



Course Name **Piping Systems Part 2**

Credit Hours 3 Hours

Instructor(s) Jerry Durham

Fee \$39.00

Course Description

This course dives further into piping systems by discussing the individual components that make piping systems function, including fittings, common and special valves, strainers, filters, traps, and accessories.

Learning Objectives

After completing this course, the licensee should be able to:

- Explain how expansion joints and vibration dampeners work.
- Contrast screwed, flanged, and welded connections, and tell why one type of joint may be preferred for a given application.
- Discuss the main functions of fittings.
- Identify common pipe and tube fittings.
- Demonstrate a knowledge of the symbols used to represent joints and fittings on schematic drawings of piping systems.
- Explain the various ways in which valves control fluid flow in piping systems.
- Identify gate, globe, needle, ball, butterfly, plug, and check valves, and tell what each is used for.
- Explain how and why quick-opening valves are used in industrial piping applications.
- Describe routine inspection, lubrication, and maintenance procedures for common valves.
- Explain how diaphragm valves work.
- Describe the functions of the three main types of blowdown valves.
- Tell how regulating valves, relief valves, and reducing valves are used in industrial piping systems.
- Describe how different kinds of actuators open and close valves in response to pneumatic, hydraulic, or electrical signals.
- Discuss the protective uses of strainers and filters in piping systems.
- Explain how the relationship between pressure and temperature affects steam lines and creates the need for steam traps.
- Describe proper steam trap maintenance.
- Explain how and why air-vent and water-drain valves are used.
- Describe how a heat exchanger works in a fluid system.
- Describe how different types of gauges are used to measure pressure and temperature in piping systems.

- Explain why rotary pressure joints are necessary in some applications.
- Describe the functions of accumulators and receivers.
- Tell how actuators and intensifiers are used in fluid- power systems.
- Discuss the principles of preventive maintenance and repair maintenance as they apply to piping systems.

Equipment Requirements

You must have an active, working internet connection to access this course online, as well as a platform to access the internet, such as a computer, tablet, or phone. All popular web browsers are supported, including Google Chrome, Mozilla Firefox, Safari, and Opera. No specialized software, speaker, microphone, or web camera is required.

Schedule and Location

This course is available online at any time at www.AYPOTech.com. Upon enrolling in the course, students will have access for 365 days or until the agency-issued course expiration date, whichever comes first. After the access expiration date, the student may re-activate their course if the course approval has not expired. If they do not re-activate, the course will be removed from the student's account and any progress in the course will be lost. Before the access expiration date, the student may sign in and out of the course as many times as needed to complete the course.

Student Support

Both general and technical support is available to the student before, during, and after taking the course online. Students have access to general customer support via phone, chat, and email. Students have access to the course instructor via email. All questions, concerns, and comments received will be responded to within one business day.

Participation/Interactivity Verification

Timed Logs - Per our company's record retention policy, each student's every log-in, log-out, and lesson/assessment completion time is tracked and retained as part of the student record.

Review Questions - After each section of text, students must answer a review question. Students cannot progress in the course until the question between sections has been answered correctly.

Global Timer - Students will not get credit until they spend a minimum of 180 active minutes total in the course.

Identity Verification

Unique Username/Password - Each student that wants to complete a training course with us must create an account by registering a unique personal email address and password. The student must enter this unique identifier every time they take a break from the course.

Assessment Details

Review Questions - The student must successfully answer all review questions between sections to get credit for the course. If their first response is incorrect, students will have to try again until they choose the correct answer.

Piping Systems Part 2 Timed Syllabus

Section	Topic	Questions	Minutes*
	Fittings		
1	Fittings	1	3.0
2	Functions of Fittings	3	11.6
3	Screwed and Flanged Connections	2	9.1
4	Other Fittings	1	3.4
5	Welded Connections	1	1.6
6	Tube Fittings	1	4.4
7	Drawing Symbols	2	3.4
	Common Valves		
8	Valves	1	5.8
9	Types of Industrial Valves	3	6.8
10	Gate Valves	1	2.6
11	Globe Valves	1	2.8
12	Needle Valves	1	1.8
13	Ball Valves	1	2.4
14	Butterfly Valves	1	3.6
15	Plug Valves	1	2.6
16	Check Valves	1	3.6
17	Quick-Opening Valves	1	2.4
18	Valve Maintenance and Connections	1	5.5
	Special Valves		
19	Specialized Valves and Diaphragm Valves	1	6.1
20	Blowdown Valves	1	5.9
21	Pressure-Regulating Valves	2	5.9
22	Temperature-Regulating Valves	1	1.9
23	Safety Valves	1	3.1
24	Relief Valves	1	2.4
25	Rupture-Disk Relief Valves	1	1.9
26	Reducing Valves	1	2.3
27	Other Valves	2	3.5
28	Valve Operators	1	2.5
29	Magnetic, Pneumatic, and Hydraulic Operators	1	3.0
30	Remote Control	1	2.5
	Strainers, Filters, and Traps		
31	General Applications	1	2.2
32	Strainers	2	6.6
33	Filters	2	6.0
34	Steam	2	5.7
35	Traps	1	6.4

36	Vent Valves	1	3.9
37	Trap Maintenance	1	2.6
38	Typical Piping System	1	4.0
	Accessories		
39	Pressure Gauges	3	8.0
40	Temperature Gauges	1	3.6
41	Rotary Pressure Joints	1	4.0
42	Vacuum Breakers	1	2.1
43	Accumulators	1	2.1
44	Receivers	1	1.8
45	Actuators and Intensifiers	2	4.7
46	Pneumatic Pressure Line Accessories	1	4.5
47	Heat Exchangers	1	2.6
48	Wrenches	1	2.7
49	Maintenance	1	2.6
	Totals:	63	193.8
	Student Minimum Time Required:		180