



API 660: Shell & Tube Heat Exchangers: Design, Welding, Fabrication, Inspection, Testing,

DURATION

5 days

CONTACT HOURS

30

LEVEL

Intermediate

FEE PER DELEGATE

US\$1,500

Shell and tube exchangers from specification to inspection, including the welding and the failures that recur.

Heat exchangers are where thermal design, mechanical design and corrosion meet, and they fail more often than their cost suggests they should. Most of it traces back to specification: a tube material chosen on price, a layout that cannot be cleaned, a datasheet that left the vibration check to somebody who never did it. This week works through API 660 and the TEMA classes alongside it, covering what the purchaser has to specify, what the fabricator is entitled to assume, and what the inspector checks. The tube to tubesheet joint gets a session of its own, because it is both the commonest leak path and the hardest thing to repair in the field.

Available as classroom, live online, in house.

Who it is for

Mechanical and process engineers specifying or reviewing exchangers, inspection and integrity engineers, maintenance engineers responsible for exchanger reliability, and procurement engineers handling the datasheets.

What you will be able to do

- Write an exchanger datasheet that leaves nothing important to assumption.
- Read a TEMA type designation, and know what it implies for maintenance.
- Specify tube to tubesheet joints and the testing that proves them.
- Anticipate vibration, fouling and thermal fatigue at the design stage.
- Plan inspection and cleaning so the unit can actually be maintained.

The outline

DAY 1

Types and selection

TEMA front, shell and rear designations · Fixed tubesheet, U tube and floating head, and the maintenance each allows · Where API 660 adds to TEMA

DAY 2

Mechanical design

Shell, channel and tubesheet thickness · Baffles, tube pitch and layout · Nozzle loads and supports · Designing for access and bundle removal

DAY 3

The tube joint

Expanded, welded, and expanded plus welded joints · Procedure qualification for the joint · Mock ups and destructive checks · Field plugging, and its consequences

DAY 4

Fabrication and inspection

Welding and post weld heat treatment · Examination, pressure and leak testing · Inspection release points and witness holds

DAY 5

Failure and reliability

Flow induced vibration · Fouling, and cleaning methods by mechanism · Corrosion at the tubesheet and under deposits · Thermal fatigue and cycling

What you leave with

- A reviewed datasheet for one real exchanger, with the gaps closed.
- A tube joint specification with acceptance criteria.
- An inspection and cleaning plan for a unit on your own plant.

Published dates

DATES	WHERE	FEE
23 to 27 November 2026	Cairo, Egypt	US\$1,500
30 November 2026 to 4 December 2026	Dar es Salaam, Tanzania	US\$1,500
7 to 11 December 2026	Dubai, United Arab Emirates	US\$1,500
14 to 18 December 2026	Lagos, Nigeria	US\$1,500

Fees are per delegate and cover all materials. Registration is arranged by the delegate. Reg

Register or ask a question

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