

# Product Catalog



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

**Power System  
& Transmission** Division



### ST Control Co., Ltd.

Establishment: 25 November 1996  
No. of Employees: 100-120 Persons  
Authorized Capital: 50 MB



### ST Advanced Technology Co., Ltd

Established: 6 January 2004  
Number of personnel: 20-25 Persons  
Registered capital: 25 MB

### Head Office Address:

84/1 Soi Ramkhamhaeng 9 (Tararom), Ramkhamhaeng Road,  
Phlapphla Subdistrict, Wang Thonglang District, Bangkok, Thailand

### Rayong Branch Office:

155/41-42 Ploenjai Village 5 Tambon Thap ma, Amphoe Muang  
Rayong, 21000, Thailand

### About Us:

ST Group (STC/STA) fundamentally is a Engineering and Design based Group for deliver state of art product and solutions for Automation to OEM machine makers as well as components supply that we have provide and serve market in early period of establishment.

Over two decade passed by, ST Group has already moved forward business into three pillars sectors, **Engineering Design, Trading and Contractors** accordingly.

In order to fulfill clients' needs, our sales & engineering team is formed with experienced engineers and technicians who possess several years of local and overseas experiences with modern management and traditional values, our company can be trusted as your contracting partner for all turn-key projects.

ST Group Engineering team which is core competency and backbone of the Group consist of more than 30 engineers, are well trained from product principals. Holding Degrees of: Computer, Civil & Structural, Electronics, Electrical Chemical, Mechanical, Environmental & Engineering & Project Management.

From the mission of the organization and over 130 employees dedicated to working hard We are ready to grow and become one of the leading SEA region.

Through the years we've developed trusting relationships with our clients by delivering expected value, where quality work is never comprised.

### ST Group Vision:

To be among the most preferred (EPCM) Companies in Thailand through innovative engineering and timely delivery of services to our clients with complete satisfaction.

### ST Group Mission:

To provide the highest standard of our professional services to all our clients, and to exceed the expectations of our clients by ensuring Quality, Reliability, Safety and Timely Completion of projects through continual improvement in our operation system.

### ST Group to Society:

We place people first on our value list and put the highest priority on ensuring human health, operational safety, environmental protection, quality enhancement, and community goodwill. We believe this is in the best interests of our customers, our employees and contractors, and the communities in which we live and work.

### ST Group Health and Safety Policy:

ST Group is committed to a "no compromise" approach to Safety. No task will be undertaken if health, safety, environment or quality standards will be compromised.

## ได้รับการรับรองมาตรฐาน ISO 9001:2015

จาก Management System Certification Institute (Thailand) : MASCI

การให้บริการอย่างมีมาตรฐานถือเป็นหัวใจหนึ่งของ บริษัท เอส.ที. คอนโทรล จำกัด

เพื่อความเป็นระบบบริหารงานคุณภาพตามมาตรฐานสากล (Quality Management System) ในทุกส่วนงานบริการ บริษัทฯ ได้ผ่านการรับรองระบบมาตรฐาน ISO 9001:2015 จาก สถาบันรับรองมาตรฐานไอเอสโอ (สอ.) (MASCI) เป็นที่เรียบร้อยแล้วและยังจะมีการประเมินทุกๆ ปีอย่างต่อเนื่อง



## ST Group Sales Divisions

### Business Nature and Capabilities

#### Drive & Industrial Automation Division



- ⊗ LV VFD (Frenic VG, Mega, Ace, Multi, Mini, HVAC Series)
- ⊗ Servo System (Alpha 5 & Alpha 5 Smart Series)
- ⊗ PLC, Programmable Logic Controller
- ⊗ HMI, Human machine interface
- ⊗ Process Control System
- ⊗ Monitoring and Control System
- ⊗ Multi-purpose Analog Monitoring System
- ⊗ Process Data Acquisition and Analysis
- ⊗ HMI Remote Control Software (TELLUS and V-Sever)

#### Process Instrument Division



- ⊗ Flame and Gas Detection System
- ⊗ Portable Gas Detectors
- ⊗ Portable Calibration Equipment's
- ⊗ Analyzers (Ambient, Environmental & Process)
- ⊗ Analyzers Sampling System
- ⊗ Fire Alarm System
- ⊗ Signaling & Siren System
- ⊗ Enclosure, Panel Solutions
- ⊗ Maintenance Contracts

#### Electrical Distribution & Controls Division



- ⊗ Low voltage equipment up to 600 volts
- ⊗ MCCB, ELCB, ACB, Relays, Circuit protectors & fuses
- ⊗ Magnetic contactors, Magnetic starters, SSC, MMS
- ⊗ Pushbuttons, Pilot lights, Industrial Control Relays
- ⊗ Power Monitoring Equipment's
- ⊗ High voltage equipment Up to 36kV
- ⊗ Disconnecting switches, Power Fuses
- ⊗ Load break switches, Circuit Breakers
- ⊗ Magnetic contactors

#### Oil & Gas Division



- ⊗ Fire Fighting Equipment
- ⊗ Fire Protection (Fire Suppression) System
- ⊗ Fire Trucks & Vehicles
- ⊗ Fire Fighting Custom Made Trailers
- ⊗ Fire Pumps & Controllers
- ⊗ Fire Monitors & Foam Proportioning Solutions
- ⊗ Personal Protective Equipment (PPE) - HSE
- ⊗ Fire Products for In-Door & Out-Door Use
- ⊗ Flanges (JIS, ANSI, API, MSS, AWWA, DIN)

#### Power System & Transmission Division



- ⊗ Air & Gas Insulated Switchgear Sub Station
- ⊗ Switchgear & Ring Main Unit
- ⊗ Transformer (Power, Distribution, Cast Resin)
- ⊗ Main Distribution Board / Motor Control Centre
- ⊗ Variable Speed Drives (LV/MV)
- ⊗ Squirrel Cage, Slip Ring, Induction Motors (LV/MV)
- ⊗ Soft & Liquid Start Solutions
- ⊗ Solar PV, Inverter & Mounting Solutions
- ⊗ Batch & Continuous Centrifugal for Sugar Industry
- ⊗ Centrifugal Pumps for Sugar Industry
- ⊗ Uninterruptible Power Supplies Solutions (UPS)

#### Water & Waste Water Division



- ⊗ Electrical Engineering Solutions
- ⊗ SCADA System for Municipalities
- ⊗ IoT Solutions for Smart Cities and Municipalities
- ⊗ Flow, Level & Pressure Measurement
- ⊗ Water Quality Analysis Solutions
- ⊗ Water Filtration & Ceramic Membrane System
- ⊗ Flood Water Pumping Solutions
- ⊗ Sewage & Drainage Pumping Solutions
- ⊗ Pump Gate – an innovative solution to flood control
- ⊗ PVC Valve, Flanges & Accessories
- ⊗ Maintenance Contracts

#### ST Care Repair Drive Division




















- ⊗ Service Center for Fuji Electric SEA Market
- ⊗ Troubleshooting, Installation & On-Site Services
- ⊗ Maintenance, Repair and Overhaul Services
- ⊗ Preventive Maintenance Contracts
- ⊗ Calibration and Certification Services
- ⊗ Spare Parts Inventory Management

#### Trains & Railway Engineering Division



- ⊗ Civil Engineering for Railway Stations
- ⊗ Electrical Engineering for Railway
- ⊗ Signaling Solutions for Railway
- ⊗ Inspection, Repairs & Overhaul Services
- ⊗ Rolling Stock, Spare Parts Management
- ⊗ Electrically Coupled Rotary UPS System

 Fuji Electric Innovating Energy Technology	 orion High Performance Fire Protection	 WESTERN STATES where innovation happens everyday™	 IMKS	 marathon electric	 HiCONICS
 Honeywell Analytics	 SUNTECH	 Ultraflux	 JCT Analysentechnik	 MOTORTRONICS Solid State AC Motor Control	 EMERSON Industrial Automation
 NAFFCO PASSION TO PROTECT	 HASUH INDUSTRIES CORPORATION	 TAECHIN TaeChin SMET Corporation	 nvent HOFFMAN	 ABB	 SIEMENS

## Our Competence

ST Group Power System and Transmission Division is a leading provider of high quality engineering Products. Our highly trained, motivated and experienced engineers, technicians and management team operate from our Bangkok Head Office.

We are grown as one of the leading organization in electrical field and offers a comprehensive range of Services to Local Industries. We have two decades of experience in carrying out the full spectrum of electrical contracts in the range of Industrial Electrical Systems, Renewable Energy System, and complete electrification of high raise buildings.

We have a significant presence in the field of transmission and distribution of electrical energy and offers a complete range of service on Site Surveys. Feed and Details Deign work, Procurements, Execution, Testing & Commissioning with a Complete Doc Control System.

We are also distributors of electrical equipment such as Switchgear & Ring Main Unit, Transformers, MDB, MCC, VFD's (LV/MV), ED&C (LV/MV), Factory Automation Systems, Pumps, Motors , Soft & Liquid Starter, Batch & Continuous Centrifugals, Pump & UPS Systems We also provide Integrated solutions such as GIS, SCADA, AMR, and DMS for the power transmission and distribution sectors.

To ensure that our supplied technology and products are user friendly, we impart comprehensive training & focus on developing skills & knowledge of the people who would use them. we are committed to meeting the needs of customers by providing services that set standards in the region. Stringent quality control and supervision ensure that services confirm to the highest standards of quality and reliability.

## ST Group Power System and Transmission Division - Products & Services Capabilities

### 01 Sub Station Solutions

- ⊗ Air Insulated Switchgear
- ⊗ Gas Insulated Switchgear

### 02 Switchgear & Ring Main Unit

- ⊗ M-Cube Switchgear, Panel Boards & Enclosures
- ⊗ Ring Main Unit Medium Voltage Distribution Networks.

