

榮獲經濟部標準檢驗局ISO 9001、ISO 14001及OHSAS 18000認證之配電盤廠
The switchgear plant with ISO 9001、ISO 14001 & OHSAS 18000 certified by
Bureau of Standards, Metrology & Inspection (BSMI) Ministry of Economic Affairs, Taiwan



模鑄式變壓器

Cast Resin Transformer

與日本高岳公司 (TAKAOKA) 技術合作 · 符合 IEC 60076、CNS 13390、GB 1094及JIS C4306
Licensed by TAKAOKA, JAPAN · Comply with IEC 60076、CNS 13390、GB 1094 & JIS C4306



南亞塑膠工業股份有限公司 工務部 · 配電盤組
NAN YA PLASTICS CORPORATION Switchgear Unit, Engineering Div.

模鑄式變壓器

CAST RESIN TRANSFORMER

特點：

- 導入ERP、PLM、MES全製程電腦管理系統
- 具卷鐵心乾式變壓器製造技術及專利
- 唯一將衝擊波試驗列為出廠試驗項目
- 設計、製程及品質管理與日本同步
- 外銷日本超過1000台
- 規格：36KV以下



實績 7500 kVA



日本高岳公司技術合作，榮獲ILAC認可實驗室認證
符合規範IEC 60076、CNS 13390、GB 1094及JIS C4306
Licensed by TAKAOKA CHEMICAL CO., LTD.,
JAPAN and quality certified by ILAC accredited
laboratory Compliant with IEC 60076, CNS13390,
GB1094 and JIS C4306

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珍愛大地·環境優先

1. 公司簡介

南亞塑膠工業股份有限公司工務部配電盤組於1981年成立；主要生產中壓瓦斯絕緣開關箱、中壓開關箱、低壓開關箱、智慧型低壓馬達控制中心、真空接觸器及模鑄式變壓器等產品，為全台最大之配電盤生產廠。

模鑄式變壓器為2010年與日本高岳公司(TAKAOKA)技術合作，並於2011年經日本高岳公司品質認證後投產回銷日本；2013年完成IEC及中國GB型式試驗。

本公司設有訓練中心提供客戶全方位訓練、建立材料供應鏈及施工標準化以確保產品品質，並有定期保修及緊急搶修之良好售後服務之機制。本公司除了積極改善製程節能減碳符合環保、持續開發新產品及新技術提升產品競爭力外，更期許能為客戶提供更可靠、高品質、價格合理電力產品。



台塑企業內湖大樓
The headquarters of Formosa Plastics Group



新港廠
Shin Kang switchgear plant

Cherish the earth · Environment takes Priority

I. Company Profile

The Switchgear Plant of the Engineering Division at Nan Ya Plastics Corporation was established in 1981. As the largest switchgear manufacturer in Taiwan, our main products include medium-voltage gas-insulated switchgears, medium-voltage switchgears, low-voltage switchgears, smart low-voltage motor control centers, vacuum contactors, and cast resin transformers.

The production technology for cast resin transformers was transferred and licensed from Japan in 2010. After passing quality inspections and receiving certification in 2011, the products were exported for sale in Japan. Type tests, compliant with IEC and GB standards of China, were successfully completed in 2013.

We have established a training center to provide our customers with comprehensive training, established a supply chain for materials, ensured product quality through operational standardization, and implemented a complete after-sales service system, including regular maintenance and emergency equipment repairs. In addition to achieving energy resource savings and carbon reduction through the active improvement of environmentally friendly manufacturing processes and enhancing our competitive ability through the continuous development of new products and technologies, we promise to offer our clients more reliable electrical products with better quality and reasonable prices.



新港廠
Shin Kang switchgear plant

2. 品質認證 Quality Certifications



ISO9001 品質管理系統
ISO9001 Quality management system



ISO14001 環境管理系統
ISO14001 Environmental management system



ISO 45001 及 TOSHMS 職業安全衛生管理系統
ISO 45001 & TOSHMS Occupational Safety and Health Management System



