ONENESS

TECWE

TRANSFORMER OIL TREATMENT EQUIPMENTS

One of the top 3 manufactures worldwide within the field

WE ARE ONENESS

We Place Your Business on Top!

ONENESS is devoted to international trade in the energy and industrial fields, integrating outstanding industrial products from around the globe and addressing customers' pain points in supply chain management and import/export trade.

Our core businesses comprise Transformer Oil Treatment Equipments, Transformer Raw Materials, Transfomer Factory Ficilities, Power Distribution Equipment and Components, Solenoid Valve, and Supply Chain Management for import/export trade.

We have business experiences in over 68 countries. With our international cross culture experiences. much more smooth and efficient solutions would be provided to our clients and partners.

WHY ONENESS

- Strict Quality Control
- Technical Background
- Global Companies Experience
- Professional Project Management
- Professional Supply Chain Management
- International Cross Culture Management

OUR FACTORY

Established in 2012, we are a professional firm dedicated to insulating oil treatment and maintenance. Our services extend across the entire value chain, including technical consulting, equipment manufacturing, and on - site support.

Core Competitiveness：

Stabilities of Quality Control:

- We dedicated to deliver precision treatment and ensure consistently stable product quality.
- As a qualified supplier to globally leading companies such as Siemens, ABB, Alstom, and Hitachi Energy, we have established a solid reputation for reliability and excellence.

High Innovation Company:

- **Pioneering Oil Filtration Technology:** We are the first and only manufacturer worldwide capable of achieving one-time successful oil filtration, significantly reducing process time and enhancing operational efficiency.
- **Atmospheric-Pressure Startup Technology:** We invented the atmospheric-pressure startup technology for roots pumps in the field of transformer oil treatment, setting a new benchmark in the industry.
- **Fully Automatic Variable-Frequency Oil Injection Technology:** As the inventor of fully automatic variable-frequency oil injection technology for transformers, we continue to drive innovation and improve transformer maintenance processes.
- **Record-Breaking Achievement:** We hold the record for treating the highest voltage level transformer in the world, at ±1100kV, demonstrating our unparalleled technical capabilities.

Environmentally Friendly Company:

- **Energy-Efficient Oil Heating System:** Our specially designed oil heating system saves up to 30% energy, contributing to reduced operational costs and a smaller carbon footprint.
- **Energy-Saving Oil Filtration:** Our one-time successful oil filtration process saves between 1/2 to 2/3 of the energy typically required, further enhancing our environmental sustainability.
- **Eco-Friendly Filter Element Materials:** We select natural and recyclable materials for our filter elements, minimizing environmental pollution and promoting a circular economy.

01

Vacuum Oil Treatment

Product Introduction

For vacuum oil injection, hot oil circulation, and vacuum pumping of power equipment such as power transformers and reactors.

Main Application

- Evacuation of electrical equipment such as power transformer and electric reactor.
- Filling of the vacuum equipment with oil.
- Generating of hot oil circulation in these machines.

Technical Parameters

Type Introduction

VOT	-X1	-X2	-X3	-X4
Flow rate (m^3/h)	01 02 04 06 08 10 12 15 18 20	0 (0 Inlet pump + 0 Roots pump) 1 (1 Inlet pump + 0 Roots pump) 2 (0 Inlet pump + 1 Roots pump) 3 (1 Inlet pump + 1 Roots pump)	F (With frequeney converter) / (Without frequeneyconverter)	A (Automatic control) / (Semi-automatic control)

-X1:Maximum processing capacity

Technical data of Vacuum Oil Treatment

NO	Type	Initial air content/%	Initial water content/ppm	Initial breakdown voltage/kV	Gas content after 1 process/%	Water content after 1 process/ppm	Breakdown voltage afier 1 process/kV	Maximum flow rate/L/H
1	VOT-010	10	50	30	0.2	4	70	1000
2	VOT-020	10	50	30	0.2	4	70	2000
3	VOT-040	10	50	30	0.2	4	70	4000
4	VOT-060	10	50	30	0.2	4	70	6000
5	VOT-080	10	50	30	0.2	4	70	8000
6	V0T-100	10	50	30	0.2	4	70	10000
7	VOT-120	10	50	30	0.2	4	70	12000
8	VOT-150	10	50	30	0.2	4	70	15000
9	VOT-180	10	50	30	0.2	4	70	18000
10	VOT-200	10	50	30	0.2	4	70	20000

Note: Above data Is fit for the oil of new naphthenic base transformer. May reset vacuum oi treatment's parameters acoording to clients' actual needs.

