



# KDH Engineering Ltd.

"Our commitment,  
Your satisfaction"

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**KDH Engineering Ltd.**

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[www.kdhengg.com](http://www.kdhengg.com)

Since 1989

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- 01. Busbar Trunking System
- 02. Type Tested Switchgear Panel
- 03. Lightning Protection System
- 04. Noise Control & Acoustics System
- 05. Transformer & HT Switchgear
- 06. Smart Wireless Lighting Control Solution
- 07. Solar Energy & Elevator, Escalator, Travelator etc.

# About Us

**KDH Engineering Ltd.** is one of the leading engineering companies in Bangladesh. KDH commenced its business in the country in the early 90's. Since its inception, the company has been very focused into its purposes of providing best quality products & services to its esteemed customers.

**KDH** is a unique organization dealing with diverse engineering solutions as product & service such as Busbar Trunking System, Switchgear Panel & Board, Lightning Protection, Surge Protection, Earthing System and Acoustics System. To provide the above mentioned products & services according to customer inquiries, **KDH** has joined forces with world-renowned partners who are global leaders in their respective industries.

**KDH Engineering Ltd.** is proud to announce that it is the authorized distributor of followings:

- Busbar Trunking System - **POGLIANO Busbar s.r.l-Italy**
- Switchgear Panel & Board -**Sunlight Electrical Pte Ltd-Singapore**
- Lightning Protection System -**nVent ERICO-USA**
- Noise Control & Acoustics System, Fire Rated Door, Acoustics Door, Pressure Door - **Mason Acoustics Co., Ltd.-Thailand**

From the price-concerned applications to the turn-key solutions, whether it is industrial or commercial projects, **KDH** provides best solution for every project & takes pride in all the services it carries out. By providing best products coupled with quality services & country wide operations made **KDH** one of the known engineering solution providers in the country. We wish to grow together with our esteemed customer by providing best solutions and extend our reach within the country while maintaining our reputation.

## Values



Proactive



Sustainability



Reliability



Perfection



Flexibility

## MISSION

The mission of our company is to provide best quality products and to offer optimum services in order to meet the needs of each & every one of our valuable customers. It is an institution where industrial engineers play a vital role in transforming the way industries run.

## VISION

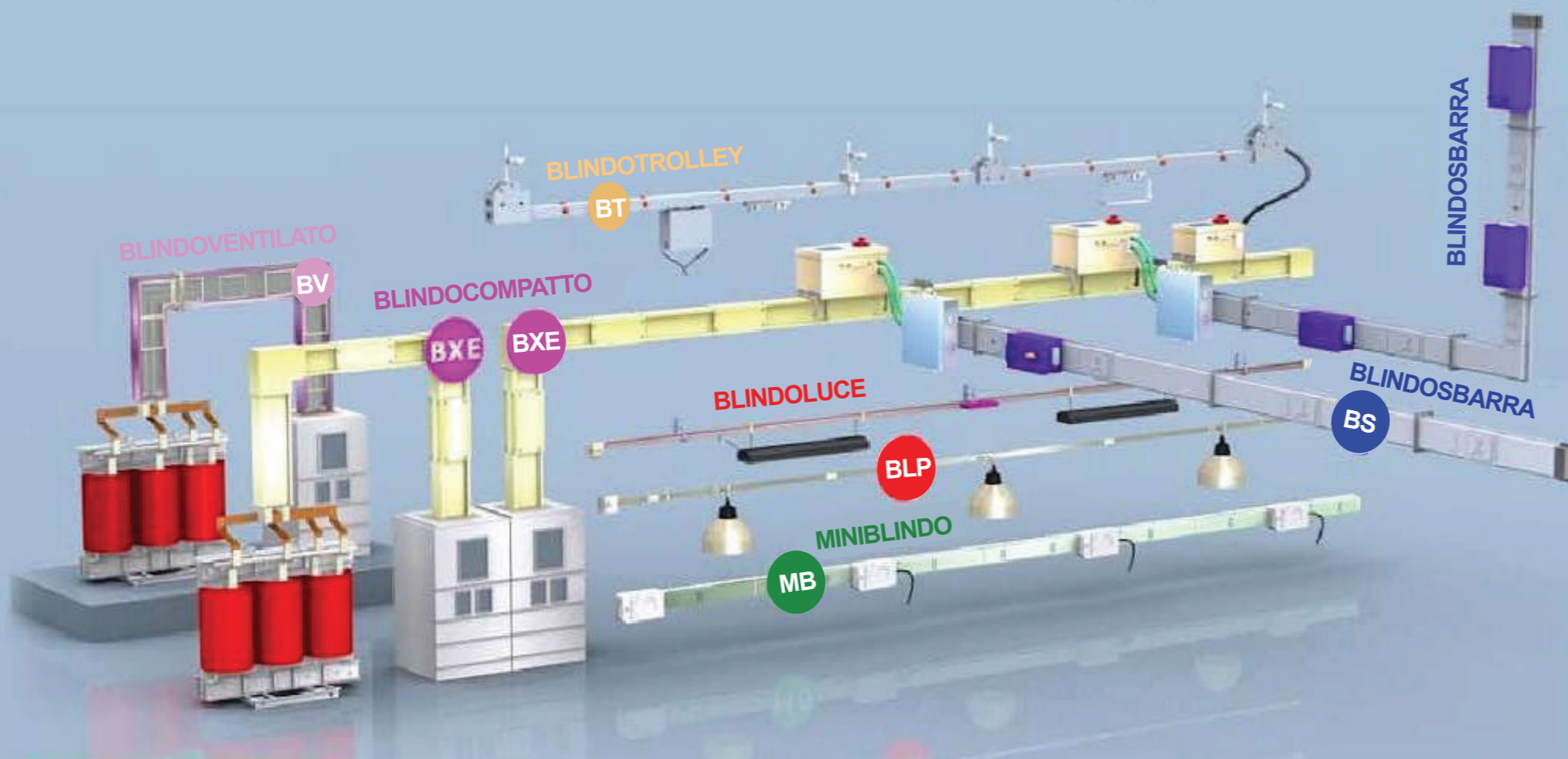
**KDH Engineering Ltd** is a multifaceted discipline that provides immense value to organizations across various sectors. Our Company's ability to design efficient systems and harness technology advancements contributes significantly to a competitiveness in today's global marketplace. In essence, industrial engineering embodies the pursuit of excellence and continuous improvement, delivering enduring value to businesses and society as a whole.



