TMC
world of transformers

QTC
QTC ENERGY PCL.

Dry-Type Cast Resin Transformer

PRODUCT CATALOG

COMPANY HISTORY

QTC Energy Public Company Limited is Thailand's leading manufacturer and supplier of distribution transformer. QTC was established in 1996. QTC builds dry type cast resin transformer (CRT) based on coils provided by TMC Transformers, a leading European transformers OEM.

TMC Transformers are certified for Quality Management according to ISO 9001:2015, as well as for Environmental Management according to ISO 14001:2015, ISO 45001:2018, and have passed stringent Short Circuit Withstand tests and are E2, C2, F1 certified with tests conducted by CESI and Labin. Normally, QTC transformers are designed for ambient temperature of 40°C and the windings allow a temperature rise of 100K. QTC cast resin transformers are fully compliant with the IEC, ANSI and all the other standard codes adopted in Thailand.

ISO 9001:2015

ISO 14001:2015

ISO 45001:2018

WHY CHOOSE DRY-TYPE CAST RESIN TRANSFORMER

Highly Secure Transformer

By its construction and constituents, the cast resin transformer is a frame retardant electrical device. CRT will provide you maximum safety, with the least fire protection around, therefore keeping you away from severe damages and fatalities.

Maintenance-Free

Due to its inherent design, constituents and its construction, the maintenance of Cast Resin Transformer reduces to a visual check and some air for dusting. The absence of oil plus a hermetically sealed windings reduce your maintenance cost to virtually zero.

No Extra Civil Works

Unlike its oil counterpart, the CRT Transformer requires no oil slumps, no fixing and placement restrictions, no fire barrier. In all, it requires no civil works, thus allowing you to place your transformer very close to the load saving you a lot in terms of cablings transmission loss.

Power increased by Air forced Cooling

The power reserves of CRT are far greater than the Oil Transformers. Another advantage is that the power capacity can be increased by simply adding fans for an AF (Air Forced cooling) operation thus obtaining up to 25% to 40% power increase.

High Reliability

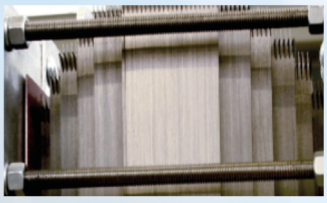
Since introduction the CRT have served most demand and complex applications. with a minimal failure rate. The reliability figures for CRT has shown better than the Oil Transformers. by the testimony and reports of international consulting and surveying companies.

Unforgiving Environment

If properly designed for different environmental, climatic and fire classes. You can rest assured that your CRT will outperform wherever other transformers type have long stopped operating.

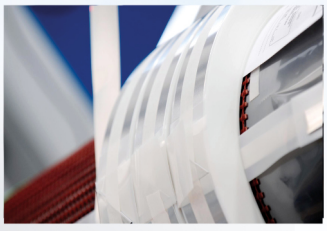
PRODUCTION PROCESS

DRY-TYPE TRANSFORMER | MV & LV WINDING SECTIONS



Multi-Step Lap Core

- Reduced no-load loss up to 15%
- Decreased noise level up to 5dB



High Voltage (HV) Foil Discs Type Winding

- Aluminium or Copper Conductors
- Optimum Dielectric Strength
- Excellent Short Circuit Withstand

Cast Resin Vacuum Plant

- Casting HV Coil under vacuum for Class F
- Three step for mix the components (filler, hardener, resin, alumina)

Low Voltage (LV) Foil Winding

- Aluminium or Copper Conductors
- Excellent Short Circuit Withstand
- Resistant to contamination

Soaking Sytem

- Soak LV Coil under vacuum

HV & LV Coil Assembly

Completed Transformer

TESTING

ELECTRIC TESTING LABORATORY

Routine Test

The modern testing facilities allow to perform the test and check the results in accordance with the standard (IEC60076-11) the following routine test are performed in all the transformers:

- Measurement of winding resistance
- Measurement of voltage ratio and check of phase displacement
- Measurement of no-load loss and current at 100% of rated voltage
- Measurement of short circuit impedance and load loss
- Measurement of partial discharges
- Dimensional control
- Dielectric routine test:
  - Applied voltage test
  - Inducted voltage withstand test

