REQUEST FOR PROPOSAL DESIGN, MANUFACTURE, SUPPLY, AND COMMISSIONING OF ONE (01) MOBILE HARBOUR CRANE (MHC)

GENERAL	Location	Thessaloniki							
	Country	Greece							
	Number of MHC	1							
	Safe working load (SWL) in Heavy lift mode	140 tons under ropes							
	Type of grab	2 mechanical grabs							
	Minimum Life Design Cycles	2 millions							
	High productivity	Minimum of 25 moves/hour							
	EURO vs DOLLAR* (if proposal in USD)	1,23 USD							
	ITEM	**QUANTITY**	**DESCRIPTION**	**UNIT PRICE (EUR)**	**NIT PRICE (US**	**AL PRICE (EU**	**TAL PRICE (U**	**COMMENTS**	
FINANCIAL OFFER	1	1	STS Crane price exclud. Spreader or grab delivered on site and ready for operation	- EUR	0,00 USD	- EUR	0,00 USD		
	2	1	Mechanical grab 20 cbm	- EUR	0,00 USD	- EUR	0,00 USD		
	3	1	Mechanical grab 35 cbm	- EUR	0,00 USD	- EUR	0,00 USD		
	4	1	Spare parts	- EUR	0,00 USD	- EUR	0,00 USD		
	5	1	Consumables	- EUR	0,00 USD	- EUR	0,00 USD		
	6	1	Tools	- EUR	0,00 USD	- EUR	0,00 USD		
	OPTIONS								
	O1	1	Energy storage device	- EUR	0,00 USD	- EUR	0,00 USD		
	O2	1	Anti-sway control	- EUR	0,00 USD	- EUR	0,00 USD		
	O3	1	Remote control	- EUR	0,00 USD	- EUR	0,00 USD		
	O4	1	Ground cabin	- EUR	0,00 USD	- EUR	0,00 USD		
	O5	1	Automatic fire suppression system	- EUR	0,00 USD	- EUR	0,00 USD		
	O6	1	THPA painting colors	- EUR	0,00 USD	- EUR	0,00 USD		
	O7	1	Remote service assistance (yearly fees)	- EUR	0,00 USD	- EUR	0,00 USD		
	O8	1	Verifiable weighing system	- EUR	0,00 USD	- EUR	0,00 USD		
	O9	1	Automatic grab filling	- EUR	0,00 USD	- EUR	0,00 USD		
	O10	1	Lighting package LED	- EUR	0,00 USD	- EUR	0,00 USD		
	O11	1	Point-to-point handling mode	- EUR	0,00 USD	- EUR	0,00 USD		
		REQUIREMENTS	**PROPOSAL**	**COMMENTS**					
DELIVERY TIME	Manufacturing time / delivery ExW								
	Shipment								
	Offloading, final erection, on-site works	< 10 weeks							
	Commissionning								
	Hand-over								
	Total delivery time	<6 months							
	Liquidated damages	Level of liquidated damages in case of delayed delivery							
		REQUIREMENTS	**PROPOSAL**	**COMMENTS**					
PAYMENT TERMS	Advance Payment Guarantee	All pre-delivery installments are subject to the receipt of a refund guarantee acceptable to the Buyer / Buyer's bank							
	Time frame	10% downpayment,two (02) months after contract signing							
		20% two (02) months after signature of the contract and after the reception of the second instalment of the advance payment Guarantee							
		35% at delivery to site							
		30% at final acceptance							
		5% at final acceptance and no remaining punch list issues							
		REQUIREMENTS	**PROPOSAL**	**COMMENTS**					
WARRANTY	Warranty Bond	The Seller shall provide the Buyer with a warranty bond amounting to five per cent (5%) of the total Contract Value on Delivery of the Equipment to the Buyer. The warranty bond shall be valid for 24 months start from the date of Delivery.							
