Challenge and
Passion for a Better World

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Challenge and
Passion for a Better World

Enertech Co., Ltd.

ABOUT US

Enertech Co., Ltd. was founded in 2003 and provides energy-saving products to the global market.

We produce Power Distribution Transformers, ESS (Energy Storage System), Power-Saver, and they are recognized as excellent products in technology and performance. Our products are installed in buildings, factories, schools, hospitals, public facilities, shopping malls, and so on.

We have 17 patents and our differentiated technologies enable our products to perform better than other competitors. We always provide the best quality products with excellent technology and we will do our best for our customers' benefit.

Distribution Hybrid Transformer

▪ What's a Hybrid Transformer?

A Hybrid transformer is a power distribution transformer with harmonics reduction techniques. It comes with two types(cast-resin transformers and oil-immersed transformers) and it also can be customized up to maximum rated voltage 36kV and rated capacity 3MVA according to the request.
The Hybrid transformer was developed for the first time in the world by Enertech Co., Ltd. and we have registered patents in Korea, the United States, and China. It is also the only product that has been certified by the Korean government with its new outstanding technology.

Cast-resin Hybrid Transformer

Oil-immersed Hybrid Transformer

▪ Why Hybrid Transformer?

Efficiency and Performance ↑ & Power Loss ↓

1 Harmonic Reduction up to 65%

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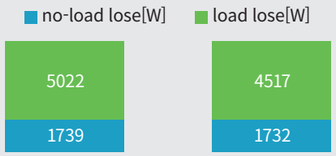
2 Power Loss Reduction 7.6%



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3 Electric Charges Reduction 4.8%

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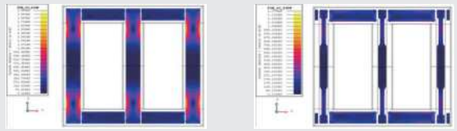
4 Hot-spot Temperature Reduction 13.3%



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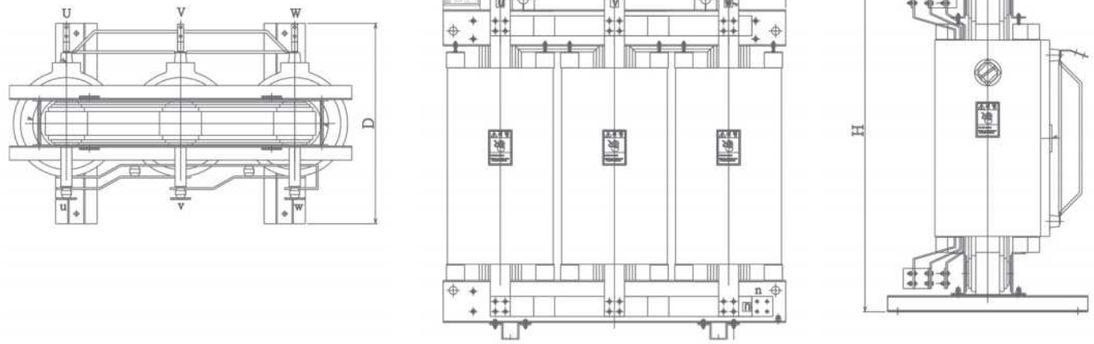
※ It may vary depending on the type of load and the environment in which it is used.

▪ Specification (Cast-resin type)

Application Stardard

Installation place		indoor / outdoor			
Frequency		50/60Hz			
Insulation Class		B or F			
Allowable winding temperature		80°C			
Standard Insulation level	System voltage	24kV	7.2kV	3.6kV	0.6kV or less
	Frequency Withstand Voltage	50kV	20kV	10kV	3kV
	Impulse Withstand Voltage	95kV	60kV	40kV	-
Applicable standard		KSC 4311, IEC 60726			
Primary rated voltage		22.9 kV		6.6/3.3 kV	
Primary TAP voltage		F23.9-R22.9-21.9-19.9		F6.9-R6.6-6.3-6.0-5.7 F3.45-R3.3-3.15-3.0-2.85	
Secondary rated voltage		380/220V, 440V			
Constant		3Phase			
Angular displacement		Dzn0			
Rated capacity		up to 2.5MVA			

