COURSE OVERVIEW ME0121

Safety Relief Valve Design, Installation, Inspection & Maintenance

(API 520/521/526, API RP 576, NB, ASME I/VIII & ASME PTC 25)

Course Title

Safety Relief Valve Design, Installation, Inspection & Maintenance (*API 520/521/526, API RP 576, NB, ASME I/VIII & ASME PTC 25)*

Course Date/Venue

November 10-14, 2024/Club B Meeting Room, Ramada Plaza by Wyndham Istanbul City Center, Istanbul, Turkey

Course Reference

ME0121

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt in the class will be applied using the following practical methods: -

(**1**) **Industrial Facility Visit:** Course participants will be taken to an industrial facility where they will practice valve dismantling, assembling, inspection and testing. In case that this course is organized inside client premises (In-House), then client shall provide access to its valve workshop for practical sessions.

(**2**) **Valve Demo Kit:** Various safety relief valves will be distributed in the class to the participants by the course instructor for hands-on demonstration. These demo kits will be returned to the instructor at the end of the training day.

(**3**) **Valve Simulator:** Participants will use in the class our state-of-the-art "Valve Sizing Simulator", "Valve Simulator 3.0", "Valvestar 7.2 Simulator" and "PRV2SIZE Simulator" to practice some of the skills learnt.

A safety or pressure relief valve can be considered the most important single safety device on a boiler or pressure vessel. If it fails to function in the manner for which it was intended and an overpressure condition develops, the result could be catastrophic.

Like all mechanical devices, pressure relief valves require periodic maintenance and repair. To properly carry out repairs, it is essential that the work be done by trained personnel under controlled conditions, using proper parts and procedures.

This State-of-the-Art course is developed by The American "National Board of Boiler and Pressure Vessel Inspectors". The National Board of Boiler and Pressure Vessel Inspectors' Executive Committee, realizing the importance of proper and adequate repair of safety relief valves, approved the issuance of a *National Board Certificate of Authorization for Valve Repair* and a *"VR" stamp* to *qualified organizations*. Such organizations are required to maintain a quality control system covering valve repairs and be able to adequately demonstrate this system. In addition, a committee was formed to develop administrative procedures and rules for the repair of valves. This committee recommended a course on valve repair to help ensure that those who carry out this work are capable and knowledgeable. Hence, don't blow off this chance to learn the latest information on pressure relief systems from the ones who developed the Standard of the Safety Relief Valves. This course is full of case studies, classroom exercises, and ready-to-use information.

The course will cover the design, selection, sizing, installation and inspection of safety relief valves as per standards API 520, API 521, API 526 and API RP 576. Further, the course will discuss ASME I, ASME VIII and ASME PTC 25 in details.
The course covers the conventional spring-loaded Pressure Relief Valves (PRV) and the Pilot Operated Pressure Relief Valves (POPRV).

Course Objectives

Upon the successful completion of this course, participants will be able to: -

- Apply the requirements & guidelines for the "VR" accreditation program and use the National Board Inspection Code and ASME PTC 25
- Review and employ the ASME Code Sections I and VIII and explain the pressure relief valve operation
- Design, select and size a pressure relieve devices in accordance with API 520, API 521 and API 526
- Inspect pressure relieve devices in accordance with the API RP 576
- Discover the development and application of pressure relief valves and determine the installation requirements for pressure relief valves
- Recognize the operational malfunctions of pressure relief valves and the testing facilities for pressure relief valves
- Discuss pressure relief device certifications and review and gain in-depth knowledge with the method of nameplate data interpretation
- Review and improve the critical inspection, lapping and grinding, assembly, testing and sealing of safety relief valves
- Calibrate safety relief valves and perform nondestructive examination for safety relief valves
- Determine the "VR" administrative rules and procedures and carryout steps for obtaining the National Board "VR" stamp

