

MTC 
H A M B U R G

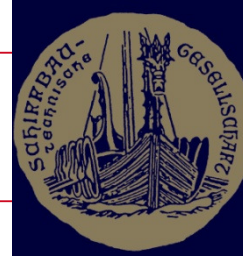


MARINE TRAINING CENTER HAMBURG



INCREASED EFFICIENCY BY CREW TRAINING SIMULATION

SHAREHOLDERS AND PARTNERS



Shareholders of MTC:

- MAN Diesel SE
- Marlow Navigation
- Rickmers Reederei
- Reederei Orion Bulkera
- Lotsenbrüderschaft NOK I
- Lotsenbrüderschaft Elbe
- Lotsenbrüderschaft Hafen Hamburg
- ma-co Maritimes Kompetenzzentrum
- Germanischer Lloyd
- LTF GmbH
- Wussco GmbH

Cooperation partners:

- SAM Electronics
- Rheinmetall Defence Electronics



HAMBURG PILOT



MARLOW NAVIGATION



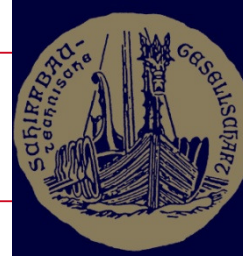
RICKMERS



Germanischer Lloyd

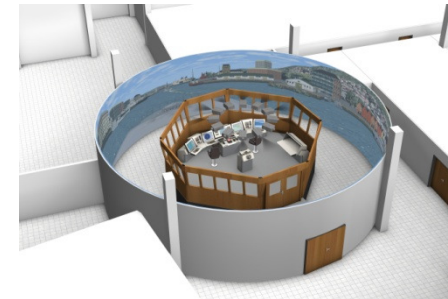


STATE OF THE ART EQUIPMENT

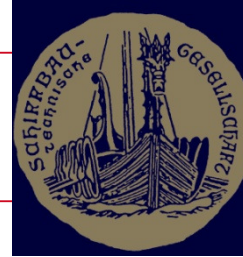


The training courses are performed with modern simulators and equipment:

- Shiphandling Simulator
- Radar / ECDIS Simulator
- Engine Simulator with original ship's automation system
- Simulator for electronically controlled main engine
- Workshop for 2-stroke and 4-stroke engines
- Workshop for electrical courses incl. medium voltage
- GMDSS Simulator
- Liquid Cargo Simulator



COURSE PORTFOLIO

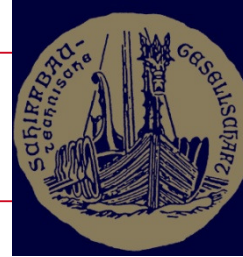


MTC provides a comprehensive package of maritime courses:

- Navigation, ship's command
- Pilot training
- Engine operation
- Maintenance of engines
- Cargo operations
- Safety (in cooperation with ma-co)
- Leadership courses



