

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



台灣精品 2022
TAIWAN EXCELLENCE

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



台塑企業
FORMOSA PLASTICS GROUP



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.

品質穩定 Stable Quality

技術可靠 Reliable Technology

環境優先 Environment Priority

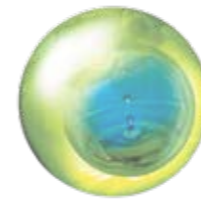


日本高岳公司技術合作，榮獲ILAC認可實驗室認證
符合規範IEC 60076、CNS 13390、GB 1094及JIS C4306
效率符合日本TOP-RUNNER及大陸GB S10標準

Licensed by TAKAOKA CHEMICAL CO., LTD., JAPAN and quality certified by ILAC accredited laboratory
Compliant with IEC 60076, CNS13390, GB1094 and JIS C4306
Energy efficiency performance compliant with TOP-RUNNER of Japan and GB S10 of China

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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 Engineering Division, Nan Ya Plastics Corporation was established in 1981; as the largest switchgear manufacturer in Taiwan, our main products include Medium voltage gas insulation switchgears, Medium voltage switchgears, Low voltage switchgears, Smart low voltage motor control centers, Vacuum contactors and Cast resin transformers.

The production technology of cast resin transformers was transferred and licensed by TAKAOKA CHEMICAL CO., Japan in 2010. As the quality passed the inspection and certified by TAKAOKA in 2011, the products were exported for sale to Japan; type tests complied with IEC and GB of China were completed in 2013.

We set up a training center which provides our customers with comprehensive training, establish supply chain of materials, guarantee product quality through operation standardization, and offer a complete after-sale service system including regular maintenance and emergency repair of equipment. In addition to achieving energy-resource-saving and carbon reduction through active improvement of environmental-friendly manufacturing processes and elevating 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 price.



