RMG

TENDER NUMBER: TPT/2022/08/0688/9421/RFP



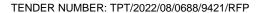
DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

T2.2-34 a: Compliance to Eligibility Criteria

Tenderers are to list in this schedule compliance to the below Eligibility Criteria of the Ship-to-Shore Crane.

In as far as possible Tenderers are to provide brochures, specifications, etc. to substantiate their compliance to the eligibility criteria. The Tenderer's sign-off at the bottom of the returnable is deemed as confirmation that the Tenderer commits that they will comply to the listed eligibility criteria.

Description	Comply
	Yes/No
Tenderer is an original equipment manufacturer (OEM) of RMG cranes,. (Letter from	
OEM declaring they will be supplying TPT directly will be required.)	
Design Compliance to F.E.M.	
Minimum SWL of crane is 41 ton, under the spreader.	
Hoist Speed with full load : Minimum 7 m/min	
Trolley Speed with full load : Min 25 m/min	
Crane designed for 11,000 Volt, 3 phase, 50 Hertz power supply	
All motors and drives are AC	
Spreader vertical travel distance (hoisting height) is at least 11m from rail to underneath of spreader	
Centre of spreader will be able to reach within 2,750 mm from either crane rail	
Rail gauge is 22.5 m	





Minimum In-Service wind Speed of 90 km/h	r	
Maximum wheel load does not exceed 40 t /	/ wheel	
Maximum distributed load on rail does not e	exceed 300 kN/m	
Fleet management system to be provided fo	or the life of the machine. The system to	
include for remote access able to integrate t	through open application programming	
interface (API's) or equivalent into the on-bo	pard PLC systems on the Mobile Harbour	
Crane in order to view machine status, cond	ition, faults, hours etc	
The RMG is supplied with on-board and rem	note crane management system software for	
fault diagnostics.		
The RMG is equipped with high speed indust	trial wireless adapter for SCADA connection.	
Corrosion Protection Guarantee on crane st	ructure: > or = 10 years	
Walkway stringers, staircase stringers, suppo	ort brackets, kickplates, handrails, knee rails	
and stanchions to be hot dip galvanised and	painted. Stair treads and walkway grating to	
be hot dip galvanised.		
Number of paint coats including primer: Min	nimum of 3 coats	
The Rail Mounted Gantry cranes shall compl	ly with the South African Occupational	
Health and Safety Act, Act 85 of 1993 as ame	ended.	
All access to be staircases and walkways, min	nimum 700 mm	
The camera system must continually save to	the recorder for the 7 day cycle.	
	'	
Signed	Date	
Name	Position	
Tenderer		

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

Rail Mounted Gantry	Origin of Parts / Components	Tender Schedule:
Cranes	Making up Ship to Shore cranes	T.2.2-34 b
(RMG)		

Tenderers are to indicate where the different parts and components for the RMG will be fabricated or sourced from for the RMG offered. Parts / components making up the entire Ship to Shore Crane are to be listed.

Part / Component	Sub-Contractor / Supplier	<u>Country</u>

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	,	1
Signed	Date	
Name	Position	
Tenderer		

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

All Equipment Categories	Plant and Material Schedules	Tender Schedule: T.2.2-34 c

Note to Tenderers:

Tenderers are to list in this schedule all major mechanical (including brakes), hydraulic, air-conditioning, electrical and electronic components proposed to be incorporated in the equipment offered, as well as the speed control systems. These items are to be listed by type, rating and proposed make/supplier. A motivation for why this particular make/model of component is proposed must be submitted, taking into consideration the local support environment, previous experience with the local conditions.

Component and application	Туре	Rating / size	Supplier / make / model	Motivation
Signed		Date		
Name		Position	1	





Tenderer	



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	Priced Spares List	Tender Schedule:
Rail Mounted Gantry		T2.2-34 d

Tenderers are to complete this returnable for the critical spares identified by Employer below, for the Rail Mounted Gantry Crane.

Item #	Description	Supplier	Cost per unit	Total Cost
1	Hoist motor		per unit	COST
2	Hoist gearbox			
3	Hoist input couplings			
4	Hoist output couplings			
5	Spider inserts for couplings			
6	Hoist brake complete			
7	Hoist brake pads			
8	Hoist brake disc			
9	Hoist emergency brake			
10	Hoist emergency brake pads			
11	Hoist emergency brake power pack			
12	Hoist sheaves			
13	Hoist loadcells			
14	Hoist encoder with couplings			
15	Hoist wire ropes (left)			
16	Hoist wire ropes (right)			
17	Hoist motor module			
18	Active line module (ALM)			
19	Active Infeed Module (AIM)			
20	Trolley motor			
21	Trolley gearbox			
22	Trolley coupling with spider inserts			





-				
	23	Trolley brake complete		



TRANSNET

24	Trolley brake pad	
25	Trolley encoder with couplings	
26	Trolley wheel with drive shaft	
27	Trolley motor module	
28	Gantry motor	
29	Gantry gearbox	
30	Gantry coupling with spider inserts	
31	Gantry brake complete	
32	Gantry brake pad	
33	Gantry encoder with couplings	
34	Gantry wheel with drive shaft	
35	Gantry wheel without drive shaft	
36	Rail clamp brake	
37	Rail clamp brake shoe	
38	Gantry motor module	
39	HT cable reel motor	
40	HT cable reel gearbox	
41	HT cable reel clutch and one way bearing	
42	HT couplings with spider inserts	
43	Compact flash cards for drive with license	
44	Compact flash cards for PLC with license	
45	Panel PC	
46	Drives CPU	
47	Expansion module for drive CPU	
48	Encoder input modules	
49	TM31 card	
50	Relays	
51	Contactors	



REG.NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS TPT)					
52	Timers				



Signed	Date
Name	Position
Tenderer	

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

T2.2-34 e: Recommended Maintenance Spares RMG

Note to Tenderer:

Tenderers are to complete this schedule with regards to recommended maintenance spares, not included in the 'Mandatory Critical Spares' list and 'Mandatory Maintenance Spares' list required for the first year of operation.

Tenderers to indicate those spares that will be available in South Africa (i.e. locally available) and provide a method statement detailing procedure/action plan on how stock will be made available in South Africa.

Prices for the spares to be valid for one year (12 months).

#	Description	Supplier	Locally Avail (Yes/No)	Delivery Lead Time	Price
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
Etc.	Additional page/s to be add	ded to supply comp	orehensive list		

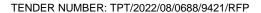
Signed	Date





Name	Position		
Tenderer			

Name





DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

Rail Mounted Gantry Cranes	Site Establishment Requirements	Tender Schedule: T.2.2-34 f					
	Tenderers are to indicate their site establishment requirements for the supply of the Rail Mounted Gantry Cranes , including the following:						
Estimated electricityEstimated water con	quired (m ²). equired (m ²) and preferred proximity to the usage per month including average usage a sumption per month including average usa s on site e.g. hard standing or concrete bear	and peak demand. ge and peak demand.					
Signed 	Date						

Position



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	Priced Spares List	Tender Schedule:
Rail Mounted Gantry		T2.2-34 g

Tenderers are to complete this returnable for the critical spares identified by Employer below, for the Rail Mounted Gantry Crane.