高壓用電設備原製造廠
OEM of high voltage electric devices

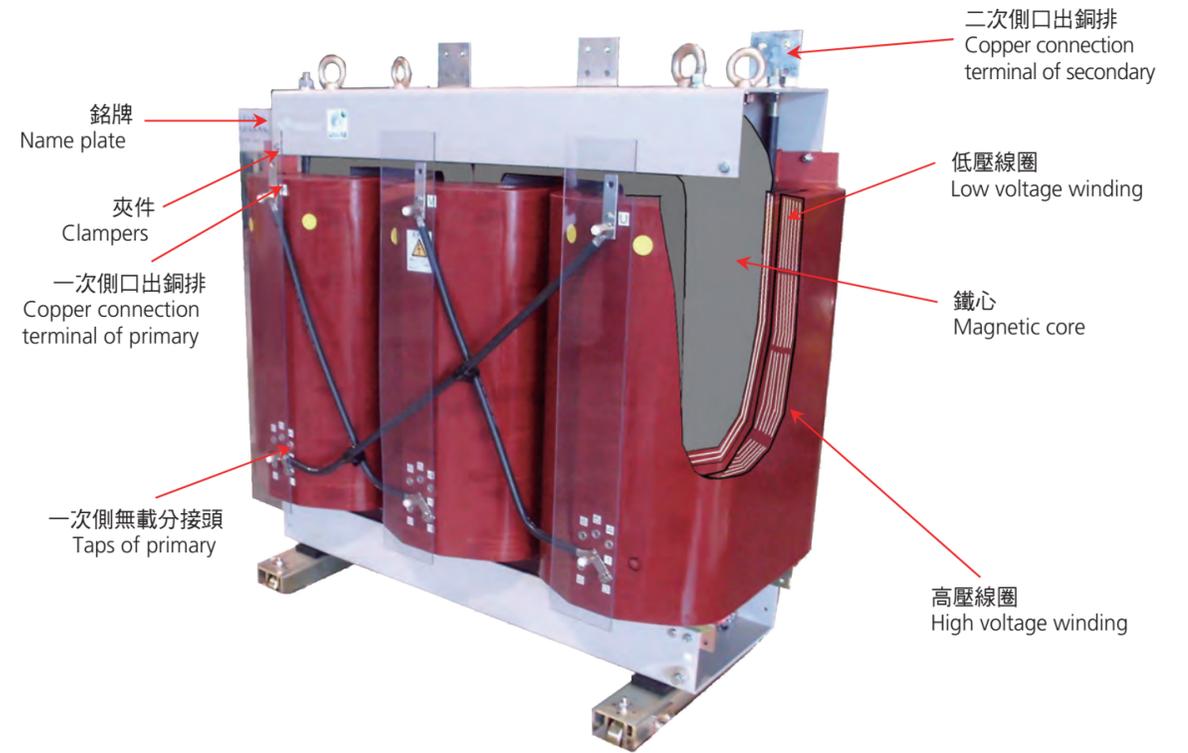


TAF 實驗室認證
TAF Labs certification



ILAC 認可實驗室之型式試驗報告
Type test reports issued by ILAC accredited Laboratory

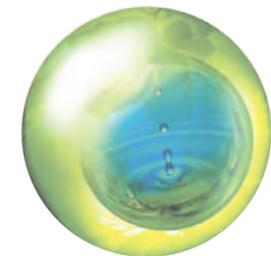
3. 產品特性 Product Characteristics



* 卷鐵心 Lap-cut wound cores



* 二次側口出銅排
Copper connection terminal of secondary



3. 產品特性

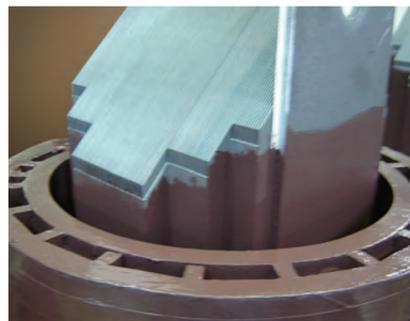
Product Characteristics

(一) 鐵心

1. 本公司模鑄式變壓器可分為積鐵心、接縫間斷式捲鐵心二種。通常小容量(750 kVA以下)採捲鐵心，大容量採積鐵心(1000 kVA以上)。截面形狀可分為矩形(卷鐵心)及階梯式圓形(積鐵心)兩種。鐵心結構主要優點是每層捲片接縫少，可減少空載損耗，縮小產品體積；積鐵心結構採用高導磁性之冷軋延方向性矽鋼片經45° 裁剪後堆疊而成，達到減少空載損耗及降低噪音。
2. 固定鐵心之夾件使用具高強度且表面塗有樹脂漆之鋼板製成，可承受變壓器因運輸、安裝及運轉時可能產生之振動。上夾件附有吊耳，以利變壓器吊運安裝，鐵心表面塗有樹脂漆，以防止矽鋼片之吸濕及氧化生銹。



捲鐵心 Lap-cut wound cores



積鐵心 Stacked cores

(I) Magnetic cores

1. Our company's cast resin transformers can be categorized into wound cores and stacked cores. Typically, small capacities (up to 750 kVA) use wound cores, while large capacities employ stacked cores (above 1000 kVA). The cross-sectional shapes include rectangular (for wound cores) and stepped circular (for stacked cores). The wound core structure offers advantages such as fewer joints per layer, reducing no-load losses and noise, and minimizing product weight and volume. Stacked cores utilize high-permeability cold-rolled directional silicon steel sheets cut at a 45° angle to reduce no-load losses and lower noise.
2. The clamps for securing the core are made of high-strength steel plates with a resin coating on the surface, capable of withstanding vibrations that may occur during the transportation, installation, and operation of transformers. The upper clamps come with lifting ears for easy transformer handling and installation. The core surface is coated with resin paint to prevent moisture absorption and oxidation of the silicon steel sheets.

3. 產品特性

Product Characteristics

(二) 線圈

1. 本公司模鑄式變壓器可分為高壓線圈及低壓線圈，二者採分離型設計分別獨立繞線。線圈鋁捲板厚度搭配選用適當絕緣紙(PET)，絕緣破壞電壓要求5.8 kV以上，鋁捲板與口出銅排採冷壓方式(cold pressure welding)接續，不需加熱即可獲得高強度的熔接效果，接觸電阻低，無局部發熱，可避免焊渣噴濺，影響品質。
2. 高低壓線圈採用倒角處理鋁捲板及F級的絕緣材料，外部以環氧樹脂密封強固，使線圈具有防潮、防塵、不自燃、不助燃、無毒及免維護之特性，雖經長期存放，亦可隨時供電運轉。此外，樹脂+石英粉與鋁的搭配方式熱膨脹係數差距比銅小，線圈內受的熱應力較小，壽命長，如下表。

材料 Materials	熱膨脹係數(20°C) Thermal expansion coefficient (20°C)
樹脂+石英粉 Resin + silica powder	26.2x10 ⁻⁶
鋁 Aluminum	23.8 x10 ⁻⁶
銅 Copper	16.8 x10 ⁻⁶

(II) Coils

1. The cast resin transformers comprise high-voltage coils and low-voltage coils, both designed with a separated winding structure. The aluminum foil, combined with double-layer insulation paper (PET), ensures sufficient and stable insulation strength between winding layers. The connection between aluminum coil plates and copper busbars is achieved through cold pressure welding, ensuring a high-strength fusion effect without heating, low contact resistance, no local heating, and avoiding welding slag splatter that could impact quality.
2. Both the high and low-voltage coils undergo chamfered aluminum foil and use Class F insulation materials. The external enclosure is solidified with epoxy resin, providing the coils with moisture-proof, dust-proof, non-flammable, non-combustible, non-toxic, and maintenance-free characteristics. This design allows the transformer to be operational at any time, even after prolonged storage. Additionally, the combination of resin, quartz powder, and aluminum results in a lower coefficient of thermal expansion than copper, minimizing thermal stress within the coils and extending their lifespan, as shown in the left table.



