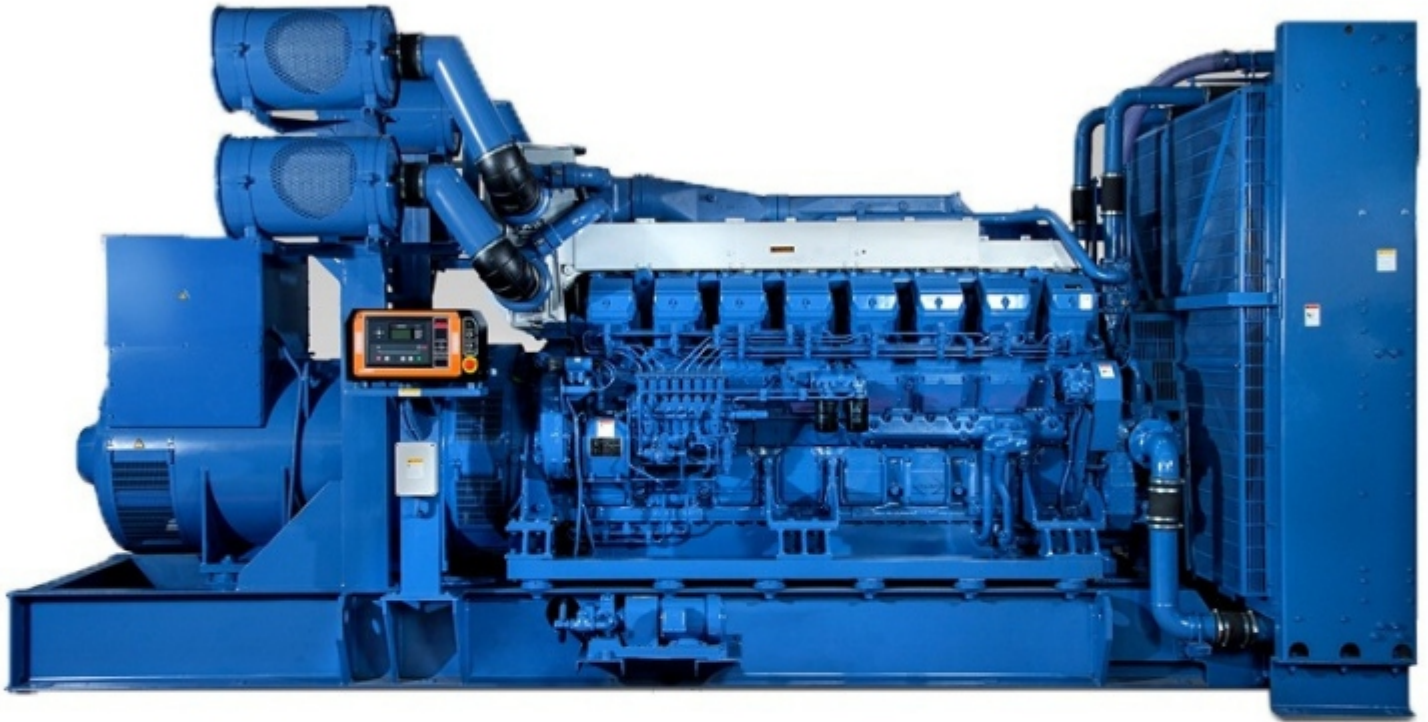


COMPANY

Profile 2023

POWER SYSTEMS



GENSET PANEL SOLAR CELL CONTROLLER

CUBICLE TRAFU MOBILE ROBOT MACHINE VISION

Introduction

PT. Mitra Daya Tehnika have a vision in 2017 to build a sustainable business integration in the sector of power systems to jointly build the nations.

A corporation that continues to grow demands all of us to join hands and unite in creting a better business climate and continue to produce maximum power to empowering the company for the development of the world.

At this time in 2020, we have full support as a groups corporation for the power systems needed by all customers to fulfill the higher desires.

With competitive prices, good support of reliable technicians, maximum stock availability, and the quality of products those are well known for years, we are ready to serve customers for the needs of power system with Genset, Cables, Cubicle, Power Transformer, Power Panel System, Controlling System and Installation, and also Solar Panel System Products for Go-Green Energy.

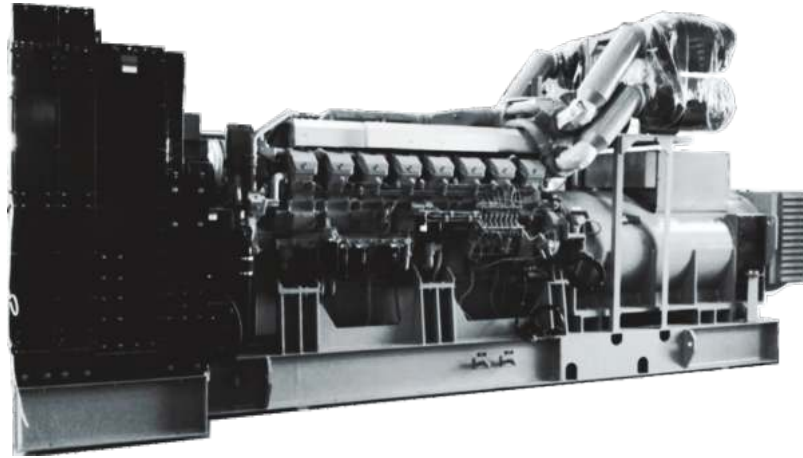
Core Values

“ Become The Best Leader of Distribution And Engineering Service Company ”

- ◆ Increase Quality & Prosperity Of The Employees
- ◆ Right Process And Innovation To Build Business Network
- ◆ Deliver Good Business To Achieve Customer Satisfaction
- ◆ Develop The Company For Excellence Growth And Sustainable Profits
- ◆ Build an Integrated Corporation



Genset Mitsubishi



Standard Specification

VPI(Vacuum-Pressure Impregnation) with Epoxy resin.
IEC Class H Insulation generator (CGT P80: Class F)
Built-in AVR for 3.3 kV and 4.16 kV generator
Loose supply AVR for 6.6 kV, 10 kV, 11 kV and 13.8 kV generator
Degree of Protection : IP-23 for Generator Enclosure
Degree of Protection : IP-44 for Terminal Box

