TECHNOHAVEN™
ENGINEERING LIMITED

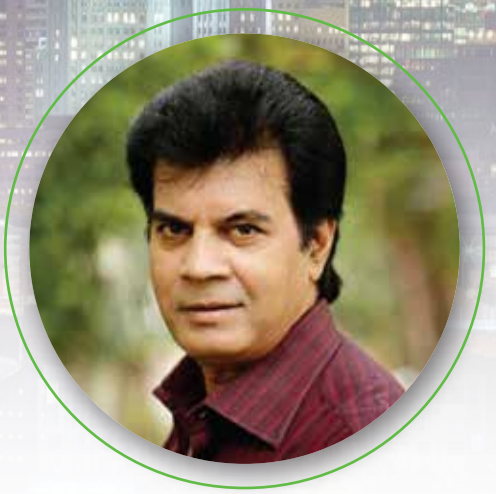
www.technohavenbd.com

YOUR PARTNER IN POWER

01615 154 000 24/7 Hotline

TECHNO HAVEN POWER

TECHNOHAVEN™



Message from Chairman

TECHNOHAVEN GROUP has been established with a motto to provide the Complete Industrial Solutions through different range of Products, especially in the Power Sector. 'Technohaven Group's main focus is delivering the result, reliability and a rock-solid depend-ability other than selling the products only. Our constant endeavor is to offer the quality products with its solution in the industrial sectors like Generators, Sub-stations, Steel Structure & Civil construction etc. We always feel that the client's satisfaction is the only thing which can enhance our long term business to deliver the best quality products. It's important to choose a good partner company. Therefore, we have partner companies who are world and nationwide very renowned like our Generator partner 'Jet and Marapco'. They are using the best Engines of Perkins and other accessories. Jet is known as the Desert King Power in the Gulf countries. Our steel structure company is a fast growing steel structure company in the country and maintaining constant high quality and delivery schedule. Technohaven Group is committed to provide the best quality products along with the best services every-where from Bricks to power, Power to Constructions. It's you who can give us a scope to prove ourselves.

So we are waiting for the next call from you...

- Ilias Kanchan

Power Solution

OUR DISEL GENERATOR SETS ARE POWERED BY PERKINS ENGINES
manufactured at various plants from UK & USA

50 Hz & 60 Hz
12.5 KVA - 2500 KVA

Marapco Generating Sets have provided reliable, dependable and trustworthy power solutions for the globl marketing since 1994. These Generating Sets are designed and manufactured in UK ranging from 12.5 KVA up to 2500 KVA and combine quality and performance to deliver a superior product.

Marapco Disel Generators are covered with one year warranty against manufacturing defects, which is in the with manufacturer's warranty terms and Conditions.

Marapco Disel Generators meets the following standards: ISO 8528, BS4999, ISO3046, BS60034, ISO12100, BS60439, BS953:1997+A1

JET GENERATORS
Assembled by
Jubaili Bros

MARAPCO GENERATORS
Made in U.K.