### 03 Transformer (Power, Distribution, Cast Resin)

- ⊗ Power Transformer, RectifierTransformer, Arc Furnace Transformer
- ⊗ Small, Medium & Large Distribution Transformer

### 04 Power Equipment's

- ⊗ Voltage & Current Transformer (LV/MV/HV)
- ⊗ Capacitor, Power Meter, Protection Relay

### 05 Main Distribution Board / Motor Control Center

- ⊗ Low Voltage Distribution Boards, Sub-Boards, Floor Stand Boards,
- ⊗ Low Voltage Motor Control & Power Distribution Units

### 06 Variable Speed Drives (LV/MV)

- ⊗ LV Variable Speed Drives, Frenic Series
- ⊗ Medium Voltage direct output inverters

### 07 Electrical Distributions & Controls (LV/MV)

- ⊗ Low voltage equipment up to 600 volts
- ⊗ High voltage equipment Up to 36kV

### 08 Factory Automation Systems

- ⊗ PLC, HMI & Process Monitoring & Control System
- ⊗ Web Machine Interface (VPN)

### 09 Motors (LV/MV)

- ⊗ Squirrel Cage & Slip Ring Motor for shredder application
- ⊗ Induction Motors

### 10 Soft & Liquid Starter

- ⊗ Liquid Starter, Blade/Ring Electrode System, Oil-cooled resistance starter
- ⊗ Soft Starters, Range from LV up to 12,000kW / MV up to 1500kW

### 11 Solar PV, Inverter & Mounting Solutions

- ⊗ Solar Photovoltaic System (PV) with Solar Mounting Solutions
- ⊗ Solar Inverter Solutions String Inverter, Central Inverter with Monitoring Solutions.

### 12 Batch & Continuous Centrifugals

- ⊗ Western States Machines TITAN Series Batch Centrifugals
- ⊗ Western States Machines VL Series Continuous Centrifugals

### 13 Pumps for Sugar Industry

- ⊗ PUMP MP & PUMP M - Massecuite Magmas Beet and Cane (5-120m3/h)
- ⊗ PUMP MP - SS - Magma, massecuite Molasses (5-120m3/h)

### 14 Electrically Coupled Rotary UPS System

- ⊗ Rotabloc RBT - (400kVA - 1000 kVA) , RBT Dual (1250kVA - 2000kVA)
- ⊗ Rotabloc RBQ - (400 - 2000kVA) 320 - 1600kW

### 15 Continuous Emission Monitoring System

- ⊗ Infrared Gas Analyzer System (CEM'S)
- ⊗ Measure up to 7 Gas Components

## Table of Contents

No	Description	No	Description
06	Air Insulated Switchgear Sub Station	17	Low Voltage Variable Speed Drives
07	Gas Insulated Switchgear Sub Station	18	Squirrel Cage, Slip Ring, Induction Motors
08	Switchgear	19	Liquid Starter Solutions
09	Ring Main Unit	20	Soft Starter Solutions
10	Power, Distribution, Cast Resin Transformer	21	Solar PV Solutions
11	Current Transformers & Voltage Transformers	22	Solar Inverter Solutions
12	Main Distribution Board / Motor Control Center	23	Solar Mounting Solutions
13	Medium Voltage Variable Speed Drives	24	Batch Centrifugals
14	Continuous Emission Monitoring System	25	Continuous Centrifugals
15	Factory Automation Systems	26	Pumps for Sugar Industry
16	Electrical Distributions & Controls	27	Electrically Coupled Rotary UPS System

## Organization chart

### Power System & Transmission Division



## Description:

ABB focuses on the continual development of new technologies to increase the eco-efficiency, availability and reliability of AIS substations products and have a century of practical experience to rely on. AIS primary substation equipment contains of a portfolio up to 1200 kV including live tank circuit breakers(LTB), dead tank circuit breakers (DTB), "instrument transformers, disconnectors, surge arresters, monitoring and controlled switching.

## Design Features:

ABB offers significant risk management opportunities in order to reduce our customers project risk profile. Robust, time-tested components and systems based on over 100 years of practical experience.

## Product Categories:

Lineup of Air Insulated Switchgear (AIS) Product Range:

### Circuit Breakers

Disconnecting Circuit Breaker (DCB) 72.5 – 550 kV  
 Disconnecting Circuit Breaker (DCB) with Fiber Optic Current Sensor (FOCS) 420-550 kV  
 Disconnecting Circuit Breaker DCB LTB AirPlus™  
 Live Tank Circuit Breaker EDF 36 – 72.5 kV  
 Live Tank Circuit Breaker EDT with integrated current transformers 36 – 72.5 kV  
 Withdrawable Indoor Circuit Breaker EDI 36 –72.5 kV  
 Withdrawable Switchgear Module COMPASS 110 – 170 kV  
 Live Tank Circuit Breaker LTB AirPlus™  
 Live Tank Circuit Breaker LTB D 72.5 – 170 kV  
 Live Tank Circuit Breaker HPL B 72.5 – 1,200 kV  
 Live Tank Circuit Breaker LTB E 72.5 – 800 kV  
 Dead Tank Circuit Breaker 72.5 kV  
 Dead Tank Circuit Breaker 123 –170 kV  
 Dead Tank Circuit Breaker 245 kV  
 Dead Tank Circuit Breaker 362 kV  
 Dead Tank Circuit Breaker 550 kV  
 Dead Tank Circuit Breaker 800 kV

### Surge Arresters

Silicone-housed surge arrester PEXLIM  
 Composite-housed surge arrester TEXTLIM  
 Porcelain-housed surge arrester EXLIM  
 Silicone-housed surge arrester PEXLINK  
 Accessories Surge counters and surge monitors EXCOUNT

### Disconnectors

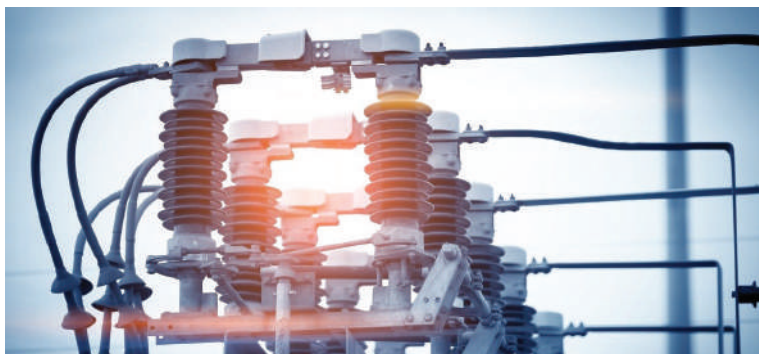
Center-break disconnector GW55 (up to 245 kV)  
 Center-break disconnector SDF (up to 550 kV)  
 Double-break disconnector GW56 (up to 245 kV)  
 Double-break disconnector eDB (up to 420 kV)  
 Semi-pantograph disconnector DSSP (up to 245 kV)  
 Pantograph disconnector GW54 (up to 550 kV)  
 Horizontal knee disconnector GW57 (up to 550 kV)  
 Horizontal knee disconnector DDK (800 kV)

### Instrument Transformers

Center-break disconnector GW55 (up to 245 kV)  
 Current transformer IMB (36 – 800 kV)  
 Current transformer TG (72.5 – 800 kV)  
 Capacitor voltage transformer CPB (72-800 kV)  
 Inductive voltage transformer EMF (52 – 170 kV)  
 Inductive voltage transformer TVI (72.5 – 420 kV)  
 Fiber Optic Current Sensor FOCS-FS (245 – 800 kV)  
 Combined current / voltage transformer PVA (up to 145 kV)  
 Combined current / voltage transformer TG COMBI (72.5 – 245 kV)  
 Coupling Capacitor CCB (72 – 800 kV)  
 Station service voltage transformer SSVT (46 – 362 kV)  
 Station service voltage transformer TIP (72.5 – 550 kV)  
 Station service voltage transformer SSMV (69 – 145 kV)

### Monitoring and controlled switching

Circuit Breaker Sentinel™, Switchsync™ PWC600,  
 Modular Switchgear Monitoring (MSM),  
 Switching Control Sentinel



## Description:

Gas-insulated high-voltage switchgear (GIS) is a compact metal encapsulated switchgear consisting of high-voltage components such as circuit-breakers and disconnectors, which can be safely operated in confined spaces. GIS is used where space is limited, for example, extensions, in city buildings, on roofs, on offshore platforms, industrial plants and hydro power plants.

ABB's GIS offers outstanding reliability, operational safety and environmental compatibility.

It provides a complete range of products for all ratings and applications from 72.5 kV to 1200 kV matching current and future requirements for modern switchgears.

## Design Features:

ABB Provide Monitoring, control, protection and communication features for smooth integration into digital substation systems using IEC 61850, ABB Provide highly reliable, smart, compact and economic solutions to complex switchgear applications.

## Product Categories:

Lineup of Gas Insulated Switchgear (GIS) Sub Station Product Range:

Product name		ELK-04 C	ELK-14 C	ELK-3 C
Enclosure		Three-phase	Three, single-phase	Single-phase
Rated voltage	kV	145	245/253	420
Rated power-frequency withstand voltage	kV	275	460	650
Rated lightning impulse withstand voltage	kV	650	1050	1425
Rated normal current	A	3150	3150	5000
Rated short-circuit breaking current, 3s	kA	40	50	63

Product name		ELK-04	ELK-14	ELK-3	ELK-4	ELK-6
Enclosure		Three-phase	Single-phase	Single-phase	Single-phase	Single-phase
Rated voltage	kV	145/170	300/362	420/550	800	1100/1200
Rated power-frequency withstand voltage	kV	275/325	460	650/740	960	1200
Rated lightning impulse withstand voltage	kV	650/750	1050	1425/1675	2100	2400
Rated normal current	A	3150/4000	4000	5000/6300	5000/6300	6300/9000
Rated short-circuit breaking current, 3s	kA	40/63	63	63/80	63	63



## Description:

EMS full range metal lead switchgear is developed by Xiamen Huadian Switchgear Co., Ltd to meet specific international and individual national standards, every endeavor has been made by experts from Xiamen Huadian. and individual national standards, AMS is a state-of-the-art 3-phase, compact, armored air-insulated, AC metal clad, mid-mounted design with a VEP indoor medium voltage solid-sealed VCB. AMS can realize programmatic control, which can realize power-off, power transmission, maintenance, and standby state switching, which improves reliability and operation efficiency; The AMS switchgear is equipped with a quick closing earthing switch with short circuit closing capability.

## Design Features:

AMS Series metal-clad switchgear is fully type tested in compliance with the following international and Chinese standards.

