COURSE OVERVIEW PE0281(QA1)
Reciprocating & Screw Compressors (Production Perspective)

Course Title
Reciprocating & Screw Compressors (Production Perspective)

Course Date/Venue
September 07-11, 2025/Boardroom 2, Elite Byblos Hotel, Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
PE0281(QA1)

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 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 reciprocating and screw compressors. It covers the various types of compressors and the principles of gas compression; the effect of staging, stage and interstage cooling; and the positive displacement compressors, reciprocating compressor cycle, compressor valves and compressor capacity control.

During this interactive course, participants will learn the proper techniques in starting-up, running, maintaining and shutting down the reciprocating and screw compressors; the latest applications and operating principles of the reciprocating and screw compressors; and determining their capacity control and performance.

Course Objectives

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

- Apply proper operating techniques of reciprocating and screw compressors
- Discuss the various types of compressors and employ the principles of gas compression
- Identify the effect of staging, stage and interstage cooling and recognize the positive displacement compressors, reciprocating compressor cycle, compressor valves and compressor capacity control
- Employ the proper techniques in starting-up, running, maintaining and shutting down the reciprocating and screw compressors
- Use the latest applications and operating principles of the reciprocating and screw compressors and determine their capacity control and performance

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 is designed for engineers, supervisors, technicians and operators who are responsible for the operation of reciprocating and screw compressors.

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.

Accommodation

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

Course Fee

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 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

Haward's certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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.

- 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.

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. Henry Beer is a **Senior Process Engineer** with over **30 years** of in-depth industrial experience within the **Petrochemical**, **Oil & Gas** and **Refinery** industries. His wide expertise covers in the areas of **Petrochemical Processing Units** Operations & Maintenance, **Gas Compression**, **Reciprocating Compressor** Cycle, **Gas Pulsations, Screw Compressors, Capacity Control, Gas Processing Plant** Operations & Control, **Gas Processing** Monitoring & Troubleshooting, **Root Cause Analysis** (**RCA**) Methods for Application in **Oil** & **Gas Processing**, Root Cause Failure Analysis (**RCFA**), **Pump** Operation & Maintenance, **Pump** Installation & Troubleshooting, **Compressor** Operation & Maintenance, **Steam Turbine** Operation & Maintenance, **Fired Heaters**, **Air Coolers**, **Pressure Vessels & Valves**, **Propylene Compressor & Turbine**-Model No.: D12R7S, **Heat Exchangers & Fired Heaters** Operation & Troubleshooting, **Distillation-Column** Operation, Control & Troubleshooting, **Fluidized Bed Reactor** Startup, Operation & Troubleshooting, **Process Simulation** using **HYSYS**, **Plant Start-up & Shutdown Procedures** using **HYSYS** Simulation, **Process Plant** Start-up, Commissioning & Troubleshooting, **Process Plant** Optimization Technology & Continuous Improvement, Operations Abnormalities & Plant Upset, **Process Plant** Performance & Efficiency, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Equipment** Design & Sizing, Troubleshooting Process Operations, **DOX Unit** Operation & Troubleshooting, **Aviation Fuelling**, **Fuel** Quality Monitoring System, Clean **Fuel** Technology & Standards, **Naphtha & Condensate** in **Petrochemicals**, **Feedstock** Handling & Storage, **Liquid Bulk Cargo** Handling, **Crude Oil & LNG** Storage & Handling, **Oil Movement** Storage & Troubleshooting, **Refinery** Induction, **Refinery** Configuration, **Oil Refinery** Cost Management, **Flare**, **Blowdown & Pressure Relief** Systems, **Refinery** SRU, Tail Gas Treating, Sour Water & Amine Recovery Units, Start-Up & Shutdown of **Process Reactors**, **Polyethylene & Polypropylene** Manufacturing & Process Troubleshooting, **Plastic Extrusion** Technology, **Polymers & Polymerization**, **Chemical Engineering Process** Design, Efficient Shutdowns, Turnaround & Outages, **Water Pipes & Valves** Maintenance and **Water Hydraulic** Modelling. Currently, he is the **Director** and **Senior Technical Consultant** wherein he is deeply involved in developing new industrial process and designing new process plants and equipment.

During his career life, Mr. Beer holds significant key positions such as the **Director**, **Global Commissioning Manager**, **Process Engineering Manager**, **Senior Business Analyst**, **Process Engineer**, **Chemical Engineer**, **Senior Technician**, **Technical Sales Engineer**, **Entrepreneur**, **Financial Consultant**, **Business Analyst**, **Business Financial Planner** and **Independent Financial Planner** to various international companies such as the **Sasol**, **SASOLChem**, **TAG Solvents**, **Virgin Solvent Products**, **SARS** & **SAPIA** (**South African Petroleum Industry Association**) and **RFS Financial Services** (**Pty**) **Ltd**.

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: ***Sunday, 07th of September 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Compressor Types*** *Positive Displacement-Reciprocating, Rotary • Dynamic–Centrifugal, Axial*
0930 – 0945	*Break*
0945 – 1030	***Principles of Gas Compression***
1030 – 1230	***Effect of Staging, Stage and Interstage Cooling***
1230 – 1245	*Break*
1245 – 1420	***Positive Displacement Compressors***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 08th of September 2025***

0730 – 0930	***Reciprocating Compressor Cycle***
0930 – 0945	*Break*
0945 – 1100	***Effect of Staging***
1100 – 1230	***Oil Free Cylinders–Floating Pistons***
1230 – 1245	*Break*
1245 – 1420	***Condensation***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Tuesday, 09th of September 2025***

0730 – 0930	***Liquid Slugs***
0930 – 0945	*Break*
0945 – 1100	***Reciprocating Compressor Valves–Valve Response***
1100 – 1230	***Reciprocating Compressor Capacity Control***
1230 – 1245	*Break*
1245 – 1420	***Performance Considerations***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: ***Wednesday, 10th of September 2025***

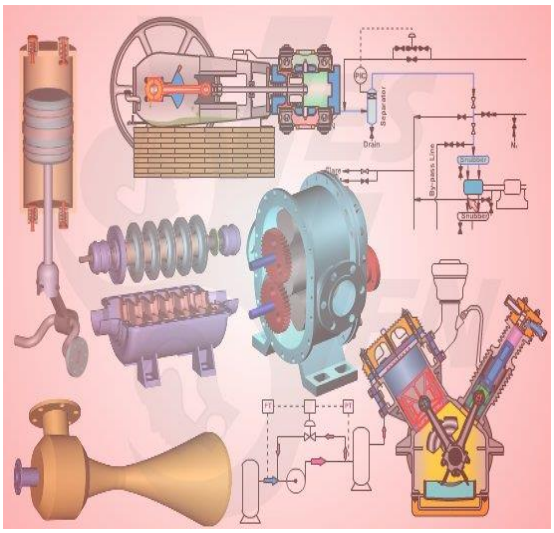
0730 – 0930	***Gas Pulsations–Reduction of Pulsations***
0930 – 0945	*Break*
0945 – 1100	***Stating up, Running, Shutting Down***
1100 – 1230	***Screw Compressors***
1230 – 1245	*Break*
1245 – 1420	***Areas of Application***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5: ***Thursday, 11th of September 2025***

0730 – 0830	***Operating Principles***
0830 – 0930	***Capacity Control***
0930 – 0945	*Break*
0945 – 1230	***Performance***
1230 – 1245	*Break*
1245 – 1345	***Performance (cont'd)***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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 simulators "CBT on Compressors".



CBT on Compressors

Course Coordinator

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