

MAINTENANCE – Best Practice

David Kramer

8/28/2024

Presented by





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David Kramer

Senior Technical Advisor

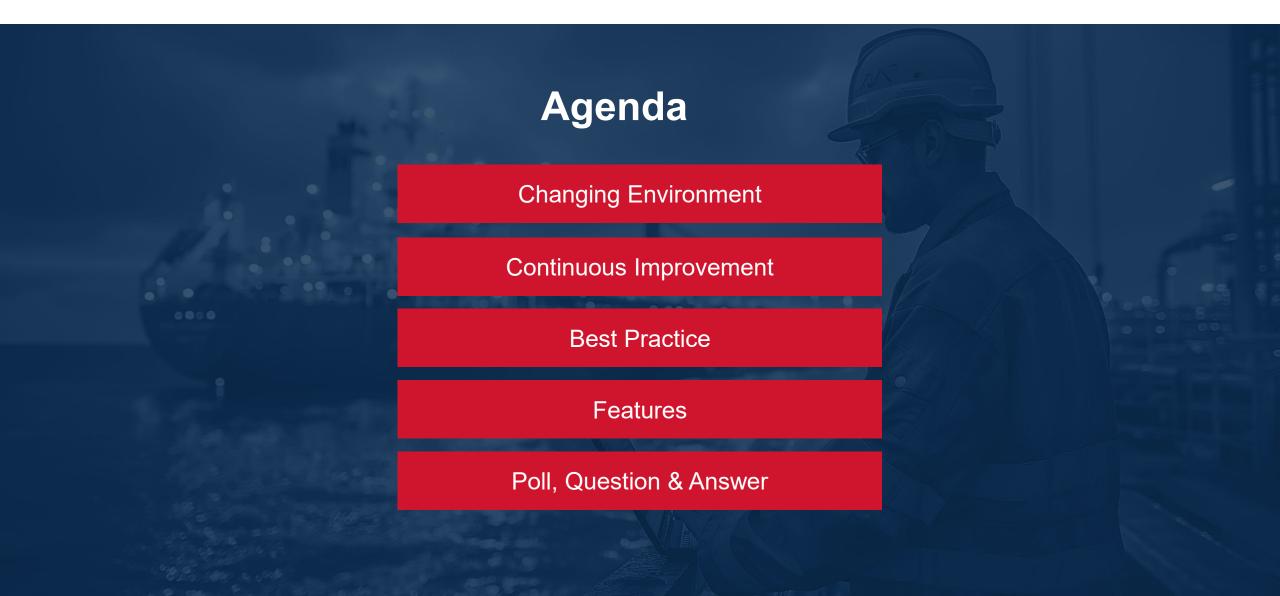
David has been with ABS since 2018. He has worked in Ship Management for more than 25 years.

David's experience is Technical and Operational Ship Management.

He is a Naval Architect, Mechanical Engineer, Business Manager, and was a Chief Engineer.



















Industry Influence

- Environmental aspects
- Fuels
- Zero emissions
- Digitization
- Is maintenance the same old?
- How do we stay current in maintenance?
 - Has NSE moved
 - Do we move
 - Digitization





Has Maintenance evolved over the past decade?

- Preventative Maintenance
- Condition Based Maintenance
- Digital Transformation
- Reliability Centered Maintenance
- Workforce Development
- Sustainability and Value Alignment

- Objective
 - More efficient
 - Cost-effective
 - Reduced cost
 - Greater reliability

Continuous Improvement

ABS W∆VESIGHT





Continuous Improvement

Has NSE evolved over the past year / years?











Continuous Improvement

- How do we drive our maintenance forward?
 - Version updates
 - Features
 - Super Users, Owners
 - Mobile
 - User Guides
 - Train
 - Adopt

- ABS NS Balance Scorecard
- Consulting Services





Maintenance Features

- Types of Standard Jobs
- Deferral Plans
- Failure
- Custom Performs
- Condition Monitoring
- Tables
- Job Safety Analysis / Risk Assessment (JSA / RA)
- Permit To Work (PTW)
- Rotable Parts

- Landing Orders
- Defects
- Interchangeability
- Add Parts to Hierarchy
- Inventory
- Resources
- Vessel Certificates
- Questionnaires
- Job Planning
- Mooring





Enhanced

- Types of Standard Jobs
- Deferral Plans
- Condition Monitoring
- Job Safety Analysis / Risk Assessment
 (JSA / RA)
- Permit To Work (PTW)
- Vessel Certificates
- Defect
- Dashboards

New

- Vessel Certificates
- Questionnaires
- Graphics/Gadgets
- Job Planning
- Mooring
- Work Order Owners





Workspaces / Dashboards / Graphics

- Concept
- Underutilized
- Not set up by Users

- New
 - I am the Approver
 - Corrective/CBM/Failure Non-PM WO
 - Critical Spare Parts Below Policy Level
 - Defect
 - Vessel Certificates
 - ...more...









Best Practice for Maintenance

- Planned Maintenance
- Failure Tracking
 - What is it?
- Rotatable Parts / Serialized Items
- Corrective Maintenance
 - What is it?
- Defect Reporting
- Permit To Work
- Job Safety Analysis / Risk Assessment

- Condition Monitoring
- Simple Tasks
- Custom Forms
- Job Planning
- Mooring Management





Using NSE, Best Practice for Maintenance

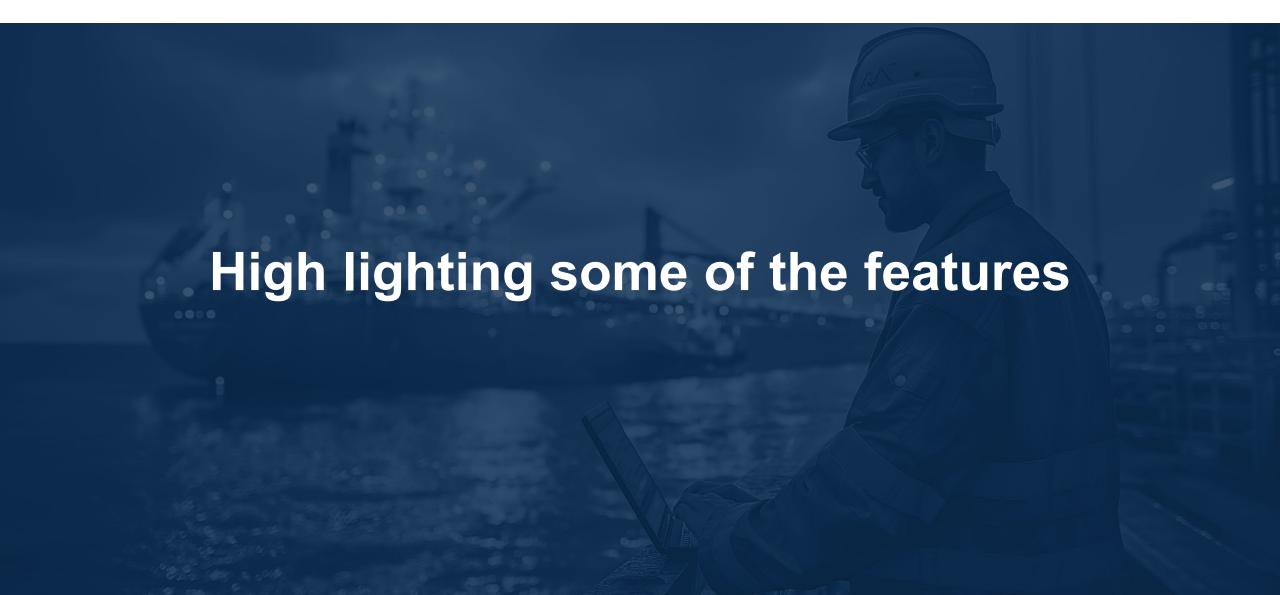
- Data quality & integrity
- Using the features
- Growing the use of features
- Holistic consideration
- Workshops / Training
- User Guides

