

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD



A Govt. of Maharashtra Undertaking
CIN: U40109MH2005SGC153645

Office of the Regional Director

"Prakash Bhavan" 3rd floor, Senapati Bapat Road,
Near Chatushrungi Temple,
Ganeshkhind, Pune- 411016

E-mail : rdpune@mahadiscom.in /

rdmsedclpune@gmail.com

Website: www.mahadiscom.in

Phone no. 020-25635906(o)/25635933(P)

RD/Pune / Tech / GTP - 200 KVA / Static /

No - 1 0 0 6

dt:- 26 SEP 2017

To,

M/s Shivshakti Power Device India Pvt Ltd

Sr.No.46 , Hissa No. 35,

Narhegaon ,Tal- Haveli

Pune - 411 041

Sub:- Approval of GTP and Drawings of BIS certified 200 kVA, 22/ 0.433 kV , Three Phase, Copper wound , Distribution Transformers , Indoor and Outdoor Type , ONAN, Energy Efficient Level-II in r/o M/s Shivshakti Power Device India Pvt Ltd , Narhegaon, Pune for supply in Ag. Turnkey projects , DDF/ DPDC / SCP Schemes under 1.3 % supervision charges and to HT Consumers in MSEDCL network

- Ref:-1. MSEDCL Spec.-CE/MMC/MSC-I/3Phase (25-200 kVA)/DT/T/2017/01, dt. 05 .01.2017.
2. CE/Infra II/ EE-IV / Vendor / 36802 dt.16/10/2015.
3.CE/Infra II/EE-IV/Vendor/29405 dt:-24.07.2015
4.PNBO /CM / L-7500154813/2189 dt. 28/07/2017. (BIS Certification)
5. The Gazette of India, (MoP-Notification) dt:- 17/02/2017.
6. CE / MMC / Gr. XII / 000604 dt.- 23/02/2017.

Dear Sir,

In connection to above, this office is in receipt of your proposal , regarding approval of GTP & Drawings of 22/0.433 kV, 200 kVA, Copper wound, Three Phase Distribution Transformer, ONAN, (Indoor and Outdoor Type) of Energy Efficient Level-2, for supply in Ag. Turnkey projects, DDF/ DPDC / SCP Schemes under 1.3 % supervision charges and to HT Consumers in MSEDCL network.

Accordingly the submitted GTP, Drawings and Type Test reports of 200 kVA , 22 / 0.433 kV , Copper wound, Three Phase Distribution Transformers, ONAN, (Outdoor and Indoor Type) of Energy Efficiency Level-2 , are technically scrutinized as per IS:1180 , Part I: 2014 , MSEDCL Technical specifications vide. refs. 1, 2, 3 & submitted Type Test Reports (C.P.R.I.- Bhopal).

The details of drawings of 200 kVA 22/0.433 kV ,ONAN, Distribution Transformers, (Outdoor & Indoor Type) of Energy Efficiency Level-2, are as follows:-

Details of Drawings submitted:-

Sr. no.	Title of Drawings (for 200 kVA, 22/0.433 kV)	Drawing Number (Indoor and Outdoor type)
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1	Rating & Diagram Plate	SPDI / 22 / 200 /NP /03 (O/D) SPDI / 22 / 200 /NP /03 (I/D)
2	General Arrangement	SPDI / 200 / 22 /GA /01 (O/D) SPDI / 200 / 22 /GA /01 (I/D)
3	Internal Construction	SPDI / 200 / 22 / CCA /02 (O/D) SPDI / 200 / 22 / CCA /02 (I/D)
4	Technical Details Drawing	SPDI / 22/ 200 / TD /04 (O/D) SPDI / 22/ 200 / TD /04 (I/D)
5	General Arrangement & Creepage of 24 kV , 250 A, HV Bushing.	SPD / 200 / 22-05 (O/D) SPD / 200 / 22-05 (I/D)
6	General arrangement & creepage distance of 1.1 kV ,630 A, LV Bushing.	SPD / 200 / 22-06 (O/D) SPD / 200 / 22-06 (I/D)
7	Silica Gel Breather.	SPD / 200 / 22 /07 (O/D) SPD / 200 / 22 /07 (I/D)

