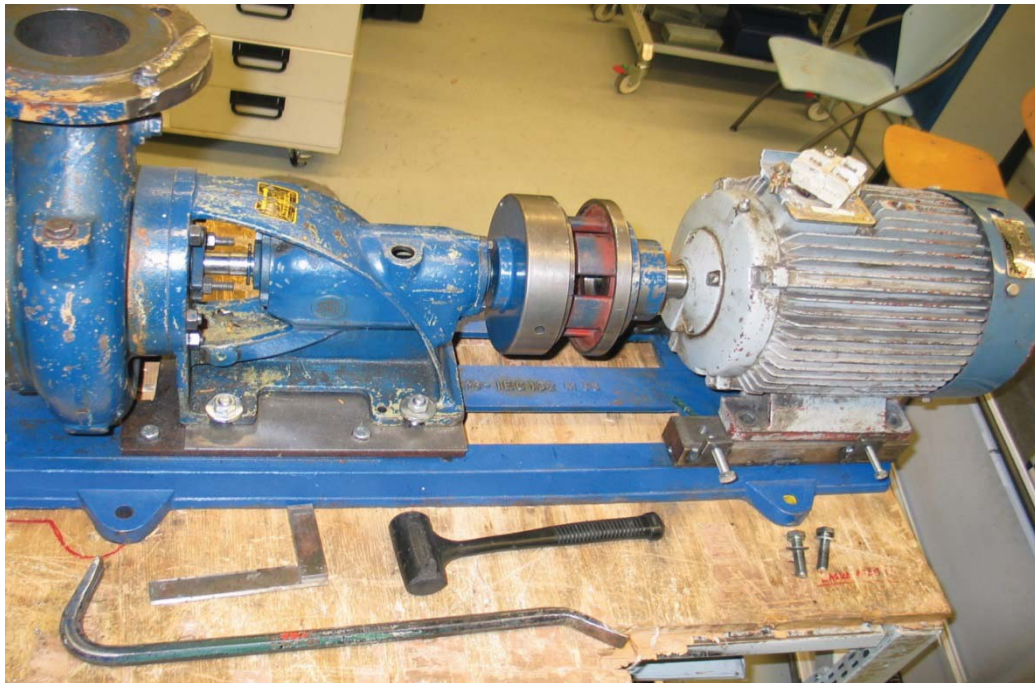


## PROJECTX N° 006

# “PUMP AND ELECTRIC MOTOR ALIGNMENT”

## PRESENTATION



Promoting school:

SAVON AMMATTI- JA AIKUISOPISTO  
Kuopio, Finland



## A. GENERAL DESCRIPTION

### Title of the ProjectX

**PUMP AND ELECTRIC MOTOR ALIGNMENT**

### Core area

GENERAL / KNOWLEDGE      **MECHANIC**

PARTICULAR / ACTIVITY:      **MAINTENANCE**

### Promoting school

SAVO

### Schools participants in the revision of the ProjectX

LYSEE ISAAC NEWTON  
XABEC  
BIRMINGHAM

### Reference to ECVET Credit System and EQF / NQF

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

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

1. Understand the principle of alignment
2. Relevance of alignment
3. Defines right tooling and knows how to use them
4. Generating work plan / report

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

Theory:      5 hours  
Practice:      20 hours

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

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| 1. NAME:POWERFLUTE-SAVON SELLU OY | WORKPLACE: OPERATION AND MAINTENANCE |
| 2. NAME: JELD-WEN SUOMI OY        | WORKPLACE:OPERATION AND MAINTENANCE  |



## B. THEORY

### Objectives of the theoretical Knowledge

1. Measuring instruments Knowledge
2. Get familiar with construction of electric motors
3. General safety – safety glasses, safety shoes/clothing, lifting

### List of activities

1. Writing a work plan
2. Read a laser-alignment handbook
2. Test

## C. PRACTICE

### Brief description of the Practice

Set motor on the frame and next run the measurement and alignment  
Alignment is carried out with the required precision (tolerance-table)  
Self-assessment is carried out during completing the work plan/report.

