
SPECIFICATION

Terminal Hauler with fifth wheel

1. Scope

This specification is for an automatic transmission 2 wheel drive, right hand cab, terminal hauler with an elevating fifth wheel. The vehicle shall be supplied complete in all respects, including standard equipment supplied by manufacturers and full maintenance lease.

The quantities reflected within the Pricing Schedule represent indicative requirements for evaluation and contract administration purposes. Actual requirements may vary over the duration of the contract based on operational, business and budgetary requirements.

2. Operational Requirements

2.1 The vehicle will be utilised for hauling of bathtub trailers carrying one 40ft, two 20ft ISO containers or one 20ft tank container. These containers can be empty or fully laden up to the maximum load as allowed for in the ISO standard. The tank container can have a total mass of 38 000kg.

2.2 The hauler must be capable of hauling a fully laden trailer up to a maximum speed of 40km/h up a 1:80 gradient.

2.3 The lifting boom must have the ability to safely lift the trailer with a loaded 40ft container or two fully loaded 20ft containers. During travelling the height of the fifth wheel must remain fixed.

2.4 The hauler may be required to negotiate speed bumps and full oscillation of the axles is required to allow for working on uneven surfaces.

2.5 Deployment Locations and Indicative Quantities

Of the estimated national fleet requirement of thirty-seven (37) Haulers/Terminal Tractors reflected in the Pricing Schedule, seven (7) units are anticipated to be electric-powered units. Bidders may propose diesel-powered, electric-powered, or a combination of diesel-powered and electric-powered Haulers/Terminal Tractors, provided that the minimum technical, operational, safety and performance requirements contained in this specification are met

Location	Indicative Quantity
Durban	8
Gauteng	19
Cape Town	4
Total	31

The above quantities and deployment locations are indicative and have been provided to assist bidders in preparing responsive technical and commercial proposals. Transnet reserves the right, during the contract period, to vary deployment locations, relocate equipment between sites, increase quantities, decrease quantities or amend operational requirements based on business and operational needs.

The deployment quantities reflected above represent the currently identified deployment requirements for Haulers. The Pricing Schedule has, however, been developed based on the estimated national fleet requirement of 37 Haulers and may therefore reflect quantities greater than those currently allocated to specific operational locations.

Accordingly, additional Haulers may be deployed at existing locations and/or other Transnet operational sites during the contract period. The successful bidder shall be required to provide establishment and de-establishment services for such deployments in accordance with the rates submitted in the Pricing Schedule and the provisions of the resultant contract.

3. Technical Data

3	Details of offer
3.1	Make and Model of hauler offered
3.2	Manufacturer's rating (GVM)
3.3	Manufacturer's rating (GCM)
3.4	Tare (T)
3.5	Permitted (V)
3.6	Axle Rating (front)
3.7	Axle Rating (rear)
3.8	Tare – front
3.9	Tare – rear
3.10	Overall length
3.11	Wheelbase
3.12	Front overhang
3.13	Rear overhang
3.14	Position of fifth wheel in front of rear axle
3.15	Fifth wheel height from ground level
3.16	Turning radius, wall to wall
3.17	Maximum draw bar pull to be stated
3.18	Tractive effort to be stated
3.19	Gradeability to be stated

4	Chassis
4.1	An all welded steel chassis is required
4.2	High resistance front and side bumpers protecting components from being damaged is required. These bumpers must be off bolt on type to enable them to be replaced or repaired when damaged. Full details required.
4.3	Access steps must be provided on both sides of the hauler
4.4	The area behind the cab must be flat with no parts protruding
4.5	It must be laid out with non-slip aluminium or galvanised steel grating. Material used to be stated
4.6	Mud flaps must be fitted over the rear wheels. Full details of materials used and method of fixing to the chassis must be supplied