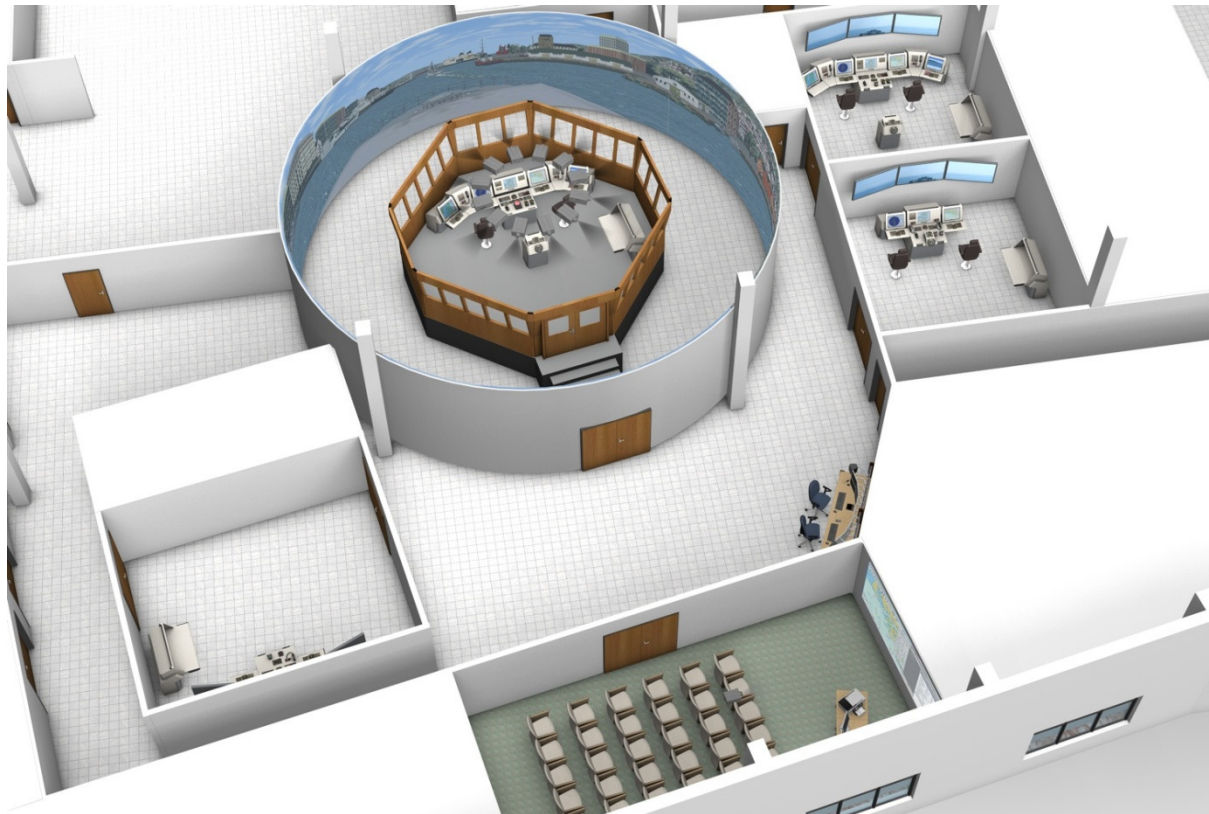
SHIPHANDLUNG SIMULATOR



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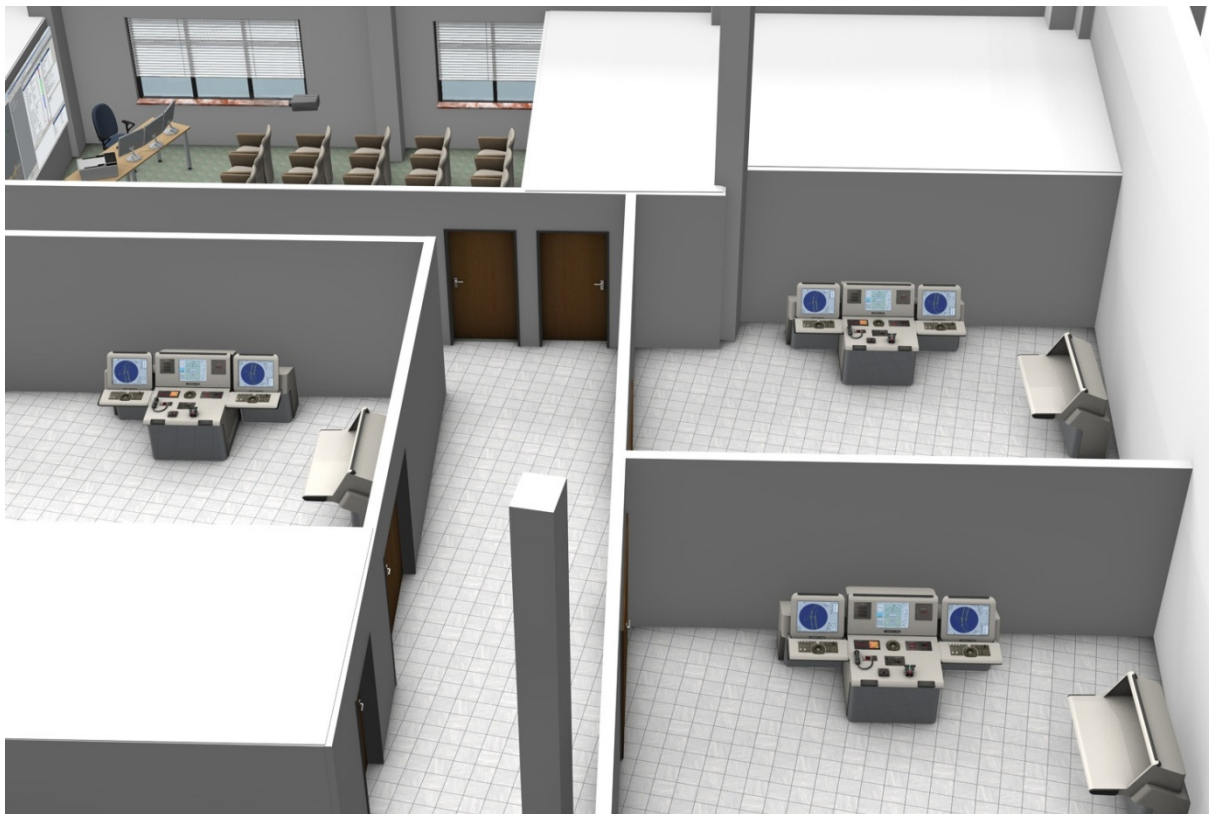
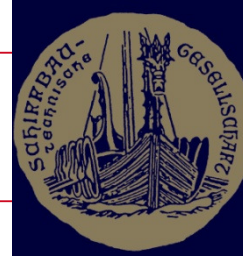
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Shiphandling Simulator