Details of Type Test Reports:-

The Type Test reports of 200 kVA Three Phase, 22/0.433 kV Dist. Transformer of the tests conducted at C.P.R.I.- Bhopal for **Energy Efficient Level-2**, submitted vide ref.no..1 is verified with original are as follows:-

Sr.No	Type Test Particulars	Type Test Report No. & date	
		22 kV , 200 kVA	Place of Testing
1	Lightening Impulse Test [IS:2026 (Part 3)]	2017 /STN-1/326 ,Dt:-05.07.2017	C.P.R.I.-Bhopal
2	Temperature Rise Test	2017 /STN-1/326 ,Dt:-05.07.2017	C.P.R.I.-Bhopal
3	Short Circuit withstand test	2017 /STN-1/326 ,Dt:-05.07.2017	C.P.R.I.-Bhopal
4	Pressure Test	2017 /STN-1/326 ,Dt:-05.07.2017	C.P.R.I.-Bhopal
5	Oil Leakage Test	2017 /STN-1/326 ,Dt:-05.07.2017	C.P.R.I.-Bhopal

The submitted Type Test report (2017/STN-1/326 , dt:- 05.07.2017) are of **Energy Efficient Level-2** and as per IS:1180 (Part-I) , 2014 with amendment No.1&2 ; are within the stipulated validity of 5 years.

The offered / submitted GTP and drawings were technically scrutinized as per IS:1180 , Part I: 2014 the relevant IS , submitted Type Test Report (C.P.R.I.-Bhopal) and MSEDCL Technical specifications vide ref.no.3. and are generally found in order.

BIS Certificate issued by BIS , Gultekdi , Pune:-


The submitted BIS Certificate bearing License No. L-7500154813 dt. 28/07/2017. Vide ref .no. PNBO/CM/L-7500154813/2189 dt. 28/07/2017. (BIS Certification for Level-2) , valid from 26/07/2017 to 25/07/2017 , as per IS :1180 , Part-I:2014 issued by BIS ,Gultekdi, Pune is also verified. (ref.no.4)

CE (MM Cell), H.O. Mumbai vide.ref. 6 ; in continuance to Govt of India (MoP), Gazette Notification vide ref.no.5 ; has made it mandatory to procure / accept Distribution Transformers of Energy Efficient Level-2 of IS:1180 (Part I):2014 from 1st July 2017 onwards.

The offered / submitted GTP and drawings were technically scrutinized as per IS:1180 , Part I: 2014 the relevant IS , submitted Type Test Report (C.P.R.I-Bhopal), MSEDCL Technical specifications vide ref.no.1,2,3 along with BIS certification for level-2 and are generally found in order, hence accorded approval.

However this approval shall not relieve you from the responsibility and liability to ensure correctness of the drawings and its correct interpretation for meeting the requirements as per MSEDCL Tender Technical specifications and latest amended IS Specifications. The Distribution Transformers shall conform to IS: 1180 (Part 1): 2014 amended up to date or other International Standards for equal or better performance. The design, manufacture and performance of the equipment shall comply with all currently applicable statutes, regulations and safety codes. Nothing in this specification shall be construed to relieve the bidder off his responsibilities.

This approval is accorded to M/s Shivshakti Power Device India Pvt Ltd, Narhegaon,Pune for acceptance / purchase of BIS certified 200 kVA, 22/0.433 kV, CRGO Core , Copper wound, ONAN , Three Phase Distribution Transformers, Indoor & Outdoor Type of Energy Efficient Level-2, as per IS:1180 (Part I): 2014 for Tenders /works; i.e. for Ag. Turnkey projects, DDF / DPDC / SCP Schemes under 1.3 % supervision charges and to HT Consumers in MSEDCL network. This Approval is not applicable to schemes / projects sanctioned under Infra plan / IPDS / DDUGJY.

