

**KEE HING CHEUNG KEE CO., LTD.
DLFTZ CHANG HING KEE
INT'L INDUSTRY & TRADE CO., LTD.**



SINGLE-PHASE TRANSFORMER



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SINGLE-PHASE TRANSFORMER

Pole-mounted single-phase Transformer



The single-phase oil-filled pole-mounted distribution transformers are specifically designed for the decentralization distribution network of servicing residential overhead distribution loads of town and countryside. They are also suitable for light and diversified power applications. These transformers are designed for the application conditions normally encountered on electric utility power distribution systems.

KHCK offers two basic transformer types:

- Conventional type (C.R.G.O core or Amorphous core)
- Complete Self Protected (CSP) type (C.R.G.O core or Amorphous core)



APPLICABLE STANDARDS:

IEEE C57.12.00

ANSI C57.12.20

IEC 60076

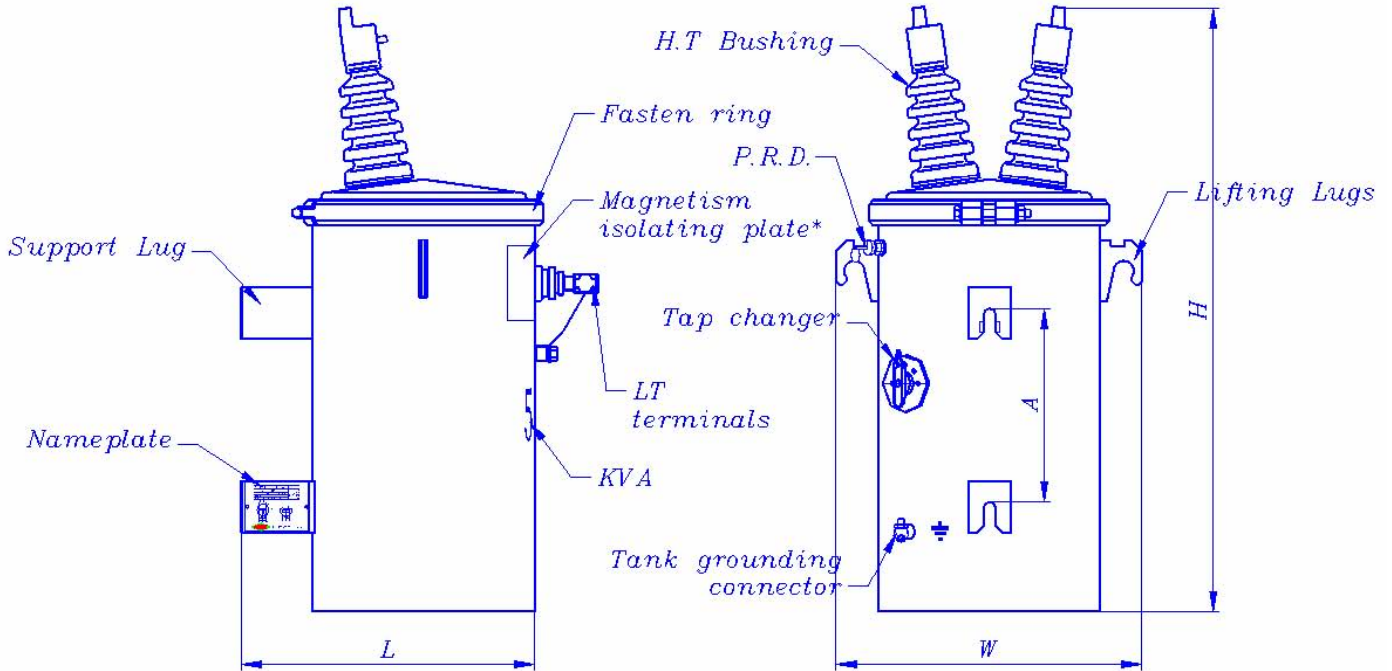
Conventional Type

Figure 3, Single phase transformer (Conventional Type) ANSI C57.12.20 Primary 7620/13200GrdY V, Secondary 120/240V 60Hz.



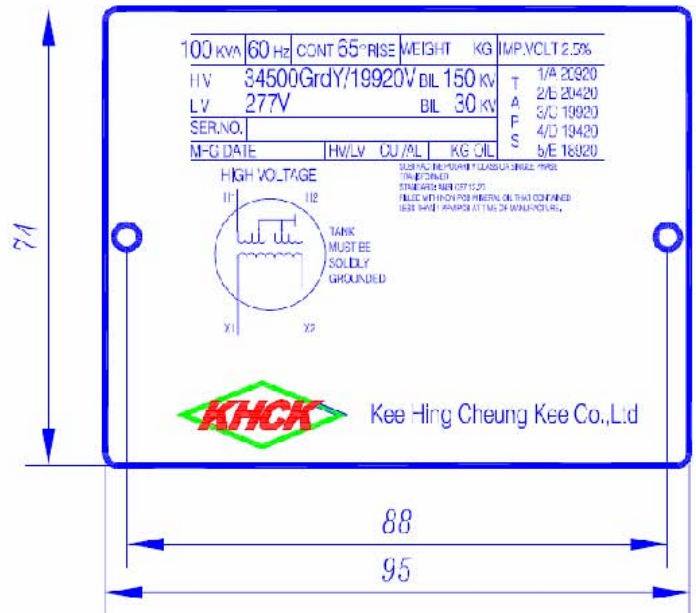
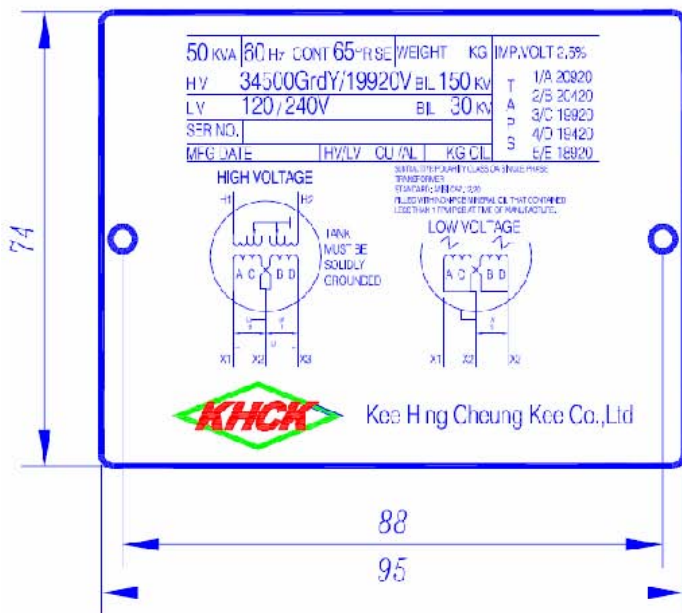
RATING	Conventional Type, Silicon Steel, Cooper HV/Copper LV							
	NO-LOAD	FULL-LOAD	TANK	DIMENSION(mm)			WEIGHT(kg)	
	(w)	(w)	DIAMETER(mm)	L	W	H	TOTAL	OIL
10kVA	45	150	340	527	460	850	104	28
15kVA	60	220	340	527	460	900	131	33
25kVA	85	285	410	610	530	960	185	40
37.5kVA	110	395	460	660	580	1090	253	62
50kVA	140	515	500	700	620	1130	305	75
75kVA	180	725	500	708	660	1160	383	70
100kVA	235	905	510	750	710	1290	431	78
RATING	Conventional Type, Amorphous Metal, Copper HV/Aluminum LV							
	NO-LOAD	FULL-LOAD	TANK	DIMENSION(mm)			WEIGHT(kg)	
	(w)	(w)	DIAMETER(mm)	L	W	H	TOTAL	OIL
10kVA	14	150	340	527	460	850	116	32
15kVA	20	220	380	567	500	900	157	46
25kVA	29	285	420	620	540	960	217	60
37.5kVA	40	395	460	660	580	1090	264	68
50kVA	46	515	460	660	580	1130	304	72
75kVA	62	725	520	728	660	1160	397	82
100kVA	82	905	560	800	720	1290	461	108