	General	2 years							
	Paintwork & galvanizing	10 years							
	Structure	10 years							
	Power pack	5 years							
	Motors/gearbox/hydraulic pumps	5 years							
	Electrical components	3 years							
	Mechanical grab	3 years							
	LED ligthings	5 years							
	Replaced parts	For parts replaced under above-said guarantee also the further guarantee of same guarantee period is given under the same conditions that apply to the original Equipment							
	Preventive maintenance garantee	Costs of maintenance spare parts for first 5 years or 20,000 hours							
		Spare parts availability shall be guaranteed during the crane lifetime							
		Spare parts delivery time guarantee							
				PRICE PER CRANE (EUR)	**PRICE PER CRANE**	**AL PRICE (EU**	**TAL PRICE (U**	**COMMENTS**	
OPERATIONAL COSTS AND DATA	Spare Parts Cost average 10 000 hours	Spare Parts Cost	0 - 2 500 hours	- EUR	0,00 USD	- EUR	0,00 USD		
		Spare Parts Cost	2 501 - 5 000 hours	- EUR	0,00 USD	- EUR	0,00 USD		
		Spare Parts Cost	5 001 - 7 500 hours	- EUR	0,00 USD	- EUR	0,00 USD		
		Spare Parts Cost	7 501 - 10 000 hours	- EUR	0,00 USD	- EUR	0,00 USD		
	Maintenance Cost average 10 000 hours	Maintenance Cost	0 - 2 500 hours	- EUR	0,00 USD	- EUR	0,00 USD		
		Maintenance Cost	2 501 - 5 000 hours	- EUR	0,00 USD	- EUR	0,00 USD		
		Maintenance Cost	5 001 - 7 500 hours	- EUR	0,00 USD	- EUR	0,00 USD		
		Maintenance Cost	7 501 - 10 000 hours	- EUR	0,00 USD	- EUR	0,00 USD		
	Fuel consumption	L/cycle for one cycle, empty load							
		L/cycle for one cycle, 40t of load							
		L/cycle for one cycle, 80t of load							
	Cost of main components	List of cost of strategic components with estimated life time							
		Costs and delivery time of main mechanic parts							
		Costs and delivery time of main electrical parts							
		Costs and delivery time of main electronic & PLC parts							
SHIPMENT, DELIVERY AND SITE WORK	Mode of transport	Fully erected or semi-assembled delivery							
	Shipping	The crane(s) shall be secured on the vessel to prevent any stresses of the structure							
		All mechanical and electrical equipment shall be properly covered and secured							
	Berthing and offloading	The Seller is responsible for the offloading of all goods and shall assume all costs and risks							
	Customs Clearance	Consignee for shipment of all the Goods shall be the manufacturer							
		Import declaration and cost thereof shall be the responsibility of the manufacturer							
	Commissioning	All lifting equipment and tools necessary for commissioning shall be provided by the Supplier							
		Commissioning Tests Application: under the supervision of the terminal or a third party agency							
		Test Weight: the load test weights will be provided by the Buyer							
	Certification	Certification by local surveyor to be organized by the terminal, any comments to be rectified by supplier at his own cost							
	Acceptance Certification	Issued on successful completion of the Commissioning Test and training program							
TENDER PROCESS	Clarifications / questions	see ANNEX 01 for contact							
	Time frame	The Bids must be received by CMA CGM Procurement Department by 31/07/2018							
		Only electronic bidding (see ANNEX 01 for contacts)							
		Any offer received after the closing date will be rejected							
		A meeting could be scheduled by CMA CGM/Terminal Link or THPA Procurement Dpt with shortlisted bidders for bid presentation and negotiation							
	Validity of the offer	180 days							
	Contents of the bids	1. Presentation of the bidder							
		2. Experience and references of the bidder in similar projects							
		3. A technical proposal detailing the methodology to be used, GA drawings and all technical choices proposed by the bidder for each stage with justification							
		Wheel load, stability, motor rating calculations to be provided with the technical offer							
		4. List and Presentation of its subcontractors and suppliers							
		5. Detailed time schedule of each stage of the project (engineering, manufacturing, delivery, erection, commissionning, etc)							
