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## **Addendum # 1**



DERWICK ASSOCIATES S.A.

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**SF-75000/115kV**

**SF-75000/115kV**

**( Vector group : YNd1 )**

**Power Transformer Technical Agreement**

**DERWICK ASSOCIATES**

**Power Transformer Co., Ltd.**

## **Environmental conditions**

1. Sea level < 1000m

2. Max ambient temperature: +40°C

Max year average ambient temperature: +20°C

3 System highest voltages:

H.V. side: 126 kV , L.V. side: 17.5 kV

4 Frequency: 60 Hz

5 Leakage distance per unit withstand voltage of H.V. side and H.V. neutral point side  $\geq$  2.5 cm/kV (Count according to system highest voltage)

Leakage distance per unit withstand voltage of L.V. side  $\geq$  2.5cm/kV (Count according to system highest voltage)

6 Termination methods

H.V. side: bushings outlet to overhead wire,

L.V. side: bushings outlet to copper bar.

## Technical parameters sheet

Item	Name		Guarantee value
1	Name of product		Three phase double windings off load tap change power transformer
2	Rated power(MVA)	Primary	75
		Secondary	75
3	Cooling method		ONAF
4	Rated voltage	Primary voltage	115
		(kV) Secondary voltage	13.8
4	Tapping range		115±2*2.5%
5	Tap changer		Off load tap changer WDT □ 630/110-6×5
6	(%) Impedance		12 (at 75MVA) Tolerance permitted: ±7.5%
7	Vector group		YNd1
8	Rated frequency		60
9	Temperature Rise	(K) Winding	65
		(K) Top Oil	55
		(K) Core and other structure	80

10	Rated insulation level inside Winding	H.V. Side (kV)	Peak value of Impulse test (Full-wave)	480
			Power frequency withstand voltage	200
		H.V. neutral point (kV)	Peak value of Impulse test (Full-wave)	325
			Power frequency withstand voltage	140
		L.V. Side (kV)	Peak value of Impulse test (Full-wave)	105
			Power frequency withstand voltage	45
11	Loss	(kW) No-load loss		55
		(kW) Load loss		295
		Tolerance permitted		±15%
12	(%) No-load current at rated voltage and rated frequency			0.2
13	(kg) Total weight			81,000
	(kg) Shipping (heaviest piece)			55,000 ) (Fill dry air when transport)
14	Transformer overall dimension (mm) (Length*width*Height)			6,800*5,000*5,700

(mm)	
Transformer shipping dimension	5,400*3,000*3,500
(mm) (Length*width*Height)	

## Accessory

### 1 Measuring and protecting equipment

(1) BWY-803 0°~ 150°.

Top oil temperature indicator: 1 set, type: BWY-803, made in China. The output temperature range shall be 0°C to 150°C. it will be equipped with an alarm contact and a trip contact.

(2)Equip 1 set hot spot winding temperature indicator, type: BWR-04, made in China. In addition to providing visible indication of the top oil temperature from 0° to 150°C, it will be equipped with an alarm contact and a trip contact.

(3)Pressure Relief Device, type: YSF, made in China.

(4)Buchholz relay, type: QJ, made in China.

(5)Oil level indicator, UZF, made in China.

125V DC.

The power supply of all the accessories above will be 125V DC.

### 2 Current transformers

:Equip CT (current transformer) on the transformer. The quantity, type and location are as follows:

Type		Current ratio	Load	accuracy class	Quantity
H.V. side	LR	200-600: 5A	30	0.5	3
	LRB	200-600: 5A	30	10P20	6
H.V. neutral point	LRB	200-600: 5A	30	10P20	1

### 3 Auxiliary power and control circuits

Equip a cable box. All the measuring and protecting junction are lead in the cable box. The cable box provides space heater and illumination light equipment.

### 4 Cooling equipment and controls

480V AC 60Hz , 125V DC.

The cooling equipment will be detachable radiators and cooling fans. The transformer equip fan cooler control box. The cooling fans is controlled by oil temperature or load, be on and off at the same time. Power supply of cooling fans will be 480V AC 60Hz, and control power of cooling fans will be 125V DC.

5The oil preservation system will be the constant pressure conservator with air-cell.

### 6 Bushing

(1)BRW H.V. side: bushing locates at the top tank, outlet to overhead wire. Type: BRW, Oil-impregnated paper condenser bushing, made in China.

(2) BFW L.V. side: bushing locates at the Rear tank, outlet to copper bar. Type: BFW, oil filled bushing insulator, made in China.

7 Equip oil filter valve at upper tank part, oil drain valve at lower tank part, sewer valve at lower tank part, oil sampling valve and other valves.

8 WDT □ 630/110-6×5

Equip off load tap changer made in China, type: WDT □ 630/110-6×5.

