



## Single-phase Pole-mounted Distribution Transformer



### 1| Product Introduction

The single-phase pole-mounted distribution transformer adopts high quality silicon steel sheet iron core, mounted on the pole, which have small size and small infrastructure investment. The transformers reduce the length of the low-voltage distribution line, reduce the loss of line of more than 60%. The series of transformers are specifically designed for the decentralization distribution network of servicing residential overhead distribution loads of town and countryside. They are also suitable for light and diversified power

### 2| Standards

IEC 60076

ANSI/IEEE C57.12.00

ANSI/IEEE C57.12.31

ANSI/IEEE C57.12.90

ANSI/IEEE C57.12.20

ANSI/IEEE C57.12.70

### 3| Product Features

- It can be used as a single phase transformer separately, and three single phase transformers can be also connected together, working as a three phase transformer.
- Quick and easy installation
- Beautiful appearance
- Excellent insulation and sealing system
- Higher reliability
- Lower operating cost

### 4| Basic Specification

- Frequency: 50 or 60 Hz
- Capacity Range: 5~500 kVA
- Primary Voltage: 2.4-36 kV
- Secondary Voltage: 120-600 V

### 5| Excellent Properties and Structure Features

- Reduce the length of the low-voltage distribution line, reduce the loss of line of more than 60%, improve the quality of power supply.
- Cover mounted high voltage porcelain bushings with eyebolt terminals are mounted on flat embossments on the cover and have undercut gasket seats for improved sealing. The eyebolt connectors are cast bronze plated with tin to accommodate both aluminum and copper conductors.
- One-piece fasten ring prolongs the life of the transformer, facilitates inspection and maintains even pressure around the entire rim. It combines with a specially formed tank rim, drawn cover and gasket to form an effective seal which will not deteriorate with age.
- Low voltage tank-wall bushing terminals are clamp type and tinned.
- Tank is equipped with self-sealing pressure release device.
- Support lugs, welded to the tank, conform to ANSI standards are made of hot-rolled steel.
- Tank is supplied with a tank grounding bolted ring-type connector suitable for use with copper or aluminum.



#### 6 | Types Conventional type

The transformer is cylinder sealing structure. Each one is fixed with grounding devices, hooks, supporting lugs which conforms to ANSI standard, and one or two high voltage bushing on the cover, low voltage bushing on the wall of the tank and eyebolt connecting terminals. The tap changer should be adjusted basing on the instruction after the power off.



#### Complete Self Protect type ( CSP )

- This type of transformers are CSP type, which can protect itself from thunder and lightning, short circuit and protect the transiting and distribution line from current failure because of self-malfunction.
- Except from some similarities such as cylinder tank, hooks, lifting lugs, grounding devices, nameplates, core and winding with the conventional type. This type of transformers have characteristics and devices as follows:
  - One or two high voltage bushings are on the cover with fuse.
  - One or two arresters are installed on the wall of the tank, whose top end is near to the high voltage bushing, and connected to the bushing by a copper strip. One secondary breaker switch is above the winding inside the tank, and here are operating handle, overload reset and signal light.
  - Low voltage bushing is educed from the wall of the tank, grounding device is fixed to position X2. One end of the single bushing leads out through the high voltage bushing, the other end is ground connection.



## 7 | Technical Specification

Technical Data for D11 Series Single-Phase Pole-Mounted Distribution Transformer (C.R.G.O. Core)

Type	Rating(kVA)	HV(V)	Tapping Range(%)	LV(V)	Loss(W)		Dimension (mm)					Weight (kg)	
					No Load Loss	Full Load Loss	A	B	C	D	E	Oil Weight	Total Weight
D11-3	3	33000/19000 30000/17321 20000/11547 13200/7620 11000/6350 or others	±2×2.5% or others	120-240 240-480 250-500 or others	9	45	800	400	500	300	286	10	70
D11-5	5				19	75	860	430	510	340		15	92
D11-10	10				36	120	910	470	550	380		22	150
D11-15	15				50	195	970	500	580	410		30	210
D11-25	25				80	290	1025	550	630	450		45	258
D11-37.5	37.5				105	360	1225	630	680	520		50	340
D11-50	50				135	500	1235	630	680	520		62	395
D11-75	75				190	650	1300	680	720	550		88	480
D11-100	100				210	850	1350	780	810	610		94	530
D11-167	167				350	1410	1460	830	890	660		138	680

The above parameter is only for reference as typical data, customer-made is subject to customers' request.