Who Should Attend

This course provides an overview of all significant aspects and considerations in the design, installation, inspection and maintenance of safety relieve valve in accordance with the international standards API/ASME for design engineers and managers, process piping/pipelines engineers and supervisors, pressure vessels engineers and supervisors, inspection and QA/QC engineers, boilers and process plant equipment owners and operators, maintenance personnel who inspect and install pressure relief devices and engineers involved in plant turnaround and upgrade projects.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee

US$ 6,000 per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

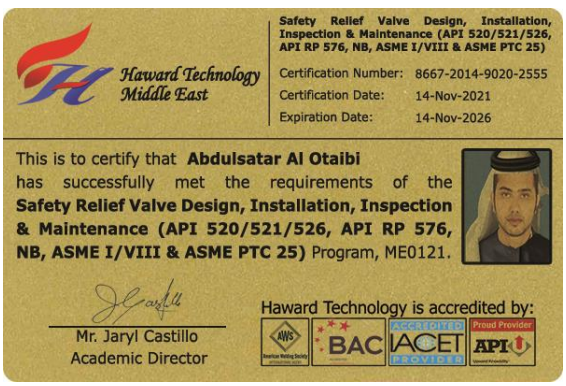
Course Certificate(s)

(1) Internationally recognized Wall Competency Certificates and Plastic Wallet Card Certificates will be issued to participants who have successfully completed the course and passed the exam at the end of the course. Certificates are valid for 5 years.

Recertification is FOC for a Lifetime.

Sample of Certificates

The following are samples of the certificates that will be awarded to course participants:-



(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-21

HTME No. 8667-2014-9020-2555

Participant Name: Abdulsatar Al Otaibi

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
ME0121	Safety Relief Valve Design, Installation, Inspection & Maintenance *(API 520/521/526, API RP 576, NB, ASME I/VIII & ASME PTC 25)*	10 Nov-14 Nov, 2021	30	3.0

Total No. of CEU's Earned as of TOR Issuance Date **3.0**

TRUE COPY

Jaryl Castillo
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 Standard.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking Continuing Education Units (CEUs) in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology is accredited by

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Certificate Accreditations

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for ontinuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Karl Thanasis, PEng, MSc, MBA, BSc, is **Senior Mechanical & Maintenance Engineer** with over **45 years** of extensive industrial experience. His wide expertise includes **Piping & Pipeline**, Maintenance, Repair, **Shutdown**, **Turnaround & Outages**, **Maintenance & Reliability** Management, **Mechanical Maintenance** Planning, Scheduling & Work Control, Advanced Techniques in **Maintenance** Management, **Predictive & Preventive** Maintenance, **Maintenance & Operation Cost Reduction** Techniques, Reliability Centered Maintenance (**RCM**), **Machinery Failure** Analysis, **Rotating Equipment Reliability** Optimization & Continuous Improvement, **Material Cataloguing**, **Mechanical & Rotating Equipment** Troubleshooting & Maintenance, **Root Cause Analysis & Reliability** Improvement, **Condition** Monitoring, **Root Cause Failure Analysis** (RCFA), **Steam Generation**, **Steam Turbines**, **Power Generator Plants**, **Gas Turbines**, **Combined Cycle Plants**, **Boilers**, **Process Fired Heaters**, Air Preheaters, Induced Draft Fans, All Heaters Piping Work, Refractory Casting, Heater Fabrication, Thermal & Fired Heater Design, **Heat Exchangers**, Heat Transfer, Coolers, **Power Plant** Performance, Efficiency & Optimization, **Storage Tank** Design & Fabrication, **Thermal Power Plant** Management, **Boiler & Steam** System Management, **Pump** Operation & Maintenance, **Chiller & Chiller Plant** Design & Installation, **Pressure Vessel**, **Safety Relief Valve** Sizing & Selection, **Valve** Disassembling & Repair, Pressure Relief Devices (**PSV**), **Hydraulic & Pneumatic** Maintenance, Advanced **Valve** Technology, **Pressure Vessel** Design & Fabrication, **Pumps**, Turbo-Generator, Turbine **Shaft Alignment**, **Lubrication**, Mechanical **Seals**, Packing, **Blowers**, **Bearing** Installation, **Couplings**, **Clutches** and **Gears**. Further, he is also versed in **Wastewater Treatment** Technology, **Networking** System, **Water Network Design**, Industrial **Water Treatment** in Refineries & Petrochemical Plants, **Piping** System, Water Movement, Water Filtering, Mud Pumping, **Sludge Treatment** and **Drying**, **Aerobic Process** of **Water Treatment** that includes **Aeration**, **Sedimentation** and **Chlorination Tanks**. His strong background also includes **Design** and **Sizing** of all **Waste Water Treatment Plant Associated Equipment** such as **Sludge Pumps**, **Filters**, **Metering Pumps**, **Aerators** and **Sludge Decanters**.