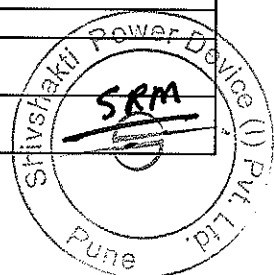
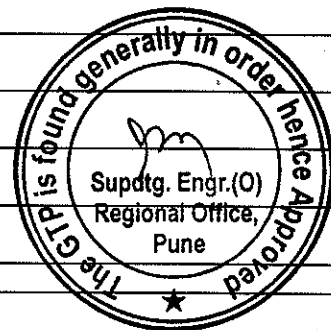

Superintending Engineer (O)
MSEDCL, Pune Region

Copy S.w.rs.to:-

Regional Director, MSEDCL Pune / Kokan / Aurangabad / Nagpur Regions.

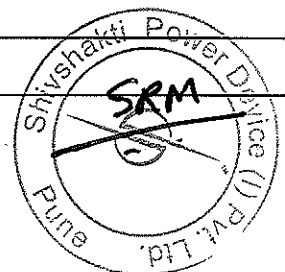
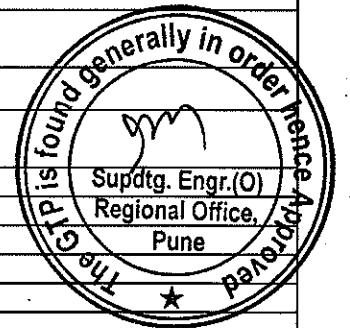
**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED.
RATING 200 KVA 22KV/0.433 KV Level '2' DISTRIBUTION TRANSFORMER
GUARANTEED TECHNICAL PARTICULARS**

SR NO	GTP PARAMETERS	OFFERED
1	Name of Manufacturer.	M/s Shivshakti Power device (India) Pvt Ltd, Pune
2	Reference Standard	IS 1180 (Part):2014
3	Whether transformer is Oil Natural Air Natural cooled type(Yes/ No)	Yes
4	Whether transformer is suitable for Indoor /Outdoor installation	Indoor /Outdoor
5	Energy Efficiency Level As per IS 1180 part: 1	Level-2
6	BIS License No.	CM/L-7500154813
7	Rating of transformer in KVA	200KVA
8	Primary Voltage in kV	22 KV
9	Highest System Voltage	24 KV
10	Frequency in HZ	50 HZ
11	Secondary Voltage in kV	0.433 KV
12	Rated Primary Current in Amp	5.25 Amp
13	Rated Secondary Current in Amp	266.7 Amp
14	Whether neutral is solidly earthed (Yes/ No)	Yes
15	Colour of transformer	Air Craft Blue Shed No 108 IS-5; Powder coated
16	Vector Group	Dyn 11
17	Maximum Temperature rise of top oil over an Ambient Temperature of 50 Degree celcius	35 degree celcius
18	Maximum Temperature rise of winding over an Ambient Temperature of 50 Degree celcius	40 degree celcius
19	i) Approximate overall length of transformer in mm ii) Approximate overall length of transformer in mm	1400 mm 1600mm (Indoor Type)
20	Approximate overall breadth of transformer in mm	1020 mm
21	L.V. Boxes for Indoor Type	600 (Length) x 360 (Width) x 450 (Height)
22	H.V. Boxes for Indoor Type	760 (Length) x 550 (Width) x 600 (Height)
23	Approximate overall height of transformer in mm	1800mm
24	Approximate length of transformer tank in mm	1110mm
25	Approximate breadth of transformer tank in mm	450mm
26	Approximate height of transformer tank in mm HV/LV	1000mm-980 mm
27	Thickness of the side of transformer Tank plate in mm	4 mm
28	Thickness of the bottom of transformer tank plate in mm	6mm
29	Thickness of the top of transformer tank plate in mm	6mm
30	Size of reinforced welding Angle to Transformer tank in mm	50X50X5
31	Type of Tank (corrugated/conventional)	Conventional
32	In case of corrugated tank , thickness of corrugated sheet (In Mm)	1.6 mm
33	Degree of slope to the top plate of Transformer.	5 to 10 Degree
34	Shape of Transformer Tank	Rectangular
35	Weight of Tank & fittings in Kgs	235Kg
36	Total Weight of Transformer in kgs	1287Kg
37	In case of corrugated tank , thickness of corrugated sheet (In Mm)	Not Applicable
38	Name Plate details are as per the requirement specified in tender	Yes
39	Thickness of Name plate & material used	18 SWG / Alluminium Anodized
40	Size of Base channel provide to tank	100x50 mm -2 nos
41	No of Roller provided to Transformer (diameter & width)	N.A.
42	Marking as MSEDCL & Sr No of tranformer is engraved on transformer main tank	Yes