- Workspaces
- Dashboards
- Gadgets / Graphics
- Consulting



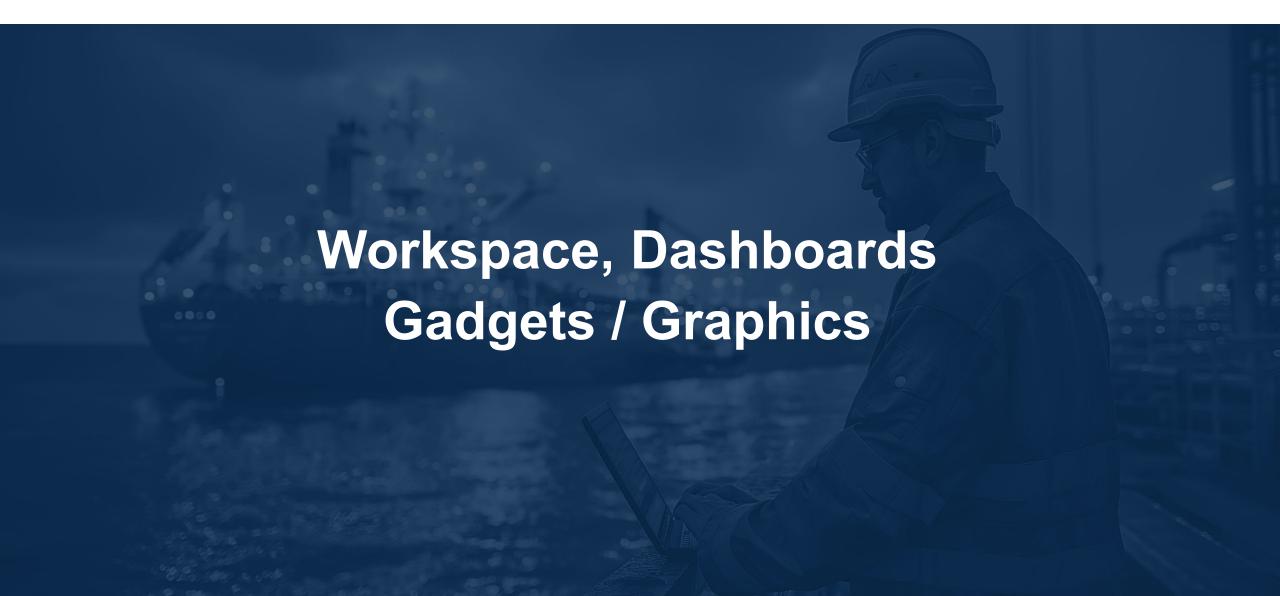






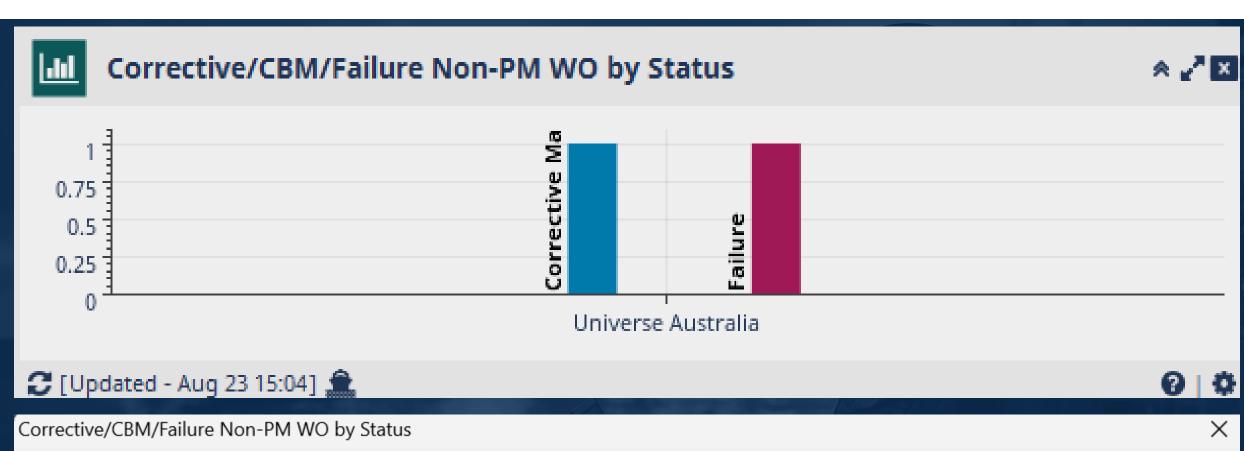












This dashboard shows the total number of Non PM Work Orders that have been marked as Corrective Maint, CBM, Failure with status Created/Completed/Closed over the last (N) days as selected by the user. The dashboard can be viewed at either Fleet or Ship Level.

The fleet level shows only those ships the user is authorized to view.

Authorizations are controlled by the NS5 Administrator.