Dimensions



22.9kV / 380V or 400V (Cast-resin type)

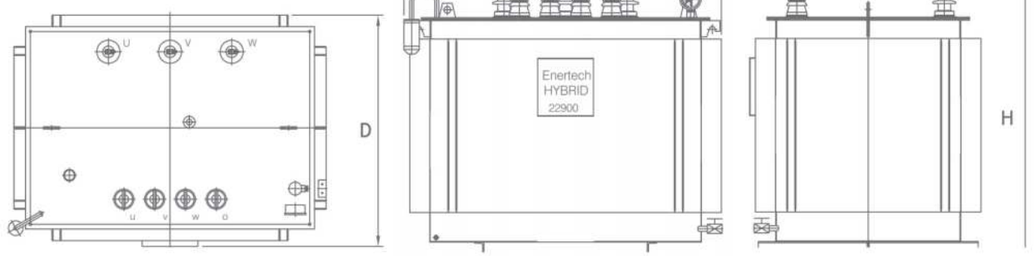
Capacity [kVA]	impedance (±10%)	Voltage Fluctuation Rate [%]	No load current [%]	Efficiency (Load 50%)	Dimensions			Weight [kg]
					W	D	H	
100	4.5	2.2	2.0	98.9	1340	850	1340	1100
200	4.5	2.0	1.7	99.0	1400	860	1580	1350
300	5.5	1.7	1.5	99.1	1540	910	1530	1780
400	5.5	1.6	1.4	99.2	1560	910	1720	2300
500	6.5	1.5	1.3	99.2	1560	910	1720	2450
600	6.0	1.4	1.2	99.3	1740	950	1800	3100
750	6.0	1.4	1.1	99.3	1780	980	1900	3250
1000	6.0	1.3	1.0	99.4	1920	1000	2170	4500
1250	7.0	1.3	1.0	99.4	1980	1055	2370	5100
1500	7.5	1.2	0.9	99.5	2240	1200	2560	7100
2000	8.0	1.1	0.8	99.5	2430	1300	2700	8800
2500	8.0	1.1	0.7	99.5	2570	1400	2890	11000

▪ Specification (Oil-immersed type)

Application Stardard

Installation place		indoor / outdoor			
Frequency		50/60Hz			
Insulation Class		A			
Allowable winding temperature		55°C			
Standard Insulation level	System voltage	24kV	7.2kV	3.6kV	1.1 or less
	Frequency Withstand Voltage	50kV	22kV	16kV	2.5kV
	Impulse Withstand Voltage	150kV	60kV	45kV	-
Applicable standard		KSC 4317, IEC 60076-1			
Primary rated voltage		22.9 kV		6.6/3.3 kV	
Primary TAP voltage		F23.9-R22.9-21.9-19.9		F6.9-R6.6-6.3-6.0-5.7 F3.45-R3.3-3.15-3.0-2.85	
Secondary rated voltage		380/220V, 440V			
Constant		3Phase			
Angular displacement		Dzn0			
Rated capacity		up to 3.0MVA			

Dimensions



22.9kV / 380V or 400V (Oil-immersed type)

Capacity [kVA]	impedance (±10%)	Voltage Fluctuation Rate [%]	No load current [%]	Efficiency (Load 50%)	Dimensions			Weight [kg]
					W	D	H	
100	6.0	1.7	3.5	99.0	1420	930	1480	1600
200	5.1	1.7	3.5	99.1	1350	950	1480	1600
300	5.5	1.6	3.0	99.2	1410	1000	1540	2000
400	4.3	1.6	3.0	99.2	1350	980	1560	2050
500	5.2	1.6	3.0	99.2	1390	1040	1590	2300
600	5.5	1.5	3.0	99.3	1600	1070	1710	3150
750	5.0	1.5	3.0	99.3	1600	1070	1710	3150
1000	5.6	1.4	3.0	99.3	1750	1150	1800	4000
1250	5.8	1.4	3.0	99.4	1800	1300	2000	5300
1500	6.0	1.4	2.5	99.4	1800	1300	2000	5300
2000	6.0	1.3	2.5	99.4	1900	1450	2030	5850
2500	6.9	1.3	2.5	99.5	2550	1750	2370	7300