Technical Features

- **Heat Transfer Method:**

  The system employs a heat-exchange model, wherein the heating medium is preheated before facilitating heat exchange with the transformer oil via a plate heat exchanger. This technology effectively prevents oil cracking caused by thermal stress accumulation during sudden power outages, while simultaneously enhancing both temperature uniformity and energy efficiency. The method is characterized by its safety, efficiency, and energy-saving performance (reducing electricity consumption by 30%).

- **Degassing Method:**

  An optimized single degassing tank is utilized to thoroughly remove gases and moisture from the transformer oil. The system is equipped with vacuum pipes featuring high-performance condensers and oil-gas separators to maintain operational stability and performance.

- **Filtration:**

  Newly designed, precision-customized filter cartridges with high dirt-holding capacity are employed to comprehensively remove solid particles from the oil, meeting the stringent requirements of ±1,100 kV direct current transformers.

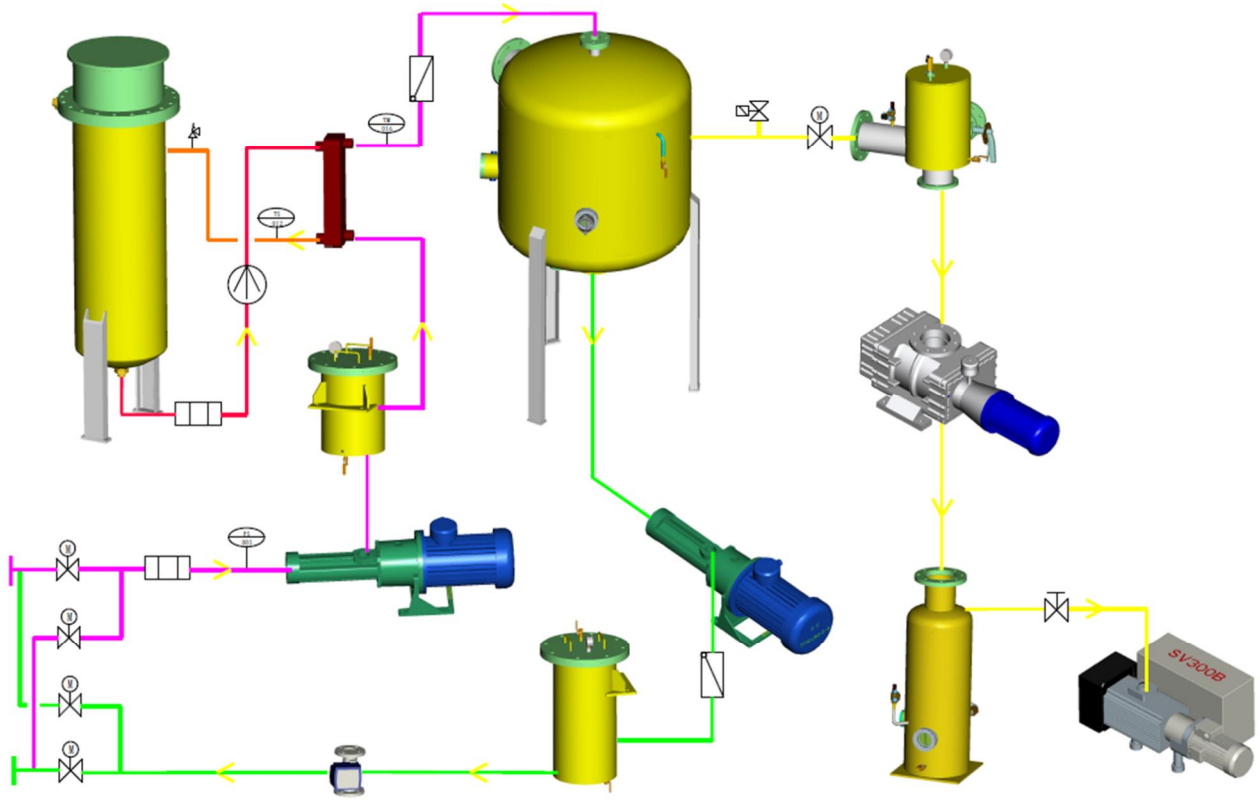
- **Control:**

  Siemens PLC (Programmable Logic Controller) is employed for precise, automated, and reliable control of the entire system.