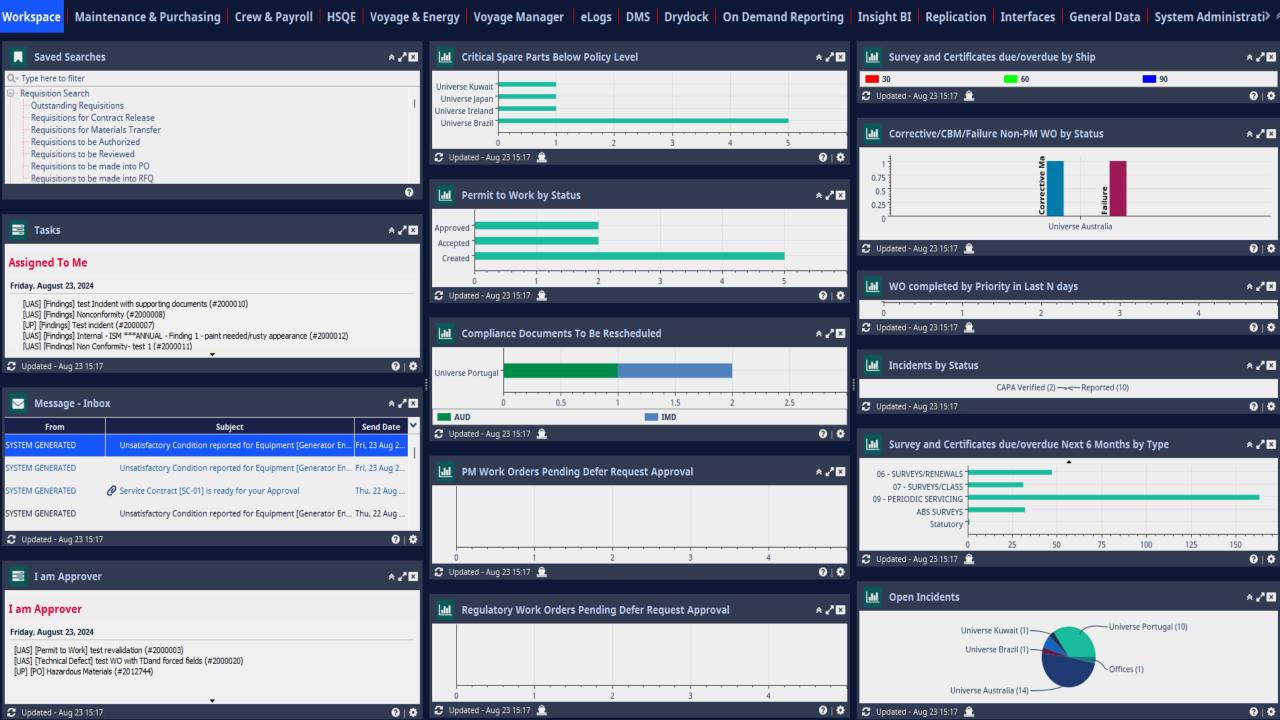
Friday, August 23, 2024

[UAS] [Permit to Work] test revalidation (#2000003)
[UAS] [Technical Defect] test WO with TDand forced fields (#2000020)
[UP] [PO] Hazardous Materials (#2012744)



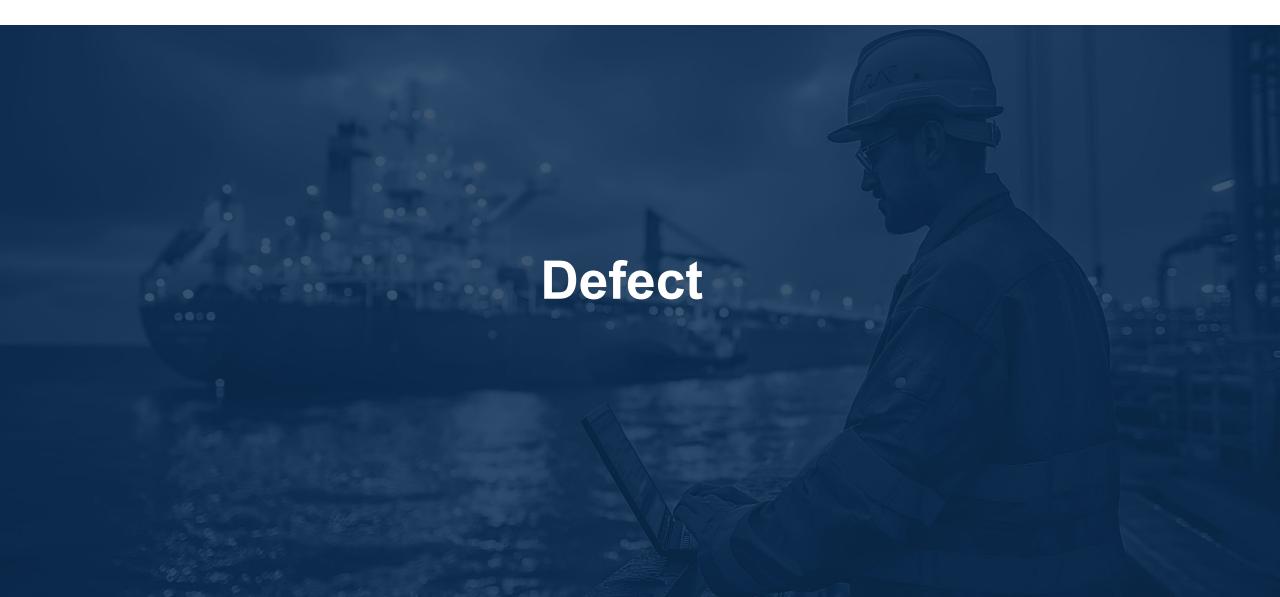
















Technical Defect

Industry

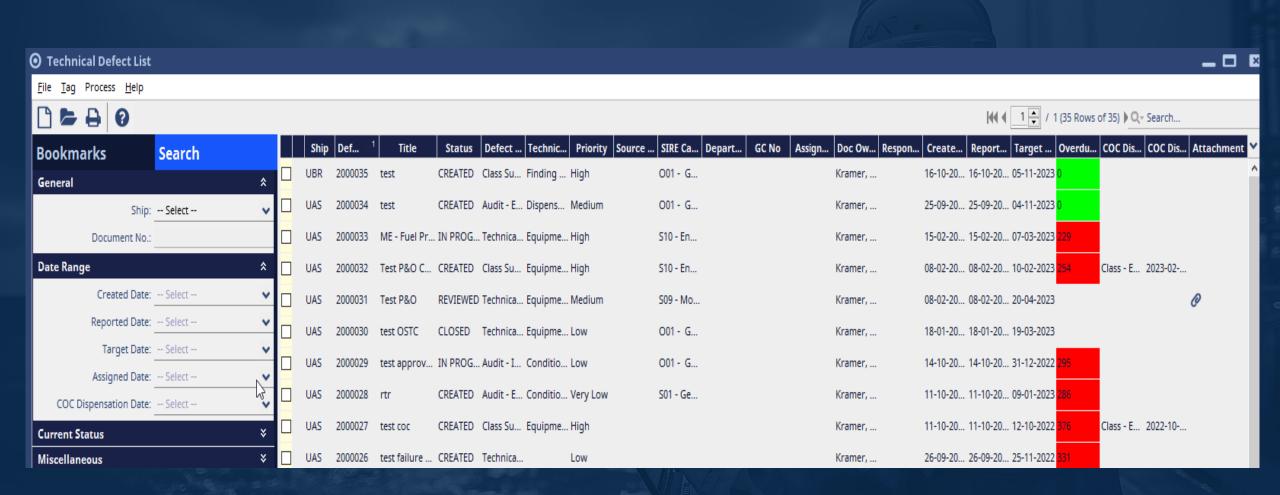
- Used in different ways
- Can be renamed, example Defect
- Define Indexes
- Set calculations for Target Closure date in days from creation
 - Consequences, Priority, Criticality
 - Can allow user Target Closure date
- Screen Customization
 - Fields
 - Tabs, example RCA, JSA, Failure
- Links to multiple documents
- Dashboard
- Gadgets

- Defect Reports
- Wizard for creation
 - SIRE or OVID Category
 - Condition of Class or Dispensation
 - Screen Customization
- Introduced 6.5.24
 - Enhanced 6.5.26/27/29/30.





