

# Spare Part Management

## Omaintec 2023

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# The “Bermuda triangle” for Spare parts

Availability – of the spare parts

Invested capital  
in spare parts

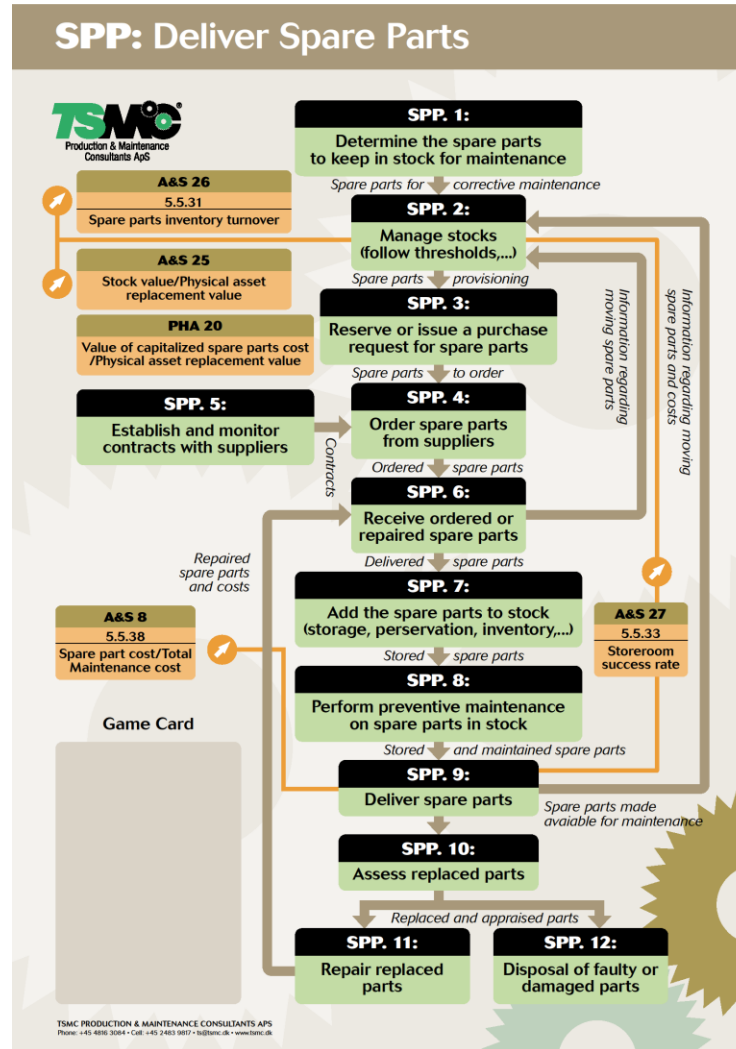


Operating cost  
from the spare  