Conventional Type



*Magnetism Isolating Plate is designed for transformer rating above 37.5kVA with the purpose of reducing FullLoad Losses.

Name Plate



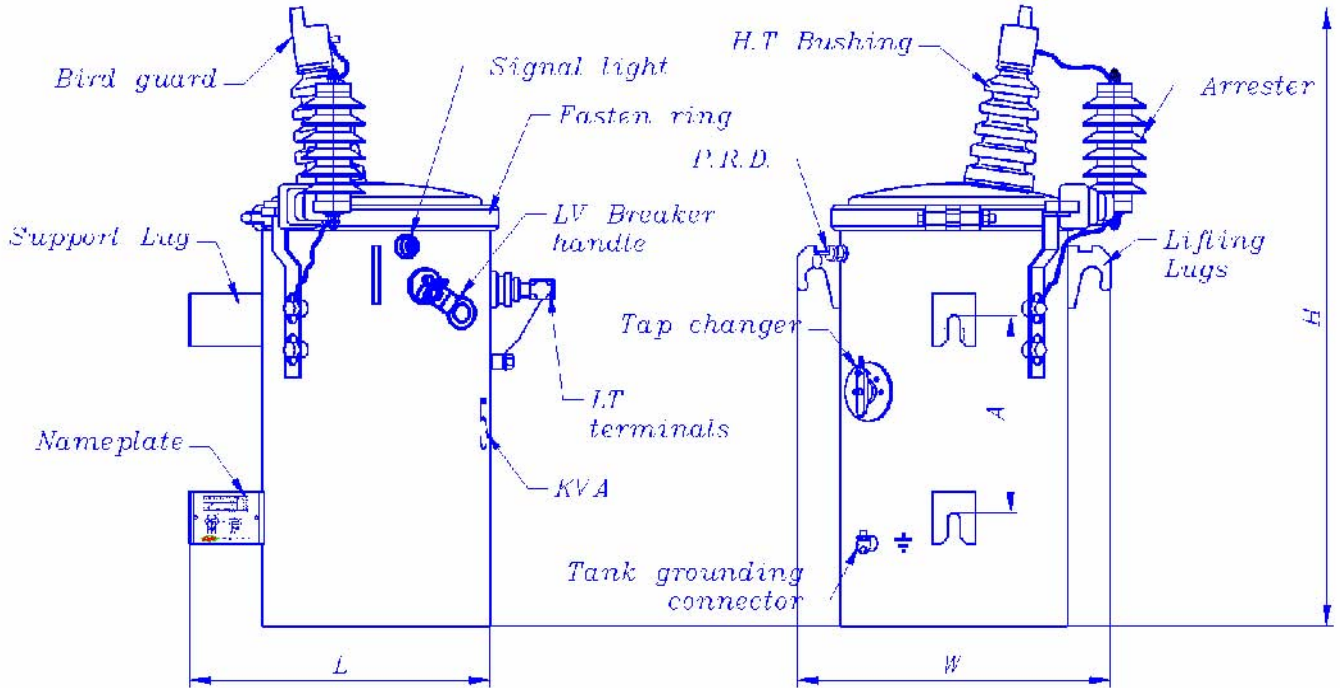
Complete Self Protected Type

Figure 4, Single phase transformer (Complete Self Protected (CSP)) ANSI C57.12.20 Primary 7620/13200GrdY V, Secondary 120/240V 60Hz.



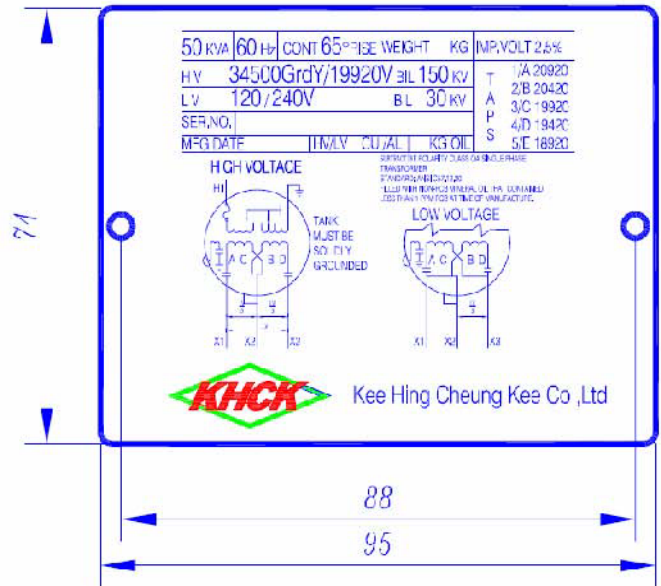
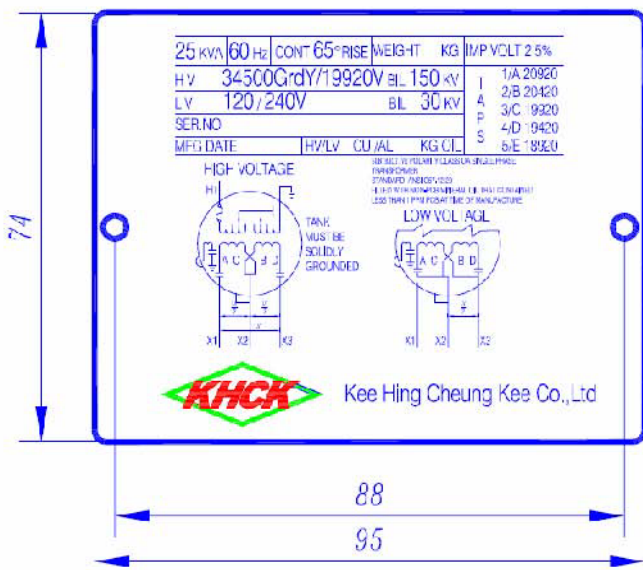
RATING	Conventional Type, Silicon Steel, Cooper HV/Copper LV							
	NO-LOAD	FULL-LOAD	TANK	DIMENSION(mm)			WEIGHT(kg)	
	(w)	(w)	DIAMETER(mm)	L	W	H	TOTAL	OIL
10kVA	45	150	340	527	460	850	104	28
15kVA	60	220	340	527	460	900	131	33
25kVA	85	285	410	610	530	960	185	40
37.5kVA	110	395	460	660	580	1090	253	62
50kVA	140	515	500	700	620	1130	305	75
75kVA	180	725	500	708	660	1160	383	70
100kVA	235	905	510	750	710	1290	431	78
RATING	Conventional Type, Amorphous Metal, Copper HV/Aluminum LV							
	NO-LOAD	FULL-LOAD	TANK	DIMENSION(mm)			WEIGHT(kg)	
	(w)	(w)	DIAMETER(mm)	L	W	H	TOTAL	OIL
10kVA	14	150	340	527	460	850	116	32
15kVA	20	220	380	567	500	900	157	46
25kVA	29	285	420	620	540	960	217	60
37.5kVA	40	395	460	660	580	1090	264	68
50kVA	46	515	460	660	580	1130	304	72
75kVA	62	725	520	728	660	1160	397	82
100kVA	82	905	560	800	720	1290	461	108