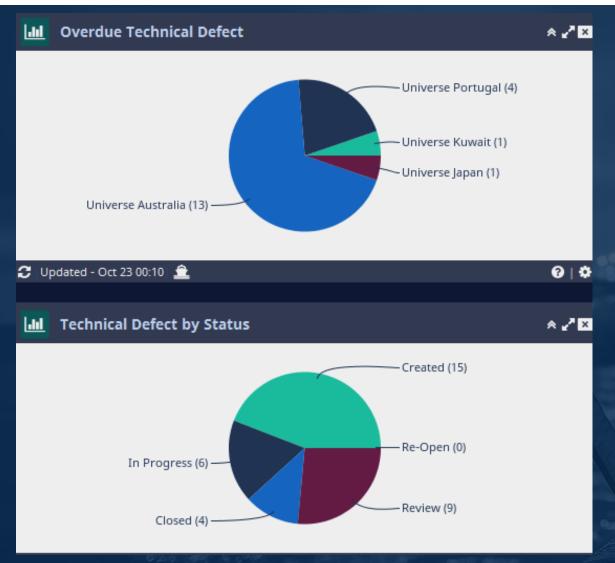
Defect Dashboard







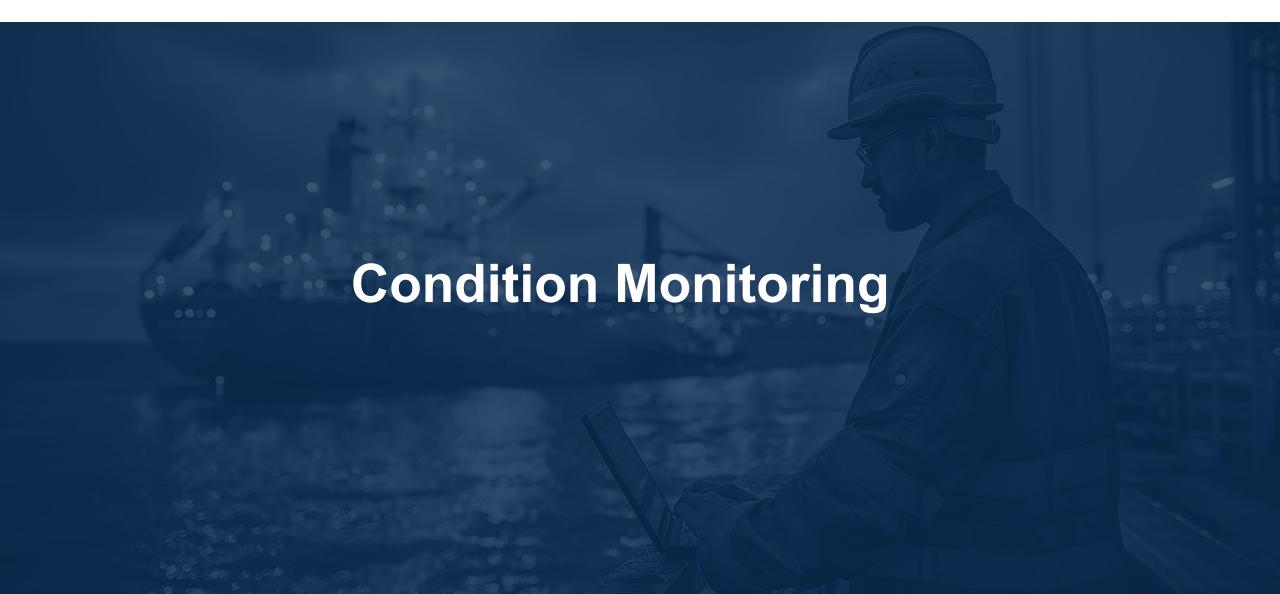
Defect Gadgets



- Technical Defect Status
 - Shows all status: Created/In Progress/Closed/Review/Re-Opened
- Overdue Technical Defects
- I am Approver
 - This will show Technical Defects awaiting Re-Schedule acceptance.
- Tasks
 - This will show Technical Defects linked to the User or user Role.











Condition Monitoring

Enhances overall management

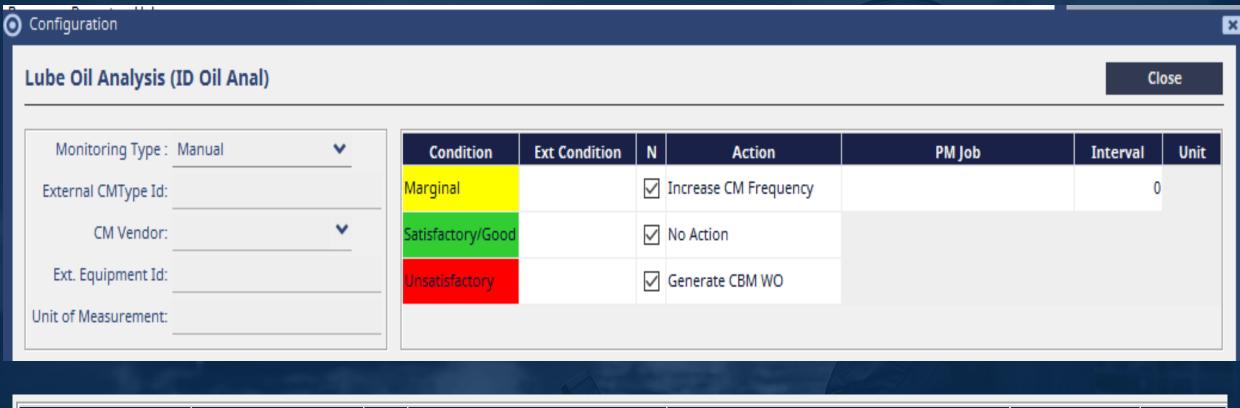
- All companies do some form of Condition Monitoring
- Two ways for setup of data capture
 - Condition Report
 - Measuring Points
- Define Equipment
- Setup types of Condition Monitoring
- Set up data transfer from Condition Monitoring Providers
 - Oil Analysis
 - Vibration Analysis
 - Boiler Water Analysis
- Data Transfer
 - FTP or API

- Work Orders
 - Created / Define action
 - Track the action
 - Feedback to suppliers
- Dashboard
 - Equipment Status
 - Machinery Health
- Gadgets
- Introduced 6.5.15
 - Enhanced 6.5.27/30





Measuring Point

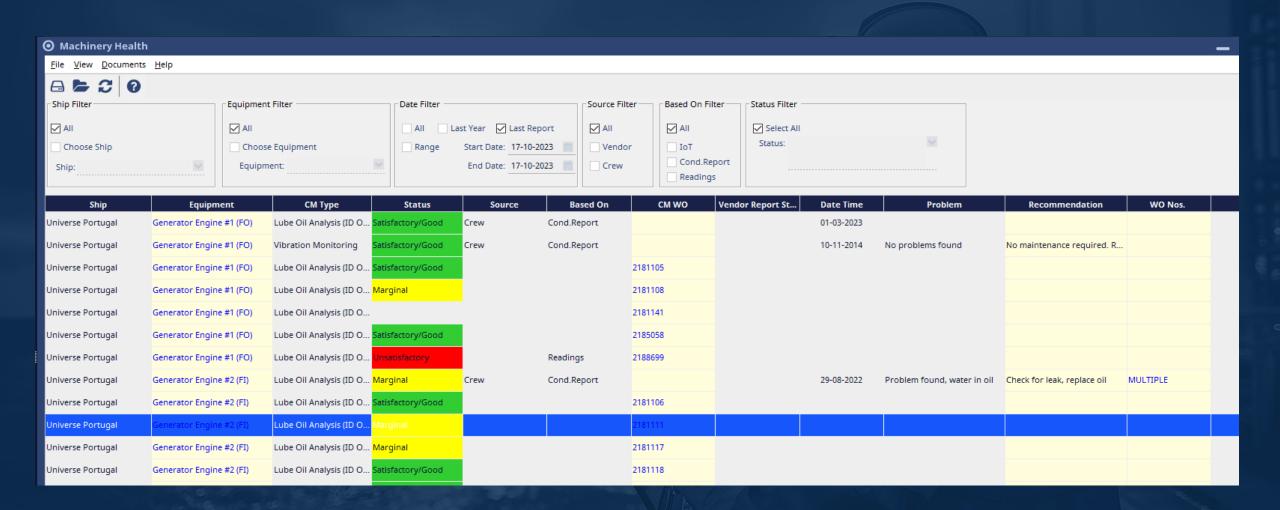


Condition	Ext Condition	N	Action	PM Job	Interval	Unit
Marginal		~	Increase CM Frequency	Lube Oil Analysis (ID Oil Anal) - 1 M	15	Days



