# Busbar Trunking System - POGLIANO Busbar s.r.l.-Italy

Pogliano pioneered busbar trunking systems in Europe.

Copper version & Aluminum version (25A to 10000A)



## BLINDOCOMPATTO



800 - 6300A  
4P+PE/4P+PER/5P  
IP55/IP 68

## BLINDOSBARRA



250 - 1000A  
3P+PE/4P+PE  
IP55

## MINIBLINDO



63-160A  
4P+PE/5P+PE  
IP55

## BLINDOLUCE



25-40A  
2P+4P/6P/8P  
IP55

## BLINDOVENTILATO



600-4000A  
3P+PE / 4P+PE  
IP21 / IP31

## BLINDOTROLLEY



100-400A  
3P+PE/4P / 4P+PE  
IP10 / IP20



POWER DISTRIBUTION



MIDIUM POWER DISTRIBUTION



SMALL POWER DISTRIBUTION



LIGHTING



INTERCONNECTION DISTRIBUTION



TROLLEY BUSBAR

# Type tested Switchgear Panel Distribution (Sunlight Electrical

# Board According to IEC 6143-2 -TR 61641 Pte Ltd-Singapore)



**Main Switch Board**

Rated insulation voltage Ui: 690V  
 Rated operation voltage Ue: 415V  
 Main circuit breaker: Up to 6300A  
 Enclosure Degree of protection of: IP4X TO IP65  
 Internal separation: 2A, 2B, 4A, 4B  
 Certificate of verification tests By ASTA, KEMA



**Weather proof  
Temporary Supply**



**Booster Pump Panel**



**Solar Switchboard**



**Consumer Unit**



**Motor Control Panel**

Rated insulation voltage Ui: 690V  
 Rated operation voltage Ue: 415V  
 Main circuit breaker: Up to 250A  
 Enclosure Degree of protection of: IP4X TO IP65  
 Functions: (DOL, STAR-DELTA, VSD)  
 Internal separation: 2A, 2B, 4A, 4B  
 Certificate of verification tests By ASTA, KEMA



**Weatherproof Panel**



**Power Factor Improvement Panel**

Rated operation voltage Ue: 415V  
 power factor unit: 100kvar to 2400kvar  
 Certificate of verification tests By ASTA, KEMA



**Sub Distribution Board**

Rated insulation voltage Ui: 690V  
 Rated operation voltage Ue: 415V  
 Main circuit breaker: Up to 1000A  
 Enclosure Degree of protection of: IP4X TO IP65  
 Internal separation: 2A, 2B, 4A, 4B  
 Certificate of verification tests By ASTA, KEMA