- IEC 62271 - 200 : 2011
- DIN and VDE Standards
- GB / T11022
- IEC 60694
- GB3906
- DL / T404

## Product Categories:

Overview of the Technical Fata of 12kV AMS Metal-Clad Switchgear

Description		unit	Data
Rated voltage		kV	3.6/7.2/12/15/17.5
Rated frequency		Hz	50/60
Rated Insulation level	Rated power frequency withstand voltage/1 min	kV	42
	Rated lightning impulse withstand voltage (peak value)	IV	75/95
Rated current of busbar		A	630/1250/1600/2000/2500/3150/4000*
Rated current of T-off bar		A	630/1250/1600/2000/2500/2150/4000*
Rated short time withstand current (4s)		kA	20/25/31.5/40/50
Rated peak withstand current (peak value)		kA	50/63/80/125/150
Resistance of main circuit		uQ	≤150+CT** (≤630A) ≤100+CT** (≤114A) ≤70+CT** (≤2000A) ≤50+CT** (≤2500A)
ingress Protection Degree			Enclosure IP4X, Compartment IP2X
Overall dimensions (w x h x d)		mm	500 (1000) x 2250 x 1680

Overview of the Technical Fata of 24kV AMS Metal-Clad Switchgear

Description		unit	Data
Rated voltage		kV	24
Rated frequency		Hz	50/60
Rated Insulation level	Rated power frequency withstand voltage/1 min	kV	50/65
	Rated lightning impulse withstand voltage (peak value)	IV	25
Rated current of busbar		A	630/1250/1600/2000/2500/3150/4000*
Rated current of T-off bar		A	630/1250/1600/2000/2500/2150/4000*
Rated short time withstand current (4s)		kA	20/25/31.5/40
Rated peak withstand current (peak value)		kA	50/63/80/100
Resistance of main circuit		uQ	≤150+CT** (≤630A) ≤100+CT** (≤114A) ≤70+CT** (≤2000A)
ingress Protection Degree			Enclosure IP4X, Compartment IP2X
Overall dimensions (w x h x d)		mm	500 (1000) x 2250 x 1680

Overview of the Technical Fata of 40.5kV AMS Metal-Clad Switchgear

Description		unit	Data
Rated voltage		kV	33/36/40.5
Rated frequency		Hz	50/60
Rated Insulation level	Rated power frequency withstand voltage/1 min	kV	95
	Rated lightning impulse withstand voltage (peak value)	IV	185
Rated current of busbar		A	1250/1600/2000/2500/3150*
Rated current of T-off bar		A	630/1250/1600/2000/2500/3150*
Rated short time withstand current (4s)		kA	25/31.5
Rated peak withstand current (peak value)		kA	63/80
Resistance of main circuit		uQ	≤145+CT** (≤1250A) ≤100+CT** (≤1600-2000A) ≤70+CT** (≤2500A)
ingress Protection Degree			Enclosure IP4X, Compartment IP2X
Overall dimensions (w x h x d)		mm	12 x 2400 x 2500



## Description:

Everwit\*SF6 Gas insulated Ring Main unit switchgear is commonly used for the secondary power distribution system of urban power distribution networks to improve the power supply reliability and the public power system Field of applications include: Medium / lower voltage substations, Box- type transformer substations, Industrial power distribution, Outdoor switchgear, Residential power distribution Power distribution of high-rise buildings

## Design Features:

The Everwit\*SF6 Gas insulated RMU load break switch uses advanced direct dynamic puffer interruption technology with high interruption capacity  
The Everwit\*SF6 Gas insulated RMU Switchgear is fitted with the quick earthing switch to guarantee the equipment is safe and reliable grounded  
The Everwit\*SF6 Gas insulated RMU Switchgear panel allows convenient observing of the load break switch for safe and reliable operation  
The Everwit\*SF6 Gas insulated RMU Switchgear is 90% metal after the end of life the products can be recycled to reduce the impact on the environment.

## Product Categories:

Enerswit+ RMU (Gas-insulated) / EnerswitRMU (Air -insulated) / Airing RMU (Eco-friendly) / Prefabricated Substation

Description		unit	Date	
Rated Volatge		KV	12	24
Rated Busbar Volatge		A	630/1250*	
Rated withstand voltage at power frequency (phase-earth, phase-phase) 1min		KV	42	65
Rated withstand voltage at power frequency (interrupter)		KV	48	79
Rated lightning impulse withstand voltage (phase-earth, phase-phase)		KV	95	125
Rated lightning impulse withstand voltage (interrupter)		KV	110	145
Parameters for load switch (C-unit)				
Rated short-time withstand current (2s)		kA	25	
Rated short-time withstand current (3s)		kA	20	25
Rated short-time withstand current (4s)		kA	20	20
Rated peak withstand current		kA	50/63	
Rated breaking current	Sealed breaking current	A	630	
	Loading breaking current		630	
	Cable charging current		25	
Rated short-circuit breaking current (peak) for load & switch and earthing switch		kA	50/63	
Making and breaking operation cycle index		Time (s)	195, E3 depth	
Rated short-circuit making current operation cycle index		Time (s)	5, E3 depth	
Parameters for load switch-fuse combination switch (T-Unit)				
Rated current		A	200	
Transfer current		A	2200	
Short-circuit breaking current**		kA	31.5	
Breaking current (peak)**		kA	80	
Parameters for circuit breaker (CB-Unit)				
Rated current		A	630/1250***	
Rated short-time withstand current (3s)		kA	25	
Rated short-time withstand current (4s)		kA	20	
Rated short-circuit breaking current		kA	20/25	
Breaking current (peak)		kA	50/63	
Mechanical life	Circuit breaker -CB		10000	
	Load switch -LBS	Time (s)	5000	
	Earthing switch -ES		4000	
Yearly leakage rate		%/Year	≤ 0.1	
Gaseous fuel water content (at 20°C)		μ L/L	≤ 0.1	
Rated short-time power frequency withstand volatge for auxiliary & control circuit		kV	2	
SF6 gas pressure (20°C gauge pressure)		Mpa	0.03	

Note:

\* The max. Reted busbar current up to 1250, it is determined according to the customer's demands.

\*\* Is the expected value, the high-voltage current-limited fuse has the current limited function.

\*\*\* The max. rated current of the circuit breaker unit circuit is up to 1250, it is determined according to the customer's demands



## Description:

Fuji Tusco provide the highest efficiency transformer within the limits where economy is not lost.

Because of well arranged core construction, no-load loss is reduced. Power Transformer as Step-down transformer in substations and step-up transformers in power station are essential components in those facilities.

These transformers cover the electric power for many of electricity consumers, so highly reliable transformer are required.

We also supply special transformers such as ultrahigh-voltage reactors , including generators step-up Transformer (GSU), Power- Transformer (PTR) , Distribution Transformer (DTR).

Fuji Electric's transformer has been recognized by major companies in the world with excellent efficiency, durability and quality.

## Design Features:

Since there are no holes in the core plate, it provides for easy machining and improve the characteristics.

The core tightening bolts are cooled directly by insulation oil since they pass through the oil duct.

Because of using the tempered plastic bands, the core plate ends can be tightened securely.

As a result of improving the space factor of core, the transformer can be made compact and lightweight.

Fuji Tusco started manufacturing Cast Resin Transformer in 2015 as 315kVA up to 4000kVA and Voltage up to 24kV.

Nowadays, Fuji Tusco increase capacity manufacturing until be able to manufacture Cast Resin Transformer as rating as 150kVA up to 4000kVA and voltage up to 33kV and others if requested

## Product Categories:

Lineup of Oil Immersed Transformer Product Range:

- Power Transformer
- Large Distribution Transformer
- Medium Distribution Transformer
- Small Distribution Transformer
- Rectifier Transformer
- Arc Furnace Transformer



## Design Features:

Rated voltage; up to 36kV, Rated power; up to 24,000kVA

Insulation system temperature; 155C (F)

Type of cooling; AN (Naturally-Cooled), AF (Forced-air-Cooled)

Maximum ambient temperature; 40C, yearly average temperature; 20C

Climatic, environmental and fire behavior classes C2, E2 and F1.

## Product Categories:

Lineup of Cast Resin Transformer Product Range:

- Cast Resin Transformer



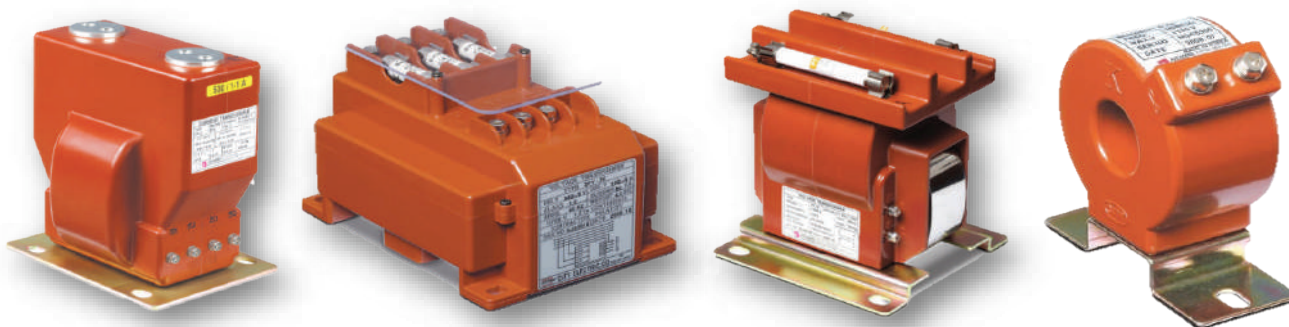
## Description:

We are fully satisfying our clients with best quality Voltage Transformer, Current Transformers, Standard Instrument Transformer and Testing & Measuring Equipment, out of accumulated rich technology and knowhow. We have gained reputations of high quality and reliability for our products, having best quality, acquired many certifications of ISO 9001, KS C 1706, KS C 1707, etc. And the products are widely used for general industry area, apartment, skyscraper, as well as in the field of hydraulic & thermoelectric power plants, wind power stations, nuclear power plants, semiconductor equipment, steel manufacture, infrastructure facilities, subway line system, etc.

