



Asia Trafo Co., Ltd

SPECIFICATION OF OIL IMMERSSED TRANSFORMER

แบบควบคุม

ฉบับที่ 1.....

## TRANSFORMER SPECIFICATION

160 kVA. 3Ph. 50 Hz.

22000 - 416/240 V. Dyn 11

HERMETICALLY SEAL TYPE

88/99 หมู่ 12 ซ. สุนทรวิภาต ถ.บางพลี - คำหลุ ค.บางปลา อ.บางพลี จ.สมุทรปราการ 10540 Tel. (02) 346-0980-7 Fax. (02) 346-0978-9

88/99 Moo.12 Soi sunthonwipark Bangplee -tumroo Road Bangpra Bangplee samuthprakarn 10540 Tel. (02) 346-0980-7 Fax. (02) 346-0978-9

SPEC NO.

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S-TR160-22000-416 , Rev.00



# Asia Trafo Co., Ltd

## SPECIFICATION OF OIL IMMERSED TRANSFORMER

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ฉบับที่...1....

### TECHNICAL DATA FOR 160 kVA, 22000-416 V. Dyn11

No.	Description	Unit	Guaranteed Value		
1	Manufacture's name	-	ASIA TRAF0 CO.,LTD.		
2	Country of origin	-	Thailand		
3	Applied standard	-	IEC 60076		
4	Type of Transformer	-	Hermetically seal type (Corrugate fins)		
5	Rated power	kVA	160		
6	Number of phase	-	3		
7	Rated frequency	Hz	50		
8	Rated high voltage	V	22000		
9	Rated low voltage	V	416		
10	Conection symbol	-	Dyn11		
11	Rated high current	A	4.20		
12	Rated low current	A	222.06		
13	Primary tapping :	-	Off-circuit tap changer		
14	Number of steps of high voltage tapping	Step	4 Steps 5 Position		
15	Percent of rated voltage of each tapping	%	±2 x 2.5%		
16	Type of oil preservation system	-	Completely oil fill system		
17	Operation duty	-	Continuous operation		
18	Cooling System	-	ONAN		
19	Ambient	°C	50		
20	Max. temperature rise of winding, at full load	°C	55		
21	Max. temperature rise of top oil, at full load	°C	50		
22	Class of insulation	-	A (105°C)		
23	Noise level	dB(A)	≤ 47		
24	No-load current & Tolerance	% & %	0.770 % & +30%		
25	Short-circuit impedance at 75°C & Tolerance	% & %	4.00 & ±10		
26	No-load loss	W	260		
27	Load loss at 75°C	W	2000		
28	Efficiency at 75°C	: Full load unity power factor	%	98.61	
		: Full load 0.8 power factor	%	98.27	
		: 3/4 load unity power factor	%	98.86	
		: 3/4 load 0.8 power factor	%	98.58	
		: 1/2 load unity power factor	%	99.06	
29	Voltage regulation at	: Unity power factor	%	1.32	
		: 0.8 power factor	%	1.05	
30	<b>Winding</b>		HV.Winding	LV.Winding	
	Material of winding		Copper	Copper	
	Insulation material of wire		Polyvinyl formal	Kraft paper	
	Full-wave impulse withstand voltage, or BIL		kV, peak 125	30	
	Power-frequency test voltage, 1 min		kV, r.m.s 50	10	
Construction of winding		-	Layer winding	Layer winding	
31	<b>Core</b>		Cold rolled grain oriented electrical steel		
Core silicon steel grade		-			
Rev	Date	Prepared by	Checked by	Approved by	Signature
00	3/8/2563	วิมลรัตน์	กิตติ	กิตติ	วิมลรัตน์
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# Asia Trafo Co., Ltd