Jet Generators · Perkins Diesel Power · LEROY SOMER · DSE · ABB

Marapco Generating Set Ratings Summary: 12.5 - 2500 KVA

Perkins Powered - 3 Phase, 380-415V, 50Hz, Rating at 0.8 PF

Generating Set	Perkins Engine Model	Leroy Somer Alternator Model	RPM	Rating KVA		Rating KW	
				Prime	Standby	Prime	Standby
MP12.5 - MP14E	403A-15G1	LSA 40 VS2	1500	12.5	14.0	10.0	11.2
MP15 - MP16.5E	403A-151G2	LSA 40 S3	1500	15.0	16.5	12.0	13.2
MP20 - MP22E	404A-22G1	LSA 40 M5	1500	20.0	22.0	16.0	17.6
MP30 - MP33E	1103A-33G	LSA 42.3 VS3	1500	30.0	33.0	24.0	26.4
MP45 - MP50E	1103A-33TG1	LSA 42.3 M7	1500	45.0	50.0	36.0	40.0
MP60 - MP66E	1103A-33TG2	LSA42.3L9	1500	60.0	66.0	48.0	52.8
MP80 - MP88E	1104A-44TG2	LSA 43.2 L8	1500	80.0	88.0	64.0	70.4
MP100 - MP11OE	11 04C-44TAG2	LSA 44.2 VS45	1500	100.0	110.0	80.0	88.0
MP135 - MP150E	1006TAG	LSA 44.2 S75	1500	135.0	150.0	108.0	120.0
MP150 - MP165E	1006TAG2	LSA 44.2 M95	1500	150.0	165.0	120.0	132.0
MP180- MP200E	1106C-E66TAG4	LSA 46.2 M3	1500	180.0	200.0	144.0	160.0
MP200 - MP220E	1306C-E87TAG3	LSA 46.2 M5	1500	200.0	220.0	160.0	176.0
MP250 - MP275E	1306C-E87TAG6	LSA 46.2 L6	1500	250.0	275.0	200.0	220.0
MP300 - MP330E	1606A-E93TAG5	LSA 46.2VL12	1500	300.0	330.0	240.0	264.0
MP350 - MP400E	2206A-E13TAG2	LSA 47.2 VS2	1500	350.0	400.0	280.0	320.0
MP400 - MP450E	2206A-E13TAG3	LSA 47.2 S4	1500	400.0	450.0	320.0	360.0
MP450 - MP500E	2506A-E15TAG1	LSA 47.2 S5	1500	450.0	500.0	360.0	400.0
MP500 - MP550E	2506A-E15TAG2	LSA 47.2 M7	1500	500.0	550.0	400.0	440.0
MP600 - MP660E	2806A-E18TAG1A	LSA 47.2 L9	1500	600.0	660.0	480.0	528.0
MP650 - MP710E	2806A-E18TAG2	LSA 49.1 S4	1500	650.0	710.0	520.0	568.0
MP725 - MP800E	4006-23TAG2A	LSA 49.1 M6	1500	725.0	800.0	580.0	640.0
MP800 - MP880E	4006-23TAG3A	LSA 49.1 M75	1500	800.0	880.0	640.0	704.0
MP1000 - MP11OOE	4008TAG2A	LSA 49.1 L11	1500	1000.0	1100.0	800.0	880.0
MP1250- MP1375E	4012-46TWG2A	LSA 50.2 M6	1500	1250.0	1375.0	1000.0	1100.0
MP1500 - MP1650E	4012-46TAG2A	LSA 50.2 L8	1500	1500.0	1650.0	1200.0	1320.0
MP1700 - MP1875E	4012-46TAG3A	LSA 51.2 S55	1500	1700.0	1875.0	1360.0	1500.0
MP2000 - MP2200E	4016-TAG2A	LSA 51.2 M60	1500	2000.0	2200.0	1600.0	1760.0
MP2250 - MP2500E	4016-61TRG3	LSA 51.2 VL90	1500	2250.0	2500.0	1800.0	2000.0

MOBILE LIGHT TOWERS | **POWER SOLUTIONS** | **SPARE PARTS & ACCESSORIES**

Marapco Light Towers offer complete lighting solutions for a wide array of applications and are tested under harsh conditions to withstand the rough environments common on different sites. Marapco Light Towers combine quality and performance to deliver a superior product.

POWER SOLUTIONS

We proudly offer a wide range of low & medium voltage products, technical know-how and experience to bring your projects to life.

TURNKEY SOLUTIONS

- Supply equipment for LV and MV transmission and distribution
- Rehabilitation and upgrade of exiting systems
- Design & develop our own solutions to fit with customer needs

- Genuine Perkins Engine Spare Parts
- Genuine Alternator Spare Parts
- Control Panels
- Electronic Components
- Filters & Cables
- Totalizing Panels
- Fuel Tanks
- Load Banks

Message

We would like to say all of our honourable customers, users that our have one of the developing company in our country with the product of substation equipment, as like Transformer, HT Switchgear, LT Switchgear, PFI Plant, MDB, SDB and Generator. Emphasising on clients Interest we are committed to meet our valued client needs in the most befitting way. We pledge to use our resources quality and effectively to solve your problem with the right and complete solution for your project, Sales, Service, Spare support system integration or system management and monitoring control.

We started making of world class switchgear equipment incorporating a number of committed engineers. **We** started manufacturing of transformers and switchgears. Our engineers are closely related with international professional bodies like IEEE & ASME and accordingly updating their technologies with latest developments.

