

COURSE OVERVIEW FE0028
API 598: Valve Inspection and Testing

Course Title

API 598: Valve Inspection and Testing

Course Reference

FE0028

Course Duration/Credits

Five days/3.25 CEUs/32.5 PDHs



Course Date/Venue

Session(s)	Date	Venue
1	January 06-10, 2025	TBA Meeting Room, Taksim Square Hotel, Istanbul, Turkey
2	April 20-24, 2025	Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA
3	July 06-10, 2025	TBA Meeting Room, Taksim Square Hotel, Istanbul, Turkey
4	October 05-09, 2025	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, 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 participant with a detailed and up-to-date overview of valve inspection and testing in accordance with API 598. It covers the API requirements needed to perform inspection, examination, supplementary examinations and pressure testing requirements for resilient-seated, non-metallic-seated and metal-to-metal-seated valves of the gate, globe, plug, ball, check and butterfly types.



During this interactive course, participants will learn to inspect, examine and perform supplementary examination; carryout pressure testing, Identify test location, test equipment and test required; differentiate high-pressure closure test and high-pressure pneumatic test; identify test fluid; test pressures, test duration and test leakage; employ pressure testing procedures including backseat testing, shell testing, low-pressure and high-pressure closure testing, double block and bleed high-pressure closure testing; and explain in details the valve certification and retesting.

Course Objectives

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

- Apply and gain an-depth knowledge on valve inspection and testing in accordance with the international standard API 598
- Inspect, examine and perform supplementary examination covering inspection of valve manufacturer's plant, inspection notice and extent of inspection
- Carryout pressure testing as well as identify test location, test equipment and tests required
- Differentiate high-pressure closure test and high-pressure pneumatic test
- Describe test fluid, test pressures, test duration and test leakage
- Employ pressure testing procedures including backseat testing, shell testing, low-pressure and high-pressure closure testing, double block and bleed high-pressure closure testing
- Explain in details the valve certification and retesting comprising of certificate of compliance and retesting

Who Should Attend

This course provides a wide understanding and deeper appreciation for an overview of all significant aspects and considerations of valve inspection and testing in accordance with the international standard API 598 for process, piping, pipelines and pressure vessels engineers and supervisors. Further, it is suitable for inspection and QA & QC engineers, boilers and process plant equipment owners, maintenance staff who inspect and install pressure relief devices and engineers involved in plant turnaround and upgrade projects.

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive "Howard 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**.

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)

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

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-


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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 **3.25 CEUs** (Continuing Education Units) or **32.5 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.

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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. Manuel Dalas MSc, BSc, is a **Senior Mechanical & Maintenance Engineer** with over **25 years** of industrial experience in **Oil, Gas, Refinery, Petrochemical, Power and Nuclear** industries. His wide expertise includes **Gas Turbines & Compressors** Troubleshooting, **Gas Turbines Performance, Maintenance & Testing, Gas Turbine Performance and Optimization, Gas Turbine Control Systems, Advanced Gas Turbine, Gas Turbine Design and Analysis, Air Compressor & Gas Turbines Selection and Design, Material Cataloguing, Maintenance Planning & Scheduling, Reliability Centered Maintenance (RCM), Reliability Maintenance, Condition Based Maintenance & Condition Monitoring, Asset & Risk Management, Vibration Condition Monitoring & Diagnostics** of Machines, **Vibration & Predictive Maintenance, Reliability Improvement & Vibration Analysis** for Rotating Machinery, **Effective Maintenance Shutdown & Turnaround Management, Engineering Codes & Standards, Rotating Equipment Maintenance, Mechanical Troubleshooting, Static Mechanical Equipment Maintenance, Machinery Failure Analysis, Machinery Diagnostics & Root Cause Failure Analysis, Plant Reliability & Maintenance Strategies, Boiler Operation & Water Treatment, Pumps Maintenance & Troubleshooting, Fans, Blowers & Compressors, Process Control Valves, Piping Systems & Process Equipment, Advanced Valve Technology, Pressure Vessel Design & Analysis, Steam & Gas Turbine, High Pressure Boiler Operation, FRP Pipe Maintenance & Repair, Centrifugal & Positive Displacement Pump Technology Troubleshooting & Maintenance, Rotating Machinery Best Practices, PD Compressor & Gas Engine Operation & Troubleshooting, Hydraulic Tools & Fitting, Mass & Material Balance, Water Distribution & Pump Station, Tank Farm & Tank Terminal Safety & Integrity Management, Process Piping Design, Construction & Mechanical Integrity, Stack & Noise Monitoring, HVAC & Refrigeration Systems, BPV Code, Section VIII, Division 2, Facility Planning & Energy Management, Hoist - Remote & Basic Rigging & Slings, Mobile Equipment Operation & Inspection, Heat Exchanger, Safety Relief Valve, PRV & POPRV/PORV, Bearing & Lubrication, Voith Coupling Overhaul, Pump & Valve Technology, Lubrication Inspection, Process Plant Optimization, Rehabilitation, Revamping & Debottlenecking, Engineering Problem Solving and Process Plant Performance & Efficiency. Currently, he is the **Technical Consultant** of the **Association of Local Authorities of Greater Thessaloniki** where he is in charge of the mechanical engineering services for piping, pressure vessels fabrications and ironwork.**

