

कृति

Creating Smart Electrical Systems

# Our Profile



## ABOUT US

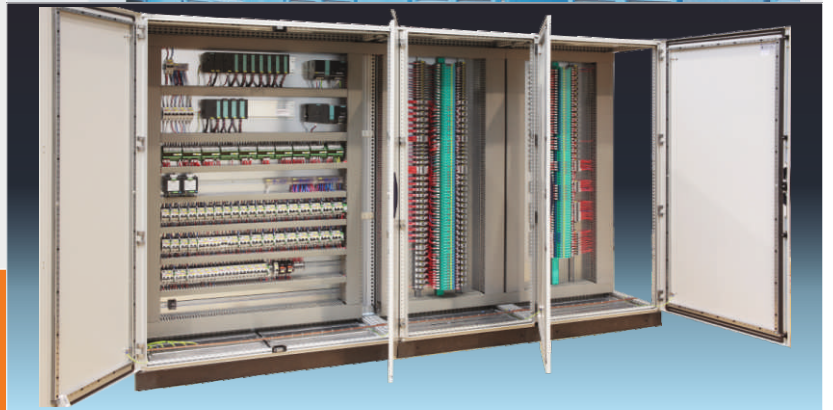
**Kruti Group**, A customer centric, innovative & value-driven organization, offers a wide range of electrical & automation solutions. We aim to create value by not only offering reliable & robust electrical system but also integrating them with state of art automation & IT technologies.

At Kruti, we provide solutions which are intuitive to optimize the utilization of energy & are capable to generate customized reports for the management information.

As an innovative resource in the field of electrical engineering, designing, manufacturing, installation & testing followed by prompt services, we continuously work towards the development of innovative products & solutions to provide ease of maintenance & operations to our customers.

- LT switchboards
- Automation system
- Electrical Turnkey projects
  - Substations (Indoor/Outdoor)
  - Distribution - Main & Sub Main
  - Electrification - External & Internal
  - Lighting Systems Plants Sheds & Commercial Complexes
  - Earthing Systems
- IT systems
- Smart metering (prepaid) systems

Our solutions





# *The Reliable Pursuit of perfection*



## Quality Policy

We are committed towards excellence in designing, engineering, manufacturing, supply, installation, testing; and commissioning of electrical power distribution & control equipment with the maximum responsibility and professionalism through:

- Team Involvement
- Technological Up-gradation
- Value Additions

We review our quality management systems & resources periodically to achieve continuous improvements. This continuous process improvement is driven towards improved customer satisfaction and enhanced customer loyalty.

## Vision

To propel our energies in the most comprehensive & innovative way by providing end to end solutions to the organizations in the field of electrical engineering.

It is our endeavor to offer services that have the highest priority for creative excellence, efficiency and economic viability.

## Mission

We strive to deliver innovative technical solutions which allow our customers to achieve maximum success through :

- Optimized Engineering & Designs
- Value Addition
- Energy Conservation
- Total Integrated TOP + Quality systems





# Process

## Sheet Metal Fabrication

The latest state of art sheet metal fabrications shop is equipped with CNC turret punching line & CNC Bending machine from the house of AMADA.

The shop is also equipped with IGBT based MIG / TIG welding machines, spot welding machines, stud welding machines, and conventional arc welding systems.

The use of AMADA AP 100 CAM software with 3D designing tools like Solid works & Pro E support our team to create engineering marvels.





# *Turning Thoughts into Reality*



## Pretreatment Plant



The plant comprises of temperature controlled seven tank process through a hot water generator to prepare the best surface of the sheet metal components for the powder coating application.

The change of tanks is done through an automatic transportation system which maintain a cyclic set process time.

The plant is also equipped with an industrial waste water treatment recycling facility in order of our commitment to green & clean India.