Technical Data for DH15 Series Single-Phase Pole-Mounted Distribution Transformer (Amorphous Metal Core)

Type	Rating(kVA)	HV(V)	Tapping Range(%)	LV(V)	Loss(W)		Dimension (mm)					Weight (kg)	
					No Load Loss	Full Load Loss	A	B	C	D	E	Oil Weight	Total Weight
D11-3	3	33000/19000 30000/17321 20000/11547 13200/7620 11000/6350 or others	±2×2.5% or others	120-240 240-480 250-500 or others	8	45	800	400	400	300	286	10	60
D11-5	5				8	75	840	400	480	310		17	75
D11-10	10				12	120	864	430	510	340		24	100
D11-15	15				15	195	914	430	510	340		26	125
D11-25	25				18	290	1041	480	560	450		33	162
D11-37.5	37.5				30	360	1120	520	610	520		54	240
D11-50	50				32	500	1245	520	610	520		62	295
D11-75	75				45	650	1245	600	680	550		78	420
D11-100	100				50	850	1270	640	710	610		89	465
D11-167	167				65	1410	1470	940	840	660		140	650

The above parameter is only for reference as typical data, customer-made is subject to customers' request.



## Three-phase Oil-immersed Transformer



### 1 | Product Introduction

Three-phase Oil-immersed transformer adopts high quality silicon steel sheet iron core, or amorphous metal core, which have high mechanical strength, high anti short circuit ability, low loss and low noise. This series of transformers are widely used in all kinds of residential area, commercial buildings, communal facilities, industrial and mining enterprises, electricity generation enterprises and grid network in urban and rural areas.

### 2 | Standards

IEC 60076

ANSI/IEEE C57.12.00

ANSI/IEEE C57.12.31

ANSI/IEEE C57.12.90

ANSI/IEEE C57.12.20

ANSI/IEEE C57.12.70

### 3 | Product Features

- Low No-Load Loss
- Low No-Load Current
- Low Noise

### 4 | Basic Specification

- Frequency: 50 or 60Hz
- Capacity Range: 10~2000kVA
- Primary Voltage: 6kV-36kV
- Secondary Voltage: 415-600V

### 5 | Excellent Properties and Structure Features

#### Low Loss & Noise

High quality silicon steel sheet iron core, 45° ramp-type joints, five steps lamination fold, high lamination factor, or amorphous metal core, low loss, low noise.

#### Maintenance-free

Oil tank is fully sealed corrugated type, the sides of the tank can be totally sealed by bolted joint, thus the oil is isolated from the air to ensure the transformer needs less maintenance and has a long service life. The corrugated type oil tank also looks beautiful with small space occupation.

#### High Mechanical Strength, High Anti Short Circuit Ability

Laminated wood constant pressure device, high mechanical strength, Coil insulation adopts Ldiamond dotted paper, the coil will be integrated after solidification to ensure the high anti short circuit ability.

#### Strong Over Load Ability & Long Service Life

Coil adopts curtain type oil way, excellent heat dissipation ability to ensure low temperature rise and a long service life.

#### Low Energy Consumption & Operating Cost

This is a new type of energy-saving distribution transformer, the annual energy consumption of each unit reduces a lot.

Insulating parts (like end coils, cushion block, strut, etc.) adopt hot press technology to ensure the mechanical and electric strengths, and also narrow down the contraction rate to increase the uniformity of the products.

#### Special fixing devices to make sure the reliability during transportation

All fasteners will be fixed by special bolts. Lead wire also adopts the special fixing structure.

Vacuum oil filling process is adopted for transformer sealing to clear the moisture, thus the insulating parts and oil will be isolated from the air to prevent the insulating parts and oil from ageing caused by the invasion of moisture and oxygen invasion.



## 6 | Technical Specification

### Technical Data for Three-phase Oil-immersed Distribution Transformers (C.R.G.O. Core)

Note: 1. For transformers of rated capacity 500kVA and below, the load loss value on the left side of the oblique line is suitable for vector group Dyn 11 or Yzn 11, while the load loss value on the right side is suitable for vector group Yyn 0.

