
Spare Parts Inventory Strategy and Criticality-Based Stocking Training Course

25 – 29 July 2027
Doha





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Programme Summary

Spare parts inventory strategy and criticality-based stocking is a one-week training course for maintenance, materials and supply chain leaders at advanced level, culminating in a spares optimisation business case for their own site. Many asset-intensive organisations carry large stocks of parts that never move while still waiting for the one part that stops production. The approach links equipment criticality to each stocking decision, then tackles demand patterns, policies, rationalisation and supply options. Mars Training Centre UK delivers this programme in spare parts inventory strategy.

The Business Case

Spares are often stocked by habit or after the last breakdown, so capital sits in slow movers while critical items are missing. Duplicate part numbers and poor descriptions hide what is already on the shelf. Leaders who decide stock levels by risk and demand pattern release working capital without exposing the plant to longer outages.

- Inventory Value and Holding Cost: Fall as excess, duplicate and obsolete stock is identified and removed.
- Downtime Waiting for Parts: Reduces as critical and insurance spares are held on evidence rather than habit.
- Service Level to Maintenance: Rises as reorder points reflect lead times and actual consumption.

Principles and Evidence Base

- ISO 55000 Asset Management: Its link between asset value and risk frames spares decisions from Session 1.
- ISO 14224 Equipment Taxonomy: Its hierarchy supports linking parts to equipment and failure modes in Session 1.
- ABC, XYZ and VED Classification with the Croston Method: These models segment parts and forecast intermittent demand in Session 2.
- ISO 8000 Data Quality: Its principles guide cataloguing and master data cleansing in Session 4.

Intended Participants

- Leaders accountable for both inventory value and plant availability.
- Managers who approve stocking levels, new part numbers and write-offs.
- Reliability leads who define equipment and spares criticality.
- Supply chain heads who negotiate supplier stocking and consignment terms.

The programme serves oil and gas, utilities, mining, petrochemicals and transport operators.



Learning Outcomes

1. Participants will be able to construct a spares criticality ranking from equipment criticality and lead time.
2. Participants will be able to diagnose demand patterns and select forecasting methods for slow-moving and intermittent parts.
3. Participants will be able to justify reorder points and stock levels against a target service level.
4. Participants will be able to evaluate insurance and capital spares holdings using risk and cost evidence.
5. Participants will be able to prioritise rationalisation of duplicate and obsolete stock.
6. Participants will be able to design a spares optimisation business case with supply options and savings.

Programme Structure

Day 1: Spare Parts Inventory Strategy and Equipment Criticality

Which parts protect production, and which simply tie up capital?

- Spare Parts Inventory Cost and Availability Trade-Off
- Equipment Criticality Assessment by Consequence of Failure
- Two-Step Spares Criticality Ranking
- Bill of Materials Linkage Using the ISO 14224 Hierarchy
- Spares Policy Aligned with ISO 55000 Asset Management

Day 2: Demand Patterns and Classification

How should each part's demand be classified and forecast?

- ABC, XYZ and VED Classification Matrices
- Fast, Slow, Lumpy and Intermittent Demand Profiles
- Croston Method for Intermittent Demand Forecasting
- Planned Maintenance and Shutdown Demand Signals
- Lead Time Variability Analysis

Day 3: Stocking Policies and Insurance Spares

How much of each part should be held, and where?

- Reorder Point, Min-Max and Service Level Models
- Poisson-Based Stocking for Low-Usage Parts
- Insurance and Capital Spares Decision Criteria
- Repairable Spares and Rotable Pool Sizing
- Stock-Out Cost Versus Holding Cost Evaluation



Day 4: Rationalisation, Data and Supply Options

How are duplicates and obsolete stock removed, and who should hold the rest?

- Cataloguing Standards and ISO 8000 Master Data Cleansing
- Duplicate Part Identification and Interchangeability
- Obsolete and Surplus Stock Disposal Routes
- Multi-Site Pooling and Shared Critical Spares
- Vendor-Managed Inventory and Consignment Stock

Day 5: Applying the Spares Optimisation Business Case

What savings can be released without raising downtime risk?

- Applying the Day 1 Criticality Ranking to a Live Stock List
- Recalculating Day 3 Reorder Points for Priority Parts
- Spares Key Performance Indicators and Governance Rhythm
- Implementation Roadmap and Stakeholder Engagement
- Spares Optimisation Business Case Completion

Methodology

The programme is built around hands-on data analysis. Participants work with anonymised stock lists and consumption histories from oil and gas, utilities and mining operations, building spreadsheet models to classify parts, set stock levels and size savings.

- Suggested activity: Ranking spares for a compressor train by criticality.
- Suggested activity: Setting reorder points for slow-moving parts.
- Suggested activity: Cleansing a stock extract to find duplicates.

Capstone Output

Each participant completes a spares optimisation business case for their own site or a case plant. It contains the criticality ranking, demand classification, revised stocking policies, rationalisation list, supply options and an estimate of working capital released, ready for approval by operations and finance.

Frequently Asked Questions

Is spare parts inventory strategy training suitable for maintenance managers without a supply chain background?

Yes. It is set at advanced level, assumes practical experience of plant maintenance or materials management, and builds inventory models step by step in spreadsheets.



Which standards does spare parts inventory strategy and criticality-based stocking rest on?

It rests on ISO 55000 for asset management, ISO 14224 for equipment taxonomy, ISO 8000 for data quality, ABC, XYZ and VED classification and the Croston method.

How is the spares optimisation business case from spare parts inventory training used at work?

You can use it to secure approval for stock reductions, change reorder settings and agree pooling or consignment arrangements with suppliers.

How does spare parts inventory strategy differ from warehouse management courses?

It decides which parts to hold and in what quantity based on risk and demand, rather than how to store, issue and count them.