		6. The organization the bidder will set in place to realize the project (on site and remotely)							
		7. Examples of report realized by the bidder for similar project and Letters of recommandation							
		8. A Financial Offer including the Detailed Price table provided in the RFP filled out and signed.							
	Evaluation criteria	Same importance granted to Financial Offer, Technical Proposal and experience of the Bidder, Delivery time							
ANNEX 01 - CONTACTS	Clarifications / questions	ho.edelvallee@cma-cgm.com							
		ho.aagdestein@cma-cgm.com							
	Contacts for bidding	ho.edelvallee@cma-cgm.com							
		ho.aagdestein@cma-cgm.com							
ANNEX 02 - DEFINED CYCLE	Duty cycle calculation	For a load of 4t, 25t or 40t ; including acceleration times							
	Cycle description	Starting time: spreader landed on a container in the vessel (at sea level, radius +25m)							
		1) Twistlocks lock							
		2) The container is hoisted from the vessel ; hoist up +20m							
		3) Luffing 20m							
		4) Slew 135°							
		5) Lowering of container onto the ground and stop ; hoist down -20 m							
		6) Release of container							
		6) Hoisting of empty spreader ; hoist up +20 m							
		7) Slew -135°							
		8) Lowering of empty spreader and return to initial radius							

REQUEST FOR PROPOSAL **DESIGN, MANUFACTURE, SUPPLY, AND COMMISSIONING OF ONE (01) MOBILE HARBOUR CRANE (MHC)**
TECHICAL SPECIFICATIONS

TITLE	PARAGRAPH	DESCRIPTION		PROPOSAL	COMMENTS / DEVIATIONS	REF. OR DESCRIPTION IN BIDDER'S PROPOSAL
1. GENERAL REQUIREMENTS	1.1	Scope of deliveries	One mobile harbour crane, with 2 mechanical grabs, spare parts and tools.			
		A- Configuration	4 ropes, 2 hoist winches			
		B- Power Pack	Diesel Engine Tier 4f + generator			
		C- Mode of delivery	Fully erected or semi-assembled (limited work on-site)			
	1.2	Main traffics	Dry bulks (Manganese ores, clinker, grains), containers, iron products			
		A- Dry bulk traffic	Crane can operate mechanical grab			
		B- Container traffic	Crane can be compatible with spreader type EH5U			
		C- Heavy lift	Heavy lift mode			
	1.3	Principal duty	Compact crane which designed for heavy duty handling at economically variable working speeds and with a service life appropriate to the application			
	1.4	Operated vessels	Panamax and Post Panamax, barges, feeders			
	1.5	Main Capacity	Capacity of 120 t under hook at min. radius			
	1.6	Capacity grabs on rope				
		A- Capacity under rope at 20m	55t			
		B- Capacity under rope at 30m	55t			
		C- Capacity under rope at 40m	40 t			
	1.7	Capacity in heavy lift mode				
		A- Capacity under hook at 20m	110 t			
		B- Capacity under hook at 30m	60 t			
		C- Capacity under hook at 40m	45 t			
	1.8	Minimum outreach	48 m			
	1.9	Type of boom	Preference for a 4-chords latice boom			
	1.10	Certification	CE			
2. SITE DEFINITIONS	2.1	Climatic conditions				
		A- Atmosphere	Salt laden marine environment with fine sand			
		B- Temperature	From -5°C to +40°C, direct sunlight			
		C- Winds	Operating Wind speed=24 m/s Stowed Wind Speed=42 m/s Max wind speed during travelling=20 m/s			
		D- Humidity	Max 100%			
		E- Local Environment	Rain Exposure to snow (up to 20 cm) and rarely ice during winter months			
