

Transnet National Ports Authority

Port of Port Elizabeth

SUPPLY AND INSTALL UPS FOR PORT of PORT ELIZABETH FOR A ONCE-OFF PERIOD

SPECIFICATION AND BILL OF QUANTITIES FOR SUPPLY AND INSTALL UPS FOR PORT of PORT ELIZABETH FOR A ONCE-OFF PERIOD:

CIDB requirements

- The tender CIDB class of works code: EP 1 or higher.

Lift backup power supply in Port of Port Elizabeth

1. SCOPE OF WORKS AND GENERIC CONDITIONS OF CONTRACT

1.1. BACKGROUND AND PURPOSE

Transnet National Port Authority (TNPA), as the landlord overseeing the Port of Port Elizabeth, plays a crucial role in ensuring the continuous functionality of all assets within the port. One area of particular concern is the reliance on the electrical grid to power essential infrastructure such as lifts. In emergency situations, such as power outages, the unavailability of lifts can hinder critical operations and pose safety risks.

To mitigate these risks, we propose the installation of a robust and reliable backup power supply system for the lifts in the Port of Port Elizabeth. This backup system will serve as a failsafe during power interruptions, ensuring that the lifts remain operational, and emergency response capabilities are not compromised.

1.2. SCOPE OF WORKS AND SPECIFICATIONS

The scope of work includes supplying, installation, and commissioning of Uninterrupted Power Supply (UPS) that is completely sealed at:

Admin Building at Port of Port Elizabeth

- 1 X 60kVA UPS with 10 minutes batteries on full load

Port Control at Port control

- 1 X 30kVA UPS with 10 minutes batteries on full load

60kVA UPS Specification

Input	Voltage (V)	380 V	400 V	415 V
	Connections	L1, L2, L3, PE*		
	Input voltage range (V)	304-456		
	Frequency (Hz)	45-55		
	Nominal input current (A)	100	95	92
	Maximum input current (A)	125	119	115
	Input current limitation (A)	160		
	Total harmonic distortion (THDI) *	6 pulses $\leq 15\%$		
	Input power factor *	≥ 0.9		
	Maximum short circuit rating	Icc=10 kA		
	Protection	Breaker		
	Ramp-in	15 seconds		
Bypass	Voltage (V)	380 V	400 V	415 V
	Connections	L1, L2, L3, N, PE		
	Overload capacity	$\leq 110\%$ continuous 125% for 10 minutes 150% for 1 minute		
	Bypass voltage range (V)	285-475		
	Frequency (Hz)	50		
	Nominal bypass current (A)	91	87	83
	Nominal neutral current (A)	158	152	145
	Maximum short circuit rating	Icc=10 kA		
Output	Voltage (V)	380 V	400 V	415 V
	Connections	L1, L2, L3, N, PE		
	Overload capacity	$\leq 110\%$ continuous 125% for 10 minutes 150% for 1 minute		
	Output voltage regulation	$\pm 1\%$		
	Dynamic load response	20 milliseconds		

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	Output power factor	0.8		
	Nominal output current (A)	91	87	83
	Total harmonic distortion (THDU)	<2% at 100% linear load <4% at 100% non-linear load		
	Output frequency (Hz)	50 ± 1%		
	Output short-circuit current at 60 ms (A)	273		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-111		
Battery	Battery blocks supported	29-32		
	Charging current	The charging current is determined by the battery capacity. Default is 0.1 C.		
	Maximum charging power (kW)	22.5		
	Nominal battery voltage (VDC)	348-384		
	Nominal float voltage (VDC)	391.5-432		
	End of discharge voltage (full load) (VDC)	304		
	Battery current at full load and nominal battery voltage (A)	136		
	Battery current at full load and minimum battery voltage (A)	172		
	Temperature compensation (per cell)	-3.3 mV pe		