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



OHSAS18001職業安全衛生管理系統
OHSAS18001 Occupational Safety and Health Management System



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



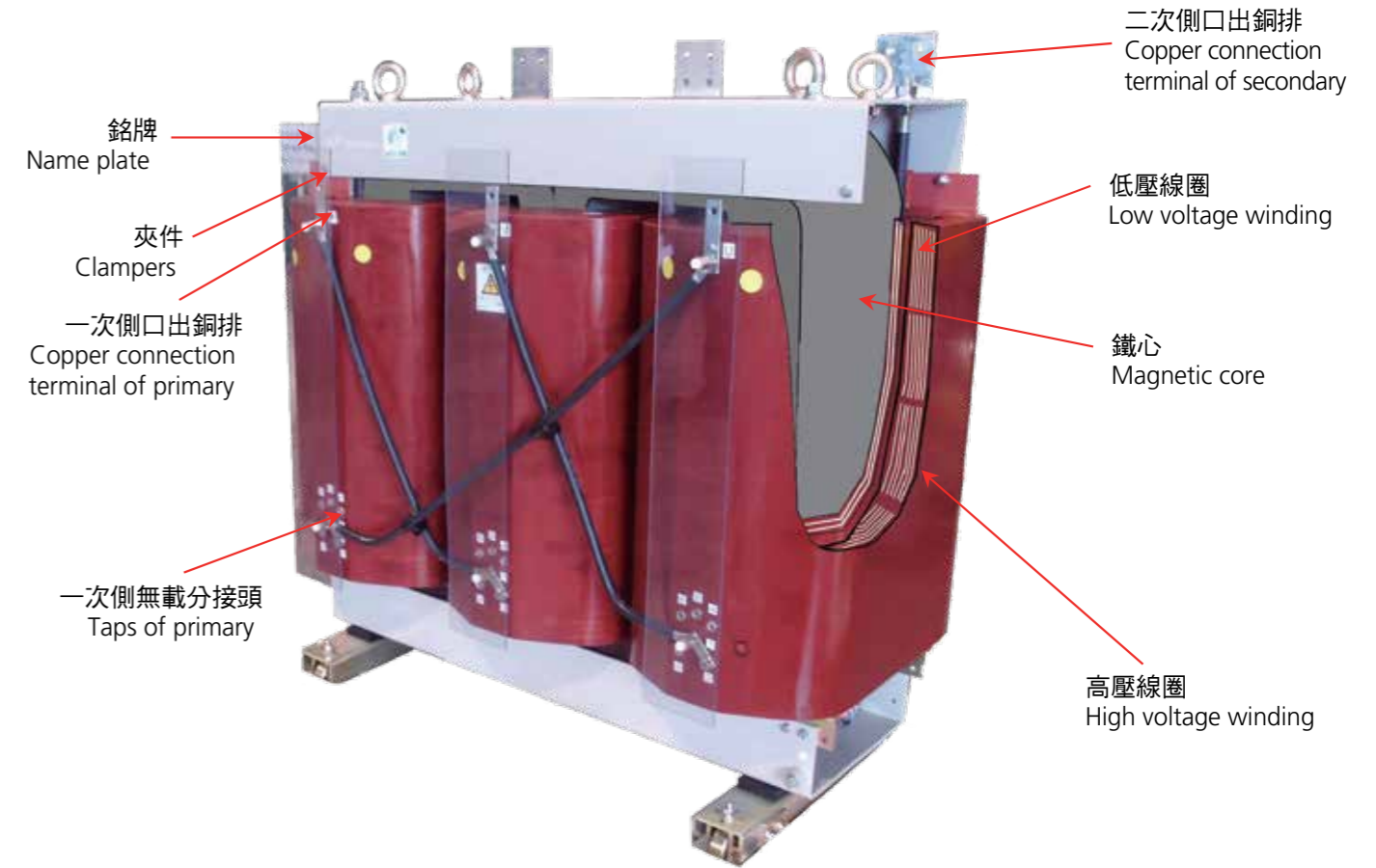
TAF實驗室認證
TAF Labs certification



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

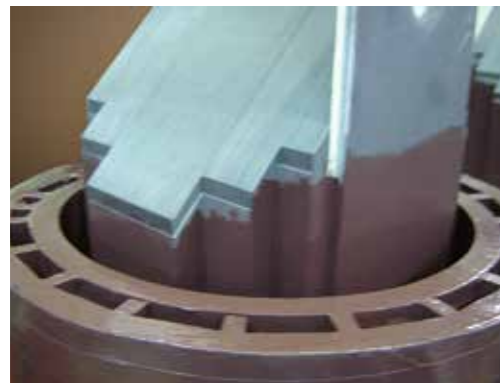
Product Characteristics

(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 Stacking cores

(1) Magnetic cores

1. The magnetic cores can be divided into two types, stacking cores or lap-cut wound cores. Generally, small capacity transformers (capacities of less than 750 kVA) use wound cores, and large capacity ones (capacities of greater than 1000 kVA) use stacking cores. Their cross-section shapes may also be divided into rectangular shapes (for wound cores) and step circular shapes (for stacking cores). The major advantages of wound core structures are the fewer gaps on each rolled grain-oriented magnetic steel sheet to reduce no load loss and compact product volumes; a structure of stacking magnetic cores is manufactured by stacking grain-oriented magnetic steel sheets with high permeability and cutting at 45 degrees to reduce no load loss and noise.
2. The clampers fixing magnetic cores are made of high strength steel plates with the surfaces coated in resin paint to withstand the vibrations likely to be caused by the transformers due to transportation, installation, and operations. The upper clampers are attached with lugs to facilitate the hoisting and installation of transformers, and the surfaces of magnetic cores are coated with resin paint to prevent the rusting of silicon steel sheets due to the absorption of humidity and oxidization.

3. 產品特性

Product Characteristics

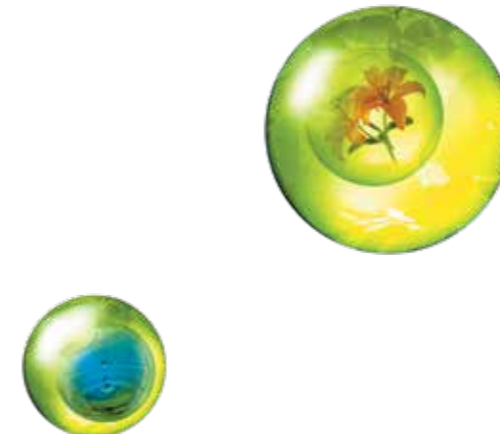
(二) 線圈

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，外部以環氧樹脂密閉強固，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

