



Module de spécialisation machines tournantes : les pompes centrifuges [PC-4]

Objective :

- Understand the performance limitations of centrifugal pumps.
- Identify the causes of malfunctions.
- Define conditions for increased reliability.

Target group :

- This course is aimed at operators, foremen, technicians or engineers in operations, maintenance or process departments.
- Prerequisites: Introductory course in rotating machines or equivalent experience.
- 8 to 10 people maximum per session.

Contents :

09:00 - 10:30

OPERATION

- Characteristic curves and performance of a centrifugal pump: flow, power and efficiency
- Operating limits: cavitation, zero flow

10:30 - 10:45

Break

10:45 - 12:15

OPERATION

- Starting a centrifugal pump
- Principles of flow control :
 - o System pressure drop
 - o Flow control: control valve, by-pass, variable speed
- Operating point and operating limits:
 - o Minimum flow, cavitation, vibration.
 - o Best efficiency point versus flow
- Operation of 2 pumps in parallel and in series:
 - o Advantages, disadvantages
 - o Performance curves

12:15 - 13:15

Lunch

13:15 - 15:15

TROUBLESHOOTING

- On-site performance checks: hydraulic and electrical balances.
- Causes of efficiency losses :
 - o Abnormal load losses :
 - ? Suction filter clogging
 - ? Suction pressure drop
 - ? Foreign bodies
 - o Abrasion, erosion, cavitation, wear and tear
- Behavioral anomalies :
 - o Abnormal vibration
 - o Abnormal heating of bearings
 - o Sealing leaks
 - o Pump bypass: role of the non-return valve
- Excessive energy consumption: causes and remedies

15:15 - 15:45

Break

15:45 - 17:00

INSTALLATION

General principles of pump assembly

- Common base: pump, coupling / drive machine.
- Pipe coupling: principle and tolerances.
- Bends and flow stabilizers.
- Position of suction pipes.

Implementation / working method :

Interactive, one-day, face-to-face course. Powerpoint support will be shared at the beginning of the course in paper and digital formats.

A questionnaire will be sent to trainees prior to the course in order to adapt the course content to participants' expectations as far as possible.

A course evaluation questionnaire will be distributed to participants at the end of the course.

Course language and materials:

French

Event Properties

Event Date	Wednesday, 17 September 2025 - Wednesday, 17 September 2025
Registration Start Date	Monday, 30 November -0001
Cut off date	Monday, 30 November -0001
Individual Price	Membre CHF 600.00, non-membre CHF 750.00, étudiants/doctorants/AVS CHF 320.00 (incl. Lunch)
Lecturer	Michel Huet , PRIMCO
Course language	French
Location	PRIMCO Thônex, Thônex