We have high skilled engineers and technician to manufacture of Distribution and Power Transformer (3 Phase). Though transformer are designed on requirements of valued customers according to IEC (International Electro Technical commission) ANSI (American National Standard Institute) BS, VDE. Though Transformer are rating from 50 KVA to 10,000 KVA among this Distribution Transformer rating from 5 KVA to 10,000 KVA system voltage 11kv or 33 kv. We are maintaining its continuous improvement in design and product quality by using the modern production technique with latest technology and experience.

At last we want to say that all of our staff recognizes that client satisfaction is of paramount importance.

Quality Policy

High quality Product

Fast & Proper service

Priority of customer's requirement

In time delivery

As consistent guarantee of the highest quality, Distribution Transformers are manufactured from cold rolled grain oriented (CRGO). Quality control is carried out at all stages of production while final routine and type tests are performed in our well equipped testing laboratory according to IEC-76, BDS 1081, ANSI, AEC and BSTI standards.

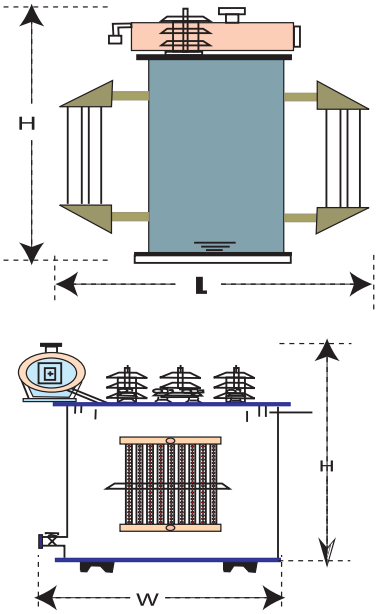
Design

Standards	:	IEC 76, BDS-1081, ANSI, VDE.
Frequency	:	50Hz, 60Hz (on request)
Ratings	:	25 KVA - 10,000 KVA
Primary volt	:	for values above 24 kv and up to 36 kv. Double high voltages 15-20kv
Tapping	:	2.5 %; ± 5 % or ± 2 x 2.5 %; -7.5%
Secondary volt	:	415 to 440V other values may be offered Double low voltages with 7 LV bushings can be offered with full rating on both voltages or with reduced rating (75%) on load.

Transformer's Physical Dimensions

Rating (kva)	Height/H (cm)	Length/L (cm)	Width/W (cm)	Weight (kg)
100	132	100	63	650
150	145	105	88	900
200	150	112	93	975
250	158	113	95	1100
315	160	120	97	1250
400	165	123	98	1450
500	165	124	102	1725
630	170	136	103	1970
750	185	155	112	2250
800	225	170	113	2575
1000	215	185	115	2850
1250	225	190	116	3725
1500	230	200	120	4300
2000	250	210	135	4750

N. B. All dimensions are shown including radiator and conservator tank.



Core & Coil

High grade grain oriented silicon steel. The special cutting and stacking methods result in low no load losses and noise levels. Wound on mandrel, the core is annealed at the highest temperature of 800 degree centigrade to relieve mechanical stress and fix into the design shape.

Low Cold rolled grain oriented silicon steel strip. The core is built with laminations of voltage coils are normally larger layer wounds using paper insulated copper conductor. Circular type and rectangular type windings are respectively used for relatively large or small type of transformers. The coil has to allow the liquid insulation for cooling. It causes uniform heat dissipation due to losses. The round conductor windings consist of individually wound coil sections connected in series to produce phase winding. We use high grade Imported copper for winding and export quality super enamel from gazi wires for HT windings. HT and LT coils are checked for inner diameter, outer diameter, axial length, number of turns and resistance.

Testing

During the entire manufacturing process the transformer is approved by BSTI, BUET, MSTI, Electrical licensing authority of energy ministry, IEC76/BDS1081, Test certificates are issued for all the tests on request.