2. According to the requirements of users, transformer with low voltage 0.69kV can also be supplied.

Rated Capacity kVA	Voltage Combination			Vector Group	No Load Loss (W)	Load Loss (W)120°C	No Load Current (%)	Short-Circuit Impedance (%)		
	High Voltage kV	High Voltage Tapping Range	Low Voltage kV							
10				Yyn0 Dyn11	50	350/320	2.3	4		
20					70	500/460	2.2			
30					100	630/600	2.1			
50					130	910/870	2.0			
63					150	1090/1040	1.9			
80					180	1310/1250	1.8			
100					200	1580/1500	1.6			
125	6	±5% ±2×2.5%	0.4		240	1890/1800	1.5			
160	6.3				280	2310/2200	1.4			
200	10				340	2730/2600	1.3			
250	10.5				400	3200/3050	1.2			
315	11				480	3830/3650	1.0			
400					570	4520/4300	1.0			
500					680	5410/5150	0.9			
630					810	6200	0.8			
800					980	7500	0.7			
1000				1150	10300	0.6				
1250				1360	12000	0.6				
1600				1640	14500	0.6				
2000				2060	19400/18500	0.5				
										5

The above parameter is only for reference as typical data, customer-made is subject to customers' request.

### Technical Data for Three-phase Oil-immersed Distribution Transformers (Amorphous Metal Core)

Rated Capacity kVA	Voltage Combination			Vector Group	No Load Loss (W)	Load Loss (W)120°C	No Load Current (%)	Short-Circuit Impedance (%)	Length*Width*Height (mm)
	High Voltage kV	High Voltage Tapping Range	Low Voltage kV						
30				Dyn11	33	600	1.7	4	900x850x570
50					43	870	1.3		950x870x620
63					50	1040	1.2		980x880x680
80					60	1250	1.1		1020x900x730
100					75	1500	1.0		1050x910x770
125					85	1800	0.9		1060x930x850
160	6	±5% ±2×2.5%	0.4		100	2200	0.7		1280x940x930
200	6.3				120	2600	0.7		1310x950x930
250	10				140	3050	0.7		1360x950x1010
315	10.5				170	3650	0.5		1380x960x1010
400	11				200	4300	0.5		1400x980x1010
500					240	5150	0.5		1470x1010x1160
630					320	6200	0.3		1650x1060x1240
800					380	7500	0.3		1720x1180x1380
1000					450	10300	0.3		1920x1220x1460
1250					530	12000	0.2		1980x1280x1330
1600				630	14500	0.2	2080x1380x1330		

The above parameter is only for reference as typical data, customer-made is subject to customers' request.



## Single-phase Pad-mounted Distribution Transformer



### 1 | Product Introduction

Single-phase pad-mounted distribution transformers (Another name: Single-phase American box-type transformers) will focus on traditional box-type housing design, with features of small size, light weight, low noise level, low loss, high reliability, hermetically sealed, fully insulated, compact structure, beautiful appearance, volume is only 1/3 of the box-type substation (European box-type transformer). No distribution room, can be directly placed in the indoor or outdoor, can also be placed in the streets and the green belt and reliably ensure personal safety, both power supply facilities, but also decorate the environment. widely used in residential areas, commercial centers, stations, airports, factories, businesses, hospitals, schools and other places.

### 2 | Standards

- IEC 60076
- ANSI/IEEE C57.12.00      ANSI/IEEE C57.12.25
- ANSI/IEEE C57.12.28      ANSI/IEEE C57.12.29
- ANSI/IEEE C57.12.70      ANSI/IEEE C57.12.90

### 3 | Basic Specification

- Frequency: 50 or 60Hz
- Capacity Range: 167kVA and smaller
- Primary Voltage: 34500GrdY/19920V and below

### 4 | Product Features

- Compact structure and small size
- Fully sealed and fully insulated, without power distribution room, to ensure the personal safety
- Low loss, low noise level, green, suitable for residential use
- Strong ability to withstand overload, short-circuit, impulse voltage
- Safe and reliable, with self protection from overload, short-circuit and impulse voltage
- Elbow type cable joint, safe, easy to use, convenient installation and easy replacement

### 5 | Technical Specification

Type	Rating(kVA)	HV(V)	Tapping Range(%)	LV(V)	Loss(W)		Weight (kg)	
					No Load Loss	Full Load Loss	Oil Weight	Total Weight
15kVA	15	33000/19000	±2x2.5% or others	120	50	195	45	294
25kVA	25				80	290	68	362
37.5kVA	37.5	30000/17320	±2x2.5% or others	240	105	360	75	476
50kVA	50	13800/7967		480	135	500	93	553
75kVA	75	13200/7620	±2x2.5% or others	or	190	650	132	672
100kVA	100	12000/6930		120-240	210	850	141	742

The above parameter is only for reference as typical data, customer-made is subject to customers' request.