- Bridge 1 :360° Visual system
- Bridges 2-4:120° Visual system

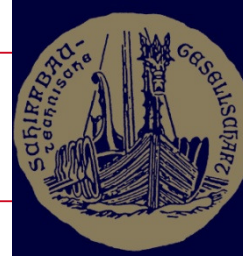
RADAR SIMULATOR



Radar Simulator

- All bridges with integrated navigation system NACOS and Multipilots

ENGINE SIMULATOR



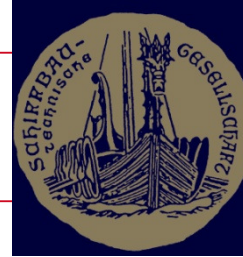
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Engine Simulator

- Equipped with original automation system and engine remote control system

Modelling Center

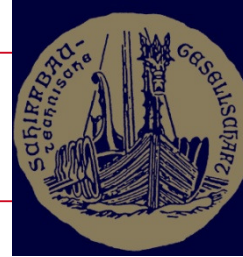


Development of:

- Ships' models (visual and mathematical)
- Visual models
- Enc's
- Training programs



ACCIDENT PREVENTION



Training of the crew is leading to better performance and increasing efficiency:

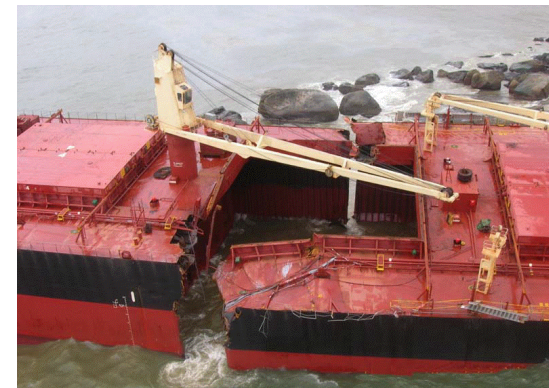
- First priority: **Avoidance of accidents**
 - Avoidance of damage to environment
 - Avoidance of damage to ship and machinery
 - Improved safety for crew, passengers, cargo and environment
 - Familiarisation with new technology
 - Familiarisation with new ships
 - Familiarisation with new regulations
- Less accidents, less damages



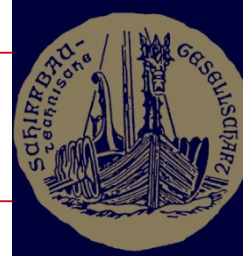
less insurance costs



less operating costs

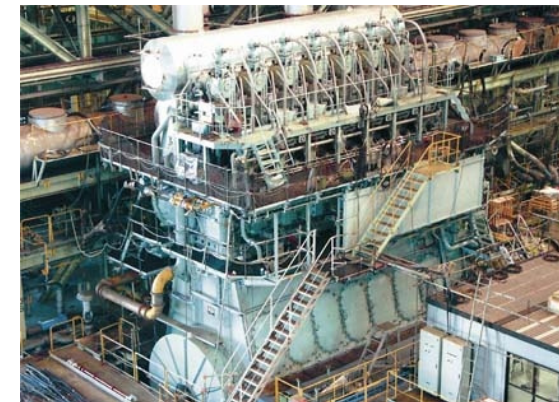


NEW TECHNOLOGY: Electronic Engine



Characteristics of electronically controlled, 2-stroke main engines from MAN:

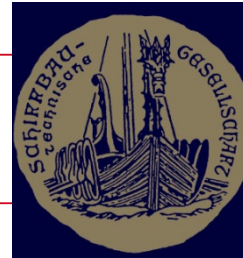
- Electronically controlled, hydraulically actuated exhaust valves and fuel injection
- No camshaft
- No mechanical governor
- Improved exhaust gas emissions, reduce NOX and SOX
- Saving of cylinder lub oil
- Improved fuel consumption