3. 產品特性

Product Characteristics

- 高壓線圈以特殊捲繞方式製作使電位達到最佳分布，並採用日本NLC公司真空灌注設備，在高真空度2 Torr以下進行灌注，大幅降低線圈內氣隙存在機率，使出廠變壓器局部放電值維持在5 pC以內，提高變壓器壽命。
- 高低壓線圈具有堅固之短路機械強度，確保變壓器之使用壽命，變壓器出廠以衝擊波全波及半波各測試一次確保絕緣距離足夠及本體之結構強度。

系統額定電壓 System ratings Voltage r.m.s.(kV)	商用頻率耐電壓 Commercial frequency Withstand voltage r.m.s.(kV)	衝擊電壓 Impulse voltage (kV)
≤1.1	3	---
3.6	10	40
7.2	20	60
12	28	75
17.5	38	95
24	50	125
36	70	170



3. The high-voltage coils are manufactured using a special winding method to achieve optimal potential distribution. Vacuum impregnation is carried out using equipment from Japan's NLC Company under a high vacuum of 2 Torr or below, significantly reducing the probability of air gaps within the coils. This ensures that the partial discharge value of transformers at the time of delivery remains within 5 pC, enhancing the transformer's lifespan.

4. Both high and low-voltage coils possess robust short-circuit mechanical strength, ensuring the transformer's operational lifespan. Every transformers undergo full-wave and half-wave impluse testing upon leaving the factory to confirm sufficient and complete insulation structure.



3. 產品特性

Product Characteristics

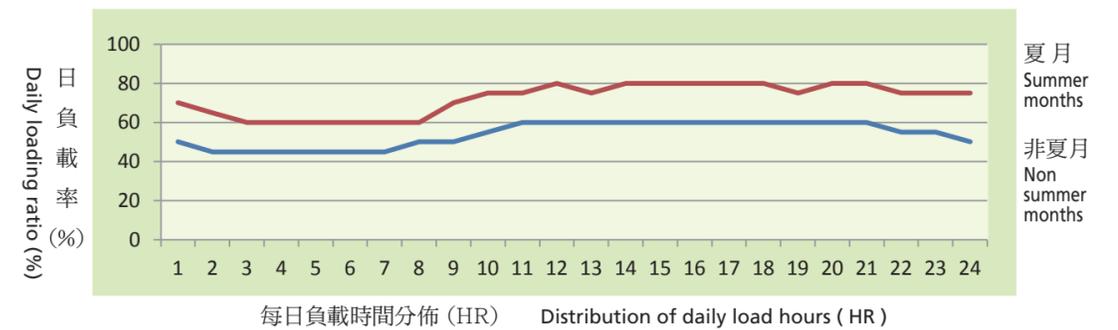
(三) 節能特色

無負載損及負載損是變壓器運轉中產生的損失，降低變壓器運轉損失即能達到節能環保之目的。

案例：以20年前3φ 2500 kVA 60 Hz與高效率節能型變壓器進行比較。

(Ⅲ) Energy Saving Characteristics

The purpose of energy saving and environmental protection can be achieved by reducing no-load and load losses, which are generated during operation of transformers. Cases: a comparison between 3φ 2500 kVA 60 Hz transformers manufactured twenty year ago and high efficiency energy-saving transformers.



20年前3φ 2,500 kVA 60 Hz變壓器：
無載損 5,000 W
有載損 25,000 W
3 φ 2,500kVA 60 Hz transformers made 20 years ago :
No-load loss 5,000 W
Load loss 25,000 W

高效率節能型3φ 2,500 kVA 60 Hz變壓器：
無載損 3,700 W
有載損 17,000 W
High efficiency energy-saving 3 φ 2,500 kVA 60 Hz transformers :
No-load loss 3,700 W
Load loss 17,000 W

每年可節省費用計算如下 The calculation of power costs saved each year is as follows

夏月 Summer months		非夏月 Non summer months		20年前 變壓器 made 20 years ago	高效率 節能型 變壓器 High efficiency energy-saving transformers	全年可 節省費 用(元) Power costs saved in an entire year (TWD) (%)	與20年 前變壓 器之差 異率 Differential ratio with the transformers made 20 years ago (%)
時間分布 Time distribution	單價 (元/度) Unit price (TWD/kWh)	時間分布 Time distribution	單價 (元/度) Unit price (TWD/kWh)	全年電費(元) Power costs for the entire year (TWD)			
尖峰 Peak hours	10:00~12:00 13:00~17:00 6HR 4.4	-	-	322,835	225,923	96,912	30
半尖峰 Half-peak hours	07:30~10:00 12:00~13:00 17:00~22:30 9HR 2.9	07:30 ~22:30 15HR 2.8					
離峰 Off-peak hours	22:30~07:30 9HR 1.5	22:30 ~07:30 9HR 1.4					