Vessel Certificates

- Two locations
 - Maintenance & HSQE
- Visibility for all
- One certificate for job management
 - Compliance Job or Standard Job
 - Annual or Intermediate
 - Renewal
 - Interim
- Easy workflow
- Links to multiple NS documents
- Excel output
- Custom Report

- Interface with Q88
- Dashboard
- Gadgets



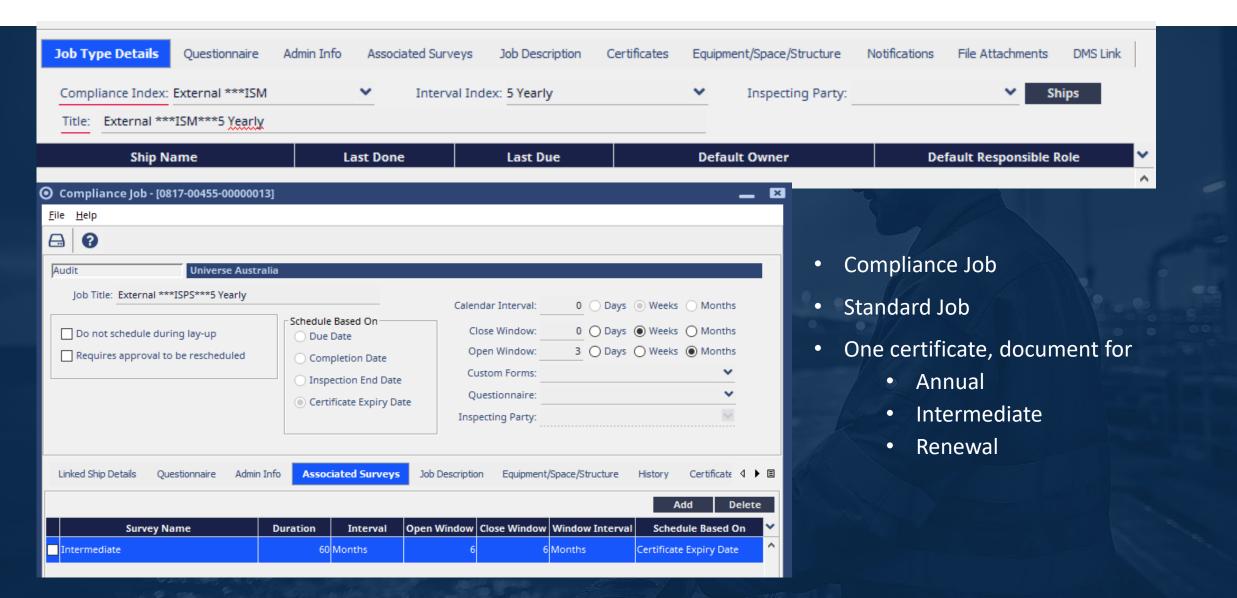


l Certificate - Q88 Synced On 06/25/2024 - [1158-00001-000	01011]			_ =
Process Help ** ** O ** O ** O *				^
Created Review	Retire			
Certificate Name: Cargo Ship Safety Construction Certificate (SCC)	Certificate Type: Trading	Q88 C	ode: CSSC	
Certificate No.:	Version No.:	Q88 Certificate ID: 8876051F9EB8277D		
Ship: 1	Issuing Authority:	∨ Ref	Retired: Hidden:	
Job Type: O Standard Job Compliance Job None	Surveys/Certf. Index:	Hid		
Reviewed:	E-Certificate:			
Dates	Last (Issued)	Next (Due)	Window	~
ued	08/24/2020			<u>^</u>
nual	05/31/2024			_
termediate	07/09/2023			
pires		08/16/2025	2 Months	,
8 Attributes Planned Jobs Documents Equipment Status Attribute Name	File Attachments Comments DMS Link Message	Value		
Attribute Name		Value		^
authority				
g authority cate Number				



