
Skills	
-	Choose the units correctly and then apply in appropriate situations
Competences	
-	Being able to use the units in the mechanical services industry

Learning Outcome:	Selection of materials
Knowledge	
-	Know the properties of materials
Skills	
-	Choosing the correct materials for the right job
Competences	
-	Being able to select and use the materials in the mechanical services industry

Learning Outcome:	Knowledge regarding energy, power and heat
Knowledge	
-	Know the relationship between energy, power and heat.
Skills	
-	Choice of correct concepts together with correct equations for calculations of energy, heat and power.
Competences	
-	Being able to apply the right concept in the right situation.

Learning Outcome:	Application of principles of force and pressure
Knowledge	
-	Know the principles of force and pressure
Skills	
-	Choice of correct concepts together with correct equations for calculations of force and pressure.
Competences	
-	Be able to apply the principles of force and pressure in the mechanical services industry