註：全損 = 無負載損 + (負載率/100)² x 負載損

用電量(kWh) = 全損 x 時間

電費 = Σ (各段時間用電量 x 各段時間電價)

Note : total loss = No-load loss + (load ratio/100)² x load loss

Power consumption (kWh) = total loss x time

Power costs = Σ (power consumption for each time segment x power price for each time segment)

4. 製造設備

Manufacturing Equipment

製程設備與日本高岳公司相同或共同開發製造；製程中之條件如溫度、時間、真空度等由多點式資料蒐集記錄器進行記錄，透過網路連線隨時可由製程及品管人員進行監控，確保製程中品質。

The manufacturing equipment is identical to that used by TAKAOKA or is manufactured through joint R&D with TAKAOKA; manufacturing conditions such as temperature, time, vacuum degree, etc. are recorded by multi-point data collection and recording devices and can be monitored at any time by processing or QC personnel through a network connection to ensure quality during manufacturing.



石英砂乾燥處理設備
Silica powder drying treatment equipment



樹脂預攪拌設備
Resin pre-mixing equipment



快速混料灌注設備
Quick mixing and casting equipment



真空灌注設備
Vacuum casting equipment



低壓線圈繞線設備
High-voltage coil winding equipment



高壓線圈繞線設備
Low-voltage coil winding equipment

5. 試驗設備及檢驗測試項目

Testing Equipment and Inspection & Testing Items

(一) 原料檢驗與測試:

本公司生產用料入廠時皆依規範進行檢驗，並對用料供應商定期評核，確保供應鏈用料品質；製造過程中針對樹脂特性再逐項檢驗，透過嚴格監控確保每顆線圈灌注過程的品質。

製程中檢驗項目比照日本高岳公司外，另加入樹脂Tg點測試及樹脂灰分試驗項目，嚴格監控樹脂配比及製程條件。

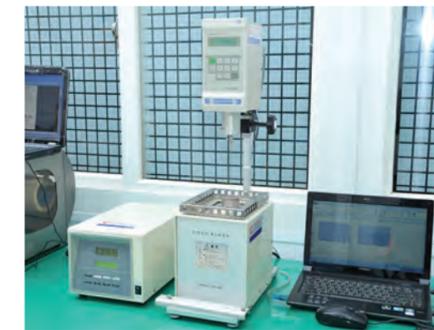
(I) Raw Materials Inspection and Testing

Raw materials used in our production are tested per specifications when arrive. There is a formal program of periodic quality audits to ensure the quality of materials from the supply chain. Resins are also subject to each of the various tests based on their characteristics during manufacturing processes, and strict monitoring ensures the quality of each of the coils during casting process. In addition to the inspection items implemented by TAKAOKA during the manufacturing processes, we add two more tests, resin Tg point test and ash content test, to strictly check the mixing proportion and manufacturing conditions of resin.

入料檢驗 Raw Materials Inspection	製程中檢驗 Inspection during process
各項用料依請購規範進行檢驗 Raw materials are tested per purchase specifications	樹脂黏度試驗 Resin viscosity testing
樹脂外觀檢驗 Resin shape inspection	樹脂 HDT 試驗 Resin HDT testing
樹脂膠化時間試驗 Resin gel time testing	樹脂灰分試驗 Resin ash content testing
樹脂黏度試驗 Resin viscosity testing	樹脂 Tg 點測試 Resin Tg point testing
-	樹脂含浸試驗 Resin impregnation testing



樹脂HDT試驗設備
Resin HDT testing equipment



樹脂黏度試驗設備
Resin viscosity testing equipment



樹脂膠化時間試驗設備
Resin gel time testing equipment



樹脂灰分試驗設備
Resin ash content testing equipment



樹脂Tg點測試設備
Resin Tg point testing equipment



樹脂含浸試驗設備
Resin impregnation testing equipment

5. 試驗設備及檢驗測試項目

Testing Equipment and Inspection & Testing Items

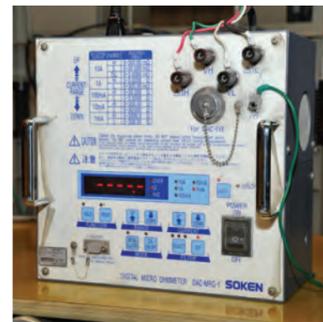
(二) 成品檢驗與測試:

出廠時依據IEC 60076、CNS 13390 C4468、GB 1094、JIS C4306或其他相關規範進行例行性試驗(亦可配合客戶進行特殊試驗)確保每台MTR之品質。

出廠試驗 Products manufactured factory tests		
例行試驗 Routine tests	特殊試驗 Special tests	
繞組電阻試驗 Measurement of winding resistance	AC耐壓試驗 Separate-source AC withstand voltage test	溫升試驗 Temperature-rise test
匝比及相位試驗 Measurement of voltage ratio and check of phase displacement	感應電壓試驗 Induced AC withstand voltage test	噪音試驗 Measurement of sound level
無載損及無載電流試驗 Measurement of no-load loss and current	部分放電試驗 Partial discharge measurement	-
負載損及阻抗電壓測試 Measurement of load loss and Short-circuit impedance test	衝擊電壓試驗 Lightning impulse test	-

(II) Inspection and Testing of Final Products:

Routine tests according to IEC 60076, CNS 13390 C4468, GB 1094, JIS C4306, and other quality standards, as well as special tests specified by customers have been completed in the course of our supply.