Distribution Conventional Transformer

▪ Cast-resin Transformer

We have been developing and manufacturing cast-resin transformer for 15 years, and now it is becoming more popular due to strict environmental regulation and increased concerns about fire explosion. Our Cast-resin transformer meets the highest environmental, climatic, and fire behavior standards as certified by CESI for climatic class C2, environmental class E2, and fire behavior class F1. High level of quality is also verified through type tests performed by KEMA. We manufacture casting resin transformers for extensive infrastructure and industrial use such as buildings, residential development, factories, electric motors, underground stations, cranes at ports, ships, or offshore platforms.

Three Phase Transformer

Maximum. Capacity	10MVA
Maximum. Rated voltage	33KV
Frequency	50, 60Hz
Phase	3 phase
Insulation Class	B or F
Cooling Method	AN/AF

Single Phase Transformer

Maximum. Capacity	5kVA
Maximum. Rated voltage	33KV
Frequency	50, 60Hz
Phase	1 phase
Insulation Class	B or F
Cooling Method	AN/AF

▪ Why Cast-resin Transformer?

Higher short circuit strength

The cast coil with Epoxy resin with the high electrical and mechanical strength is manufactured in a robust structure to prevent short circuit accident and external impacts.

High overoad capacity

The cast coil with Epoxy resin has a high thermal time constant factor, therefore it can endure much higher overloads for a short time.

low loss, Low noise

Low-loss and low-noise are embodied through the optimal compact design using silicon steel of low-loss and high-quality insulating materials.

Maintenance free

The cast coil with epoxy resin does not degrade insulation properties due to humidity and moisture, making it easy to inspect and maintain transformers including coils.

Moisture proof

The cast coil with Epoxy resin has an enhanced dielectric strength and thus it doesn't suffer from humidity and the aging effects even after a long term without maintenances.

Fire resistant

Casting coils using epoxy resin with its non-flammable property have a self-ignition performance so that they can be free from fire caused by electric sparks.

Compact size

By using epoxy resin to cast in high vacuum and design and manufacture coil with insulation material with good dielectric strength, a compact and light type can be built.

▪ Specification (Cast-resin type)

Application Stardard

Installation place		indoor / outdoor			
Frequency		50/60Hz			
Insulation Class		B or F			
Allowable winding temperature		80°C			
Standard Insulation level	System voltage	24kV	7.2kV	3.6kV	0.6kV or less
	Frequency Withstand Voltage	50kV	20kV	10kV	3kV
	Impulse Withstand Voltage	95kV	60kV	40kV	-
Applicable standard		KSC 4311, IEC 60726			
Primary rated voltage		22.9 kV		6.6/3.3 kV	
Primary TAP voltage		F23.9-R22.9-21.9-19.9		F6.9-R6.6-6.3-6.0-5.7 F3.45-R3.3-3.15-3.0-2.85	
Secondary rated voltage		6.6/3.3kV	380-220V	380-220V	
Constant		3Phase			
Angular displacement		Dd0 / Dyn11 and etc			
Rated capacity		up to 5MVA			

22.9kV / 380V or 400V (Cast-resin type)