(2) Coils

1. Cast resin transformers have high voltage coils and low voltage coils; both are naturally interdependent and wound separately. Appropriate insulation paper (PET) is selected to match the thickness of aluminum/copper foil in the coils, and the insulation breakdown voltage is required to exceed 5.8 kV, the aluminum/copper foil is joined with the copper lead-out by cold pressure welding, which achieves high strength fusion and low contact resistance without heating and avoids the impact upon coil quality from welding slag splashing and local overheating.
2. High-voltage and low-voltage coils use deburred aluminum/copper foil and F-class insulation materials, and both are encapsulated in reinforced epoxy resin to ensure the coils against moisture and dust, prevent self-ignition and combustion-supporting, and be free of toxins and require minimal maintenance; they can operation at any time to output power despite long time storage. In addition, the coefficient of thermal expansion of resin and silica powder combination is closer to that of aluminum than that of copper, thus resulting in smaller thermal stress in the aluminum foil coils and achieving a long service life, as shown in the table on the left.



3. 產品特性

Product Characteristics

3. 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10 pC以內，提高變壓器壽命。
4. 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。

3. High-voltage coils are made by use a special winding method to achieve an optimal distribution of electric potential. Vacuum cast equipment from NLC of Japan is used to cast the coils under a degree of vacuum lower than 2 Torr for the purpose of low partial discharge below 10 pC, thus through the significant reduction of the existence of voids in the coils, ensure the product's long service life.
4. High-voltage and low-voltage coils have robust mechanical strength to withstand the chopped impulse to ensure adequate insulation distance and structural strength.

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. 產品特性

Product Characteristics

(三) 節能特色

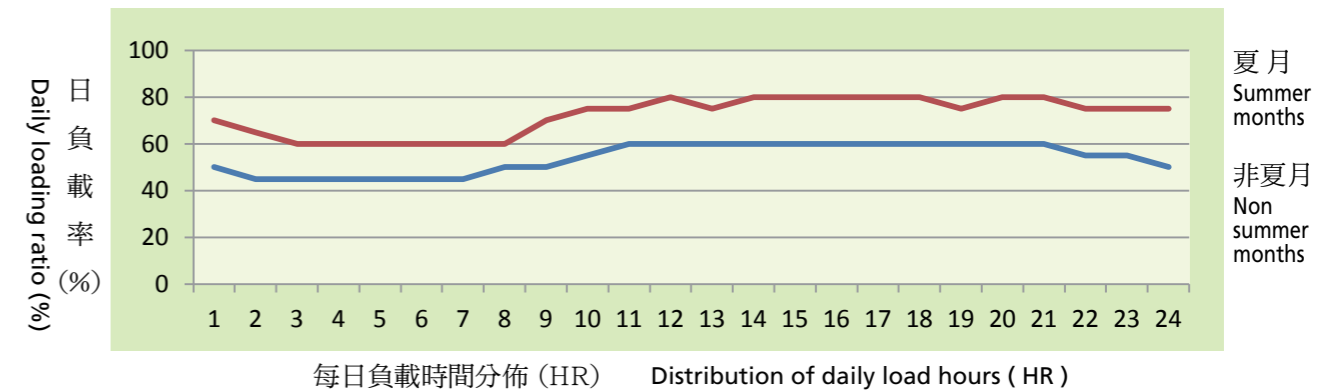
無負載損及負載損是變壓器運轉中產生的損失，降低變壓器運轉損失即能達到節能環保之目的。

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。

(3) 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 3 φ 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 Transformers 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 × 負載損
用電量(kWh) = 全損 × 時間
電費 = Σ (各段時間用電量 × 各段時間電價)

Note : total loss = No-load loss + (load ratio/100)² × load loss
Power consumption (kWh) = total loss × time
Power costs = Σ (power consumption for each time segment × 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。

(1) 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	-

(2) 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 Characteristics

(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) 依據標準：模鑄式變壓器之設計、製造及試驗依據最新標準之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 5000 kVA以下。

(七) 附件：

(1) 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.

(2) Reference standards:
The design, manufacturing, and testing of the resin cast transformers are based on newest standards such as IEC 6 0076, CNS 13390 C 4468, GB 1094, JIS C4306, and other relevant standards.

(3) Reference standards:
Dry-type F-class two-winding resin coils for indoor use, natural and forced air cooling methods.