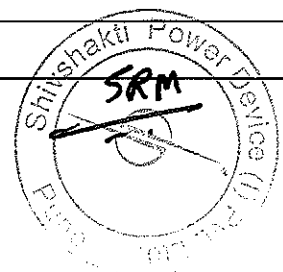
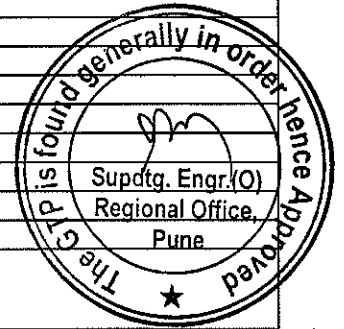
**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED.
RATING 200 KVA 22KV/0.433 KV Level '2' DISTRIBUTION TRANSFORMER
GUARANTEED TECHNICAL PARTICULARS**

SR NO	GTP PARAMETERS	OFFERED
43	Conservator tank to the transformer with oil level indicator (showing three levels) and drain plug is provided (Yes/ No)	Yes
44	Size of Conservator tank in mm	650X315mm
45	Total Volume of Conservator Tank	43liters
46	Rating and Diagram Plate	Yes
47	Eathing terminals with lugs	2No, 12mmsize on opposite side
48	Lifting lugs	6Nos, 12mm-4Nos, 8mm Top lifting-2Nos
49	Pullings lugs	4 Nos, 8mm
50	Oil filing hole with metallic cap (on conservator)	1 No , 40mm diameter
51	Draing Valve - 32mm for all T/Fs (It shall be covered with metallic box spot welded to tank) IS554	Yes
52	Filter Valve (32mm Dia)	Yes
53	Conservator with drain plug	Yes
54	The pipe connecting the conservator to the main tank	Yes, 2Nos, 33mm diameter
55	Thermometer pocket with cap	Yes, 1No.
56	Air release device	Yes, 1No.
57	Explosion vent with diaphragm	Yes
58	Silica Gel Breather 250/500gms with make	1No, 500gram. 500 gm., Press _N Forge , Yashwant Scientific Industries , Ghorpade Industries , Darshan Sales , Shreeji.
59	Platform mounting channel (with hole suitable for axle of rollers)	2No, 100X50mm-460mm long
60	Oil level gauge indicating 3 positions of oil marked as Minimum(-) 5deg C, Normal 30 deg C, Maximum 98 deg C	Yes, Provided as per specification.
61	HT & LT bushing and terminal connectors	3No of HT bushing & 4 No of LT bushing
62	Radiators	Yes
63	Lightening Arrestors for HT bushings	18KV, 5KA Lighting arrestors-3Nos provided.
64	Five year guarantee plate	
65	No of radiators provided and location with arrangement	2 Nos On HV Side each having 6fins
66	Thickness of the radiator of transformer in mm	1.25 mm
67	No of radiator fins.	12 Nos.
68	Radiating surface of transformer tank only in Sq. Mtrs.(A)	3.08Sq. Mtrs.
69	Radiating surface of Radiators in Sq. Mtrs.(B)	4.584 Sq. Mtrs
70	Total Radiating surface of Transformer tank in Sq. Mtrs.(A+B)	7.664 Sq. Mtrs
71	Core material used & its grade	CRGO, M-4
72	Thickness of core lamination in mm	0.27mm
73	Type of core	Stack
74	Weight of Core in kgs	422Kgs
75	Weight of winding in Kg	268 Kg
76	No. of steps of core for CRGO core	11Nos.
77	Diameter of core in mm	155 mm
78	Effective core area.(sq.cm)	174.72 Sq. cm
79	Flux density in Tesla	1.535Tesla
80	Material of H.V. winding	Copper
81	Material of L.V.Winding	Copper
82	Current density of H.V. winding (in Ampere/ sq.mm)	1.68A / mm ²
83	Current density of L.V. Winding (in Ampere/mm ²)	2.1 A / mm ²
84	The temperature shall in no case reach a value that will damage the core itself, other parts or adjacent materials (Yes/No)	Yes
85	Type of connection for H.V. Winding (Delta) (Yes/ No)	Yes