Setup

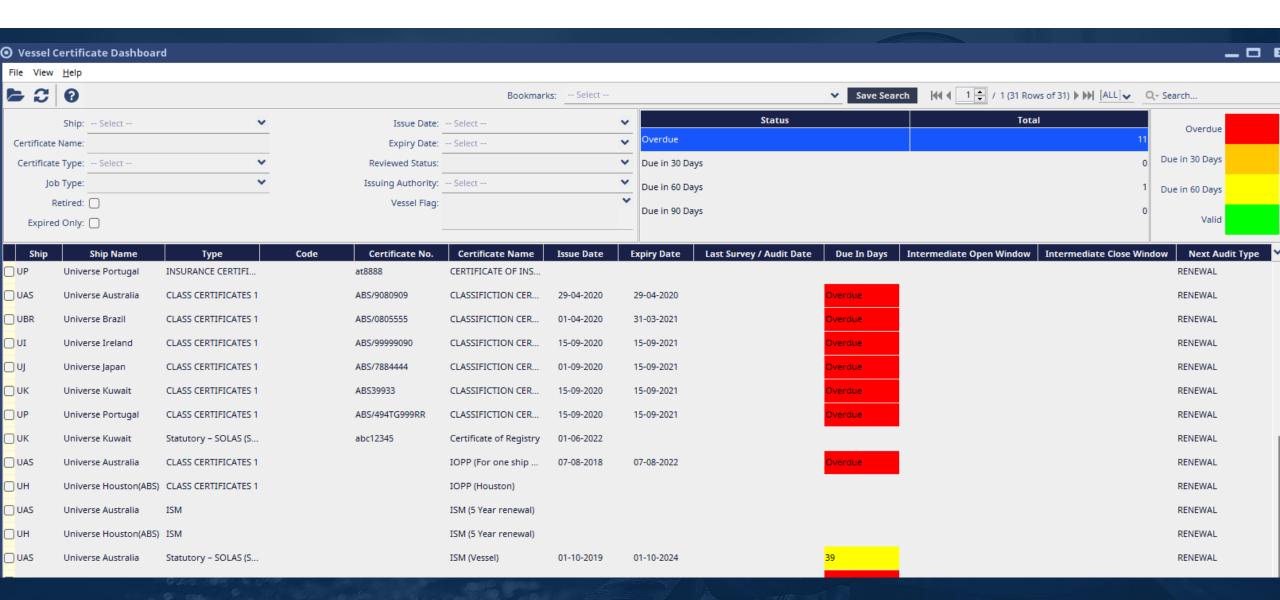






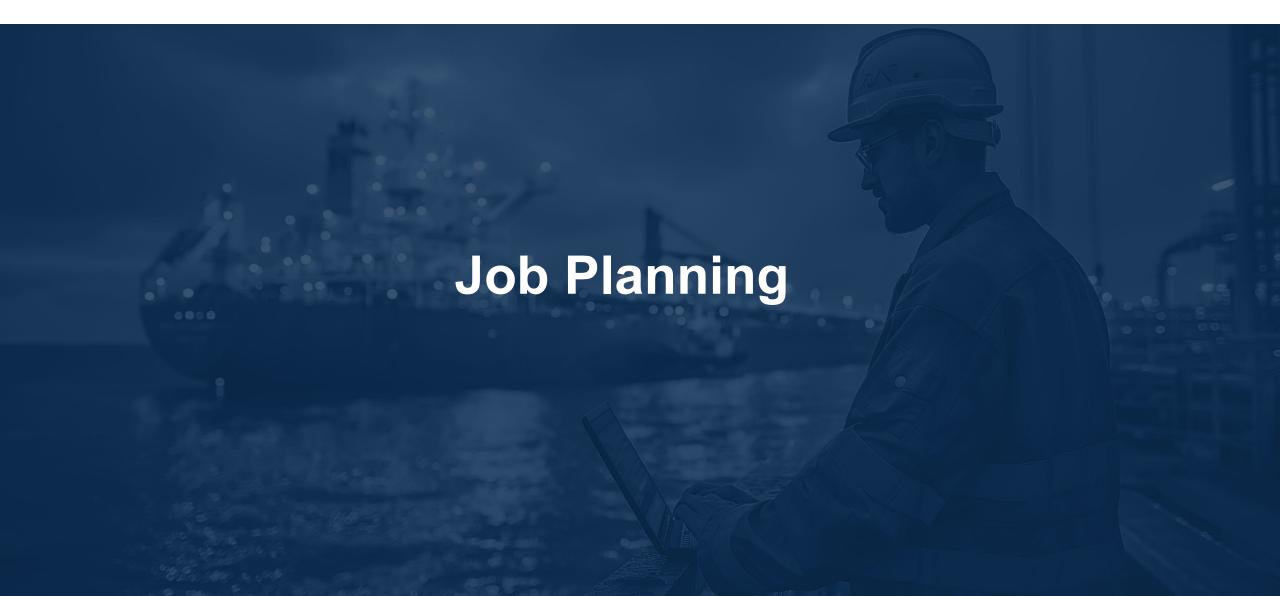
















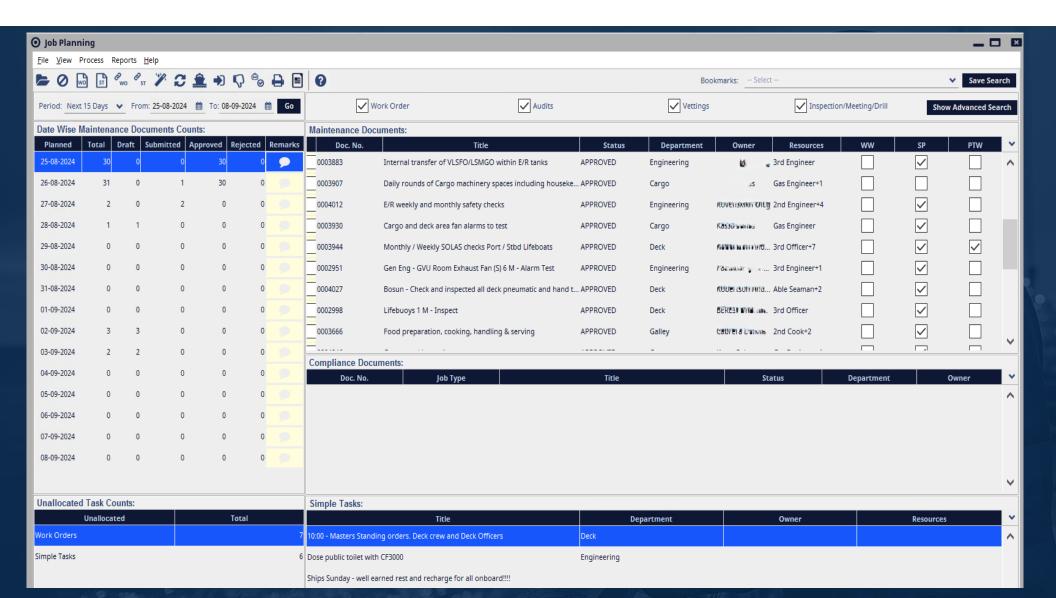
Job Planning

- Looking at the next week to 15 days
- Holistic planning and confirming the work
- One screen seeing all work for all departments
 - Maintenance
 - Simple Tasks
 - HSQE
- Will allow planning within the grace period of the standard job
- User/ Role responsibility
- Unallocated Work

- Job Planning Items
 - Approval
 - Approves JSA / RA
 - Approves PTW
- Gadgets / Graphics
- Maintenance Plan
 - Uses the baseline
 - Supports it

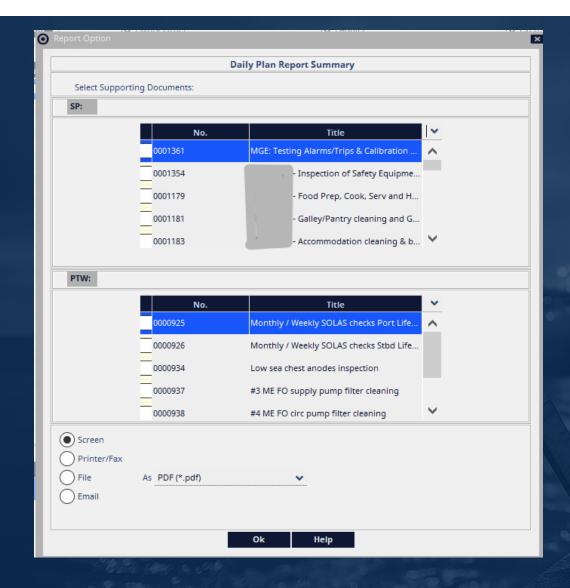












Daily Plan Report Summary

- What do we need to print, if anything
- What goes to sight, PTW
- Noticeboard?
- User Guide





Printed On: 25-08-2024

Vessel Background

- Job Planning Report
 - Printed, Notice board, Advice to ship's personnel

Job Planning Report <Finalized>

Date: 25-08-2024

Position: 4th Engineer

Location: SEA

Ship Name:

.....

Duty Engineer:

Weather Forecast: E'ly wind 15kt, Waves 1.5m, Temp 32deg; Sunny day, possible passing shower.

Security Status: MARSEC 1

Garbage Disposal: Only food waste allowed

Within special area prohibited









Mooring



Maintenance, Purchasing, Voyage Manager provide Mooring Management

- Mooring Management
- Ship Screen
- Index Terms
- City/Country
- Filters
- Equipment and Parts
- Serialized Items
- Standard Jobs
- Reports and Gadgets





Definition / Setup

- Defines the Master Mooring Configuration for the vessel
- Mooring Plan for each port call
- Documents usage and tension of the mooring line.





Mooring Management

Allows defining a **Master Mooring Configuration** for the vessel, a **Mooring Plan** for each port call, and **Documenting the Usage and Tension** of the mooring line.