part function

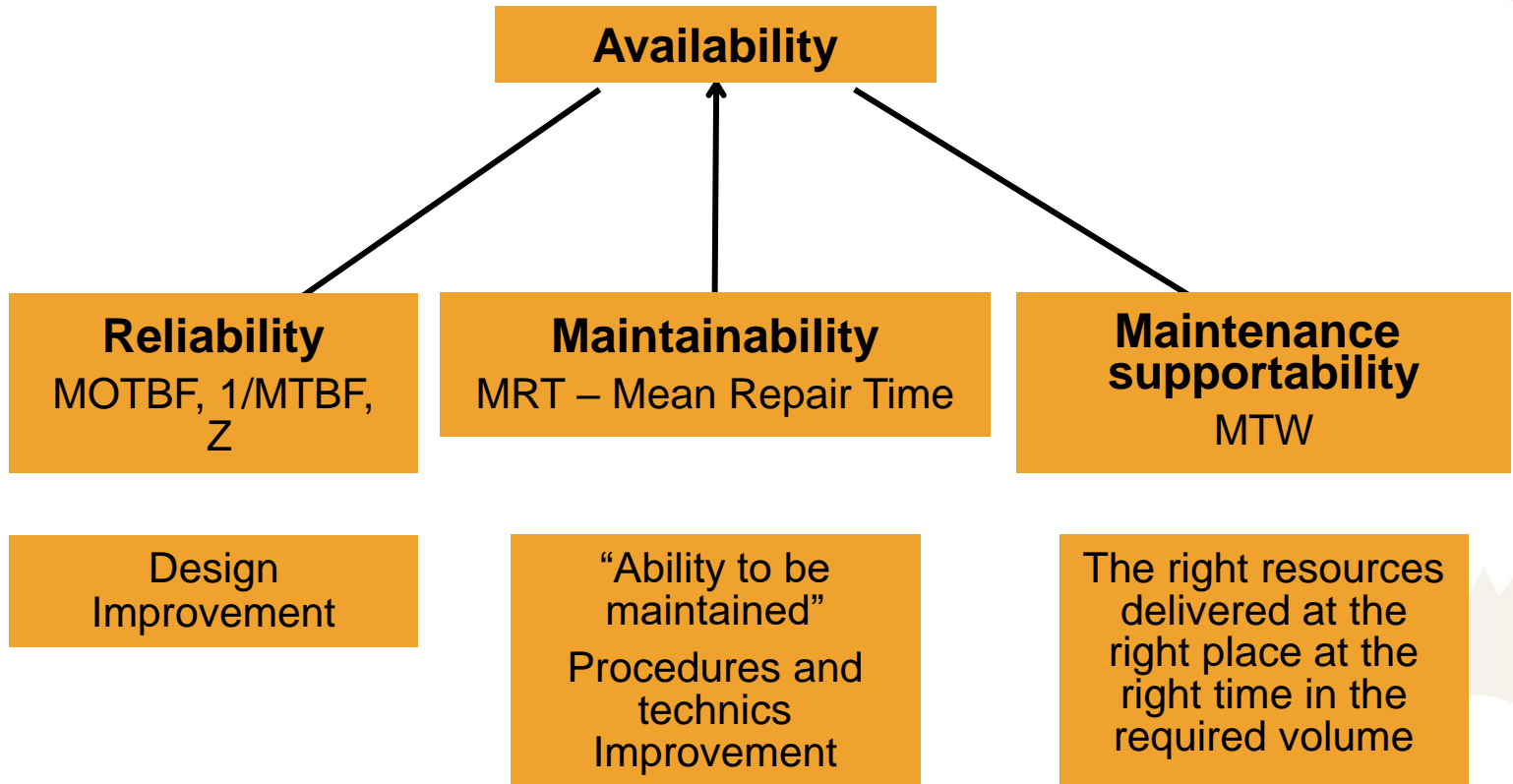
# Inventory Interest rate or stock holding cost

- ???
- Bins
- Lifts
- Buildings
- Light/heating/cooling
- Staff
- Obsolescence
- Investment rate

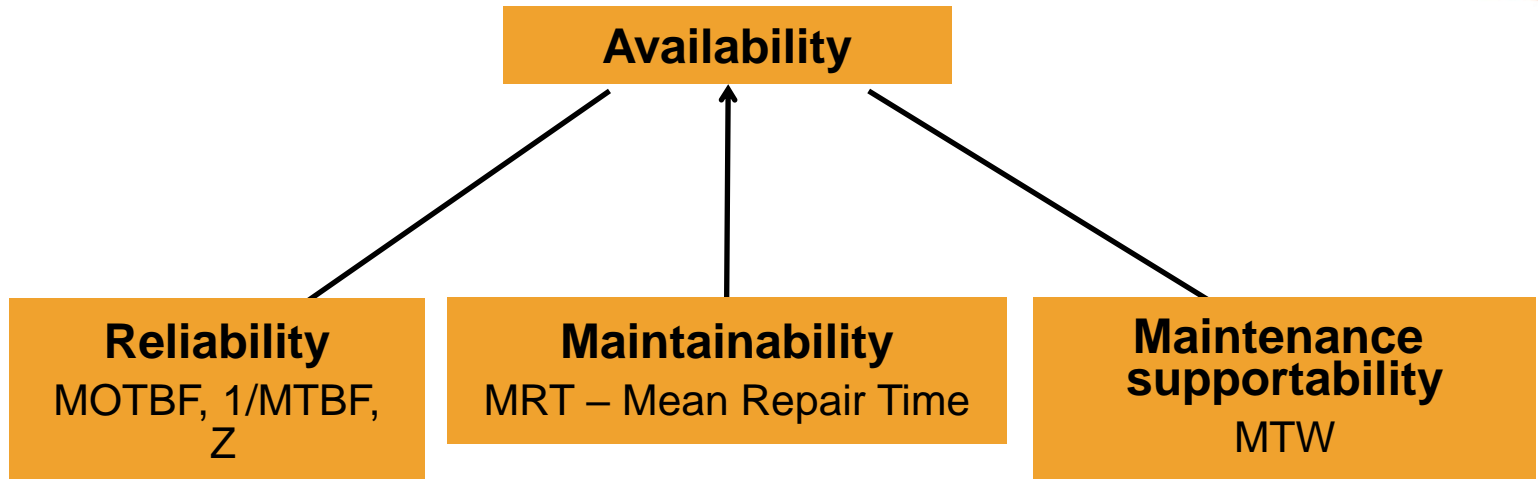
# Spare Part Management process – ref. EN 17007