Complete Self Protected



*Magnetism Isolating Plate is designed for transformer rating above 37.5kVA with the purpose of reducing Fullload losses.

Name Plate



Amorphous Metal Core

Application

As substitute of Silicon Steel Core, it is used for distribution and power transformer.

Characteristics

High permeability and low coecivity- higher efficiency.

Low loss-Lower no load loss and temperature rise.

Low excitation current – lower Full load loss

Excellent temperature stability – Guaranteed continuous operation under 55-130 degree.

Fig 5 : Assembling of Amorphous Metal Core



Winding Method

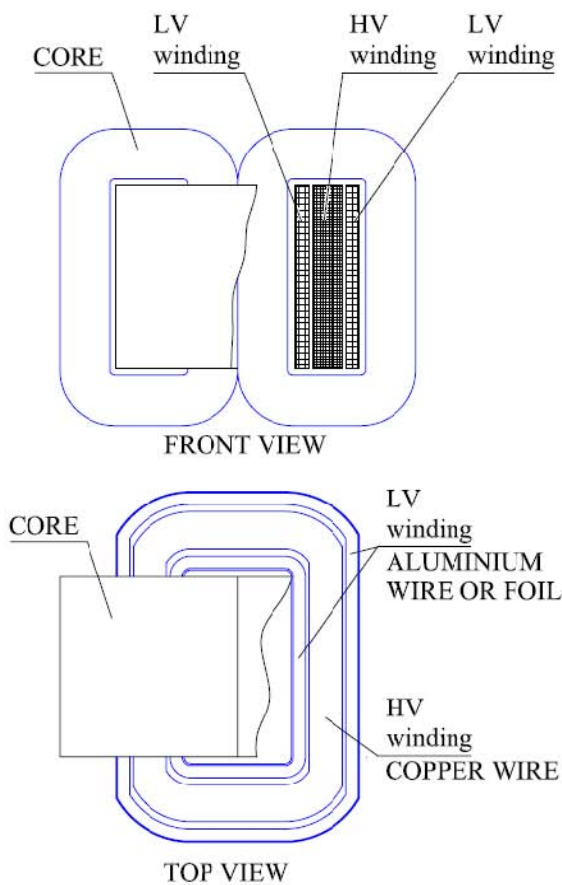
The construction type of the primary and secondary winding:

The transformers are of all shell-type construction consisting of one coil with two core loops. The Concentric primary and secondary windings may be wound as a low voltage,

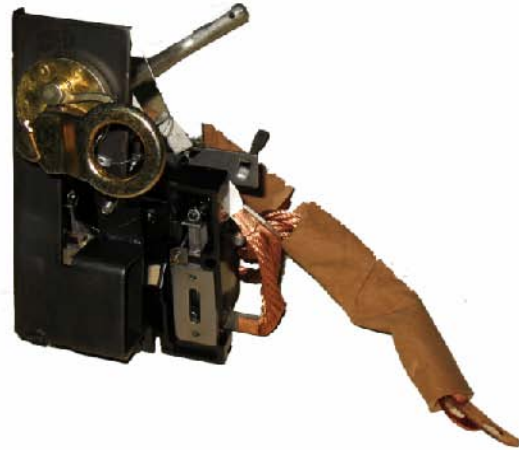
high voltage, low voltage, (low-high-low) arrangement. Or as a low-high configuration, as the application dictates.

All windings use adhesive coated, thermally upgraded paper as the insulation between the layers. Secondary windings are usually wound with aluminum sheet conductor, while primary windings use either aluminum or copper film insulated magnet wire.

Fig 6: Winding



Circuit Breaker



Internal oil-immersed secondary circuit breakers are designed for use as part of a protection package for either single or three phase distribution transformers. The breaker is electrically located between the transformer's low voltage coil and the low voltage bushings to provide protection against over-loads and secondary faults.

The normal load cycle of a distribution transformer is characterized by a relatively light load during the greater part of the day, with one or more peaks lasting from a few minutes to a few hours. This permits operation of the transformer at loads exceeding its continuous self-cooled rating during short-time peaks, since the heat-storage capacity of the transformer results in a relatively slow increase of internal temperatures. Since the deteriorating effects of temperature are cumulative, it is possible to obtain satisfactory life from transformer insulation with peak temperatures exceeding those permitted for continuous loading if the duration of these temperatures is sufficiently restricted.

Transformers subjected to overloading or applied on lines without overload protection should be self-protected. Self-protected distribution transformers offer a complete, unified system of over load protection. The primary means of protecting the transformer is the circuit breaker, which is designed to give adequate severe overloads. Other protective equipment available includes internally mounted primary expulsion fuses. Installation in the transformer is simple and quick. The breaker is secured to tank interior by means of the operating handle that passes through the tank wall. The above shows the circuit breaker operating handle and emergency overload lever. To open the low-voltage circuit manually, move the handle so the pointer moves from "C" (closed) to "O" (open). When the pointer coincides with the "O" position, the low-voltage circuit is open. To close the breaker,

move the handle to position "C"(closed). If the breaker has tripped thermally or magnetically, move the handle to position "R"(reset) to engage the latch mechanism, then to "C"(closed). The "L"(light) position is not used on a pad-mounted transformer. If desired, the breaker-operating handle can be operated with a switch hook.



Surge Arresters

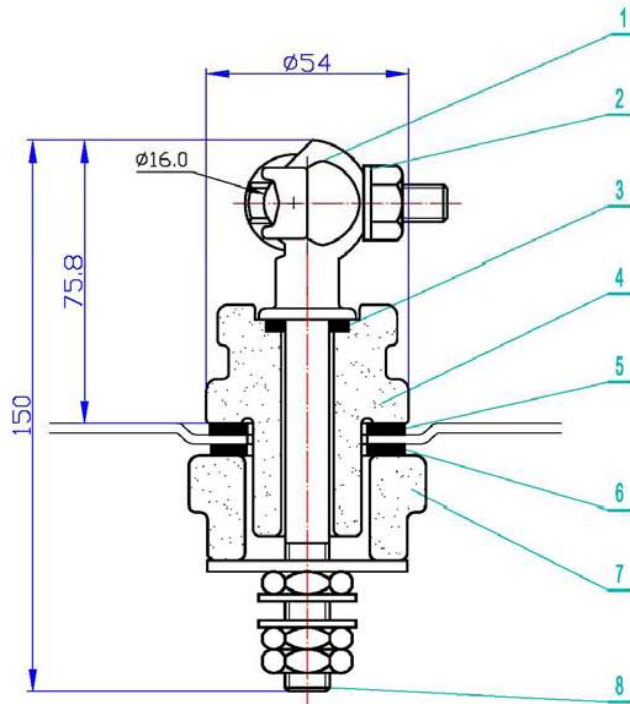
Features

The Low Voltage Distribution Class Surge Arrester (LVDA) for protection at the distribution transformer secondary bushings. Various IEEE and industry sponsored studies have concluded that impulse voltages from lightning and other sources can enter the transformer secondary and cause extensive damage. Such surges are typically beyond the energy handling capability of a Secondary Class Surge Arrester.