- **Additional Features:**

  Precision-machined components and the use of internationally renowned brands ensure high mechanical and electrical reliability, minimizing maintenance costs and guaranteeing consistent operational efficiency.

Workflow Diagram



02

Vacuum Unit

Product Introduction

For power equipment such as power transformers and reactors, vacuum extraction and drying treatment, vacuum oil injection, and leakage rate testing.

Main Application

- Evacuation, drying of electrical equipment such as power transformer and electric reactor
- Filling of the vacuum equipment with oil
- Testing of leakage rate

Technical Parameters

Type Introduction

VTD	-X1	-X2	-X3	-X4
Pumping rate/(m^3/h)	500 1000 2000 4000 6000 8000	1(one stage) 2(two stages) 3(three stages)	F (With frequeney converter) / (Without frequeneyconverter)	A (Full automatic) / (Manual operation)

-X1: Maximumpumping rate
-X2: Roots pumpseries

Technical data of Vacuum Unit

NO	Type	Pumping rate/(m^3/h)	Ultimate vacuum/mbar	Power/Kw	Connection for vacuum pump	Rough time (to reach0.4mbar)/min	
1	VID-500	450	0.01	5.5	DN50	82	Cooling method
2	VID-1000	1000	0.01	8.5	DN80	66	
3	VID-2000	2000	0.01	13	DN80	52	
4	VID-4000	3900	0.01	26	DN100	35	
5	VID-6000	5600	0.01	38	DN150	26	
6	VID-8000	8200	0.01	52	DN200	20	

Note:These parameters remain effective for a transformer filled with 60 cubic meters of oil.Vacuum Unit anc be mad according to customer requirments

Technical Features

- **Vacuum System**

  The system incorporates frequency conversion technology to operate the Roots pump under atmospheric pressure startup conditions, enhancing operational flexibility and energy efficiency.

  Multiple vacuum pump connections can be designed into the equipment, enabling simultaneous evacuation via several devices to accelerate the vacuum-drawing process.

  High-efficiency condensers and buffer devices are installed in the vacuum pipeline to ensure stable and reliable operation while preventing backflow or contamination.

- **Smoke Extraction Device**

  A smoke collection system is integrated to significantly reduce lampblack emissions, improving environmental compliance and workplace safety.

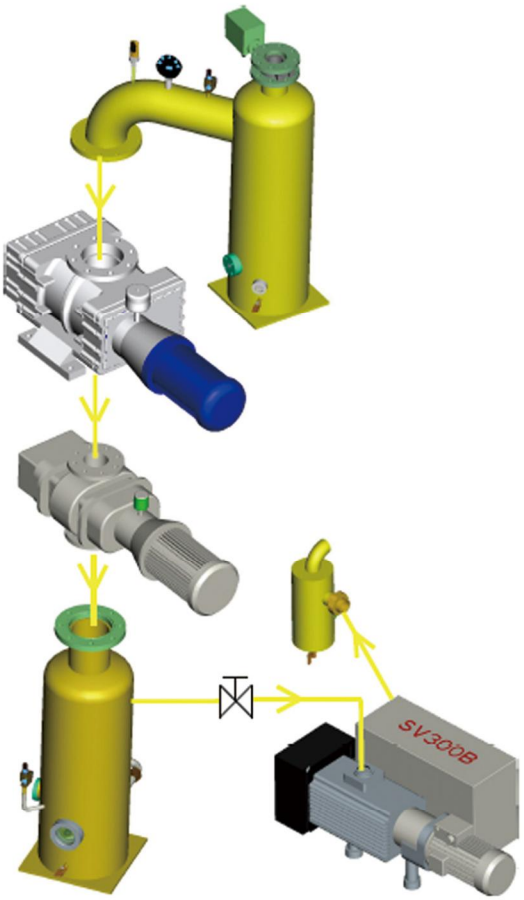
- **Electrical Control**

  Siemens PLC (Programmable Logic Controller) is employed for precise, automated, and reliable control of the entire system.

- **Additional Features**

  Precision-machined components and the use of internationally renowned brands ensure high mechanical and electrical reliability, minimizing maintenance costs and guaranteeing consistent operational efficiency.

Workflow Diagram



03

Dry Air Generator

Product Introduction

Transportation of transformers filled with dry air, leak testing and pressure test of transformers, assembly or maintenance of transformers filled with gas, etc.

