



- Tell the two major maintenance problems encountered in rotary pumps.

## **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](http://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.

## Pumps Part 2 Timed Syllabus

Section	Topic	Questions	Minutes
	<b>Reciprocating Pumps</b>		
1	Reciprocating Pump Applications	1	3.0
2	Reciprocating Pump Parts	3	6.2
3	Reciprocating Pump Classifications	1	4.0
4	Steam-Driven Pump Operation	1	7.4
5	Power Pump Operations	1	2.1
6	Horizontal Plunger Pumps	1	2.6
7	Vertical Plunger Pumps	1	2.6
8	Air-Driven Pump Operation	2	11.6
	<b>Metering Pumps</b>		
9	Introduction to Metering Pumps	1	2.3
10	Metering Pump Classifications	2	4.1
11	Plunger and Piston Metering Pumps	3	10.8
12	Diaphragm Pumps	3	9.9
13	Air-Operated Metering Pumps	1	4.4
14	Rotary Metering Pumps	3	5.5
	<b>Special Purpose Pumps</b>		
15	Handling Difficult Materials	1	1.9
16	Chemical Pumps	1	4.6
17	Special Chemical Pumps	1	7.0
18	Magnetic-Drive Pumps	1	3.4
19	Canned-Motor Pumps	2	3.1
20	Centrifugal Slurry Pumps	1	2.6
21	Pulp-Handling Pumps	1	1.7
22	Trash and Sewage Pumps	1	3.5
23	Diaphragm Pumps	1	2.9
24	Reciprocating Slurry Pumps	1	2.8
25	Vortex Pumps	2	4.8
	<b>Packing and Seals</b>		
26	Pump Sealing Requirements	1	2.7
27	Stuffing Boxes	3	10.7
28	Packing Materials	1	3.2
29	Installing Packing	2	6.3
30	Mechanical Seals	3	10.4
31	Special Seals	1	3.3
	<b>Pump Maintenance</b>		
32	Pump and Sleeve Bearings	1	2.9
33	Antifriction and Special Bearings	1	5.6
34	Bearing Lubrication	4	10.1

<b>35</b>	Bearing Seals	<b>3</b>	<b>6.5</b>
<b>36</b>	Pump Installation and Maintenance	<b>1</b>	<b>4.9</b>
<b>37</b>	End-Suction Centrifugal Pumps	<b>1</b>	<b>3.2</b>
<b>38</b>	Vertical Turbine Pumps	<b>1</b>	<b>2.1</b>
<b>39</b>	Rotary Pumps	<b>1</b>	<b>2.3</b>
<b>40</b>	Reciprocating Pumps	<b>1</b>	<b>2.0</b>
<b>41</b>	Difficult Material Pumps and Other Maintenance Problems	<b>1</b>	<b>2.1</b>
<b>Totals:</b>		<b>63</b>	<b>193.2</b>
<b>Student Minimum Time Required:</b>			<b>180</b>