## Product Categories:

Lineup of Current & Voltage Transformers Product Range:

- Voltage Transformer (LV)
- Voltage Transformer (MV)
- Voltage Transformer (HV)
- Current Transformer (LV)
- Current Transformer (MV)
- Current Transformer (HV)
- Current Transformers for Ship
- Zero Phase Current Transformers
- Bushing Type Current Transformers
- Throughout Type Current Transformers
- Test Equipment



## Description:

The M-Cube defines the new switchgear tradition. Built to the latest IEC standards, the M-Cube offers complete safety and reliability. The modular and high performance switchboard ensures low installation costs, flexibility, ease of maintenance and long life performance. The M-Cube is designed for use in Motor Control Centre (MCC), Power Control Centre (PCC) and Main switchboard applications. Our low voltage MCC & PCC are suitable for use in applications such as marine, utility, chemical, oil and gas, mass-production manufacturing, semiconductor and water & waste water facilities. The M-Cube SWG including: Main-Board, Sub-Board, M-Cube for 19" Rack, M-Cube for i-Cube / Intelligent, Fixed-Type Switchgear, Withdrawable-Type Switchgear

## Description:

Design Features - General Specifications

- Degree of protection : IP 31/ 42/ 43/ 44
- Form of Segregation : Form 1/ 2a/ 2b/ 3a/ 3b/ 4
- Top or Bottom Busbar Arrangement
- Top or Bottom Cable entry
- Front or Back Access (Depends on layout configuration)
- Single Row or Back-To-Back
- Three Positions: IN / TEST/ OUT)

- Single Stack Busbar for all rating
- Rated Operational Voltage – 690Vac
- Rated Insulation Voltage – 1000Vac
- Overvoltage Category – IV (12kV)
- Rating up to 6300A
- Short Circuit Rating- 100kA for 1 sec

## Description:

LV Switchgear & Controlgear	IEC 61439
Degree of Protection	IEC 529
Internal Arc Fault	IEC 61641
Resistance to Salt mist	IEC 60068-2-11
Resistance to Damp heat	IEC 60068-2-30
Highest certifiable degree of protection	IP44
Forms of Internal Separation	Form 4b

## Description:

Type Test Notes:

- \* These tests apply to the full range of SMB LV Switchgear up to 6300A (1000A, 1600A, 2500A, 3200A, 4000A, 5000A, 6300A) with a short circuit rating up to 125kA / 50 cycles.
- \* Withdrawable column Vertical busbar with rating of 1000A is tested to 85kA / 50 cycles.
- \* Arc fault containment test fixed and Withdrawable columns are tested to a rating of 75kA rms 0.3 sec.

## Product Categories:

Lineup of M-Cube Product Range:

Designation	M-CUBE 10	M-CUBE 16	M-CUBE 25	M-CUBE 32	M-CUBE 40b	M-CUBE 40c	M-CUBE 50	M-CUBE 63
Current Rating (A)	1000A	1600A	2500A	3200A	4000A	4000A	5000A	6300A
Short time withstand current with ACB	65kA rms 1sec	65kA rms 1sec	75kA rms 1sec	75kA rms 1sec	100kA rms 1sec	75kA rms 1sec	100kA rms 1sec	100kA rms 1sec
	43kA rms 3sec	50kA rms 3sec	65kA rms 3sec	65kA rms 3sec	75kA rms 3sec	65kA rms 3sec	85kA rms 3sec	85kA rms 3sec
Ingress Protection	IP 44	IP 44	IP 44	IP 44	IP 44	IP 43	IP 44	IP 41
Form	4b	4b	4b	4b	4b	4b	4b	4b



## Description:

With high efficiency and high power factor, Fuji Electric's Medium-voltage Variable Speed Drives contribute significantly to cost reduction and energy conservation.

Fuji's Medium-voltage Variable Speed Drives products are applicable in a wide range of fields from plants to general industry and feature superior ease of maintenance.

### AC Adjustable Speed Drive

Fuji Medium-voltage IGBT inverters With their high efficiency and high power factor, Fuji Electric's Medium-voltage inverters contribute significantly to cost reduction and energy conservation.

Our inverter products are applicable in a wide range of fields from plants to general industry and feature superior ease of maintenance.

## Design Features:

Substantial reduction of harmonic current on power source side

Total inverter efficiency as high as approximate 97%

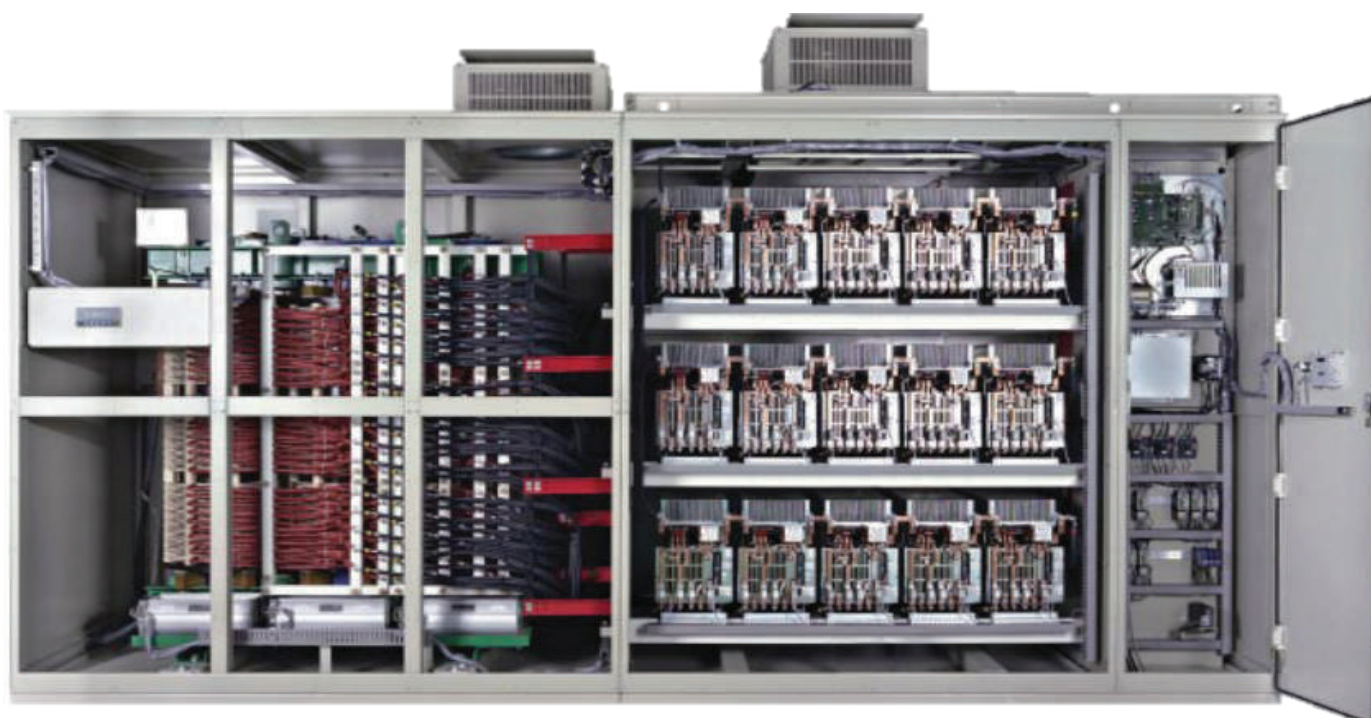
Source power factor as high as 95% or more

High-reliability, Vector control, Easy maintenance

## Product Categories:

Lineup of AC motor control devices Product Range:

- ◎ Small-to-medium capacity DC link inverters FRENIC4000 Series
  - Ideal inverters for facilities using a large number of small-to-medium capacity motors.
  - Applications: steel, non-ferrous metals, paper, general industrial, etc.
- ◎ Medium-to-large capacity DC link inverters FRENIC4400 Series
  - Ideal inverters for facilities using medium-to-large capacity motors such as rolling mills
  - Applications: rolling mills, winding machines, etc.
- ◎ Medium-voltage direct output inverters FRENIC4600 Series
  - Ideal inverters for energy-saving operation of medium-voltage motors
  - Applications: fans, blowers, pumps, extruders, etc.



## Description:

FUJI developed the first infrared gas analyzer in Japan to use mass-flow sensors. Since then, we have supplied customers with various types of gas analyzers to support environmental preservation and control efforts. These efforts include measurements of atmospheric pollution and detection of low density of SOx and NOx, generated by incinerating facilities and boilers.

## Design Features:

The 5-component analyser capable of simultaneously measuring concentration of NOx, SO2, CO, CO2, and O2 contained in flue gas is housed in space-saving enclosure and can be maintained from front side. Our new product, insertion type laser gas analyser for stack gas is the first analyser in Japan which can measure **HCL, NH3, O2, H2O, CO, CO2, and CH4**. FUJI's gas analysers are widely used to monitor the atmosphere to help maintain a cleaner natural environment.

**Analysing air pollution is the First step toward preserving a clean atmospheric environment.**

## Product Categories:

Line-up of Measuring Instruments Line-Up Product Range:

### Environmental Instruments

- Infrared Gas Analyzer System (CEM'S)
- Laser Gas Analysers
- Compact type Infrared Gas Analyzer
- CO2 Controller
- Zirconia Oxygen Analysers
- Paramagnetic Oxygen Analysers
- Thermal Conductivity Gas Analysers
- Biomass Gas Analysers



## Description:

PLCs have the central control role in various fields, including manufacturing and public systems, and in service fields. They can be used to construct optimal small and large-scale systems.

Fuji Electric's Programmable Operation Display (POD) provides vivid and sharper images in more than 60,000 colors. Our POD supports up to 8 languages, and contributes to enhance the efficiency of plant management by simplifying the customer's system around the world.

## Design Features:

Realizes High-Speed Advanced Machine Control

I/Q control with a program capacity of up to 256 K steps and up to 65,536 points enables a suitable system configuration ranging from small through to large scale. 1 ms program scan and I/O refresh are possible.

Function and performance distribution are possible in a multi-CPU system configuration with up to 8 CPUs.

Open Network Oriented

Both the hardware and software conform to the IEC61131 international standard for programmable controllers.

Compatible with Ethernet, LonWorks, DeviceNet, PROFIBUS-DP, AS-i, and other diverse open networks.