## Three-phase Pad-mounted Distribution Transformer



### 1 | Product Introduction

- Compact construction ,small size ,easy for installation .hermetically sealed ,safe ,free of maintenance .
- Protection :with bay –one fuse and sensing fuse or isolation link on HV side ,on LV side with secondary circuit breaker for over load protection .
- HV side with insert bushing and bushing well ,safe and convenient .Loop type and radial type are both available .
- High quality construction of metal core ,low noise ,low loss .
- Other accessories :pressure release valve ,oil indicator ,oil filling valve ,tap changer ,load switch and so on .

### 2 | Standards

IEC 60076

ANSI/IEEE C57.12.00

ANSI/IEEE C57.12.26

ANSI/IEEE C57.12.28

ANSI/IEEE C57.12.29

ANSI/IEEE C57.12.70

ANSI/IEEE C57.12.90

### 3 | Product Features

- Compact structure and small size
- Fully sealed and fully insulate,without power distribution room ,to ensure the the personal safety
- Low loss ,low noise level, green ,suitable for residential use
- Strong ability to withstand overload,short-circuit ,impulse voltage
- Safe and reliable,with self protection from overload,short-circuit and impulse voltage
- Elbow type cable joint, safe,easy to use, convenient installation and easy replacement

### 4 | Basic Specification

- Frequency: 50 or 60Hz
- Capacity Range: 2500kVA and smaller
- Primary Voltage: 34500GrdY/19920V and below

### 5 | Technical Specification

Type	Voltage Combination			Vector Group	No Load Loss (W)	Full Load Loss	No Load Current (%)	IMP VOL (%)
	High Voltage kV	High Voltage Tapping Range	Low Voltage kV					
10kVA					45	306	3.3	4.0
15kVA					58	360	2.2	4.0
20kVA					80	521	2.2	4.0
25kVA	6	6			90	577	2.1	4.0
30kVA	6.3	6.3			100	600	1.3	4.0
50kVA	6.3	6.3			310	870	1.1	4.0
63kVA	10	10			150	1040	1.0	4.0
80kVA	10.5	10.5	±2×2.5%	0.4	180	1250	0.9	4.0
100kVA	11	11	or	or	200	1500	0.8	4.0
125kVA	12	12	±3×2.5%	0.415	240	1800	0.8	4.0
160kVA	13.2	13.2	or	or others	280	2200	0.7	4.0
200kVA	13.8	13.8	±5%		340	2600	0.7	4.0
250kVA	15	15			400	3050	0.6	4.0
315kVA	20	20			480	3650	0.6	4.0
400kVA					560	4300	0.5	4.0
500kVA					680	5100	0.5	4.0
630kVA					810	6200	0.5	4.5

The above parameter is only for reference as typical data, customer-made is subject to customers' request.



## Epoxy-Resin Filled Dry-Type Transformer



### 1 | Product Introduction

Epoxy-Resin Filled Dry Type Transformer adopts the third-generation HTT advanced technology from Germany, use class F or H insulation material and vacuum pressure mirror pouring technology. This series of transformer apply to below 35kV, 50Hz transmission & distribution system, and widely used for residence, business building, public utilities, industrial and mining enterprises, power generation enterprises, urban and rural power grid, is one of the most ideal green environmental protection power supply and distribution equipment.

### 2 | Standards

IEC 60076

ANSI/IEEE C57.12.01

ANSI/IEEE C57.12.91

### 3 | Product Features

- Safe, fireproof, maintenance-free, can go deep into load centre directly
- Low Noise, low loss, non-pollution, green
- HTT technology for Germany, high mechanical strength, high anti-short circuit ability, small partial discharge, high thermal stability
- Strong overload ability, operation at 150% rated load under the forced air cooling
- Epoxy vacuum pressure mirror pouring technology, beautiful appearance

### 4 | Basic Specification

- Voltage Class: 6kV, 10kV, 20kV, 35kV
- Tapping Range:  $\pm 2 \times 2.5\%$ ,  $\pm 5\%$
- Vector Group: Yyn0, Dyn11
- Capacity Range: 30-2500kVA
- Insulation Level 6kV: LI60 AC20, 10kV LI75 AC35, 20kV LI125 AC50, 35kV LI170 AC70
- Insulation Class: Class F or H
- Voltage Regulating Method: de-energized regulation

### 5 | Excellent Properties and Structure Features

#### Iron Core

The material of the iron core is high quality cold-rolled silicon steel with high permeability and low loss. Adopt ramp-type joints lamination structure to effectively reduce the noise, loss and no-load current. The surface of iron core is sealed by insulating resin to make it moisture proof, anticorrosive and reduce the noise.