# Availability



# Availability



## Improve the maintenance supportability:

- Geographical location
- Organisation of the maintenance technicians and spare parts (Short delivery time)

The right resources delivered at the right place at the right time in the required volume



# Spare Part Strategy

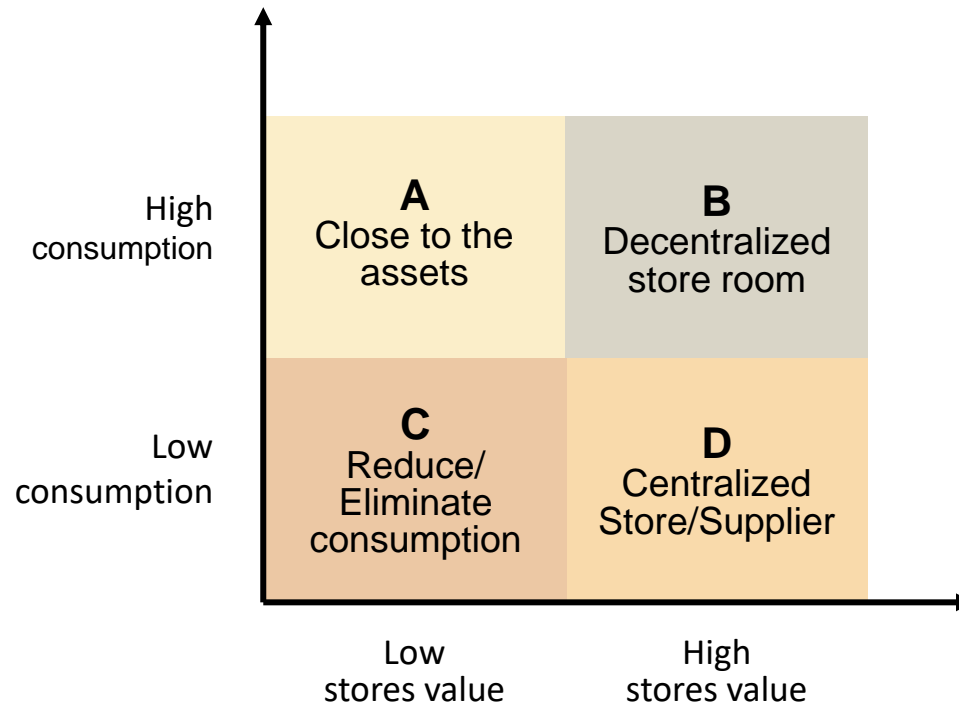
# Spare part strategy

- Consignment stock
- Stock with the supplier
- Centralised stores (Company/site)
- Decentralised stores (unit, production section)
- Local stores (by the asset/in the service truck)
- Which spare part strategy is the best?
- Pros. and cons.