**Distribution Board**

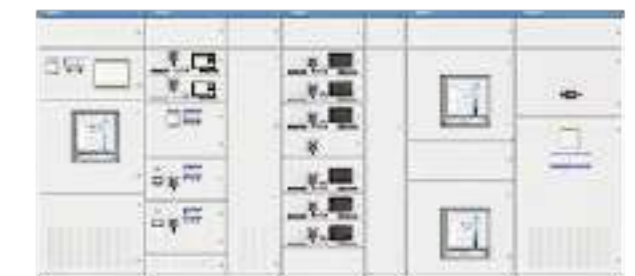
Rated operation voltage Ue: 415V  
 Main circuit breaker: Up to 250A  
 Enclosure Degree of protection of: IP4X TO IP65  
 Internal separation: 2A, 2B, 4A, 4B  
 Certificate of verification tests By ASTA, KEMA



**Airport Diesel Transfer  
Pump Panel**



**Fire Pump Control panel**



**Withdrawable**

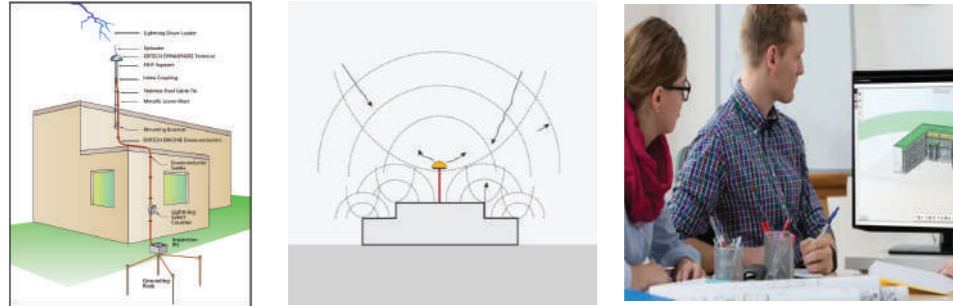
Application: Energy distribution,  
 Motor control Centre  
 Rated insulation voltage Ui: 1000V  
 Rated operation voltage Ue: 240/415V  
 Certificate of verification tests By ASTA, KEMA



# Lightning Protection System (LPS) -nVent ERICO-USA

## nVent ERICO System 3000

IEEE998-2012, UL listed, BUET Certified Advanced Technology.

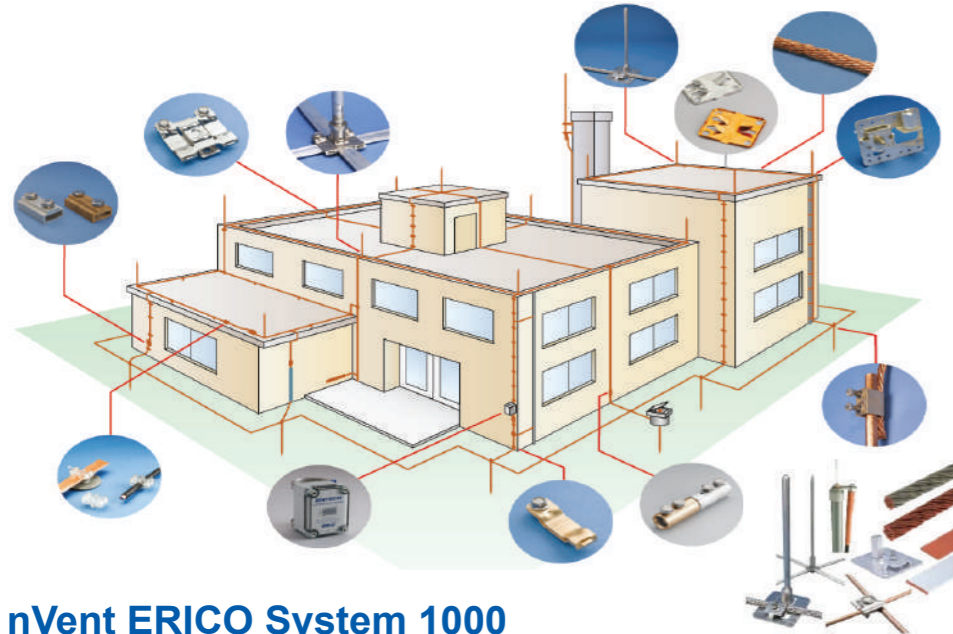


### A Technically Advanced Lightning Protection System

CVM accounts for much more than the Rolling Sphere Method (RSM). The RSM is based on the Electro Geometric Model for striking distance. CVM considers the height as well as the geometry of the objects on the structure. nVent ERICO application engineers will design your lightning protection system to optimize protection against harmful strikes. Our LPSD software utilizes the CVM to ensure that your Dynaspheres have proper placement for your facility.