#### Coil

Low-voltage winding adopts foil winding structure, the raw material is imported copper foil from Germany, both sides of copper foil are circular arc form to eliminate the quality accident caused by ordinary cooper foil edge burr. High-voltage winding adopts subsection cylinder type structure, strengthened glass fiber, insulation level F or H, padding technology from HTT Germany, vacuum pressure casting and resin mirror pouring technology to ensure the low partial discharge (less than 5 PC), high strength and stability.





## 7 | Technical Specification

### 6kV, 10kV series Dry-Type Transformer

Rated Capacity kVA	Voltage Combination			Vector Group	No Load Loss (W)	Load Loss (W) 120°C	No Load Current (%)	Short-Circuit Impedance (%)				
	High Voltage kV	High Voltage Tapping Range	Low Voltage kV									
30	6	±5%	0.4	Dyn11/ Yyn0	220	750	2.4	4				
50					310	1060	2.4					
80					420	1460	1.8					
100					450	1670	1.8					
125					530	1950	1.6					
160					610	2250	1.6					
200					700	2680	1.4					
250					810	2920	1.4					
315					990	3670	1.2					
400					6.3	±2×2.5%	0.4		Dyn11/ Yyn0	1100	4220	1.2
500					6.6			1310		5170	1.2	
630					10			1510		6220	1.0	
630					10.5			1460		6310	1.0	
800					11			1710		7360	1.0	
1000								1990		8610	1.0	
1250								2350		10260	1.0	
1600								2760		12400	1.0	
2000								3400		15300	0.8	
2500								4000		18180	0.8	
1600						2760	13700	1.0	8			
2000		3400	16900	0.8								
2500		4000	20000	0.8								

The above parameter is only for reference as typical data, customer-made is subject to customers' request.



### 1 | Product Introduction

Open type dry-type transformer adopts advanced VPI vacuum impregnation technology from Heydrich Germany which can prevent the coils from encroach by different kinds of contaminant to ensure the product quality. This series of transformer apply to below 35kV, 50Hz transmission & distribution system, and widely used for residence, business building, public utilities, industrial and mining enterprises, power generation enterprises, urban and rural power grid, is one of the most ideal green environmental protection power supply and distribution equipment.

### 2 | Standards

IEC 60076

ANSI/IEEE C57.12.01

ANSI/IEEE C57.12.91



## Open Type

## Dry-Type Transformer

### 3 | Product Features

- Safe, fireproof, maintenance-free, can go deep into load centre directly
- Low Noise, low loss, non-pollution, green
- Italy CESI certified, high mechanical strength, high anti-short circuit ability, small partial discharge, high thermal stability
- High insulation level, Strong overload ability, long-time operation at 120% overload, operation at 150% over load under the forced air cooling
- High chemical resistance, advanced VPI vacuum impregnation technology, damp proof, dust proof, antimog, radiation protection.

### 4 | Basic Specification

- Voltage Class 6kV, 10kV, 20kV, 35kV
- Tapping Range  $\pm 2 \times 2.5\%$ ,  $\pm 5\%$
- Vector Group Yyn0, Dyn11
- Capacity Range 30-2500kVA
- Insulation Level 6kV LI60 AC20, 10KV LI75 Ac35, 20KV LI125 Ac50 35kV LI170 Ac70
- Insulation Class Class H
- Voltage Regulating Method de-energized regulation

### 5 | Excellent Properties and Structure Features

#### Iron Core

The material of the iron core is high quality cold-rolled silicon steel with high permeability and low loss. Adopt high accuracy cutting technology to ensure the metal burr less than 0.02mm. Low eddy-current loss.