PMG(Permanent Magnet Generator(Exciter))
6 Numbers Pt 100 ohms RTD for Stator
1 Pt 100 ohms RTD for Bearing(s)
Three-Phase sensing type AVR with V/Hz control
Commercial type Space Heater
Form-Wound Stator and Salient pole Rotor
40 deg. C and 1000 mASL IEC Standard conditions

MGS-HV GENSET RATING

50 Hz Stand-by Rating Selection Table						
GEN SET MODEL	ENGINE MODEL		3.3kV	6.6kV	10kV	11kV
MGS2800HV	S16R2-PTAW2-S	kVA	2750	2750	2750	2750
MGS2700HV	S16R2-PTA	kVA	2500	2500	2500	2500
MGS2500HV	S16R-PTAA2	kVA	2250	2250	2250	2250
MGS2000HV	S16R-PTAH-S	kVA	2200	2200	2200	2200
MGS1500HV	S16R-PTA-S	kVA	2000	2000	2000	2000
MGS1400HV	S12R-PTA2-S	kVA	1575	1600	1600	1600
MGS1200HV	S12R-PTA-S	kVA	1475	1475	1475	1475
MGS1000HV	S12H-PTA-S	kVA	1225	1225	1225	1225

50 Hz Prime [PRP] Rating Selection Table						
GEN SET MODEL	ENGINE MODEL		3.3kV	6.6kV	10kV	11kV
MGS2800HV	S16R2-PTAW2-S	kVA	2375	2375	2375	2375
MGS2700HV	S16R2-PTA	kVA	2250	2250	2250	2250
MGS2500HV	S16R-PTAA2	kVA	2000	2000	2000	2000
MGS2000HV	S16R-PTAH-S	kVA	1900	1900	1900	1900
MGS1500HV	S16R-PTA-S	kVA	1700	1725	1725	1725
MGS1400HV	S12R-PTA2-S	kVA	1380	1380	1380	1380
MGS1200HV	S12R-PTA-S	kVA	1280	1280	1270	1270
MGS1000HV	S12H-PTA-S	kVA	1050	1050	1040	1040

50 Hz Prime Selection Table						
GEN SET MODEL	ENGINE MODEL		3.3kV	6.6kV	10kV	11kV
MGS2800HV	S16R2-PTAW2-S	kVA	2500	2500	2500	2500
MGS2700HV	S16R2-PTA	kVA	2250	2250	2250	2250
MGS2500HV	S16R-PTAA2	kVA	2010	2010	2010	2005
MGS2000HV	S16R-PTAH-S	kVA	2000	2000	2000	2000
MGS1500HV	S16R-PTA-S	kVA	1810	1810	1800	1800
MGS1400HV	S12R-PTA2-S	kVA	1450	1450	1450	1450
MGS1200HV	S12R-PTA-S	kVA	1350	1350	1450	1450
MGS1000HV	S12H-PTA-S	kVA	1100	1100	1100	1100

50 Hz Continuous Rating Selection Table						
GEN SET MODEL	ENGINE MODEL		3.3kV	6.6kV	10kV	11kV
MGS2700HV	S16R2-PTA	kVA	1900	1900	1900	1900
MGS1500HV	S16R-PTA-S	kVA	1555	1550	1540	1540
MGS1200HV	S12R-PTA-S	kVA	1140	1140	1130	1130
MGS1000HV	S12H-PTA-S	kVA	940	945	935	935

60 Hz Stand-by Rating Selection Table						
GEN SET MODEL	ENGINE MODEL		3.3kV	6.6kV	10kV	11kV
MGS2500HV	S16R-PTAA2	kW	2000	2000	2000	2000
MGS2500HV	S16R-PTAA2	kW	2000	2000	2000	2000
MGS2000HV	S16R-PTAH-S	kW	1850	1920	1850	1850
MGS1500HV	S16R-PTA-S	kW	1575	1700	1575	1575
MGS1400HV	S12R-PTA2-S	kW	1420	1420	1410	1410
MGS1200HV	S12R-PTA-S	kW	1270	1270	1260	1260
MGS1000HV	S12H-PTA-S	kW	1070	1070	1070	1060

60 Hz Prime [PRP] Rating Selection Table						
GEN SET MODEL	ENGINE MODEL		3.3kV	6.6kV	10kV	11kV
MGS2500HV	S16R-PTAA2	kW	1800	1800	1800	1800
MGS2500HV	S16R-PTAA2	kW	1800	1800	1800	1800
MGS2000HV	S16R-PTAH-S	kW	1700	1700	1700	1700
MGS1500HV	S16R-PTA-S	kW	1500	1500	1460	1500
MGS1400HV	S12R-PTA2-S	kW	1280	1280	1280	1280
MGS1200HV	S12R-PTA-S	kW	1140	1140	1140	1140
MGS1000HV	S12H-PTA-S	kW	960	960	960	960

Notice:

- For other voltage and overload requirement, please consult with your nearest Mitsubishi MGS dealer.
- Photographs are with option devices.
- Specifications are subject to change without prior notice.