Routine Test

1) Insulation resistance test
2) Winding resistance test
3) Voltage ratio & polarity test (vector group test)
4) Load loss & impedance voltage measurement
5) No load loss & exciting current measurement
6) Dielectric strength test of oil
7) Power frequency voltage withstand test.
8) Core insulation test
9) Function of tap changer test.
10) Heat-run test at ONAN and ONAF rating
11) Short-circuit test

Type Test

1) Impulse voltage withstand test
2) Temperature rise test
3) Over load test
4) Noise level test
5) Oil leakage test

Single Phase Transformer

Pole mounting distribution transformers are manufactured in two types:

Conventional and self protected type:

According to the distribution systems, the transformer may have one or two high voltage bushings.

Conventional type:

The conventional type transformers are furnished with accessories as per relevant applicable standard.

Self protected type: the complete self protected transformers have the following devises:

a) Lightning arrestor
b) Primary fuse link
c) Secondary circuit breaker
d) Signal lamp

Three phase transformer

The three phase distribution transformers are manufactured for indoor or out door use and in the pole mounting or ground mounting type.

Features

Low loss and efficiency by using cold rolled grain oriented silicon steel with high permeability. Transformer tank is filled with oil under vacuum thus improving the complete penetration of insulating liquid. The high coil-to-coil and low coil-to-ground capacitance ratio provides distribution of surge voltage over the entire coil. Smart out line by the latest methods of automatic machining. Oil preservation systems depending upon transformer rating to prevent the deterioration of transformer insulating. Paraffin based mineral oil is used for best cooling effect. Dial thermometer with or without contacts and Buchholz relay are used as per customer request. Transformer is compact design and use friendly. Arcing horns are use in proper distance.

Warranty

Technohaven committed to our client for trouble free operation of our supplied equipment and under make warranty for free replacement of any part or parts failing due to manufacturing defect or wrong workmanship, which shall not include normal operational wear and tear for a period of 24 months from the date of delivery of equipment and 12 month from the date of commissioning.

Our others activities

a) Sales and services of Diesel/Gas Generators.
b) Manufacture, Assemble, Supply and Installation of Substation equipment.
c) Maintenance contract for Substation and Generator.

Switchgear

Technohaven is improving and updating the engineering know-how in switchgear technology day by day. The switchgear division is itself a complete unit with knowledge, experience, skills as well as machineries, machining facilities and test equipment.

Fixed Type

VCB/ LBS/ SF6 breaker is suitable for use in cubicle switchgear units. Such breaker is fixed to a switchgear or floor by bolting its base with it. If requested, fixed mounting SF6 breaker/VCB/LBS's may be provided with wheels which will make its movement easier.

Connections between the breaker and incoming as well as outgoing busbars, are made directly and kept fixed. The terminal arrangement of a fixed mounting breaker is such that connection to various positions are made in the following manner : Main connection - by bolts
Control connection - by screws
Earth connection - by screws

Draw-out Type

VCB/SF6 breaker is mounted on a cradle. The complete unit may be provided with a shutter of front cover. This SF6 breaker /VCB along with the cradle can be easily installed inside a switchgear compartment without any need of mechanical adjustment.

The interlock of the draw out mechanism type and its special features are-
The circuit breaker cannot be placed in or withdrawn from its cradle when it is in closed position.
The circuit breaker cannot be operated as the time of inserting in the cradle.
Circuit breaker & other components like CT, PT, IDMT relays all are imported from USA, Germany, France UK and Japan or as per choice of our valued customers.

High Tension (HT) Switchgear

High tension switchgear comprise the units designed for rated voltage of 12kv, 33kv current range 400A to 1250 A. Switchgear insulation designed to withstand rated voltage is also subjected to over voltage due to lightning and breaker operation transients. Depending on the conditions switchgear installation are designed and manufactured for outdoor and indoor service. Suitable for mass production, transportation handling and convenient operation, the weight of the equipment is kept as low as practicable.

The VCB, LBS, SF6 circuit breaker and the switchboards are of optimized design for Bangladeshi supply condition and ambient. This design ensures ease of operation, low cost maintenance and higher longevity.

The cubical design of 12kv, 25kv, and 1250A is also compatible with our SF6 and minimum oil circuit breakers (MOCB). The panels are fully compartmentalized and extensible on both side, consisting of bus bar chamber with adequate air clearances, PT compartment, CT and cable termination compartment, breaker compartment and metering chamber.

Advantage of VCB

* Proven hermetically sealed vacuum interrupters.
* Low contact erosion.
* Fast recovery of dielectric strength.
* Maintenance free vacuum interrupter.
* Suitable for auto re-closing duty.
* Small stroke length and less moving parts.