	2.2	Operations				
		A- Vessel's width	Maximum 36 m			
		B- Fender's width	1.5 m			
		C- Distance supporting pad-quay edge	2.4 m Between the seaside and the edge of the crane an installed electrical canal has been constructed by Specimas Company			
		D- Max. slope during travelling	2% without load in transverse direction 5% without load in longitudinal direction			
	2.3	Quay requirements				
		Normal conditions	all static loads included			
		Extreme conditions	all static and dynamic factors are included			
		A- Maximum axle set loading	Normal = 25,0 t Extreme = 25,0 t			
		B- Maximum corner loading	Normal (static excluding wind, boom 90°) = XXX,X t Normal (static excluding wind, boom 45°) = XXX,X t Normal (static including wind, boom 90°) = XXX,X t Normal (static including wind, boom 45°) = XXX,X t Extreme (dynamic including wind, boom 90°) = XXX,X t Extreme (dynamic including wind, boom 45°) = XXX,X t			
		C- Maximum area pressure	Normal (static excluding wind, boom 90°) = XXX,X t/sqm Normal (static excluding wind, boom 45°) = XXX,X t/sqm Normal (static including wind, boom 90°) = XXX,X t/sqm Normal (static including wind, boom 45°) = XXX,X t/sqm Extreme (dynamic including wind, boom 90°) = XXX,X t/sqm Extreme (dynamic including wind, boom 45°) = XXX,X t/sqm			
		D- Uniform Distributed Load	Max. UDL= 5 t/sqm			
3. STANDARDS	3.1	Design	BS 2573 ; FEM1.001(1998) ; BS 5400-10			
	3.2	Structure	FEM1.001(1998) ; EN 10025			
	3.3	Drawings-Plans	ISO 128 ; ISO 14617-1:5 ; ISO 4306-5			
	3.4	Access	ISO 11660-5 ; ISO 14122-1:4			
	3.5	Mechanical	ISO 6336-1:6 ; ISO 14556 ; ISO 9018 (2013)			
	3.6	Welding	AWS D 1-1:5 ; ISO 15609 (2004) ; ISO 15607 (2003) ; ISO 2560 (2005)			
	3.7	Fasteners	AISC for bolted joints			
	3.8	Hydraulics	ISO 5781 (2016) ; ISO 4413 (2010)			
	3.9	Diesel Engine	ISO 8528-1:12 ; ISO 3046-1:6			
	3.10	Electrical	IEC 60529 ; ISO 10245.5 (1995) ; IEC 6024 ; IEC 60304			
	3.11	Cabins	ISO 7752-5 ; ISO 8566-1:5 ; ISO 2631-1 ; ISO 5349-1 ; ISO 10816-3 ; ISO 11690-1:2 ; ISO 15667			
	3.12	Safety	ISO 12100-1:2 ; EN 954-1 ; ISO 12480-1 (1997)			
	3.13	Painting and coating	ISO 12944-1:8 ; ISO 8501-1:2 (2007) ; ISO 14713 ; ISO 11124-1:4 ; ISO 2808			
	3.14	Quality Management	ISO 9001			
4. DESIGN CRITERIA	4.1	Design life	25 years 2,000,000 cycles			
	4.2	Crane structure	Classification of crane as a whole in appliance groups			
		A- Class of Utilization	U7			
		B- State of Loading	Q2			
		C- Group Classification	A7 (Mechanical grab operation, rated load)			
		D- Impact Factor	1.4			
		E- Duty Factor	0.9			
	4.3	Mechanical design life				
		A- Hoist, mechanical grab	M8, T6, L4			
		B- Hoist, heavy-load operation	M8, T6, L4			
		C- Hoist, spreader/normal operation	M6, T6, L3			
		D- Luffing	M6, T6, L2			
		E- Slewing	M4, T3, L3			
		F- Travelling	M4			
	4.4	Operating speeds				
		A- Hoisting/Lowering	20 m/min with 100t 25 m/min with 80t 50 m/min with 40t 120 m/min without load			
		B- Slewing	0-1,6 rpm 280 m/min (max peripheral speed boom head) unlimited slewing range (360°)			
		C- Luffing	75 m/min (average horizontal speed) 45 s from max to min radius with rated load			
		D- Travelling	Up to 80 m/min			
	4.5	Accelerations time (full speed)				