During his career life, Mr. Dalas has gained his practical and field experience through his various significant positions and dedication as the **Technical Manager, Project Engineer, Safety Engineer, Deputy Officer, Instructor, Construction Manager, Construction Engineer, Consultant Engineer and Mechanical Engineer** for numerous multi-billion companies including the **Biological Recycling Unit** and the **Department of Supplies of Greece, Alpha Bank Group, EMKE S.A, ASTE LLC** and **Polytechnic College of Evosmos**.

Mr. Dalas has a **Master's degree in Energy System** from the **International Hellenic University, School of Science & Technology** and a **Bachelor's degree in Mechanical Engineering** from the **Mechanical Engineering Technical University of Greece** along with a **Diploma in Management & Production Engineering** from the **Technical University of Crete**. Further, he is a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management (ILM)**, a **Certified Project Manager Professional (PMI-PMP)**, a **Certified Instructor/Trainer**, a **Certified Energy Auditor for Buildings, Heating & Climate Systems**, a **Member of the Hellenic Valuation Institute** and the **Association of Greek Valuers** and a **Licensed Expert Valuer Consultant** of the **Ministry of Development and Competitiveness**. He has further delivered numerous trainings, courses, seminars, conferences and workshops internationally.

Course Fee

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

0800 - 0830	Registration & Coffee
0830 - 0845	Welcome & Introduction
0845 - 0900	PRE-TEST
0900 - 0930	Introduction
0930 - 0945	Break
0945 - 1100	Inspection, Examination & Supplementary Examination Inspection at the Valve Manufacturer's Plant
1100 - 1200	Inspection, Examination & Supplementary Examination (cont'd) Inspection Outside the Valve Manufacturer's Plant
1200 - 1215	Break
1215 - 1450	Inspection, Examination & Supplementary Examination (cont'd) Inspection Notice
1450 - 1500	Recap
1500	End of Day One

Day 2

0800 - 0900	Inspection, Examination & Supplementary Examination (cont'd) Extent of Inspection
0900 - 0915	Break
0915 - 1030	Inspection, Examination & Supplementary Examination (cont'd) Examination
1030 - 1200	Inspection, Examination & Supplementary Examination (cont'd) Supplementary Examination
1200 - 1215	Break
1215 - 1450	Pressure Tests Test Location
1450 - 1500	Recap
1500	End of Day Two

Day 3

0800 - 0900	Pressure Tests (cont'd) Test Equipment
0900 - 0915	Break

0915 – 1030	Pressure Test (cont'd) Test Required
1030 – 1200	Pressure Test (cont'd) High Pressure Closure Test
1200 – 1215	Break
1215 – 1420	Pressure Test (cont'd) High Pressure Pneumatic Shell Test
1450 – 1500	Recap
1500	End of Day Three

Day 4

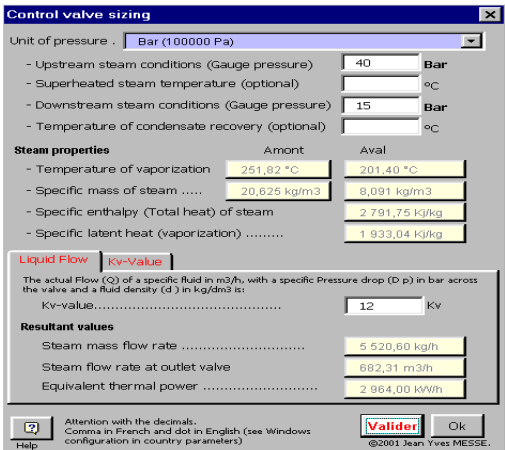
0800 – 0900	Pressure Test (cont'd) Test Fluid
0900 – 0915	Break
0915 – 1030	Pressure Test (cont'd) Test Pressures
1030 – 1200	Pressure Test (cont'd) Test Duration
1200 – 1215	Break
1215 – 1420	Pressure Test (cont'd) Test Leakage
1450 – 1500	Recap
1500	End of Day Four