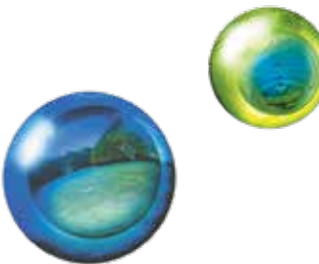
(4) Protection grade for the transformer : IP00.

(5) Protection grade for the enclosure : IP20~IP43.

(6) Manufacturing capability:
below 36 kV, 5000 kVA.

(7) Accessories:

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	軸流風扇 Axial fan
吊耳 Lug	溫度電驛(搭配外箱選配) Temperature relay (Optional with enclosure)
高低壓口出端子 High & low voltage terminal	
無載切換端子 No-load taps	
底座 Bottom platform	
防震墊塊 Shock-proof damper	
端子蓋板 Terminal cover	



6. 產品規範 Product Specifications

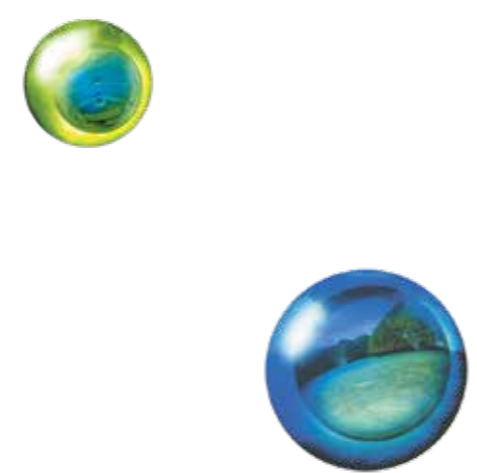
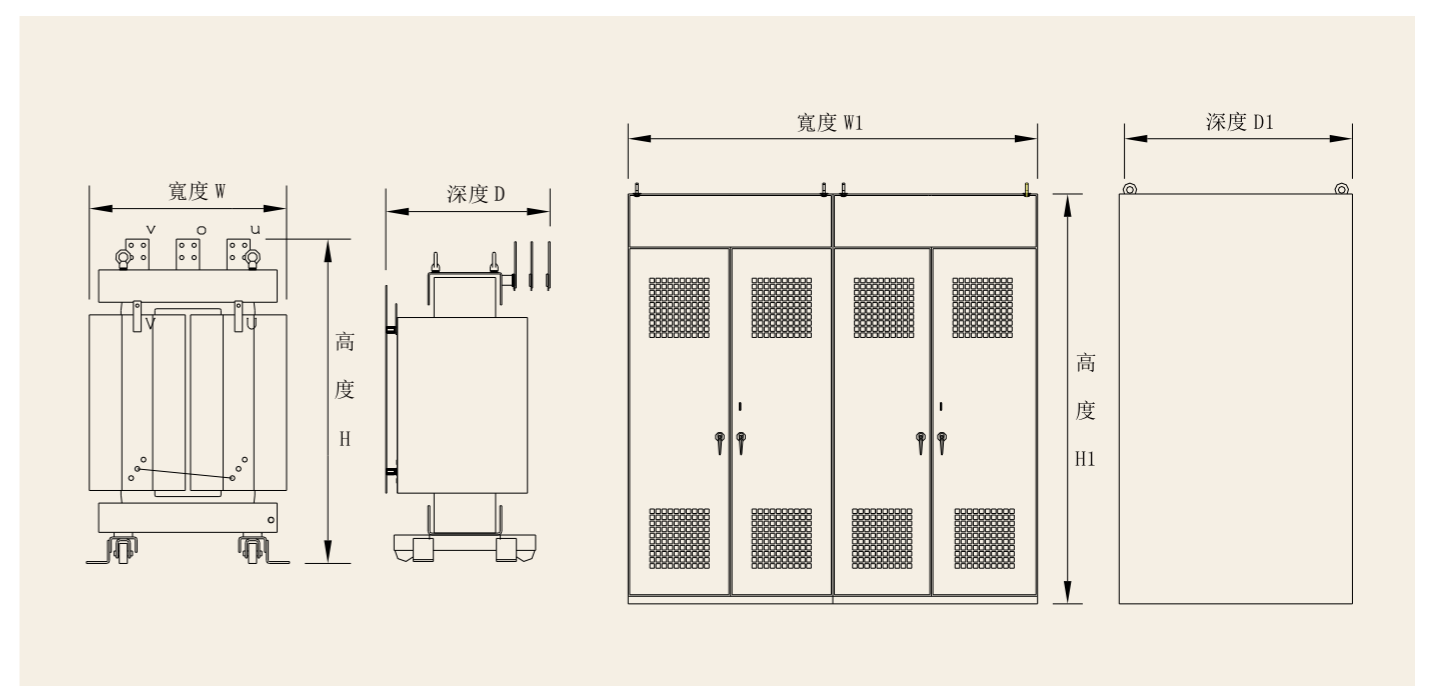