		A- Hoisting/Lowering	3 seconds			
		B- Slewing	5 seconds			
		C- Luffing	2 seconds			
		D- Travelling	6 seconds			
	4.6	Capacity	Detailed load curves expected			
	4.7	Position of luffing cylinder	Better above boom			
5. MAIN DIMENSIONS	5.1	Total weight				
		A- Undercarriage				
		B- Superstructure and counterweights				
		C- Column				
		D- Cabin				
		E- Boom and luffing cylinder				
		F- Rotator and wire ropes				
	5.2	Support base				
		A- Dimension	minimum 13m x 13m (169 sqm)			
		B- Size of supporting pads				
		C- Supporting area under pads				
		D- Number of axle sets				
		E- Axle sets DRIVEN				
		F- Axle sets STEERABLE				
		G- Number of wheel	4 per axle sets			
		H- Tyres	285/70 R 19,5 or 14,00-24			
		I- Tyre pressure	10 bar			
	5.3	Overall dimensions				
		A- Overall width without pads				
		B- Overall width with supporting pads and deployed outtriggers				
		C- Overall width in travelling mode				
		D- Overall length of undercarriage				
		E- Length of boom	minimum 48 m			
		F- Minimum operating radius	maximum 11 m			
		G- Height of boom fulcrum				
		H- Overall height of tower				
		I- Cabin height (eye level)				
	5.4	Turning radius				
		A- Inner				
		B- Outer				
		C- Tail swing				
		D- Max. crab steering angle	Min. 25°			
	5.5	Maximium Hoisting height				
		A- Above quay at min. radius	48 m			
		B- Above quay at max radius	35 m			
		C- Below quay	15 m			
6. POWER PACK	6.1	Diesel Engine				
		A- Brand	Cummins, MAN, Volvo, Mercedes, MTU, Liebherr			
		B- Model				
		C- Emission standard	Tier 4f			
		D- Number of cylinders				
		E- Cooling system	Water			
		F- Max. torque				
		G- Nominal output				
		H. Average consumption	in l/hr			
	6.2	Tank capacity				
		A- Fuel tank	Integrated in the chassis steel structure, capacity in l to be detailed			
		B- AdBlue tank	1000 l			
		C- Possible operating time without refueling	200 hours			
	6.3	Three-phase generator				
	7.1	Hoist system				
		A- Motors				
		B- Brake system				
		C- Reduction gear unit/hydraulic pump				
		D- Milled rope drums				
		E- Easily accessible				
	7.2	Slewing system				
		A- Motors				

7. MECHANISMS		B- Brake system				
		C- Reduction gear unit/hydraulic pump				
		D- Milled rope drums				
		E- Easily accessible				
	7.3	Luffing system				
		A- Luffing cylinder				
		B- Brake system				
		C- Reduction gear unit/hydraulic pump				
7. STRUCTURE	**8.1**	Chassis				
		A- Steel structure	Welded steel structure in a torsianally stiff box design Transport lugs integrated in the structure, at each side			
		B- Chassis cab **(OPTION 4)**	At ground level			
		C- Access	Stairway mounted at one end of the chassis Sub-platform is accessed via safety doors			
		D- Propping base				
		Stabiliser beams	At each corner, extendable by means of hydraulic cylinders			
		Stabiliser pads	Operated in automatic or manual modes They can be easily removed			
		E- Travel system				
		Driven axle	Driven by hydraulic motors			
		Axle suspension	Robust, low maintenance equaliser beams for uniform distribution of the total weight			
		Steering	Driven by hydraulic cylinders			
	8.2	Superstructure				
		A- Structure	Preference for a Glass-fibre reinforced plastic, but Welded steel structure accepted			