Item #	Description	Supplier	Cost per unit	Total Cost
1	Hoist motor			
2	Hoist gearbox			
3	Hoist input couplings			
4	Hoist output couplings			
5	Spider inserts for couplings			
6	Hoist brake complete			
7	Hoist brake pads			
8	Hoist brake disc			
9	Hoist emergency brake			
10	Hoist emergency brake pads			
11	Hoist emergency brake power pack			
12	Hoist sheaves			
13	Hoist loadcells			
14	Hoist encoder with couplings			
15	Hoist wire ropes (left)			
16	Hoist wire ropes (right)			
17	Hoist motor module			
18	Active line module (ALM)			
19	Active Infeed Module (AIM)			
20	Trolley motor			
21	Trolley gearbox			
22	Trolley coupling with spider inserts			



23	Trolley brake complete			
----	------------------------	--	--	--





24	Trolley brake pad	
25	Trolley encoder with couplings	
26	Trolley wheel with drive shaft	
27	Trolley motor module	
28	Gantry motor	
29	Gantry gearbox	
30	Gantry coupling with spider inserts	
31	Gantry brake complete	
32	Gantry brake pad	
33	Gantry encoder with couplings	
34	Gantry wheel with drive shaft	
35	Gantry wheel without drive shaft	
36	Rail clamp brake	
37	Rail clamp brake shoe	
38	Gantry motor module	
39	HT cable reel motor	
40	HT cable reel gearbox	
41	HT cable reel clutch and one way bearing	
42	HT couplings with spider inserts	
43	Compact flash cards for drive with license	
44	Compact flash cards for PLC with license	
45	Panel PC	
46	Drives CPU	
47	Expansion module for drive CPU	
48	Encoder input modules	
49	TM31 card	
50	Relays	
51	Contactors	



52	Timers		

TRANSNET PORT TERMINALS
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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR

A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

Signed Date

Name Position

Tenderer

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

Rail Mounted	Compliance to Employer's	Tender Schedule:
Gantry Crane	Technical Specification	T2.2-34 h

Note that this schedule is cross-referenced and must be read in conjunction with the Technical Specification TPT_TS_RMG_Twinlift_Rev0_20200917. Elements of this document not completed will be deemed as non-compliance to that particular clause. The Tenderer's sign-off at the bottom is deemed as confirmation that this document has been read in conjunction with the Technical Specification.

Technical Spec. Clause	Comply (Y/N)	Comment (mandatory if non-compliant) and reference to returnable schedule
1. Scope		
1		
2.1 Equipme	nt Functionality	
2.1.1		
2.1.2		
2.1.3		
2.1.4		
2.1.5		
2.1.6		
2.1.7		
2.1.8		
2.1.9		
2.2 Equipme	nt Functionality	
2.2		
2.3 Ergonomi	ics	
2.3.1 Operate	or's Cab	
2.3.1.1		
2.3.1.2		
2.3.1.3		
2.3.1.4		
2.3.1.5		
2.3.1.6		
2.3.1.7		
2.3.1.8		

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2.3.1.9	
2.3.1.10	
2.3.1.11	
2.3.1.12	
2.3.1.13	
2.3.1.14	
2.3.1.15	
2.3.1.16	
2.3.1.17	
2.3.1.18	
2.3.1.19	
2.3.1.20	
2.3.1.21	
2.3.1.22	
2.3.1.23	
2.3.1.24	
2.3.1.25	
2.3.1.26	
2.3.1.27	
2.3.1.28	
2.3.1.29	
2.3.1.30	
2.3.1.31	
2.3.2 Checke	's Cabin
2.3.2.1	
2.3.2.2	
2.3.2.3	
2.3.2.4	
2.3.2.5	
2.3.3 Operat	or's Controls
2.3.3.1	
2.3.3.2	
2.3.3.3	
2.3.3.4	
2.3.3.5	
2.3.3.6	
2.3.3.7	
2.3.3.8	
2222	
2.3.3.9	

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2.3.3.11		
2.3.4 Operat	ional Aids	
2.3.4.1		
2.3.4.1.1		
2.3.4.1.2		
2.3.4.1.3		
2.3.4.1.4		
2.3.4.1.5		
2.3.4.2		
2.3.4.2.1		
2.3.4.2.2		
2.3.4.3		
2.3.4.4		
2.3.4.5		
2.4 Terminal	Specific Requir	ements
2.4.1		
	Requirements	
3.1 Design R	equirements	
3.1.1.1		
3.1.1.2		
3.1.1.3		
3.1.1.4		
3.1.1.5		
3.1.1.6		
3.1.1.7		
3.1.1.8		
3.1.1.9		
3.1.1.10		
3.1.1.11		
3.2 Gantry St	tructure and Tra	avel Assemblies
3.2.1		
3.2.2		
3.2.3		
3.2.4		
3.2.5		
3.2.6		
3.2.7		
3.2.8		
3.2.9		
3.2.10		



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3.2.11	
3.2.12	
3.2.13	
3.2.14	
3.2.15	
3.2.16	
3.2.17	
3.2.18	
3.2.19	
3.2.20	
3.2.21	
3.2.22	
3.2.23	
3.2.24	
3.2.25	
3.2.26	
3.2.27	
3.2.28	
3.2.29	
3.2.30	
3.2.31	
3.2.32	
3.2.33	
3.2.34	
3.3 Cross Tra	avel Trolley
3.3.1	
3.3.2	
3.3.3	
3.3.4	
3.3.5	
3.3.6	
3.3.7	
3.3.8	
3.3.9	
3.3.10	
3.3.11	
3.3.12	
3.3.13	
3.3.14	
3.3.15	



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3.3.16		CANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")
3.3.17		
3.3.17		
3.3.19		
3.3.20		
3.4 Rotating	Trolloy	
3.4.1	Trolley	
3.4.2		
3.4.3 3.4.4		
3.4.4		
3.4.5		
3.4.7		
3.4.7		
3.4.9	:	
3.5 Main Ho	oist	
3.5.1		
3.5.2		
3.5.3		
3.5.4		
3.5.5		
3.5.6		
3.5.7		
3.6 Headblo	CK	
3.6.1		
3.6.2		
3.6.3		
3.6.4		
3.6.5		
3.6.6		
3.6.7		
3.6.8		
3.6.9		
3.7 Spreader	r I	
3.7.1		
3.7.2		
3.7.3		
3.7.4		
3.7.5		
3.7.6		

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3.7.7		
3.7.8		
3.8 Other Load Lifting Attachments		
3.8.1		
3.8.2		
3.8.3		
3.8.4		
3.9 Electrical	House	
3.9.1		
3.9.2		
3.9.3		
3.9.4		
3.9.5		
3.9.6		
3.9.7		
3.9.8		
3.10 Electrica	al Power Reticu	lation
3.10.1		
3.10.2		
3.10.3		
3.10.4		
3.10.5		
3.10.6		
3.10.7		
3.10.8		
3.10.9		
3.10.10		
3.10.11		
3.10.12		
3.10.13.1		
3.10.13.2		
3.10.13.3		
3.10.13.4		
3.10.13.5		
3.10.13.6		
3.10.13.7		
3.10.13.8		
3.10.14		
3.10.15		
3.10.16		