30kVA UPS Specification

Input	Voltage (V)	380 V	400 V	415 V
	Connections	L1, L2, L3, PE*		
	Input voltage range (V)	304-456		
	Frequency (Hz)	45-55		
	Nominal input current (A)	50	48	46
	Maximum input current (A)	62	60	57
	Input current limitation (A)	100		
	Total harmonic distortion (THDI) *	6 pulses $\leq 15\%$		
	Input power factor *	≥ 0.9		
	Maximum short circuit rating	Icc=10 kA		
	Protection	Breaker		
	Ramp-in	15 seconds		
Bypass	Voltage (V)	380 V	400 V	415 V
	Connections	L1, L2, L3, N, PE		
	Overload capacity	$\leq 110\%$ continuous 125% for 10 minutes 150% for 1 minute		
	Bypass voltage range (V)	285-475		
	Frequency (Hz)	50		
	Nominal bypass current (A)	45	43	42
	Nominal neutral current (A)	79	75	73
	Maximum short circuit rating	Icc=10 kA		
Output	Voltage (V)	380 V	400 V	415 V
	Connections	L1, L2, L3, N, PE		
	Overload capacity	$\leq 110\%$ continuous 125% for 10 minutes 150% for 1 minute		
	Output voltage regulation	$\pm 1\%$		
	Dynamic load response	20 milliseconds		

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	Output power factor	0.8		
	Nominal output current (A)	46	43	42
	Total harmonic distortion (THDU)	<2% at 100% linear load <4% at 100% non-linear load		
	Output frequency (Hz)	50 ± 1%		
	Output short-circuit current at 60 ms (A)	138		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-111		
Battery	Battery blocks supported	29-32		
	Charging current	The charging current is determined by the battery capacity. Default is 0.1 C.		
	Maximum charging power (kW)	22.5		
	Nominal battery voltage (VDC)	348-384		
	Nominal float voltage (VDC)	391.5-432		
	End of discharge voltage (full load) (VDC)	304		
	Battery current at full load and nominal battery voltage (A)	68		
	Battery current at full load and minimum battery voltage (A)	86		
	Temperature compensation (per cell)	-3.3 mV per °C for T ≥ 25 °C, 0 mV per °C for T < 25 °C		

1.3. LOCATION OF SITE AND ACCESS

1.3.1. Buildings are located inside the Port of Port Elizabeth and access will be granted by technical supervisor arrangements needs to be made.

- Port Admin Building
- Port Control

1.4. WORKING HOURS

- 1.4.1. The working hours shall be from 8h00 to 16h00, Monday to Friday excluding public holidays.
- 1.4.2. The Service Provider must not vary the working hours without a written instruction from the Project Manager.
- 1.4.3. Care should be taken to minimise the impact on occupants of the buildings during the conduction of works.

1.5. COMPLIANCE

- 1.5.1. The service provider must comply and ensure that he/she complies with all applicable legislation including the occupational health and safety acts, equal opportunity legislation, road traffic acts, transport acts, registered workplace agreements of employer-employee agreements, the Safety, Health and Environment (SHE) requirements and all lawful direction of the TNPA representative applicable to the contract.
- 1.5.2. The service provider must obtain all necessary permits, licenses and approvals, give all notice required to be given and pay all applicable relevant fees in connection with the contract and provide evidence of compliance to the TNPA or the TNPA's representative on request.
- 1.5.3. The service provider shall comply with the Port of Port Elizabeth's SHE regulations and requirements.

1.6. PARKING & VEHICLES

- 1.6.1. Parking will be at any open parking. Vehicles used for people and equipment transport must be easily identifiable as a company vehicle.
- 1.6.2. Parking is at own risk and TNPA will not be held accountable for any damage that may occur.

1.7. ASSIGNMENT AND SUBCONTRACTING

- 1.10.1 If the service provider has subcontracted the designated work, TNPA requires the service provider to notify TNPA of any such appointments and to ensure that the subcontractor complies with all the conditions as stated in this contract.
- 1.10.2 The main service provider will ultimately be responsible for all the terms and conditions as stated in this contract and under no circumstances will any responsibility be transferred to the subcontractor.

1.8. GENERAL PRICING INSTRUCTIONS

- 1.11.1 Pricing Assumptions mean the criteria as set out below, read together with all Parts of this specifications document.
- 1.11.2 This job shall be priced by service provider through submission of quotations to TNPA.

2. BILL OF QUANTITIES

ITEM NO.	DESCRIPTION	Unit	QTY	Rate (R)	Total amount (R)
	This BoQ shall be read in conjunction with this specifications document.				
1.	Preparation, adherence to and submission of safety file	each	1		
2.	Supply and installation of 60kVA UPS with 10 minutes batteries (including circuit breakers)	sum	1		
3.	Supply and installation of 30kVA UPS with 10 minutes batteries (including circuit breakers)	sum	1		
4.	Issuing COC	sum	2		
5.	Preparation of drawing and As-built drawing	sum	1		
6.	GRAND TOTAL				