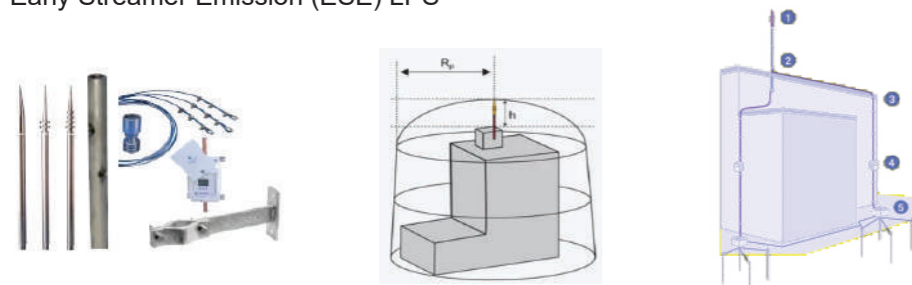
## nVent ERICO System 2000

European, IEC 62305, NFPA780, BNBC, USA UL 96 Standards.



## nVent ERICO System 1000

Early Streamer Emission (ESE) LPS

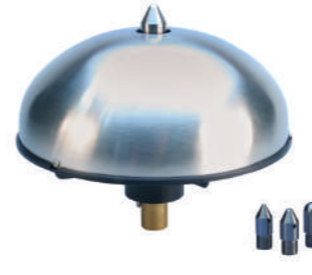


These early streamer emission air terminals (ESEAT) are in accordance with the 2011 edition of NFC 17-102.

nVent powerful portfolio of brands:



Lightning Event Counter



Dynasphere Air Terminal



nVent ERICO Ericore Underminated Conductor



nVent ERICO Ericore Upper Termination Kit



nVent Raychem Heat Tracing Cables



Distribution Block

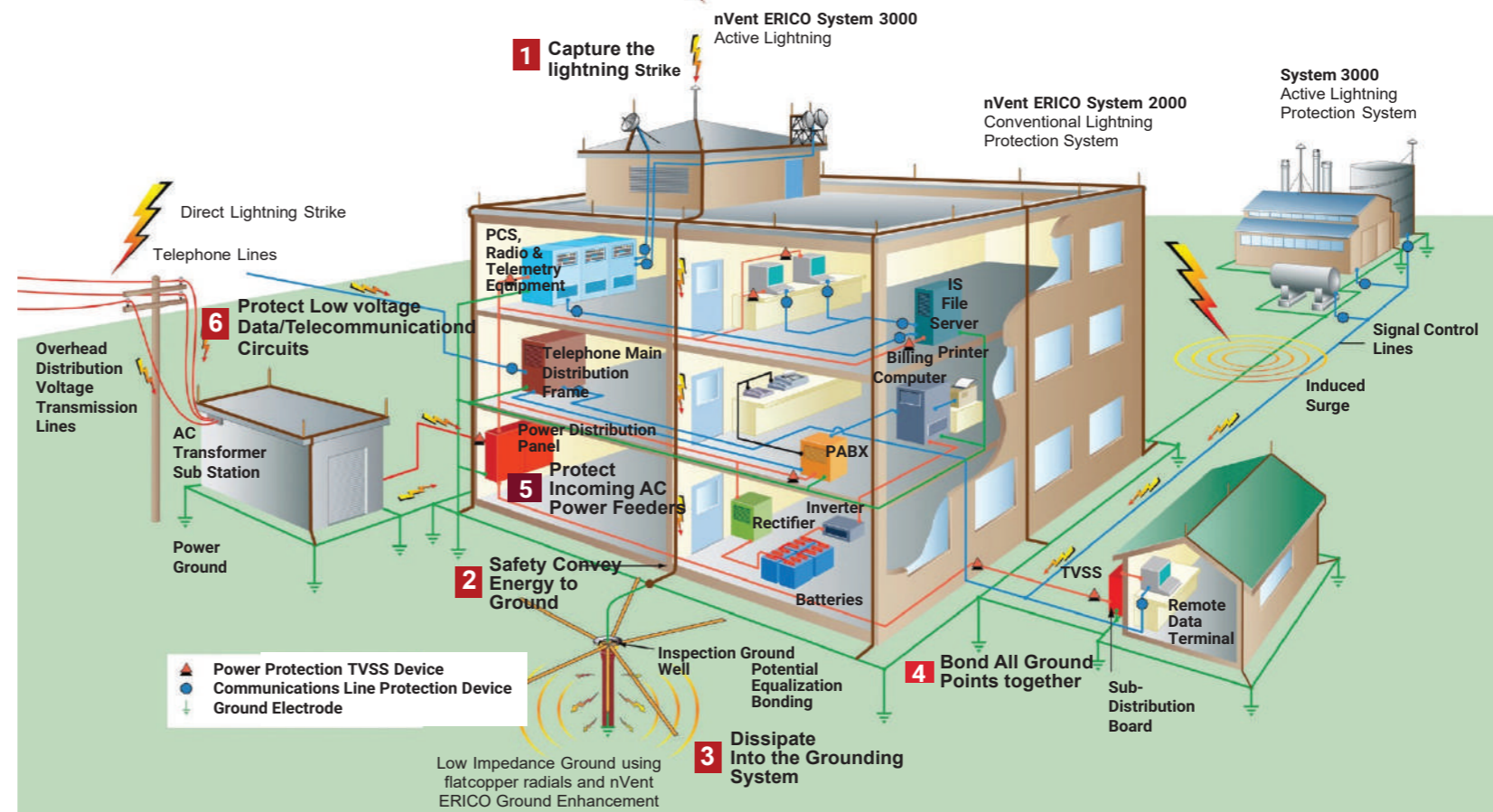


Surge Reduction Filter N-Series, Single Phase



Surge Counter, Digital Display

### nVent ERICO Six Point Plan of Protection



GEM (Ground Enhancement Material)



Erico Exothermic Connection



Transient Discriminating Surge Diverter, 20 kA Three Mode



Transient Surge Filter



# Mason Acoustics Co. Ltd, Thailand

**Abie Tiger**

## Product List:

- ▶ Acoustic Treatment of Generator Room
- ▶ Acoustic Treatment of Cooling Tower & Chiller
- ▶ Acoustic Treatment of Auditorium/ Multi purpose Hall/Opera Theatre
- ▶ Acoustic Treatment of TV/Radio Studio/Music Room
- ▶ Acoustic Treatment of Lecture Gallery/Conference Room
- ▶ Acoustic Treatment of Movie Theatre
- ▶ Acoustic Door
- ▶ Acoustic Window/Glass
- ▶ Acoustic Silencer
- ▶ Acoustic Louver
- ▶ Noise Barrier
- ▶ Acoustic Ceiling & Wall Panel
- ▶ Spring Isolators

## Mason Services

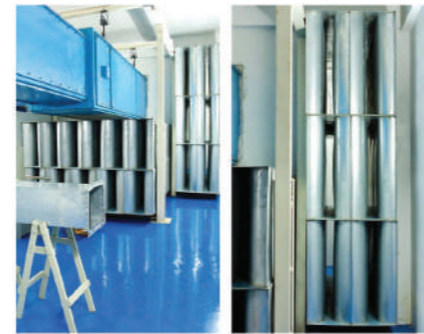
- ★ Consultancy
- ★ Modelling
- ★ On site surveys
- ★ Turn key construction

## Some Of Our completed projects in bangladesh

Jamuna Future Park Blockbuster Cinema hall, North South University, Independent University, East West University, Incepta Pharmaceuticals Ltd, Dhaka Metro Rail Line-06, Square Hospital Ltd, Saiham Tower, Epyllion Style Ltd, AMC Knit Composite Ltd.