7. 特性資料 Data on Product Specifications

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

1φ 一次側3.3/6.6 kV 60 Hz (依據 IEC 60076-11及CNS 13390 C4468)
1φ primary side 3.3/6.6 kV 60 Hz (comply with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		阻抗電壓 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		4-5	310	1500	98.22	4.0	56	580	515	830	350	900	800	1500	450
MTRT-S150/6	150	F3000		5-6	400	2000	98.42	3.0	58	625	520	950	450	900	800	1500	550
MTRT-S200/6	200	F7200		5-6	450	2600	98.49	3.0	60	660	555	1055	570	900	900	1500	700
MTRT-S300/6	300	R6600		5-6	550	3200	98.76	3.0	62	695	600	1175	780	1000	1000	1500	950
MTRT-S500/6	500	F6000		5-6	800	3700	99.10	2.5	62	785	700	1260	1250	1100	1100	1500	1500



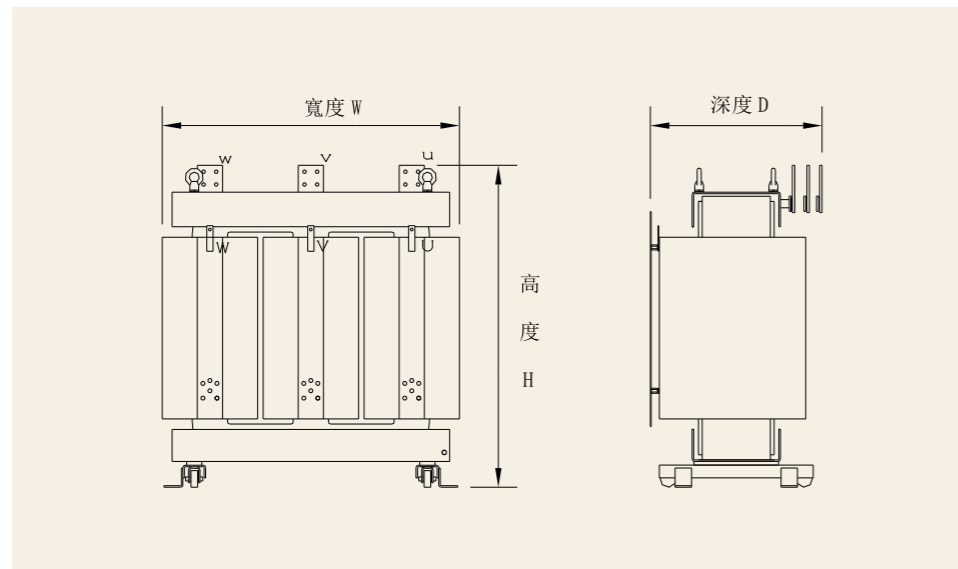
7. 特性資料

Data on Product Specifications

3 φ 一次側3.3/6.6 kV 60 Hz (依據 IEC 60076-11及 CNS 13390 C4468)

3 φ primary side 3.3/6.6 kV 60 Hz (comply 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 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				4-5	850	3300	98.63	3.0	62	990	550	1055	870	1300	900	2000	1100
MTRT-T500/6	500	R3300	380- 220	Δ-Y	4-5	1200	4600	98.85	2.5	62	1040	645	1175	1370	1300	1000	2000	1450
MTRT-T200/6	200	F3150			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

Data on Product Specifications

3 φ 一次側380 V 60 Hz (依據 IEC 60076-11及 CNS 13390 C4468)

3 φ primary side 380 V 60 Hz (comply 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 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-T75/0.6	75	380	220- 127	Δ-Y	3-5	300	1260	97.96	1.5	56	710	540	650	350	1000	800	1500	390
MTRT-T100/0.6	100					430	1610	98.00	1.3	56	750	565	670	430	1000	800	1500	450
MTRT-T150/0.6	150					600	1690	98.49	1.3	58	855	590	775	520	1200	800	1500	620
MTRT-T200/0.6	200					740	1950	98.67	1.3	60	840	595	910	660	1200	800	1500	800
MTRT-T300/0.6	300					950	2880	98.73	1.3	62	970	630	1015	860	1300	900	2000	1050
MTRT-T500/0.6	500					1550	3610	98.97	1.3	62	1030	725	1135	1360	1300	1000	2000	1410