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3.10.17		
3.10.18		
3.11 Main Dr	rive Systems	
3.11.1		
3.11.2		
3.11.3		
3.11.4		
3.11.5		
3.11.6.1		
3.11.6.2		
3.11.7		
3.11.8		
3.11.9		
3.11.10		
3.11.11		
3.11.12		
3.12 Gearbox	kes	
3.12.1		
3.12.2		
3.12.3		
3.12.4		
3.12.5		
3.13 Electrica	al Enclosures an	d Mounting Panels
3.13.1		
3.13.2		
3.13.3		
3.13.4		
3.13.5		
3.13.6		
	Valkways, Platf	orms, Ladders and Anchor Points
3.14.1		
3.14.2		
3.14.3		
3.14.4		
3.14.5		
3.14.6		
	, Heating and P	ower Points
3.15.1		
3.15.2		
3.15.3		

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3.15.4		
3.15.5		
3.15.6.1		
3.15.6.2		
3.15.6.3		
3.15.6.4		
3.15.7		
3.16 Local Cr	ane Control Sys	tem (LCCS)
3.16.1		
3.16.2		
3.16.3		
3.16.4		
3.16.5		
3.16.6		
3.16.7		
3.16.8		
3.16.9		
3.16.10		
3.16.11		
3.17 Comput	er Systems	
3.17.1		
3.17.1.1		
3.17.1.2		
3.17.1.3		
3.17.1.4		
3.17.1.5		
3.17.1.6		
3.17.1.7		
3.17.2		
3.17.2.1		
3.17.2.2		
3.17.2.3		
3.17.2.4		
3.17.2.5		
3.17.2.6		
3.17.2.7		
3.17.3		
3.17.4		
3.18 Corrosio	on Protection	
3.18.1		

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3.18.2		
3.18.3		
3.18.4		
3.18.5		
3.18.6		
3.18.7		
3.18.8		
3.19 Signage	and Marking	
3.19.1		
3.19.2		
3.19.3		
3.19.4		
3.19.5		
3.19.6		
3.19.7		
3.19.8		
3.19.9		
4. Safety and	d Environment	
4.1 Safety Re	equirements	
4.1.1		
4.1.2		
4.1.2.1		
4.1.2.2		
4.1.2.3		
4.1.2.4		
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5. Safety and Environment		
5.1 Safety Re	quirements	
5.1.1		
5.1.2		
5.1.3		
5.1.3.1		
5.1.3.2		
5.1.3.3		
5.1.3.4		
5.1.3.5		
5.1.4		
5.1.5		
5.1.6		
5.1.7		
5.1.8		
5.1.9		
5.1.10		
5.1.11. The fo	ollowing minimu	um safety shall be included
5.1.11.1 Maii	n Hoist	
5.1.11.1.1		
5.1.11.1.2		
5.1.11.1.3		
5.1.11.1.4		
5.1.11.1.5		
5.1.11.1.6		
5.1.11.1.7		
5.1.11.1.8		
5.1.11.1.9		
5.1.11.2 Gan	try	
5.1.11.2.1		
5.1.11.2.2		
5.1.11.2.3		
5.1.11.2.4		
5.1.11.2.5		
5.1.11.2.6		
5.1.11.3 Troll	ey	
5.1.11.3.1		
5.1.11.3.2		
5.1.11.3.3		
5.1.11.4 Rota	itor	

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5.1.11.4.1		
5.1.11.4.2		
5.1.11.4.3		
5.1.12		
5.2 Environm	nental Requiren	nents
5.2.1		
5.2.2		
5.3 Fire Dete	ction and Supp	ression
5.3.1		
5.3.2.1		
5.3.2.2		
5.3.2.3		
5.3.3		
5.3.4		
5.3.5		
5.3.6		
5.3.7		
5.3.8		
5.3.9		
5.3.10		
5.3.11		
5.3.12.1		
5.3.12.2		
5.3.12.3		
5.4 Smoke D	etection	
5.4.1		
6. Maintenar	nce	
6.1 Lubrication	on	
6.1.1		
6.1.2		
6.1.3		
6.2 Accessibi	lity	
6.2.1		
7. General		
7.1		
7.2		
7.3		
7.4		
7.5		
7.6		



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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

7.7		
8. Reference	d Specifications	
8.1 Standard	Specifications	
8.2 Employer	Specifications	

The scoring of compliance to employer's technical specifications will be as follows:

Score	Compliance to Employer's Technical specifications
0	< 252 compliant clauses = 0 %
20	<269 but >= 252 compliant clauses = 20 %
40	<286 but >=269 compliant clauses = 40 %
60	<303 but >=286 compliant clauses = 60 %
80	<320 but >=303 compliant clauses = 80 %
100	>=336 compliant clauses = 100 %

Signed	Name	Position	Date
Tenderer			

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

T2.2-34 i: Guarantees and Warranties

Note to tenderers:

The extent of guarantees and warranties in excess of the standard 12 months that can be offered by the Tenderer on electrical, mechanical and electronic Plant will play an important role in the evaluation of the tenders, as well as an extended guarantee on the structure in excess of 20 years.

The Tenderer is required to indicate on the below schedule what guarantee or warrantee period is offered for each of the items listed, as well as much detail as possible on the extent of the guarantee or warrantee.

Item	Guarantees and Warranties offered	Description of guarantees or warranties
Structure		
Spreader		
Energy chain		
Electrical Drives		
Gearboxes		
Hoist Brakes		
PLC's		
Electrical Motors		
Wire Ropes		

The scoring of the Guarantees and Warranties on electrical, mechanical and electronic plant will be as follows:

Score	Guarantees and Warranties (electrical, mechanical and electronic plant)
100	For all of the following components having a guarantee of > or = 2 years, then 100 %: spreader, energy chain, electrical drives, gearboxes, hoist brakes, PLC's, electric motors and wire ropes
80	For at least 6 of the following components having a guarantee of > or = 2 years, and the remaining 2 having a guarantee of at least > or = 1 year, then 80 %: spreader, energy chain, electrical drives, gearboxes, hoist brakes, PLC's, electric motors and wire ropes
60	For at least 4 of the following components having a guarantee of > or = 2 years, and the remaining 4 having a guarantee of at least > or = 1 year, then 60 %: spreader, energy chain, electrical drives, gearboxes, hoist brakes, PLC's, electric motors and wire ropes
40	For all of the following components having a guarantee of at least > or = 1 year, then 40 %: spreader, energy chain, electrical drives, gearboxes, hoist brakes, PLC's, electric motors and wire ropes
20	For at least 4 of the following components having a guarantee of > or = 1 year, and the remaining 4 having a guarantee of < 1 year, then 20 %: spreader, energy chain, electrical drives, gearboxes, hoist brakes, PLC's, electric motors and wire ropes

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

For the following components having a guarantee of < 1 year or less than prescribed above, then 0 %: spreader, lenergy chain, electrical drives, gearboxes, hoist brakes, PLC's, electric motors and wire ropes
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The scoring of the Guarantees and Warranties on the structure will be as follows:

Score	Guarantees and Warranties (Structure)
100	For a guarantee on the structure > or = to 20 years = 100 %
80	For a guarantee on the structure > or = to 18 years but less than 20 years = 80 %
60	For a guarantee on the structure > or = to 15 years but less than 18 years = 60 %
40	For a guarantee on the structure > or = to 12 years but less than 15 years = 40 %
20	For a guarantee on the structure > or = to 10 years but less than 12 years = 20 %
0	For a guarantee on the structure < 10 years = 0 %

Signed	Date	
Name	Position	
Tenderer		

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")



Rail Mounted	Site Establishment	Tender Schedule:
Gantry Crane	Requirements	T.2.2-34 j

Tenderers are to indicate their site establishment requirements for the supply of the Rail Mounted Gantry Crane, including the following:

- Erection site area required (m²).
- Site lay-down area required (m²) and preferred proximity to the erection site.
- Estimated electricity usage per month including average usage and peak demand.
- Estimated water consumption per month including average usage and peak demand.
- Special requirements on site e.g. hard standing or concrete beams, access etc.

