OpsPilot

Spare Parts Optimizer — User Manual

Defensible Stocking Policy · ISO 55001 / VDI 2892 · AI Engineering Co-Pilot

What this guide covers — what spares optimisation is, how the OpsPilot module scores and classifies parts across four modes, what to have ready, and the analysis you receive.

1. What is spare parts optimisation?

Spares optimisation answers two questions that pull in opposite directions: how do we stop running out of the parts that would cause real damage, while releasing the working capital tied up in parts we don't actually need to hold? Getting it wrong either way is expensive — a critical-spare stockout can mean weeks of downtime, while an over-stocked storeroom is cash sitting on a shelf depreciating.

OpsPilot scores each part on a four-dimension criticality — **Stockout consequence, Lead time, Failure frequency, Replaceability** — and cross-classifies it with VED-ABC-XYZ, the three-dimensional method leading reliability programmes use. From that it drives the right stocking policy and quantifies the financial impact (working capital released, carrying cost saved, avoided downtime). It follows ISO 55001/55002, VDI 2892, EN 13306 and SMRP benchmarks.

2. What the OpsPilot module does — four modes

Mode	When to use it
Stockout	A part ran out (or nearly did) — should it be stocked, and how?
Cost	Reduce inventory cost — which holdings can be safely released?
Post-Criticality	After a criticality assessment — set spares policy to match.
New BOM	New equipment — what should be stocked from day one?

3. What you will be asked — have this ready

- The parts (or the bill of materials for new equipment).
- Failure frequency, supplier lead time and unit cost for each part.
- Current stock levels and holding cost.
- The criticality of the parent asset (this pairs with the Asset Criticality output).

4. The stocking policies it drives

Each part lands on a defensible policy — Insurance Spare, Critical-Continuous, Operational EOQ, Consumable Min/Max, Vendor-Managed Inventory, or On-Demand — matched to its score, not to habit.

5. What you receive — the output

A spare parts optimisation analysis (Word): the four-dimension criticality score and VED-ABC-XYZ classification per part, the recommended stocking policy, the quantified financial impact, and an action register that releases capital while protecting against critical-spare stockouts.

6. Worked example (illustrative)

A long-lead gearbox for a single critical drive almost never fails — so a turnover-based system would say “don't stock it.” But its stockout consequence is catastrophic (weeks of downtime), the lead time is months, and it's not readily replaceable. On the four dimensions it scores as an Insurance Spare: hold one, despite the low usage, because its value is in avoided downtime, not inventory turns. At the other end, a fast-moving filter scores as a consumable on a simple Min/Max EOQ. The analysis frees the capital tied up in the parts that don't matter and protects the few that do.

7. Getting the best result

- **Score all four dimensions.** Failure frequency alone misclassifies the insurance spares that matter most.
- **Value insurance spares by downtime avoided.** Not by how often they turn over.
- **Release capital on the low-risk parts.** That's where the working-capital savings live.
- **Pair it with criticality.** The parent asset's criticality drives the part's stocking policy.