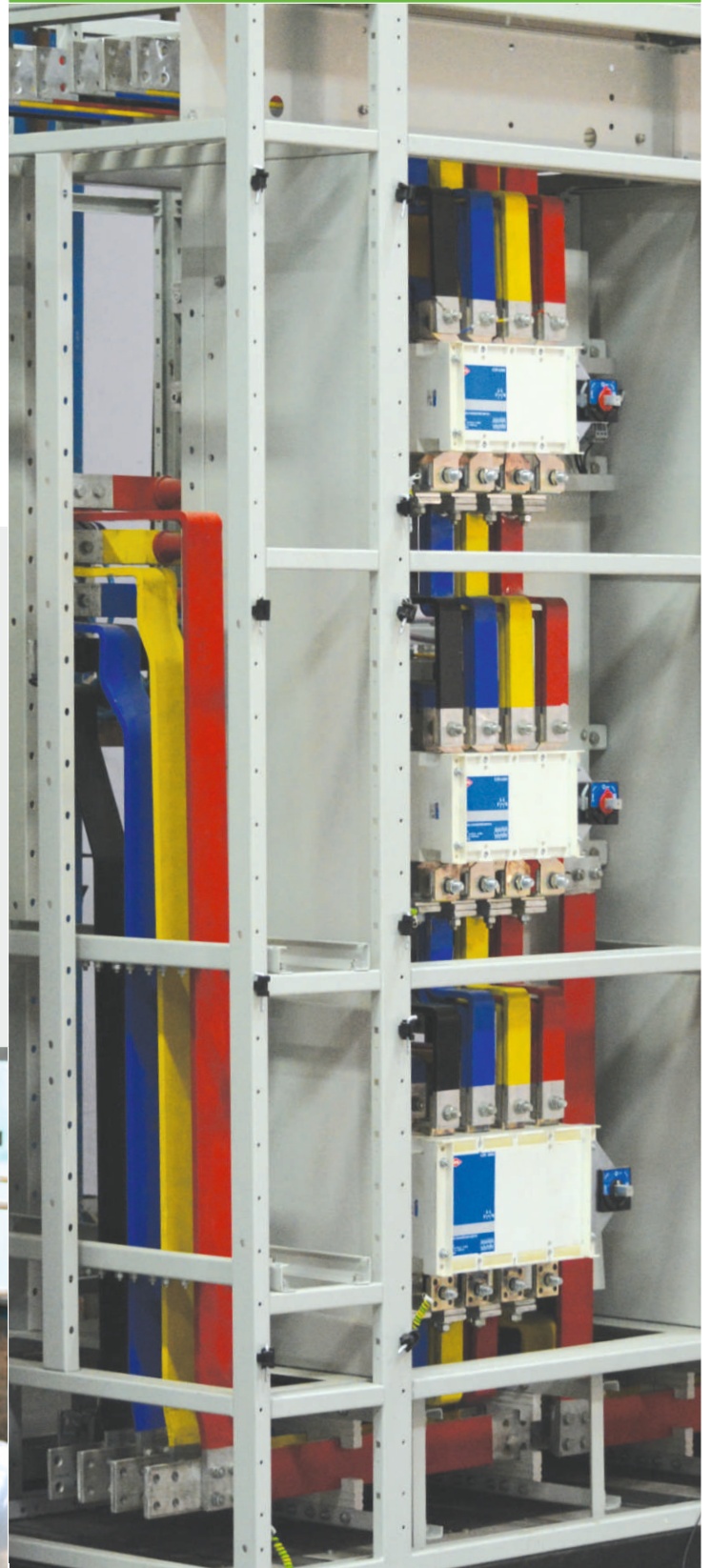
## Powder coating plant

The overhead conveyor type powder coating line with automatic closed loop temperature controlled oven delivers the best epoxy based powder coated surface.



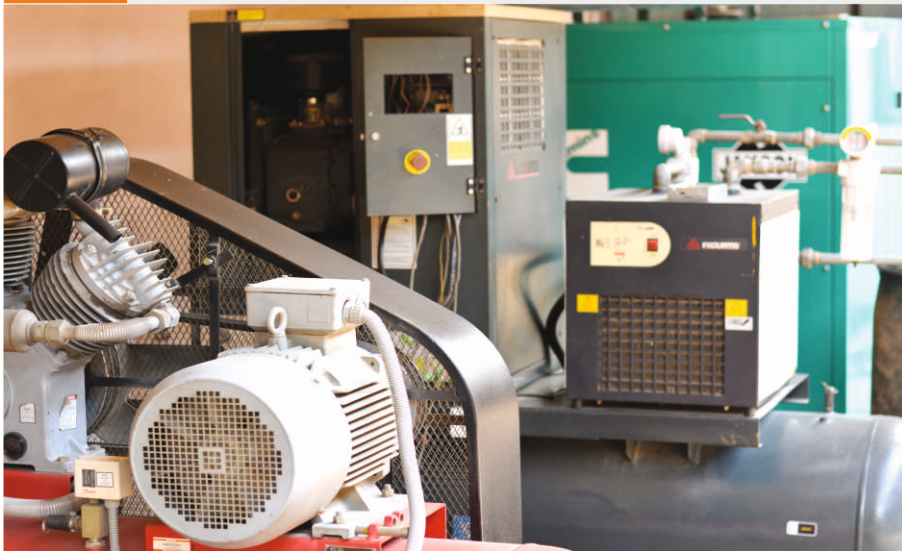


# Process



## Busbar shop

The shop is equipped with NC bus bar processing line with the features line closed loop Horizontal & vertical bending of Aluminum and Copper bus bar for a maximum width of 250 mm and thickness of 16 mm. The three in one machine also have features like U type bending, shearing, turret punching of bus bars. Three separate hydraulic station for bending, punching & shearing is also installed in the shop for standby or heavy loading and workflow conditions.