Day 5

0800 – 0930	Pressure Test Procedures General • Backseat Test • Shell Test
0930 – 0945	Break
0945 – 1100	Pressure Test Procedures (cont'd) Low-Pressure Closure Test • High-Pressure Closure Test • Double Block & Bleed High-Pressure Closure Test
1100 – 1200	Valve Certification & Retesting Certification of Compliance
1200 – 1215	Break
1215 – 1415	Valve Certification & Retesting (cont'd) Retesting
1415 – 1430	Course Conclusion
1430 – 1445	POST-TEST
1445 – 1500	Presentation of Course Certificates
1500	End of Course

Simulators/Equipments (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 our state-of-the-art simulators “Valve Sizing Software”, “Valve Software 3.0”, “Valvestar 7.2 Software” and “PRV2SIZE Software”.



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

Property	Amount	Aval
Temperature of vaporization	251,82 °C	201,40 °C
Specific mass of steam	20,825 kg/m ³	8,091 kg/m ³
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 (D p) in bar across the valve and a fluid density (d) in kg/dm³ is:

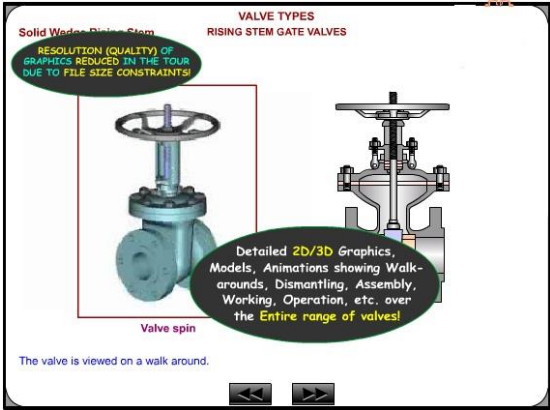
Kv-value: 12

Resultant values

Steam mass flow rate	5 520,60 kg/h
Steam flow rate at outlet valve	682,31 m ³ /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).

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VALVE TYPES
RISING STEM GATE VALVES

Solid Wadens Discs Stem

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

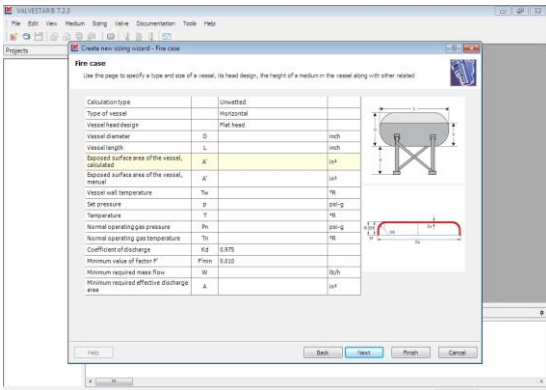
Detailed 2D/3D Graphics, Models, Animations showing Walk-arounds, Dismantling, Assembly, Working, Operation, etc. over the Entire range of valves!

Valve spin

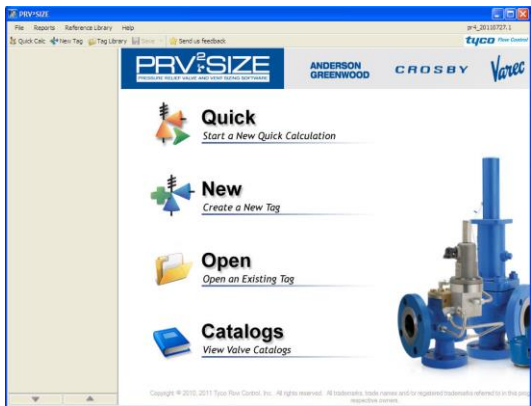
The valve is viewed on a walk around.

Valve Sizing Software

Valve Software 3.0



Valvestar 7.2 Software



PRV²SIZE Software

Course Coordinator

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