

**COURSE OVERVIEW ME0122**  
**Valves, Safety Relief Valves, Strainers & Steam Traps**

**Course Title**

Valves, Safety Relief Valves, Strainers & Steam Traps

**Course Reference**

ME0122

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**Course Date/Venue**

Session(s)	Date	Venue
1	May 04-08, 2025	Meeting Plus 9, City Centre Rotana, Doha Qatar
2	July 20-24, 2025	Olivine Meeting Room, Fairmont Nile City, Cairo, Egypt
3	September 28- October 02, 2025	Safir Meeting Room, Divan Istanbul, Turkey
4	November 16-20, 2025	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
5	January 04-08, 2026	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



**Course Description**



***This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.***

This course is designed to provide participants with a detailed and up-to-date overview of Valves, Relief Valves, Strainers and Steam Traps. Participants will gain a thorough understanding of the principles, applications, maintenance, and troubleshooting of these critical components in fluid and steam systems.



The course will cover the functions and difference among various types of valves covering gate valve, globe valve, plug valve, ball valve, check valve, needle valve, diaphragm valve and butterfly valve; the valve symbols and actuators; and the valve glossary and piping overview.



During this interactive course, participants will learn the safety relief valve types, functions and design features; the types of strainers comprising of temporary strainer, y-type strainer, mono-in-line strainer and duplex-strainer; the types of steam traps covering mechanical steam traps, thermostatic and fixed-orifice traps; the valve maintenance, preventive maintenance, start-up and overhauling; the valve leakage and proper installation, sizing and selection of valve; and the maximum allowable pressure drop.

## Course Objectives

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

- Apply and gain an in-depth knowledge on valves, safety relief valves, strainers and steam traps
- Discuss valves and its principal functions
- Distinguish the difference among various types of valves including gate valve, globe valve, plug valve, ball valve, check valve, needle valve, diaphragm valve and butterfly valve
- Illustrate valve symbols and actuators
- Review valve glossary and piping overview as well as safety relief valves, definitions, types, functions and design features
- Discuss numerous types of strainers including temporary strainer, y-type strainer, mono-in-line strainer and duplex-strainer as well as the types of steam traps including mechanical steam traps, thermostatic and fixed-orifice traps
- Employ valve maintenance, preventive maintenance, start-up and overhauling
- Identify valve leakage in all types and carryout proper installation, sizing and selection of valve
- Analyze maximum allowable pressure drop

## Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

## Who Should Attend

This course provides an overview of all significant aspects and considerations of valves, safety relieve valves, strainers and stream straps for maintenance engineers, application engineers, inspection engineers, mechanical engineers, under-development engineers, electrical/electronics engineers, control systems and instrumentation engineers, production engineers, wellhead & drilling engineers and the new valve designers. Further, this course is essential for supervisors, foremen and other technical staff.

## 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 Certificate(s)**

- (1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully 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.

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CEUs



**Haward Technology Middle East**  
Continuing Professional Development (HTME-CPD)

## CEU Official Transcript of Records

**TOR Issuance Date:** 20-Sep-18

**HTME No.** PAR10047

**Participant Name:** Salem Al Nabhani

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
ME0122	Valves, Safety Relief Valves, Strainers & Steam Traps	September 16-20, 2018	30	3.0

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

**TRUE COPY**



Maricel De Guzman  
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102, 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


Certificates are accredited by the following international accreditation organizations: -

- 
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 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 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.

### Accommodation

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

### 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 30 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 and Bachelor** degrees 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 Fee**

Doha	<b>US\$ 6,000</b> per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Cairo	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	<b>US\$ 6,000</b> per Delegate + <b>VAT</b> . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

**Course Program**

The following program is planned for this course. However, the course instructor(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**

0730 – 0800	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Valves</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Principal Functions of Valves</b>
1100 – 1230	<b>Gate Valve</b>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Globe Valve</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

**Day 2**

0730 – 0930	<b>Plug Valve</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Ball Valve</b>
1100 – 1230	<b>Check Valve</b>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Needle Valve</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>

**Day 3**

0730 – 0930	<b>Diaphragm Valve</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Butterfly Valve</b>
1100 – 1230	<b>Valve Symbols</b>
1230 – 1245	<i>Break</i>

1245 – 1420	<b>Valve Actuators</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Three</i>

**Day 4**

0730 – 0830	<b>Valve Glossary &amp; Piping Overview</b>
0830 – 0930	<b>Safety Relief Valves</b> <i>Definitions • Types • Functions • Design Features</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Types of Strainers</b> <i>Temporary Strainer • Y-Type Strainer • Mono-in-Line Strainer • Duplex Strainer</i>
1100 – 1230	<b>Types of Steam Traps</b> <i>Mechanical Steam Traps • Thermostatic • Fixed-Orifice</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Valve Maintenance</b> <i>Preventive Maintenance • Prior to Start-up • After Start-up • Workshop Overhaul &amp; Maintenance Tips</i>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Four</i>

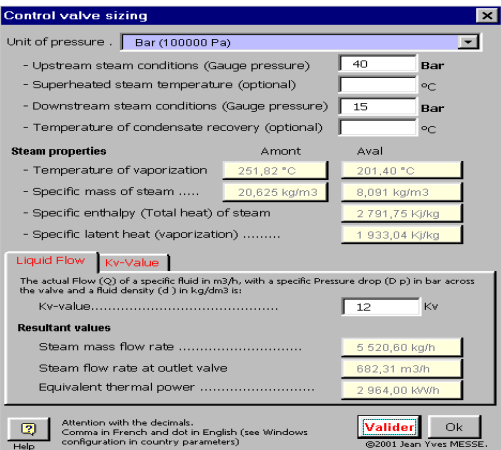
**Day 5**

0730 – 0930	<b>Valve Leakage</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Valve Installation</b>
1100 – 1230	<b>Valve Sizing &amp; Selection</b>
1230 – 1245	<i>Break</i>
1245 – 1300	<b>Maximum Allowable Pressure Drop</b>
1300 - 1400	<b>COMPETENCY EXAM</b>
1400 – 1415	<b>Course Conclusion</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>



## Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the “Valve Sizing Software, Valve Software 3.0, Valvestar 7.2 Software, PRV2SIZE Software” simulator.