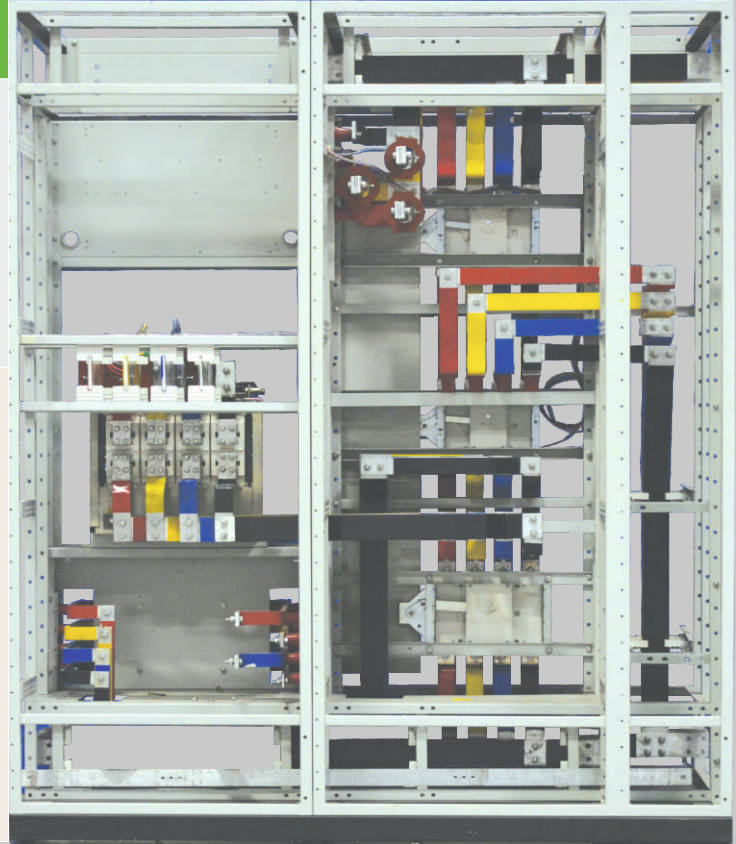


## Assembly shop

Two assembly shops with pneumatic lines for fast assembly of component is installed. Pneumatic Riveting, Pop riveting, screwdriver, torque wrenches speaks about our total dedication towards the quality.

## Testing laboratories

The switchboard manufacturing facility is equipped with two small laboratories – chemical testing lab & electrical testing labs. These labs are equipped with latest instruments of class one category to check and reaffirm the standard QAP in routine.





# Quality Control Application



## QC system certifications

- Quality Management system ISO 9001
- Environmental Management System ISO 14001



## Raw Material

- The suppliers of the raw material are strictly selected and even the smallest product is selected with best possible specifications.
- All the material procured for the assembly is tested for the functioning by 100%.



## Process control

- Material and the workmanship is tested on random basis during the product process by a separate Quality team.
- Quality inspectors generates internal test reports.

## Delivery & Test

- Finished products are strictly tested before delivery.
- Third party inspection and end user inspection are scheduled before delivery.





- Short Circuit Protection (50kA for 1 s.) for PCC.
- Short Circuit Protection (50kA for 1 s.) for Draw out MCC.
- Ingress Protection IP:54 for Switch Boards.
- Temperature Test for Switch Boards.
- ISO 9001: 2008
- ISO 14001
- ISO 18001

CENTRAL POWER RESEARCH INSTITUTE (Member of STL)		 <b>CPRI</b>	
TEST REPORT		TEST REPORT	
Test Report Number: RP/STL/2017/01	Code: T/P/STL/2017/01		
<b><u>SUMMARY OF TEST</u></b>			
1. Test description	Reference: T/P/STL/2017/01 - 1 - 24		
2. Rail g & w for test	<input type="checkbox"/> normal position in normal mode operation and <input checked="" type="checkbox"/> excess distance in normal mode in power		
3. COLD/HEAT (1) NORMAL/EXCESS (2) WET	<input type="checkbox"/> RAIL		
3.1. Sub/Component/Part	<input type="checkbox"/> RAIL		
3.2. Location/Part	<input type="checkbox"/> RAIL		
3.3. Test part in normal mode	REFERENCE: T/P/STL/2017/01		
3.4. Test part in excess mode	<input type="checkbox"/> RAIL		
3.5. Photographs	R/R		



  
 TEST ENGINEER  
 CPRI





## Products

By manufacturing excellent products, KRUTI GROUP has carved out a niche for itself. All its products are manufactured with utmost precision which ensures 100% customer satisfaction. Our quality products bear the identity of our company and reflect the expertise that we possess. Further, keeping pace with the needs of the customers, Kruti continuously improves its products to maintain its distinguished market position.

