



How to optimise stock management

in the chemical industry



Report

ERIKS



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Management summary

Maintenance departments and managers have a tough job and high level of responsibility. Optimising spare parts management is one of the best ways of keep TCO down. However, challenges include a lack of knowledge, outdated terminals and systems, and disorganised MRO spare parts.

When stock management is optimised, there's good knowledge throughout the terminal and adequate storage and tracking of parts. It includes proper registration of parts, accurate determination of maintenance, and a reduction as far as possible in the number of spare parts suppliers.

Our top recommendations are:

- **Identifying critical stock** - split into long- and short delivery times and frequency of breakage
- **Cleansing your data** - standardising item numbering and checking figures against actual stock
- **Consolidating your vendors** - to save time and processes
- **Choosing the right solutions for your plant** - every terminal is different, know what works for yours.





There are several solutions to optimise your spare parts management:

1. **Total solutions** - A total solutions supplier isn't just responsible for, for example, a single spare part but will also include anything else that's required for the unit to be used and maintained. So you can solve more than one problem at once.
2. **VMI (Vendor Managed Inventory solutions)** - VMI is a single, digitally managed central point of contact that enables you to outsource your stock management and never run out of spares.
3. **On-Site MRO spare parts management** - Having dedicated personnel from the supplier present on site to offer advice can save you time and TCO. They are able to provide you with the items you need when you need them, directly on site.
4. **Technical on-site services** - These services come in different forms: a mobile part production unit, an assemble unit or a central on-site knowledge centre. It can lead to big savings and standardisation of products.
5. **Turnaround support** - Support from an expert with specialist knowledge - from MRO spare parts to record relevant data - to keep turnarounds as short and useful as possible.
6. **Barcode scanning** - Digitising stock to avoid errors like defunct stock, mis-labelling and duplicate numbering and optimise inventory.
7. **Vending machines** - A secure, compact and EDI-connected method of storing high-value items such as special seals, high-end small parts or limited consumables. It avoids stock-outs and insufficiency and provides insights into the use of these items.





How to optimise **stock management**

in the chemical industry

Maintenance managers have a lot of pressure on their shoulders. Being responsible for an entire terminal or chemical plant means not only managing a team and a budget, but reacting to unexpected incidents, dealing with unplanned downtime, and keeping in mind the safety and security of all personnel.

Good stock management is essential for maintenance managers to keep their plants running smoothly. But the complexity of the stock management process can make it one of the biggest issues they face. And just a single missing spare part can lead to big problems.

When a plant's spare parts management is old or outdated, not optimised, or a confusing mixture of different systems, it's too big a job for the maintenance department to tackle alongside all their other tasks.

In this report we're going to outline the current state of stock management across the chemical industry.

We'll identify what good spare parts and inventory management looks like and how it can be achieved.

And we'll explain what you can do to improve and optimise your stock management processes, and how it will alleviate some of your biggest challenges as a chemical industry maintenance department.



The current state of **stock management**

in the chemical industry

The chemical industry in Europe is a patchwork of different plants: large and small, new and old, integrated and insular. From decades-old terminals with legacy machinery and outdated working practices, to new, state-of-the-art, modern units with the latest digital technology, there's a wide range of premises, practices and personnel.

It's difficult to summarise the state of inventory management across the industry as a whole. However, there are commonalities shared by most plants that we'll explore.

The pace of change

As with everything in the 21st century, things move extremely quickly. The technology of 10 or even 5 years ago is soon out of date. It's no different in the world of chemicals.

However, being able to keep up with change on an industry- or plant-wide scale takes much longer. As a result, equipment, parts, processes and working attitudes of technicians, engineers and external companies can lag behind the latest best practices.

As a maintenance manager, you naturally want your terminal to run as efficiently and productively as possible – but that can't be at the cost of excessive downtime to replace hardware, or constant disruptive changes to plant processes.



As a result, a lot of older chemical industry terminals are lagging behind in their Maintenance, Repair and Overhaul (MRO) spare parts management.

You rely on skilled technical staff, but many of these people have worked the same way for many years and can be resistant to changing how they operate.

Terminals that have been running for 25 or even more than 50 years use machinery produced by some companies that no longer exist, resulting in complex sourcing and ordering requirements when spare parts are needed.

Ageing plants also typically require more frequent repairs and therefore result in a higher turnover of spare parts. Such a demand means that any excess downtime to change systems has a greater impact.

Spare parts (dis)organisation

In older chemical units, it's not unknown for inventory management to still be processed by fax or even pen. Here, the biggest hurdles may involve lack of familiarity with the latest processes and applications.

But the best way to convince technical people is with technical solutions – more on this shortly. It seems strange to hang onto slow analogue systems in the modern technological age, but many factors are in play.

“The biggest hurdles may involve lack of familiarity with the latest processes and applications.”