## SPECIFICATION OF OIL IMMERSED TRANSFORMER

**แบบควบคุม**  
**ฉบับที่.....1.....**

### TECHNICAL DATA FOR 160 kVA, 22000-416 V. Dyn11

No.	Description	Unit	Guaranteed Value	
32	Transformer oil	-	Mineral oil (None PCB) ≥55	
	Type of oil	-		
	Oil dielectric breakdown	kV		
33	<b>Bushings</b>		HV.Bushing	LV.Bushing
	Applied standard	-	DIN 42531	DIN 42530
	Rated current	A	250	250
	Full-wave impulse withstand voltage, or BIL	kV, peak	125	30
	Low-frequency dry 1-minute test voltage	kV, r.m.s.	50	10
	Low-frequency wet 10 second test voltage	kV, r.m.s.	50	10
	Protection class	-	20NF	1N
	Color of glazing	-	Brown	Brown
Stud thread size (Dia)	mm.	12	12	
34	<b>Terminal connectors</b>		HV.Terminal	LV.Terminal
	Diameter range	mm.	Clamp (7.5-12.6)	PAD 12 mm.
	Number of circuit	-	1(35.95 mm <sup>2</sup> )	4
35	<b>Pressure relief value</b>			
	Operating pressure	kg / cm <sup>2</sup>	0.45	
	Flow rate at 1.03 Kg/cm <sup>2</sup>	cc / sec	165200	
36	Color of tank	-	Gray (RAL 7036)	

#### Accessories

- HV & LV Bushing with terminal connectors
- Name plate with connection diagram
- Arcing horn
- Bird guard cap
- Off-circuit tap changer
- Thermometer pocket
- Oil drain and sampling valve
- Earthing terminal
- Lifting eyes on the cover
- Lifting lugs
- Oil level gauge
- Pressure relief device
- Buchholz relay with alarm&trip contacts
- Dehydrating breather with silica gel
- Other ... Factory standard

#### Routine test

- Measurement of voltage ratio and check of phase displacement
- Insulation resistance test
- Measurement of winding resistance
- Separated source voltage withstand test
- Induce over voltage withstand test
- Measurement of no-load loss and exciting current
- Measurement of short circuit impedance and load loss
- Oil dielectric strength test

#### Type tests

- Temperature - rise test (IEC 60076-2)
- Full wave lightning impulse test (IEC 60076-1 and IEC 60076-3)
- Measurement of no-load loss and current at 90% and 110 %  
Of rated voltage (IEC 60076-1 )

#### Special tests

- Short-circuit withstand test (IEC 60076-5 )