#### Coil

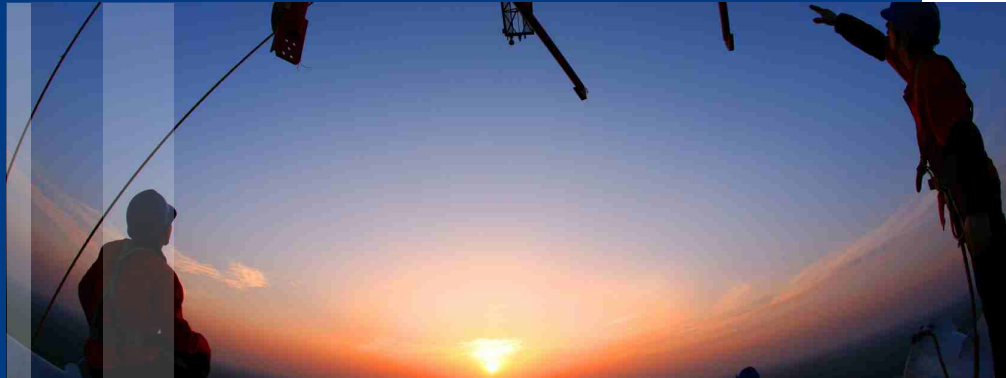
Class H open type dry-type transformer adopts advanced VPI vacuum impregnation technology from Heydrich Germany which can prevent the coils from encroach by different kinds of contaminant to ensure the product quality. Low-voltage winding adopts foil winding structure, the raw material is imported copper foil from Germany, both sides of copper foil are circular arc form to eliminate the quality accident caused by ordinary cooper foil edge burr. High-voltage winding adopts subsection cylinder type structure, strengthened glass fiber to ensure high anti-short circuit ability and good heat dissipation ability.

### 7 | Technical Specification

#### 6kV, 10kV series Dry-Type Transformer

Rated Capacity kVA	Voltage Combination			Vector Group	No Load Loss (W)	Load Loss (W) 120°C	No Load Current (%)	Short-Circuit Impedance (%)	
	High Voltage kV	High Voltage Tapping Range	Low Voltage kV						
100	6	$\pm 5\%$	0.4	Dyn11/ Yyn0	400	1690	1.8	4	
125					470	1980	1.6		
160					540	2280	1.6		
200					620	2710	1.4		
250					720	2960	1.4		
315					880	3730	1.2		
400					980	4280	1.2	6	
500					6.3	1160	5230		1.0
630					6.6	1340	6290		1.0
630					10	1300	6400		1.0
800					10.5	1520	7460		1.0
1000					11	1770	8760		1.0
1250						2090	10370	1.0	8
1600						2450	12580	1.0	
2000						3050	15560	0.8	
2500						3600	18450	0.8	
1600		2450	13900	1.0					
2000		3050	17110	0.8					
2500		3600	18450	0.8					

The above parameter is only for reference as typical data, customer-made is subject to customers' request.



### 1| Product Introduction

Amorphous alloy is a new type of permeability magnetic material, which has good ferromagnetism, high mechanical strength and good corrosion resistance ability. Compared with traditional iron core made of silicon steel, iron core made of amorphous alloy is easier to be magnetized and degaussed, and the no load loss can be reduced by 70%~ 80%.

### 2| Standards

IEC 60076      ANSI/IEEE C57.12.01      ANSI/IEEE C57.12.91

### 3| Product Features

- Safe, fireproof, maintenance-free, can go deep into load centre directly
- Low Noise, low loss, non-pollution, green
- HTT technology for Germany, high mechanical strength, high anti-short circuit ability, small partial discharge, high thermal stability
- Strong overload ability, operation at 150% rated load under the forced air cooling
- Epoxy vacuum pressure mirror pouring technology, beautiful appearance
- Energy saving and environmental protection, no load loss 70%~ 80% less than conventional dry type transformers

### 4| Basic Specification

- Voltage Class: 6kV, 10kV, 20kV, 35kV
- Tapping Range:  $\pm 2 \times 2.5\%$ ,  $\pm 5\%$
- Vector Group: Yyn0, Dyn11
- Capacity Range: 30-2500kVA
- Insulation Level: 6kv LI60 AC20, 10KV LI75 AC35, 20KV LI125 AC50, 35kv LI170 AC70
- Insulation Class: Class F or H
- Voltage Regulating Method: de-energized regulation

### 5| Excellent Properties and Structure Features

#### Iron Core

The material of the iron core is amorphous alloy from Hitachi(Japan), iron loss is 70%~80% less than conventional iron core. Three-column structure with high mechanical strength, suitable for all kinds of vector group, high anti ultraharmonics ability.