Mooring Lines								
								Show 10 + records
Mooring Location	Position	Lead	Serial Number	Length	Status	Mooring Line Certificate Number	Max Uses	Max Hours
BLF	Forward	Starboard	HMPE Acera 376	250	Active		2000	5000
SLF	Forward	Starboard	HMPE Acera 375	250	Active		2000	5000
HL	Forward	Starboard	Acera 381	220	Active	Acera381	0	0
BLA	Mid	Starboard	Acera 380	220	Active	Acera380	0	0
SLA	Aft	Starboard	Acera daGama SBA 202	220	Active		20	0
1 - 5 of 5 records								h + Prev 1 Next » +
○ Cancel Save								





Mooring Management – Equipment & Parts

- Mark Equipment as mooring winches
- Link mooring locations to equipment
- Mark Part as mooring lines or mooring pennants to record mooring
- specification details against the part





File Part No. Reference Requisitioning Reports Help					
USS Enterprise (ABS)*FIRE SAFETY SYSTEM*External Fire Fighting Sy	stem*FI-FI Contro	l System*FI-FI Control System*Audible Signal	Transducer		
Brief Name: Audible Signal Transducer	U	Init: PCS • Designation: Par	t	~	
Full Description: Audible Signal Transducer, Siemens, -H7		^ Part Number 3SB19 02-2BN	Reference Fire Fighting System Pos No	^	
PIN Number: FFS.1X1200LB+1X1200300LB.0042		✓ Multiple Labels	Est. Cost:	0.00	
Interchangeable:	✓ MARA	AD No.: Override Price History		0.00	
Item Category:	▼ Qty. Wo				
Barcode:		MO No: Global Part Criticality:		~	
User Defined:					
Valuation Method:	~	Ship Part Criticality:		~	
Mooring Line Type:	~				
Inventory Attributes Mooring Lines Other Sites Materia	al Contracts File	Attachments Sources PO History Docum	nents Message Local D	escript	
Material/Construction:		WLL:	0.00 MT 💙		
D/d Ratio at Pedestal: 0.00		Shock Load:	0.00 MT 💙		
D/d Ratio at Fair Lead: 0.00		Overload:	0.00 MT 💙		
LDBF: 0.00 MT	~	Original Length:	0.00 MTR 💙		
		Original Diameter:	0.00 MM V		
Limitations					
Max Hours of Use: 0.00		Half Life Hours of Use %:	0		
Max Number of Uses:0		Half Life Number of Uses %:	0		
Schedule End To End		Schedule End Of Life			
Remaining Hours of Use: 0.00		Remaining Hours of Use:	0.00		





Mooring Management Standard Jobs

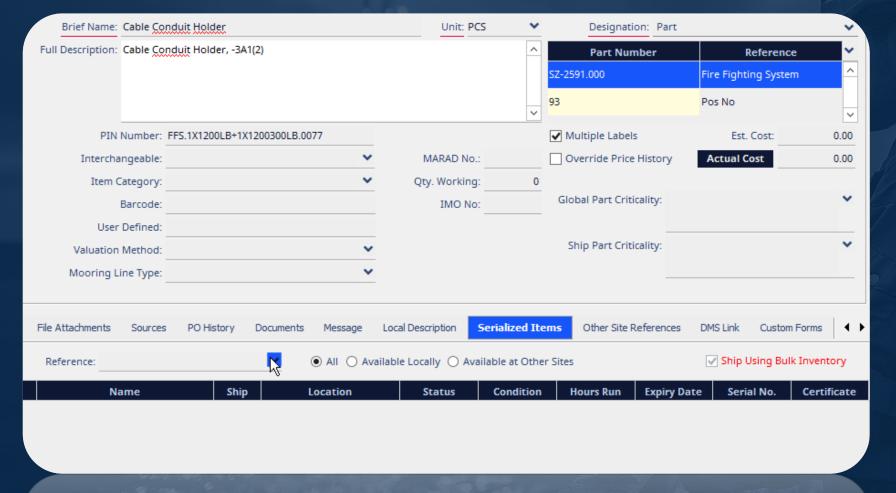
- Create/update Serialized Item Standard Job
- Scheduling Serialized Item Standard Jobs for
 - End to End
 - End of Life
 - Inspection Jobs
- Discarding the Serialized Item based on the completion of the end-of-life work order

- Serialized Item Reference Index
- Companies
- Mooring Line Types





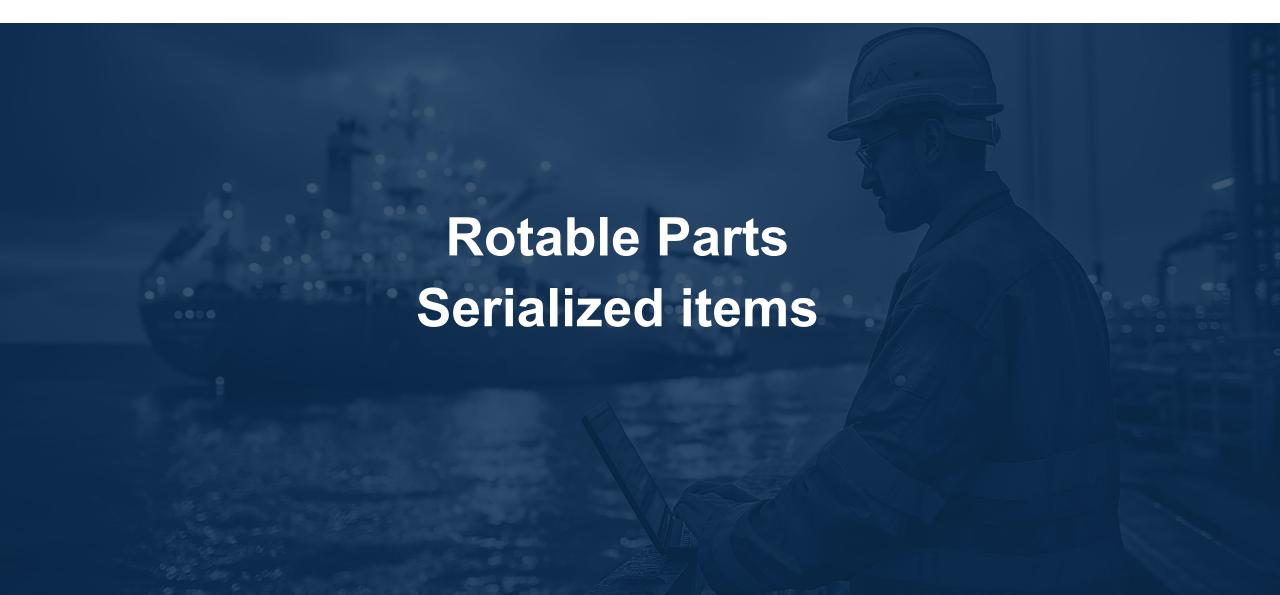
Serialized Mooring Part



SI Reference Index	
<u>F</u> ile <u>H</u> elp	
Q → Search	
Library AC Motor AC Motor Solvent S	
☐ MAN B&W ☐ MAN	
☑ Cylinder Cover - 8K90MC-C ☑ Cylinder Liner - 8K90MC-C ☑ Piston & Rod - 8K90MC-C	
☐ · 전 Mooring - Pennant ☑ Pennant - Type P123 ☐ · 전 Mooring - Soft Line	
☑ Soft line - Type 123 ☐ ☑ Propeller ☑ Azimuth propeller - Type 2 ☑ Azimuth proppller - Type 1	