We have achieved a major milestone by assembling & commissioning the first intelligent switchboard project with the implementation of IT and web enabling of the reports.

The following design parameters are considered in detail before manufacturing of our LT switchboards.

- Safety
- Performance
- Reliability
- Customisation
- Aesthetic Appeal
- Ease of operation & maintenance
- Cost effectiveness





# Transforming Concept Towards Realization



## General Service Condition

Design ambient temperature:	50 °C
Design Relative Humidity:	≥ 60%
Rated Voltage:	415V
Permissible voltage variations:	+/- 10%
Rated Frequency:	50Hz
Permissible frequency variations:	+/- 5%
Combined voltage & frequency Variations:	+/- 10% absolute
Degree of protection:	IP 52 (I less than 2500A) / IP 42 (I greater than 2500A)
System & Main Bus fault level:	25/36/50/65/85/100 kA for 1/3s
System of grounding:	Solid (effective) grounding
Duty:	Continuous at rated load
Control Voltage:	24V, 110V, AC/DC, 220V AC, 415 V AC

Note: - These are general service conditions, however, the considerations are based upon the site or as per the engineer's requirement.

## Power Control Centre

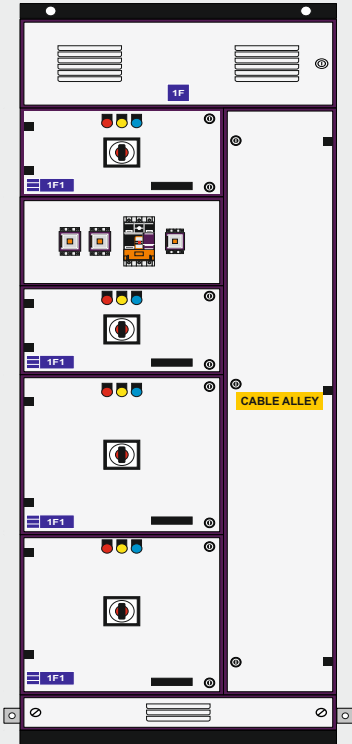
Application	Protection & Control of Power Distribution
Operational Current	Upto 6300 A
Operational Voltage	415/690 V
Insulation Voltage	690 V
Ambient Temperature	45/50 Deg. C
Form of Separation	Form 3/4B
Type Test Performed	Short Circuit withstand Temp Rise Withstand Degree of Protection
Degree of Protection	IP: 54
Configuration	Fixed & Draw out







## Motor Control Centre



MCC's are used to control electric motors and other equipment's from a central location, with safety and reliability. The MCC's are available in Single Front and Double Front configuration.

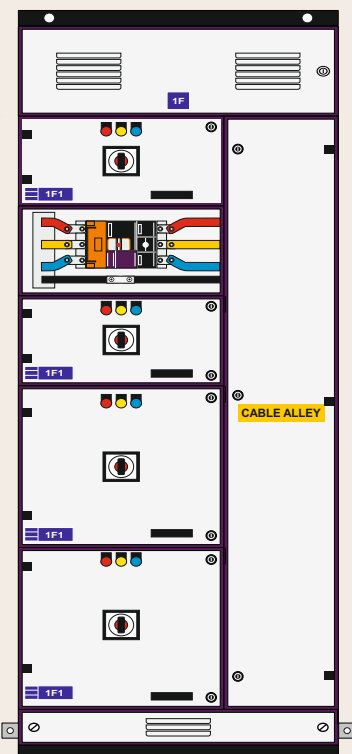
MCC's are sheet steel modular construction and each vertical section is segregated with metallic barriers and are supplied in fully draw-out, semi draw-out and fixed version.

Each panel is extendable both side and can be coupled to main incomer breaker panels having higher depth either side. Double banded doors and covers ensure torsion free and self-adhesive gaskets make the panels dust and vermin proof.

Various configuration of motor starter in MCC:

- Simple DOL starter
- Star delta Starter
- Soft starter
- Variable Frequency drives

Outdoor / plant level installation can be done with double door arrangement for completely dust proof design.