Ultimately the budget, schedule and final decisions stop with the chemical plant's maintenance manager or maintenance department.

Here are some of the biggest spare parts challenges you could face:

- Focus on the highest reliability, but lack of knowledge on stock, contracts, EDI systems, etc.
- Lack of interest or motivation to change things
- Unnecessary unplanned downtime, knowledge drain, non-moving stock and inflated budgets as a result of neglected MRO spare parts management
- Missing spare parts
- Excess, outdated or expired spare parts in stock, taking up space
- Spare parts are in stock but missing relevant certificates
- Mismatch between data and actual stock in the warehouse: e.g. the stock system says an item is in stock, but it's missing in reality (or vice versa)
- Inability to discover when a warehouse's own stock can be relied upon instead of using just-in-time deliveries

Let's look into some of these problems in more detail and examine how they can be overcome.





Why stock management is important in the chemical industry

In this chapter we will describe what good stock management looks like for chemical companies and show its benefits.

What does stock management involve?

In the old days, several deliveries of stock items would all arrive by car to local warehouses at the same time. These open warehouses were therefore disorganised, and warehouse managers had little idea what stock they actually had.

This kind of ordering method is still in place in many terminals today. Without a solid and reliable system of naming, recording, storing and matching stock, inefficiencies occur. These include accruing surplus stocks and items going out of date – leading to costs, resources and valuable space being wasted.

No warehouse can have all its stock in place at once, so there has to be a system whereby at any time you can:

- 1. Know what's in stock and where**
- 2. Find out what's missing**
- 3. Know which spare parts your machinery requires**
- 4. Order spare parts and know how long those deliveries will take**
- 5. Keep track of MRO costs and downtime required for repairs**

Good MRO stock management meets all these aims. It's especially important to have good stock practices during a shutdown. At this time (usually once a year), a plant tends



to order more material than usual. Consequently, there is an increase in goods to stock in a safe, appropriate location.

When stock management is optimised, technicians:

- know what's happening in the warehouse
- have good data and means to search and update it
- have enough space to store items
- ensure timely arrival of spare parts
- don't keep outdated parts
- are able to plan for downtime and repairs
- can minimise unexpected costs

Trends in stock management

To meet some of these goals there are common trends in MRO stock management processes throughout the chemical industry. These include:

Increased registration of installed parts

Maintenance managers need to know which parts have actually been installed into their plant's machines, production lines or other assets. Registration involves a robust item naming system, fast, accurate record keeping, and signalling when parts need to be replaced.

Much of this registration process is now being **digitised and automated**.

More accurate determination of when maintenance is due

To maximise productivity, a manager must keep periods of downtime for maintenance and repair as short as possible. Similarly, the productive time in between maintenance periods should be as long as possible.

Determining these timelines accurately is easiest when there is **strong data and analysis**.



Reduce suppliers

Over time, manufacturing companies merge, more and more brands become obsolete, and certain parts become more specialised or harder to source. It's not always possible to have one single supplier for everything, but reducing the total number of partners a plant has to deal with has a positive effect on lowering complexity and confusion, paperwork and staff hours.

These trends act together to reduce time, cost, stress and errors. [Efficient stock management](#) means that popular parts are in stock when they're needed, and in the right quantities.

If a spare part is missing, this can quickly and easily be discovered, a lead time and supplier identified, and the correct part delivered as soon as possible.

The upshot is that the domino effect of downtime, delays, loss of productivity and increased costs are minimised.

In a perfect world you would know every single spare part required, where it is and in what quantities, how long it can be sourced and from which supplier, and cut the time between all these steps to nothing. Inventory management optimisation is a way of bringing a terminal closer to this perfect outcome.

“ Efficient stock management means that popular parts are in stock when they're needed, and in the right quantities.”





What should be **included in your stock** management process

Now we've identified the benefits of effective inventory management we're going to discuss what your top priorities should be in an MRO spare parts process.

This chapter will focus on four main stock management objectives:

- 1. Identifying critical stock**
- 2. Cleansing your data**
- 3. Consolidating your vendors**
- 4. Choosing the right solutions for your plant**

1. Identifying critical stock

Technicians in the chemical industry will be familiar with what kinds of item are essential for the day-to-day running of their plants.

This can range from small items like O-rings and mechanical seals to critical parts like pumps and automated valves.

Regardless of whether a unit has A and B lines (a back-up line or parallel connection to switch connections if one line breaks down) it's crucial to know which parts can be repaired or replaced in the short term and which have long lead times.



In warehouse stock management, every minute is essential. A smaller factory might not have the capacity to continue output while spare parts are being sourced. Older units are also prone to more frequent incidents.

Identify which items you cannot continue production without, and how many of each are required. Then split these into long and short lead time deliveries, and frequency of breakage (if known).