Genset FPT Italy

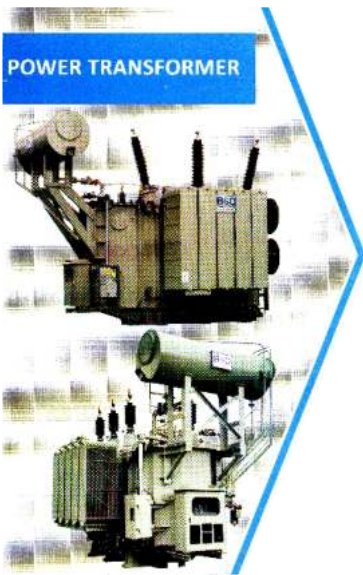


BLESS POWER Data

Powered by 

No.	BPF Gen-Set MODEL	FPT Engine Model	Rating Application	Leroy Somer Model	Rating Output 1500 rpm, 50HZ, 400V		GENERATING SET SPECIFICATION							ENGINE SPECIFICATION	
					KVA	KW	Dimensions			Weight Dry (mm)	Lube Oil Cap. (Liter)	Coolant Cap. (Liter)	Fuel Cons. (Ltr/hr)	Cylinder Arr. Bore x Stroke (mm)	Total Displ. (Liter)
							Length (mm)	Width (mm)	Height (mm)						
1	BPF 30P5	S800AM1.S550	(P)	TAL A42C	30,00	24,00	1445	625	1072	570	8,8	14,0	6,0	3 - 104 X 115	2,9
			(S)		33,00	26,40									
2	BPF 50P5	NEF45AM2.S500	(P)	TAL A42G	50,00	40,00	1800	780	1120	1354	12,8	18,5	11,6	4 - 104 x 132	4,5
			(S)		55,00	44,00									
3	BPF 80P5	NEF45SM3.S500	(P)	TAL A44C	80,00	64,00	1800	780	1120	1404	12,8	18,5	19,4	4 - 104 x 132	4,5
			(S)		90,00	72,00									
4	BPF 120P5	NEF45TM3.S500	(P)	TAL A44E	120,00	96,00	2500	780	1120	1454	12,8	18,5	27,6	4 - 104 x 132	4,5
			(S)		130,00	104,00									
5	BPF 125P5	NEF67SM1.S500	(P)	TAL A44E	125,00	100,00	2800	780	1423	1554	17,2	15,5	29,3	6 - 104 x 132	6,7
			(S)		135,00	108,00									
6	BPF 170P5	NEF67TM4.S500	(P)	TAL A44K	170,00	136,00	2800	780	1423	1564	17,2	15,5	36,6	6 - 104 x 132	6,7
			(S)		190,00	152,00									
7	BPF 200P5	NEF67TM7.S500	(P)	TAL A46B	200,00	160,00	2800	780	1423	1579	17,2	15,5	42,0	6 - 104 x 132	6,7
			(S)		220,00	176,00									
8	BPF 250P5	NEF67TE8W.S550	(P)	TAL A46D	250,00	200,00	2800	780	1423	1579	17,2	15,5	43,3	6 - 104 x 132	6,7
			(S)		270,00	216,00									
9	BPF 300P5	CURSOR87TE4.S550	(P)	TAL A46G	320,00	256,00	3020	1055	1510	1930	28,0	58,0	66,6	6 - 117 x 135	8,7
			(S)		350,00	280,00									
10	BPF P5450	CR13TE6W.S550	(P)	TAL A47B	430,00	344,00	3530	1258	1938	2600	32,0	38,1	89,9	6 - 135 x 150	12,8
			(S)		480,00	384,00									
11	BPF 500P5	CR13TE7W.S550	(P)	TAL A47C	500,00	400,00	3530	1258	1938	2600	32,0	38,1	100,6	6 - 135 x 150	12,8
			(S)		540,00	432,00									
12	BPF 600P5	CR16TE1W.S550	(P)	TAL 47 E	600,00	480,00	4030	1558	1938	2750	38,0	45,0	116,0	6 - 141 x 170	15,9
			(S)		660,00	528,00									

Power Transformer BambangDjaya



B&D
TRANSFORMER



Site Acceptance Test SERVICE

To ensure the transformer in a good condition and ready to operate, Site Acceptance test need to be done before commissioning.

- Site acceptance test will cover:
- > Insulation Resistance test
 - > Transformer Turn Ratio test (TTR)
 - > Breakdown Voltage test (BDV)
 - > Etc (depends on customer requirement)

Our field service engineers are equipped with comprehensive testing equipment which is periodically calibrated to ensure high accuracy test result.



B&D
TRANSFORMER
Your Quality Partner

Distribution Transformer (Oil-Immersed)

Oil-immersed Distribution Transformer is a distribution transformer where the inner part of transformer is submerged in the oil. The oil functions as isolation and cooling media. B&D Transformer provide Oil-Immersed Distribution Transformer either totally oil filled or N₂ gas cushioned up to 36 kV with capacity up to 30 MVA.

CONSTRUCTION :

- Cooling System : ONAN or ONAF
- Application : Indoor or Outdoor
- Type of Cooler : Panel Radiator Fins or Corrugated Fins
- Bushing Position : Top - Top, Top -Side, Side-Side
- Bushing Protection : w/ or w/o LV & HV Chamber

ACCESSORIES :

- Oil Level Indicator
- Oil Thermo Indicator
- Winding Thermo Indicator
- Pressure Relief Device
- RIS, DGPT 2, DMCR
- And Other Accessories

Applications :

- Industrial
- Commercial Building
- Oil and Gas



Hermetically Sealed - Corrugated Fins



Conservator Type - Corrugated Fins



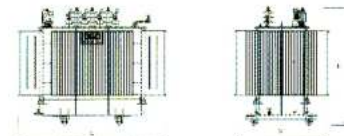
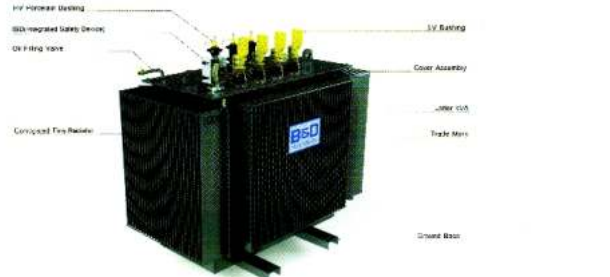
Single Phase CSP Transformer



N₂ Gas Cushion Type - Panel Radiator Fins



Phase Shifting Type - Panel Radiator Fins



Selection table 20 kV system voltage
Standard Design
IEC-60076

Capacity	No Load Losses	Load Losses	Impedance	Exciting Current	Oil Volume	Transformer Total Weight	Dimension Approximately (mm)		
kVA	Watt	Watt	%	%	Liters	kgs	Length	Width	Height
25	90	380	4	2.4	185	600	1005	500	1253
50	150	900	4	2.3	205	710	995	700	1335
100	340	1950	4	2.3	226	780	1030	640	1395
160	490	2400	4	2.3	300	1010	1320	710	1365
200	530	2900	4	2.2	320	1120	1260	800	1320
250	660	3800	4	2.1	375	1240	1390	910	1385
315	700	4600	4	2	380	1400	1545	1065	1365
400	930	5650	4	1.9	436	1630	1505	940	1605
630	1300	7690	4	1.8	570	2220	1700	1065	1525
800	1500	8100	4.5	2.5	670	2570	1800	1200	1710
1000	1600	12500	5	2.4	767	2600	1775	1185	1935
1250	2000	15000	5.5	2.7	825	2820	1845	1255	1880
1600	2200	19000	6	2	1047	3500	1985	2020	1845
2000	2700	25000	7	2	1300	4215	2140	1440	2015
2500	2800	28000	7	2	1535	5045	2265	1545	2160
3000	3400	31450	7.5	2	1830	5995	2365	1560	2150
3150	3700	32450	7.5	2	1980	6020	2455	1610	2210
3500	3700	32450	7.5	2	2200	7385	2640	1690	2185
4000	4450	44000	7.5	2	2480	8120	2695	1615	2480