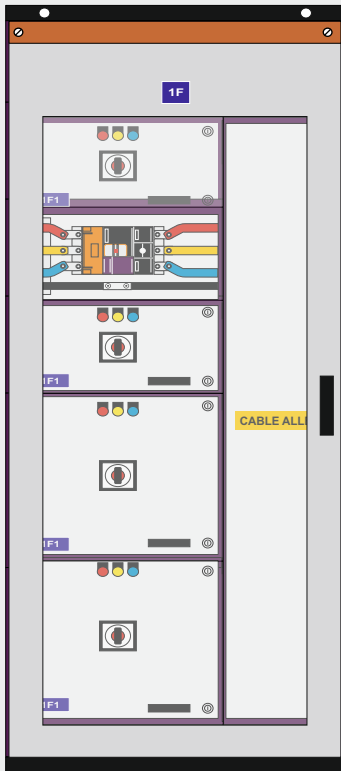




# Edge Over Competition



Application	Protection & Control of Motors
Operational Current	upto 4000 A
Operational Voltage	415/690 V
Insulation Voltage	690 V
Ambient Temperature	45/50 Deg. C
Form of Separation	Form 3/4B
Type Test Performed	Short Circuit withstand Temp Rise Withstand Degree of Protection
Degree of Protection	IP: 54
Configuration	Fixed & Draw out





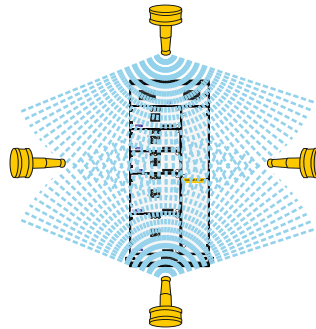


## Ingress Protection Against Liquid



IP: X0

No protection

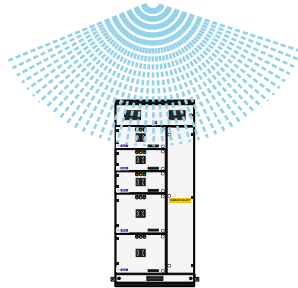


IP: X5

Protected against strong jets of eg. for use on shipdecks - limited ingress permissible

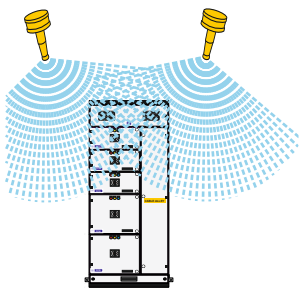
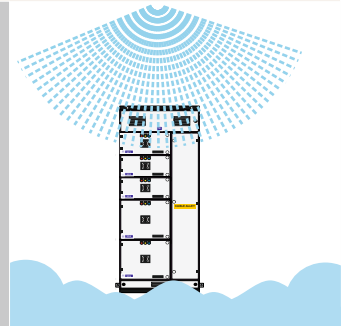
IP: X1

Protected against vertical falling drops of water.



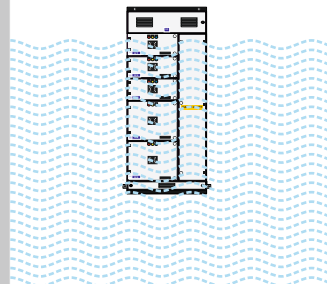
IP: X6

Protected against strong jets of water eg. for use on ship decks - limited ingress permissible.



IP: X2

Protected against direct sprays of water up to 15° from the vertical.

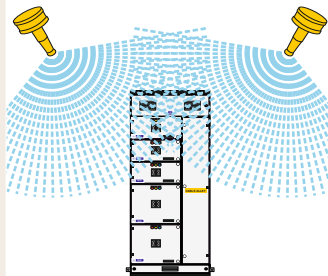


IP: X7

Protected against the affects of immersion between 15 cm and 1 m.

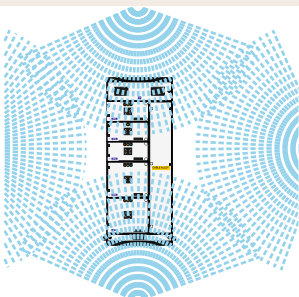
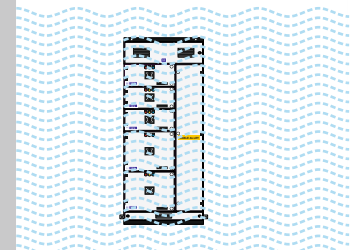
IP: X3

Protected against water sprayed from all directions - limited ingress permissible.



IP: X8

Protected against long periods of immersion under pressure.