This identification step will tell you what items are critical, how many to stock at any given time, and when to order new spares.

2. Cleansing your data

In our ideal world scenario, you have perfect knowledge of all stock items at all times and all critical MRO spare parts are instantly accessible.

In the real world, however, data is never this good. You and your technicians working with years-old numbering systems and conflicting or confusing information won't know your stock.

There may be 10,000 numbered articles in the database, but only 7,000 on the shelves in the warehouse – with several numbered more than once. Without a standard protocol and clean data you'll find it hard to know which item the number refers to or where that part is.

Cleansing data involves standardising article numbering and checking data against actual parts in the warehouse. This can be done through manual checking (a time-consuming, labour-intensive process) or through an automated checking system.

Coming up with a uniform system, matching stock to the database, producing regular reports and maintaining this consistency is a key component of effective inventory management.

“ In warehouse stock management, every minute is essential. ”



3. Consolidating your vendors

Reducing the number of suppliers lowers admin and confusion between different vendor systems, and delivers better total cost of ownership (TCO).

It's always easier and faster to buy multiple items from a single supplier (think how Amazon have become the one-stop shop for everything). Time spent finding the products, ordering, arranging delivery and paying invoices is greatly decreased when there is a central point of contact.

Having one supplier for every possible MRO spare part may be tricky, but the fewer separate vendors you have, the better your stock management process will be.

4. Choosing the right solutions for your plant

The chemical industry shares common practices, but you're the only department or manager responsible for your terminal, and the only one reporting into your company's board.

What might work for a large chemical corporation won't necessarily apply to a small scale outfit with tighter budgets and limited capacity.

And it's not only technical elements that vary – cultural differences and makeup of personnel within an organisation can totally affect the solutions that you can pursue. If your team is mostly veteran engineers of 30 years' service, convincing them to make an immediate switch to the latest ERP system may not be a viable option.

You know your plant better than anyone. Be realistic and weigh the possible solutions against your individual challenges and requirements.





7 solutions to optimise your inventory management

This final chapter will outline the different options available to optimise your stock management and reduce unplanned downtime.

Nowadays, many of these solutions are automated and digital.

Here's a rundown of the latest and most effective MRO stock management solutions available for the chemical industry:

Total Solutions

As discussed, a small engineering department will require smaller solutions. But the ideal aim that bigger companies can achieve is a total solutions offer. Instead of providing just a valve, for example, a total solutions supplier will also include the pipe, a sensor and anything else that's required for the unit to be used and maintained.

Vendor Managed Inventory (VMI)

As a supply-chain solution, VMI is one of the most important and it can have a huge effect on your stock management.

In essence, a vendor does a comprehensive data cleanse, checking your entire inventory, then they manage your stock for you.



By keeping a constant eye on your supply and consumption levels, the supplier knows exactly what your requirements are, and supplies all parts required without you having to check or order yourself.

They're also able to adjust supplies according to your needs, meaning no excess stock, though always a sufficient level to absorb fluctuations.

For a maintenance department with fewer resources, outsourcing this stock inventory management to a trusted partner relieves significant pressure. VMI allows for a single central point of contact and can also include optimising stock layout and storage on-site.

On-site MRO spare parts management

There are several time-saving solutions that can be implemented on-site by an industry expert. Having dedicated personnel from the supplier on site can save you time and TCO.

Services include:

- **MRO catalogue and inventory management (ensuring data is correct and kept up to date)**
- **Logistics design**
- **Warehouse & supply management (warehouse layout, storage units and monitored deliveries)**
- **Continuous improvement (keeping track of stock levels and requirements so as to minimise downtime)**

An engineer with expertise in your area can give quick solutions in the case of unexpected problems. They have advanced knowledge of what spare parts your business unit needs and can even provide a nearby stock container with the relevant gaskets, hoses, power transmissions, etc. Or better said: they are able to provide you with the items you need when you need them – directly on site.

Technical on-site services

Technical services are sometimes outsourced to external contractors. By working on-site they can have much greater knowledge about your terminal – though they can cost a lot more.

However, once they know about what local items you have in stock, it can lead to big savings and standardisation of products – the same brands, equivalent quality, etc.



These are a few examples of technical on-site services:

- **An on-site mobile production unit, supplying any seals you need in a very short timeframe.**
- **An on-site flange assembly process is another option to offer advice and installation for flanges during maintenance periods.**
- **An 'on-site know-how centre' to be established, manned by an in-house expert. This individual becomes the first point of contact for quotations, orders, follow-up and the like. The supplier ensures that they're always on hand, speak your language, and have the relevant knowledge for your industry.**

Turnaround Support

During a period of planned maintenance, it's very useful to have someone qualified to record relevant data, perform necessary checks on the process, and be a point of contact for MRO spare part queries.

An expert can carry out contractor training where necessary and provide daily reports to the turnaround manager.