Capacity [kVA]	impedance (±10%)	Voltage Fluctuation Rate [%]	No load current [%]	Efficiency (Load 50%)	Dimensions			Weight [kg]
					W	D	H	
100	6.0	2.2	7.0	98.9	1400	800	1500	1200
200	6.0	2.0	5.5	99.0	1400	800	1650	1500
300	6.0	1.7	4.5	99.1	1430	800	1650	1600
400	6.0	1.6	4.0	99.2	1520	800	1650	1900
500	6.0	1.5	3.5	99.2	1500	800	1750	2000
600	6.5	1.4	3.0	99.3	1650	800	1750	2500
750	6.5	1.4	3.0	99.3	1650	1000	1750	2700
1000	7.0	1.3	3.0	99.4	1810	1000	1850	3500
1250	7.0	1.3	2.5	99.4	1950	1000	1950	4300
1500	7.0	1.2	2.5	99.5	2040	1000	2120	5200
2000	8.0	1.1	2.0	99.5	2145	1100	2130	5900
2500	8.0	1.0	2.0	99.5	2250	1100	2150	6300
3000	8.5	1.0	2.0	99.5	2350	1100	2210	6900

6.6kV / 380V or 400V (Cast-resin type)

Capacity [kVA]	impedance (±10%)	Voltage Fluctuation Rate [%]	No load current [%]	Efficiency (Load 50%)	Dimensions			Weight [kg]
					W	D	H	
100	5.0	2.1	6.5	98.9	1100	800	1350	1100
200	6.0	1.9	4.5	99.0	1150	800	1400	1400
300	6.0	1.7	4.0	99.1	1200	800	1400	1500
400	6.0	1.6	4.0	99.2	1250	800	1500	1750
500	6.0	1.5	3.0	99.3	1250	800	1500	1950
600	6.5	1.5	3.0	99.3	1350	800	1600	2150
750	6.5	1.4	2.5	99.3	1400	1000	1600	2300
1000	7.0	1.3	2.5	99.4	1550	1000	1750	3200
1250	7.0	1.2	2.0	99.4	1700	1000	1750	3900
1500	7.0	1.2	2.0	99.5	1800	1000	1850	4500
2000	8.0	1.1	2.0	99.5	1850	1100	1850	5100
2500	8.0	1.1	2.0	99.5	1900	1100	2000	5800
3000	8.5	1.1	2.0	99.5	2000	1100	2000	6200

▪ Oil-immersed Transformer

Insulating oil is widely used in power generation, power grid infrastructures, and industrial applications to cool down transformers. With more than 30 years' experience in engineering and manufacturing, we have been recognized as a quality supplier of oil-immersed transformers, and we export the products to more than 20 countries worldwide. Our oil-immersed transformers were type tested from KEMA and KERI, and a short circuit test was performed successfully for the 20MVA transformer.

Power Transformer

Max. Capacity	70MVA
Max. Rated voltage	72KV
Frequency	50, 60Hz
Phase	1Ø, 3Ø
Insulation	A Class
Cooling	ONAN, ONAF
Standard	IEC, IEEE, ANSI, NEMA
Oil preserving	Conservator Type Breather Type, Sealed Type
Bushing Insulation	cable-box, bus-duct, open-top

Distribution Transformer

Max. Capacity	3MVA
Max. Rated voltage	34.5KV
Frequency	50, 60Hz
Phase	1Ø, 3Ø
Insulation	A Class
Cooling	ONAN, ONAF
Standard	IEC, IEEE, ANSI, NEMA
Oil preserving	Conservator Type Breather Type, Sealed Type
Bushing Insulation	cable-box, bus-duct, open-top

Pol Mounted Transformer

Max. Capacity	1MVA
1Phase Max. voltage	up to 22.9KV
3Phase Max. voltage	up to 34.5KV
Frequency	50, 60Hz
Phase	1Ø, 3Ø
Insulation	A Class
Standard	IEC, IEEE, ANSI, NEMA

PAD Mounted Transformer

Max. Capacity	5MVA
Max. Rated voltage	34.5KV
Frequency	50, 60Hz
Phase	1Ø, 3Ø
Insulation	A Class
Standard	IEC, IEEE, ANSI, NEMA

▪ Why Oil-immersed Transformer?