		B- Protective housing	For noise reduction			
		C- Separate electric room	Inside the superstructure, with automatic fire suppression system **(OPTION 5)**			
		D- Power pack	Inside the superstructure			
		E- Hoist system	Inside the superstructure			
		F- Slewing system	Inside the superstructure			
		G- Access to the tower	Inside the superstructure			
	8.3	Tower				
		A- Design	Closed design			
		B- Access to driver cab	Wide and safe stairway and platforms			
		C- Cable reel at boom head				
	8.4	Tower Cab				
		A- Noise and heat insulation				
		B- Pressurized				
		C- Tinted safety glass				
		D- A/C				
		E- Window wiper and washer system				
		F- Electric socket				
		G- Adjustable sun blinds				
		H- Controls and indicators				
		I- Crane management system				
9. ELECTRIC INSTALLATION	**9.1**	LED floodlights				
		A- Boom head				
		B- Bottom of boom				
		C- Front of tower				
		D- Rear of tower				
		E- Tower side				
		F- Boom head beacon				
	9.2	Communication system				
		A- Driver cabin				
		B- Superstructure				
		C- Ground level				
	9.3	Video system	Camera at the head of the boom with zoom control. Monitor inside driver's cabin			
10. SAFETY DEVICES	**10.1**	General	Compliancey with currently applicable EU Directives			
	10.2	Safe load indicator				
	10.3	Anemometer	Located on the tower head			
	10.4	Emergency stops				
		A- Driver cabin				
		B- In the chassis	At ground level and in the ground caboin			
		C- Inside superstructure				
		D- Inside Electric room				
	10.4	Deadman switch				
11. PAINTING	**11.1**	General				
		A- Cleanind and substrate				
		B- Shot blasting	SA2.5			
	11.2	Internal sufaces				
		A- Priming coating				
		B- Finish coating				
		C- Total thickness				
	11.3	Internal sufaces				
		A- Priming coating				
		B- Intermediate coating				
		B- Finish coating				
		C- Total thickness				
	11.4	THPA painting colors	**OPTION 6**			
		A- Undercarriage	RAL will be specified later			
		B- Superstructure	RAL will be specified later			
		C- Boom	RAL will be specified later			
		D- Tower	RAL will be specified later			
		E- Cabin	RAL will be specified later			
	11.5	THPA logo	Each side of the superstructure and on driver's cabin			
	11.6	Warranty	10 years			
12. OPTIONS	**12.1**	Energy storage device	Hydraulic accumulator or dynamic resistor			
	12.2	Anti-sway control				
	12.3	Remote control	Radio remote control unit			
	12.4	Ground cabin				
	12.5	Automatic fire suppression system	In electric rooms			
	12.6	THPA painting colors				
	12.7	Remote service assistance				
	12.8	Verifiable weighing system	Dynamic weighing of bulk in the grab, independently of crane operator			
	12.9	Automatic grab filling				
	12.10	Lighting package LED				
	12.11	Point-to-point handling mode	Semi-automatic motion			
13. MECHANICAL GRABS	**13.1**	Manufacturers	Verstegen, MRS, SMAG, NEMAG			
	13.2	Mechanical grab for Nickel Ore				
		A- Density of product	1.6 t/cbm			
		B- Capacity	Minimum 20 cbm, depending on own weight			
		C- Own weight				
		D- Diameter closing rope				
		E- Diameter and number of pulleys				
		F- Rope Guidance				
		G- Material scale plates	Hardox 450			
		H- Closing rope length				