Type Test

On request and accordance with the customer

- Full wave lightning impluse test
- Temperature rise test

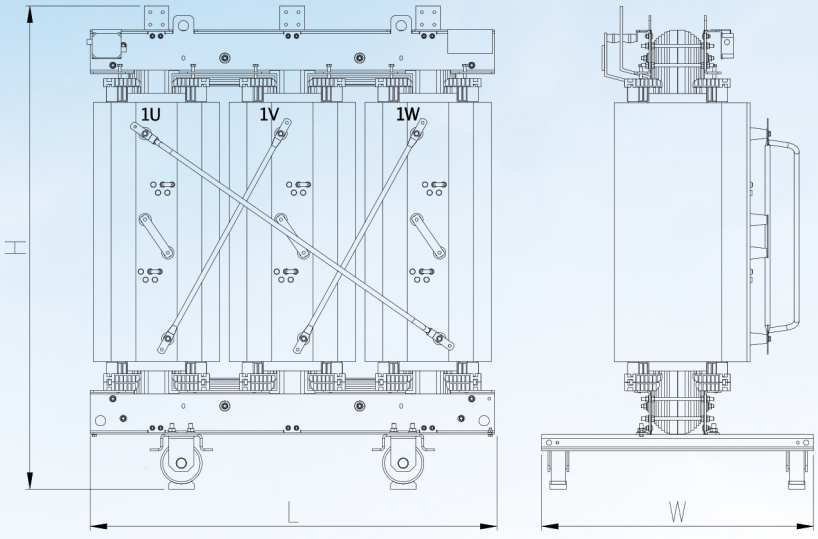
Special Test

On request and accordance with the customer

- Measurement of zero-sequence impedance
- Measurement of no load current harmonics
- Determination of sound level

DIMENSION

DRY-TYPE CAST RESIN TRANSFORMER DATA SHEET FOR STANDARD LOSSES (ALUMINIUM CONDUCTOR)



STANDARD
In accordance with standard IEC 60076-11//EN 50541-2011 E2 C2 F1 // CLASS F

COMMON ELECTRICAL CHARACTERISTICS	
Frequency	50 Hz
Vector group	Dyn11 or Dyn5
Primary voltage	Up to 36 kv
HV tapping range (off-load)	5 positions
Secondary voltage	380 to 416V (Ph-Ph) 220 to 240V (Ph-N)
Ambient temperature (Max)	40 ºC
Attitude above sea level	< 1000 m
Routine test	Included
Type test	Optional
Special test	Optional

TRANSFORMER DIMENSION

Voltage System 22kV & 24kV

Rating Power (kVA)	No load Losses (W)	Load Losses (W)		Imp. (%)	Transformer Dimensions & Weight				Sound Level dB (A)	Enclosure Type
		at 120 °C	at 75 °C		Length (mm.)	Width (mm.)	Height (mm.)	Weight (kg.)		
500	1450	6600	5800	6	1500	750	1500	1700	56	Type 1
630	1650	7600	6600	6	1550	850	1700	1940	56	Type 1
800	2000	9400	8200	6	1650	1000	1675	2250	57	Type 1
1000	2300	11000	9600	6	1630	1000	1895	2650	59	Type 2
1250	2800	13000	11300	6	1780	1000	1975	3350	61	Type 2
1600	3100	16000	14000	6	1950	1000	2065	4300	61	Type 3
2000	4000	18000	15700	6	1950	1310	2300	4900	63	Type 4
2500	5000	23000	20000	6	2000	1310	2550	5700	61	Type 5

Voltage System 12/24kV.