IP: X4

Protected against low pressure jets of water from all directions - limited ingress permissible.

# Safety As Per Standard



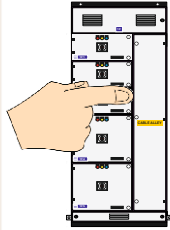
## Ingress Protection Against Solid



IP: 0Y

No protection

Protected against solid objects up to 50 mm.  
(eg. accidental touch by hands.)

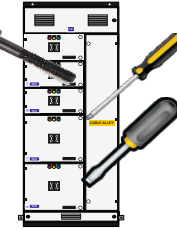


IP: 2Y

Protected against solid objects over 12 mm (eg. fingers).

Protected against solid objects over 2.5 mm  
(eg. tools + small wires).

IP: 3Y

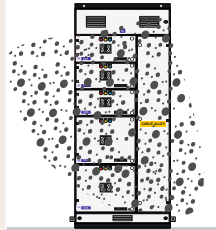


IP: 4Y

Protected against solid objects over 1 mm  
(eg. tools + small wires).

Protected against dust - limited ingress permitted  
(no harmful deposit).

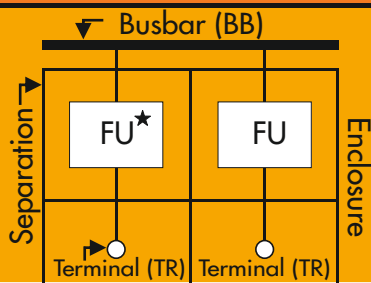
IP: 5Y



IP: 6Y

Totally protected against dust.

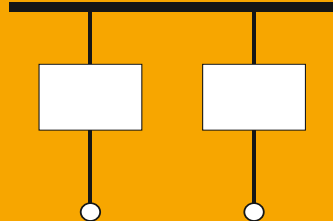
## Forms of Segregation



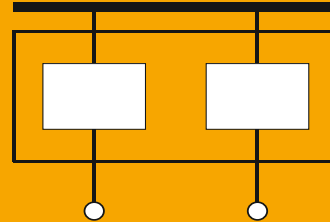
★ Functional Unit (FU)

No Internal Separation

Form 1

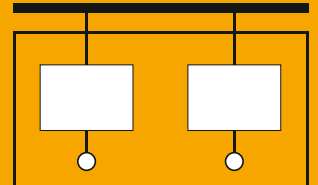


Form 2a



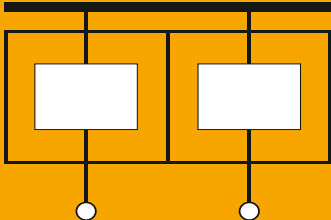
TR not separated from BB  
TR not separated from FU

Form 2b



Separation of BB from FU  
TR not separated from BB

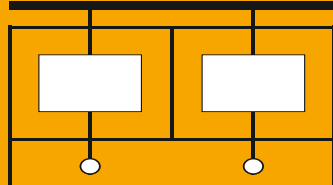
Form 3a



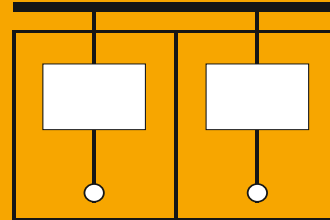
Separation of BB from FU;  
FU from FU; TR from FU  
TR not separated from BB

Separation of BB from FU;  
FU from FU; TR from FU;  
TR from BB

Form 3b



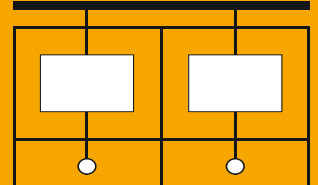
Form 4a



Separation of BB from FU  
& TR; FU from FU; TR in  
same compartment of FU.

Separation of BB from FU  
& TR; FU from FU; TR not in  
same compartment of FU.