*The table above is IEC-60076 standard design
**Other ratings available upon request

Note : The dimensions and weight are approximate only.
Final drawing will be issued after order is placed
Tolerance : ±5%





Cubicle & Medium Voltage Switchgear

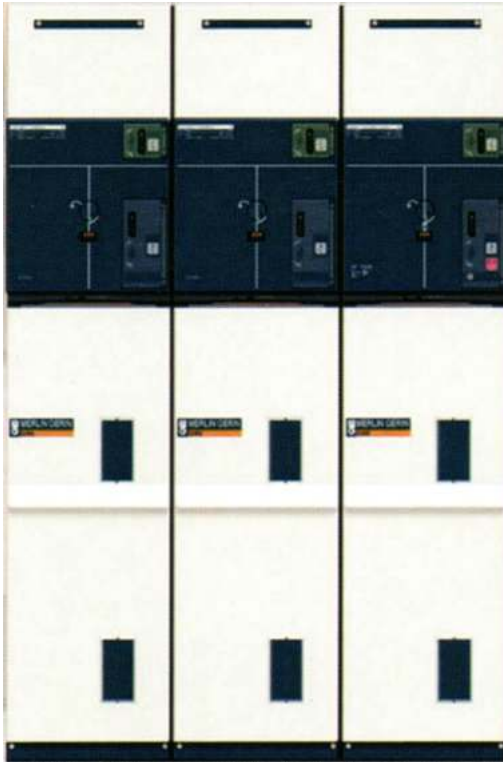
ABB



G&E



Schneider Electric

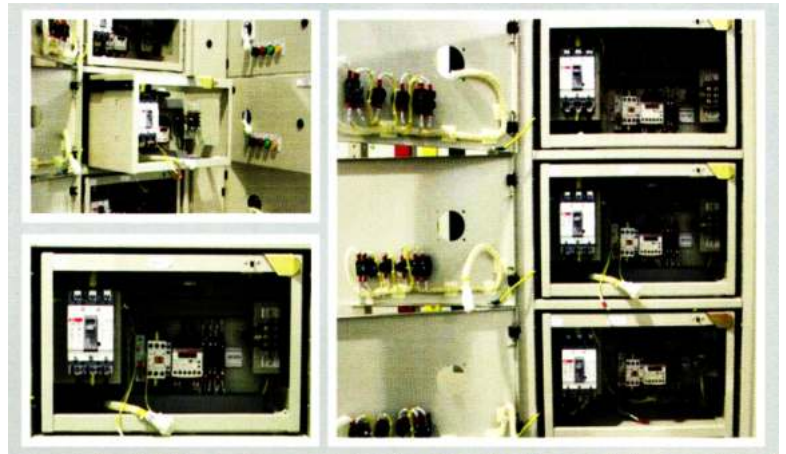


SIEMENS

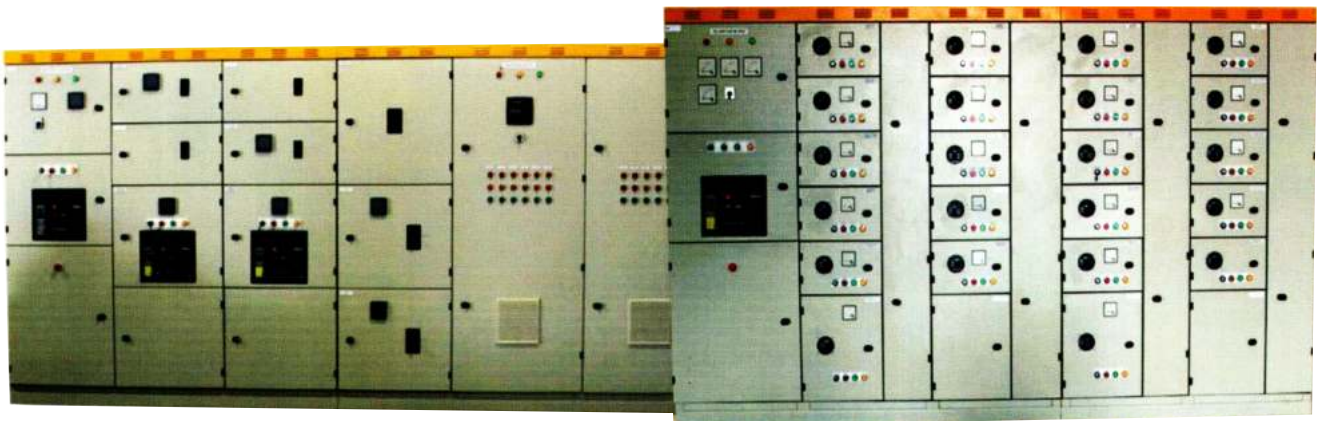


Panel Low-Voltage, MDP, & Capacitor Bank

Drawout Type (MCC Panel)



Compartmented Type (LV MDB, Capacitor Bank, and MCC Panel)



Fixed Type (LV MDB, Inverter Panel, and MCC Panel)



Control Desk

Panel ATS/AMF & Auxiliary Motor Control

Automation Control

*High Performance Panel
for Various Control Utilization
is available as option*

(please contact for detail).



AC PANEL

Heavy Duty Panels synchronize the electricity to the grid.

- * Excelent control functions.
- * Maintain power generation efficiency.
- * Support various electricity supply conditions.