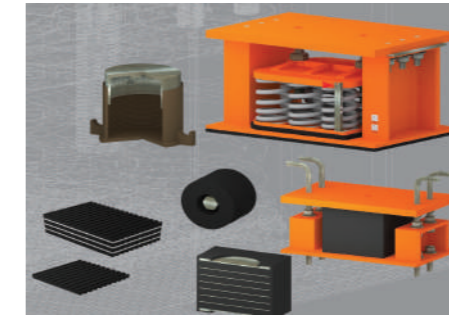
Acoustic Generator Room



Duct Silencers



Acoustic louver



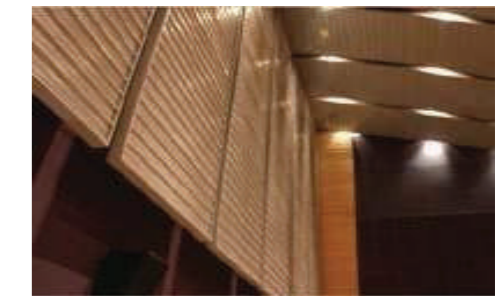
Spring isolators



Acoustical Reverberation Lab



## Acoustic Auditorium/ Theatre/Multipurpose hall



Acoustic Metal Composite Roofs



Acoustic Glass/Window



Acoustic Enclosures



Cinema Hall



Performance Doors



Lab-Fire Test



Acoustic Ceiling & Wall Panel



Acoustic Generator Mufflers

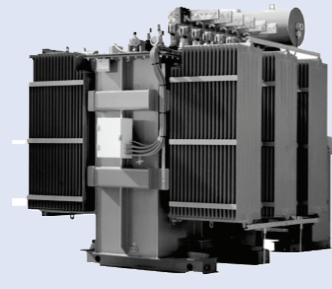


Fire Acoustic Door

# Transformer



Cast-Resin Transformers

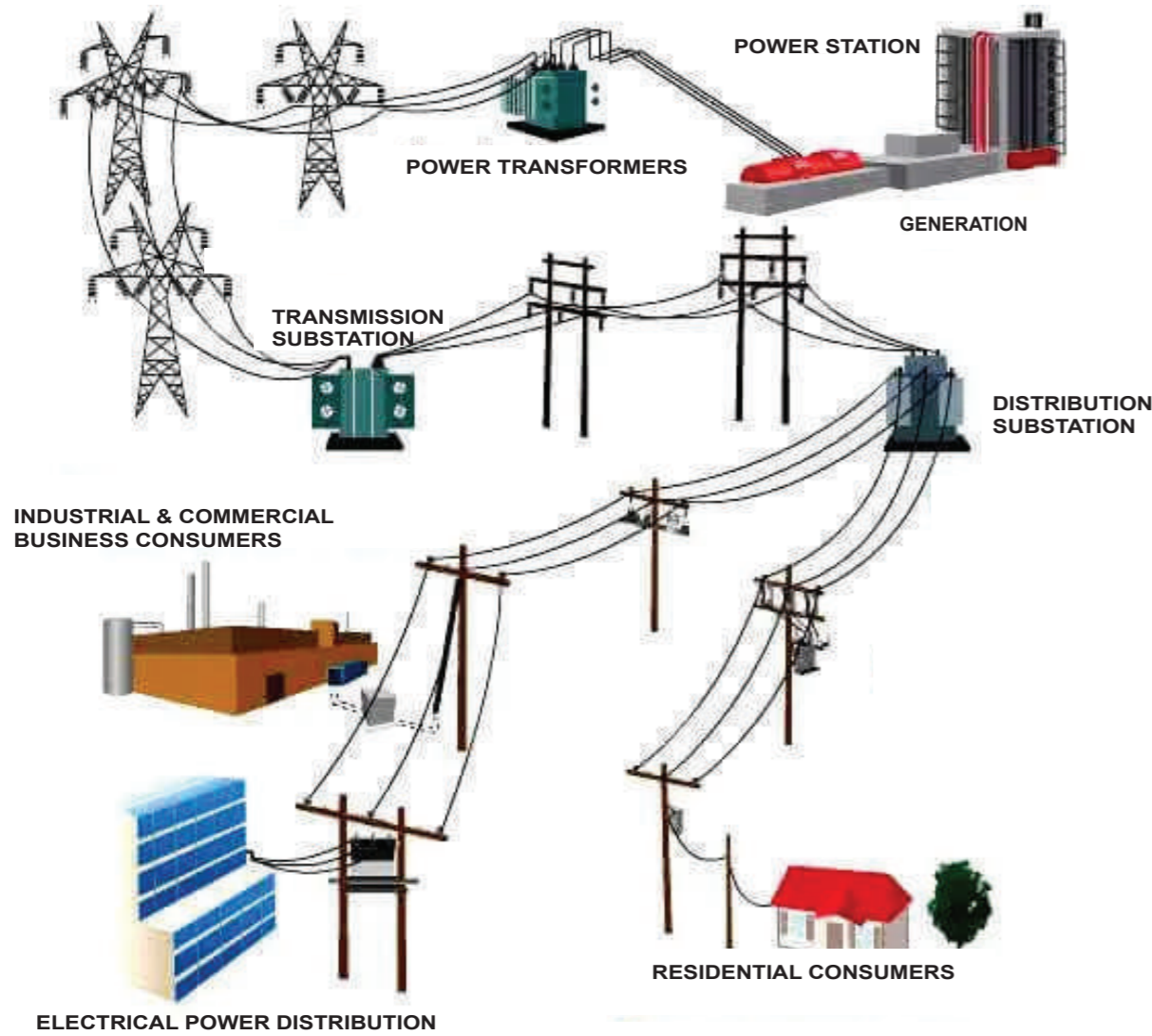


Oil Transformers

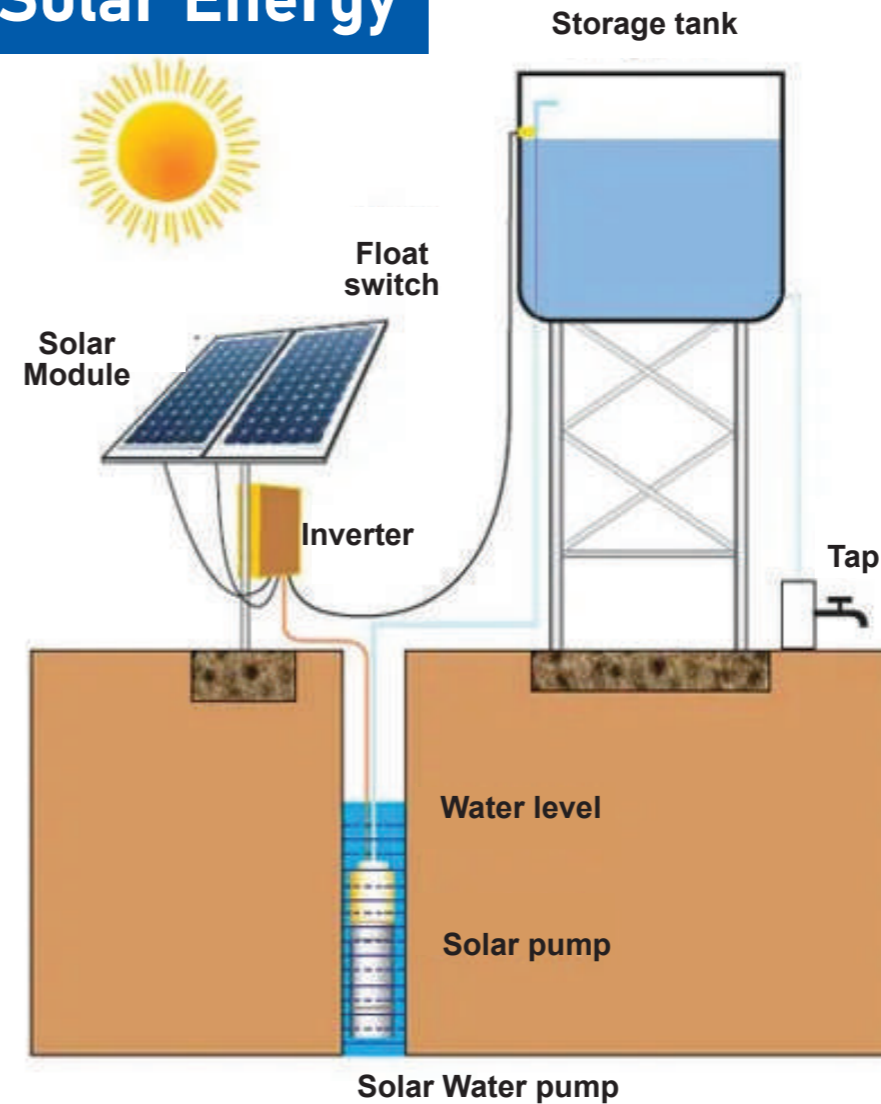


Dry Type Transformers

# Smart Wireless Lighting Control Solution



# Solar Energy



# HT Switchgear Panel



SF6 & VCB Panel

