S.A. Malliaroudakis Maritime UK Ltd.

DESCRIPTION OF SMM DESCRIPTION OF MULTILOAD ADVANCED CARGO SECURING (MACS)

BRIEF DESCRIPTION

Maximize the Capacity Capabilities of your good vessels by adding Cargo on Deck and achieve better utilization of the vessels' Capacities, facilitating Chartering Departments to fix more competitive vessels at more viable terms during these difficult times when Freight Rates are collapsed.

With the Multiload Advanced Cargo Securing Software in use, the deck cargo securing and lashing became more easier than ever, as you can calculate safely and easily the following as per the applicable regulations:

- wind & sea forces,
- external forces,
- transverse sliding & tipping,
- longitudinal sliding and
- lashing details and
- assessment of security of deck cargo

Features Benefits of MACS Module for vessel and office application:

- **Automatic synchronization** of data between vessel and office
- Advanced Cargo Securing Calculations for Deck cargo
- Print-out options
- **Improved efficiency** of operations, judgement and communication.
- **Clarity &Transparency** based on official shipyard's documentation endorsed by SMM (UK) Ltd. as 3rd party.

FREQUENTLY ASKED QUESTIONS

1. How the crew familiarization is achieved?
    a. Manual is incorporated in each Program with detailed & extensive Instructions
    b. Distant Training
    c. Direct Replies to Email of Masters / Chief Officers / Chief Engineers with Cc to your good Company
    d. User Friendliness of Software Interface with a brief description of required actions
2. How we can we handle tiresome ISM / SMS Amendments for alignment with this SMM Product?
    a. SMM Software is tailored to your company's policy/S.M.S. meaning minor ISM/SMS alterations.

b. Just a quick reference to the SMM Software in place and their Manual Contents in ISM is, often, common and effective practice for the majority Shipping Companies.

3. Relative requirements of Programs (hardware, software, data exchange if any)
   a. Light, server-based application running exclusively on Windows operating system environments
   b. SMM Software can be operated by multiple users (clients) on a network
   c. Sync Mechanism requires email access or *data import path* for the whole fleet or a desired path for each vessel.
   d. Possible export in desired editable format, upon discussion and analysis.

SCREENSHOTS

Please see below **Screenshots**:

DEMO COMPANY LTD - DEMO VESSEL

Advanced cargo securing calculation, data input sheet Date: 16-3-18 Time:12:22

Cargo Name: Timber Cargo on Deck

Ship Details

Ship Length	Breadth	GM	Speed	B/GM
192.90	36.00	2.481	14.20	14.51

Cargo Details

Cargo (DH/DL/ TD/TL)	L from Aft	Mass (tn)	Dimensions			C of G (a)	Half base (b)	Friction Coeff-icient (μ)
			Length F/A	Width	Height			
DL	129.50	62	6.00	4.00	4.00	1.80	2.00	0.3

Lashing Details f=μsinα+cosα

TransVer2se Lashings							Longitudinal Lashings				
No (n)	Port/ Stbd	CS	Angle (α)	LeVer2 Arm (c)	CSn fn	CSn cn	No (n)	Fore/ Aft	CS	Angle (α)	CSn fn
1	Stbd	54.00	63.47	3.17	38.64	171.21	1	Fore	54.00	45.02	49.64
1	Stbd	54.00	63.47	4.92	38.64	265.57	1	Fore	54.00	54.49	44.57
1	Stbd	54.00	63.47	4.92	38.64	265.57	1	Aft	54.00	63.47	38.64
1	Port	54.00	65.02	5.80	37.51	313.16	1	Aft	54.00	45.02	49.64
1	Port	54.00	61.73	6.01	39.87	324.41			Total	Fore	94.21
			Total	Port	77.38	637.57			Total	Aft	88.28
			Total	Stbd	115.91	702.34					

Results [Apply Fs(x,y) only to deck cargo up to 2m above deck / hatch top]

Force by Wind Pressure (Fw(x,y))		Force by Sea Sloshing (Fs(x,y))	
Fw(x) Width x Height	Fw(y) Length x Height	Fs(x) 2 x Width	Fs(y) 2 x Length
4.00 x 4.00 = 16.00	6.00 x 4.00 = 24.00	2 x 4.00 = 8.00	2 x 6.00 = 12.00

F(x,y,z) = m a(x,y,z) + Fw(x,y) + Fs(x,y) [Apply Table 4 to ay only]

Table 2			Table 3	Table 4	Accelerations Corrected			Forces		
ax	ay	az			ax	ay	az	Fx	Fy	Fz
2.90	6.30	6.20	0.65	1.00	1.88	4.08	4.01	140.30	288.65	248.64

Fy < μmg + CS1f1 + CS2f2 + . . . + CSnfn

TransVer2se Sliding (Port)			TransVer2se Sliding (Starboard)		
Fy	Lashings	Balance OK?	Fy	Lashings	Balance OK?
288.65	259.84	No	288.65	298.38	YES

Fy a < bmg + CS1c1 + CS2c2 + . . . + CSncn

TransVer2se Tipping (Port)			TransVer2se Tipping (Starboard)		
Fy a	Lashings	Balance OK?	Fy a	Lashings	Balance OK?
519.58	1,854.01	YES	519.58	1,918.78	YES

WE CAN SAIL TOGETHER…..

S.A. Malliaroudakis Maritime (UK) Ltd.
UK Office: 1, Portulacea Gardens · High Snoad Wood · TN25 4DS · Challock, Ashford, Kent · U.K. · **Tel:** +44 (0) 1233 742673
GR Office: 41, Agiou Dimitriou Str. · 185 46 · Piraeus · Greece · **Tel.:** +30 210 45 10000 · **Fax:** + 30 210 46 10333
Web: www.smmnet.com · **Email:** info@smmnet.co.uk , sales@smmnet.co.uk