TYPE PANEL

- ATS : Automatic Transfer Switch Panel
- ATS-AMF : Automatic Transfer Switch + Automatic Mains Failure Panel
- GSB : Generator Switchboard
- GCP1 : Automatic Synchronizing & Load Sharing Panel
- GCP2 : Manual Synchronizing & Load Sharing Panel
- GCP3 : Auto-Manual Synchronizing & Load Sharing Panel
- MDP : Main Distribution Panel
- LVMDP : Low-Voltage Main Distribution Panel
- SDP : Sub Distribution Panel
- MCC : Motor Control Center Panel
- CBP : Capasitor Bank Panel
- APC : Automation Control Panel PLC

ICA Solar PV System

ICA solar

SOLAR MODULE

MONOCRYSTALLINE

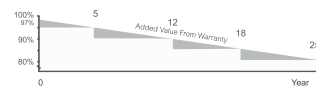
115-370 Wp



Powered by high-efficiency MONOCRYSTALLINE cells, this series of high performance modules provides the most cost-effective solution for lowering the LCOE of any PV systems large or small

LINEAR PERFORMANCE WARRANTY

- 10 Years Manufacturing Warranty
- 12 Years 90% Power Output
- 25 Years 80% Power Output



PID FREE
PID tested with excellent results under the harshest conditions

CRAFTED WITH PASSION

10 YEARS PRODUCT GUARANTEE UPGRADEABLE TO 25 YEARS AS A PREMIUM OPTION

CONSTANTLY HIGH CELL QUALITY
through strict quality examinations by high resolution electroluminescence and infrared measurements

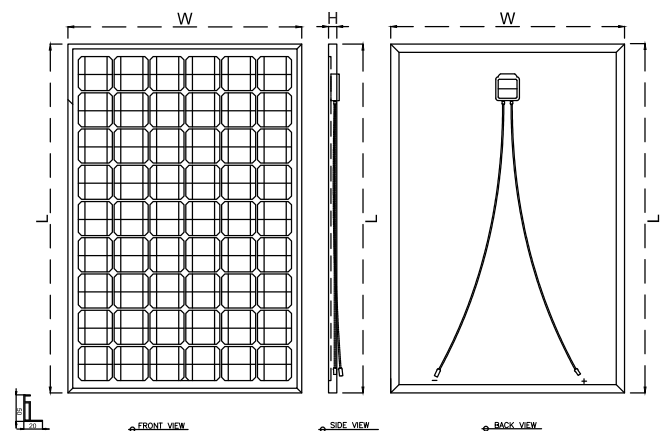
25 YEARS LINEAR PERFORMANCE WARRANTY

QUALITY SIGNED AND SEALED



PHYSICAL CHARACTERISTICS

Unit: mm(inch)



TECHNICAL SPECIFICATION

CHARACTERISTICS	UNIT	115W	130W	170W	220W	280W	340W	370W
Maximum Power (Pmax)	W	115	130	170	220	280	340	370
Power Tolerance	%	0-3	0-3	0-3	0-3	0-3	0-3	0-3
Maximum Power Voltage (Vmp)	V	18.80	18.90	18.80	38.40	32.10	38.40	39.30
Maximum Power Current (Imp)	A	6.12	6.88	9.04	5.73	8.72	8.85	9.41
Open Circuit Voltage (Voc)	V	23.00	23.10	23.00	47.00	38.20	46.30	48.30
Short Circuit Current (Isc)	A	6.48	7.29	9.59	6.07	9.35	9.35	9.85
Weight	Kg	7.70	8.40	11.00	15.20	19.00	23.00	23.00
Dimension of module (LxWxH)	mm	1020x670x30	1210x670x30	1470x670x30	1320x992x40	1640x990x35	1950x990x40	1950x990x40
Pmax Temperature Coefficient	%/°C			-0.45			-0.40	
Voc Temperature Coefficient	%/°C			-0.32			-0.29	
Isc Temperature Coefficient	%/°C			+0.06			+0.05	
Maximum System Voltage	VDC		700			1000		
Maximum Series Fuse Rating	A		10		20		15	
Operating Temperature	°C				-45 ~ +80			-40 ~ +85
NOCT	°C				45±2			

STC:1000W/m2.AM1.5 and 25°C cell temperature: NOCT : Nominal Operating Cell Temperature

ICA Solar System Accessories

PRODUCT RANGE

INVERTER CHARGER OFF-GRID

GRID-TIED INVERTER



SOLAR CHARGER CONTROLLER

LED LIGHT CONTROLLER

SOLAR HOME SYSTEM

MPPT



SHS AC

SHS DC

PWM



SOLAR STREET LIGHT



SOLAR BATTERY



VRLA AGM

OPzV SERIES

OPzS SERIES

SOLAR ACCESSORIES

DC INVERTER



ENERGY LIMITER

WIFI KIT



Vertex Solar PV System



BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE19
PRODUCT RANGE: 530-555W

555W+
MAXIMUM POWER OUTPUT

0~+5W
POSITIVE POWER TOLERANCE

21.2%
MAXIMUM EFFICIENCY



High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance of System) cost, shorter payback time
- Lowest guaranteed first year and annual degradation;
- Designed for compatibility with existing mainstream system components
- Higher return on Investment



High power Mono Perc up to 555W

- Up to 21.2% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



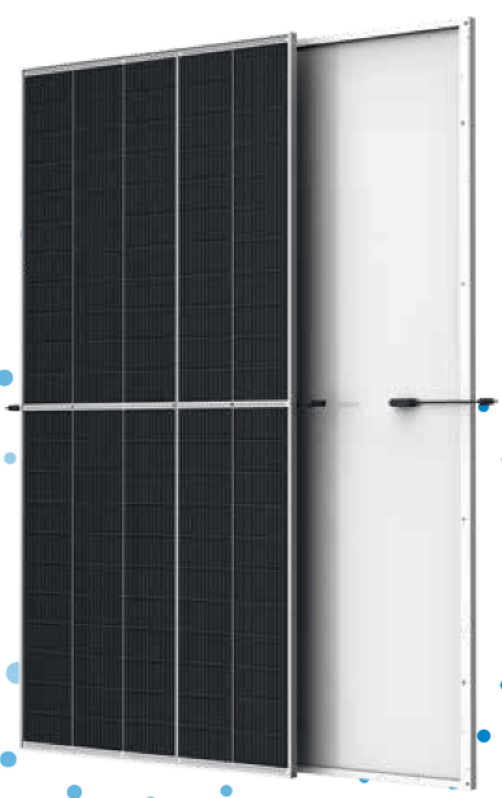
High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load