Note: The RMG will be erected on the crane rails of the rail terminal, towards the waterside end, adjacent to the stop blocks.

Signed	Date	
Name	Position	
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Tenderer		

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Rail Mounted Gantry Crane	Supplier's Preliminary Design	Tender Schedule: T2.2-34 k

Tenderers are to list in this schedule all principle design criteria and design standards applicable to the Rail Mounted Gantry Cranes offered. The safety against drifting (due to wind and inclination) during operation in the limiting service wind shall at least comply with FEM 1.001. The Tenderer must state for each mechanism the class of utilization, spectrum class and group classification on which the proposed design will be based and supply a full motivation if this differs from those specified.

Parameter for Rail Mounted Gantry Crane	Value / Detail	Design Criteria and/or Applicable Standard	Comments
Classification of the structure (group classification, state of loading, class of utilization)			
Classification of the following mechanisms (group classification, state of loading, class of utilization): • Hoisting • Trolley • Gantry long travel • Rotation (trolley slewing)			
 Speeds of the following motions: Hoisting / lowering (full load) Hoisting / lowering (no load) Trolley cross travel (full load) Trolley cross travel (no load) Gantry long travel (full Load) Rotation (slew) with full load 			

Page1 Part T2.2-34 k

TRANSNET PORT TERMINALS TENDER NUMBER: TPT/2022/08/0688/9421/RFP



Angle (degrees) to which a suspended		
container can be trimmed		
Range of rotation (slewing) of trolley -		
degrees		
Hoisting Capability (SWL) for crane –		
under spreader (ton)		
and operation (con,		
Length across uncompressed buffers,		
measured along rails (m)		
Overall (outside) width of crane,		
measured across the rails (m)		
Acknowledge crane need only operate		
between the crane rails (Yes / No)		
Rail gauge (m)		
Hook approach (distance from spreader		
centerline to rails) – for both rails		
Acknowledge crane rail width (crown) is		
100 mm (Yes / No)		
Asknowledge grane rails are level and		
Acknowledge crane rails are level, and		
no difference in rail levels (Yes/No)		
Spreader vertical travel distance – rail		
level to underneath of spreader (m)		
Total number of long travel wheels		
Total number of long travel wheels		
driven and braked		
Total mass of RMG Crane (ton)		
Maximum in-service load per wheel		
(ton)		
(ton)		



Maximum out-of-service load per wheel		
(ton)		

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Maximum load distribution on rail		
Wheel spacing, in same bogie (m)		
Wheel spacing, between bogies (m)		
Wheel diameter (mm)		
Type of wheel		
Confirm trailing cable reel off-set shall		
be 1400 mm to the north (outside) of		
northern rail		
Confirm the trailing cable is		
interchangeable with the trailing cables		
on the ship to shore cranes (Yes / No)		
Confirm the output voltage from the		
main transformer is 400 Volt (Yes / No)		
Confirm the storm pins shall be 350 mm		
off-set to the inside of both crane rails		
Maximum in-service wind speed		
(km/hr)		
Minimum in-service stability factor		
Maximum out-of-service stability factor		
without anchoring devices		
Load eccentricity between left and right		
side hoist wire ropes (as a percentage of		
total load lifted), before crane trips out		
on eccentricity		
Cabin Dust & Noise Mitigation		
Width of access way (stairs and		
walkways) from floor level to operator's		
cabin		

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(m)	
Acknowledge RMG's total travel	
distance is 770 m (Yes / No)	
Tenderers to confirm that all motors	
and drives are AC (Yes/No)	
Confirm that with the trolley slew and	
travel in the parked position, the	
driver's cabin shall face the northern rail	
Confirm twin lift spreaders are	
compatible with existing twin lift	
spreaders at DCT (Yes/No)	
Confirm the checkers cabin shall be	
situated under the southern sill beam	
Corrosion Protection:	
Number of Coats of Paint	
Minimum overall Paint Thickness	
Other "Value-add" systems; designs;	
innovations	
1.	
2.	
3.	
Signed	Date
Name	Position

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Tenderer	

DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")



T2.2-34 I: Evaluation Schedule: Track Record

Note to tenderers:

Tenderers as an original equipment manufacturer (OEM) of RMG cranes, are required to demonstrate their experience in the design, manufacture, delivery, erection, testing and commissioning of RMG cranes with a capacity of at least 40 tons under the spreader, over the last 10 years, and to this end shall supply a sufficient detailed reference list with RMG Crane's details and contact details of existing customers. TPT will contact references to confirm track record.

#	Name of Previous Customer	Contact Details	Capacity (ton)	No. of Units	Year
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Additional pages to be added as required to provide a comprehensive list.

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Page 1 of 2 T2.2-34 I: Evaluation Schedule: Track Record

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

The scoring of the Track Record will be as follows:

Score	Track Record				
100	> or = 40 units score 100 %				
80	> or = 30 but < 40 units score 80 %				
60	> or = 20 but < 30 units score 60 %				
40	> or = 10 but < 20 units score 40 %				
20	> or = 5 but < 10 units score 20 %				
0	< 5 units score 0 %				

Signed	Date	
Name	Position	
Tenderer		

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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")



Rail Mounted

Gantry Crane

Compliance to Employer's

Technical Specification

Technical Specification

Technical Specification

Note that this schedule is cross-referenced and must be read in conjunction with the Technical Specification TPT_TS_RMG_Twinlift_Rev0_20200917. Elements of this document not completed will be deemed as non-compliance to that particular clause. The Tenderer's sign-off at the bottom is deemed as confirmation that this document has been read in conjunction with the Technical Specification.