With specialist knowledge of your plant's spare parts, he'll be able to make component recommendations, organise effective labelling, provide full kits for gaskets and other components, and make suggestions to avoid leaks when the turnaround is complete.

Combined with efficient spare parts delivery, the objective of this support is to reduce the turnaround time – getting you up and running again as fast as possible.

Barcode scanning

One of many possible technical solutions, barcodes are a near-instantaneous method of connecting actual stock to an Electronic Resource Planning (ERP) system. Information about a particular item is scanned through its barcode into the ERP system to be automated – and means items won't get lost or forgotten!

Keeping all spare part data in one centralised computer system allows for accuracy of inventory management and speed when it comes to finding an item or ordering a new one.

Barcode scanning on all spare parts eliminates the problems we discussed earlier, such as defunct stock, mis-labelling and duplicate numbering.



It doesn't take crucial knowledge away from technicians on the ground, but allows their expertise to be absorbed into the digital system. Automation of stock orders and inventory storage then allows personnel to concentrate on their primary tasks.

Vending machines

A secure and compact method of storing high-value items such as special seals, high-end small parts or limited consumables such as PPE and batteries.

As vending machines have an Electronic Data Input (EDI) connection to your database, restocking is automatic and there's 24/7 insight into consumption behaviour.

Each solution contributes to optimising your stock management. Which solution might be right for your organisation depends on your specific situation. More than anything, a trusted supplier can make the job of inventory management smooth, fast and stress-free.

A few other services that can make your stock management process a closed-loop:

- **Scan2Cart**

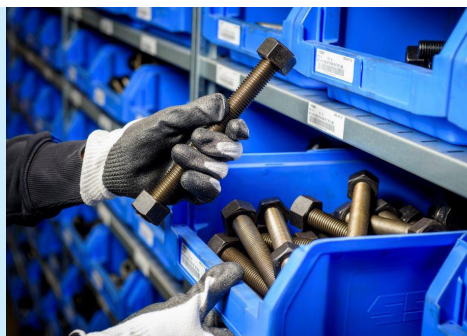
A fully integrated, user-friendly app allows you to create and scan QR codes for quick ordering of parts to your warehouse. By scanning parts, they can be automatically placed in your shopping basket in the webshop. You then simply choose the quantities and complete the order, saving time and cost.

- **Early bird service**

A special service for teams in the Netherlands operating off-site or requiring early delivery. Spare stock items can be delivered before 8am to any GPS location in the Netherlands.

- **E-commerce and online Store**

For additional convenience and optimisation of stock management, some suppliers offer electronic ordering, shopping and messaging. Managers used to phoning up to place orders will instead be able to browse the online catalogue of over 900,000 articles and adjust stock with a click.





Recap & conclusion

Maintenance managers (together with the procurement, engineering and logistics departments) are the keystone of a chemical plant. Without you looking after schedules, budgets and spare parts stock, the whole operation will grind to a halt.

But managers aren't superheroes. Automating parts of antiquated processes to bring them into the 21st century is a vital part of a modern chemical industry terminal.

More than anything, a trusted supplier can make the job of inventory management smooth, fast and stress-free.

ERIKS has the technical knowledge to be a valued partner to chemical plants, and holds a superior catalogue of spare parts. They help solve stock management issues even from brands that no longer exist.

Revolutionise the way you approach stock management. With automated EDI systems, a complete overhaul of your database and warehouse inventory, and innovation and investment into forward-thinking total solutions, ERIKS are a fresh and exciting partner to take your spare parts management to new levels.





How DSM reduces TCO with innovative stock management

Warehouse maintenance was a complex and time-consuming task for DSM Dyneema. In order to focus on their core business, they needed a way to make their stock more efficient, including lower inventory costs and higher availability. Learn in this case study how they reduced costs and increased the availability of spare parts.

ERIKS & DSM Dyneema

Discover how DSM no longer wastes time on searching for replacement parts, increased stock availability and reduced costs by 20%.

Download this **case study** 





About ERIKS

ERIKS is a specialized industrial service provider that offers a wide range of technical products, co-engineering and customization solutions, as well as related services. We help customers in the chemical industry to improve their products' performance and reduce their total cost of ownership.

Our technical know-how is the basis of our specialism. We are present in 18 countries worldwide and over the last 80 years, we have built up deep expertise in the areas of sealing & polymer, gaskets, valves & instrumentation, industrial & hydraulic hoses, industrial plastics, power transmission & bearings, conveying systems and tools, maintenance & safety products. We supply A-brands as well as our own ERIKS products. A strong focus on digitalization and data insights allows us to develop new services and improve processes for our customers.

At ERIKS, we stand for doing good business. We value long-lasting relationships with all our stakeholders, conduct business in a fair and transparent way and contribute to a better and more sustainable society.

#better4chemical



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