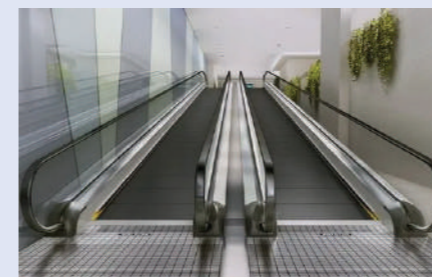


Vacuum circuit breaker

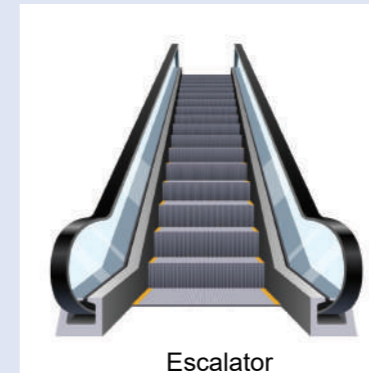


Ring main unit

# Elevator, Travelator, Escalator



Travelator



Escalator










Elevator

# IP= ingress protection against solid and water










## First Numeral

Protection against solid particles

-  **IP 0**  
No protection
-  **IP 1**  
Protected against solid objects over 50mm (e.g. accidentally touched by hands)
-  **IP 2**  
Protected against solid objects over 12mm (e.g. touched by fingers)
-  **IP 3**  
Protected against solid objects over 2.5mm (e.g. tools and wires)
-  **IP 4**  
Protected against solid objects over 1mm (e.g. tools, wires and small wires)
-  **IP 5**  
Protected against dust - limited ingress (no harmful deposit)
-  **IP 6**  
Totally protected against dust