The LVDA has been designed and tested in accordance with ANSI/IEEE C62.11 Light Duty Distribution Class requirements. It is designed to be directly connected to the secondary bushings of the pole type or pad type distribution transformer. The energy handling capability of the LDVA of 40kA High Current Short-duration 4/10 μ s current wave is four times that of the Secondary Class Surge Arresters assuring extremely long service life. Arresters rated 175, 240, 480 and 650 volts are available in one, two and three pole designs.



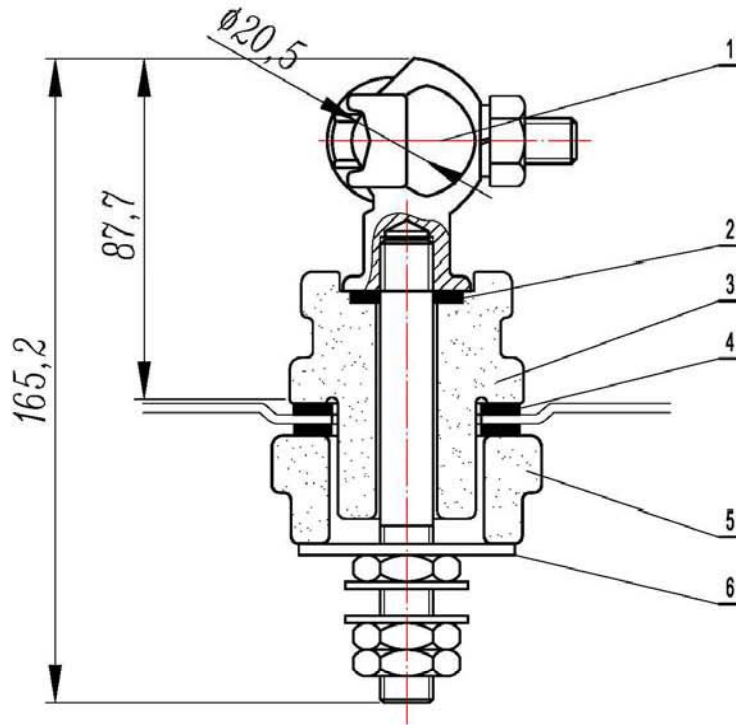
LT Bushing and Terminal



LT Bushing & Terminal

- 1 LT Terminal
Eyebolt opening: 16mm
- 2 Lock washer
- 3 Terminal Gasket
- 4 Porcelain body
- 5 LT bushing gasket (outside)
- 6 LT bushing gasket (inside)
- 7 Porcelain
- 8 Copper Conduct

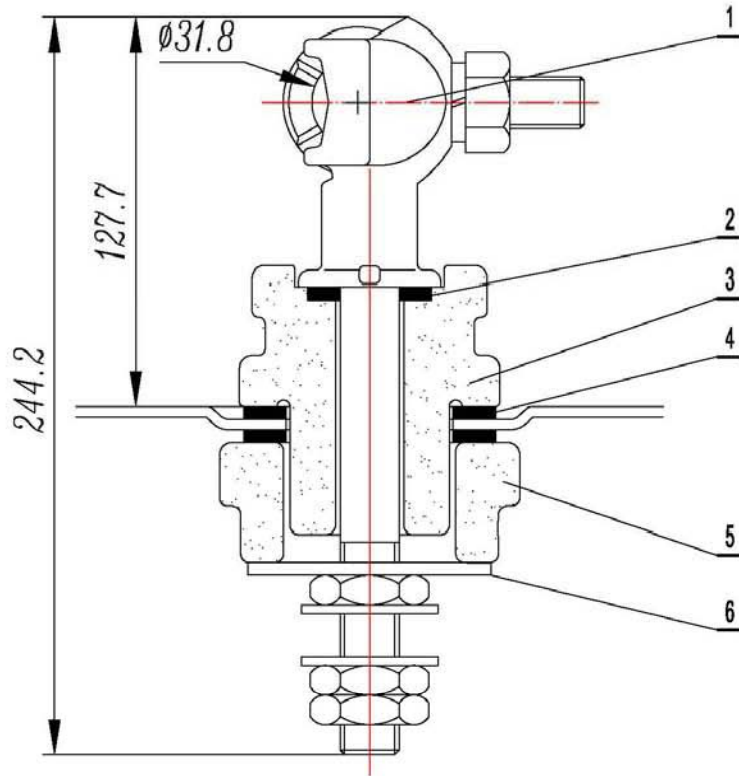
Remark	Time	Subarea	Alteration No.	Signation	Date						10-15kva LT bushing & termina
Design			Standardize			Phase Remark	Weight	Scale			
Check			Verify								T-Z-TD-020 (A)
Craft			Approve			Total	No.				



LT Bushing & Terminal

- 1 LT Terminal
Eyebolt opening: 20.5mm
- 2 Lock washer
- 3 Terminal Gasket
- 4 Porcelain body
- 5 LT bushing gasket(outside)
- 6 LT bushing gasket (inside)
- 7 Porcelain
- 8 Copper Conduct

Remark	Time	Subarca	Alteration No.	Signation	Date						25-50kva LT bushing & terminal
Design			Standardize			Phase Remark	Weight	Scale			
Check			Verify								T-Z-TD-020 (B)
Craft			Approve			Total	No.				

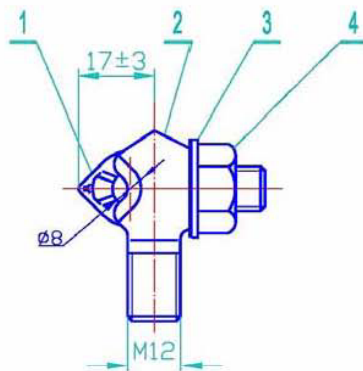


LT Bushing & Terminal

- 1 LT Terminal
Eyebolt opening: 31.8mm
- 2 Lock washer
- 3 Terminal Gasket
- 4 Porcelain body
- 5 LT bushing gasket(outside)
- 6 LT bushing gasket (inside)
- 7 Porcelain
- 8 Copper Conduct

Remark	Time	Subarea	Alteration No.	Signation	Date						100kva LT bushing & terminal
Design			Standardize			Phase Remark	Weight	Scale			
Check			Verify								T-Z-TD-020 (D)
Craft			Approve			Total	No.				