Low Tension (LT) Switchgear

Technohaven made LT switchgears are withdrawable or fixed-mounted construction. Our LT switchgears are sheet steel (12-16 swg) cladded with modular systems for assembly of cubicles intended to take heavy equipments, dust and vermin proof, free standing of against-a-wall installation, single or double fronted arrangement and all-round steel enclosure, floor mounting indoor type, with TPN &E copper busbar. We prefers to use ABB, Marlin Gerin, SIEMENS, branded circuit breaker in our panels, but if it is prescribed other brand by customer and it does not over rule the standards we manufacture as per customer's requirements.

Technical Data

Rated voltage (V) up to 660v, 50 hz
Rated current (A) up to 7200 A
Rated currents of components
Circuit breakers up to 6300 A
DOL contactor starters up to 400A
Contactor type reversers up to 400 A
Contactor type star-delta starters up to 700 A

Dimensions

(Dimensions to DIN 41S488 SHEET 2)
Height: 600/800/1500/1800/2200mm
Width: 400/600/800/1000 mm
Depth: 400/600/800mm

Rated Peak Withstand Current
Main busbars up to 176 ka
Dropper bars up to 120 ka
Degree of protection
to DIN / IEC IP 40

Tests

All the breakers are subjected to routine tests as per IEC the panels along with the breaker are subjected to routine tests as per IEC before dispatch.

We do not compromise in using circuit breakers other than Europe origin and always ensures type tested products certified by European neutral bodies. We also use high quality insulations and copper bus-bar of excellent thermal conductivity

Indoor Outdoor Cubicle

Air insulated, metal clad construction using high quality steel.
Durable epoxy powder coated finish.
Easy accessibility for maintenance.
Meters, Relays and Controls located at convenient height.
Side cable box for single panels.
Fully tested as per IEC.

PFI PLANT

POWER FACTOR IMPROVEMENT (PFI) PLANTS ARE OF-
1) MODULAR DESIGN
2) COMPACT ARRANGEMENT
3) LOW LOSSES CAPACITORS
4) HIGH RELIABILITY
5) FACTORY WIRED
6) EXTENDIBLE

Power factor correction is the switching of the capacitors in parallel with inductive loads in the network.
Motors, Transformers and other inductive loads require reactive power. Transmitting/distributing the reactive power from the power station to the loads in uneconomical. It improves undue burden on generators and transmission/distribution system, causes additional losses, increases, voltage drop and the overall power requirement of the plant.
Economic and technical reasons thus make it expedient to relieve the generators, transmission/ distribution system and cables of reactive power. The automatically controlled capacitors i.e. our power factor improvement (PFI) plant is well suited for this purpose.

Design

Power factor correction principles :
Our power factor improvement plants are manufactured in modular design and consist of:
* Relay Module * Capacitor Modules

The regulation module consist of :
* Solid state reactive power rlay with digital indication of power factor.
* Circuit breaker for control vable protection.

The capacitor module consist of :
* Harmonic load tolerance
* Metallized plastic foil
* Long life (approx 100,000 hrs.)
* Touch proof terminals
* High reliability * Air break contactors to switch capacitors
* High over load capacity (15 x rated current)
* High temperature class
* Environment friendly insulating gas filled

Standard & Regulations

DIN VDE 0660, Part 500 (TTA) and IEC - Pubi, 439-1 DIN VDE 0106, Part 100

Busbar Trunking Systems

Busbar Trunking System is very low compare to conventional cabling system for distribution up to load due to shorter and easier installation, reduced costs, time, space and maintenance management. We dopted most advance Europe-an technology for Busbar trunking systems. All the deign and drawing from European consultant. The busbar is designed for sandwich construction which is efficient in perfomance, cost effective, compact, safe and enviromnent friendly.

Energy efficiency: Compactness of sandwich construction results in higher efficiency due to lower voltage drop and impedance. This ensures all connected equipment run cooler.

