

## TECHNICAL SPECIFICATIONS

### 630 KVA 11/0.415KV ELECTRICAL SUB- STATION

#### (1) 630KVA OIL IMMERSED TRANSFORMER

Three phase transformer ground mounted, oil immersed, with standard accessories, Indoor use, Designed manufactured and tested in accordance with NEMA/IEC/VDE/BS/BSS standard with 3 H.T Bushings and 4 LT Bushings arranged on tank top, conservator, Oil level indicator, drain and filling valves, lifting lugs, bi-directional rollers, with first filling of oil in Transformer.

#### **Technical Data :**

<b>Capacity</b>	<b>:</b>	<b>630 KVA</b>
<b>Voltage ratio at no load</b>	<b>:</b>	<b>11000/415/230 V</b>
<b>vector group</b>	<b>:</b>	<b>DYN11</b>
<b>Temperature rise</b>	<b>:</b>	<b>55 ° C</b>
<b>Insulation Oil</b>	<b>:</b>	<b>60 ° C</b>
<b>Rated voltage</b>	<b>:</b>	<b>11KV</b>
<b>BIL</b>	<b>:</b>	<b>75KV</b>
<b>Inter Phase connection</b>	<b>:</b>	<b>Delta</b>
<b>Di-electric strength</b>	<b>:</b>	<b>28 KV (for 1 min).</b>
<b>winding Rated Voltage</b>	<b>:</b>	<b>415/230 KV</b>
<b>Star Natural</b>	<b>:</b>	<b>Fully insulated</b>
<b>Dielectric strength</b>	<b>:</b>	<b>3 KV (for 1 min)</b>
<b>No load Loss (iron loss)</b>	<b>:</b>	<b>1120w</b>
<b>Full load loss (copper loss)</b>	<b>:</b>	<b>5100w</b>
<b>Impedance voltage</b>	<b>:</b>	<b>6%</b>
<b>Wheels</b>	<b>:</b>	<b>1- set</b>

#### **Routing Tests:-**

Routine tests are carried out on each transformer before dispatching in our well equipped factory. Each transformer is issued with an official test certificate. Transformer will be assembled by UNIKO POWER

<b>ORIGIN</b>  <b>:</b>	<b>Silicon Steel Sheet (Core) : EU , Copper Strip: MRS (BRB Group),</b>
	<b>Tap Changer: Italy, Transformer Oil: Sabita, India.</b>
	<b>Super Enameled Copper Wire: MRS BRB Group)</b>

## **(2) 11KV HT SWITCH GEAR WITH VCB**

**Floor mounting indoor switchgear with 1000A hard drawn electrolytic copper bus**

**bars equipped with:**

**1 No. 630A, 11 KV, breaking current 20KA, (3 sec.) with first shunt release voltage of 1st shunt release DC 24V making current 50 KA, 50 Hz, TP Vacuum Circuit Breaker with motor operated mechanism with closing solenoid shunt releases, auxiliary switch 6 NO+ 6 NC with mechanical interlocking motor and release wired on/off/trip indicator.**

**Origin: ABB (Germany)**

**2 - Cast resin insulated, double pole, Potential Transformer, ratio:**

**11/11 KV Class 0.5, 50 VA, (in open delta connection)**

**1- 25A, 10K TP MCCB for PT secondary protection**

**Origin: SIEMENS, GERMANY**

**3 - Cast resin insulated, 11 KV dry type CT with ratio: 50/5/5A, 1st core for metering 2nd for protection.**

**Core 1 :10 VA, Class 0.5 MS**

**Core 2 : 15 VA, Class 10 P 10**

**Origin: SIEMENS, GERMANY**

**1- Ammeter, 0-50A With 3 Way Selector switch**

**1 - Voltmeter, 0-15 KV, with 3 Way selector switch.**

**1-Micro Processor operated Auto IDMT relay for over Current, short circuit & earth fault protection**

**3-ON/OFF/TRIP push button for Electrical operation**

**1 No. Panel Heater with Thermostat and Indicating Lamps ON/OFF/.**

**TRIP**

**All above components will be assembled by UNIKO POWER ENGINEERING COMPANY LIMITED**

### **(3) LT SWITCHGEAR**

**Sheet steel fabricated, floor mounting, tropicalized design, indoor type, low tension switchgear for 3 Phase, 4 wire, 50Hz, 380/415V AC system and shall be supplied complete with TP +N suitable sized & properly insulated arrange to withstand & short current of 50 KA for 1 sec. The boards are designed & constructed in accordance with BS5486/IEC439 Bus bars and other live parts are spaced & insulated in accordance with European standards IEC158, UTEC 20-040, VEE-C110 for 660V.**

**All MCCB and MCB units & panel boards shall fully comply regulations of the 15<sup>th</sup> Edition IEE Writing regulation for isolation & switching.**