# Physical position of the spare parts

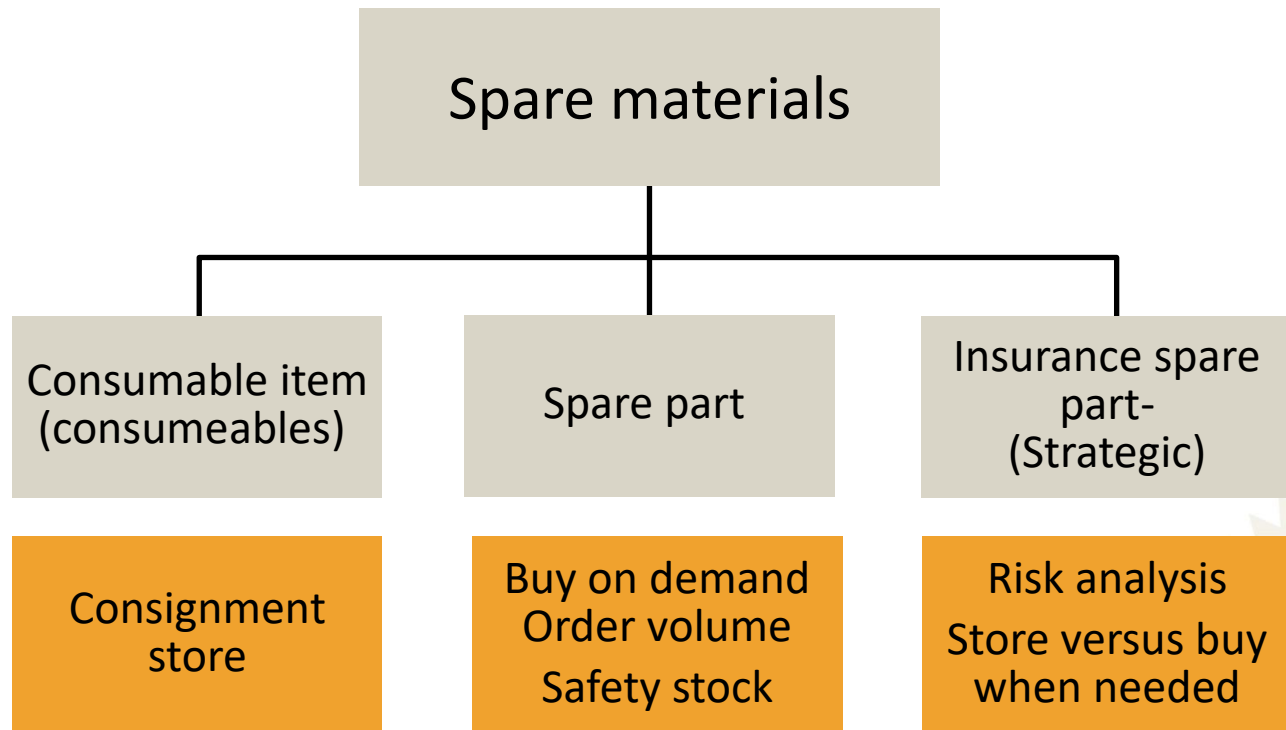




# Classification of spare