5	Hydraulic lift boom
5.1	Hydraulic operated lift boom having minimum lifting capacity of 32 000kg must be supplied. The lifting capacity of the lift boom must be stated
5.2	The travel on the fifth wheel must be at least 500mm. The travel of the fifth wheel to be stated
5.3	Full details of the design of the lifting boom frame must be supplied
5.4	SWL 32 000kg in 75mm high letters must be painted on both sides of the lift boom
5.5	Lift boom hydraulic system
5.6	A low pressure hydraulic system, not in excess of 14mpa must be supplied
5.7	System shall be fitted with all features to prevent over pressurisation. Full details of the hydraulic circuit and filtration system must be provided
5.8	An efficient filter must be incorporated in the suction line to the hydraulic pump.
5.9	Hydraulic valves to be grouped together for ease of maintenance
5.10	Test points for testing hydraulic must be fitted and grouped together
5.11	Steel tubing shall be treated with corrosion protection in lieu of rubber hosing
5.12	Boom to be operated from control valve in the cab
5.13	Control must be placed in position that is easily accessible
5.14	Full details of cylinders and components fitted in the hydraulic line to be supplied

6	Fifth Wheel
6.1	Off-highway 3,5" semi oscillating stationary fifth wheel having a vertical load capacity of 32 000kg to support the load imposed by a fully laden trailer. Make and model of fifth wheel to be stated
6.2	Carry capacity to be stated
6.3	Tilt from horizontal to be stated:
6.3.1	Forward
6.3.2	Backwards
6.4	Height of the fifth wheel when lowered must not be less 1100mm. Height with tyres to be stated
6.5	Fifth wheel must be fitted with fail safe pneumatic operated locks located on the control panel in the cab. Full details of system to be stated
6.6	The control panel must be fitted with audible and visual devices indicating the status of the locking mechanism
6.7	Fifth wheel which requires minimum of lubrication maintenance

7	Engine OR Motor/Batteries
7.1	Engine
7.1.1	Engine shall be robust; four stroke water cooled and have sufficient power for the duty required. Model and year of manufacture to be stated
7.1.2	Engine shall be easily accessible for maintenance
7.1.3	Make and model of engine offered to be stated
7.1.4	Nett power of engine to be stated. Rating as described in SANS.031/latest
7.1.5	Maximum torque @ r/min to be stated
7.1.6	Number cylinders to be stated

7.1.7	Engine shall comply to “EUROMOT IIIA” with regard to emission standards
7.1.8	Three stage dry type cleaner (stage 1 – spinner, stage 2 – centrifugal, stage 3 – dry element) shall be fitted
7.1.9	Full stainless steel exhaust to be fitted
7.1.10	Exhaust outlet must be of the goose neck type to prevent the ingress of water
7.1.11	Stainless steel heat shield protection fitted to exhaust
7.1.12	Manifold to be protected by heat shield
7.1.13	Pressure fed engine lubrication system is required with external oil filter of the full flow type, utilising elements of replaceable cartridge type
7.1.14	Cooling system filled with coolant mixture which complies to the engine manufacturer’s specification
7.1.15	Engine monitor and cut-out system shall be fitted to protect the engine from overheating and low oil pressure
7.1.16	Make and model to be stated
7.1.17	Following functions must be monitored:
7.1.17.1	Water temperature
7.1.17.2	Water level
7.1.17.3	Oil pressure
7.1.18	Shall be equipped with an electronic management system (EMS)
7.1.18.1	Only proven, reliable EMS’s will be acceptable
7.1.18.2	Full details of the system that will be fitted must be furnished
7.2	Motor/Batteries
7.2.1	Motor shall be robust; liquid cooled and have sufficient power for the duty required. Model and year of manufacture to be stated
7.2.2	Motor and batteries shall be easily accessible for maintenance
7.2.3	Make and model of motor offered to be stated
7.2.4	Power of motor to be stated.
7.2.5	Maximum torque @ r/min to be stated
7.2.6	Fully electric unit, with battery rating of at least 130 kWh.
7.2.7	Battery lifespan of minimum 8 years. All battery related issues (maintenance, repairs, replacement) must be covered under the contract, with no additional charge to Transnet.
7.2.8	Battery must be able to operate at an external temperature of between -20 to 40 °C
7.2.9	Batteries and charger must be capable of fast charging with an increase of at battery of at least 50% within 60 minutes.
7.2.10	Battery range to last at least 100km or 6 hours, when fully charged.
7.2.11	Shall be equipped with a motor control unit, or similar, electronic management system (EMS)
7.2.12	Only proven, reliable EMS’s will be acceptable