Grounding Terminal

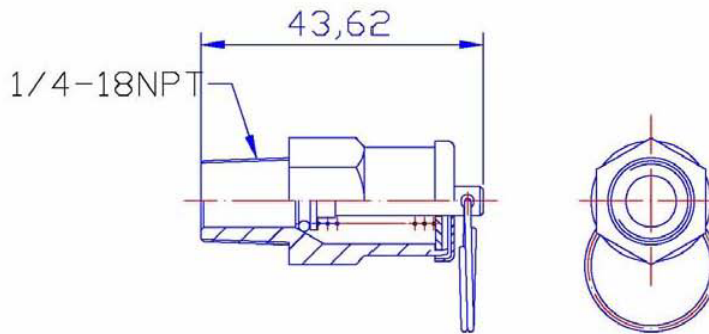


Ground terminal

- 1 Eye bolt : Tin plated bronze
- 2 Terminal Body: Tin Plated Bronze
- 3 Lock washer: stainless steel
- 4 Nut : Brass

Remark	Time	Subarea	Alteration No.	Signation	Date					Grounding terminal
Design			Standardize			Phase Remark	Weight	Scale		
Check			Verify							T-Z-TD-040
Craft			Approve			Total	No.			

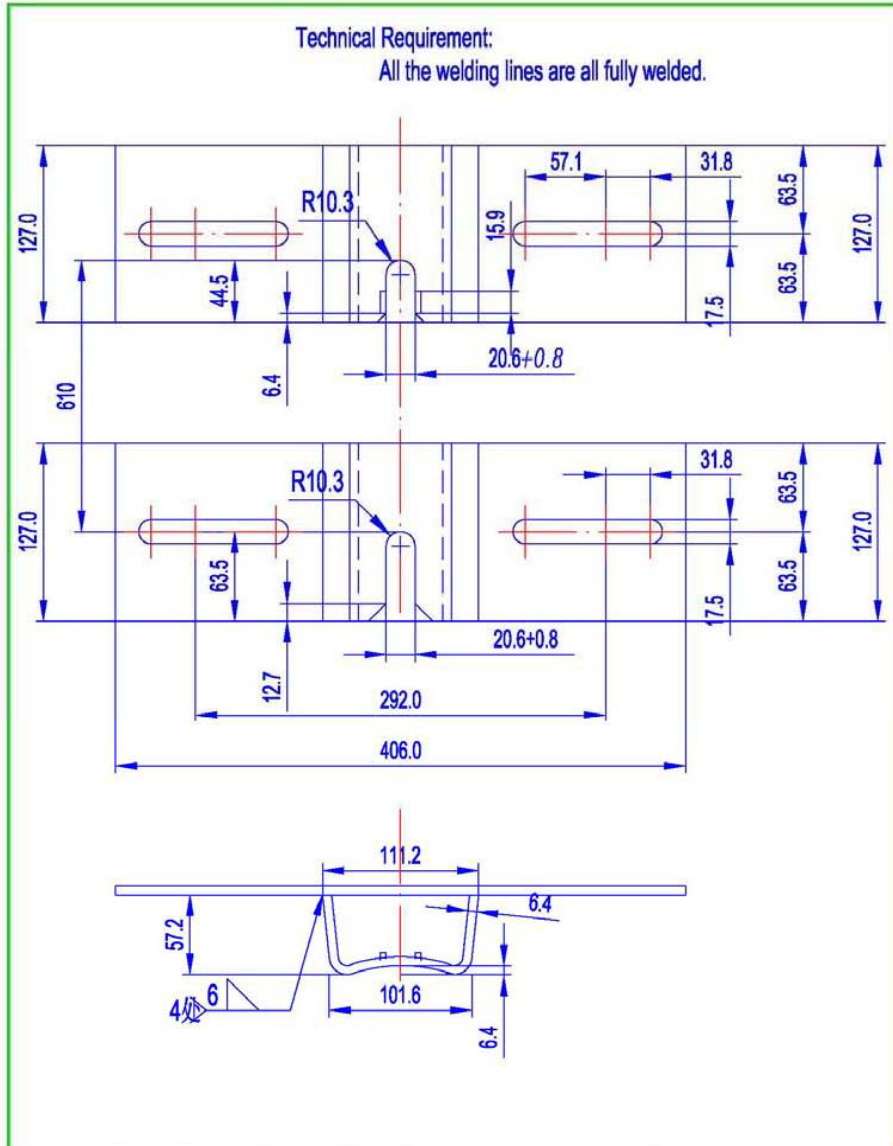
Pressure Relief Valve



- 1 Main Body
- 2 Sealing Ring
- 3 Sealing Ring
- 4 Rubber cover
- 5 Valve rod
- 6 Pulling ring
- 7 Baffle
- 8 Spring
- 9 Sealing Ring

Remark	Time	Subarea	Alteration No.	Signation	Date					Pressure relief valve
Design			Standardize			Phase	Remark	Weight	Scale	
Check			Verify							T-Z-YL-010
Craft			Approve			Total		No.		

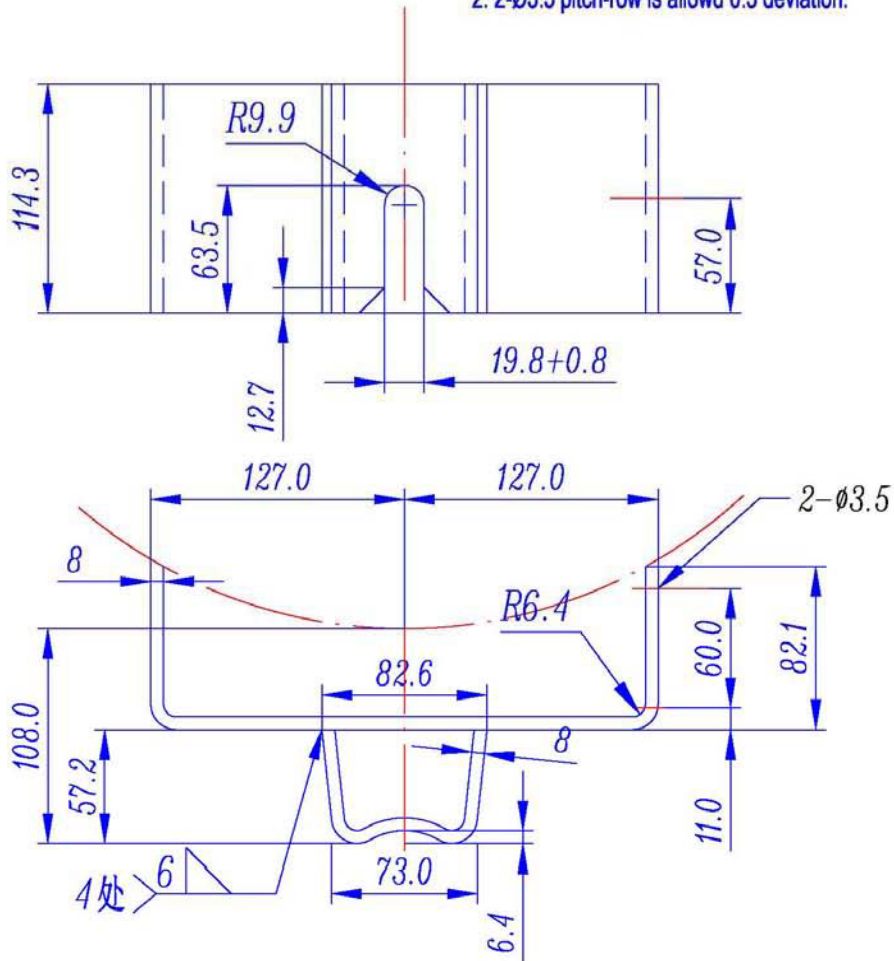
Outlet Design



						Q235-A 8mm, 4mm			
Remark	Time	Subarea	Alteration No.	Signation	Date				250-333kva transformer
Design			Standardize			Phase Remark	Weight	Scale	Adapter plate C
Check			Verify					1: 8	T-Z-DP-003
Craft			Approve			Total	No.		