parts

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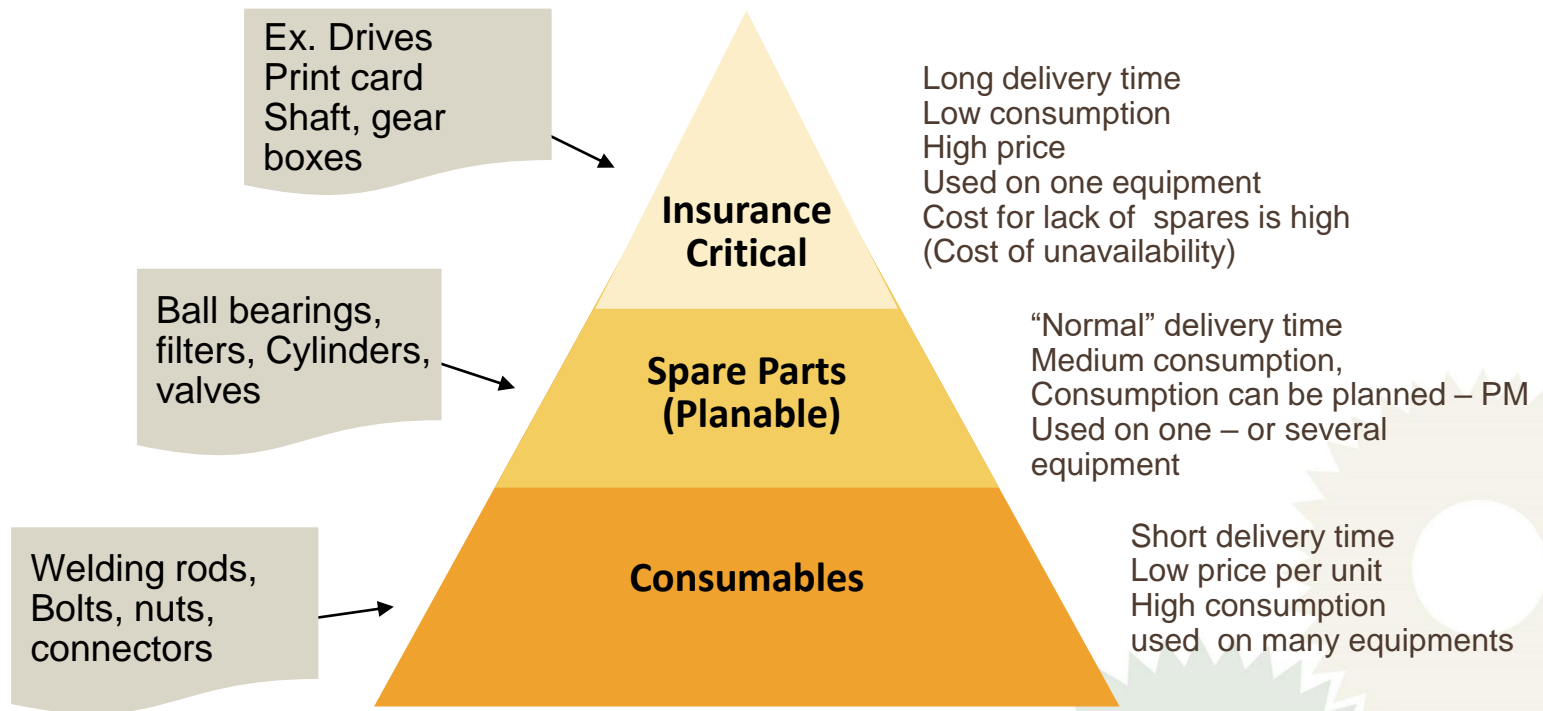
– (EN 13306)



