

## How do you decide which spares to hold, in what numbers?

## What premium is it worth paying for faster delivery?



Cost & production savings of  
**£53m/year**  
identified in systematic review  
of rotating equipment spares

Holding the correct spares is vital to ensure the availability of your operational systems. Yet critical spares are often expensive, have long purchasing lead-times and may only infrequently be needed. The business case for determining which items are worth holding, in what numbers, can be very difficult. APT-SPARES is the world-leading software tool that helps you to quantify the cost/risk trade-off and demonstrate the optimal strategy. It puts numbers to the costs, availability or downtime impact, vulnerability to supply chain problems, obsolescence and a whole lot more.

So, if you want to optimize what is worth spending on spares, determine which slow-moving items you genuinely can afford to get rid of, or explore whether 'spares sharing' or alternative supplier arrangements are worthwhile, APT-SPARES gives you the business case evidence, and allows you to explore uncertainties in hard financial impact.

### APT-SPARES

- Reduces the overall 'costs of ownership' of your spares inventory.
- Determines the optimum number of spares to hold, and the financial impact of holding too few or too many.
- Quantifies and mitigates downtime risk.
- Quickly shows the financial implications of alternative spares strategies (e.g. location, parts/assemblies, installed redundancy, shared/dedicated units).
- Evaluates alternative vendors and supply routes (different prices, lead-times, quality).
- Handles uncertain data, range-estimates and sensitivity analysis to key assumptions.
- Batch-mode enables major inventory reviews and updates (e.g. changing business criticalities) at the touch of a button.

### The authoritative solution

Developed as part of a multi-million European R&D programme by a consortium of leading industrial organisations and Government support, APT-SPARES is the most robust and comprehensive way of demonstrating what is worth spending on critical, slow moving spares.

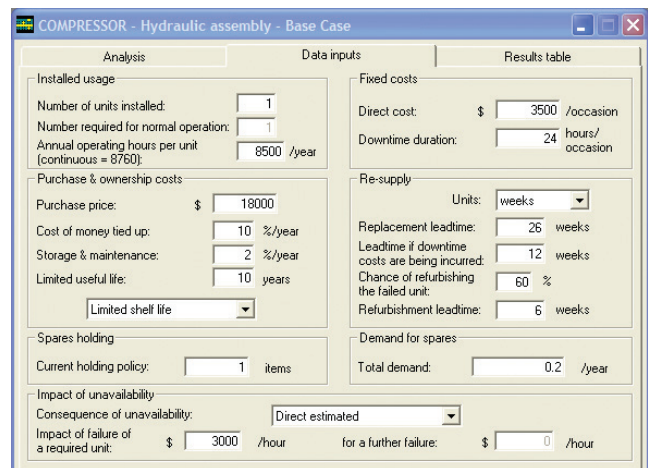
Join the ranks of BP, National Grid, SASOL, New York Power Authority, Siemens, London Underground, Codelco and many more: use APT-SPARES to make sure that you consider all the factors, and make the right decisions in critical spares inventory.

## The decision-support tool for critical & slow-moving spares

### APT-SPARES models

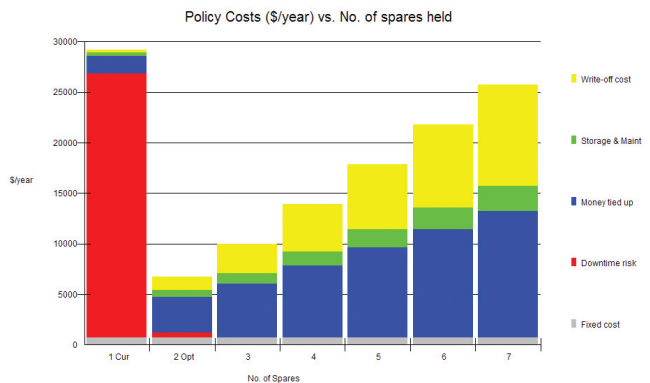
APT-SPARES is the most comprehensive analysis tool available. It performs instant 'what if?' calculations and uses advanced probability distribution analysis and queuing theory mathematics to identify the risks and consequences of alternative spares holding strategies.

- Installed population of equipment and redundancy or stand-by units, operating regime, reliability, demand rates and reparability.
- Unavailability consequences, criticality and escalating impact of failures.
- Normal, emergency and repair lead-times
- Capital costs, ownership, storage and maintenance costs.
- Shelf life, technology overtake, finite useful life horizons and obsolescence.
- Range-estimates and uncertain data or assumptions, with instant sensitivity testing and identification of 'tipping points'.
- Data import/export and batch review/update of data and assumptions.
- Graphical and tabular outputs, including all cost, risk, availability and service level implications of different inventory strategies.
- Comprehensive guidance, tips, configurable fields and defaults.



COMPRESSOR - Hydraulic assembly - Base Case

Analysis	Data inputs	Results table
<b>Installed usage</b> Number of units installed: <input type="text" value="1"/> Number required for normal operation: <input type="text" value="1"/> Annual operating hours per unit (continuous = 8760): <input type="text" value="8500"/> /year	<b>Fixed costs</b> Direct cost: \$ <input type="text" value="3500"/> /occasion Downtime duration: <input type="text" value="24"/> hours/occasion	
<b>Purchase &amp; ownership costs</b> Purchase price: \$ <input type="text" value="18000"/> Cost of money tied up: <input type="text" value="10"/> %/year Storage & maintenance: <input type="text" value="2"/> %/year Limited useful life: <input type="text" value="10"/> years <input type="text" value="Limited shelf life"/>	<b>Re-supply</b> Units: <input type="text" value="weeks"/> Replacement leadtime: <input type="text" value="26"/> weeks Leadtime if downtime costs are being incurred: <input type="text" value="12"/> weeks Chance of refurbishing the failed unit: <input type="text" value="60"/> % Refurbishment leadtime: <input type="text" value="6"/> weeks	
<b>Spares holding</b> Current holding policy: <input type="text" value="1"/> items	<b>Demand for spares</b> Total demand: <input type="text" value="0.2"/> /year	
<b>Impact of unavailability</b> Consequence of unavailability: <input type="text" value="Direct estimated"/>	Impact of failure of a required unit: \$ <input type="text" value="3000"/> /hour for a further failure: \$ <input type="text" value="0"/> /hour	



## APT-SPARES is part of an integrated ASSET PERFORMANCE TOOLKIT

### APT-STOCK

Consumables and materials purchasing strategies, min/max stock, re-order quantities, supply options, storage requirements.

### APT-PROJECT

Cost/risk evaluation of projects, change proposals, modifications, new ideas and other 'one-off' investments.

### APT-LIFESPAN

Asset replacement decisions, repair-versus-replace options, life extension refurbishments, asset acquisitions and alternative designs based on life cycle costs.

### APT-MAINTENANCE

Cost/risk evaluation of planned maintenance, optimal intervals, preventive, predictive or reactive strategies.

### APT-INSPECTION

Optimum inspection, condition monitoring and testing strategies, optimal condition reaction points, alternative monitoring methods.

### APT-SCHEDULE

Shutdown strategies and intervals, optimum task grouping and timing, shutdown opportunity evaluations and resource or work planning constraints.