3 φ 一次側11.4 kV 60 Hz (依據 IEC 60076-11及 CNS 13390 C4468)

3 φ primary side 11.4 kV 60 Hz (comply 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 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	6	1860	4610	98.72	1.3	62	1230	850	1275	1610	1600	1600	2350	1940
MTRT-T600/12	600				6	2140	5050	98.81	1.1	64	1320	900	1295	1890	1700	1700	2350	2270
MTRT-T750/12	750				6	2640	6100	98.84	1.1	64	1380	900	1315	2160	1800	1700	2350	2600
MTRT-T1000/12	1000				6	3500	8000	98.86	1.1	64	1680	900	1740	2600	2000	1700	2350	3120
MTRT-T1250/12	1250				6	3990	10150	98.88	1.1	65	1890	1000	1920	3480	2300	1800	2350	4180
MTRT-T1500/12	1500				6	4010	12500	98.91	1.1	65	1890	1000	1920	3850	2300	1800	2350	4620
MTRT-T2000/12	2000				6	5800	15500	98.94	0.9	66	2100	1100	2160	4800	2500	1900	2500	5800
MTRT-T2500/12	2500				6	7540	18240	98.97	0.9	68	2220	1200	2260	5800	2600	2000	2600	6950



7. 特性資料

Data on Product Specifications

3φ 一次側22.8 kV 60 Hz (依據 IEC 60076-11及 CNS 13390 C4468)

3φ primary side 22.8 kV 60 Hz (comply 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 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	380- 220	Δ-Y	6	2000	6810	98.26	1.6	62	1530	1000	1815	1810	2000	1800	2350	2220
MTRT-T600/24	600					6	2240	7410	98.41	1.4	64	1710	1120	1855	2245	2100	2000	2350	2620
MTRT-T750/24	750					6	2590	8240	98.57	1.4	64	1710	1120	1975	2570	2100	2000	2350	2780
MTRT-T1000/24	1000					6	3490	10050	98.66	1.2	64	1710	1120	1975	2800	2200	2000	2500	3560
MTRT-T1250/24	1250					6	3860	10920	98.83	1.2	65	1860	1150	2125	3680	2300	2000	2500	4120
MTRT-T1500/24	1500					6	4080	12700	98.89	1.2	65	1860	1150	2125	3710	2300	2000	2500	4470
MTRT-T2000/24	2000					6	6300	14990	98.94	1.0	66	2100	1200	2215	5090	2800	2000	2600	6020
MTRT-T2500/24	2500					6	7880	15740	99.06	1.0	68	2370	1300	2290	6930	2800	2000	2700	7490

7. 特性資料

Data on Product Specifications

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

3φ 一次側11.4 kV 60 Hz (依據 IEC 60076-11及 CNS 13390 C4468)