## FA Product Categories:

Lineup of Factory Automation Product Range:

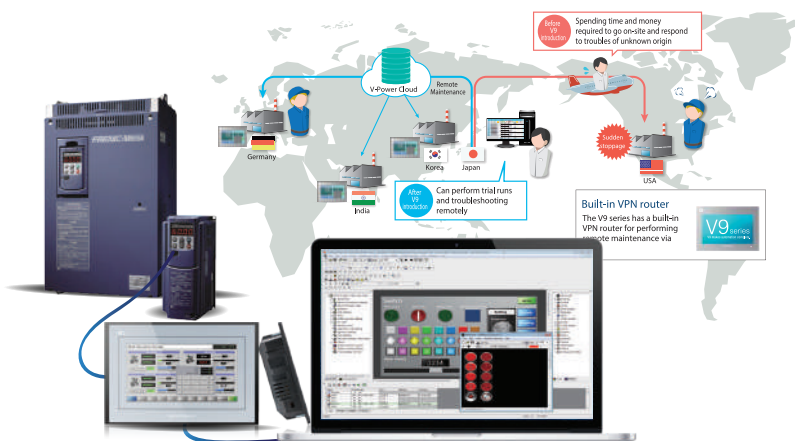
- PLC, Programmable logic controller
- HMI, Human machine interface
- Process Control System, MICREX-NX
- Monitoring and Control System, MICREX-View XX
- Multi-purpose Analog monitoRING SYStem(MARSYS)
- Process Data Acquisition and analysis, f(s)NIDAS



## HMI MONOTOUCH Product Categories:

Lineup of Human Machine Interface Product Range:

- HMI (S8, V8, V9 SERIES, TECHNOSHOT)
- Web Machine Interface (VPN)
- TELLUS and V-Sever (HMI Remote Control Software)
- MONITOUCH Screen Configuration Software (V-SFT)



## AMS - Asset Monitoring Solutions:

Focus on reliability to improve availability, profitability, and safety

Emerson offers a variety of condition indicator technologies specific to the nature and criticality of those assets – portable handheld and asset management solutions, wireless transmitters, and online continuous monitoring systems that can include protection capabilities.

- Machinery Health Management combines condition monitoring technologies with predictive intelligence to reduce both scheduled and unscheduled downtime of your rotating equipment.
- Field Device Management utilizes configuration and calibration data to confirm your automation assets are operating effectively, thereby protecting the reliability of your production assets.



## Description:

Distribution & Control products are an important component of equipment ranging from elevators, robotics & power distribution panels to automotive and semiconductor equipment and injection molding machinery.

Fuji Electric provides high-performance power distribution & control devices, such as: Contactors, Overload Relays, Molded Case Circuit Breakers, Earth Leakage Circuit Breakers, Pushbuttons & Pilot lights for applications including factory automation, manufacturing applications, and building automation.

## Product Categories:

Lineup of LV Distribution Product Range:

- Low voltage equipment up to 600 volts
- Molded case circuit breaker/ earth leakage circuit breakers
- Earth leakage protective relays
- Low voltage Air circuit breakers
- Circuit protectors
- Low voltage Low voltage fuses

Lineup of Motor Control Product Range:

- Low voltage equipment up to 600 volts
- Magnetic contactors, Magnetic starters
- Solid-state contactors (SSC)
- Manual motor starters(MMS)

Lineup of Control Product Range:

- Pushbuttons, Pilot lights
- Industrial Control Relays
- Time Delay Relays
- Sensors, Switches

Lineup of Energy Control Product Range:

- Power Monitoring Unit
- Power Monitoring Equipments



We satisfy the needs of our customers with highly reliable products and various types of medium-voltage apparatus that support recent sophisticated power-receiving and distributing systems including our medium-voltage vacuum circuit breaker that secures safety of electric equipment.

## Product Categories:

Lineup of MV Distribution Product Range:

- High voltage equipment Up to 36kV
- Disconnecting switches
- Power Fuses
- Load break switches
- Circuit Breakers
- Magnetic contactors



## Description:

Fuji Electric deliver high performance inverters that offer automatically controlled motor of AC Drive / (VFD) applications. The Variable Speed Drive FRENIC series is equipped with functions and performance to meet all types of requirements, and in addition it is easily maintained and environmentally friendly.

The series lineup ranges from simple to advanced-function models, enabling model choices matching situations for use.

Fuji Electric provide VFD perfect for automating and with energy saving devices like a fan pump or carrier and variable speeds.

## Product Categories:

Lineup of Variable Speed Drives Product Range:



### FRENIC *Mini* SERIES

Compact constant torque load Variable Speed Drive (VSD)



### FRENIC *Multi* SERIES

Exclusive Variable Speed Drive (VSD) for operation of Elevators. Regenerative solutions.



### FRENIC *Ace* SERIES

High performance constant torque load Variable Speed Drive (VSD)



### FRENIC *HVAC* SERIES

Variable torque load variable Speed Drive (VSD) for HVAC applications



### FRENIC *AQUA* SERIES

Variable torque load variable Speed Drive (VSD) for water, wastewater & irrigation applications



### FRENIC *eHVAC* SERIES

Variable torque load variable speed drive (VSD) for HVAC and water pump application



### FRENIC *HVAC Solar* SERIES

Variable speed drive (VSD) for solar pump application IP65 model



### FRENIC *Ace Solar* SERIES

Variable speed drive (VSD) for solar pump application



### FRENIC *Lift* SERIES

Exclusive Variable Speed Drive (VSD) for operation of Elevators. Regenerative solutions.



### FRENIC *MEGA* SERIES

High performance Multifunctional constant torque load Variable Speed Drive (VSD)



### FRENIC-*VG* SERIES

High Performance Vector Control constant torque load Variable Speed Drive (VSD)



### FRENIC *ECO* SERIES

Variable torque load Variable Speed Drive (VSD) for fans and pumps

## Description:

Regal is one of the world's largest motor producers with technology and manufacturing centers spanning the globe. Our product brands meet customer requirements in demanding applications used around the globe in heating, ventilation, air conditioning, commercial refrigeration, food processing, pharmaceutical, chemical processing, material handling, medical, oil and gas, construction, manufacturing, power generation, agriculture and mining.

We offer customers single phase motors up to 3.7 kilowatts, light industrial aluminium up to 18.5 kilowatts, and heavy industrial cast iron up to 1,000 kilowatts, with voltages available up to 1,100 volts.

Our esteemed heavy-duty fiberizer series motors can provide a lasting solution to your sugar industry needs. It is specially equipped with robust stator frame, IP55 protection, large slip-ring inspection window and transparent cover, low vibrating bearing assembly to function in optimal performance.

Our manufacturing facilities support customized designs for new and replacement motors to match the needs and requirements of our sugar industry customers.

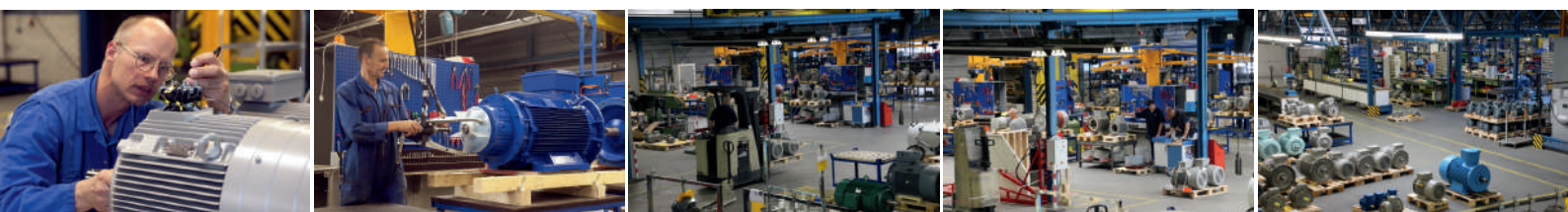
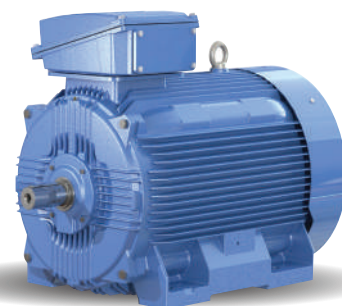
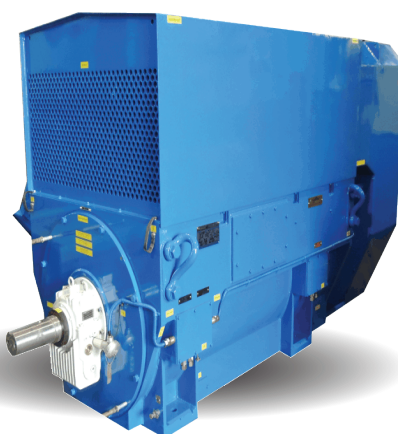
## Design Features:

Our hazardous location motors are AUS Ex, IEC Ex, and ATEX approved. Also available are Lloyd's Register Approved marine motors. We also specialise in customised motors such as brake motors, multi-speed motors, smokespill and cooling towers. Our high voltage "Centurion Series" ranges up to 13 megawatts.

## Product Categories:

Lineup of Industrial Motors Product Range:

- Finite element analysis for robust design of the stator frame.
- CFD analysis for optimal thermal performance.
- IP55 protection to withstand harsh environment.
- Large slip-ring inspection window and transparent.
- Custom designs to match customer and application requirements.
- Low vibration using simple bearing assembly with minimal components.
- Options available: Inside and outside slip ring assembly.



## Description:

MKS is one of the leading manufacturers of liquid resistance starters. MKS liquid resistance starter and drive systems can be found in more than 100 countries worldwide. This exceptional position results from our high standards of reliability and quality. Our products set standard in many sectors such as the cement, minerals, energy and sugar cane industries, shredder plants, pump stations and power plants – all over the world.

With our extensive experience, we are able to offer you dedicated and comprehensive support in all service fields. in a prompt, straightforward and effective manner – anywhere in the world.

Our all-inclusive service encompasses assembly, commissioning, preventive maintenance, repairs and reconditioning as well as engineering, consulting and training.

To ensure your plant is optimally maintained we always keep all spare parts in stock – no matter the date of your purchase.