7.2.13	Full details of the system that will be fitted must be furnished but must be able to, in the minimum, monitor and protect the motor and battery network from electrical or thermal damage. This includes, but not limited to, overcurrent protection, over/under-voltage protection, thermal shutdown, short-circuit detection.
7.2.14	Each unit must be supplied with a charger

8	Transmission
8.1	Fully automatic transmission. Make and model to be stated
8.2	Number of forward and reverse speeds to be stated
8.3	Ratios must be suited for the application required
8.4	External spin on type filter must be fitted on the oil cooling system
8.5	Transmission to be fitted with tamperproof mechanical or electronic forward/reverse protection device. Device to prevent engaging reverse whilst vehicle is moving
8.5.1	Full details of the system that will be fitted must be stated
8.6	Details of torque converter to be supplied

9	Fuel tank
9.1	Stainless steel fuel tank is preferred. Material used to be stated
9.2	Tank capacity must allow for enough fuel for an eight hour shift
9.2.1	Capacity of fuel tank to be stated
9.3	Tank must be protected from accidental damage from all sides
9.4	Fuel cap must be lockable
9.5	Tank must be fitted with lockable manual drain valve

10	Front axle and suspension
10.1	Make and model of axle supplied
10.2	Rated capacity to be stated
10.3	Parabolic leaf spring with integrated double acting hydraulic shock absorbers shall be fitted. Full details to be stated

11	Rear axle and suspension
11.1	Hub reduction rear axle having a rated capacity of least 35 000kg is required
11.2	Make and model of axle supplied to be stated
11.3	Rated capacity to be stated
11.4	Full details of the axle to be supplied separately
11.5	Complete air suspension system with integrated double acting hydraulic shock absorbers shall be fitted. Full details to be supplied

12	Brakes
12.1	ABS brake system is required
12.2	Brake system shall comply to SANS 1207, SANS SV1051 and SA Road Traffic Act
12.3	Dual-circuit compressed air brake system with dual-line trailer brake connections is required

12.4	Low maintenance brake system must be fitted
12.5	Details of compressor installed to be stated
12.6	Details of reservoir system including capacity, filtration system, air dryer, etc must be fitted
12.7	Front and rear charge line for trailer brakes, complete with couplings must be fitted
12.8	Brakes must be fitted with automatic adjusters
12.9	Spiral hoses equipped with heavy duty PBR quick release type couplings for trailer braking system:
12.9.1	Red for emergency line fitted with male coupling
12.9.2	Yellow for service line fitted with female coupling
12.10	Spring loaded parking brake acting on the rear axle brakes must be provided

13	Steering System
13.1	The vehicle must be equipped with a hydrostatic power steering system. Full details to be stated
13.2	Power steering system must be effective at idling speed

14	Road wheels
14.1	Tyres manufactured in SA or tyres which are readily available in SA must be fitted
14.2	Tyres, rims must conform to SANS ARP 007 and ARP 008 and shall be of an approved brand. Brand fitted to be stated
14.3	Size and ply rating of front tyres to be stated, recommended 12R22.5
14.4	Size and ply rating of rear tyres to be stated, recommended 12R22.5
14.5	Where possible, the front and rear tyres must be the same size and rating
14.6	It must be stated if the rims are interchangeable between the front and rear axle
14.7	HUB piloted or spigot-mounted rims must be supplied

15	Cab
15.1	Cabin must be ROPS/ FOPS certified in terms of SANS 3471 and SANS 3449
15.2	Fitted with full height lockable sliding door at the rear. Details to be stated
15.3	Door to be lockable from inside and outside is required
15.4	Cab of sturdy construction that is water and dust proof is required
15.5	Driver's seat must be adjustable
15.6	Driver's seat must be upholstered with good quality material
15.7	Cab to tilt forward or sideways to access engine bay. Details to be stated
15.7.1	Cab must lock securely when tilted
15.7.2	Cab mounting hinges and hinge fasteners shall be stainless steel
15.8	Cab body must be corrosion proof
15.9	Windscreen wipers must be fitted to front, rear and top windows
15.10	Demister/ heater, in addition to an air conditioner, with a three speed blower must be fitted
15.11	Windows must be non-glare laminated safety glass
15.12	Noise level in cab must not exceed 80dB(A). Noise level to be stated
15.13	Bolt on wide view mirrors for unobstructed view behind both sides of the hauler/ trailer combination