繞組電阻試驗
Measurement of winding resistance



無載損及無載電流試驗
負載損及阻抗電壓試驗
Measurement of no-load loss and current
Measurement of load loss and Short-circuit impedance test



匝比及相位試驗
Measurement of voltage ratio and check of phase displacement



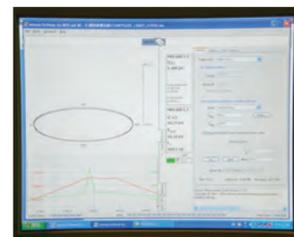
AC耐壓試驗
Separate-source AC withstand voltage test



溫升試驗
Temperature rise test



衝擊波測試
Lightning impulse test



部分放電測試
Partial discharge test



感應電壓測試
Induced AC withstand voltage testing



噪音測試
Sound level testing

6. 產品規範

Product Specifications

(一) 適用環境：本公司生產之變壓器，使用環境於周溫最低-5°C，最高溫度不得超過40°C，最大相對濕度為100%，標高在海拔1000公尺以下。

(二) 品質標準：模鑄式變壓器之設計、製造及試驗符合最新之IEC 60076、CNS 13390 C4468、GB 1094、JIS C4306等相關標準之規定。

(三) 型式：乾式F級雙繞組樹脂型線圈、屋內用、空氣自然冷卻及強迫風冷方式。

(四) 本體保護等級：IP00。

(五) 外箱保護等級：IP20-IP43。

(六) 承製能力：36 kV 75000 kVA以下。

(七) 附件：

標準配備 Standard parts	選配附件 Optional accessories
接地端子 Ground terminal	型輪 Wheel
銘牌 Rating plate	橫流扇 Cross flow fan
吊耳 Lug	溫度電驛(搭配外箱選配) Temperature relay (Optional with enclosure)
高低壓口端子 High & low voltage terminal	
無載切換端子 No-load taps	
底座 Bottom platform	
防震墊塊 Anti-Vibration Pads	
端子蓋板 Terminal cover	

(I) Applicable Environments:

The transformers may be used in an environment with ambient temperature ranging from a minimum of -5°C to the maximum of 40°C, and a maximum RH of 100% and an altitude below 1,000 meters.

(II) Reference standards:

The design, manufacturing, and testing of the resin cast transformers are based on newest standards such as IEC 60076, CNS 13390 C 4468, GB 1094, JIS C4306, and other relevant standards.

(III) Type:

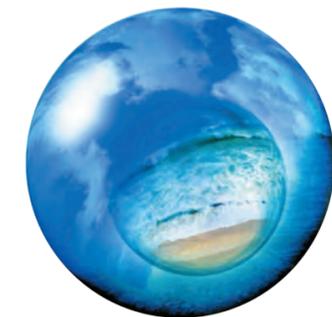
Dry-type F-class two-winding resin coils for indoor use, natural and forced air cooling.

(IV) Protection grade for the transformer : IP00.

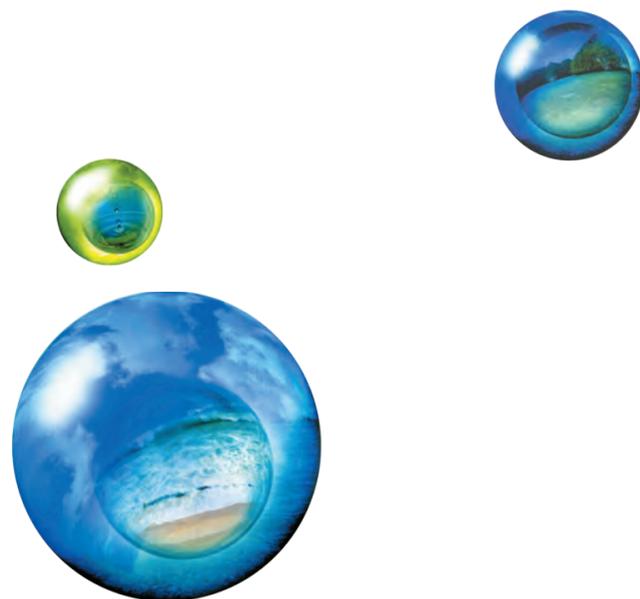
(V) Protection grade for the enclosure : IP20-IP43.

(VI) Manufacturing capability: below 36 kV, 7500 kVA.

(VII) Accessories:



6. 產品規範 Product Specifications

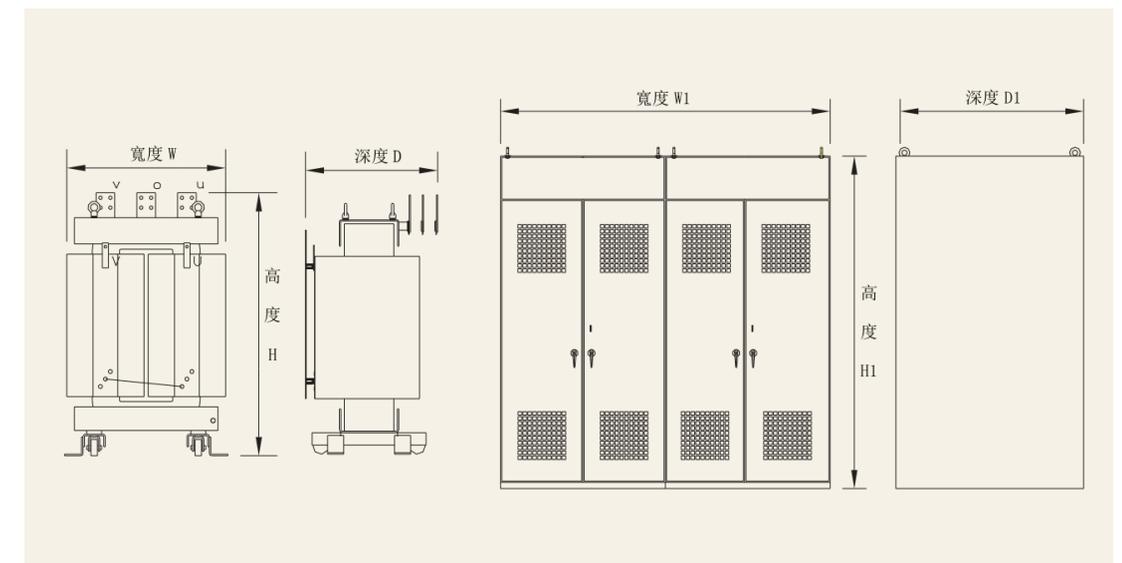


7. 特性資料 Technical Data

(1) 高壓模鑄式變壓器 High voltage Cast Resin Transformer

單相 3.3/6.6 kV 60 Hz (符合 IEC 60076-11及CNS 13390 C4468)
1 ϕ 3.3/6.6 kV 60 Hz (Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		阻抗電壓 R Impedance voltage at 75°C(%)	無載損 No load loss (W)	負載損 Load loss at 75°C(W)	效率 Efficiency (%)	激磁電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.							寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRT-S75/6	75	F3600	220	4-5	300	1100	98.16	4.0	56	690	520	840	320	1000	800	1500	450
MTRT-S100/6	100	F3300	220	4-5	310	1500	98.22	4.0	56	580	515	830	350	900	800	1500	450
MTRT-S150/6	150	F3000	220	5-6	400	2000	98.42	3.0	58	625	520	950	450	900	800	1500	550
MTRT-S200/6	200	F7200	220	5-6	450	2600	98.49	3.0	60	660	555	1055	570	900	900	1500	700
MTRT-S300/6	300	R6600	220	5-6	550	3200	98.76	3.0	62	695	600	1175	780	1000	1000	1500	950
MTRT-S500/6	500	F6000	220	5-6	800	3700	99.10	2.5	62	785	700	1260	1250	1100	1100	1500	1500



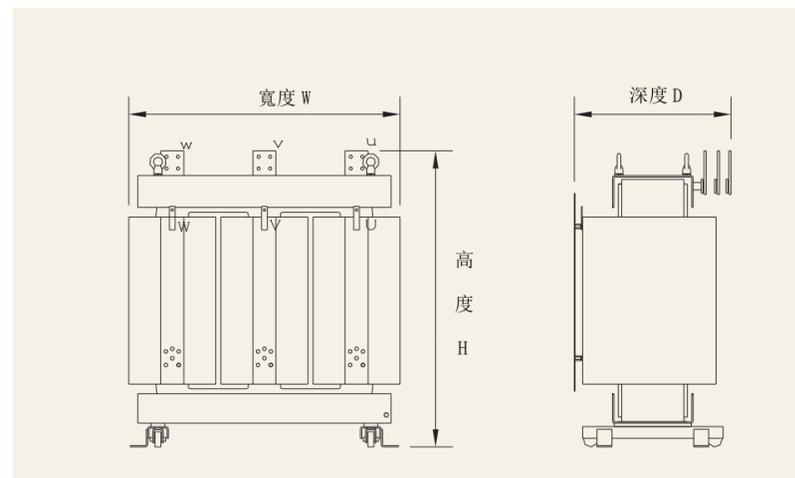
7. 特性資料

Technical Data

三相 3.3/6.6 kV 60 Hz (符合 IEC 60076-11及 CNS 13390 C4468)

3 ϕ 3.3/6.6 kV 60 Hz (Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 R Impedance voltage at 75°C (%)	無載損 No load loss (W)	負載損 Load loss at 75°C(W)	效率 Efficiency (%)	激磁電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.								寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRT-T150/6	150	F3600	220	Y- Δ	4-5	600	2100	98.23	3.2	58	860	510	820	530	1200	800	1500	650
MTRT-T200/6	200				4-5	700	2550	98.40	3.0	60	860	505	955	660	1200	800	1500	800
MTRT-T300/6	300				F3450	220	Y- Δ	4-5	850	3300	98.63	3.0	62	990	550	1055	870	1300
MTRT-T500/6	500	R3300	4-5	1200				4600	98.85	2.5	62	1040	645	1175	1370	1300	1000	2000
MTRT-T200/6	200	F3150	380- 220	Δ -Y	4-5	650	2600	98.40	3.0	60	860	460	955	670	1200	800	1500	850
MTRT-T300/6	300	F3000			4-5	800	3100	98.71	3.0	62	990	505	1055	870	1300	800	2350	1050
MTRT-T500/6	500	/			4-5	1200	4800	98.81	2.5	62	1040	600	1175	1370	1300	900	2350	1650
MTRT-T750/6	750	F7200			4-5	1900	6300	98.91	2.5	64	1180	650	1260	1950	1500	1000	2350	2350
MTRT-T1000/6	1000	F6900			5-6	2700	7800	98.96	2.5	64	1680	900	1650	2800	2000	1300	2350	3300
MTRT-T1500/6	1500	R6600			5-6	3800	11000	99.02	2.0	65	1890	950	1850	4000	2100	1300	2600	4700
MTRT-T2000/6	2000	F6300			5-6	5500	13200	99.07	2.0	66	1890	1000	1900	4300	2100	1400	2600	5100
MTRT-T2500/6	2500	F6000			5-6	6500	15500	99.12	2.0	68	2100	1150	2000	5600	2400	1500	2600	6500
MTRT-T3000/6	3000				5-6	7500	17500	99.17	1.5	68	2200	1200	2250	6500	2500	1500	2750	7400