## Design Features:

Smooth and spindleless liquid resistance starters unique in their application

Full service solution for your complete drive system

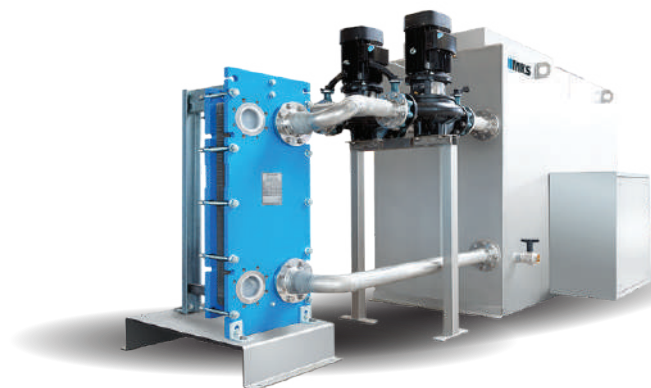
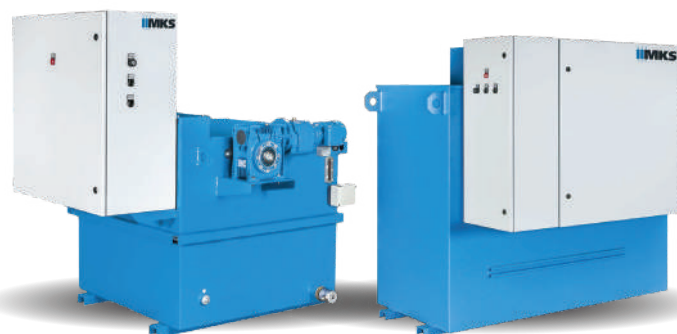
## Product Categories:

Product Range for Liquid resistance starters and drive systems:

- Blade Electrode System – MFA 1-5
- Ring electrode system – AFA 25-105
- High speed servo drive system – SFAK 31–101
- Dual application drive system – DXFA 1-95

Product Range for Liquid resistance starters for Special Applications:

- Oil-cooled resistance starter – ODA 1-8
- Slip resistor – SR 20-50
- Switch gear – SA
- Slip Ring Motor for shredder application – WRIM



## Description:

Motortronics is a worldwide-leader specializing in the manufacturing of solid state AC motor controls and motor protection products. The company has shipped over 2 million solid state starters and controllers to virtually all industries around the world, amassing more real world experience than any other manufacturer in the business.

We have a complete line of solid state soft starters, Motortronics also manufactures electronic brakes, motor winding heaters, motor protection relays and offers a full line of AC variable frequency drives and accessories.

## Design Features:

Advanced motor protection relay and ramp features programmable via the keypad or a laptop computer.

Visible grounding bar for safe operation with NEMA 12 gasketed enclosure (NEMA 3R optional).

## Product Categories:

Motortronics Lv,Mv Product Range:

Our product range start from Low voltage controls range from 200 to 600VAC @ 3 - 2000HP (up to 1500kW)

and medium voltage soft starters range from 2300V to 15kV @ 200 - 15000HP (up to 12,000kW).

### Low Voltage Soft Starters

Digitally programmable solid-state reduced voltage soft starters for smooth load acceleration. Select from Heavy Duty and Application Specific series.

### Medium Voltage Soft Starters

Medium Voltage Soft Starters designed to start AC motors in any fixed speed application. Providing maximum protection, smooth and stepless control.

### Motor Protection

Advanced Motor Protection, True Thermal Modeling, Motor Power Monitoring – KVA, kW, KVAR, Power Factor, RTD and Current monitoring for AC Motors.

### Phase Controllers

Phasetronics Single and Three Phase SCR Power Control features phase angle control to provide smooth proportional output power from 0-100%

### Voltage and Current Transformers

View Magnetics Website. Voltage Transformers with input ranging from 69V to 15.5kV to 110/220 or 120/240V. Ansi and non-Ansi rated 600V current transformers.

### Electronic Motor Brakes

Stop AC Motor loads using an electronic motor brake to Maximized Safety, Increased Productivity and Maintenance-Free Operation.

### Winding Heater Controllers

Keeps motors warm & moisture-free during extended shut down times.

### MV Contactors

Medium voltage three phase contactors with voltage range of 7.2 to 15kV up to 800A.



## Description:

ST Control is fully focused towards providing cost-effective and reliable Solar Power Solutions to residential customers, commercial organizations and industries, as well as providing an alternative source of power generation for the grid.

Our Vision is to make clean, reliable, and affordable energy available to the developing world through energy innovation.

Our expert engineers have decades of experience and skills to provide flawless design, deployment and maintenance of solar solutions.

Solar energy is the cleanest, safest and richest renewable energy source in the nature.

In the face of exhausted energy and damaged environment,

We will always devote itself to providing thorough energy solutions for the sustainable development of human beings!

## Design Features:

PV Product Inspection & Test Center is a professional test laboratory for PV modules.

Our laboratory management system is in full compliance with ISO/IEC17025.

The PV Product Inspection & Test Center has a world leading capability in PV testing.

## Product Categories:

Standard Modules Product Range:

- Monocrystalline 72-cell module
- Monocrystalline 60-cell module
- Polycrystalline 72-cell module
- Polycrystalline 60-cell module

High Efficiency Modules Product Range:

- Monocrystalline 144-cell module
- Monocrystalline 120-cell module
- Polycrystalline 144-cell module
- Polycrystalline 120-cell module

Dual Glass Modules Product Range:

- Bifacial Module
- Frame Double-glass Module
- Frameless Double-glass Module

Small Modules Product Range:

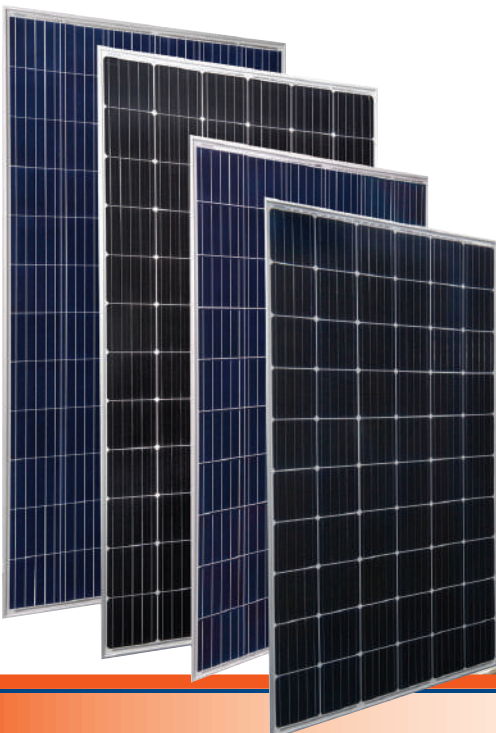
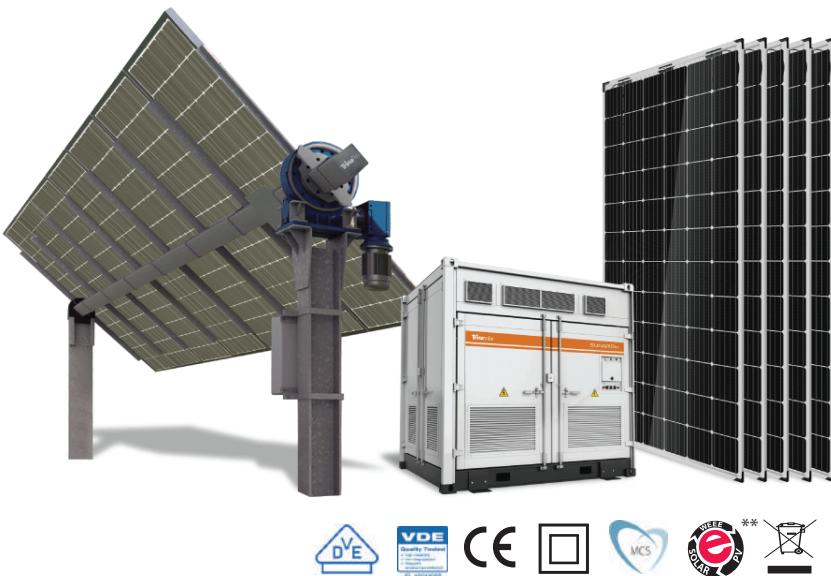
- Monocrystalline 60-cell module
- Polycrystalline 60-cell module

Smart Modules Product Range:

- Smart DC Module – MX
- Smart DC Module –TG

Special Modules for Special Applications Product Range:

- Modules with Strong Anti-Abrasion Coatings
- Modules with Strong Anti-Soiling Coatings



## Description:

We are solar energy specialists driven to create an affordable and sustainable energy future for commercial & industrial entities in the region.

Our expert engineers have decades of experience and skills to provide flawless design, deployment and maintenance of solar solutions.

Customer satisfaction is a our core value. We cover all power needs from small residential systems to commercial roof-based installations and large solar power plants on land, lakes or even the open sea.

Most of our design done by Pvsyst Software. Pvsyst presents results in the form of a full report, specific graphs and tables, and data can be exported for use in other software.

## Design Features:

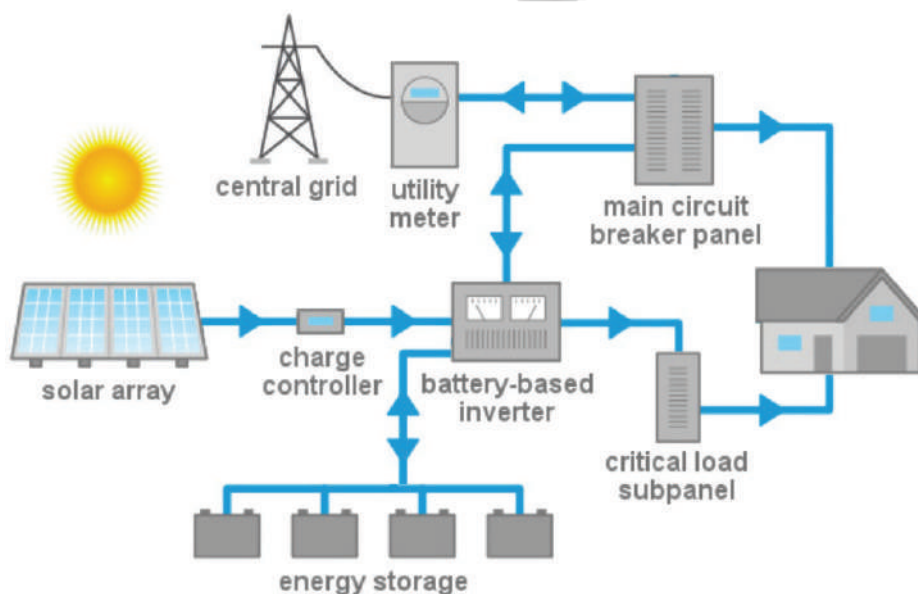
PV inverters come in a range from 2.5 kW to 6.8 MW

We offer an efficiency of over 99%. Ready to convert on any scale you need.