**Control valve sizing**

Unit of pressure : Bar (100000 Pa)

- Upstream steam conditions (Gauge pressure) : 40 Bar

- Superheated steam temperature (optional) : °C

- Downstream steam conditions (Gauge pressure) : 15 Bar

- Temperature of condensate recovery (optional) : °C

**Steam properties**

Amont	Aval
Temperature of vaporization : 251,82 °C	201,40 °C
Specific mass of steam : 20,625 kg/m3	8,091 kg/m3
Specific enthalpy (Total heat) of steam : 2 791,75 kJ/kg	
Specific latent heat (vaporization) : 1 933,04 kJ/kg	

**Liquid Flow** | **Kv-Value**

The actual flow (Q) of a specific fluid in m3/h, with a specific Pressure drop (Dp) in bar across the valve and a fluid density (d) in kg/dm3 is:

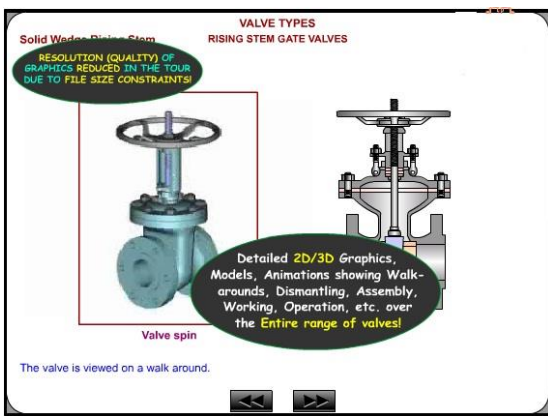
Kv-value : 12 Kv

**Resultant values**

Steam mass flow rate	5 520,60 kg/h
Steam flow rate at outlet valve	682,31 m3/h
Equivalent thermal power	2 964,00 kW/h

Attention with the decimals.  
Comma in French and dot in English (see Windows configuration in country parameters)

Validater Ok  
©2001 Jean Yves MESSE.



**VALVE TYPES**  
RISING STEM GATE VALVES

Solid Water District Steam

RESOLUTION (QUALITY) OF GRAPHICS REDUCED IN THE TOUR DUE TO FILE SIZE CONSTRAINTS

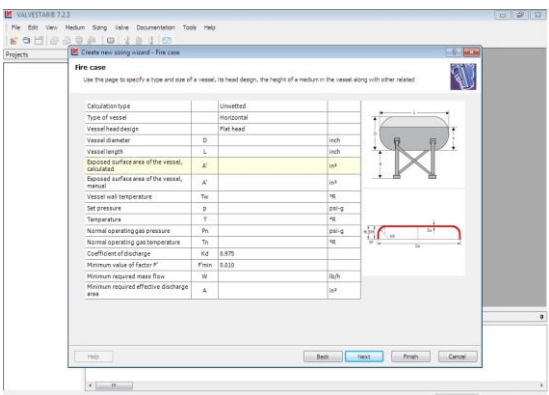
Detailed 2D/3D Graphics, Models, Animations showing Walk-arounds, Dismantling, Assembly, Working, Operation, etc. over the Entire range of valves!

Valve spin

The valve is viewed on a walk around.

**Valve Sizing Software**

**Valve Software 3.0**



**VALVESTAR 7.2.3**

File Edit View Medium Saving Value Documentation Tools Help

Projects

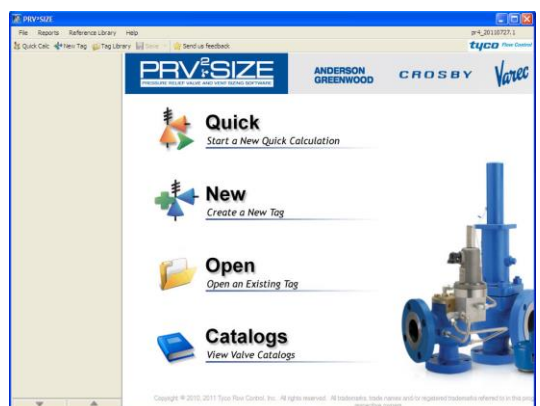
Create new sizing project - Fire case

Fire case

Use this page to specify a type and size of a vessel, its head design, the height of a medium in the vessel along with other related

Calculation type	Unsettled
Type of vessel	Horizontal
Vessel head design	Flat head
Vessel diameter	D
Vessel length	L
Exposed surface area of the vessel, liquid	A <sub>L</sub>
Exposed surface area of the vessel, vessel	A <sub>V</sub>
Vessel wall temperature	T <sub>w</sub>
Set pressure	P
Temperature	T
Normal operating gas pressure	P <sub>o</sub>
Normal operating gas temperature	T <sub>o</sub>
Coefficient of discharge	K <sub>d</sub> 0,875
Maximum value of factor F	F <sub>max</sub> 10,00
Minimum required mass flow	W
Minimum required effective discharge area	A

Yes Back Next Print Cancel



**PRV2SIZE**

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**Quick**  
Start a New Quick Calculation

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**Open**  
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View Valve Catalogs

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**Valvestar 7.2 Software**

**PRV<sup>2</sup>SIZE Software**

## Course Coordinator

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