MTC is offering specific, 4-day courses to educate the participants in:

- Understanding the principle of electronic engines
- Operating the engine efficiently
- Avoiding damages
- Avoiding unwanted breakdowns
- Fault finding and problem solving

NEW TECHNOLOGY: POD Propulsion



Characteristics of POD Propulsion:

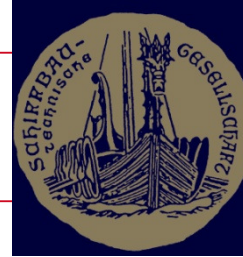
- Dieselelectric propulsion principle
- Electric motor in a 360° turnable propulsion unit underneath the vessel
- Low vibration, low noise
- High manoeuvrability

MTC is offering 2- or 3-day courses to educate the participants in:

- Understanding the principle of POD propulsion
- Learning of specific manoeuvres in the simulator
- Manoeuvring the vessel without tugs



NEW TECHNOLOGY: 13.100 TEU C/V

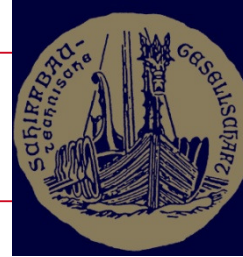


Characteristics of the 13.100 TEU Container vessel:

- Length: 367 m
- Breath: 48,6 m
- Draft: 15,0 m
- Engine power: 72.240 kw
- Deadweight: 151.000 t
- Lateral area: 14.000 m²



