

# Industrial Valve Technology and Application Training Course

2 – 6 August 2027
Tokyo

AGILE LEADERS
Training Center

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**Ref:** 1885_240551 **Date:** 2 – 6 August 2027 **Location:** Tokyo **Fees:** 12000 Euro

## Overview

Industrial Valve Technology and Application Training Course is a one-week intermediate programme for mechanical, piping, maintenance, inspection, operations, and project personnel who leave with an Industrial Valve Application Pack. Participants connect valve functions, gate, globe, ball, butterfly and check-valve construction, materials and trims, pressure-temperature ratings, end connections, actuation interfaces, leakage, fugitive emissions, inspection, maintenance, and failure evidence with traceable application decisions. The course remains distinct from control-loop tuning and does not replace manufacturer design, code authority, or competent field work. Agile Leaders Training Center delivers this industrial valve lifecycle course.

## Who Should Attend

- Mechanical and piping engineers who specify or review industrial valves
- Maintenance and reliability personnel responsible for valve performance
- Inspection and quality staff who assess valve condition and records
- Operations personnel who monitor isolation, direction, leakage, and operability
- Project and procurement staff who coordinate valve packages and documentation

Participants should understand basic piping terminology and workplace safety. The course does not authorize pressure-boundary design, code interpretation for approval, intrusive maintenance, emissions qualification, or changes outside approved procedures.

## Departments and Industries

The course supports oil and gas, petrochemicals, chemicals, power, utilities, water, manufacturing, and process facilities.

- Mechanical, piping, and materials engineering
- Maintenance, reliability, and asset integrity
- Inspection, quality, and technical assurance
- Operations and production support
- Projects, procurement, and vendor coordination

## Learning Objectives

By the end of this course, participants will be able to:

- Distinguish valve functions, construction types, and application limits
- Review pressure-temperature class, materials, trim, and end connections
- Compare gate, globe, ball, butterfly, and check-valve behaviour
- Evaluate manual, gear, pneumatic, hydraulic, and electric actuation interfaces
- Interpret inspection, test, leakage, emissions, and failure evidence
- Build a documented valve application and lifecycle review

## Course Agenda

### Day 1: Valve Functions and Application Basis

- Isolation, Throttling, Direction, and Non-Return Function Map
- Process Fluid, Pressure, Temperature, Flow, and Hazard Register
- Valve Size, Class, End Connection, and Installation Constraint Checklist
- Flow Direction, Orientation, Accessibility, and Operability Review
- Application Responsibility and Competence-Boundary Matrix

### Day 2: Valve Types and Internal Construction

- Gate and Globe Valve Construction Comparison
- Ball and Plug Valve Bore, Seat, and Closure Review
- Butterfly Valve Disc, Seat, Offset, and Shaft Map
- Swing, Lift, Dual-Plate, and Axial Check-Valve Behaviour
- Body, Bonnet, Disc, Closure, Stem, Seat, and Packing Interface Diagram

### Day 3: Materials, Ratings, Sealing, and Actuation

- Body, Bonnet, Trim, Soft-Seat, and Packing Material Matrix
- Pressure-Temperature Rating and Material-Group Review
- Flanged, Threaded, Socket-Weld, Butt-Weld, and Wafer End Comparison
- Handwheel, Gearbox, Pneumatic, Hydraulic, and Electric Actuation Interface
- Seat Leakage, Stem Leakage, Body-Joint Leakage, and Emissions Evidence

### Day 4: Inspection, Testing, and Maintenance Evidence

- Identification, Marking, Certification, and Data-Sheet Checklist
- Visual, Dimensional, Material, and Nondestructive Examination Record Review
- Shell, Seat, Closure, and Operational Test Evidence
- Packing Adjustment, Lubrication, Fastener, and Operator Check
- Storage, Preservation, Installation, and Commissioning Readiness

## Day 5: Failure Review and Lifecycle Decisions

- Internal Leakage, External Leakage, Seizure, and Excess Torque Matrix
- Erosion, Corrosion, Cavitation, Wear, and Deposit Evidence
- Stem, Seat, Packing, Gasket, Body, and Actuator Failure Map
- Repair, Replacement, Re-Rating, and Escalation Decision Boundary
- Capstone Exercise: Industrial Valve Application Pack

## Practical Exercises

Guided exercises convert service and inspection evidence into documented valve decisions.

- Build a valve service and application register
- Compare candidate valve types for stated duties
- Review a pressure-temperature rating and material selection
- Interpret leakage, test, inspection, and emissions records
- Prepare a lifecycle recommendation and escalation note

## FAQs

### How is this course different from control-valve training?

This course focuses on industrial isolation, throttling, and check-valve technology across the lifecycle. It does not teach control-loop sizing, tuning, or process-control strategy.

### Which valve types are covered?

Gate, globe, ball, plug, butterfly, and common check-valve constructions are compared through their functions, internals, limits, and service evidence.

### Does the course cover fugitive emissions?

Yes. It explains where external leakage can occur, what qualification and field evidence mean, and when to escalate, without conducting formal qualification testing.

### Does the course teach valve repair?

It reviews maintenance and failure evidence and the boundaries between adjustment, repair, replacement, engineering review, and vendor involvement. It does not authorize workshop repair.

### What will participants take back to work?

An Industrial Valve Application Pack containing service data, type comparisons, rating and material checks, inspection evidence, failure maps, and a lifecycle recommendation.

## Conclusion

Participants return able to review industrial valve applications, question documentation, interpret operating and failure evidence, and coordinate safely across engineering, operations, maintenance, inspection, and vendors.