Coil

There are different structures and methods of coil winding according to its capacity, volume, and usage. Enertech applied the optimal coil winding obtained through years of research and development. The size of the conductor is designed to tolerate allowable current, temperature rise, and the electromagnetic force that occurs in case of external short-circuit. The concentric arrangement that inserts primary and secondary coil based on core has been taken as a standard method of arrangement with the insulation classification and mechanical force.

Core

The iron core is made of highly permeable magnetic silicon steel laminated with no secular variation. It is designed to minimize the vibration and noise during operation by minimizing no-load current and loss through precision cutting processes. The junction between Leg and Yoke Core has been manipulated through precision processing of 45°C to take advantage of the directivity of rolling, and it has also gone through annealing at the high temperature of 800°C to eliminate magnetic properties.

Conservator

In the case of a conservator mounting transformer, the conservator and external cover of a transformer is connected through an appropriate pipe with an oil gauge attached to it. In addition, the conveyor and the case are detachable if needed as they are assembled by bolts.

Tank

Made of cold-rolled steel, the tank can withstand internal pressure. Moreover, it was manufactured with sturdy materials to prevent any deformation caused by external shocks during transport.

▪ Specification (Oil-immersed type)

Application Stardard

Installation place		indoor / outdoor			
Frequency		50/60Hz			
Insulation Class		A			
Allowable winding temperature		55°C			
Standard Insulation level	System voltage	24kV	7.2kV	3.6kV	1.1 or less
	Frequency Withstand Voltage	50kV	22kV	16kV	2.5kV
	Impulse Withstand Voltage	150kV	60kV	45kV	-
Applicable standard		KSC 4317, IEC 60076-1			
Primary rated voltage		22.9 kV		6.6/3.3 kV	
Primary TAP voltage		F23.9-R22.9-21.9-19.9		F6.9-R6.6-6.3-6.0-5.7 F3.45-R3.3-3.15-3.0-2.85	
Secondary rated voltage		6.6/3.3kV	380-220V	380-220V	
Constant		3Phase			
Angular displacement		Dd0 / Dyn11 and etc			
Rated capacity		up to 5MVA			

3Phase 22.9kV / 380-23Phase 22.9kV / 380-220V (Oil-immersed Type)

Capacity [kVA]	Efficiency		Noise Level [dB]	Dimensions			Oil [ℓ]	Weight [kg]
	Max.	Min.		W	D	H		
100	99.0	98.0	53	1,000	700	1,300	200	650
150	99.0	98.1	53	1,000	800	1,350	210	800
200	99.0	98.2	53	1,100	940	1,350	255	1,000
300	99.1	98.4	53	1,100	1,000	1,400	290	1,200
400	99.1	98.4	54	1,100	1,150	1,400	320	1,400
500	99.1	98.5	55	1,200	1,200	1,450	370	1,600
600	99.2	98.5	55	1,200	1,350	1,450	400	1,800
750	99.2	98.6	56	1,250	1,500	1,500	490	2,150
1000	99.3	98.7	56	1,250	1,700	1,500	500	2,500
1250	99.3	98.8	57	1,450	1,700	1,850	900	3,500
1500	99.3	98.8	57	1,450	1,800	1,950	950	4,000
2000	99.3	98.9	57	2,000	2,000	2,250	1,500	5,500
2500	99.4	99.0	58	2,250	2,250	2,600	1,600	6,500
3000	99.4	99.1	59	2,400	2,400	2,700	1,900	7,000