Main Application

- Inflating dry air into transformer to assist safe transport;
- Testing of both leakage and normal pressure of transformer;
- Assembling or overhauling and air inflation of transformer's internal parts etc.

Technical Data of Dry Air Generator

NO	Type	Export volume/(m³/h) (±5%)	Outlet dewpoint ℃	Granularity	Oil content	Internal diameter	Power /KW	Size
1	ATD-020	20	≤-60	0.01(m³/h)	0.003(m³/h)	DN15	4	1200*900*1350
2	ATD-040	40	<-65	0.01(m³/h)	0.003(m³/h)	DN15	5.5	1500*900*1800
3	ATD-060	60	<-65	0.01(m³/h)	0.003(m³/h)	DN15	7.5	1500*900*1800
4	ATD-080	80	<-65	0.01(m³/h)	0.003(m³/h)	DN25	11	1500*1100*2000
5	ATD-120	120	<-70	0.01(m³/h)	0.003(m³/h)	DN25	15	2200*1500*2300
6	ATD-150	150	<-70	0.01(m³/h)	0.003(m³/h)	DN25	18.5	2200*1700*2300
7	ATD-180	180	<-70	0.01(m³/h)	0.003(m³/h)	DN32	22	2200*1750*2300
8	ATD-200	200	<-70	0.01(m³/h)	0.003(m³/h)	DN32	30	2200*1750*2300
9	ATD-300	300	<-70	0.01(m³/h)	0.003(m³/h)	DN50	37	2200*1800*2400
10	ATD-360	360	≤-70	0.01(m³/h)	0.003(m³/h)	DN50	45	2150*1800*2400
11	ATD-480	480	<-72	0.01(m³/h)	0.003(m³/h)	DN50	55	2500*2000*2500
12	ATD-660	660	<-75	0.01(m³/h)	0.003(m³/h)	DN50	75	2700*2000*2500

Note: Dry Air Generator can be customized.

Technical Features

- **Compression & Drying System:**

  Screw Compressor Option: The system can be equipped with a screw compressor (or utilize compressed air for cost efficiency).

- **Customizable Drying Technology:**

  Micro-heat or heatless regenerative adsorption dryers with dual-tower switching are available for tailored applications.Operates without a refrigeration dryer while achieving an outlet dew point temperature below -70°C, ensuring ultra-dry compressed air.

- **Multi-Stage Filtration System:**

  Pre-Filtration (Coarse Filter):First-stage protection to prevent dust from adhering to equipment components.Primary Fine Filtration (Inlet of Adsorption Dryer):Removes particles >0.1 μm and reduces oil content to ≤0.5 mg/m³.High-Precision Filtration (Outlet of Adsorption Dryer):Third-stage filter with 0.01 μm rating ensures oil concentration ≤0.01 ppm, meeting stringent transformer oil purity standards.Activated Carbon Final Filtration: Fourth-stage filter with activated carbon further reduces oil content to ≤0.03 mg/m³, eliminating residual contaminants and large particles.This multi-stage filtration system drastically minimizes particulate and oil contamination, guaranteeing optimal air quality for transformer applications.

- **Adjustable Pressure Control:**

  Outlet pressure range: 0.025 MPa to 0.75 MPa, adjustable based on process requirements to optimize performance.

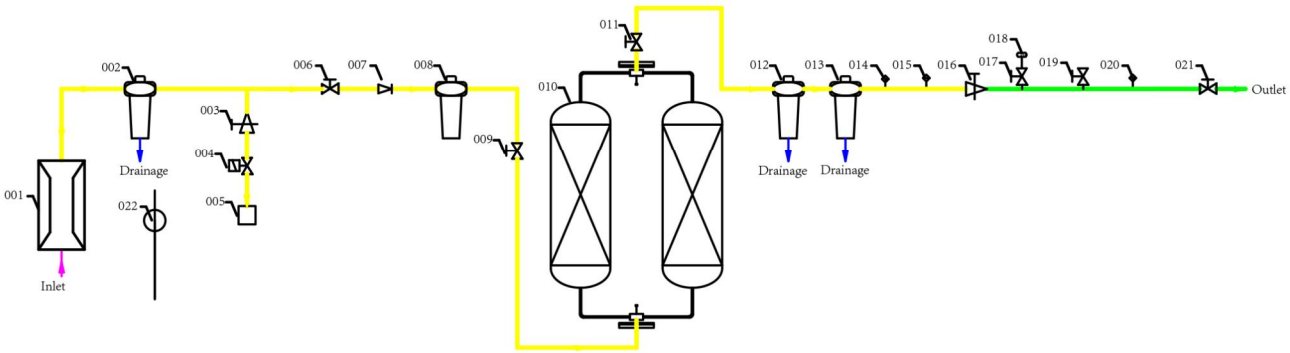
- **Electrical Control System:**

  Siemens PLC (Programmable Logic Controller) for precise, automated, and reliable operation.

