

FINESSE APPARELS LTD.

Date : 07-10-2018

To,
Managing Director,
Cross World Power Ltd.
M M Ali Road (lane-1),
Baitus Salam Building (Ground Floor),
Dampara, Chittagong


Subject: Work Order for Supply, Installation, Testing & Commissioning of 500 KVA Sub-Station Equipment.

SL	Descriptions	Qty.	Unit price (BDT)	Total price (BDT)
01	11KV Drop-out Fuse: -Cost of complete 11KV Drop-out fuse as per attached technical specification.	1 Set	6,000.00	6,000.00
02	11KV Lightning Arrestor: -Cost of complete 11KV Lightning Arrestor as per attached technical specification.	1 Set	6,000.00	6,000.00
03	11KV HT Switchgear (LBS): -Cost of complete 11KV HT switchgear as per attached technical specification	1 No.	190,000.00	190,000.00
04	500KVA Oil Immersed Transformer: -Cost of complete 500kVA Transformer as per attached technical specification.	1 No	700,000.00	700,000.00
05	500ALT Switchgear: -Cost of complete LT switchgear as per attached technical specification.	1 Set	210,000.00	210,000.00
06	300KVAR Auto/Manual PFI plant: -Cost of complete 300 KVAR PFI plant as per attached technical specification.	1 No	260,000.00	260,000.00
07	Delivery & Testing: -Cost of installation & testing of the above without any material cable & civil works.	1 Job	28,000.00	28,000.00
Total Taka				1,400,000.00

In Word : Fourteen Lac Only.

Thank You

FINESSE APPARELS LIMITED


Sheikh Mohammad Danial
Managing Director

TECHNICAL SPECIFICATION

500KVA SUB STATION EQUIPMENT FOR YOUR PROJECT : 01 Set.

01) 11KV Drop-out fuse :1 Set.

11KV Drop -out fuse of following specifications :-

Rated voltage	: 11KV
Rated max. voltage	: 15KV
Rated current (conti.) RMS	: 200A
Interrupt current RMS	: 10KA
Rated frequency	: 50Hz
BIL	: 75KV
Withstand test voltage :	
Dry 1 Min.	: 33KV
Wet, 10 sec	: 30KV

02) Lighting arrestor :1 Set.

11KV Lighting arrestor of following specification :-

Rated voltage (Nominal)	: 9KV
Rated system voltage	: 12KV
Frequency	: 50Hz
Minimum spark over (Rms)	: 14KV
Maximum spark over (Rms)	: 40KV
Max. impulse spark (crest)	: 45KV
Withstand voltage (Power frequency 1 Min. dry)	: 28KV
Withstand voltage (Power frequency 10 sec. wet)	: 24KV
Nominal discharge current	: 5KA
Impulse current withstand	: 55KA

3) 11 KV HT Switchgear Load Break Switch (LBS) : 1 Nos.

This specification cover the supply of 11KV indoor, metal enclosed switchgear according to IEC publication-298

The medium voltage switchgear panel shall be used for secondary distribution sub-station upto 12KV and suitable for an ambient temperature of 45 deg.C and rated rupture capacity of 350 MVA complete with all accessories, diagrams, levels, wirings & terminals.

The 11 KV, 350 MVA rated switchboard would comply compulsory electricity regulations by standards. All cubicles are fitted with security interlocks and earthing switch.

The erection of the panel can be done directly on the levelled floor. Cable trenches are necessary. Cables can easily installed from the bottom side of the

panel.

The design is done to allow safe operation in extremely tropical climate conditions :

Technical Data :

Service voltage	: 11KV
Rated voltage	: 12KV
Rated current of busbars	: 630A
Rated current of circuit breaker	: 630A

Insulation level :

Impulse withstand voltage 1.2/50 micro-sec.	: 75KV (Peak)
Power frequency withstand voltage/1 min.	: 28KV rms.

The equipment proposed under this offer has been designed, manufactured & tested in accordance with the following applicable IEC standards.

- common clause for high voltage switchgear standards : IEC 694
- high voltage switchgear in metallic enclosure : IEC 298
- high voltage ac circuit breakers : IEC 56
- ac switches and earthing switches : IEC 129
- high voltage switches : IEC 265
- high voltage combined switch/fuse for ac current : IEC 420
- current transformers : IEC 185
- voltage transformers : IEC 186
- high voltage fuses : IEC 282
- control monitoring : IEC 801

The metal clad Draw out type switchgear bitoron - 12 W made

In accordance with IEC 298 (Compartmented switchgear)

shall contain the following :

- 1 630A,12KV,25KA ,rated triple pole 50Hz, Load Break Switch with thermal overload Short circuit protection and interlocked earth switch.

Brand : F& G Germany

- 2 Dry type cast resin insulated potential transformer for open delta connection.
Ratio : 11000/110V
Burden : 50VA, Class : 0.5

- 1 TP MCB for PT secondary protection.

- 1 3 Indicating Lamp

04) TRANSFORMER : 1 No.

Three phased transformers ground mounted,oil immersed, with standard accessories & OFF-LOAD Tap Changer. Indoor & outdoor use. Routine tests and

first filling oil included. Design, manufacturing, routine tests & tolerances according to IEC 76 standards.