Mr. Thanasis has acquired his thorough and practical experience as the **Project Manager**, **Plant Manager**, **Area Manager - Equipment Construction**, **Construction Superintendent**, **Project Engineer** and **Design Engineer**. His duties covered **Plant Preliminary Design**, **Plant Operation**, **Write-up** of **Capital Proposal**, **Investment Approval**, **Bid Evaluation**, **Technical Contract Write-up**, **Construction** and **Sub-contractor Follow up**, **Lab Analysis**, **Sludge Drying** and **Management** of **Sludge Odor** and **Removal**. He has worked in various companies worldwide in the **USA**, **Germany**, **England** and **Greece**.

Mr. Thanasis is a **Registered Professional Engineer** in the **USA** and **Greece** and has a **Master's** and **Bachelor's** degree in **Mechanical Engineering** with **Honours** from the **Purdue University** and **SIU** in **USA** respectively as well as an **MBA** from the **University of Phoenix** in **USA**. Further, he is a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) a **Certified Instructor/Trainer** and has delivered numerous trainings, courses, seminars, workshops and conferences worldwide.

Course Program

The following program is planned for this course. However, the course instructors(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: Sunday, 10th of November 2024

0730 - 0800	*Registration & Coffee*
0800 - 0815	*Welcome & Introduction*
0815 - 0830	***PRE-TEST***
0830 - 0900	***Organizations Affecting Standards Development & Enforcement***
0900 - 0930	***"VR" Accreditation Program***
0930 - 0945	*Break*
0945 - 1100	***National Board Inspection Code***
1100 - 1200	***ASME PTC 25***
1200 - 1215	*Break*
1215 – 1300	***ASME Code Sections I & VIII***
1300 - 1420	***PRV & POPRV Principles of Operation***
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: Monday, 11th of November 2024

0730 - 0815	***Development & Application of PRV/POPRV***
0815 - 0930	***Installation Requirements for PRV/POPRV***
0930 - 0945	*Break*
0945 - 1030	***Operational Malfunctions of PRV/POPRV***
1030 - 1130	***Testing Facilities for PRV/POPRV***
1130 - 1200	***Pressure Relief Device Certifications***
1200 - 1215	*Break*
1215 - 1420	***Nameplate Data Interpretation***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: Tuesday, 12th of November 2024

0730 - 0930	***API 520 Sizing, Selection & Installation of Pressure Relieving Devices***
0930 - 0945	*Break*
0945 - 1030	***API 520 Sizing, Selection & Installation of Pressure Relieving Devices (cont'd)***
1030 - 1200	***API 520 Sizing, Selection & Installation of Pressure Relieving Devices (cont'd)***
1200 - 1215	*Break*
1215 - 1420	***API 520 Sizing, Selection & Installation of Pressure Relieving Devices (cont'd)***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: Wednesday, 13th of November 2024

0730 - 0930	***API 521 Pressure Relieving & Depressuring Systems***
0930 - 0945	*Break*
0945 - 1030	***API 521 Pressure Relieving & Depressuring Systems (cont'd)***
1030 - 1200	***API 526 Flanged Steel Pressure-Relief Valves***
1200 - 1215	*Break*
1215 - 1420	***API 526 Flanged Steel Pressure-Relief Valves (cont'd)***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5: Thursday, 14th of November 2024