※ Remark : Top-Bushing type

Capacity [kVA]	Efficiency		Noise Level [dB]	Dimensions			Oil [ℓ]	Weight [kg]
	Max	Min		W	D	H		
100	99.0	98.0	53	1,100	1,550	1,150	230	750
150	99.0	98.1	53	1,150	1,550	1,150	250	950
200	99.0	98.2	53	1,150	1,600	1,200	300	1,150
300	99.1	98.4	53	1,300	1,600	1,250	350	1,400
400	99.1	98.4	54	1,500	1,700	1,300	430	1,600
500	99.1	98.5	55	1,650	1,750	1,350	450	1,900
600	99.2	98.5	55	1,750	1,800	1,400	500	2,150
750	99.2	98.6	56	1,900	1,850	1,400	580	2,550
1000	99.3	98.7	56	2,100	1,900	1,450	600	3,000
1250	99.3	98.8	57	2,300	1,950	1,500	1,100	4,000
1500	99.3	98.8	57	2,500	2,000	1,500	1,140	4,700
2000	99.3	98.9	57	2,600	2,050	1,600	1,800	6,400
2500	99.4	99.0	58	2,800	2,100	1,800	1,900	8,000
3000	99.4	99.1	59	3,000	2,200	2,000	2,250	8,500

※ Remark : Side-Bushing type

▪ Performance

Enerkeeper Power-saver

▪ What's Enerkeeper power-saver?

Enerkeeper is a power-saving device that can reduce electricity bills by up to 15 percent. Not only does it reduce power loss but also improves power quality by reducing harmonics, inequality, and reactive power. It was developed in 2003 and received patents and certifications from the Korean government in recognition of its technological prowess and outstanding performance. It can be installed in homes, shopping malls, buildings, factories, and it has been exported to more than 10 countries around the world.

Single phase
[3~30kVA]

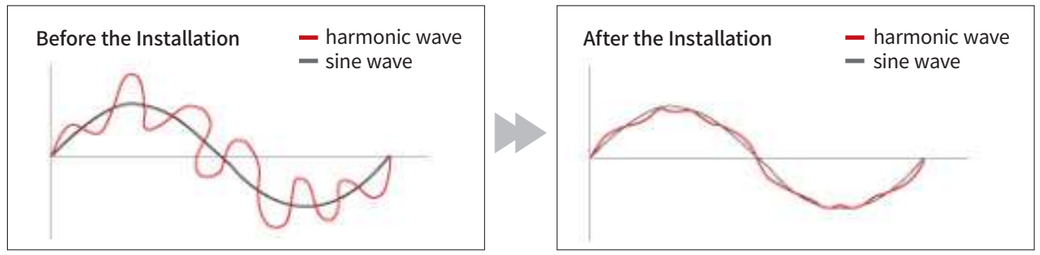
Three phase
[30~75kVA]

Three phase
[100~3000kVA]

▪ Why Enerkeeper power-saver?

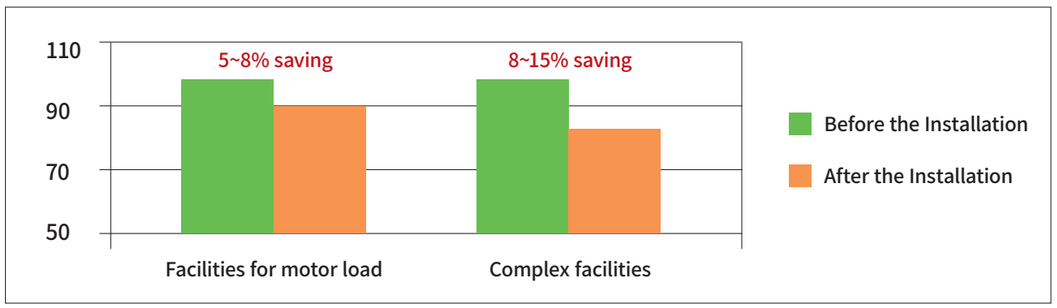
Improved Power quality

Can help to improve the power quality by eliminating the harmonic, unbalance, and inactive power that could be generated by non-linear loads.



Electric charges can be reduced by 5~15%

It can reduce unnecessary power losses that can be caused by harmonics, imbalances, and inactive power, thereby reducing electricity costs by 5-15%.