Technical Spec. Clause	Comply (Y/N)	Comment (mandatory if non-compliant) and reference to returnable schedule
1. Scope		
1		
2.1 Equipme	nt Functionality	
2.1.1		
2.1.2		
2.1.3		
2.1.4		
2.1.5		
2.1.6		
2.1.7		
2.1.8		
2.1.9		
2.2 Equipme	nt Functionality	
2.2		
2.3 Ergonom	ics	
2.3.1 Operat	or's Cab	
2.3.1.1		
2.3.1.2		
2.3.1.3		
2.3.1.4		
2.3.1.5		
2.3.1.6		
2.3.1.7		



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2.3.1.9		
2.3.1.10		
2.3.1.11		
2.3.1.12		
2.3.1.13		
2.3.1.14		
2.3.1.15		
2.3.1.16		
2.3.1.17		
2.3.1.18		
2.3.1.19		
2.3.1.20		
2.3.1.21		
2.3.1.22		
2.3.1.23		
2.3.1.24		
2.3.1.25		
2.3.1.26		
2.3.1.27		
2.3.1.28		
2.3.1.29		
2.3.1.30		
2.3.1.31		
2.3.2 Checke	r's Cabin	
2.3.2.1		
2.3.2.2		
2.3.2.3		
2.3.2.4		
2.3.2.5		
	or's Controls	
2.3.3.1		
2.3.3.2		
2.3.3.3		
2.3.3.4		
2.3.3.5		
2.3.3.6		
2.3.3.7		
2.3.3.8		
2.3.3.9		



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2.3.3.11		
2.3.4 Operat	ional Aids	
2.3.4.1		
2.3.4.1.1		
2.3.4.1.2		
2.3.4.1.3		
2.3.4.1.4		
2.3.4.1.5		
2.3.4.2		
2.3.4.2.1		
2.3.4.2.2		
2.3.4.3		
2.3.4.4		
2.3.4.5		
2.4 Terminal	Specific Requir	ements
2.4.1		
3. Technical I	Requirements	
3.1 Design Re	equirements	
3.1.1.1		
3.1.1.2		
3.1.1.3		
3.1.1.4		
3.1.1.5		
3.1.1.6		
3.1.1.7		
3.1.1.8		
3.1.1.9		
3.1.1.10		
3.1.1.11		
3.2 Gantry St	ructure and Tra	avel Assemblies
3.2.1		
3.2.2		
3.2.3		
3.2.4		
3.2.5		
3.2.6		
3.2.7		
3.2.8		
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3.2.11 3.2.12 3.2.13 3.2.14 3.2.15 3.2.16 3.2.17 3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.14 3.2.15 3.2.16 3.2.17 3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.14 3.2.15 3.2.16 3.2.17 3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.15 3.2.16 3.2.17 3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.16 3.2.17 3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.17 3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.18 3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.19 3.2.20 3.2.21 3.2.22 3.2.23
3.2.20 3.2.21 3.2.22 3.2.23
3.2.21 3.2.22 3.2.23
3.2.22 3.2.23
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3.2.27
3.2.28
3.2.29
3.2.30
3.2.31
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3.2.34
3.3 Cross Travel Trolley
3.3.1
3.3.2
3.3.3
3.3.4
3.3.5
3.3.6
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3.3.13
3.3.14



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	3.3.15						

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3.3.16		
3.3.17		
3.3.18		
3.3.19		
3.3.20		
3.4 Rotating	Trolley	
3.4.1		
3.4.2		
3.4.3		
3.4.4		
3.4.5		
3.4.6		
3.4.7		
3.4.8		
3.4.9		
3.5 Main Ho	ist	
3.5.1		
3.5.2		
3.5.3		
3.5.4		
3.5.5		
3.5.6		
3.5.7		
3.6 Headblo	ck	
3.6.1		
3.6.2		
3.6.3		
3.6.4		
3.6.5		
3.6.6		
3.6.7		
3.6.8		
3.6.9		
3.7 Spreader	,	
3.7.1		
3.7.2		
3.7.3		
3.7.4		
3.7.5		



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	3.7.6					

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3.7.7		
3.7.8		
3.8 Other Lo	ad Lifting Attacl	hments
3.8.1		
3.8.2		
3.8.3		
3.8.4		
3.9 Electrical	House	
3.9.1		
3.9.2		
3.9.3		
3.9.4		
3.9.5		
3.9.6		
3.9.7		
3.9.8		
3.10 Electrica	al Power Reticu	lation
3.10.1		
3.10.2		
3.10.3		
3.10.4		
3.10.5		
3.10.6		
3.10.7		
3.10.8		
3.10.9		
3.10.10		
3.10.11		
3.10.12		
3.10.13.1		
3.10.13.2		
3.10.13.3		
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3.10.13.7		
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3.10.14		
3.10.15		

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	3.10.16						

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3.10.17		
3.10.18		
3.11 Main Dr	rive Systems	
3.11.1		
3.11.2		
3.11.3		
3.11.4		
3.11.5		
3.11.6.1		
3.11.6.2		
3.11.7		
3.11.8		
3.11.9		
3.11.10		
3.11.11		
3.11.12		
3.12 Gearbox	kes	
3.12.1		
3.12.2		
3.12.3		
3.12.4		
3.12.5		
3.13 Electrica	al Enclosures an	nd Mounting Panels
3.13.1		
3.13.2		
3.13.3		
3.13.4		
3.13.5		
3.13.6		
3.14 Stairs, V	Valkways, Platf	orms, Ladders and Anchor Points
3.14.1		
3.14.2		
3.14.3		
3.14.4		
3.14.5		
3.14.6		
3.15 Lighting	, Heating and P	ower Points
3.15.1		
3.15.2		



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	3.15.3					

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3.15.5		
3.15.6.1		
3.15.6.2		
3.15.6.3		
3.15.6.4		
3.15.7		
3.16 Local Cr	ane Control Sys	stem (LCCS)
3.16.1		
3.16.2		
3.16.3		
3.16.4		
3.16.5		
3.16.6		
3.16.7		
3.16.8		
3.16.9		
3.16.10		
3.16.11		
3.17 Comput	ter Systems	
3.17.1		
3.17.1.1		
3.17.1.2		
3.17.1.3		
3.17.1.4		
3.17.1.5		
3.17.1.6		
3.17.1.7		
3.17.2		
3.17.2.1		
3.17.2.2		
3.17.2.3		
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3.18 Corrosi	on Protection	



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4.1 Safety Re	equirements	
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5. Safety and	5. Safety and Environment					
5.1 Safety Re	quirements					
5.1.1						
5.1.2						
5.1.3						
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5.1.3.4						
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5.1.8						
5.1.9						
5.1.10						
5.1.11. The fo	ollowing minim	um safety shall be included				
5.1.11.1 Mai	n Hoist					
5.1.11.1.1						
5.1.11.1.2						
5.1.11.1.3						
5.1.11.1.4						
5.1.11.1.5						
5.1.11.1.6						
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5.1.11.3 Troll	ey					
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5.3 Fire Dete	ction and Supp	ression
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5.3.12.1		
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5.4 Smoke D	etection	
5.4.1		
6. Maintenar	nce	
6.1 Lubrication	on	
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6.1.2		
6.1.3		
6.2 Accessibi	lity	
6.2.1		
7. General		
7.1		
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7.7					
8. Referenced Specifications					
8.1 Standard	Specifications				
8.2 Employer	Specifications				
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Signed	Name	Position	Date
Tenderer			

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T2.2-34 n: Delivery Lead Time

Note to tenderers:

The Tenderer must submit a holistic programme for the delivery of the Rail Mounted Gantry Crane, showing the duration and location of each major related activity e.g. assembly of modules and/or the complete RMG, testing of each module and/or the complete RMG, disassembly (if applicable), cold commissioning, shipping of parts / modules or complete RMG, site erection stages (if applicable), final testing, commissioning, training, endurance test and handover. (Tenderers are reminded that handover is inclusive of operator training and technical training.)