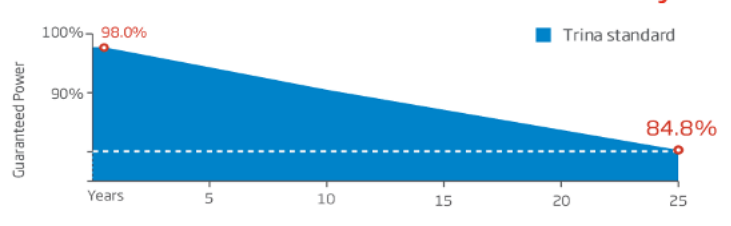


High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.34%) and operating temperature



Trina Solar's Backsheet Performance Warranty



Comprehensive Products and System Certificates

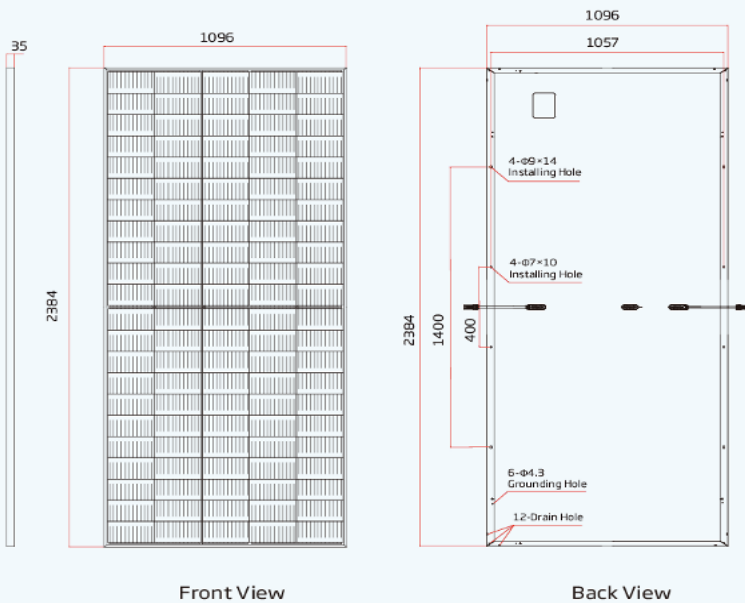
IEC61215/IEC61730/IEC61701/IEC62716/UL61730
 ISO 9001: Quality Management System
 ISO 14001: Environmental Management System
 ISO14064: Greenhouse Gases Emissions Verification
 ISO45001: Occupational Health and Safety Management System



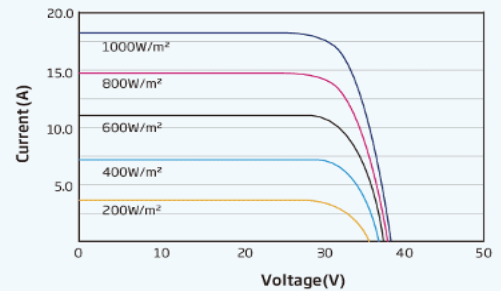
Vertex Solar PV System



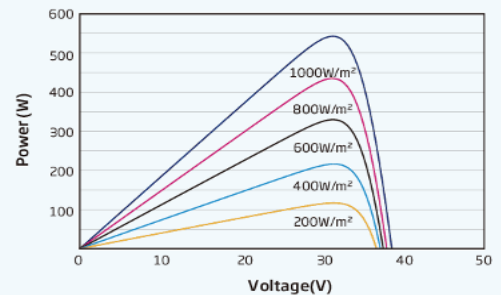
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(545 W)



P-V CURVES OF PV MODULE(545W)



ELECTRICAL DATA (STC)

Peak Power Watts- P_{MAX} (Wp)*	530	535	540	545	550	555
Power Tolerance- P_{MAX} (W)	0 ~ +5					
Maximum Power Voltage- V_{MPP} (V)	30.8	31.0	31.2	31.4	31.6	31.8
Maximum Power Current- I_{MPP} (A)	17.21	17.28	17.33	17.37	17.40	17.45
Open Circuit Voltage- V_{OC} (V)	37.1	37.3	37.5	37.7	37.9	38.1
Short Circuit Current- I_{SC} (A)	18.31	18.36	18.41	18.47	18.52	18.55
Module Efficiency η_m (%)	20.3	20.5	20.7	20.9	21.0	21.2

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AML.5. *Measuring tolerance: $\pm 3\%$.

ELECTRICAL DATA (NOCT)

Maximum Power- P_{MAX} (Wp)	401	405	409	413	417	420
Maximum Power Voltage- V_{MPP} (V)	28.6	28.8	29.0	29.2	29.3	29.5
Maximum Power Current- I_{MPP} (A)	14.01	14.06	14.10	14.15	14.19	14.23
Open Circuit Voltage- V_{OC} (V)	35.0	35.1	35.3	35.5	35.7	35.9
Short Circuit Current- I_{SC} (A)	14.76	14.80	14.84	14.88	14.92	14.95

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	110 cells
Module Dimensions	2384×1096×35 mm (93.86×43.15×1.38 inches)
Weight	28.6 kg (63.1 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Backsheet	White
Frame	35mm(1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²), Portrait: 280/280 mm(11.02/11.02 inches) Landscape: 1400/1400 mm(55.12/55.12 inches)
Connector	TS4

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C ($\pm 2^\circ\text{C}$)
Temperature Coefficient of P_{MAX}	-0.34%/°C
Temperature Coefficient of V_{OC}	-0.25%/°C
Temperature Coefficient of I_{SC}	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40 ~ +85°C
Maximum System Voltage	1500V DC (IEC) 1500V DC (UL)
Max Series Fuse Rating	30A

WARRANTY

12 year Product Workmanship Warranty
 25 year Power Warranty
 2% first year degradation
 0.55% Annual Power Attenuation

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 31 pieces
 Modules per 40' container: 620 pieces



Control Modules



DSE - Deepsea Controller

Controller Module for Genset (DeepSea Electronics)