### Steps or activities to be performed by the student

- |           |   |
|-----------|---|
| First:    | Arrange your working area   |
| Second:   | Use a suitable lifting device, if needed                              |
| Third:    | Select tools  |
| Fourth:   | Make a work plan (this is first “short version”)                      |
| Fifth:    | Mount electric motor on the frame                                     |
| Sixth:    | Perform measurements  |
| Seventh:  | Assess results  |
| Eight:    | Make adjustment according to measured values                          |
| Ninth:    | Quality control – making re-measurements                              |
| Tenth:    | Safe measuring results  |
| Eleventh: | Complete your work plan/report  |
| Twelfth:  | Return tools and accessories – don’t forget to recycle waste material |



#### D. DETAILED DESCRIPTION OF LEARNING OUTCOMES.

<b>Learning Outcome:</b>	<b>Mastery of the work process</b>
<b>Knowledge</b>	
<ul style="list-style-type: none"> <li>- mastery of the work as a whole</li> <li>- initiative and entrepreneurship</li> </ul>	
<b>Skills</b>	
<ul style="list-style-type: none"> <li>- Is able to write a work plan</li> <li>- Is able to know how to install mechanical elements</li> <li>- Is able to ask for advice whenever needed</li> </ul>	
<b>Competences</b>	
<ul style="list-style-type: none"> <li>- Is able to work systematically, initially requires supervision</li> <li>- Is able to work independently and cost-effectively</li> </ul>	

<b>Learning Outcome:</b>	<b>Mastering the work method, equipment and material</b>
<b>Knowledge</b>	
<ul style="list-style-type: none"> <li>- installation work</li> <li>- use of tools</li> <li>- mastery of materials</li> <li>- measurements and adjustments</li> </ul>	
<b>Skills</b>	
<ul style="list-style-type: none"> <li>- The student is able to choose the appropriate tools both for manual and laser alignment</li> <li>- The student is able to work systematically</li> <li>- The student is able to make demanding installations independently or as an active member of a team</li> <li>- The student is able to carry out the measurements and re-measurements</li> <li>- The student is able to handle the materials correctly</li> <li>- The student is able to handle the measuring instruments correctly</li> </ul>	
<b>Competences</b>	
<ul style="list-style-type: none"> <li>- The student is able to service their tools</li> <li>- The student is able to anticipate material needs</li> <li>- The student is able to estimate the accuracy of measuring results comparing to tolerance-table</li> <li>- The student is able to work in a team</li> </ul>	



<b>Learning Outcome:</b>	<b>Underpinning Knowledge</b>
<b>Knowledge</b>	
<ul style="list-style-type: none"> <li>- understanding drawings and instructions</li> <li>- quality management skills</li> <li>- skills in science and mathematics</li> <li>- English language skills</li> </ul>	
<b>Skills</b>	
<ul style="list-style-type: none"> <li>- able to use the instructions / drawings to determine the function of the equipment</li> <li>- able to know work-related names and terms in English and understands key items</li> </ul>	
<b>Competences</b>	
<ul style="list-style-type: none"> <li>- able to read instructions in English that may be necessary for their work</li> <li>- able to understand the principle and relevance of axial alignment</li> </ul>	

<b>Learning Outcome:</b>	<b>Key competences for lifelong learning</b>
<b>Knowledge</b>	
<ul style="list-style-type: none"> <li>- health, safety and ability to function</li> <li>- learning and problem solving</li> <li>- interaction and co-operation</li> <li>- vocational ethics</li> </ul>	
<b>Skills</b>	
<ul style="list-style-type: none"> <li>- The student is able to ensure occupational safety at the work place in all situations</li> <li>- The student is able to avoid making same mistakes twice</li> <li>- The student is able to manage in work-related interactive situations, also in a foreign language</li> <li>- The student is able to ensure that the work environment is clean and tidy</li> </ul>	
<b>Competences</b>	
<ul style="list-style-type: none"> <li>- The student is able to check the proper function of machines and equipment's before starts working</li> <li>- The student is able to solve problems</li> <li>- The student is able to express some ideas to improve his/her working process</li> <li>- The student is able to work in a team</li> </ul>	