Serialized Equipment, Part, Assembly

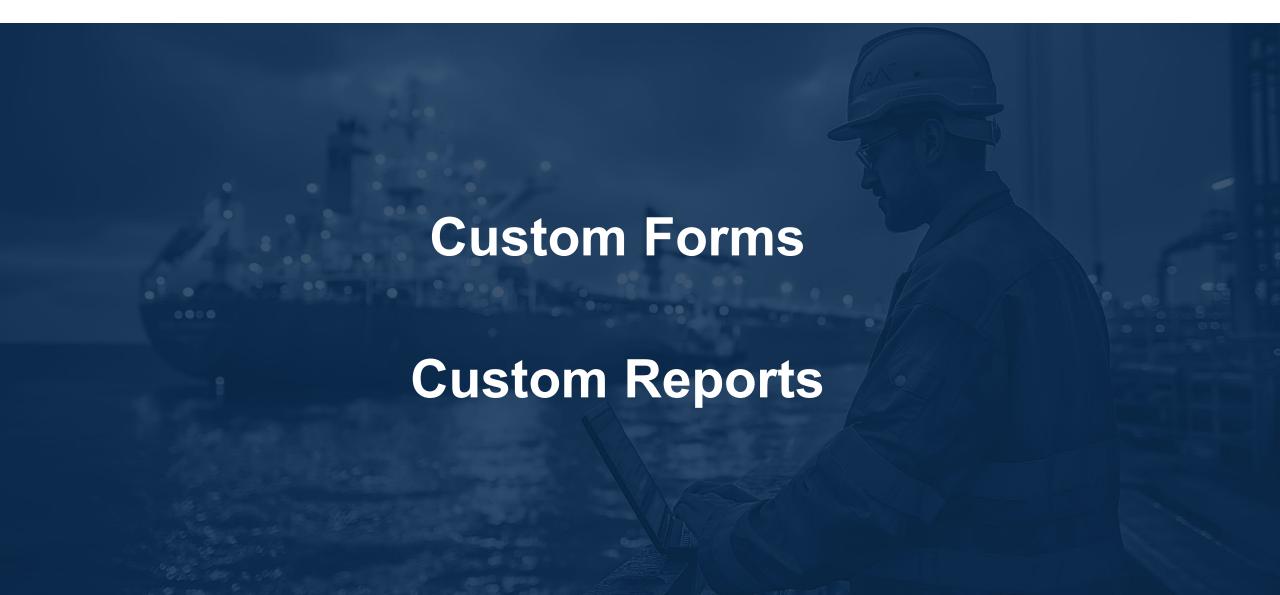
Rotatable Part

- Track and manage
 - Equipment
 - Assembly
 - Part
 - Mooring items
- Scheduling Serialized Item Standard Jobs
- Repair / Reconditioning Work Order

Serialized Item Reference Index











Custom Forms Custom Reports

- What are they?
 - Monthly main engine performance report
 - Port Activity Report
 - Bunkering Activity
 - Sick Report
- Used in Maintenance, HSQE, Crewing
- Belong to specific NSE documents like;
 - Work Order
 - Audit
 - Inspection, Meeting, Drill

- From Custom Form
 - Build Custom Report

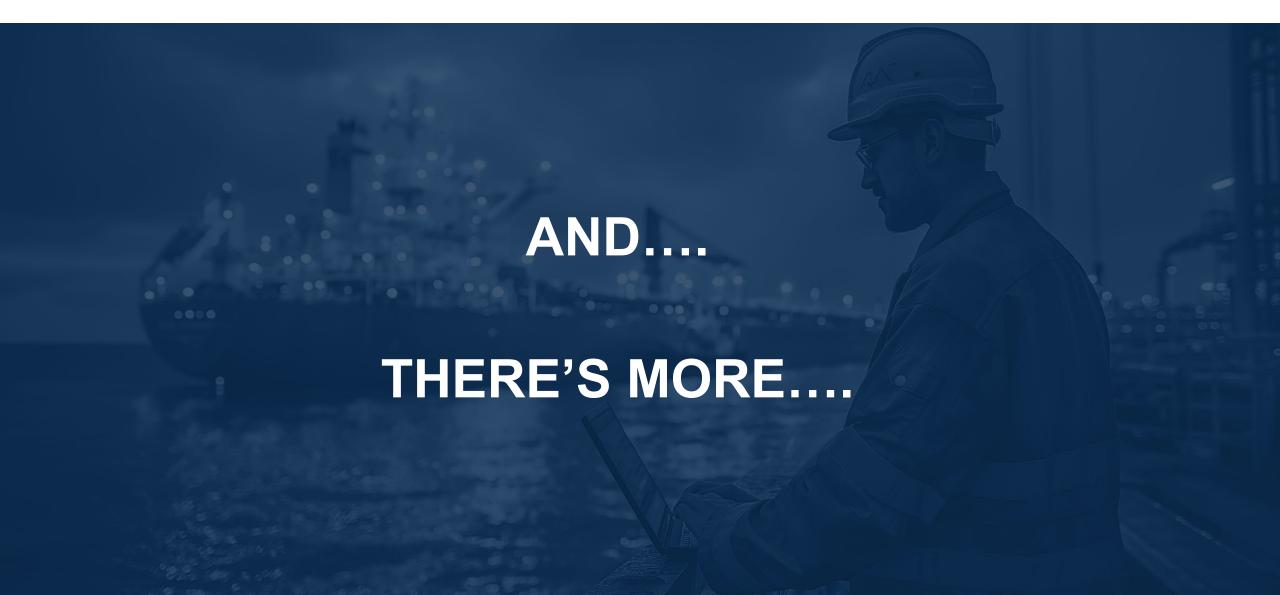




	N	MEF003 - M	ONTHLY MA	AIN ENGINE	PERF	ORMA	NCE T	EST		Ve 107	
Eng. Type			Vessel:					Date:			
Build No.			Yard:					C.Eng:			
Layout BHP/RPM:			Site ID:					1 AE:			
	Cylinder Consta	ant (HP,bar):]	Stroke (m):					
Make:		arger (s) Sr No 1:		Governor:				Bore (m):			
Type:		Sr No 2:		Go	vernor Type:			No. of cyl.:			
Max. RPM:		Compi	slip factor:					_	MFP:		
Max. temp. °C:		Comp	r diameter:								
TC specification:						From Port:					
			_			To Port:					
	Fuel Oil System										
FO in use:				Turboo	harger Lub.	oil system:					
FO viscosity (cst):		at (°C):	(°C):		Brand			Тур	pe	Sp. Grav.	
	Heat Val	Mj/Kg:		Cylinder oil:							
FO Grade (cst):	Heat val i	kcal/kg:		Circulating oil:							
Density @ 15 °C:		Sulphur %:		Turbo oil:							
RAST W.O. No:											
						FOC Ltrs	Time (Min)		% Load	(Powermeter)	
Test Duration (mins)		Ship Speed (OG)		Fuel Cons - test duration			% Load (MEP)				
Draft Fore (M)		Barom. (mBar)		Auto backwash lube oil filters				% Load (T/C RPM)			
Draft Aft (M)		ER Temp		Pressure diff. across filter			Po				
Total Displ (T)		T/C Back	Pr. (mmWc)	Backwash counter value			ı	Power by T/C RPM (BHP)			











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How many points did you get?

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