Form 4b



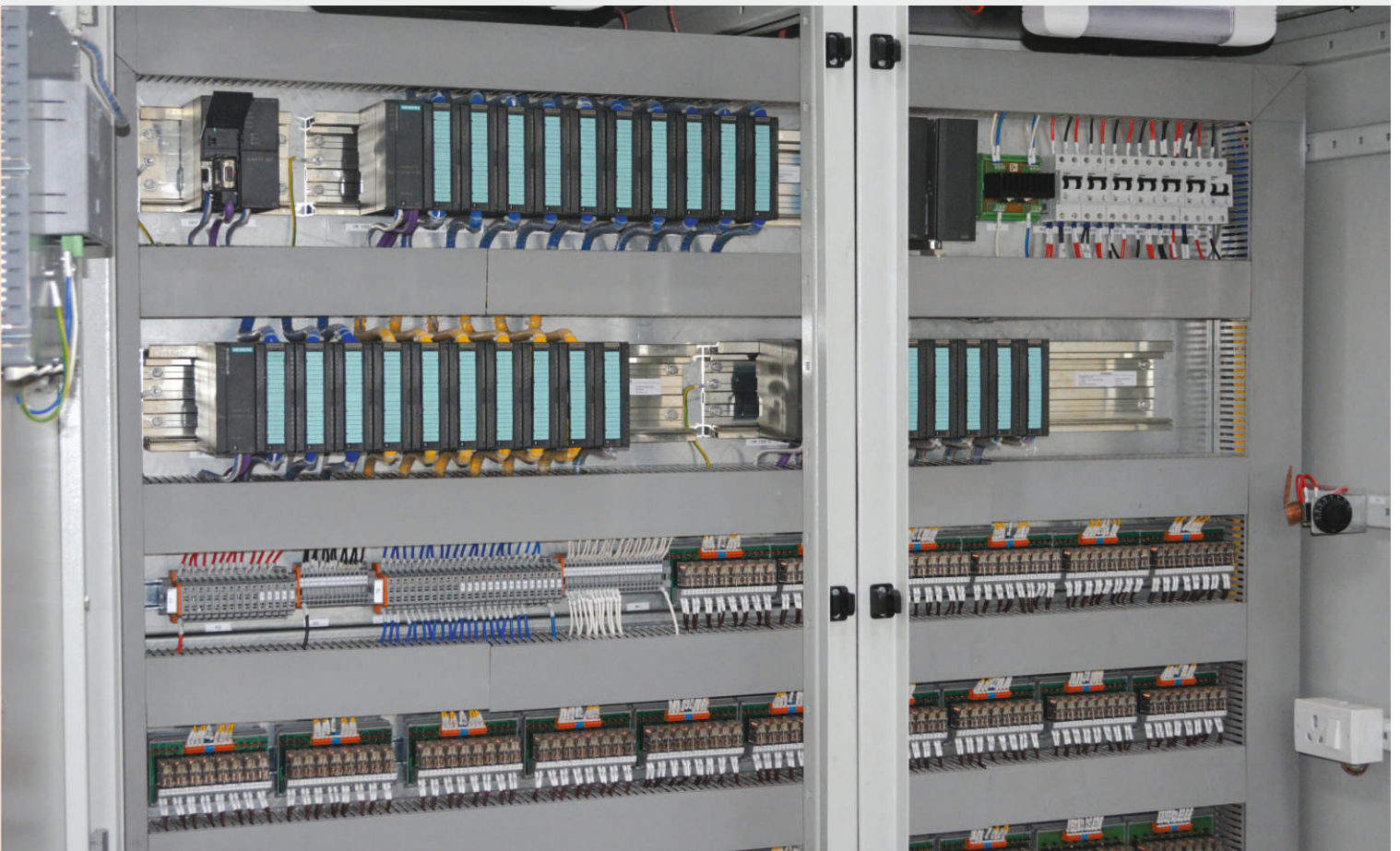




## Automation & Drive System

Kruti Group is authorized solution partner of SIEMENS, for providing PLC, HMI, DCS, SCADA, EEF class 1 motor, Variable frequency & servo drives systems for machine & process automation.

The cost effective, optimized & latest state-of-the-art control electrical & electronics solutions are appreciated by many of the TOP industrial corporate houses, process plants, product manufacturers, machine OEMs, LT Panels & switchboards integrators, builders & developers, and our esteemed clients. "Total commitment to quality & service" is the recipe for success and exponential growth.



Domain Expertise

- Iron & Steel
- Paper
- Airports & Logistics Management
- Sugar Plants
- Cement Plants
- Mining & Ore Extraction
- Wires & Cables
- Cranes & Elevators
- Printing & Packaging Machines
- Boilers
- Ash Handling Systems
- Oxygen & Nitrogen Plants

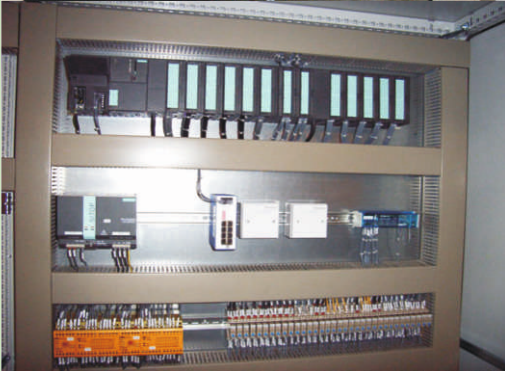


# Harmony In Motion



## Siemens Products

- Simatic 7200, 300, 400 PLC
- WinCC SCADA
- Sinamics G, Sinamics S range of VFD
- Simocode intelligent MCC relays