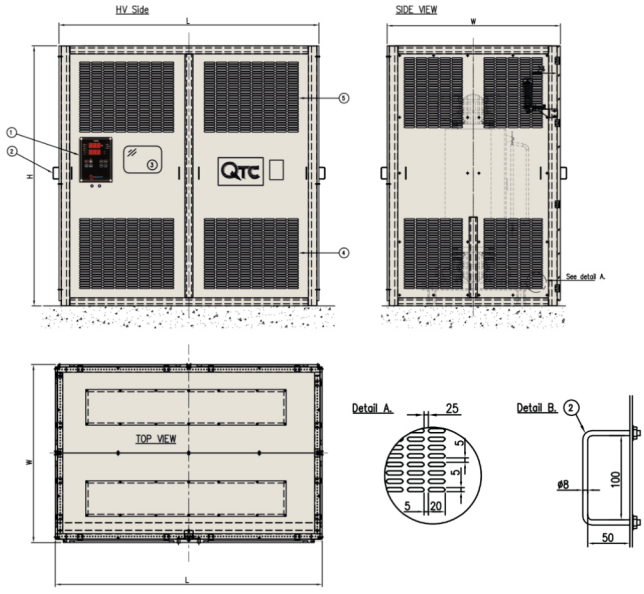
Rating Power (kVA)	No load Losses (W)	Load Losses (W)		Imp. (%)	Transformer Dimensions & Weight				Sound Level dB(A)	Enclosure Type
		at 120 °C	at 75 °C		Length (mm.)	Width (mm.)	Height (mm.)	Weight (kg.)		
500	1450	6600	5800	6	1500	750	1500	1700	56	Type 1
630	1650	7600	6600	6	1550	850	1700	1940	56	Type 1
800	2000	9400	8200	6	1650	850	1675	2250	57	Type 1
1000	2300	11000	9600	6	1630	850	1895	2650	56	Type 2
1250	2800	13000	11300	6	1780	1000	1975	3350	61	Type 2
1600	3100	16000	14000	6	1950	1000	2065	4300	61	Type 3
2000	4000	18000	15700	6	1950	1310	2300	4900	63	Type 4
2500	5000	23000	20000	6	2000	1310	2550	5700	65	Type 5

Voltage System 33kV.

Rating Power (kVA)	No load Losses (W)	Load Losses (W)		Imp. (%)	Transformer Dimensions & Weight				Sound Level dB(A)	Enclosure Type
		at 120 °C	at 75 °C		Length (mm.)	Width (mm.)	Height (mm.)	Weight (kg.)		
500	1900	6450	5600	6	1740	750	1935	2400	56	Type 2
630	2200	7500	6500	6	1760	850	1955	2600	56	Type 2
800	2700	9000	7900	6	1790	850	1995	3000	57	Type 2
1000	3100	11000	9600	6	1920	1000	2195	3600	58	Type 3
1250	3600	13000	11300	6	1950	1000	2335	4150	60	Type 3
1600	4200	16000	14000	6	2060	1000	2375	4850	61	Type 5
2000	5000	18500	16100	6	2090	1310	2640	5900	62	Type 6
2500	5800	22500	19600	6	2240	1310	2700	6700	65	Type 7

ENCLOSURE TYPE & DIMENSION

Enclosure Type	Dimensions Width (mm.)	Length (mm.)	Height (mm.)	Weight (Kg.)
Type 1	1600	2300	2400	700
Type 2	1800	2600	2500	800
Type 3	2000	2700	2800	1150
Type 4	2200	2800	2900	1220
Type 5	2000	2900	2900	1270
Type 6	2000	2800	2900	1180
Type 7	2000	2900	3000	1300



STANDARD ACCESSORIES

- Temperature Control Unit, with three change-over dry contacts (for alarm, trip and fault)
- PT100 for each LV winding
- Cross-flow fans (AF up 25% or 40%)
- Bi-directional wheels for the transformer
- IP31 Enclosure
- Lifting lugs for transformer
- Rating plate
- Lightning arrester

DRY-TYPE CAST RESIN TRANSFORMER APPLICATION

AIRA FACTORING PUBLIC COMPANY LIMITED · ASCOTT · DUSIT CENTRAL PARK · GPO องค์การเภสัชกรรม · SUPALAI · NOBLE DEVELOPMENT

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MARRIOTT · FORZA HOTELS · FICO CORPORATION · THE PANNARAI HOTEL · COURTYARD BY MARRIOTT · TPIPP

PHYATHAI HOSPITAL · RAJAVEJ HOSPITAL · CENTRAL PATTANA · HomePro · การรถไฟแห่งประเทศไทย · PLUS condominium

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REV. Mar2024