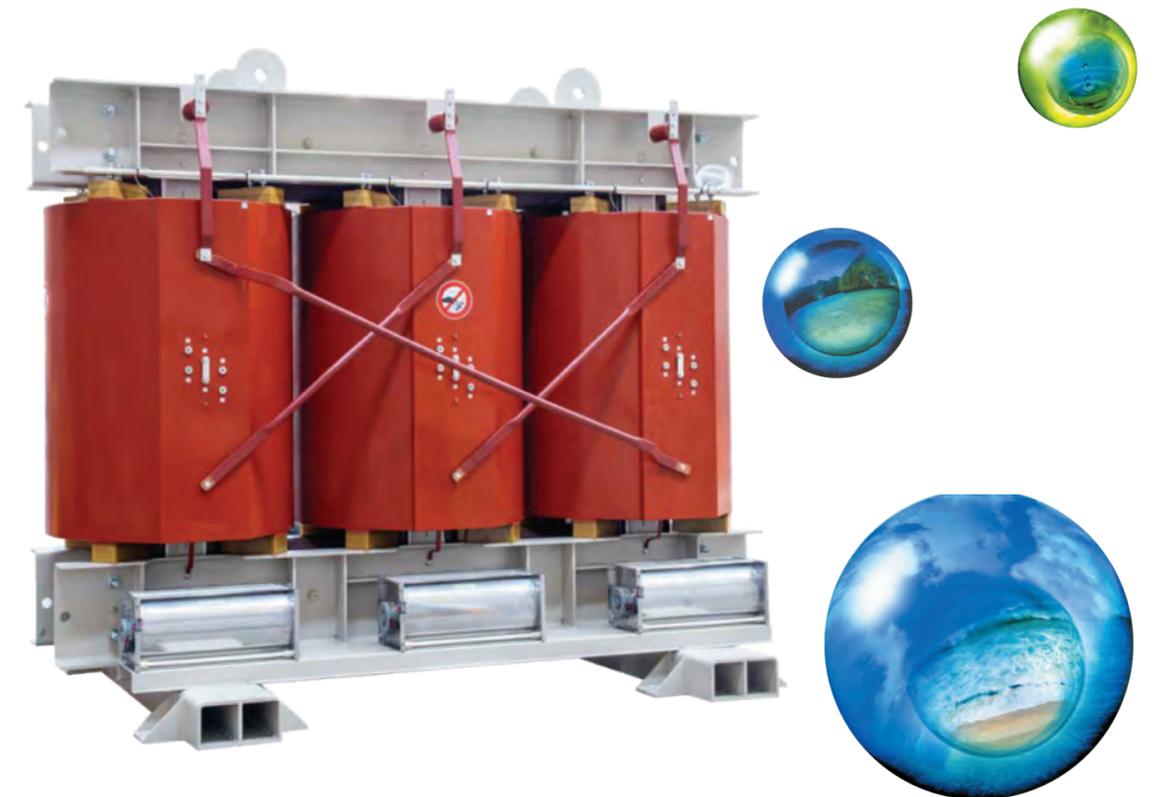
7. 特性資料

Technical Data

三相 11.4kV 60Hz (符合 IEC 60076-11及 CNS 13390 C4468)

3 ϕ 11.4 kV 60 Hz (Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 R Impedance voltage at 75°C (%)	無載損 No load loss (W)	負載損 Load loss at 75°C(W)	效率 Efficiency (%)	激磁電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.								寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRT-T500/12	500	F12000 F11700 R11400 F11100 F10800	380- 220	Δ -Y	4	1633	5967	98.5	1.4	62	1470	780	1835	2200	1900	1500	2350	3137
MTRT-T750/12	750				6	2187	8464	98.6	1.4	64	1680	780	1665	2550	2100	1500	2350	3532
MTRT-T1000/12	1000				6	2743	9369	98.8	1.3	64	1800	780	1750	3200	2200	1500	2350	4205
MTRT-T1250/12	1250				6	3030	10851	98.9	1.2	65	1920	900	1865	4000	2300	1600	2350	5057
MTRT-T1500/12	1500				6	3394	13255	98.9	1.2	65	1920	900	1865	4200	2300	1600	2350	5257
MTRT-T2000/12	2000				6	3996	18221	98.9	1.2	66	2040	900	2230	5200	2500	1600	2700	6390
MTRT-T2500/12	2500				6	5828	19301	99.0	1.1	68	2280	1020	2285	5900	2700	1700	2800	7198
MTRT-T3000/12	3000				6	6900	23281	99.0	1.1	68	2310	1040	2240	6900	2700	1800	2800	8230



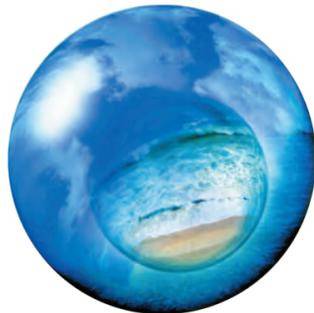
7. 特性資料

Technical Data

三相 22.8kV 60Hz (符合IEC 60076-11及CNS 13390 C4468)