Manual & Auto Start Control Modules | Auto Mains Failure Control Modules | Load Sharing & Synchronising Control Modules



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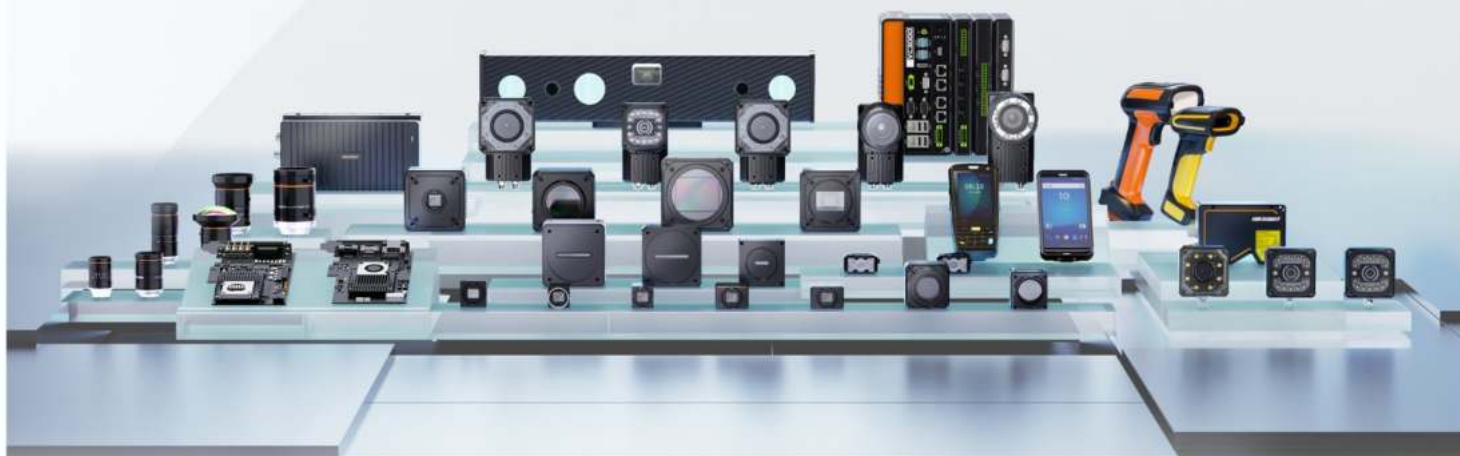
SenVis (Sensor Vision), ScanCode

HIKROBOT

Image Smart Code Reader



Machine Vision Product Family



HIKROBOT

Vision System PC Based



Mobile Robot

HIKROBOT

LMR






Latent Mobile Robot

LMR is a leading mobile robot product characterized by its lifting mechanism. LMR has an optimized motion performance and enhanced safety protection.

Specification

Latent Mobile Robot (LMR)

									
		Q2L-300-A		Q3-600-C		Q7-1000-D		Q7-1500-D	
		2D code	SLAM	2D code	SLAM	2D code	SLAM	2D code	SLAM
General	Navigation	2D code	SLAM	2D code	SLAM	2D code	SLAM	2D code	SLAM
	Dimension L*W*H (mm)	750*540*300		940*650*253		1180*860*260		1180*860*265	
	Rotation diameter (mm)	780		996		1265		1265	
	Lifting height (mm)	70		60		60		60	
	Ground clearance(mm)	30		25		25		25	
	Lifting pad size (mm)	728*540		850*650		980*800		980*800	
	Lifting motor	Electric		Electric		Electric		Electric	
	Weight (kg)	128	127	135		225		227	280
Rated load (kg)	300		600		1000		1500		
Screen	●		●		●		●		
Safety Protection	Front protection	Laser		Laser		Laser		Laser	
	Side protection	—		○		○		○	
	Rear protection	Ultrasonic		○		○		○	
	Sound alarm	●		●		●		●	
	Bumper strip	Front/Rear		Front/Rear		Front/Rear		Front/Rear	
Scram button	Front/Rear		Front/Rear		Front/Rear		Front/Rear		
Motion Performance	Operating speed(empty load) (mm/s)	1500	2000	2000		1800		1800	
	Operating acceleration(empty load) (mm/s ²)	1000	500	1000		800		600	
	*Position accuracy (mm/°)	±5/±0.5	±10/±1	±5/±0.5	±10/±1	±5/±0.5	±10/±1	±5/±0.5	±10/±1
Battery Performance	*Endurance (h)	8		8		8		8	
	Charging time (h)	≤1.5		≤1.5		≤2		≤2	

* The positioning accuracy test under ideal conditions, the actual result is affected by environment

* Endurance time tested under rated condition







FMR



Forklift Mobile Robot

FMR focuses on the automatic transfer of standard bins/pallets. It adopts high precision laser SLAM navigation, vision navigation, etc.

Forklift Mobile Robot (FMR)