Note: A period of six weeks must be allowed for in the schedule for the third party design review

The programme must be in the form of a Gantt or Bar chart, clearly indicating key dates for progress measurements and/or payments due.

Further to the programme, the Tenderer must complete the required information below.

	Activity	Duration (months)
1.	Order placement to completion of designs	
2.	Order placement to Cold Commissioning	
3.	Order placement to Hot Commissioning, Endurance test and Handover	

Note: The Delivery Lead Time to be evaluated will be the Delivery Lead Time from order placement to completion of Hot Commissioning, Endurance test and Handover.

The scoring of the Delivery Lead Time from order placement to completion of Hot Commissioning, Endurance test and Handover will be as follows:

Score	Delivery Lead Time		
100	< or = 12 months = 100 %		
80	> 12 months & < or = 13 months = 80 %		
60	> 13 months & < or = 14 months = 60 %		
40	> 14 months & < or = 15 months = 40 %		
20	> 15 months & < or = 16 months = 20 %		
0	> 20 months = 0 %		

Signed	 Date	

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Name	Position	
Tenderer		

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T2.2-34 o: Compliance to Eligibility Criteria

Tenderers are to list in this schedule compliance to the below Eligibility Criteria of the Ship-to-Shore Crane.

In as far as possible Tenderers are to provide brochures, specifications, etc. to substantiate their compliance to the eligibility criteria. The Tenderer's sign-off at the bottom of the returnable is deemed as confirmation that the Tenderer commits that they will comply to the listed eligibility criteria.

Description	Comply
	Yes/No
Tenderer is an original equipment manufacturer (OEM) of RMG cranes,. (Letter from	
OEM declaring they will be supplying TPT directly will be required.)	
Tenderer has signed a collaboration agreement with Transnet Engineering (Signed	
agreement to be supplied with the tender)	
Design Compliance to F.E.M.	
Minimum SWL of crane is 41 ton, under the spreader.	
Hoist Speed with full load : Minimum 7 m/min	
Trolley Speed with full load : Min 25 m/min	
Crane designed for 11,000 Volt, 3 phase, 50 Hertz power supply	
All motors and drives are AC	
Spreader vertical travel distance (hoisting height) is at least 11m from rail to underneath	
of spreader	
Centre of spreader will be able to reach within 2,750 mm from either crane rail	

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Rail gauge is 22.5 m		
Minimum In-Service wind Speed of 90 km/hr		
Maximum wheel load does not exceed 40 t / wheel		
Maximum distributed load on rail does not exceed 300 kN/	['] m	
Fleet management system to be provided for the life of the	e machine. The system to	
include for remote access able to integrate through open application programming		
interface (API's) or equivalent into the on-board PLC systems on the Mobile Harbour		
Crane in order to view machine status, condition, faults, ho	ours etc	
The RMG is supplied with on-board and remote crane man	agement system software for	
fault diagnostics.		
The RMG is equipped with high speed industrial wireless ac	dapter for SCADA connection.	
Corrosion Protection Guarantee on crane structure: > or =	= 10 years	
Walkway stringers, staircase stringers, support brackets, ki	ckplates, handrails, knee rails	
and stanchions to be hot dip galvanised and painted. Stair	treads and walkway grating to	
be hot dip galvanised.		
Number of paint coats including primer: Minimum of 3 coa	its	
The Rail Mounted Gantry cranes shall comply with the Sou	th African Occupational	
Health and Safety Act, Act 85 of 1993 as amended.		
All access to be staircases and walkways, minimum 700 mr	n	
The camera system must continually save to the recorder f	or the 7 day cycle.	
	I	
Signed Date		
Name Positio	on	

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Rail Mounted Gantry	Recommended Critical Spares	Tender Schedule: T2.2-34 p
Crane		

Note to Tenderer:

Tenderers are to complete this schedule with regards to recommended critical spares required to support the Rail Mounted Gantry for the first 5 years of operation, excluding the 'Mandatory Critical Spares' and 'Recommended Maintenance Spares' listed separately.

Tenderers to indicate those spares that will be available in South Africa (i.e. locally available) and provide a method statement detailing procedure/action plan on how stock will be made available in South Africa.

Prices to be fixed for a period of 12 months.

#	Description	Supplier	Locally Avail (Yes/No)	Delivery Lead Time	Price
1					
2					
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10					
11					
12					
13					
14					
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Signed	Date	
Name	Position	
Tenderer		

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STS, RMG Cranes	Total Cost of Ownership	Tender Schedule: T.2.2-34 q
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Note to Tenderer:

Tenderers are to complete this schedule with regards to the Total Cost of Ownership (TCO) of the diesel and diesel electric machines. This is to be in the form of a spread sheet with the information as set out below.

	1	1	T	1	T
Servicing					
Servicing costs					
Service Type (A,B,C,D,E)					
Service intervals (Operating					
Hours)					
Hours required for service at					
the different intervals					
Consumables for the					
different services (to be					
identified and priced)					
List each item					
Total for Consumables					
Electricity Consumption					
Average expected	KwHr				
consumption assuming					
Mid-life refurbishment					
details					
(Assuming 100 000 cycles per					
year, give period when this					
should be performed)					
List each item					
Total for mid-life					
refurbishment					
Hours required for mid-life					
refurbishment					
Design life in cycles for	Cycles				
equipment					

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Total				

In order for TPT justify such an important investment (STS and RTG and RMG purchase), among other factors of design, it is requested that the cranes will be able to work at least 2 million cycles, which would be equivalent to 100,000 movements per year for twenty years.

With this estimated duration return on investment, the argument is that the cost of acquisition is not sufficient as a tool to be able to assess the investment, but it will be advisable to have recourse to analysis of the costs throughout its life cycle (LCC - Life Cycle Cost). It is prudent that an analysis is carried on LCC calculation for a container crane in order to facilitate the decision-making in the process of buying container cranes.

The LCC of an STS/RMG/RTG is the sum of all costs that supports the equipment from its conception and manufacture throughout its operation until the end of its useful life. Thus, the LCC of a physical asset begins with the purchase and ends when it is removed from service. LCC seeks the optimization of the cost of the acquisition, possession and operation of physical assets throughout their useful lives by identifying and quantifying all of the significant costs that are involved in the course of its useful life, using the technique of net present value, allowing an optimum selection of the active to acquire: TPT is seeking the optimization of each of the factors in order to minimize the total cost.

In a general mode, the total costs can be divided into:

LCC= acquisition cost + Cost of Ownership + cost of disposal

- 1. To define the Cost of ownership
 - Energy Consumption Cost. Cost of energy consumption of operation.

(ECC)

• Preventive Maintenance Cost. Cost of preventive maintenance.

(PMC)

• RRC: Repair and refurbishment cost. Cost of repairs, modifications and upgrades.

(RRC)

• IHC: Inventory Holding Cost. Cost of storage due to the stock of spare parts.

(IHC)

ODC: Opportunity Cost of Downtime. Opportunity cost because the team is out of service.