Technical Requirements:

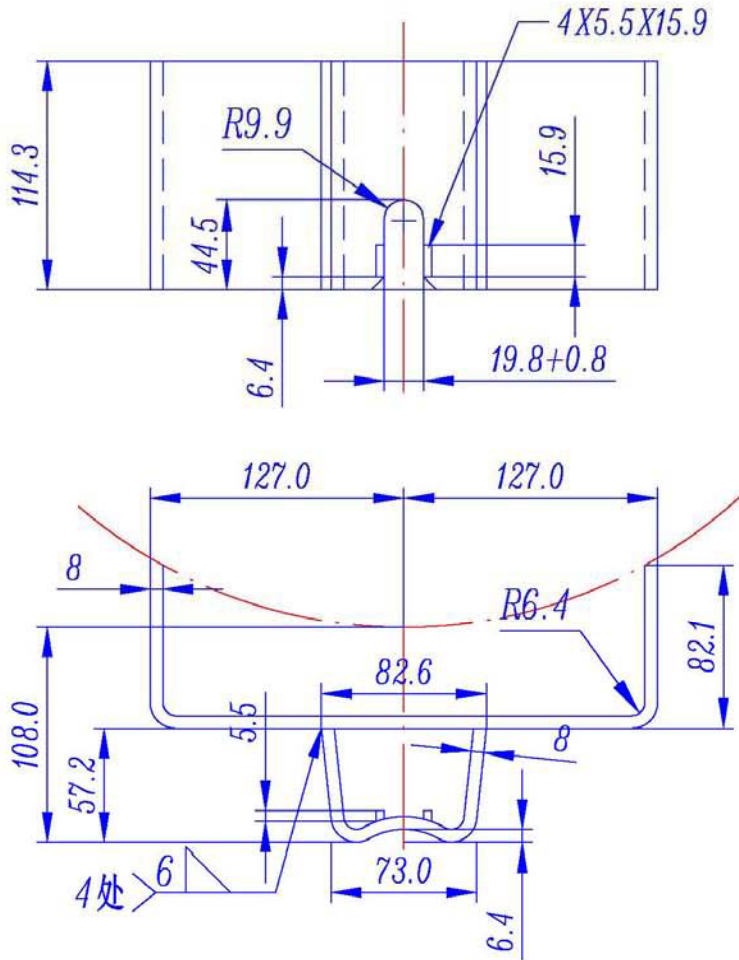
1. All the welding lines are all fully welded.
2. 2-Ø3.5 pitch-row is allowed 0.5 deviation.



						Q235-A 8mm				
Remark	Time	Subarea	Alteration No.	Signation	Date				Lower support lug B	
Design			Standardize			Phase Remark	Weight	Scale		
Check			Verify					1: 8	T-Z-DP-002B	
Craft			Approve			Total	No.			

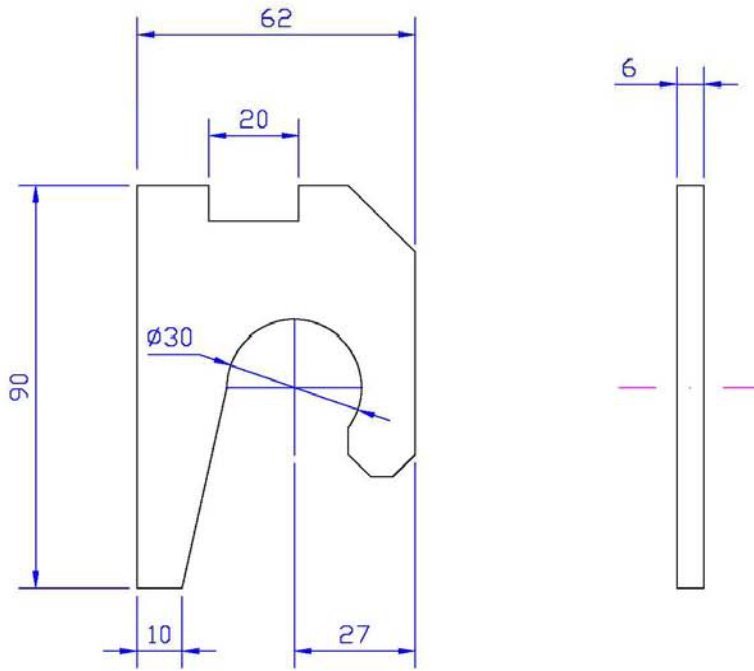
Technical Requirement:

1. All the welding lines are all fully welded.



						Q235-A 8mm, 4mm			
Remark	Time	Subarea	Alteration No.	Signation	Date				75-100kva transformer
Design			Standardize			Phase Remark	Weight	Scale	Upper support lug B
Check			Verify					1: 8	T-Z-DP-002A
Craft			Approve			Total	No.		

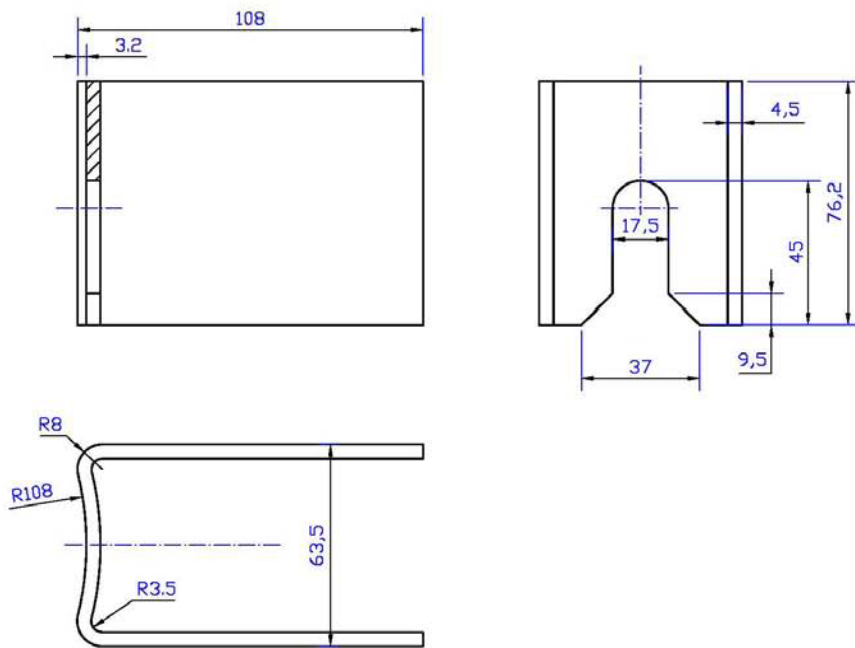
Lift lug : steel



						Q235 6mm thick iron plate			
Remark	Time	Subarea	Alteration No.	Signation	Date				Lifting lug
Design			Standardize			Phase Remark	Weight	Scale	
Check			Verify						T-Z-DG-001
Craft			Approve			Total	No.		