**a) Incoming:**

**1× 1000A, 50KA, TP 415V, MCCB with adjustable thermal overload and magnetic short- circuit releases.**

**3, Nos. Cast resin insulated. 440V dry type CT with ratio 1000/5A with suitable accuracy and burden.**

**3 Nos. Ammeter, 0-1000/5A**

**1-No. Voltmeter, 0-600V, With selector switch.**

**3. Nos. Indicating Lamps (ON/OFF/TRIP)**

**b) Outgoing:**

**01 × 600A, 50KA, TP 415V, MCCB with adjustable thermal overload and magnetic short- circuit releases.**

**1× 250A, 25KA, TP 415V, MCCB**

**ORIGIN: All above Circuit Breaker's (TP MCCB & MCB) are ABB, Italy / Hyundai, Korea.**

**Assembled by UNIKO POWER ENGINEERING COMPANY LIMITED**

#### **(4)380 KVAR PFI PLANT**

**Automatic power factor improvement plant,380 KVAR in 8 steps. Sheet steel fabricated, floor mounting, tropicalized design, indoor type, low-tension switch-gear for 3 Phase. 4 wire, 50 Hz, 415V AC system and shall be supplied complete with TP+N bus-bars suitably sized & properly insulated arrange to withstand & short current of 50 KA for 1 second. The boards are designed & constructed in accordance with BS54486/IEC439.**

#### **THE PANEL COMPRISING OF:**

**2 x 50 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**4 x 25 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**4 x 20 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**4 x 15 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**2 x 10 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**2 x 7.5 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**1 x 5 KVAR TP power Capacitor bank, rated 415 V, 50Hz -do-**

**1-Automatic power factor correction relay with digital PFI reading display.**

**2 x 80Amps, 220V, triple pole magnetic contractor.**

**4 x 50Amps, 220V, triple pole magnetic contractor.**

**4 x 40 Amps, 220V, triple pole magnetic contractor.**

**2 x 32 Amps, 220V, triple pole magnetic contractor**

**6 - Set HRC fuse with base.**

**1 Nos 12Sts Relay**

**1 - Set control fuse**

**ORIGIN: All Magnetic Contractor Hyundai, Korea/ Capacitors are Havel's (India) and will be assembled in Bangladesh by UNIKO Power Engineering Company Ltd.**

### **(5) DROP OUT FUSE CUTOUT**

<b>Rated voltage (Nominal)</b>	<b>11KV</b>
<b>Rated maximum voltage</b>	<b>15KV</b>
<b>Rated current (cont.) RMS</b>	<b>100A</b>
<b>Rated fuse rating</b>	<b>50A</b>
<b>Rated frequency</b>	<b>50Hz</b>
<b>BIL</b>	<b>75KV</b>
<b>Interrupt. current RMS</b>	<b>10KA</b>
<b>Withstand test voltage Dry 1 minute</b>	<b>35KV</b>
<b>Wet 10 sec</b>	<b>30KV</b>

### **(6) LIGHTNING ARRESTER**

<b>Type</b>	<b>LA9</b>
<b>Rated voltage</b>	<b>11KV</b>
<b>Rated maximum voltage</b>	<b>12KV</b>
<b>Rated arrested voltage</b>	<b>9KV (rms)</b>
<b>Rated frequency</b>	<b>50Hz</b>
<b>Maximum spark over</b>	<b>14KV (rms)</b>
<b>Maximum spark over</b>	<b>40KV (rms)</b>
<b>Maximum impulse spark (crest) Withstand test voltage</b>	<b>45KV (peak)</b>
<b>Power frequency Dry 1 minute</b>	<b>28KV</b>
<b>Power frequency Wet 10 sec</b>	<b>24KV</b>
<b>Discharge 33KV (crest)</b>	<b>14KA</b>
<b>Impulse current Withstand</b>	<b>14KA</b>

## **07. EARTHING OF SUB-STATION:**

**Supply and Installation of Sub-station earthing as per Specification with the followings:-**

- (a) Earthing of Sub-station and equipment with 1" dia G.1 pipe 10' each Top and bottom up to a depth of 100 ft. in four pits using Copper Conductor of 4 SWG HDBC excluding making of inspection pits.**
- (b) Earthing of using 4 SWG Copper conductors (04 Nos\*100').**
- (c) Supply Installation testing and Commissioning of 2 Nos Copper earthing block with required Nos of 1/4" hole for Elec Connection Size-25\*4\*300mm for transformer neutral and another for all Sub-station equipment's ECC Connection.**
- (d) The earth electrode shall be Driven into the ground by tube well sinking method. The Top/head of the GI pipe after Completing all Connection shall be covered with Hessian cloth soaked in bitumen**

## **WARRANTY CERTIFICATE**

We stand warranty for trouble free operation of our supplied equipment and we undertake warranty for free replacement of any parts failing due to manufacturing defects, which shall Not Normal operational wear and tear, for a period of Transformer 30 (Thirty) months, LT switchgear and PFI plant 12 (Twelve) months from the date of delivery.

Thanking you,  
Yours faithfully

**Uniko Power Engineering Company Limited.**