16	Instrumentation
16.1	Following instruments must be fitted and clearly visible to the driver at all times, which must be onboard screen display:
16.1.1	Speedometer with odometer
16.1.2	Temperature gauge for engine coolant
16.1.3	Electric fuel gauge
16.1.4	Engine oil pressure gauge or warning light
16.1.5	Engine hour meter
16.1.6	Low pressure warning light for air brakes
16.2	Back lit instrument panel is required

17	Electrical
17.1	24 volt negative earth system required
17.2	Alternator in lieu of generator required
17.2.1	Details of alternator system to be states
17.3	Two heavy duty 12 volt batteries required with lockable corrosion proof battery carrier or tray. Details to be stated
17.4	Batteries must be accessible from the top
17.5	Battery isolating switch must be fitted
17.6	Fitted with suitable headlamps, tail/ stop lights and direction indicator lights, front and rear
17.7	Reverse lamp must be fitted
17.8	Audible hooter must be fitted
17.9	Amber strobe light must be fitted from an oil pressure switch
17.10	Fuse panel/ trip switches must be easily accessible
17.11	Fitted with power take-off point for boost charging the batteries (two pin female receptor)
17.11.1	Electrical system must be protected from power surges. Details to be stated
17.12	Heavy duty starter motor must be fitted
17.13	Protection must be provided to prevent the starter motor from being energised whilst the engine is running
17.13.1	kW rating of starter to be stated
17.13.2	Make and model of starter fitted to be stated

18	Painting
18.1	Cab and chassis shall be painted in accordance with manufacturer's specification
18.1.1	Full details of specification and procedures used to paint the cab to be stated
18.2	Total paint dft shall not be less than 250µm
18.3	All joints on chassis must be sealed with approved sealer to prevent corrosion
18.4	Drain holes must be provided so water can escape

19	Air-conditioning
19.1	Temperatures may range from -5° C to +40° C dry bulb, with relative humilities 15% to 100%
19.2	Simplicity of control and operation are essential
19.3	All components must be a proven design

19.4	All components must be dust proof and watertight
19.5	Compressor must be driven by the engine
19.6	Evaporator must be of sufficient capacity to meet the cab cooling requirements
19.7	Air must be distributed environmentally and not directly onto driver
19.8	High and low pressure protection must be provided
19.9	Refrigerant must preferably be R12
19.10	Electrical system must be protected
19.11	Locally manufactured air-conditioner is preferred. Make and model to be stated
19.12	Compressor must be installed in position where it cannot be damaged

20	Signage and markings
20.1	Data plate as required in terms of the SA Road Traffic Act
20.2	Warnings signings shall be provided at all locations on the hauler that impose a danger
20.3	Retro-reflective tape shall be fitted to both sides and the rear of the hauler

21	General
21.1	Hauler to be fitted with an adjustable speed governing device with two automatically activated settings for loaded and empty trailers
21.2	Vehicle will only travel in the terminals however it shall comply with the requirements of SA Road Traffic Act
21.3	Vehicle to be supplied with a Full Maintenance Lease (FML) for the duration of lease period
21.4	FML to include the repairs, supply and fitting of tyres. (Rates to exclude tyres, quotes will be obtained from the supplier as and when required)
21.5	Haulers to be commissioned and delivered to respective Terminals within 3-weeks
21.6	All major repairs to be successfully completed and handover to operations within 48 hours
21.7	All minor repairs to be successfully completed and handover to operations within 6-8 hours
21.8	All planned maintenance work to be successfully completed and handover to operations within 3-6 hours
21.9	All critical spares required to be stocked locally (engines, transmissions, axles, etc)
21.10	Service exchange units required for critical parts (engine, transmission, etc)
21.11	Establishment and de-establishment rates shall include, as a minimum: ▪ Delivery of equipment to site. ▪ Assembly and commissioning of equipment on site. ▪ Collection and removal of equipment from site at the expiry, termination or replacement of equipment under the contract.