## Second Numeral

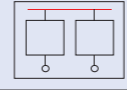
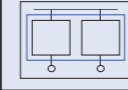
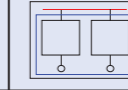
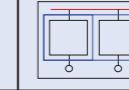
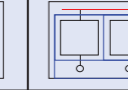
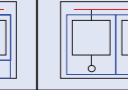
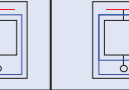
Protection against solid particles

-  **IP 1**  
Protected against vertically falling drops of water
-  **IP 2**  
Protected against direct sprays up to 15° from the vertical
-  **IP 3**  
Protected against direct sprays up to 60° from the vertical
-  **IP 4**  
Protected against sprays from all directions - limited ingress permitted
-  **IP 5**  
Protected against low pressure jets if water from all directions - limited ingress permitted
-  **IP 6**  
Protected against strong jets of water e.g. for use on ship decks - limited ingress permitted
-  **IP 7**  
Protected against the effects of temporary immersion between 15cm and 1m. Duration of test 30 minutes
-  **IP 8**  
Protected against long periods of immersion under pressure
-  **IP 9**  
Water projected at high pressure and high temperature against the enclosure from any direction shall not have harmful effects

Electrical Calculations			
Calculation Type	DC	AC Single Phase	AC Three Phase
Amps to KW	$P(KW) = \frac{I \cdot V}{1000}$	$P(KW) = \frac{I \cdot V \cdot \cos\theta}{1000}$	$P(KW) = \frac{\sqrt{3} \cdot I \cdot V \cdot \cos\theta}{1000}$
Amps to KVA		$KVA = \frac{I \cdot V}{1000}$	$KVA = \frac{\sqrt{3} \cdot I \cdot V}{1000}$
Amps to Watts	$P = I \cdot V$	$P = I \cdot V \cdot \cos\theta$	$P = \sqrt{3} \cdot I \cdot V \cdot \cos\theta$
KW to KWh	$KWh = KW \cdot t(\text{Time})$		
KW to KVA	$KVA = \frac{P(KW)}{\cos\theta}$		
Hp to KW	$P(KW) = Hp \cdot 746$		

Important different ideas about quantity	
1 Shotangsh= 1 Shotok=435.6 sq Feet	1 kani=24 katha=17280 sq Feet
1 Acore= 60.5 Katha	1 inch= 25.4 millimeters
1 Katha=720 sq Feet =1.65 Shotangsh	1 meter= 3.28 Feet
1 Bigha=20 katha=33 Shotok=1 Paki	1 Feet = 0.3048 meter

# A general classification for the different forms of separation

	Form1	Form 2a	Form 2b	Form 3a	Form 3b	Form 4a	Form 4b
Busbars separated from functional units							
Busbars separated from functional units		✓	✓	✓	✓	✓	✓
Functional units separated from others functional units				✓	✓	✓	✓
Terminals external functional units		✓		✓	✓		✓
Terminals are separated from the busbar			✓		✓	✓	✓
Terminals are separated from each other						✓	✓
Supported by Series Forti LV System	✓	✓	✓	✓	✓	✓	✓

## Busbar Trunking System Voltage Drop Calculation Formula

$$\Delta V = 1.73 \cdot I \cdot (R \cos\Phi + X \sin\Phi) \text{ V/m}$$

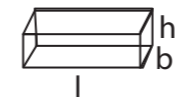
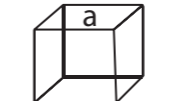
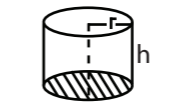

Example: a BX-E 4000A run 30 meters Long with an actual current of 3200A and  $\cos\phi=0.9$   
 $\Delta V = 3200/4000 \cdot 30m \cdot 0,087 \text{ V/m} = 2.09 \text{ V}$  -- with concentrated load  
 $\Delta V = 2.09/2 \text{ V} = 1.05 \text{ V}$  -- with distributed load

## What is dB ??

dB is commonly used as an unit for measuring sound

$$dB = 20 \text{ Log} (x / y)$$

## Geometry formulas

Name of the solid	Figure	Volume	Lateral/Curved surface area	Total surface area
Cuboid		$l \cdot b \cdot h$	$2h(l+b)$	$2(lb+bh+hl)$
Cube		$a^3$	$4a^2$	$6a^2$
Right circular cylinder		$\pi r^2 h$	$2\pi r h$	$2\pi r(r+h)$
Right circular cone		$\frac{1}{3} \pi r^2 h$	$\pi r l$	$\pi r(l+r)$