3 ϕ 22.8 kV 60 Hz (Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 R Impedance voltage at 75°C (%)	無載損 No load loss (W)	負載損 Load loss at 75°C(W)	效率 Efficiency (%)	激磁 電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.								寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRT-T500/24	500	F24000 F23400 R22800 F22200 F21600	380- 220	Δ -Y	6	1714	5907	98.5	1.5	62	1560	880	1710	2000	2200	1700	2350	3063
MTRT-T750/24	750				6	2314	8326	98.6	1.4	64	1770	965	1730	2700	2400	1800	2350	3840
MTRT-T1000/24	1000				6	2843	9339	98.8	1.3	64	1890	965	1850	3550	2500	1800	2500	4752
MTRT-T1250/24	1250				6	3317	10622	98.9	1.2	65	1800	965	2080	3700	2400	1800	2700	4928
MTRT-T1500/24	1500				6	4205	12484	98.9	1.2	65	1950	980	1980	4200	2600	1800	2600	5452
MTRT-T2000/24	2000				6	4948	17209	98.9	1.2	66	2070	1010	2250	5200	2700	1800	2900	6557
MTRT-T2500/24	2500				6	6757	1857	99.0	1.1	68	2280	1130	2280	6500	2900	2000	2900	7976
MTRT-T3000/24	3000				6	6609	23731	99.0	1.1	68	2280	1150	2300	6900	2900	2000	2900	8376



7. 特性資料

Technical Data

(2) 超高效率模鑄式變壓器 Super high efficiency Cast Resin Transformer

三相 11.4kV 60Hz (符合IEC 60076-11及CNS 13390 C4468)

3 ϕ 11.4 kV 60 Hz (Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 R Impedance voltage at 75°C (%)	無載損 No load loss (W)	負載損 Load loss at 75°C(W)	效率 Efficiency (%)	激磁 電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.								寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRT-TH500/12	500	F12000 F11700 R11400 F11100 F10800	380- 220	Δ -Y	4	1223	4352	98.9	1.4	58	1470	825	1835	2200	1900	1500	2350	3137
MTRT-TH750/12	750				6	1654	5941	99	1.4	58	1680	800	1665	2550	2100	1500	2350	3532
MTRT-TH1000/12	1000				6	2067	8050	99	1.3	58	1800	800	1750	3200	2200	1500	2350	4205
MTRT-TH1250/12	1250				6	2486	10151	99	1.2	59	1920	925	1865	4000	2300	1600	2350	5057
MTRT-TH1500/12	1500				6	2545	11111	99.1	1.2	59	1920	925	1865	4200	2300	1600	2350	5257
MTRT-TH2000/12	2000				8	2983	15163	99.1	1.2	60	2040	975	2230	5200	2500	1600	2700	6390
MTRT-TH2500/12	2500				8	4349	15694	99.2	1.1	62	2280	1000	2285	5900	2700	1700	2800	7198
MTRT-TH3000/12	3000				6	5169	18966	99.2	1.1	62	2310	1100	2240	6900	2700	1800	2800	8230

三相 22.8kV 60Hz (符合IEC 60076-11及CNS 13390 C4468)

3 ϕ 22.8 kV 60 Hz(Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 R Impedance voltage at 75°C (%)	無載損 No load loss (W)	負載損 Load loss at 75°C(W)	效率 Efficiency (%)	激磁 電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.								寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRT-TH500/24	500	F24000 F23400 R22800 F22200 F21600	380- 220	Δ -Y	6	1277	4303	98.9	1.5	58	1560	825	1710	2000	2200	1700	2350	3063
MTRT-TH750/24	750				6	1905	5691	99	1.4	58	1770	900	1730	2700	2400	1800	2350	3840
MTRT-TH1000/24	1000				6	2112	8022	99	1.3	58	1890	930	1850	3550	2500	1800	2500	4752
MTRT-TH1250/24	1250				6	2481	10185	99	1.2	59	1800	930	2080	3700	2400	1800	2700	4928
MTRT-TH1500/24	1500				6	3134	10495	99.1	1.2	59	1950	950	1980	4200	2600	1800	2600	5452
MTRT-TH2000/24	2000				6	3731	14485	99.1	1.2	60	2070	1000	2250	5200	2700	1800	2900	6557
MTRT-TH2500/24	2500				6	4959	15292	99.2	1.1	62	2280	1000	2280	6500	2900	2000	2900	7976
MTRT-TH3000/24	3000				6	4944	19235	99.2	1.1	62	2280	1100	2300	6900	2900	2000	2900	8376



7. 特性資料

Technical Data

(3) 非晶質模鑄式變壓器 Amorphous Metal Cast Resin Transformer

三相 22.8kV 60Hz (符合IEC 60076-11及CNS 13390 C4468)

3φ 22.8kV 60Hz(Compliant with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 Rimpedance voltage at 120°C (%)	無載損 No load loss (W)	負載損 Load loss at 120°C(W)	效率 Efficiency (%)	激磁 電流 Exciting current (%)	噪音 Sound level (dB)	變壓器本體(IP00) 不含風扇 Transformer body (IP00) Without fan				變壓器箱體(IP30) 不含風扇 Transformer box (IP30) Without fan			
		一次 Primary H.V.	二次 Secondary L.V.								寬度 W W(mm)	深度 D D(mm)	高度 H H(mm)	重量 Weight (kg)	寬度 W1 W1(mm)	深度 D1 D1(mm)	高度 H1 H1(mm)	重量 Weight1 (kg)
MTRA- T750/24	750	F24000	380	Δ-Y	6	635	10000	98.6	1.4	64	1900	1020	2140	4000	2380	1920	2480	4500
MTRA- T1000/24	1000	F23400			6	640	12500	98.6	1.2	64	1900	1070	2272	4950	2380	1970	2615	5550
MTRA- T1250/24	1250	R22800			6	808	13622	98.8	1.2	65	1915	1090	2272	5100	2395	1990	2615	5800
MTRA- T1500/24	1500	F22200			6	1056	16550	98.8	1.2	65	1965	1100	2272	5300	2445	2000	2615	6100
MTRA- T2000/24	2000	F21600			6	1320	22984	98.8	1.0	66	2150	1190	2390	7000	2630	2090	2730	8200





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