## Product Categories:

Solar Inverter Solutions Product Range:

- Residential, Industrial & Commercial
- String Inverter
- Central Inverter
- Monitoring Solutions
- Combiner Boxes



## Description:

Our team of solar engineering experts then collaborated with the leading manufacturing company in China who have over 30 years' experience in manufacturing to create our solar mounting products. We supply outstanding products which are made to the highest standards, quality and design all the while being affordable. With have many years experience in both residential and commercial solar rooftop solutions, Floating Solution. Our mounting solutions are designed to meet the needs of any type of Solar installation including residential, corporate and utility scale customers.

## Design Features:

Our solar mounting solutions are all designed to AS/NZ 1170 standards, Meaning that all Our Rack solar structures are designed and manufactured to the highest degree of both strength and quality.

## Product Categories:

Solar Mounting Solutions Product Range:

- Pitched Roof Mounting System
- Flat Roof Mounting System
- Ground Mounting System
- Corport Solar Mounting System
- Agriculture Geenhouses Mounting System
- Solar Floating Mounting System
- Solar Mounting Accessories & Components
- Solar Ground Screw
- Solar Safety and Construction Fence



## Batch Centrifugals TITAN Series

### Description:

The Western States Machines TITAN Batch Centrifugal is designed to be a low-maintenance, efficient and cost-effective solution while providing a high return on investment for the end-user. Maintenance is reduced by minimizing the number of moving parts and the use of high strength alloys and non-metallic, food grade, components.

The latest variable frequency drive technology and PLC controls ensures efficient operation with low power consumption.

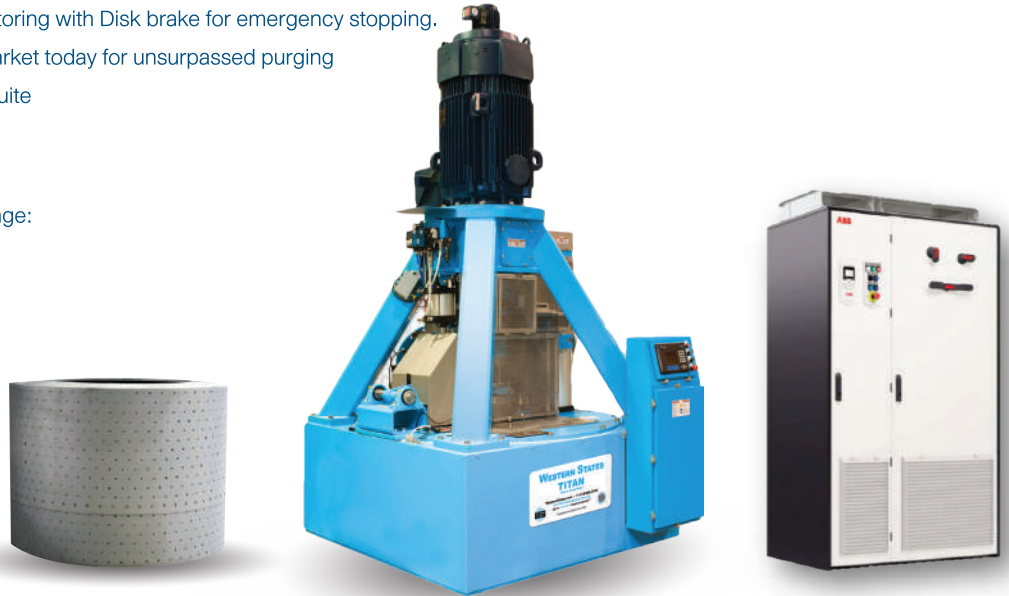
Western States never obsolete ANY machine, and provides 24/7/365 Emergency service and support

### Design Features:

- Fully perforated basket with 2205 duplex stainless steel side sheet.
- 316 stainless steel bottom plate and basket cap for fast, efficient purging, long life and high safety factor
- Basket dynamically balanced and x-ray inspected
  - Enclosed feed system with anti-drip valve to prevent product contamination
  - Electronic control of the feed valve, with sequenced closing to assure maximum loading each cycle
  - Totally unobstructed, downward opening basket bottom valve
  - Large discharger plow, with spring-loaded tip for efficient unloading and screen protection
  - Full color touch-screen, graphical operator interface with maintenance diagnostics and reminders
  - Solid state gyration and vibration monitoring with Disk brake for emergency stopping.
  - Largest open area of baskets in the market today for unsurpassed purging
  - Lowest energy cost per ton of massecuite

### Product Categories:

TITAN Series Batch Centrifugals Product Range:



รุ่น Model	ขนาดตะกร้า Basket Size	รอบ RPM (ตามกำหนด)	ปริมาณจริง Actual Volume	ปริมาณคงที่ Static Volume (kg/charge)	ปริมาณแบบไดนามิก Dynamic Volume 12% ก่อนรอบ (kg/charge)	รอบ/ชั่วโมง Cycles/Hour (std.design)	อัตราต่อชั่วโมง Hourly Rate (std.design)	ตะกร้า Basket % O.A.	จำนวนรู No.Holes (0.3120")
1400	54" x 40" x 9.0"	1,140	29.5 ft <sup>3</sup>	1,269	1,401	24	33.6 MTPH	3.64%	3,234
	1372 มม. x 1016 มม. x 229 มม.		0.84 ลบ.ม.						
1600	57" X 40" X 9.5"	1,100	32.8 ft <sup>3</sup>	1,394	1,579	24	37.9 MTPH	3.63%	3,402
	1448 มม. x 1016 มม. x 241 มม.		0.93 ลบ.ม.						
1700	57. x 43" X 9.5"	1,100	35.3 ft <sup>3</sup>	1,518	1,700	24	40.8 MTPH	3.65%	3,680
	1448 มม. x 1092 มม. x 241 มม.		1.00 ลบ.ม.						
1900	60" x 45 X 9.625"	1,080	39.7 ft <sup>3</sup>	1,707	1,912	24	45.9 MTPH	3.63%	4,032
	1524 มม. x 1143 มม. x 244 มม.		1.12 ลบ.ม.						
2400	72" x 45" x 10"	1,000	50.7 ft <sup>3</sup>	2,180	2,442	22	53.7 MTPH	3.64%	4,848
	1829 มม. x 1143 มม. x 254 มม.		1.44 ลบ.ม.						



## Description:

The ROBERTS I-SERIES Continuous Centrifugal is the most productive continuous centrifugal available.

Two innovative Western States' designs combine to provide maximum throughput with very low final molasses purity, to create the cast stainless steel basket with machined annular grooves for large drainage area, and to innovate the side feed system with complete massecuite conditioning.

The Western States continuous basket is a one-piece high strength stainless steel casting.

The high strength of the centrifugally cast basket allows the drilling of large drainage holes and the machining of annular grooves on the inside of the basket.

Western States never obsolete ANY machine, and provides 24/7/365 Emergency service and support

## Design Features:

- Exclusive side-feed design for reduced crystal breakage and minimal purity rise
- Operates over Improved, centrifugally cast, stainless steel basket with larger holes for superior purging and new 5-year warranty
- Multi-point internal suspension for superior vibration isolation
- Best long term value based on tons of sugar produced per hour
- Every unit precision tested before leaving the factory
- Gentle "guide-rod" style massecuite conditioning system to minimize crystal breakage and limit dissolved sugar
- Touch screen controls with intuitive interface
- Simplified maintenance:
- Faster screen changes – less screen segments than many competitive designs
- Easy to remove screen clamps, Above grade, easy access belt tunnel
- High capacity, more efficient purging, lower purity rise, low maintenance and minimal spare parts.
- These Machine comes with Schneider Soft start/soft stop units Altistart 22 as Standard, VFD as in option.

## Product Categories:

VL Series Continuous Centrifugals Product Range:

ROBERTS ValueLine	1300
A, B Massecuite	40-46 MTPH
C Massecuite	15-22 MTPH
Motor	90 KW

NOTES: Final capacity results will depend on the quality of the massecuite and existing process conditions.

\*Performance is contingent upon the options selected at time of purchase.

\*\*MTPH is an abbreviation for Metric Tons Per Hour.



## Description:

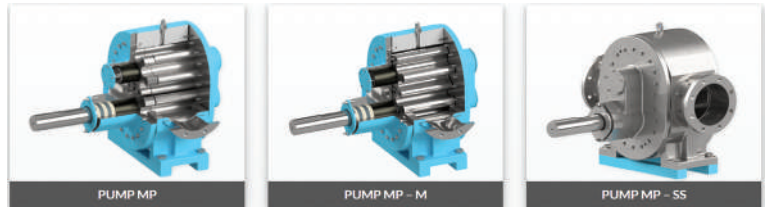
Our MP PUMP (Masseculite Positive Displacement Pump) is designed to handle masseculites and magmas for the Sugar Industry. The MP Pump operates in either direction without changing parts and the simple maintenance of bushing and sleeve configuration results in limited downtime and cost savings. The MP PUMP provides maximum versatility and durability and perfectly suited for viscous liquid applications. Additionally, the MP PUMP is extraordinarily efficient, producing high outputs at low operating speeds. and is available in five sizes below is a table that displays the capacity(per hour) of each CMG Pump size.

