

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Pumps and Compressors Operation and Troubleshooting

5 days | Classroom training | English

SMART HORIZON

info@smart-horizon.eu
Amsterdam
The Netherlands

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Course content

Why attend

Pumps and compressors are critical to process plants, utilities and buildings. This course covers operation and troubleshooting of centrifugal and positive displacement pumps and compressors: performance curves, system interaction, cavitation and surge, seals and bearings, common failures, troubleshooting methods and efficiency improvement.

Pump and compressor problems cause frequent downtime and energy waste. You will learn to operate them correctly and diagnose problems quickly.

Professional Problems This Course Is Designed to Solve

• Difficulty translating subject knowledge into practical workplace decisions.
• Inconsistent approaches to the activities covered in the course outline.
• Lack of a structured plan for applying and reviewing new skills.

Course methodology

Performance curve exercises, troubleshooting case studies, failure analysis and efficiency calculations.

Course objectives

By the end of this course, participants will be able to:
• Explain pump and compressor types and operating principles
• Read performance curves and system curves
• Recognise and prevent cavitation and surge
• Diagnose common mechanical and process problems
• Maintain seals, bearings and couplings
• Improve energy efficiency

Target audience

This course is suitable for:
• Mechanical and process engineers
• Maintenance technicians
• Operators in process plants
• Reliability engineers
• Utility engineers



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Target competencies

Participants will develop competencies in:

- Performance analysis
- Troubleshooting
- Failure prevention
- Maintenance practice
- Energy efficiency

Course outline

Day 1: Pumps

09:00–10:08	Centrifugal and PD pumps
10:08–11:00	Performance curves
11:00–11:30	**Coffee break**
11:30–11:45	Performance curves (continued)
11:45–12:53	System interaction
12:53–14:00	Exercise

Day 2: Pump Problems

09:00–10:08	Cavitation and NPSH
10:08–11:00	Recirculation
11:00–11:30	**Coffee break**
11:30–11:45	Recirculation (continued)
11:45–12:53	Seal and bearing failures
12:53–14:00	Case study

Day 3: Compressors

09:00–10:08	Compressor types
10:08–11:00	Operating envelopes
11:00–11:30	**Coffee break**



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11:30–11:45	Operating envelopes (continued)
11:45–12:53	Surge and stonewall
12:53–14:00	Exercise

Day 4: Troubleshooting

09:00–10:08	Diagnostic methods
10:08–11:00	Vibration and temperature
11:00–11:30	**Coffee break**
11:30–11:45	Vibration and temperature (continued)
11:45–12:53	Root causes
12:53–14:00	Workshop

Day 5: Efficiency

09:00–10:08	Energy losses
10:08–11:00	Variable speed operation
11:00–11:30	**Coffee break**
11:30–11:45	Variable speed operation (continued)
11:45–12:53	Improvement plan
12:53–14:00	Action plan

The timings provided are estimates and may vary depending on the number of participants and the discussions taking place during the sessions. They are indicative only and do not constitute a binding commitment.



Course content

Dates, venues and fees

Current published course plans. Fees are per participant in EUR, excluding unconfirmed taxes.

Venue	Start date	End date	Fee (EUR)
Cape Town Confirmed dates	9 Nov 2026	13 Nov 2026	**€3,780.–**
Online Confirmed dates	9 Nov 2026	13 Nov 2026	**€1,250.–**
Paris Confirmed dates	30 Nov 2026	4 Dec 2026	**€5,720.–**
Online Confirmed dates	30 Nov 2026	4 Dec 2026	**€1,250.–**
Rome Confirmed dates	4 Jan 2027	8 Jan 2027	**€4,900.–**
Online Confirmed dates	4 Jan 2027	8 Jan 2027	**€1,250.–**
Vienna Confirmed dates	18 Jan 2027	22 Jan 2027	**€5,880.–**
Online Confirmed dates	18 Jan 2027	22 Jan 2027	**€1,250.–**
London Confirmed dates	8 Feb 2027	12 Feb 2027	**€4,900.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	8 Feb 2027	12 Feb 2027	**€1,250.–**
Amsterdam Confirmed dates	1 Mar 2027	5 Mar 2027	**€5,080.–**
Online Confirmed dates	1 Mar 2027	5 Mar 2027	**€1,250.–**
Istanbul Confirmed dates	22 Mar 2027	26 Mar 2027	**€5,300.–**
Online Confirmed dates	22 Mar 2027	26 Mar 2027	**€1,250.–**
London Confirmed dates	12 Apr 2027	16 Apr 2027	**€4,900.–**
Online Confirmed dates	12 Apr 2027	16 Apr 2027	**€1,250.–**
Barcelona Confirmed dates	26 Apr 2027	30 Apr 2027	**€5,680.–**
Online Confirmed dates	26 Apr 2027	30 Apr 2027	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Cape Town Confirmed dates	17 May 2027	21 May 2027	**€3,780.–**
Online Confirmed dates	17 May 2027	21 May 2027	**€1,250.–**
Vienna Confirmed dates	7 Jun 2027	11 Jun 2027	**€5,880.–**
Online Confirmed dates	7 Jun 2027	11 Jun 2027	**€1,250.–**
Cape Town Confirmed dates	28 Jun 2027	2 Jul 2027	**€3,780.–**
Online Confirmed dates	28 Jun 2027	2 Jul 2027	**€1,250.–**
Rome Confirmed dates	19 Jul 2027	23 Jul 2027	**€4,900.–**
Online Confirmed dates	19 Jul 2027	23 Jul 2027	**€1,250.–**
Frankfurt Confirmed dates	2 Aug 2027	6 Aug 2027	**€5,300.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	2 Aug 2027	6 Aug 2027	**€1,250.-**
Kuala Lumpur Confirmed dates	23 Aug 2027	27 Aug 2027	**€2,900.-**
Online Confirmed dates	23 Aug 2027	27 Aug 2027	**€1,250.-**
Dubai Confirmed dates	13 Sept 2027	17 Sept 2027	**€6,300.-**
Online Confirmed dates	13 Sept 2027	17 Sept 2027	**€1,250.-**
Rome Confirmed dates	4 Oct 2027	8 Oct 2027	**€4,900.-**
Online Confirmed dates	4 Oct 2027	8 Oct 2027	**€1,250.-**
Dubai Confirmed dates	25 Oct 2027	29 Oct 2027	**€6,300.-**
Online Confirmed dates	25 Oct 2027	29 Oct 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Barcelona Confirmed dates	8 Nov 2027	12 Nov 2027	**€5,680.-**
Online Confirmed dates	8 Nov 2027	12 Nov 2027	**€1,250.-**
Dubai Confirmed dates	29 Nov 2027	3 Dec 2027	**€6,300.-**
Online Confirmed dates	29 Nov 2027	3 Dec 2027	**€1,250.-**

Plan your next step

Dates, availability, exact venue, taxes, inclusions and payment terms require written confirmation. This brochure is not a quotation, registration, booking confirmation or visa invitation. Participants receive a Smart Horizon certificate of attendance; programmes are not externally accredited and do not award a professional qualification or designation. Confirm arrangements before booking travel.

For group or in-house training, contact our learning team to discuss your objectives and delivery arrangements.

Contact Smart Horizon

info@smart-horizon.eu
Amsterdam
The Netherlands

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