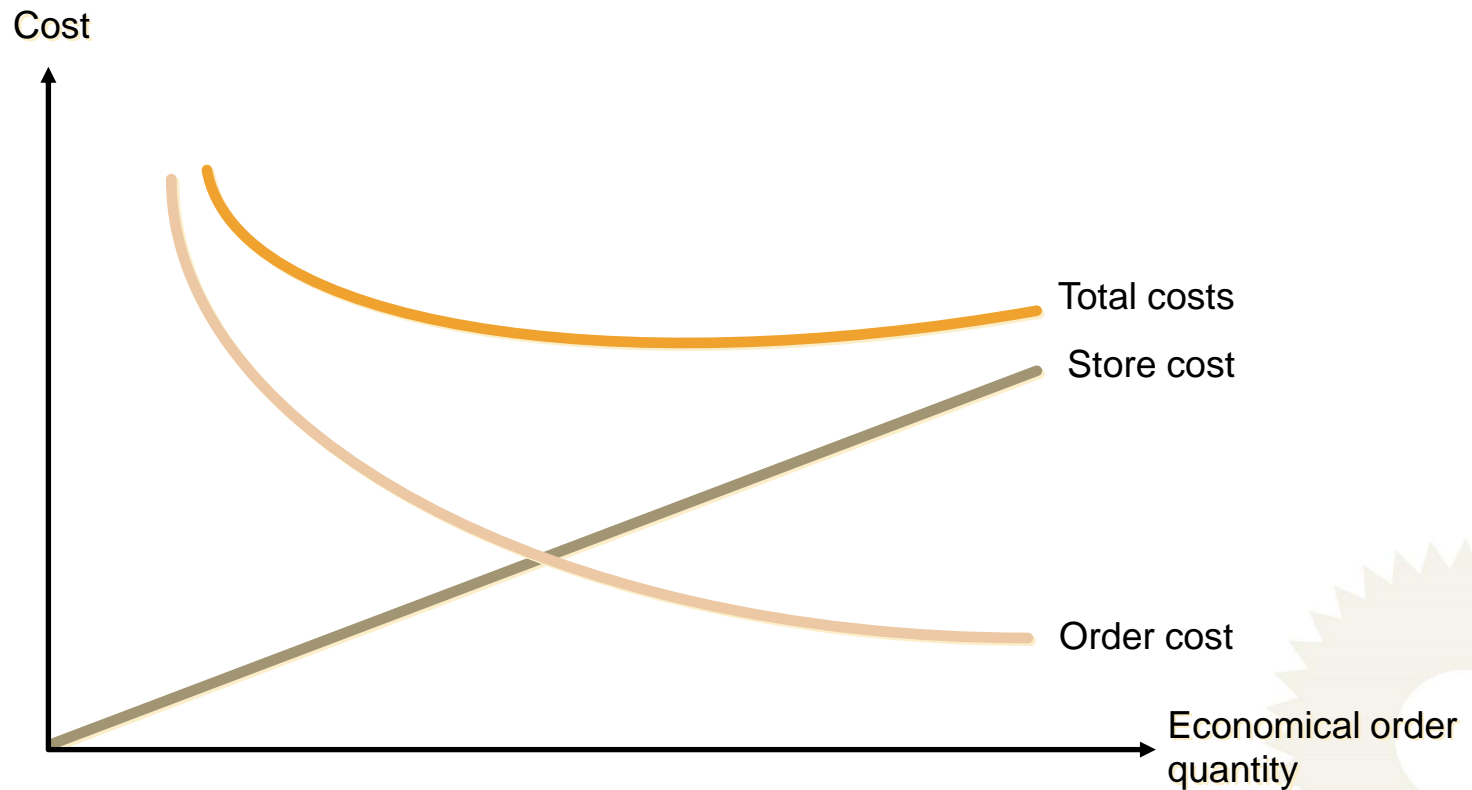
# Spare parts

– from a maintenance point!

## Breakdown structure for maintenance materials



# Economical order quantity



Spare part calculator!

# Game Card

## – Question/Dilemma

### Process step SPP2 C

In order to evaluate the performance of the Spare Part Process the standard EN 17007 suggest a series of indicators to measure the performance.

Please support the case company “**Nuuk Power and Energy Ltd**” – **Hamburg Site**” by calculating the indicator A&S 25: “Annual average inventory value of spare parts and materials/Physical Asset Replacement value (%)

The maintenance manager from the Hamburg site has distributed the values below:

No.	Component name	Unit	Figure
1	Physical Asset Replacement value (%)	SAR	90.000.000
2	Inventory value of spare parts and materials Ultimo - December 2021	SAR	1.800.000
3	Inventory value of spare parts and materials Ultimo - December 2022	SAR	1.600.000

# Game Card

## – Example



<b>Indicator A&amp;S25 is calculated by:</b>	$\frac{\text{Annual average inventory value of spare parts and materials} \times 100}{\text{Physical Asset Replacement value (\%)}}$
<b>Indicator A&amp;S25 is calculated by:</b>	$\frac{(2) + (3) \times 0,5}{(1)} \times 100 = \frac{1.800.000 + 1.600.000 \times 0,5}{90.000.000} \times 100$
<b>Indicator A&amp;S25 is calculated by:</b>	$\frac{1.700.000 \times 100}{90.000.000}$
<b>Indicator A&amp;S25 is calculated by:</b>	$= 1,8 \%$

What is a good value?/Benchmark?/Best in Class value?