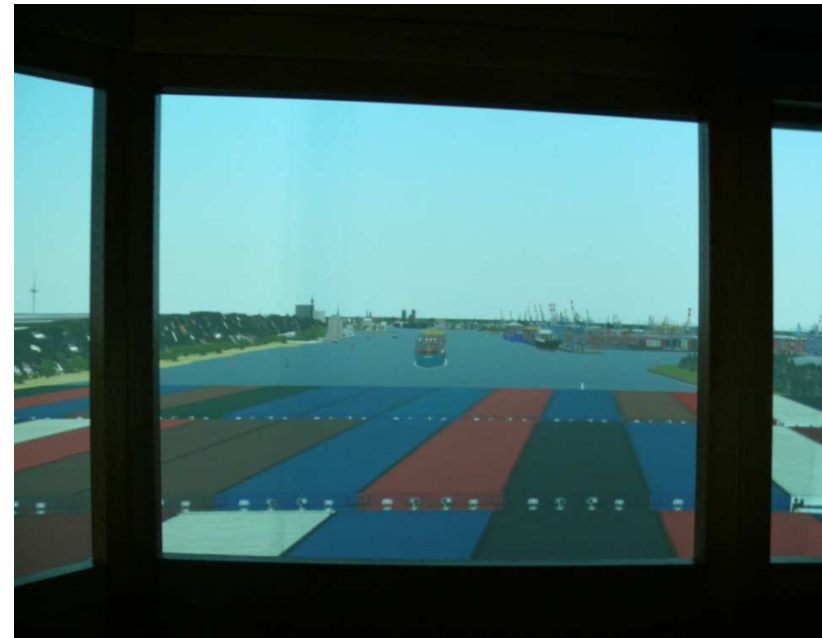
NEW TECHNOLOGY: 13.100 TEU C/V



View from the bridge

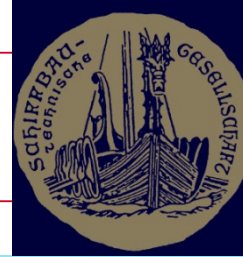


8.750 TEU, 335 m