								
Model		F1-1000U-A	F1-1000U-C	F1-300T-A	F4-1000-C	F3-1500-A	F4-1500-A	
General	Dimension L*W*H (mm)	1640*990*1990	1639*990*1990	1093*745*1258	1640*990*1990	1632*870*1943	1892*940*2143	
	Weight (kg)	900	845	280	715	497	871	
	Rated load (kg)	600	1000	300	1000	1500	1500	
	Load center (mm)	600	600	381.5	600	600	600	
	Fork lifting height (mm)	1344±3 / 2044±3	1950±3	338	1331±3 / 2031±3 (customize to 3000mm)	200	3000	
	Maximum mast height (mm)	1990/2681	2684	—	1990/2682	—	3428	
	Fork dimension (s/e/l)(mm)	60/206/1220	60/255/1220	47/270/744	60/180/1220	60/170/1234	65/170/1244	
Motion performance	Fork spread (mm)	551(customizable)	720(customizable)	270	680(customizable)	680(customizable)	600(customizable)	
	Pallet size (mm)	1200*1000	1200*1000	customize	1200*1000	1200*1000	1200*1000	
	Rated speed(rated/empty load) (mm/s)	1000/1200	1000/1200	1000/1000	1000/1200	1200/1500	1000/1200	
	Position accuracy (mm)	±5	±5	±5	±10	±10	±10	
	Angular accuracy(°)	±1	±1	±1	±1	±1	±1	
	Driving mode	Omni-directional, forward, backward, sideway, skew, rotation, arc.				Steering wheel driving, forward, backward, rotation, arc.		
	Min. operation aisle(1200*1000 pallet/100mm at each side)(mm)	1988	1988	—	2052	2062	2246	
Battery performance	Endurance (h)	6~8	6~8	8	6~8	6~8	6~8	
	Charging time (after deep discharge)(h)	≤1.5	≤2	≤1.5	≤2	≤2	≤2	
Safety protection	Laser obstacle avoidance	●	●	●	●	●	●	
	Driving recorder	●	●	●	●	●	●	
	Bumper strip	●	●	●	●	●	●	
	Pallet in-position detection	●	●	●	●	●	●	
	Fork infrared sensor	●	●	—	●	●	●	
	Scram button	●	●	●	●	●	●	
	Indication light	●	●	●	●	●	●	
others	Sound alarm	●	●	●	●	●	●	
	Display screen	10.1	10.1	4.3	10.1	10.1	10.1	
	Navigation mode	Laser Slam	Laser Slam	Laser Slam	Laser Slam	Laser Slam	Laser Slam	
	Pallet recognition	○	○	—	○	○	○	
	Visual barcode reading	○	○	○	○	○	○	
	RFID reader	○	○	○	○	○	○	
Fork size customization	○	○	○	○	○	○		
Mast customization	○	○	○	○	—	○		

Customer References

Reference List

No	Project Name	Developer	Location	Quantity	Panel Type	Capacity (kVA)
1.	PLTD Pulo Pisang	PT. BimaGolten Powerindo (Makassar)	Sigli - NAD	10	Auto Synchronizing	1740
2.	PLTD Tapak Tuan	PT. Sukses Tata Niaga (Medan)	Tapaktuan - (NAD)	3	Auto Synchronizing	1740
3.	PLTD Tapak Tuan	PT. Sukses Tata Niaga (Medan)	Tapaktuan - (NAD)	2	Auto Synchronizing	1740
4.	PLTD Singkil	PT. Sinar Lestai Utama (Medan)	Singkil - NAD	6	Auto Synchronizing	1740
5.	PLTD Langsa Lama	PT. Sinar Lestari Utama (Medan)	Langsa - NAD	11	Auto Synchronizing	1740
6.	PLTD Laskin, Sinabang	PT. Sinar Lestari Utama (Medan)	Simeleu - NAD	2	Auto Synchronizing	1740
7.	PLTD Bulukumba	PT. Bima Golten Powerindo (Makassar)	Bulukumba - Sulsel	11	Auto Synchronizing	1740
8.	PLTD Parepare	PT. Bima Golten Powerindo (Makassar)	Parepare - Sulsel	1	Auto Synchronizing	1740
9.	Pemda Jaya Pura	PT. Karya Prima (Jayapura)	Jayapura	1	ATS - AMF	375
10.	Pemda Jaya Pura	PT. Karya Prima (Jayapura)	Jayapura	1	Capasitor Bank	250
11.	PLTD Kalibobo	PT. Utama Prima Makmur (Surabaya)	Nabire - Papua	4	Auto Synchronizing	1740
12.	PLTD Karangmulia	PT. Utama Prima Makmur (Surabaya)	Biak - Papua	4	Auto Synchronizing	1740
13.	High Point Apartment	PT. Sambandha Wahana	Surabaya - Jatim	1	LVMDP	500
14.	PLTD Sambas	PT. Ensas Pelita Usaha (Pontianak)	Sambas - Kalbar	5	Auto Synchronizing	680
15.	PLTD Sekadau	PT. Ensas PelitaUsaha (Pontianak)	Sekadau - Kalbar	8	Auto Synchronizing	680
16.	PLTD Kuala Kapuas	PT. Adiquato (Banjarmasin)	Kuala Kapuas - Kalteng	11	Auto Synchronizing	1740
17.	Haris Kuta River View	PT. Sambandha Wahana	Denpasar - Bali	3	Auto Synchronizing	500
18.	Haris Junior Hotel	PT. Sambandha Wahana	Denpasar - Bali	1	LVMDP	500
19.	PLTD Bacan	PT. Diesel Energitama Perkasa (Jkt)	Halmahera	8	Auto Synchronizing	500
20.	PLTD Masohi	PT. Diesel Energitama Perkasa (Jkt)	Halmahera	8	Auto Synchronizing	1250
21.	PLTD Kolaka	PT. Mandiri Prima Teknik (Makassar)	Kolaka - Sultra	6	Auto Synchronizing	1740
22.	PT. Amerta Indah Otsuka	PT. Norgantara Surya Perkasa (Surabaya)	Pasuruan - Jatim	2	Genset & LVMDP	2000
23.	PT. Sriwahana	PT. Mitra Daya Tehnika (Surabaya)	Surakarta - Jateng	1	Genset & LVMDP	650
24.	PT. PGN	PT. Mitra Daya Tehnika (Surabaya)	Semarang - Jateng	1	Genset & PKG	100
25.	PT. Temprina Group	PT. Era Perkasa Maju Cemerlang (Semarang)	Surabaya - Jatim	1	Genset & LVMDP	550
26.	PT. Kereta Api Indonesia	PT. Norgantara Prima Perkasa (Semarang)	Jakarta	2	Genset & LVMDP	500
27.	PT. Indonesia Power	PT. Norgantara Prima Perkasa (Semarang)	Semarang - Jateng	1	Transformator	2000
28.	PT. Sariguna (Cleo)	PT. Norgantara Prima Perkasa (Semarang)	Pasuruan - Jatim	2	LVMDP & Capasitor Bank	1000
29.	PT. Pertamina Sangatta	PT. BMJ Semarang	Kalimantan Timur	2	Auto Synchronizing	1400
30.	PT. Bank BCA Sentul	PT. Asia Clean Energy (Jkt)	Sentul - Jakarta	2	Auto Synchronizing	1500



Project References



Project PLTD Talasa

Genset & PKG 2 x 2000 KVA
PT. Amerta Indah Otsuka



Switchboard Panel PLTD

Power Transofer B&D
Lombok GECC Powerplant




PLTD Makassar 12x11,5MW





THANK YOU

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