		I- Rope withdrawn length				
		J- Auto-cleaning system	For minimum lose of product at each cycle, sticky material			
		K- Closing ropes are EXTERNAL				
		L- Holding ropes are INTERNAL				
	13.3	Mechanical grab for Coal				
		A- Density of product	1 t/cbm			
		B- Capacity	Minimum 35 cbm, depending on own weight			
		C- Own weight				
		D- Diameter closing rope				
		E- Diameter and number of pulleys				
		F- Rope Guidance				
		G- Material scale plates	Hardox 450			
		H- Closing rope length				
		I- Rope withdrawn length				
14. DELIVERY MODE	**14.1**	Fully erected delivery	Accepted			
		A- Time for unloading the crane				
		B- Required Cranes/equipment				
	14.2	Knock-down delivery	Only semi-assembled mode is accepted			
		A- Time for unloading the crane				
		B- Time for erecting the crane				
		C- Required Cranes/equipment				
		D- Required space				
		E- Detailed schedule is expected				
15. RECEPTION TESTS	**15.1**	Static and dynamic tests				
	15.2	Endurance tests	12 hours			
	15.3	Operational testing	All functionnalities			
16. TRAINING	**16.1**	Training for drivers	2 weeks/10 drivers			
	16.2	Training for technicians				
		A- At manufacturing site	1week /6 technicians			
		B- Before commissiong on-site	1 week /10 technicians			
17. COMPONENT LIST	**17.1**	Airconditioning	York, Carrier			
	17.2	Bearings	SKF, FAG, OEM			
	17.3	Brakes	Pintsch Bubenzer, Zollern			
	17.4	Emergency brakes	Pintsch Bubenzer, Zollern			
	17.5	Cable reels	Hartmann und König, Stemmann, Wampfler, Vahle			
	17.6	Couplings	Malmedie, Bubenzer, Liebherr			
	17.7	Diesel Engine	Liebherr, Cummins, MAN, Volvo, Mercedes, MTU			
	17.8	Floodlights LED	Phoenix, Nanhua			
	17.9	Hydraulic bumpers	Oleo, Hydac			
	17.10	Hydraulic components	Bosch Rexroth, Hydac, Vickers, Liebherr			
	17.11	AC Motors	SIEMENS, ABB, WOLFFER			
	17.13	Painting	Jotun, Hempel, Amercoat			
	17.14	Mechanical grab	Verstegen, MRS, SMAG, NEMAG			
	17.15	Gear reducers	Zollern			
	17.16	Overload/Weighing system	Pat, Brosa, Tecsis			
	17.17	Operator cabin	Merford, Brieda, KML			
	17.18	Wire rope	Diepa, Bridon, Casar			
	17.19	Limit switches	Hubner Giessen, IFM, Schmersal			
	17.20	Operator cabin	Merford, Brieda, KML			
18 AFTER SALES SERVICE	18.1	From local Rapresentative				
	18.2	From Manufacturer				

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TECHICAL SPECIFICATIONS

THESSALONIKI PORT AUTHORITY S.A.
TERMINAL LINK

TITLE	ITEM	DESCRIPTION	NUMBER	REFERENCE	UNIT PRICE	TOTAL PRICE
1. SPARE PART LISTS	1	RECOMMENDED LIST, 4000 HOURS	1			
	2	REFUELING PUMP FUEL	1			
	3	TURBO FOR DIESEL ENGINE	1			
	4	STARTER FOR DIESEL ENGINE	1			
	5	WATER PUMP FOR DIESEL ENGINE	1			
	6	JOYSTICK	1			
2. CONSUMABLES KITS	1	FILTER KITS, 4000 HOURS	1			
	2	SEAL KITS, 4000 HOURS	1			
	3	GREASE KITS, 4000 HOURS	1			
	4	HYDRAULIC SEEL KIT	1			
	5	OTHER FILTERS AND CONSUMBALES	1			
3. TOOLS	1	Recommended tools for maintenance	1			
		A- Flat spanners				
		B- Open jaw spanner				
		C- Allen wrench				
		D- Pipe wrench				
		E- Dynamometric screwdriver				
		F- Universal plier				
		G- Pin punch				
		H- Hand hammer				
		I- Flat chisel				
		J- Locksmith hammer				
		K- Cross handle				
		L- Manometer				
		etc				