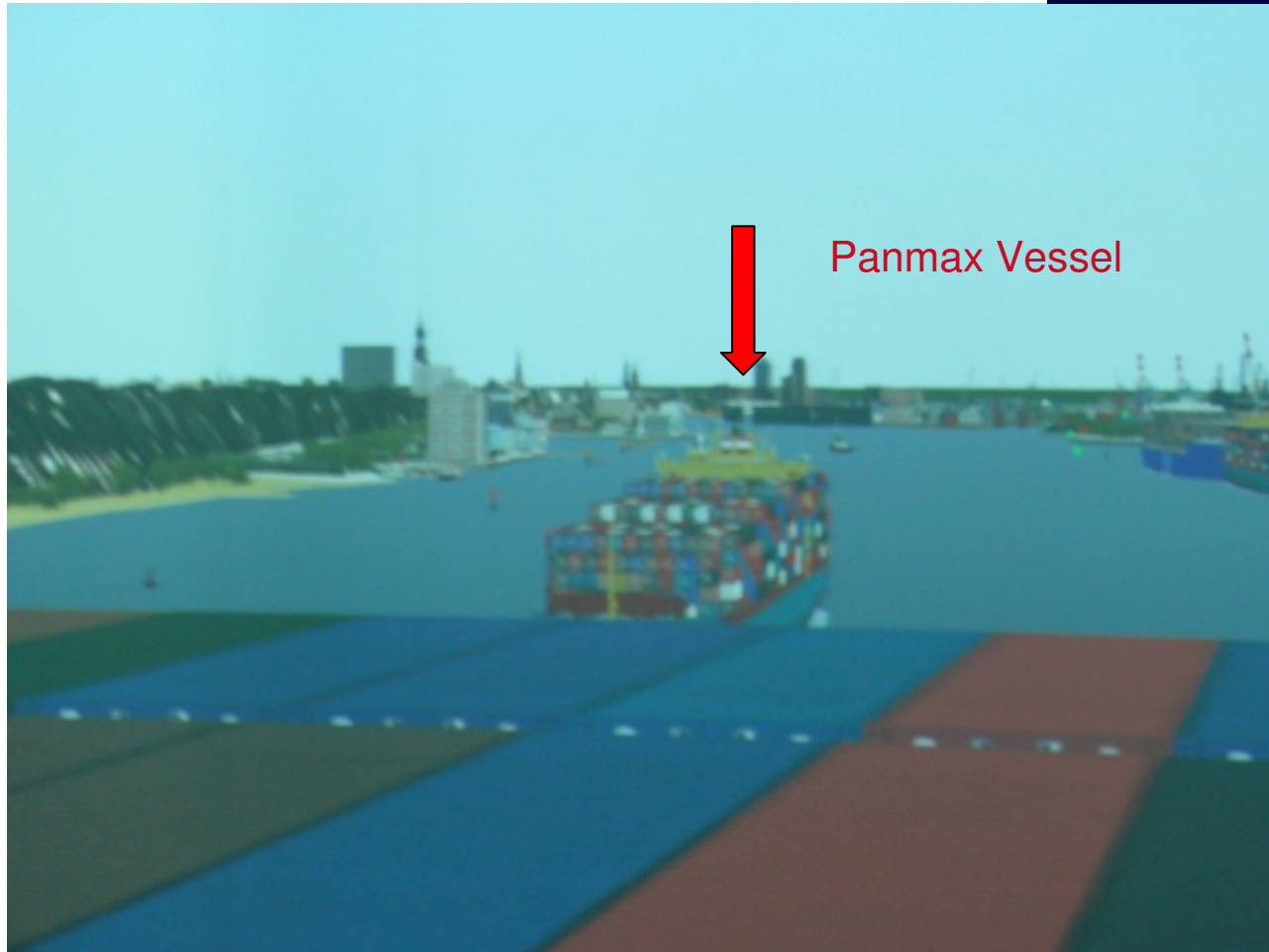


13.100 TEU, 367 m

NEW TECHNOLOGY: 13.100 TEU C/V



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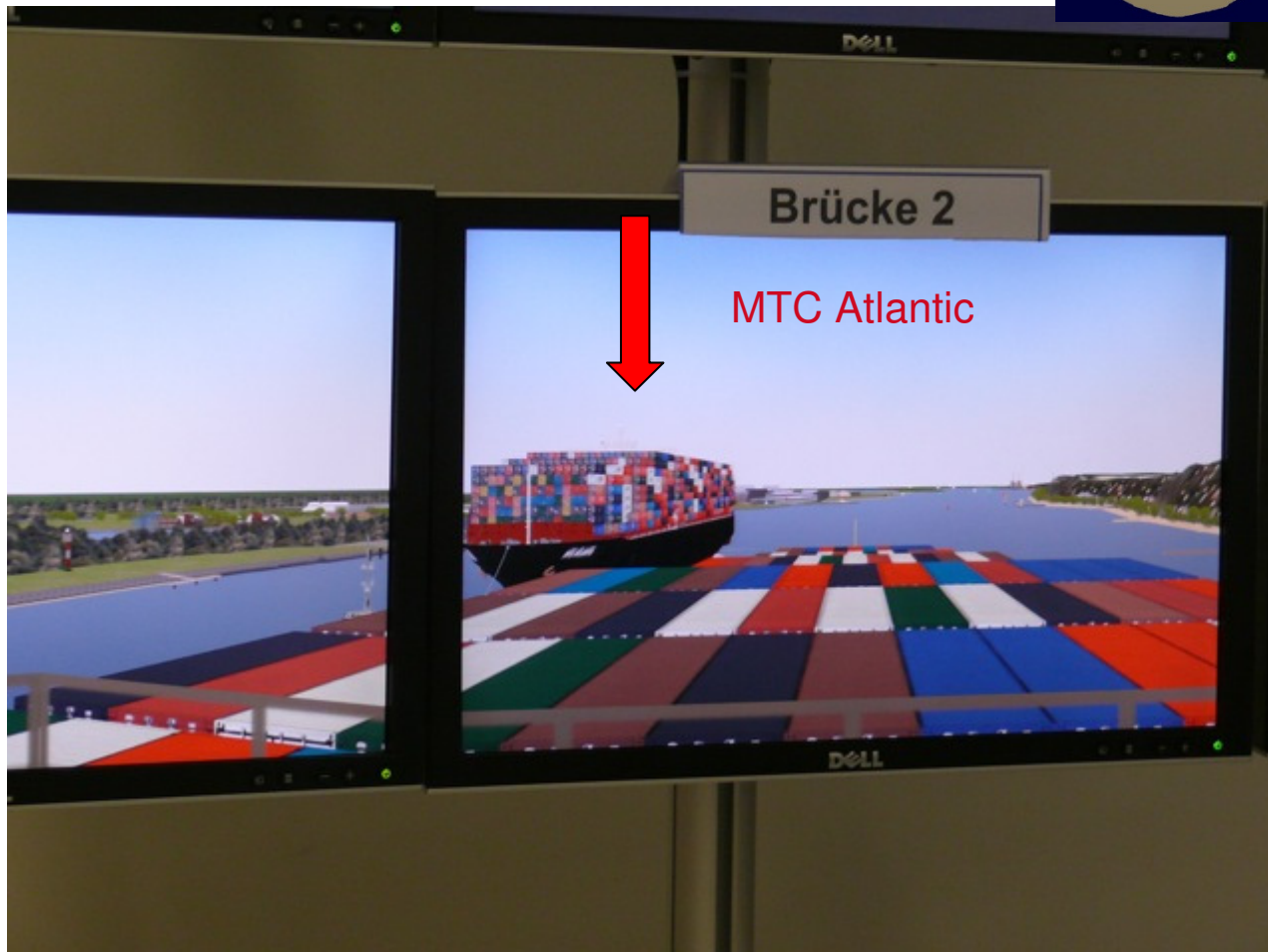