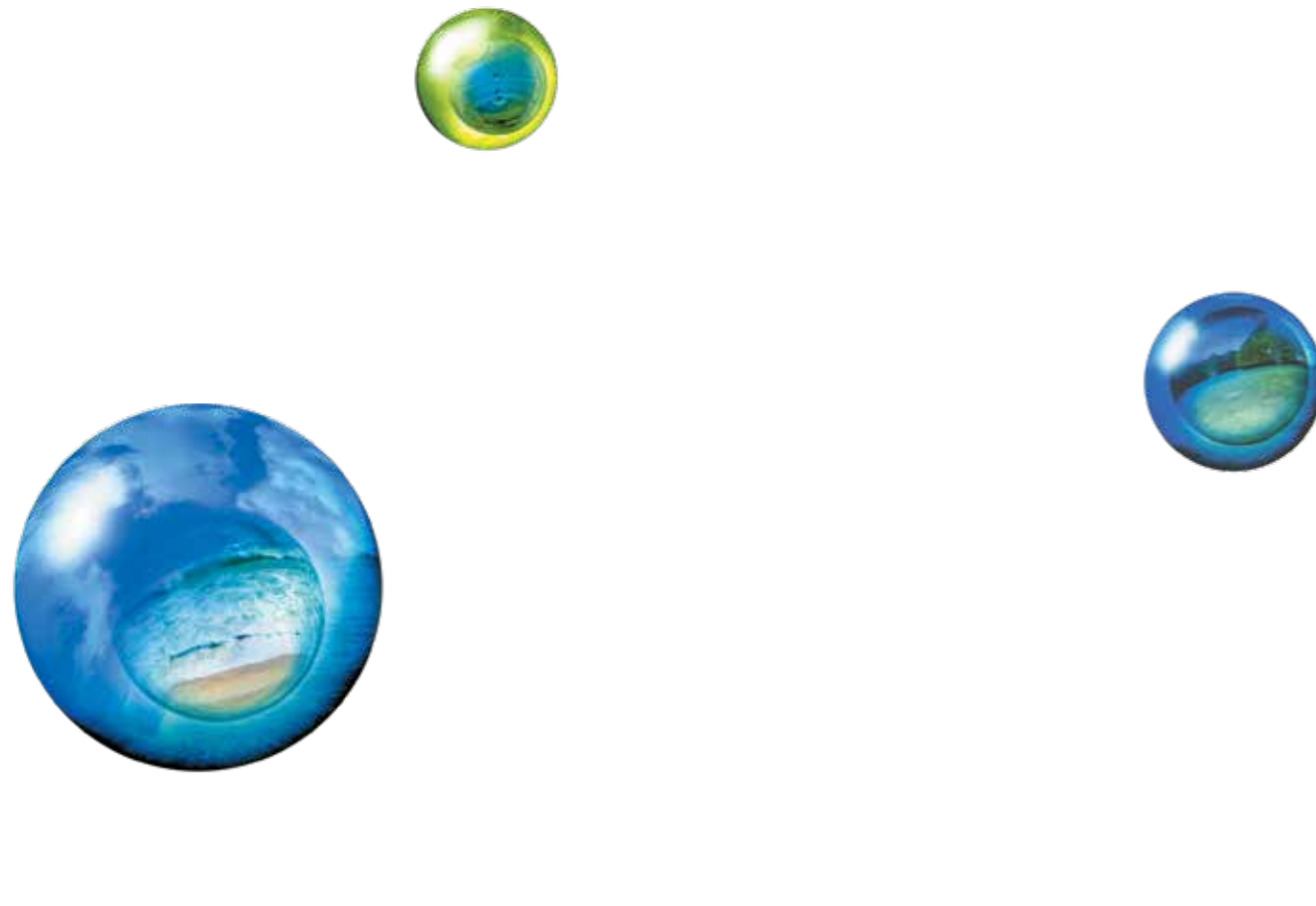
3φ primary side 11.4 kV 60 Hz (comply with IEC 60076-11 and CNS 13390 C4468)

型號 Model	容量 Rating (kVA)	電壓 Voltage (V)		接線 Wiring	阻抗 電壓 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-TH750/12	750	F12000	380- 220	Δ-Y	6	1400	7200	98.87	1.4	58	1380	900	1315	2160	1800	1700	2350	2600
MTRT-TH1000/12	1000	F11700			6	1750	8800	98.96	1.2	58	1680	800	1740	2600	2000	1600	2350	3120
MTRT-TH1250/12	1250	R11400			6	2200	9800	99.05	1.2	59	1890	870	1920	3480	2300	1700	2350	4180
MTRT-TH1500/12	1500	F11100			6	2600	11000	99.10	1.2	59	1890	870	1920	3850	2300	1700	2350	4620
MTRT-TH2000/12	2000	F10800			8	3300	14000	99.14	1.0	60	2100	940	2060	4580	2500	1800	2500	5500
MTRT-TH2500/12	2500				8	3700	17000	99.18	1.0	62	2220	980	2160	5630	2600	1800	2500	6760

3φ 一次側22.8 kV 60 Hz (依據 IEC 60076-11及 CNS 13390 C4468)