(ODC)

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Hoist	Trolley	Long Travel	Luffing
1. Moto	rs 9. Motors	15. Motors	19. Motors
2. Gearb	ooxes 10. Gearboxes	16. Gearboxes	20. Gearboxes
(redu	cers) (Reducers)	(Reducers)	(Reducers)
3. Brake	s 11. Brakes	17. Brakes	21. Brakes
4. Drum	12. Cables	18. Wheels	22. Boom Latch
5. Coupl	ings 13. Aux trolley		23. Cables
6. Cable	S		24. Straps
7. Sheav	res		
8. Trim/	list/Skew		

2. Maintainable items on the Ship to Shore Crane

Electrical System	Operators cabin and	Control Systems	Structure
	lower cabin	Drives/ PLC/ Software	
25. Cable and Cable	32. Controls	34. Motors	38. Paint / Corrosion
reel			protection
26. Energy Chain	33. Seat	35. Drives	39. Access
27. Spreader cable		36. PLC's and other	40. Elevator
system		control systems	
28. Switch		37. IT systems	41. Portal Structure
29. Lighting working			42. Long Travel
30. Lighting other			43. Boom and latches
31. Air conditioning			

Tables above define the maintainable items of the STS.

3. Energy Consumption Calculation (ECC)

The calculation to be performed of the energy consumption of the crane in function of each of the subgroups of the breakdown of elements, taking into account the components in each of the systems, their efficiency ratings, mechanical performance of the subcomponents and the cycles of work means that submits a load.

A container crane consumes energy in five major groups:

- Hoist system
- Trolley system
- Luffing System

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- Long Travel Gantry system
- Auxiliaries

The estimations for the total cycle show an average length of about 120 seconds that can be subdivided into elements of cycle that are listed below:

- Load Lifting: 25s
- With load travel landside: 20s (5s + 10s accelerating to v=cte + 5s decelerating)
- Lowering of the load to the ground / trailer: 25s
- Twist locks, tie it to the truck and other operations on the ground: 10s
- Lift without load: 10s
- Travel toward boat : 20s (5s + 10s accelerating to v=cte + 5s decelerating)
- Lowering the spreader without load: 10s

These are estimation only and must be tailored to OEM's machine.

Regeneration is not considered at this stage.

4. Preventative Maintenance Cost (PCC)

This calculation needs to be based on the total hours per year of preventive maintenance on the crane. The hours need to be interpreted from the maintenance schedules and adequately represented for each of the 43 maintainable elements and into each sub-sections of the crane.

The assessment of hours spent using a cost-time average of the maintenance personnel (rate per hour to be defines) as well as the supplies needed to carry out preventive maintenance tasks. These supplies should include lubricants, greases, oils, light bulbs, fuses and, in general, spare parts/components of a minor nature which need to to be applied in each maintenance cycle. OEM to show the cost of preventive maintenance for the first year by breakdown product valuation by counting the hours and the consumables.

Maintainable Items									
Hoist	Trolley	Long	Luffing	Electrical	Operators	Control	Structure		
		Travel		Systems	Cabin and	Systems			
					Lower	Drives/			
					Cabin	PLC/			
						Software			
R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar		

5. Repair and refurbishment cost (RRC)

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The calculation of the maintenance costs take into account the management strategy of the crane over the 20 year period. It is necessary to carry out a series of repairs/modifications of certain components of the crane over the design life, in intervals of 5 years.

The number of cycles and the age of the crane requires the replace certain components for reasons of safety, reliability and productivity. It is assumed that spending will fluctuate between 15 and 30% of the purchase price of the crane and is distributed on different groups whose components have a useful life less than that of the crane or that decrease their benefits from a point to consider this action can reduce the failure rate components to prevent a profile curve known as the bathtub. The following table shows the evolution of the costs of repairs/modifications that need to be considered.

Year	R/Euro/Dollar	Year	R/Euro/Dollar	Year	R/Euro/Dollar	Year	R/Euro/Dollar
1-5		6-10		11-15		16-20	

These costs are to be determined from history of breakdowns, planned component replacement in terms of their individual design life (cycles and years) and environmental conditions. To be included in this calculation or elements of modernisation and obsolescence.

	Maintainable Items									
	Hoist	Trolley	Long Travel	Luffing	Electrical Systems	Operators Cabin and Lower Cabin	Control Systems Drives/ PLC/ Software	Structure		
Year	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar	R/Euro/Dollar		
1-5										
6-10										
11-16										
16-20										

6. Inventory Holding costs (IHC)

The cost due to the storage of spare parts that meet the needs of the corrective maintenance is to be estimated according to the historical data consulted in the different operators of terminals to which the OEM has maintained relationships with the Port Operator.

It must be considered that the components of the cost of storage

- Cost of warehouse and management
- Financial costs of the stock.
- Costs of insurance.

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Cost of Logistics

The parts have been considered constant course in cycles of 5 years, with a growth over the life of the crane. The evolution / growth of the inventory costs needs to be extrapolated for the 20 year period.

Year	R/Euro/Dollar	Year	R/Euro/Dollar	Year	R/Euro/Dollar	Year	R/Euro/Dollar
1-5		6-10		11-15		16-20	

7. Opportunity Cost of Downtime

Each stop of crane represents a loss of business. If the crane is not operational, the vessel that has to be discharged or loaded, TPT will need to wait for the crane to be back in operation. The agreements between shipping lines and the terminals require that the operation is done immediately after the arrival of the vessel, and if this process is delayed, additional costs are incurred for the logistics chain.

In many cases, the lack of reliability of the cranes and continuous vessel waiting times may lead to the shipping line deciding on diverting to an alternate port, the amount of business loss that this implies also needs to be considered.

The time in which the crane is not operational is intimately linked with the failure rate of components, previously requested in the calculation of the RRC.

For the calculation of the cost of opportunity due to the STS being out of service these specific items are to be considered:

Cost required to put again the crane in operation.

Sunk costs due to lost productivity from employees who operate the crane.

There are other costs such as the loss of the company's image, or the direct loss of customers, that cannot be incorporated into this model by it being intangible and difficult to estimate.