Green management with low carbon emission

In addition to saving energy, carbon emissions can also be reduced for the environment. (When 1kW is reduced, 424g of CO_2 can be reduced and 42.4P of the carbon emission right can be gained)

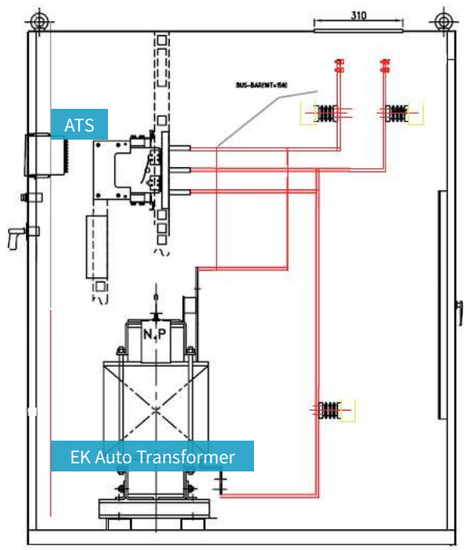
Efficiency of facilities can be enhanced, and their life span can be extended

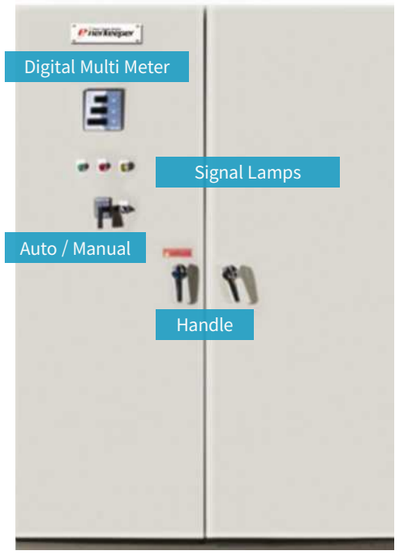
▪ Specification (Enerkeeper power-saver)

Auto Transformer Core parts of an Enerkeeper Power-Saver

ATS(Auto Transfer Switch) Automatic by-pass switching device when over-current

Fan Operates according to the internal temperature setting





Item	Standard rating			
Place of installation	Indoors / Outdoors			
Frequency	60Hz / 50Hz			
Type of insulation	Category H			
Temperature increase	Coil: 130°C / Insulation material: 180°C			
Applied standard	KSC 4311 / IEC 60076-1			
Phase	3 phases			1 phases
Primary rated voltage (V)	220	380	440	220
Secondary rated voltage (V)	210	365	422	211
Rated capacity (KVA)	N/A	30	N/A	6
		50		8
		75		10
	100	100	100	N/A
	200	200	200	
	300	300	300	
	400	400	400	
	500	500	500	
	600	600	600	
	750	750	750	
	1,000	1,000	1,000	
	1,250	1,250	1,250	
	1,500	1,500	1,500	
	1,750	1,750	1,750	
	2,000	2,000	2,000	
	2,500	2,500	2,500	

▪ Performance

Country	Total Capacity	Facility
UAE	1500kva	Hotel in Dubai, Grand Hyatt Dubai
Vietnam	700kva	Factory Stainless steel water tank & sink in Hanoi, Son Ha
	700kva	Factory Battery manufacturing, Tia Sang
	1500kva	Factory Plywood manufacturing, Thien Son
	1200kva	Factory motorbike parts, Goshi Thanglong
China	1000kva	Factory Textile in Dongtai, El Mei
Brazil	1500kva	Factory food manufacturing in Feira de Santana, Nestle
Malaysia	750kva	Factory Packing mat'l manufacturing in Klang Selangor Toli
India	2000kva	Factory Rice mill in Bahalgarh, Sunstar Overseas
	2000kva	Hotel in Mumbai, J.W. Marriott Mumbai
	1750kva	Hotel in Mumbai, Renaissance
	1600kva	Hotel in Mumbai, Fourpoint Sheraton
Mexico	20,000kva	GRUPO IBAMAR S.A.DE C.V.
South Africa	1,500kva	University of KwaZulu-Natal