3φ primary side 22.8 kV 60 Hz (comply 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 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-TH750/24	750	F24000	380- 220	Δ-Y	6	1400	7200	98.87	1.4	58	1710	1120	1975	2585	2100	2000	2350	2780
MTRT-TH1000/24	1000				6	1750	8800	98.96	1.2	58	1710	1120	1975	2830	2200	2000	2500	3560
MTRT-TH1250/24	1250	F23400			6	2400	9600	99.05	1.2	59	1860	1150	2125	3680	2300	2000	2500	4120
MTRT-TH1500/24	1500	R22800			6	2800	10800	99.10	1.2	59	1860	1150	2125	3730	2300	2000	2500	4470
MTRT-TH2000/24	2000	F22200			6	4200	13100	99.14	1.0	60	2100	1200	2215	5090	2800	2000	2600	6020
MTRT-TH2500/24	2500	F21600			6	5700	15000	99.18	1.0	62	2370	1300	2290	6930	2800	2000	2700	7490



7. 特性資料

Data on Product Specifications

(3) S10型模鑄式變壓器 S10 Cast Resin Transformer

3 φ 一次側6 kV 50 Hz (依據 GB 1094.11 SC10型)

3 φ primary side 6 kV 50 Hz (comply with GB 1094.11 SC10)

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)
		SCL10-500/6	500								F6300	400- 230	Δ-Y	4	1140	4380	98.9	0.9
SCL10-800/6	800	F6150	4	1600	6500	98.99	0.9	72	1180	650	1260			1950	1500	1000	2350	2340
SCL10-1000/6	1000	F6000	6	1750	8000	99.03	0.9	72	1660	700	1625			2500	2000	1100	2350	3000
SCL10-1500/6	1500	F5850	6	2560	11700	99.05	0.9	75	1870	760	1770			3400	2100	1200	2500	4080
SCL10-2000/6	2000	F5700	8	2900	15500	99.08	0.7	77	2100	835	1930			4350	2400	1200	2600	5220
SCL10-2500/6	2500		8	3670	18660	99.11	0.7	78	2150	845	1970			4700	2400	1200	2600	5570

3 φ 一次側10 kV 50 Hz (依據 GB 1094.11)

3 φ primary side 10 kV 50 Hz (comply with GB 1094.11)

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)
		SCL10-500/10	500								F10500 F10250 R10000 F9750 F9500	400- 230	Δ-Y	6	1160	4880	98.8	1.1
SCL10-630/10	630	6	1300	5810	98.88	0.9	71	1320	880	1295				1950	1700	1600	2350	2340
SCL10-800/10	800	6	1520	6750	98.97	0.9	72	1380	900	1315				2240	1800	1700	2350	2690
SCL10-1000/10	1000	6	1770	8130	99.02	0.9	72	1680	800	1740				2930	2000	1600	2350	3520
SCL10-1250/10	1250	6	2090	9690	99.06	0.9	74	1890	870	1920				3850	2300	1700	2350	4620
SCL10-1600/10	1600	6	2450	11730	99.12	0.9	75	1890	870	1920				4200	2300	1700	2350	5040
SCL10-2000/10	2000	8	3050	14450	99.13	0.7	77	2100	940	2060				5200	2500	1800	2500	6240
SCL10-2500/10	2500	8	3600	17170	99.17	0.7	78	2220	980	2160				6330	2600	1800	2500	7560

3 φ 一次側20 kV 50 Hz (依據 GB 1094.11 SC10型)

3 φ primary side 20 kV 50 Hz (comply with GB 1094.11 SC10)

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)
		SCL10-500/20	500								F21000 F20500 R20000 F19500 F19000	400- 230	Δ-Y	6	1350	5795	98.59	1.4
SCL10-630/20	630	6	1530	684	98.68	1.2	71	1630	870	1880				2450	2100	1800	2350	2940
SCL10-800/20	800	6	1755	8265	98.76	1.2	72	1630	870	1880				2620	2100	1800	2350	3150
SCL10-1000/20	1000	6	2070	9785	98.82	1.0	72	1750	910	2000				3190	2200	1800	2500	3830
SCL10-1250/20	1250	6	2385	11550	98.89	1.0	74	1840	940	2120				4120	2300	1800	2500	4950
SCL10-1600/20	1600	6	2790	13870	98.96	1.0	75	1840	940	2120				4350	2300	1800	2500	5220
SCL10-2000/20	2000	8	3240	16390	99.02	0.8	77	2140	1040	2280				5310	2600	1900	2600	6380
SCL10-2500/20	2500	8	3870	19380	99.07	0.8	78	2320	1100	2320				6640	2800	2000	2700	7970





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