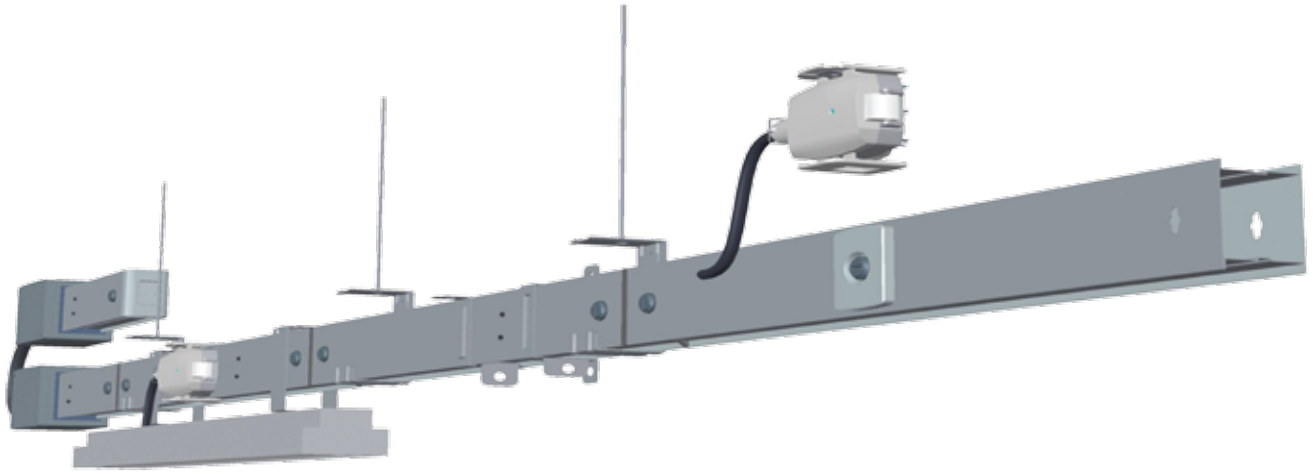
Flexible: Additions of floor to a building or any expansion to an existing system is extremely simple with sandwich BBT. They are scalable & elegant.

Safe & Sure: Higher mechanical strength over long runs, better electrical conductivity and lower MV drop which ensures high reliability. Ability to withstand high short circuit currents make them doubly safe.

Fire retardant: Sandwich construction do not have air gap due to which natural progression of fire is inhibited. Epoxy insulation, being name retardant provides better resistance to spread of fire

Compactness: Sandwich construction render to the BET system more compact than air insulated bus bar system, thus making them a preferred choice in plant room and building applications.

Economical: Inherently flexible design ensures easy Installation and maintenance thus resulting in lower installation and maintenance costs.



The benefits of busbar over cabling system

* Busbar trunkings are functional and flexible, busbar systems quickly accomodate changes in machinary lines or any kind of extansion.
* If additional extension is required in the existing Busbar Trunking system, then it can be done reusing the existing one. But for the case of Conventional cable, existing cable cannot be reused,
* Busbar installations can be changed or can be mounted to another establishment.
* Minimises maintenance.
* Voltage drop can be measured exactly as inductive reactance and electrical values are designed and calculated values.
* Operating costs are minimum.
* Busbar projects are easy to prepare. Even with estimated layouts, it can be projected and approximate material list can be prepared.
* System does not cover a large area and helps space management. Considering its ampere range dimensions are small.
* Short circuit withstands are high.
* Busbars can be apllied to any kind of building by its modular structure.
* It covers much less space than cable systems according to its high ampere rate.
* Busbar trunkings doesn‘t carry flames incase of fire as a result of compact structure.

24/7 AFTER SALES SERVICE

TECHNOHAVEN prides itself in offering excellent after sales service. We have an extensive fleet of fully equipped service vehicles on call 24/7, ensuring our clients' businesses and residences experience minimal power outages in the event of an emergency. TECHNO-HAVEN customers can rest assured that their machines are maintained for optimum performance and maximum life cycle.

Complete Industrial Solution

- *Diesel Generator*
- *Substation*
  (Transformer, HT, LT Swichgear & PFI Plant)
- *Engineering Consultancy*
- *Turnkey Basis Project Handling*
- *Civil Construction*
- *Steel Building System*
- *Interior Decoration*
- *Architectural Solution*
- *Interior Decoration*
- *ICT Solution*
- *Fire & safty Security*
- *Lift*

Our Business Concerns:

TECHNOHAVEN

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