

ELECTRICAL INDUSTRIAL COMPANY(EICO)

INTRODUCTION:

500KVA PACKAGE SUB-STATION

Substation are factory assembled compact units and are designed to provide a completely self contained load centre.

In order to provide personnel protection from HV, the substation has three separate compartment:

- 1- HV Compartment.**
- 2- LV Compartment.**
- 3- Transformer Compartment.**

Each unit is comprised of three individual main assemblies ,and would include:

- 1- One metal clad 11KV, gas insulated ; ring main unit LUCY type VRN2a
- 2- One ,metal clad low voltage board for distribution of output from 500Kva transformer with MCCB,s from ABB.
- 3- One 11/0.4 500Kva hermetically sealed transformer ,made by Matelec.

The enclosure is of galvanized sheet metal, free standing ,outdoor type on steel base finished with polyester powder paint. Lockable doors are provided for access to the transformer HV and LV compartment . Adequate ventilation is provided for cooling of the transformer compartment.

Substation bases have been designed for lifting from the under base. Internal connection is made by cross-linked polyethylene cable from the 11KV ring main unit to the transformer . the connections to the transformer primary being by means of plug-in bushings and elbow connection. The connection from the transformer low voltage side is made of high conductivity copper bars direct from transformer to the low voltage switchboard.

Protection degree: IP 33D for HV and LV Compartment.
IP 22D for transformer Compartment.

Dimensions including base;

Length : 3293 mm
Width : 2096 mm
Height : 2292 mm

Electrical Industrial Company(EICo)

Technical Data Sheet (500KVA)

No	Description	Type
A	General	500KVA
1	Manufacturer	EICo/MEDELEC
2	Total Mass (kg)	3355 kg
3	H x L x W (mm)	2292x3293x2096(mm)

B	HV Compartment	500KVA	
1	Temperature class	10	
2	Rating and characteristics		
a	Rated voltage	12kv	
b	Rated insulation level	75kv	
c	Rated frequency	50 Hz	
d	Rated normal current	Ring switches	630A
		Tee - off CB	250A
e	Rated short circuit breaking current	Tee-off CB	20KA
f	Rated short circuit making current	Ring switches	50ka
		Tee-off CB	50KA
g	Rated duration of short circuit	Ring switches	20Ka , 3sec
		Tee-off CB	20Ka , 3sec
h	Earth switch peak making current	Ring switches	50kA
		Tee - off CB	7.9KA
3	Gas pressure and limits of gas pressure	Nominal 0.4 Bar/ minimum 0Bar	
4	Minimum clearances in air between poles(mm)	125 mm	

C	TRANSFORMER COMPARTMENT	500KVA
1	CONSERVATOR OR SEALED TYPE	Hermetically sealed
2	Rated power (kva)	500kVA
3	Rated voltage (kv)	11kv
4	Rated voltage ratio at principal tapping (kv/v)	11/0.4
5	Methods of cooling	ONAN
6	VECTOR GROUP	Dyn11
7	Off circuit tapping range	2.5%,5%
8	POWER FREQUENCY TEST VOLTAGE (KV)	28KV
8	IMPULSE TEST VOLTAGE (KV PEAK)	75KV

9	tank	
a	Material of tank	steel
10	Thickness of tank plate	
a	Sides ,bottom ,top, radiator mm	4/4/6/1.2
b	Max. pressure tank can sustain KN/M2	30kN/m2
11	Tank finish	
a	Type of paint applied internally	Powder painting
b	Type of paint applied externally	Powder painting
c	Color of tank	RAL7033
d	THICKNESS OF COATING	70mmicron
12	gasket	
a	Material	Cork Nitril
b	thickness	6mm
13	Over pressure relief valve	
a	Venting pressure	30m bar
b	Venting quantity	N/A
14	INSULATION OIL	
a	Mass of oil (kg)	285kg
b	Oil grade and standard specification adopted	Nynas nitro Lybra IEC60296
15	Mass of transformer (kg)	1540 kg
16	Overall dimensions H x L x W	1415x1520x980
D	L.V COMPARTMENT	
1	Manufacture of MCCB,s	ABB
2	Temperature class	10
3	Rating and characteristics	
a	Rated operational voltage (V)	400V
b	Rated insulation level	
	Power frequency test voltage (kv rms)	2kV
	Impulse test voltage (kV peak)	6kV
c	Rated frequency	50 Hz
4	Busbars	
	Number of busbar	4
	Rated current (A)	800A
5	MCCB for incoming	

a	Rated current (A)	800A
b	Quantity	1
C	Rated short-circuit current (kA)	36kA
d	Frame size Height (mm)x Length(mm)x Width(mm)	268x154x210
e	Number of Poles	3
f	Trip Method	Electronic
g	Dimensions of enclosure Height (mm)x Length(mm)x Width(mm)	1900x1995x545
6	MCCB for outgoing	
a	Rated current (A)	400A
b	Quantity	3
c	Rated short-circuit (kA)	36KA
d	Frame size Height (mm)x Length(mm)x Width(mm)	205x103.5x140
e	Number of Poles	3
f	Trip Method	Thermomagnetic (Adjustable)
E	Enclosure	
1	Material	Galvanized steel
2	Thickness of enclosure plate: Sides (mm), Bottom (mm), Top (mm)	2mm, 3mm, 1.5mm
3	Thickness of coating (µm)	70-90 µm
4	Color IP Rating HV/LV compartment IP Rating Transformer compartment	RAL 7032 IP 33D IP 22D
5	Painting method	Electrostatic Powder Painting