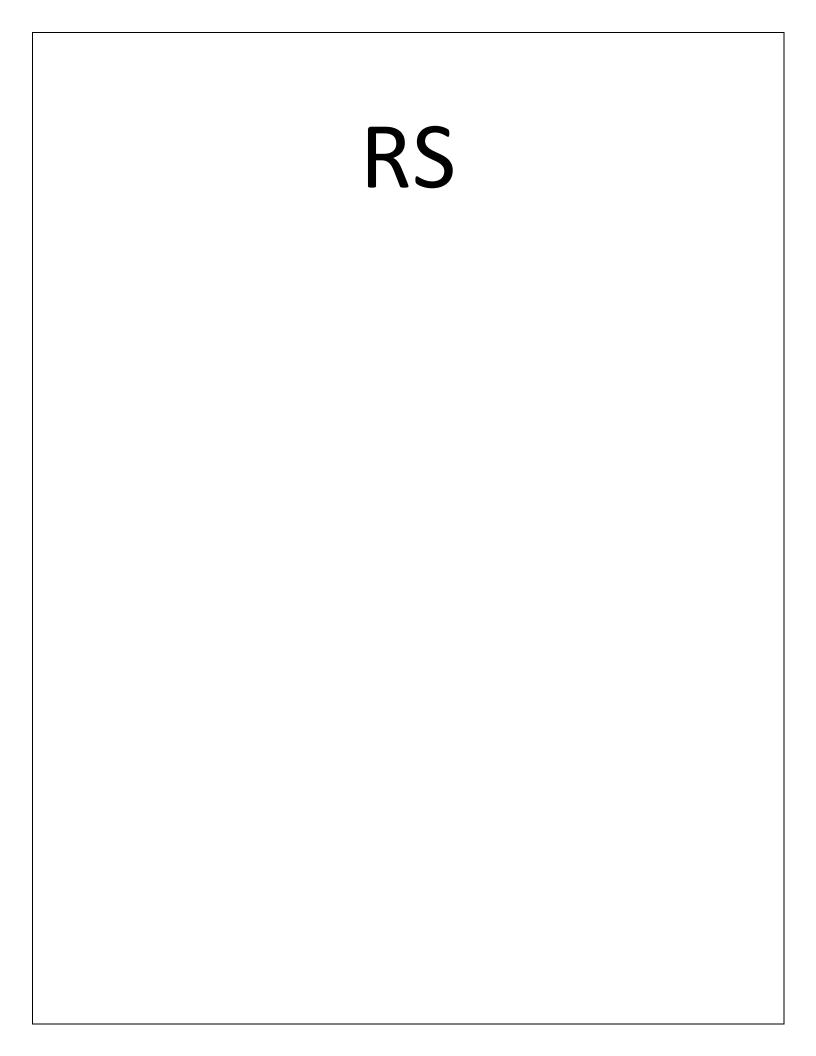
Calculation required for the purposes of the Tender

- Energy Consumption Cost (Design)
- Preventative Maintenance Cost (Reliability Centered Maintenance and Maintenance Schedules)
- Repair and Refurbishment Cost (Reliability Centered Maintenance and Historical Costs from other Port Operators)

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Signed	Date
Name	Position
Tenderer	



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DESCRIPTION OF THE WORKS: THE DESIGN, MANUFACTURE, DELIVERY, ERECT, TESTING, COMMISSIONING AND ASSET LIFECYCLE MANAGEMENT (ALCM) SUPPORT FOR CONTAINER AND BREAKBULK HANDLING EQUIPMENT FOR A PERIOD OF 10 (TEN) YEARS (AQUSITION) AND UP TO 20 (UP TO TWENTY) YEARS (ALCM) FOR TRANSNET SOC LTD (REG.NO.1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS, (HEREINAFTER REFERRED TO AS "TPT")

Reach Stackers (RS)	Mandatory Critical Spares List	Tender Schedule:
,		T2.2-35 a

Tenderers are to complete this returnable for the critical spares identified by Employer below, for the RS

Tenderers are reminded that as per the Works Information clause **1.2.1.18**, the spares listed below are required.

#	Description	Supplier	No Required	Cost per unit	Total Cost
1	Steering cylinder		1		
2	Side shift cylinder		1		
3	Tilting cylinder		1		
4	Twistlock cylinder		4		
5	Slew gear hydraulic motor		1		
6	Main hydraulic pump		1		
7	Spreader telescopic chain		2		
8	Joystick		2		
9	Boom energy chain		1		
10	Wiper motor front		1		
11	Wiper motor top		1		
12	Starter motor		1		
13	Alternator		1		
14	Engine complete		1		
15	Gearbox complete		1		
16	Air filter		4		
17	Engine oil filter		4		
18	Fuel filter		4		
19	Hydraulic oil filter		4		
20	Dashboard display unit		1		

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21	Reverse camera	1	
22	Reverse camera screen	1	
23	Operator seat	1	
24	Accelerator pedal unit	1	
25	Brake pedal unit	1	
26	King pin	2	

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Reach-Stacker	Origin of Parts / Components	Tender Schedule: T2.2 – 35 b
(RS)	Making up Reach-stacker	

Tenderers are to indicate where the different parts and components for the RS will be fabricated or sourced from for the RS offered. Parts / components making up the entire Reach-stacker are to be listed.

Part / Component	Sub-Contractor / Supplier	Country

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TRANSNET PORT TERMINALS
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All Equipment Categories	Plant and Material Schedules	Tender Schedule: T2.2-35 c

Note to Tenderers:

Tenderers are to list in this schedule all major mechanical (including brakes), hydraulic, air- conditioning, electrical and electronic components proposed to be incorporated in the equipment offered, as well as the speed control systems. These items are to be listed by type, rating and proposed make/supplier. A motivation for why this particular make/model of component is proposed must be submitted, taking into consideration the local support environment, previous experience with the local conditions.

Signed	Date	

Tenderer _____

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TRANSNET

Recommended Critical Spares RS

Note to Tenderer:

Tenderers are to complete this schedule with regards to recommended critical spares required to support the equipment supplied for the first 5 years of operation, excluding the 'Mandatory Critical Spares' (T2.2-35 a).

Tenderers to indicate those spares that will be available in South Africa (i.e. locally available) and provide a method statement detailing procedure/action plan on how stock will be made available in South Africa.

Prices to be fixed for a period of 12 months.

#	Description	Supplier	Locally Avail (Yes/No)	Delivery Lead Time	Price		
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
Etc.	Additional page/s to be added to supply comprehensive list						

Signed	Date
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TRANSNET PORT TERMINALS
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Recommended Maintenance Spares RS

T2.2 - 35 e

TRANSNET

Note to Tenderer:

Tenderers are to complete this schedule with regards to recommended maintenance spares, not included in the 'Mandatory Critical Spares' list (T2.2-35a) and 'Mandatory Maintenance Spares' list required for the first year of operation.

Tenderers to indicate those spares that will be available in South Africa (i.e. locally available) and provide a method statement detailing procedure/action plan on how stock will be made available in South Africa.

Prices for the spares to be valid for one year (12 months).

#	Description	Supplier	Locally Avail (Yes/No)	Delivery Lead Time	Price
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
Etc.	. Additional page/s to be added to supply comprehensive list				

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Reach Stackers	Compliance to Eligibility Criteria	Tender Schedule:
		T2.2-35 f

Tenderers are to list in this schedule compliance to the Eligibility Criteria for Reach Stackers.

#	Parameters for Reach Stackers	Comply (Yes/No)
1.	Tenderer is an original equipment manufacturer (OEM) of Reach Stackers. (Letter	
	from OEM declaring they will be supplying TPT directly will be required.)	
2.	Compliance to EUROMOT II emissions standard as a minimum.	
3.	Travel speed of machine, with rated load = or > 25 km/hour.	
4.	Lifting speed of machine, with 67% of rated load = or > 230m mm/sec.	
5.	Lifting speed of machine, with empty spreader = or > 400 mm/sec.	
6.	Safe lifting capacity of RS is 15 ton at the third row, 6400mm from front of tyre.	
7.	RS can stack 9 ft 6" high containers 5 high.	
8.	The RS shall be fitted with a telescopic spreader, able to handle 40 ft and 20 ft ISO	
	standard containers.	
9.	The spreader side shift shall be at least 600 mm to either side of centre.	
10.	A load moment device is fitted to prevent machine operating outside its safe or	
	stable platform.	

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