9 Insulation oil

DB-25 # 45kV。 15PPm。 -25□。

Transformer oil type: DB-25, naphthene base crude oil, made in China. Chemically stable, free from acidity or other corrosive ingredients. Breakdown Voltage (Distance 2.5mm)≥ 45kV. Water content≤15ppm, Solidifying point≤-25□

## **Test**

Do the factory tests as follows before transformer leave factory:

1 Measurement of winding resistance

2 Measurement of voltage ratio and check of connection symbol

3 (75°C)

Measurement of short-circuit impedance and load loss (Reference temperature: 75°C)

4 Measurement of no-load loss and no-load current

5 Measurement of earth insulation resistance of Windings and dielectric loss factor of insulating system

6 Insulating routine test

Full-wave impulse test



Induction withstand voltage test 500PC

Measured partial discharge  $\leq$  500PC at induction withstand voltage test

7 Insulation oil test

## **Other**

1. This technical agreement is an accessory of sales confirmation, and is valid on the date when stamped and signed.

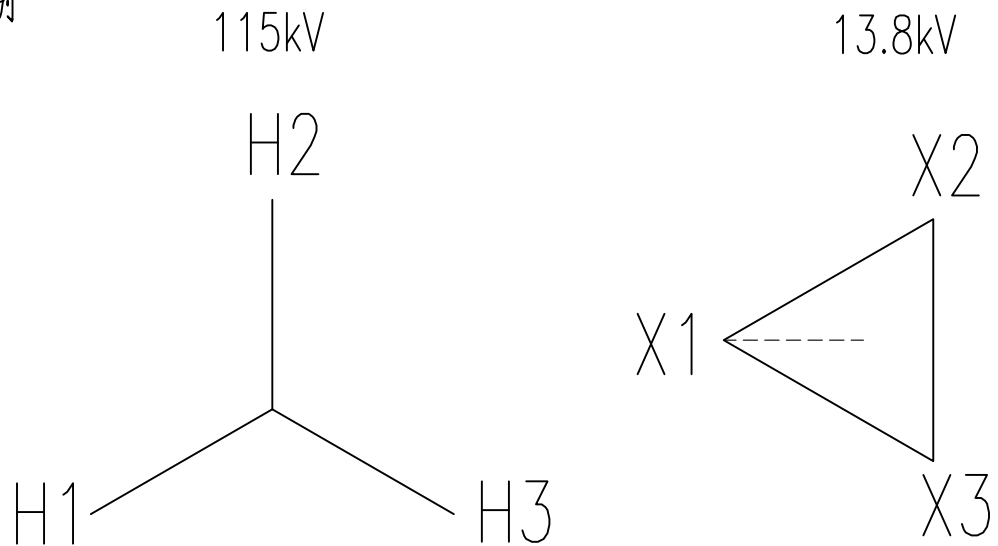
SF-75000/115±2×2.5%:13.8

115kV (Y)

13.8kV (Δ)

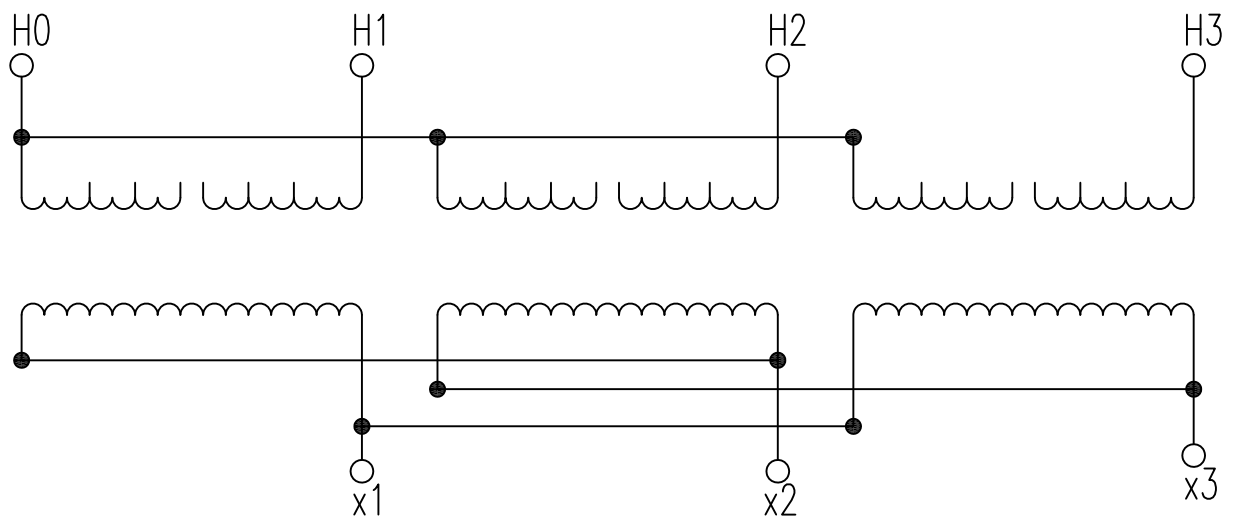
Vector group

连接组别



Connection diagram

接线图



No.	Code				Name	Qty.	Material		Remark
Mark	No.	Amendment No.	Signature	Date			Drawing mark	Weight	Qty. Scale
Draw			Process						
Design			Approval						
Check			Standard						
Inspection			Date						
						Total pages			
						Page No.			
						Wuxi Power Transformer Co.,Ltd.			