- **Precision Manufacturing & High-Quality Components:**

  Mechanical and electrical parts are precisely machined and sourced from internationally renowned brands, ensuring durability, reliability, and stable operational costs.

Introduction of Workflow



After compressed (or using existing compressed air), air passesthrough two levels of filters and then enter into dry machine to keep airdew point temperature under -70℃, finally gothrough another two levels of fine filters to obtain dry and clean gas.

04

Oil Treatment System

Introduction

A specialized complete set of equipment focusing on vacuum dehydration, vacuum degassing, precise filtration, and regenerative purification to remove water, gas, impurities, reduce acidity, and restore the insulation performance of transformer insulating oil.

Advantages

- Equipped with a configuration that meets the standards for new oil in a single process, significantly shortening the oil filtration operation time, reducing manual input and equipment running time, and enhancing overall operational efficiency.
- Optimized design for oil injection points
- Intelligent transformer remote access monitoring technology (remote network)
- Centralized monitoring system technology for all control devices (local area network)

Technical Parameters

Type Introduction

OPS	-X1	-X2	-X3	-X4	-X5	-X6
Oil Treatment System	04(m^3/h) 06(m^3/h) 12(m^3/h) 20(m^3/h)	04(m^3/h) 06(m^3/h) 20(m^3/h) 30(m^3/h)	1 2 3 ...	01 (Circulatingoil injection) 02 (Direct oilinjection)	01 (Online monitoring) 02 (/)	Else

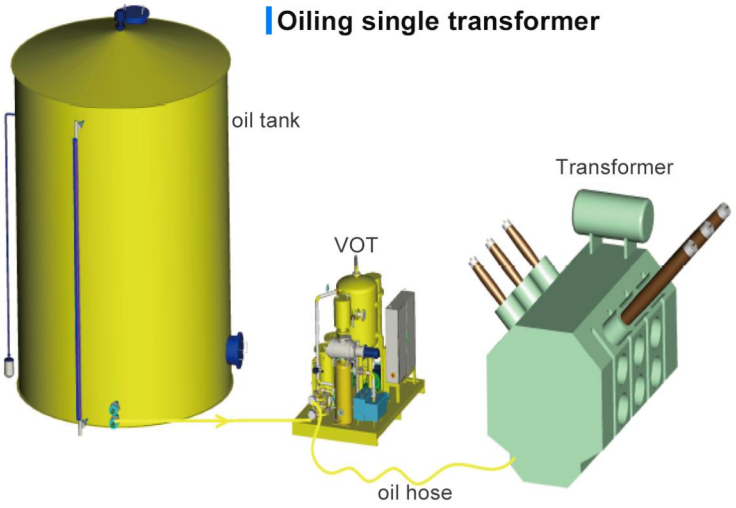
-X1: Maxinum processing capacity
-X2: Maximum content of oil injection
-X3: Number of transformer oil types that can be processed

Technical data of Oil Treatment System

NO.	Type	Maximum processing capacity	Maximum content of oil injection	Oil type	Pipeline design pressure	Breakdown voltage of oil injection point	NAS Granularity of oil injection point	Gas content of oil injection point	Water content oil jection point
1	OPS-04-12-1	4m^3/h	12m^3L/h	1	PN10	70KV	0	0.20%	5ppm
2	OPS-06-20-1	6m^3/h	20m^3L/h	1	PN10	70KV	0	0.15%	4ppm
3	OPS-06-20-2	6m^3L/h	20m^3L/h	2	PN10	70KV	0	0.15%	4ppm
4	OPS-12-20-1	12m^3L/h	20m^3L/h	1	PN10	72KV	0	0.15%	4ppm
5	OPS-12-20-2	12m^3L/h	20m^3L/h	2	PN10	72KV	0	0.15%	4ppm
6	OPS-20-30-1	20m^3L/h	30m^3L/h	1	PN10	80KV	0	0.10%	3ppm
7	OPS-20-30-2	20m^3/h	30m^3L/h	2	PN10	80KV	0	0.10%	3ppm
8	OPS-20-30-3	20m^3/h	30m^3L/h	3	PN10	80KV	0	0.10%	3ppm