View from the bridge

NEW TECHNOLOGY: 13.100 TEU C/V

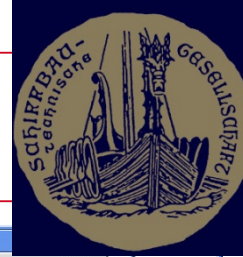


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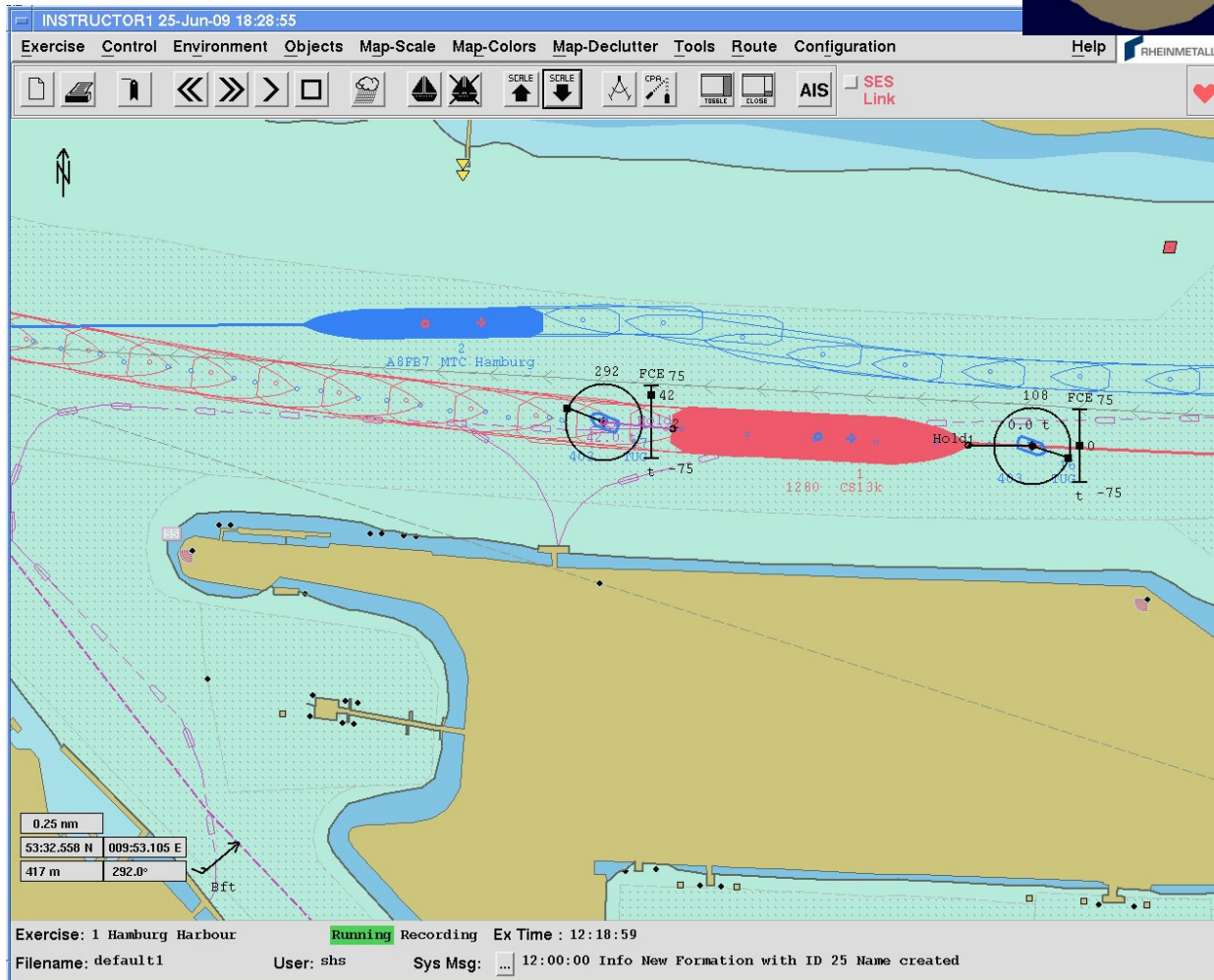


View from the bridge of
Panmax vessel

NEW TECHNOLOGY: 13.100 TEU C/V

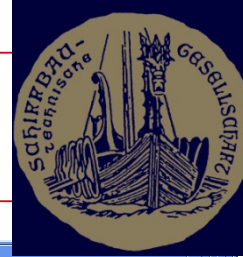


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Ship / ship interaction

NEW TECHNOLOGY: 13.100 TEU C/V



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INSTRUCTOR2 11-Jun-09 14:05:28

Exercise Control Environment Objects Map-Scale Map-Colors Map-Declutter Tools Route Configuration Help RHEINMETALL

Map navigation icons: Home, Back, Forward, Stop, Scale Up, Scale Down, Rotate, etc.

Name: Bugstier 5	Id: 16				
Type: Tug (Jaya)	Rad: JA456				
Pos: 53:31.964 N 009:54.723 E					
To Obj Bear 145 deg Dist: 0.7 nm					
Ctrl: Instr.	APilot				
Heading (a): 121.0 deg					
Course (c/a): 121.0 deg 122.9 deg					
Rudder (c): 0.0 deg					
Speed (c/a): 0.5 kts 0.5 kts					
Name: HLB_VLCS_363_FLW	Id: 2				
Type: HLB_VLCS_363	Rad: R 200				
Pos: 53:31.994 N 009:54.595 E					
To Obj Bear 149 deg Dist: 0.7 nm					
Ctrl: BRIDGE2	FOL UP				
Rud: > 0	Hd: 316				
RoT: < 6	/mir				
Bow: < 0.7 kts	Bow: < 0.7 kts				
BT: -3.0 kts	WT: -3.1 kts				
Stern: > 0.5 kts	Stern: > 0.5 kts				
Prop	Env	Equ	Ctrl	Aux	Dat
Engines ...	Thrusters	Rudders ..	unused		
unused	unused	Pumps ...	unused		
Air ...	Cushion ...	unused	unused		

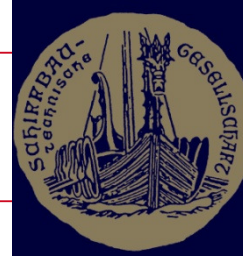
0.50 nm
53:32.553 N 009:54.039 E
1205 m 329.3°

Exercise: 2 Hamburg Harbour **Stopped** Recording Ex Time : 12:42:32
Filename: HLB_363_Park_EIN_UEB User: shs Sys Msg: 12:42:32 Info New TrackPoint with ID 146 created