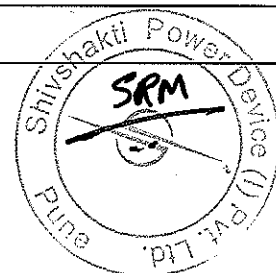
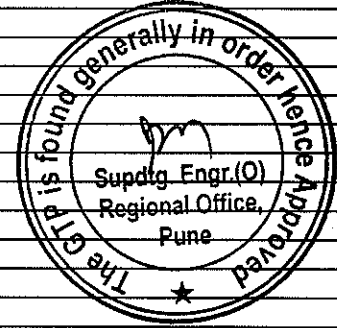
**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED.
RATING 200 KVA 22KV/0.433 KV Level '2' DISTRIBUTION TRANSFORMER
GUARANTEED TECHNICAL PARTICULARS**

SR NO	GTP PARAMETERS	OFFERED
86	Type of connection for L.V. Winding (Star) (Yes/ No)	Yes
87	Insulation provided to H.V winding.	D.P.C.
88	Insulation provided to L.V. Winding.	D.P.C.
89	No of LV winding turns	42 Nos
90	No of HV winding turns	3790 Nos
91	Resistance of LV winding per phase at 20 deg C in ohms	0.003510 ohm
92	Whether taps are provided on HV side	Yes, 4taps +2.5% to -5% in step of 2.5%
93	Resistance of HV winding per phase at 20 deg C in ohms	33.682 ohm
94	Size of Wire used for HV winding in mm (DIA)	1.52 mm
95	Cross section area of the coil used for HV winding (sq.mm)	1.81 sq. mm
96	Size of strip used for LV winding in mm	8.75 X 3.75 mm
97	No. of conductors in parallel for LV winding	4Nos.
98	Total cross section area of LV conductor in sq. mm	131.25Sq. mm
99	No. of H.V coils /phase	4 Nos.
100	No. of L.V coils /phase	1 Nos.
101	Clearance between Core & L.V. winding in mm	4 mm Radial
102	Clearances between L.V. & H.V. winding in mm	13 mm Radial
103	Clearances between HV Phase to Phase in mm	14 mm (Min.)
104	Clearances between end insulation to Earth in mm	40 mm
105	Clearances between winding to tank in mm	40mm
106	Weight of Copper in kgs	268 Kg
107	Inter layer insulation provided in H.V winding to design for Top & bottom layer	0.10 mm, EC Grade Paper
108	Inter layer insulation provided in L.V winding to design for Top & bottom layer	0.25 mm,, EC Grade Paper
109	Inter layer insulation provided in between all layer in H.V winding	0.1mm,, EC Grade Paper
110	Inter layer insulation provided in between all layer in L.V winding	0.25 mm,, EC Grade Paper
111	Thickness of LV & HV Paper Used	2 Mil For HV & 10 Mil for LV
112	Details of end insulation & Make there of	press board , Lamtex Insulation , Energy Insulation , Alco wire Industries , Star Trading , Raman Board
113	Whether wedges are Provided at 50% turns of the Coil (Yes/ No)	No
114	Insulation materials provided for core	Carlit , Hot Oil Proof Insulation
115	Thickness of locking spacers between H.V. coils (in mm)	10mm
116	Weight of Oil in kgs	362 Kgs.
117	Volume of Oil in Ltrs	420 Ltrs.
118	Quantity of Total Oil absorption(in Liters) in first filling	22 Ltrs
119	Total Oil Volume Including Total Oil absorption in Liters	444 Ltrs
120	Breakdown Values of Oil at the time of first filling (kV/mm) considering 2.5 mm gap	50 Kv for 1 minute withstand
121	Grade of oil	EHV Grade, IS 335
122	Make of oil	Apar, Columbia, Savita, Transol, Electrol, Servo
123	Material of HV and LV Bushings and makes thereof	Porcelain, CJI/ Genesis Insulator/ Shreeji Group/ Udyog Center/ JS Insulators.
124	Reference standard of Bushings	As per IS 3347 , 8603
125	Minimum Creepage Distance of HV Bushing in mm (min.25 mm per kV)	Yes 601 mm