Downside Support Lug

MATERIAL:
Hot Rolled
Carbon Steel
Dimension: mm



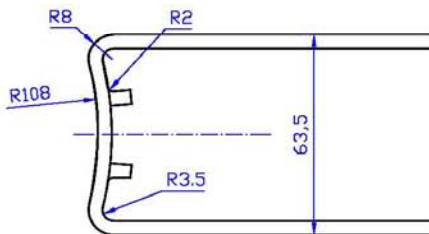
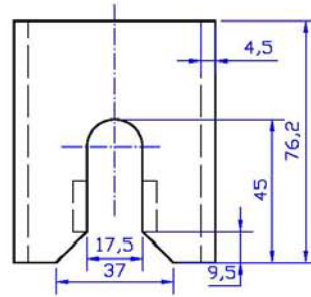
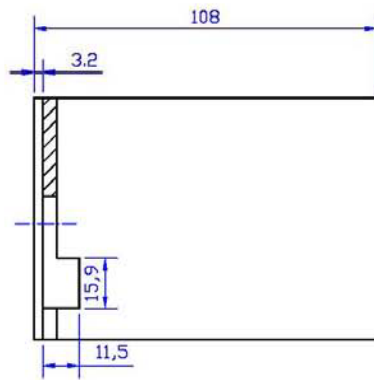
						Q235-A. F 4.5mm penal			
Remark	Time	Subarea	Alteration No.	Signation	Date	Phase Remark	Weight	Scale	10-50kva transformer Lower support lug A
Design			Standardize						
Check			Verify						T-Z-DP-001B
Craft			Approve			Total	No.		

Upside Support Lug

MATERIAL:

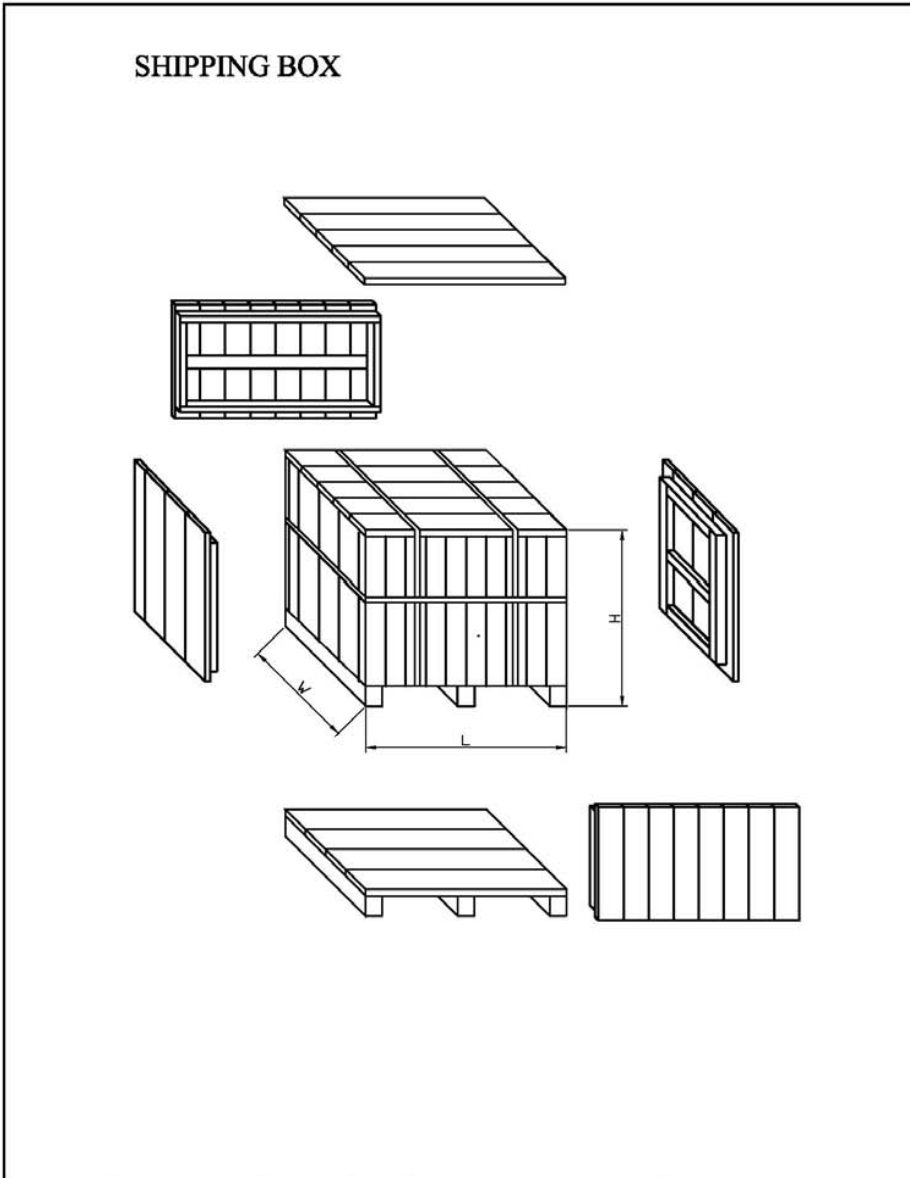
Hot Rolled
Carbon Steel

Dimension: mm



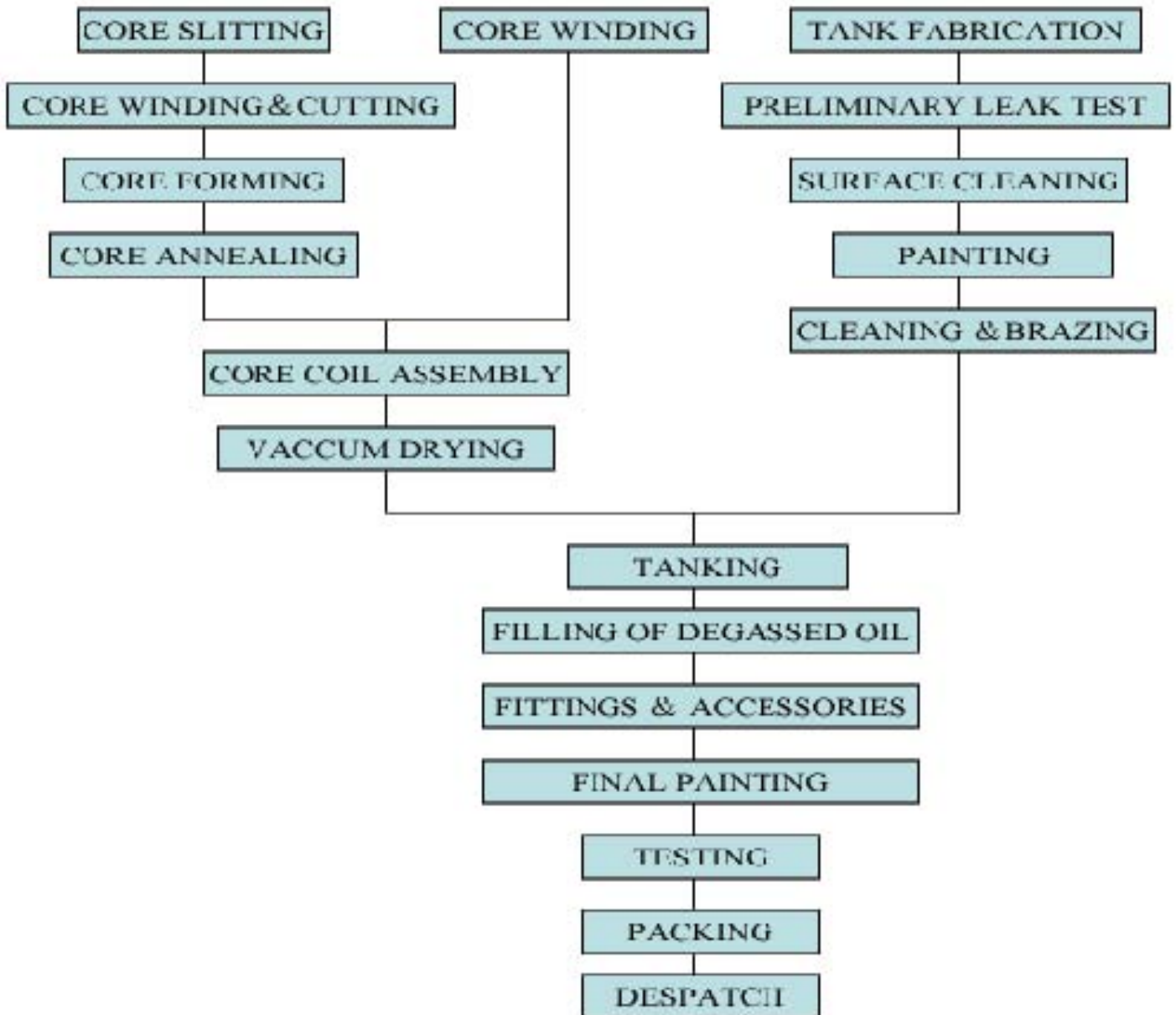
						Q235-A. F 4.5mm panel			
Remark	Time	Subarea	Alteration No.	Signation	Date	Phase	Remark	Weight	Scale
Design			Standardize						
Check			Verify						
Craft			Approve			Total		No.	
									10-50kva transformer Upper support lug A
									T-Z-DP-001A

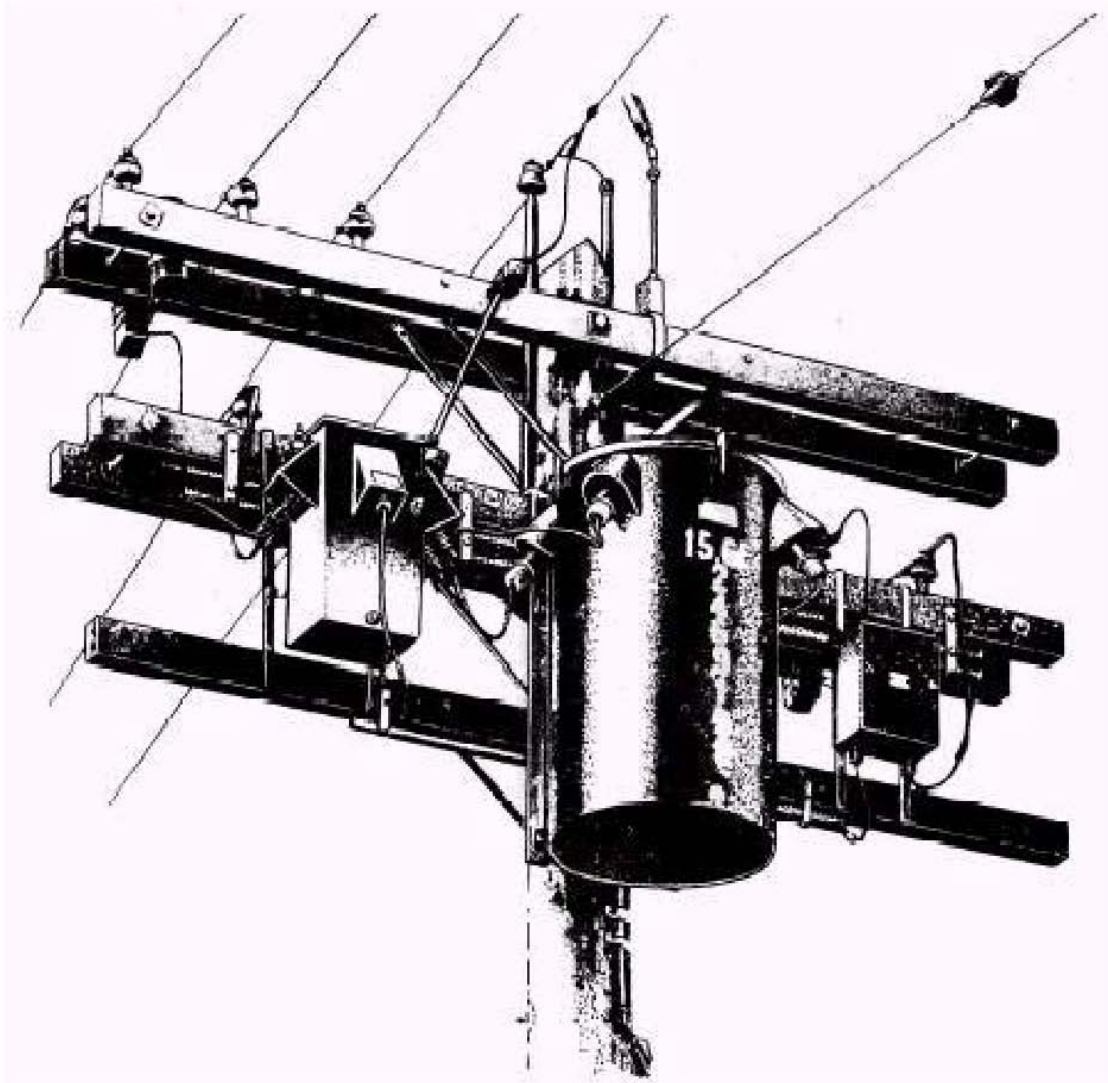
Shipping Box



Remark	Time	Subarea	Alteration No.	Signation	Date					Single phase transformer
Design			Standardize			Phase Remark	Weight	Scale		PACKAGE BOX
Check			Verify							
Craft			Approve			Total		No.		

Manufacturing process for single phase transformers SCHEMATIC DIAGRAM:





ALL We Do Just For You!