Solution Partner

Automation

**SIEMENS**





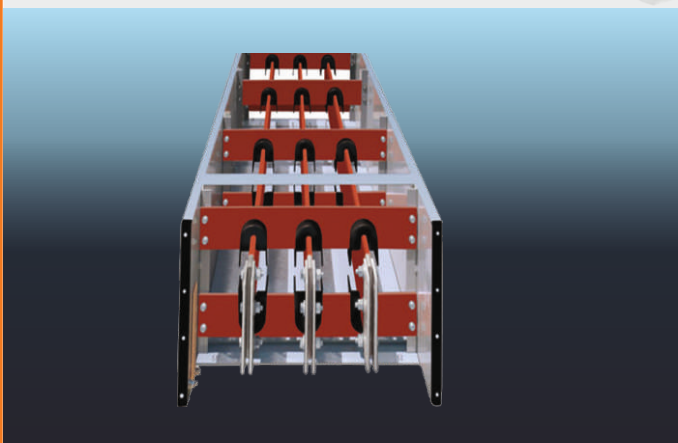


## Automatic Power Factor Correction Panel

Supply System	3 Phase, 4 Wire
Rated Service Voltage	415 V
Rated Frequency	50 Hz
kVAr Rating	50 to 3200 kVAr
No of steps	upto 12
Form of Sepreation	2B
Degree of Protection	IP : 42

## Busduct

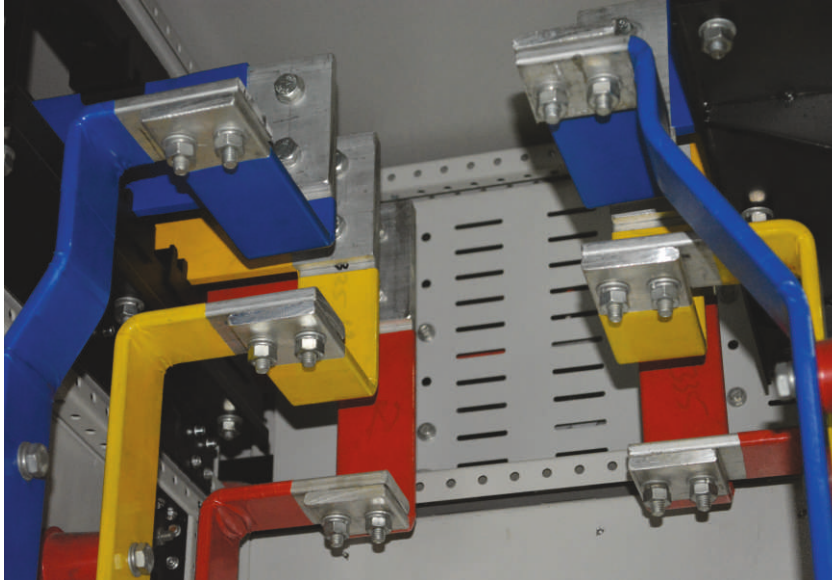
Operational Current	upto 6300 A TP/TPN/FP
Type	Segregated/Non segregated
Enclosure	AL/GP/SS
Protection	IP: 55 IP: 55
Busbar	Copper/Aluminium
Arrangment	Interleaved / Non interleaved
Insulators	Fiber Glass reinforced plastic
Painting	Epoxy powder coating
Accessories	As required



## DG Synchronisation System

Supply System	3 Phase, 4 Wire
Rated Service Voltage	415 V
Rated Frequency	50 Hz
PLC Configuration	Siemens S7 / GENOP Touch Screen Panel / Computer SCADA
No. of DG Sets Synchronazation	upto 12
Form of Sepreation	2B

*We Manifest  
Engineering Marvels*



**Out-Door Type Feeder Pillar**

Operational Current	6300 A
Operational Voltage	415 V
Rated Insulation Voltage	690 V
Ambient Temperature	45 Deg. C
Form of Separation	Form 3B/4
Type Test Performed	Short Circuit withstand Temp Rise Withstand Degree of Protection
Degree of Protection	IP:67 (Outdoor & double door)
Configuration	Fixed



## NOTE

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# KRUTI

Creating Smart Electrical Systems

### **KRUTI GROUP OF COMPANIES Kruti Technoengineering Pvt. Ltd.**

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Gautam Budhnagar, UP, India.  
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131403



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