Standard fittings : 4 flat bi-directional rollers.

lugs : 2 lifting
earthing points : 2
plate(on HV side) : 1 rating
Breather : Silicagel
Buchulz Relay : 1

Technical Data :

Rated Capacity	: 500 KVA
Rated Frequency	: 50 Hz.
Rated Voltage,	
-Primary	: 11000 V
-Secondary	: 415 V/240V at no load
BIL	
-Primary	: 75 KV
-Secondary	: 2.5 KV
Vector Group	: DYn11
Off-load tap changer	: +1x2.5%, 0, -3x2.5%
Tap changing	: On HV side off-load manually from outside.
Interphase connection	: Delta
Dielectric strength	: 28 KV (for 1 min)
LV winding	
-Rated Voltage	: 415/240V
Interphase connection	: Star
Neutral	: Fully insulated & brought out
Dielectric strength	: 3 KV (for 1 min)
Ambient Temp.	: 40° C
Temperature rise	
-in oil	: 60° C
-in coil	: 65° C
No Load Loss	: 865 W
Full Load Loss	: 6275 W
Impedance	: 4%
Installation	: Indoor/Outdoor
Cooling	: ONAN
Conductor	: Copper
HV connections	: 3
porcelain bushing	
LV connections	: 4
porcelain bushing,	

Brand: CPLTransfo

CRGO M4 Grade Silicon steel sheet from UGO USA/PSOCO, KOREA.
HV/LV wires (BRB limited), Bangladesh.
Other insulated materials and fittings, Italy./Weidman, Switzerland

FINESSE APPARELS LIMITED

Page 4 of 6

Sheikh Mohammad Danial
Managing Director

Transformer Oil: Hyrax, Malaysia /Savita, India

05) LT SWITCHGEAR : 1 Set.

16SWG Sheet steel fabricated, floor mounting, Powder Coated. tropicalized design, indoor type, low tension switchgear for 3 phase, 4 wire, 50 Hz, 380/415V AC system & shall be supplied complete TP + N busbars suitably sized & properly insulated arrange to withstand & short current of 50KA for 1 sec. The boards are designed & constructed in accordance with BS5486/IEC439.

Busbars and other live parts are spaced and insulated in accordance with European standards IEC 158, UTE C 20 - - 040, VDE - C 110 for 660V.

All MCCB/MCB units & panel boards shall fully comply regulations of the 15th edition IEE wiring regulation for isolation and switching.

The panel shall comprise of the following

INCOMING : PDB

- 1 800A, TP, 65kA, 415V, 50 Hz, MCCB with adjustable thermal overload & magnetic short circuit protection
Brand: Hyundai, Korea.
- 3 Current transformer ratio : 800/5A with suitable accuracy and burden.
- 1 Ammeter scaled (0 - 800A) with selector switch.
- 1 Voltmeter scaled (0 - 500V) with selector switch.
- 3 Phase indicating lamp RED/YELLOW/BLUE.
- 1 TP MCB for control fuse.
- 1 Enclosure TPN+E Busbar

OUTGOING :

- 3 320A, TP, 30kA, 415V, 50Hz, MCCB with adjustable thermal overload & magnetic short circuit protection
Brand: Hyundai, Korea.
- 3 100A, TP, 25kA, 415V, 50Hz, MCCB with adjustable thermal overload & magnetic short circuit protection
Brand: Hyundai, Korea.
- 1 500A, TP, 45kA, 415V, 50Hz, MCCB with thermal overload & magnetic short circuit protection **(For PFI)**
Brand: Hyundai, Korea.

06) 300kVAR AUTO/MANUAL PFI PLANT : 1 Set.

Automatic power factor improvement plant of 300 kVAR in 12 steps. Sheet steel fabricated, floor mounting, tropicalized design, **powder coated**, indoor type, PFI Plant for 3 phase, 4 wire, 50 Hz, 380/415V AC system & shall be supplied

complete TP + N busbars suitably sized & properly insulated arrange to withstand & short current of 50kA for 1 sec. The boards are designed & constructed in accordance with BS5486/IEC439.

The panel shall comprise of :

- 1 1no 5 kVAR, 415V, 50 Hz, 3 Phase, dry type, self healing compact PF capacitors bank with discharge resistor(**Fixed**).
Origin : Epcos, India
- 2 2nos. 10 kVAR, 415V, 50 Hz, 3 Phase, dry type, self healing compact PF capacitors bank with discharge resistor
Origin : Epcos, India
- 2 2nos. 12.5 kVAR, 415V, 50 Hz, 3 Phase, dry type, self healing compact PF capacitors bank with discharge resistor
Origin : Epcos, India
- 2 2nos. 25 kVAR, 415V, 50 Hz, 3 Phase, dry type, self healing compact PF capacitors bank with discharge resistor
Origin : Epcos, India
- 4 4nos. 50 kVAR, 415V, 50 Hz, 3 Phase, dry type, self healing compact PF capacitors bank with discharge
Origin : Epcos, India

11 nos.AC-3 duty triple phase air contactor of adequate rating for capacitors.
Brand: Hyundai, Korea.

11 nos.TP MCB/MCCB of adequate rating for capacitors.
Brand: Hyundai, Korea.

- 10 Start pushbutton.
- 10 Stop pushbutton.
- 10 Indicating lamp.
- 1 Auto manual selector switch with adder block.
- 2 Control relay with base.
- 3 Fuse carrier with fuse for control circuit.
- 1 12 Steps reactive power regulator which performs the switching of capacity bank in automatic power factor correction equipments depending on changes of reactive power complete with p.f. luminiescent indicators and digital power factor meter.
Brand : Mikro,Malyasia

1 250/5A, CT for PFI

1 Set TP+E Busbar suitably sized.

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