0730 - 0815	***API RP 576 Inspection of Pressure-Relieving Devices***
0815 - 0830	***API RP 576 Inspection of Pressure-Relieving Devices (cont'd)***
0830 - 0930	***Critical Inspection***
0930 - 0945	*Break*
0945 - 1030	***Testing & Sealing***
1030 – 1100	***Nameplate Stamping***
1100 - 1130	***Calibration***
1130 - 1200	***Nondestructive Examination***
1200 - 1215	*Break*
1215 - 1300	***Steps for Obtaining National Board "VR" Stamp***
1300 – 1315	***Course Conclusion***
1315 – 1415	***COMPETENCY EXAM***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

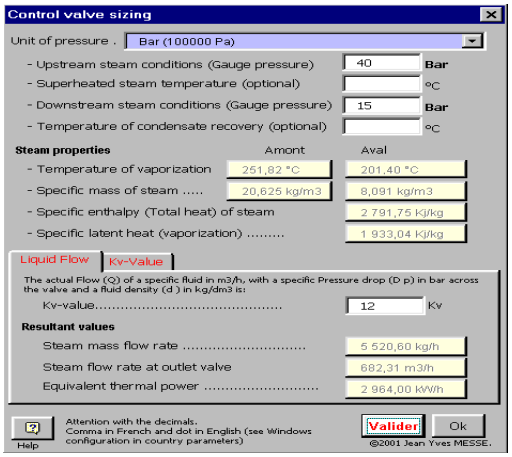
Practical Session/Industrial Facility Visit



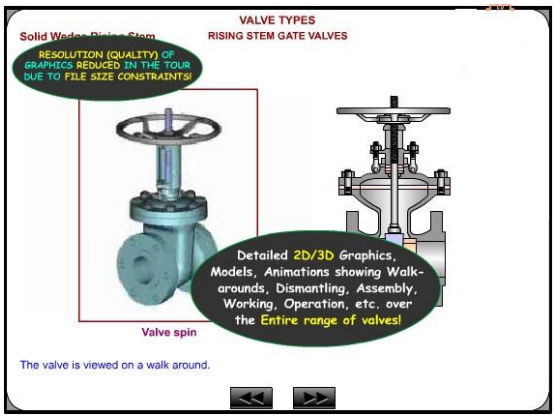



Valve Demo Kit

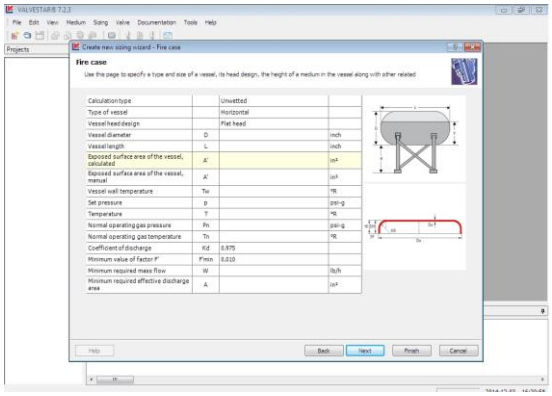
Simulator (Hands-on Practical Sessions)



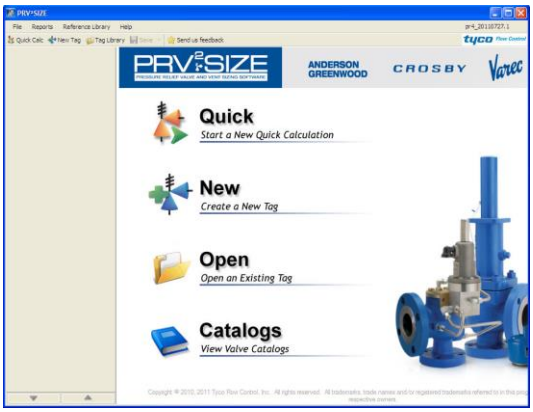
Valve Sizing Simulator



Valve Simulator 3.0



Valvestar 7.2 Simulator



PRV²SIZE Simulator

Course Coordinator

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