Turning and docking in
Hamburg Waltershof

Hamburg, Sept. 28th, 2009

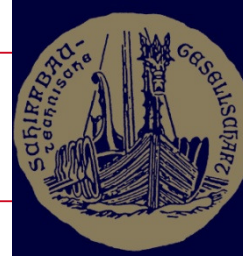
NEW TECHNOLOGY: 13.100 TEU C/V



Wind forces

Vessel	Longitudinal Wind Area	Wind Speed	Bollard Pull in Tons
Hamburg Express 335 m	8.000 m ²	27 kts	105
MTC Atlantic 367 m	14.000 m ²	27 kts	170

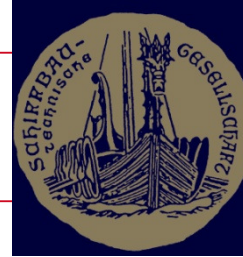
NEW TECHNOLOGY: 13.100 TEU C/V



MTC is offering 3- or 5-day courses to prepare crews for service on these vessels:

- Excellent cooperation of bridge team
- Familiarization with ships' size
- Development of manoeuvring strategy with new conning position
- Consideration of larger forces and masses (Tug, Bollards, Turning Circles)
- Consideration of drifting and stopping distance at different weather conditions
- Operation and reliance on modern navigation equipment
- Preparation of bridge team in the simulator in respective manoeuvring areas

TANKER OPERATION



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Safety and accident prevention is of highest priority for tanker operations:

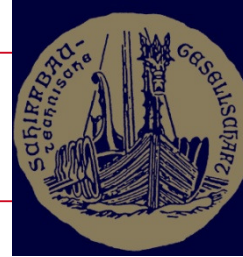
Simulator training is an excellent tool to educate officers and engineers in:

- Optimizing the loading and discharging process
- Crude oil washing, inert gas operation, ballasting, tank washing
- Understanding of interaction between different processes
- Damage prevention of machinery like pumps, valves, hoses and instruments
- Reduction of preparation times



Improvement of processes means reduction of operating costs!

TANKER OPERATION – NEW COURSES



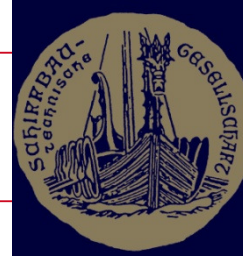
Simulation of ship to ship transfer operations :

- Exercise the safe docking operation of 2 ships at sea in the shiphandling simulator
- Provide receiving and delivering vessels for cargo transfer
- Exercise cargo transfer, crude oil washing, inert gas operation
- Train ship / ship communication
- Checklists and preparation



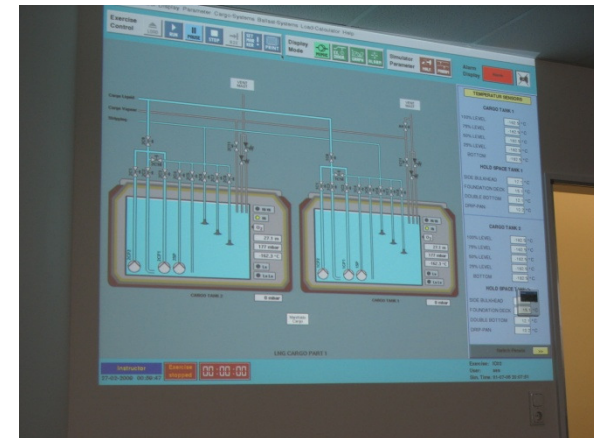
Training of crew will reduce transfer times and decrease risks

TANKER OPERATION – NEW COURSES



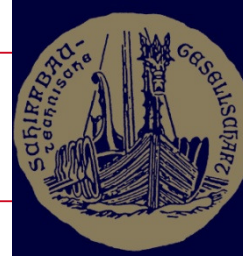
TOTS – Tanker Officer Training Standards:

- TOTS has been developed by Intertanko
- TOTS might be requested by oil majors in the future
- Training standards are developed for:
 - Crude oil tankers Module A + B
 - Product tankers Module A + B
 - Chemical tankers Module A + B
- Module A = Company internal exercises and documentation
- Module B = Simulator training and simulator verification
- TOTS courses are available from Oktober 2009



Standardisation of training for tankers

ENGINE MAINTENANCE



Maintenance courses for specific items:

- Alpha Cylinder Oil Lubricator System
- Engine Pneumatic Control and VIT System
- TCA/TCR and NA/NR Turbochargers
- NOX, SOX, CO², and PM Emissions
- Assessment of Engine Operating Parameters
- Engine Low Load Operation



Competent maintenance prevents from damages