Workflow Diagram

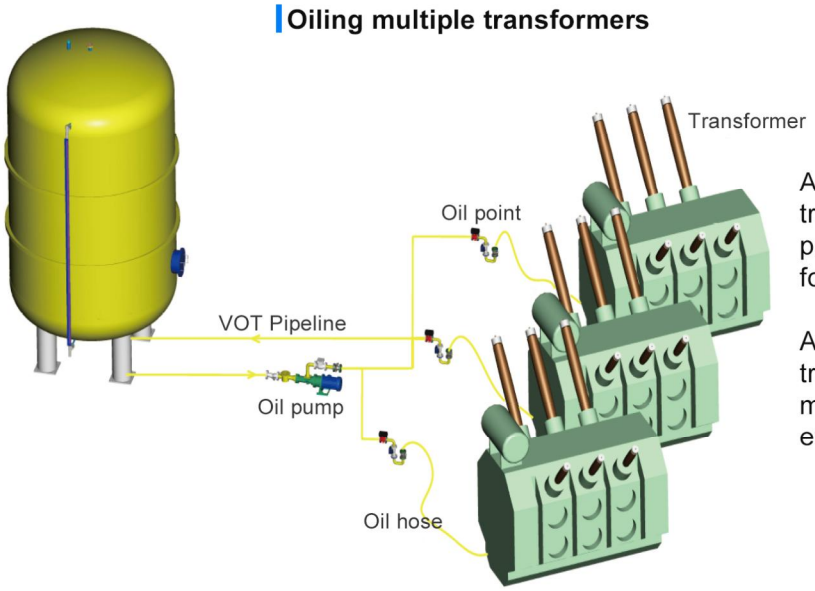
Oiling single transformer



Advice: "Oiling single transformer" model for theproduction line of decentralized transformer.

Advantage: This approach reduces constructionand maintenance costs on a simple operation system.

Oiling multiple transformers



Advice: "Oiling more than one transformers simultaneously"model for the production line of mass centralized transformers.

Advantage: Continuous supply of eligible transformer's oilwill meet the requirements that simultaneously inject oil intoseveral products.

05

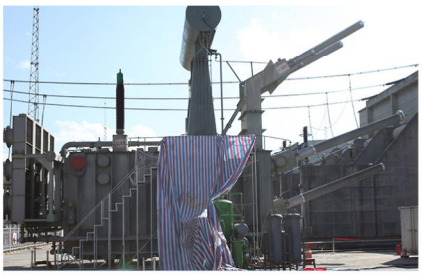
Oil Regeneration Service

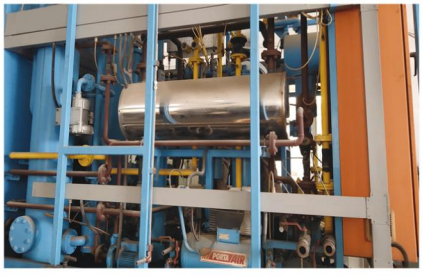
Product Introduction

Advanced online purification that eliminates acids, sludge, and aging contaminants without requiring power outages. Utilizing high-activity adsorption technology (such as Diatomite-based media)

Aavantage

- Adsorption-based treatment to eliminate acids, colloids, and oxidation byproducts.
- Effectively mitigating the aging of the oil-paper insulation system.
- Adsorption-based molecular filtration.
- High-porosity Diatomite / Fullers Earth specialized for acid removal.
- Removes oxidation byproducts and neutralizes acidity without de-energizing.





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OUR SERVICE

01

Transformer Services

Expert maintenance, diagnostic, and life-cycle support for your critical assets.

02

Independent Regional Distribution Network

Independent distribution networks deliver reliable power for industrial parks, enterprises and data centers.

03

Wind Power Plant

Wind power plants generate clean, renewable energy for stable and efficient power supply.

04

Distributed Photovoltaic

Distributed photovoltaic systems generate clean, on-site power for efficient and reliable energy supply.

05

Industrial and Commercial

Feature stable, large-scale and continuous energy consumption with high demand for reliability.

06

Transformer Manufacturing

Precision engineering for high-performance and durable power equipment.

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