with

without

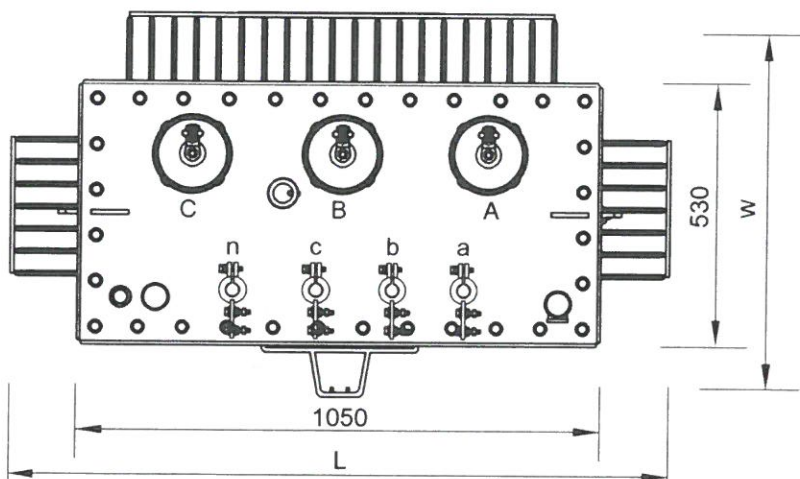
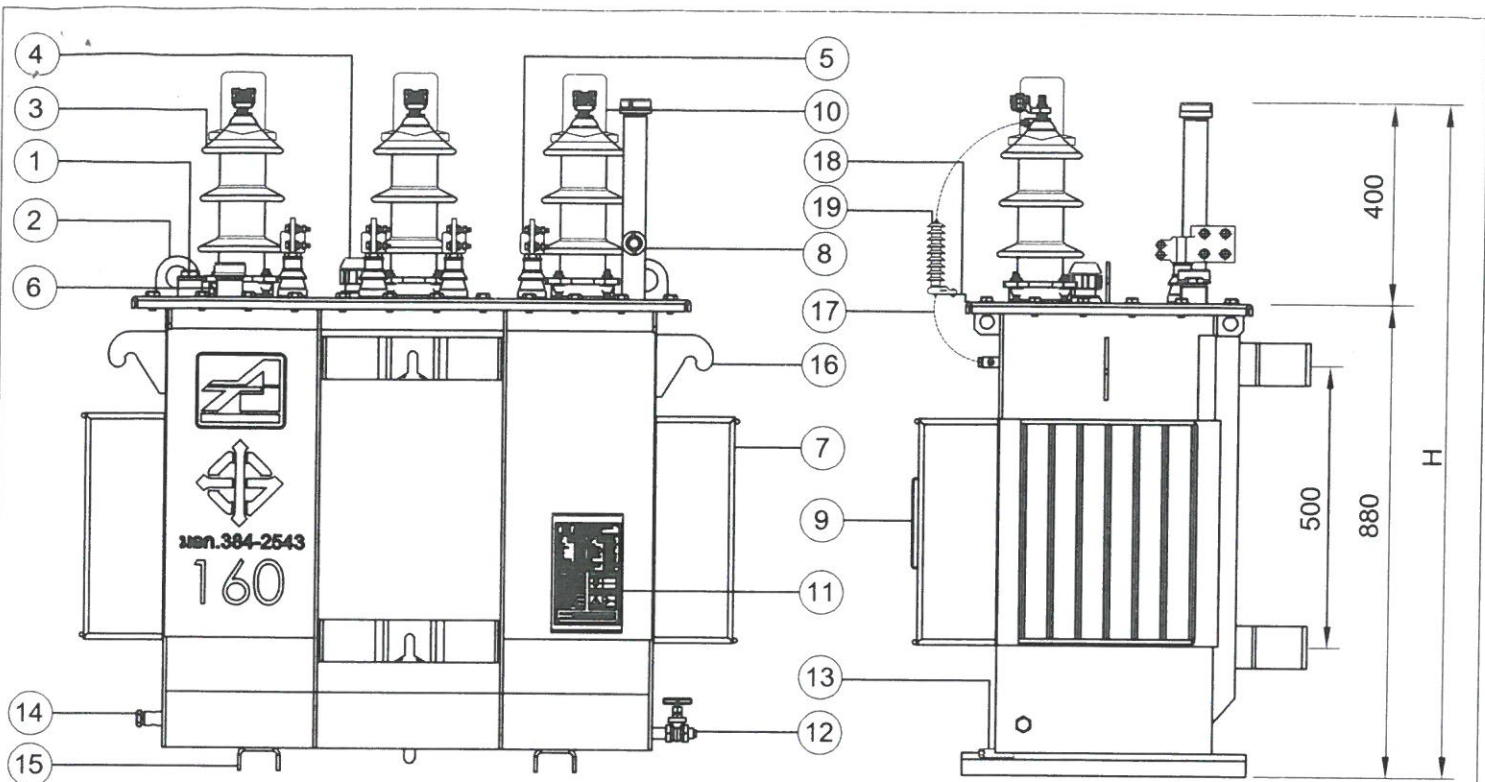
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**แบบควบคุม**  
**ฉบับที่.....1.....**

**แบบต้นฉบับ**

LIST OF PART		
No.	PART NAME	Qty
1.	Thermometer pocket	1
2.	Lifting eye for cover	2
3.	HV.Bushing with terminal connectors	3
4.	Off load tap changer (ALUMINIUM)	1
5.	LV.Bushing with terminal connectors	4
6.	Pressure relief device	1
7.	Corrugated fins	3
8.	Oil level	1
9.	Manufactory plate	1
10.	Bird guard cap	3
11.	Nameplate with connection diagram	1
12.	Oil drain valve	1
13.	Sludge Drain Plug	1
14.	Earth terminal	1
15.	Sub base	2
16.	Lifting Lugs For Tank	2
17.	Flexible copper insulated ground lead	3
18.	Bracket for surge arrester	3
19.	Surge arrester (Polymer housing type)	3



ASIA TRAFU CO.,LTD.

Project :

Title : **OUTLINE DRAWING**  
**OIL IMMERSED TRANSFORMER**  
**160 kVA 3Ph 50Hz 22000 - 416/240 V.**  
**TYPE : HERMETICALLY SEALED TANK**

Dimension in millimeters			Weight	Oil
H	L	W	kgs	Litres
1280	1300	780	980	258

SPEC No. S-TR160-SC-22000-416/240

Signature		Date
Drawn By	<i>[Signature]</i>	4/8/63
Checked By	<i>[Signature]</i>	4/8/63
Approved By	<i>[Signature]</i>	4/9/63