#### Coil

Low-voltage winding adopts good quality copper foil to eliminate the quality accident caused by ordinary cooper foil edge burr.

High-voltage winding adopts subsection cylinder type structure, padding technology from HTT Germany, vacuum pressure casting and resin mirror pouring technology to ensure the low partial discharge (less than 5 PC), high strength and stability.

6kV, 10kV series Dry-Type Transformer Technical Specification

Rated Capacity kVA	Voltage Combination			Vector Group	No Load Loss( W )	Load Loss ( W )120 C *	No Load Current (%)	Short-Circuit Impedance (%)				
	High Voltage kV	High Voltage Tapping Range	Low Voltage kV									
30	6	±5%	0.4	Dyn11	70	710	1.6	4				
50					90	1000	1.4					
80					120	1380	1.3					
100					130	1570	1.2					
125					150	1850	1.1					
160					170	2130	1.1					
200					200	2530	1.0					
250					230	2760	1.0					
315					6.3	±2×2.5%	0.4	Dyn11	280	3470	0.9	6
400					6.6				310	3990	0.8	
500					10				360	4880	0.8	
630					10.5				420	5880	0.7	
630					11				410	5960	0.7	
800					11				480	6960	0.7	
1000									550	8130	0.6	
1250									650	9690	0.6	
1600									760	11730	0.6	
2000		1000	14450	0.5								
2500		1200	17170	0.5								
2000		1000	15960	0.5	8							
2500		1200	18890	0.5								



## Frequency Changer Use Phase Shifting Rectifier Transformer



### 1 | Product Introduction

ZTSGF type Dry-type Phase Shifting Rectifier Transformer adopts NOMEX paper insulation system (Insulation Class H), voltage level contains 3kV, 10kV, etc., capacity range can be from 300kVA to 7000kVA, phase shifting angle contains 18 pulse, 24 pulse, 36 pulse, 48 pulse, etc. and the appearance and structure can be various to meet special requirements from different customers.

Insulation class H Dry-type Phase Shifting Rectifier Transformer has good heat dissipation ability, good withstand thermal shock ability, high over load ability, low loss, small partial discharge, low noise, environmental protection and easy to maintain. It is most suitable for circumstances which require high fire-proof requirement and with big load fluctuation, like offshore oil platforms, thermal power plant, waterworks, etc.

### 2 | Product Features

- High mechanical strength, high anti-short circuit ability, operation safe and reliable
- Low Noise, small volume, easy for installation, maintenance free
- High insulation level, small partial discharge, long service life
- Moisture- proof, good withstand thermal shock and fire-proof ability

### 3 | Basic Specification

- Capacity Range : 300~7000kVA
- Voltage Class : 3kV/3.3kV/6kV/6.3kV/6.6kV/10kV/11kV
- Phase Shifting Angle :  $60^\circ /n$
- Tapping Range :  $\pm 2 \times 2.5\%, \pm 5\%$
- Frequency : 50Hz/60Hz
- Vector Group : Yd1-d11/Dyn11-d0/Yd-yn0
- Cooling Method : AN/AF
- Insulation Class : H
- Voltage Regulating Method : Non-field excitation regulation

### 4 | Insulation Level

Voltage Class(kV) 3/6/10  
Power Frequency Withstand Voltage (Effective Value)(kV) 10/20/28  
Protection Class IP20/IP23  
Noise  $\leq 65\text{dB(SPL)}$

### 5 | Operation Condition

Installation: Indoor  
Operation environment: Temperature, Relative Humidity  
Altitude  $\leq 1000$  meters  
Other requirements can be discussed and settled by customers and R&D department.

### 6 | Excellent Properties and Structure Features

#### Iron Core

The material of the iron core is high quality cold-rolled silicon steel with high permeability and low loss. Adopt high accuracy cutting technology to ensure the metal burr less than 0.02mm. Low eddy-current loss.

#### Coil

Class H open type dry-type transformer adopts advanced VPI vacuum impregnation technology from Heydrich Germany which can prevent the coils from encroach by different kinds of contaminant to ensure the product quality. Low-voltage winding adopts foil winding structure, the raw material is imported copper foil from Germany, both sides of copper foil are circular arc form to eliminate the quality accident caused by ordinary cooper foil edge burr. High-voltage winding adopts subsection cylinder type structure, strengthened glass fiber to ensure high anti-short circuit ability and good heat dissipation ability.