# Game Card - Question/Dilemma

## Process step SPP2 C

In order to evaluate the performance of the Spare Part Process the standard EN 17007 suggest a series of indicators to measure the performance.

Please support the case company “**Nuuk Power and Energy Ltd**” – **Stockholm Site** by calculating 3 of the indicators for the Stockholm site.

The maintenance manager has sent the values below and the definitions for the indicators.

Can you please help him with the calculations?

1. **A&S 25:** Annual average inventory value of spare parts and materials/Physical asset replacement value (%)
2. **A&S 26:** Value of spare parts and material used/ Average inventory value of spare parts and materials (no.)
3. **A&S 27:** Number of items immediately delivered to the maintenance personnel/Total number of items required by the maintenance personnel (Pcs.)

No.	Component name	Unit	Figure
1	Physical Asset Replacement Value (%)	SAR	105.000.000
2	Inventory value of spare parts and materials Ultimo - December 2021	SAR	2.200.000
3	Inventory value of spare parts and materials Ultimo - December 2022	SAR	2.400.000
4	Annual Maintenance cost (2022)	SAR	3.640.000
5	Value of spare parts and material used from the spare part store	SAR	1.100.000
6	Number of items immediately delivered to the maintenance personnel	Pcs.	16.567
7	Total number of items required by the maintenance personnel	Pcs.	19.431



# Game Card

## – Calculation

Indicator A&S25 Calculated by:

$\frac{\text{Annual average inventory value of spare parts and materials} \times 100}{\text{Physical asset replacement value (\%)}}$

$(2 + 3) \frac{2.200.000 + 2.400.000 \times 0,5 \times 100}{(1) 105.000.000}$

Indicator A&S25 Calculated by:

Indicator A&S26 Calculated by:

$\frac{\text{Value of spare parts and material used} \times 100}{\text{Average inventory value of spare parts and materials}}$

$(5) \frac{1.100.000 \times 100}{(2 + 3) 2.200.000 + 2.400.000 \times 0,5}$

Indicator A&S26 Calculated by:

Indicator A&S27 Calculated by:

$\frac{\text{Number of items immediately delivered to the maintenance personnel} \times 100}{\text{Total number of items required by the maintenance personnel}}$

$(6) \frac{16.567 \times 100}{(7) 19.431}$

Indicator A&S27 Calculated by:



# Best in Class values

Ref: "GloMe"

- The Measuring Maintenance and Reliability Performance Internationally

EN 15431 no.	SMRP Metric no.	Indicator name (SMRP)	SMRP	EFNMS	Comment
A&S25	1.4	Contribution of spare parts on physical asset replacement value	Less than 1,5%	1%	Value from different benchmark studies in Europe
A&S26	5.5.31	Spare parts turnover	Total inventory greater than 1 without critical spares	1	
A&S27	5.5.33	Service level of warehouse	Less than 2 %	Success rate 98 %	



# Self assessment form Company SPP process

## How mature is your company's SPP process?

Assess the result the SPP process on a scale from 1-5

Please ask your staff to assess the process after the workshop

Process or subprocess	We are performing out the SPP process without any systematic approach and on an ad hoc basis. The process is based on several undocumented and personal perceptions of the process.	We are performing the SPP process without any documentation. The process is largely based on tradition	We are performing the SPP process based on a documented and approved process	We carry out the SPP process based on a documented and approved process. Most stakeholders and users follows the process. The process is carried out independently of personal perceptions	We carry out the SPP process based on a documented and approved process and with excellent results. In more than 98% of cases, the described process is followed.
	1	2	3	4	5
Spare Part Process (Entire process)					
SPP 1 subprocess					
SPP 2 subprocess					
SPP 3 subprocess					
SPP 4 subprocess					
SPP 5 subprocess					
SPP 6 subprocess					
SPP 7 subprocess					
SPP 8 subprocess					
SPP 9 subprocess					
SPP 10 subprocess					
SPP 11 subprocess					
SPP 12 subprocess					

# Questions and Comments?



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