## Design Features – Why Choose the MP PUMP

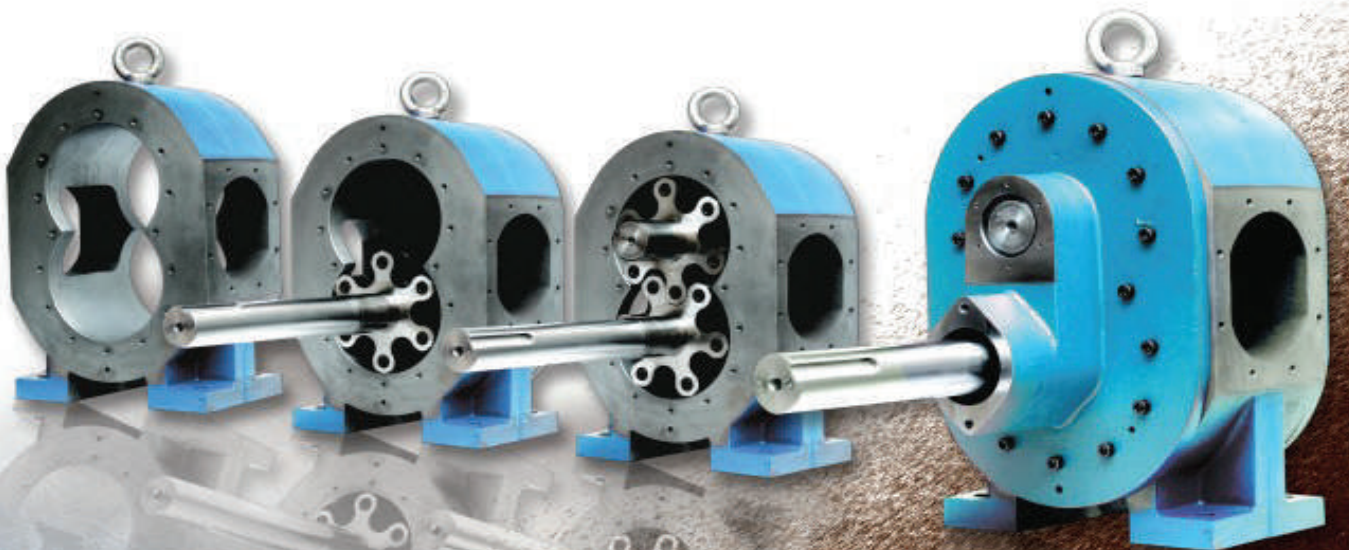
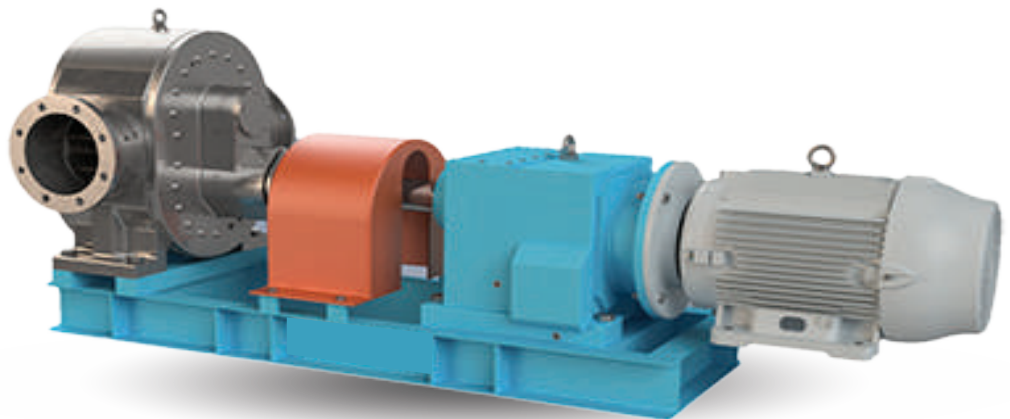
- COMPETITIVELY priced
- Operates over LONG PIPED DISTANCES AND HIGH PRESSURE
- RELIABLE PERFORMANCE: Extraordinarily efficient, producing high outputs at low operating speeds – and available in five sizes
- LOW MAINTENANCE: Only two moving parts! Simple maintenance of bushing and sleeve configuration results in limited downtime and servicing costs
- DURABLE: Sturdy design with stainless steel internal parts offers excellent corrosion wear and resistance
- VERSATILE: Capable of operating in either direction without changing parts
- CUSTOMIZABLE: Technical experts help determine which motor size and configuration will work best in your facility

## Product Categories:

MP Pumps for Sugar Industry Product Range:



MP PUMP SIZE (Throughput at 65 rpm)		
Size	ft <sup>3</sup> /hr	m <sup>3</sup> /hr
MP1	250	7
MP2	425	12
MP4	850	24
MP6	1450	41
MP12	3000	85



# Electrically Coupled Rotary UPS System

## Description:

IEM Power Systems is a subsidiary of Industrial Electric Mfg. (IEM), North America's largest and independent full-line manufacturer of electrical distribution and power quality equipment. IEM Power Systems provide a complete turn-key solution for a wide range of power applications including Integrated Power Systems, Rotary UPS Systems, On-site Power Generation, Marine Power Systems, Packaged Substations, and unique power solutions for the Renewable and Energy Storage industry.

IEM Power Systems has developed the complete UPS system to protect Critical / 'No-Break Loads' against electrical disturbances in the event of power failures, voltage transients, or slow voltage Fluctuations. Rotabloc is an Electrically Coupled Rotary UPS System made in the U.S. and Europe

## IEM Power Systems Flexible Rotary UPS Solutions Consist of

- Rotabloc UPS Energy Storage Unit 400 - 2000kVA (320 – 1600kW)
- Switchgear low and medium voltage input and output switchgear
- Engine Generator can be remotely located and the RB system can utilize existing EG installations
- Control Systems link each of the major components with the capability of being integrated into the facilities own BMS
- Rotabloc Control System Integration software integration that allows the elements of the system to perform as a single effective unit

## Design Features

Rotabloc is electrically connected to the back-up generator, providing advantages including:

- Being able to locate the engine genset remotely – saving valuable internal space
- No mechanical wear when the generator is engaged – increasing reliability and reducing maintenance
- Being able to safely test or maintain the energy storage unit and the engine generator separately
- The ability to utilize a site's existing engine generator assets

## Simple. Reliable. Efficient.

Complete System Integration for Critical Power Applications

## Product Categories:

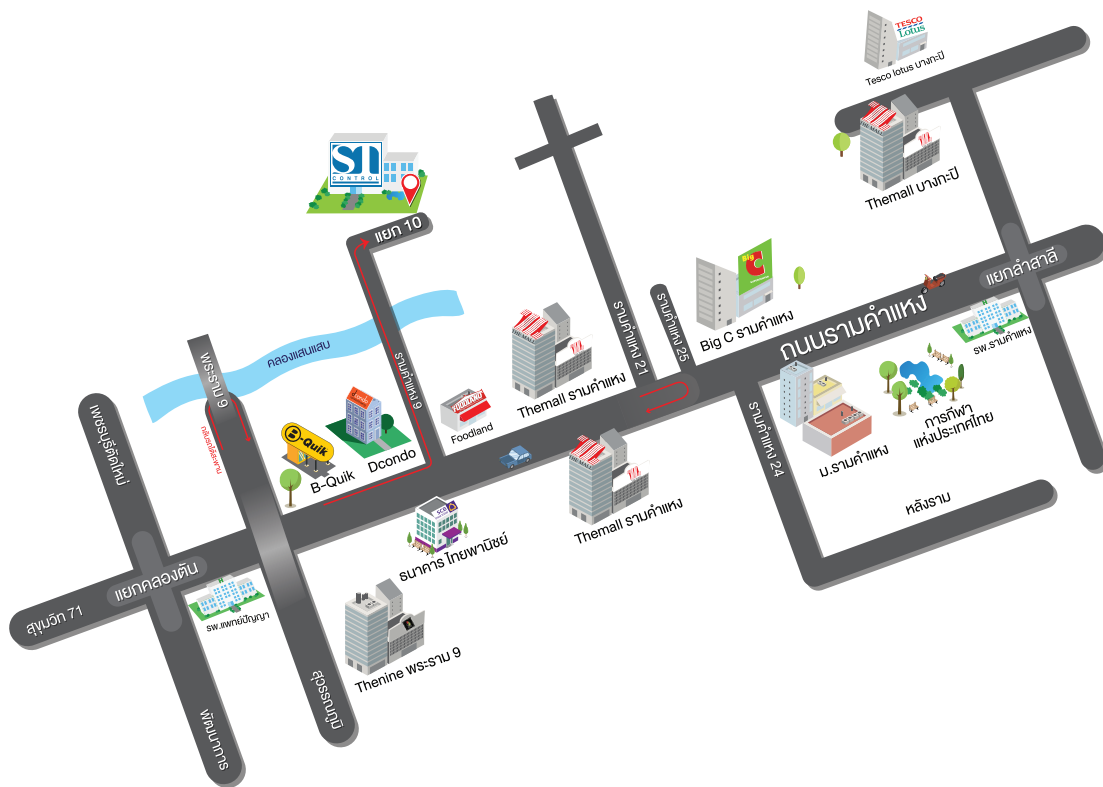
Uninterruptible Power Supplies Solutions (UPS) Product Range:



TYPE	V	A	kVA	kW	Efficiency(%)	L(mm)	W(mm)	H(mm)	Weight (kg)
RBT-400-50	400	577	400	320	95.3	2,895	1,080	1,529	7,850
RBT-500-50	400	722	500	400	95.8	2,895	1,080	1,529	7,850
RBT--500HP-50	400	722	500	500	96.5	2,895	1,080	1,529	7,850
RBT-630-50	400	909	630	504	96.2	3,135	1,160	1,524	8,730
RBT-800-50	400	1155	800	640	96.8	3,135	1,160	1,524	8,730
RBT-1000-50	400	1443	1000	800	96.8	3,225	1,200	1,570	9,285
RBT-1100-50	400	1588	1100	880	9*6.5	3,535	1,205	1,745	10,900
RBT-1250D-50	400	1804	1250	1000	96.2	(2x) 3,135	(2x) 1,160	(2x) 1,524	(2x) 8,730
RBT-1600D-50	400	2309	1600	1280	96.8	(2x) 3,135	(2x) 1,160	(2x) 1,524	(2x) 8,730
RBT-1750D-50	400	226	1750	1400	96.4	(2x) 3,225	(2x) 1,200	(2x) 1,570	(2x) 9,825
RBT-2000D-50	400	2887	2000	1600	96.8	(2x) 3,225	(2x) 1,200	(2x) 1,570	(2x) 9,825
RBT-2200D-50	400	3175	2200	1760	96.5	(2x) 3,535	(2x) 1,205	(2x) 1,745	(2x) 10,900



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