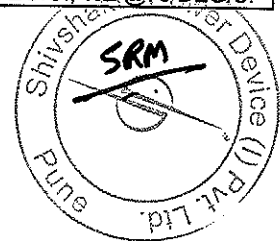
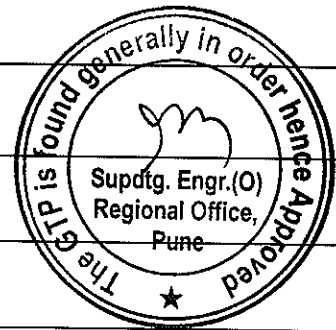
**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED.
RATING 200 KVA 22KV/0.433 KV Level '2' DISTRIBUTION TRANSFORMER
GUARANTEED TECHNICAL PARTICULARS**

SR NO	GTP PARAMETERS	OFFERED
126	Minimum Creepage Distance of LV Bushing in mm (min.25 mm per kV)	Yes 55mm
127	Rating of H.V. Bushings (in kV/A)	24KV / 250 A
128	Rating of L.V. Bushing (in kV, A)	1KV / 630A
129	Rating of lightning Arrester And make thereof	18KV,5 KA, Elpro / RPG/ New Aquaria/Genesis/Shreem Electricals / Orange Power /Lamco
130	Reference Standard Of Lightning Arrester	IS:3070, 1974
131	Min. External clearances of H.V. bushing terminals between ph. to ph. (330 mm)	330mm
132	Min. External clearances of H.V. bushing terminals between ph. to earth (230mm)	230mm
133	Min. External clearances of L.V. bushing terminals between ph. to ph. (75 mm)	75 mm
134	Min. External clearances of L.V. bushing terminals between ph. to earth (40 mm)	40 mm
135	Maximum winding temperature rise in °C over an Ambient temp. of 50°C by Resistance Method	40°C
136	Maximum temperature rise of Oil in °C over an Ambient temp. Of 50°C by thermometer.	35°C
137	Magnetizing current (No load) in Amps and its % of full load current at rated voltage referred to L.V. side. (CI No-6.1)	5.33 Amp, 2% of LV Current
138	Magnetizing current (No load) in Amps and its % of full load current at maximum voltage (112.5% of rated voltage) referred to L.V. side. (CI No-6.1)	10.66Amps, 4% of LV Current
139	Total Losses at 50 % Loading	819watts
140	Total Losses at 100 % Loading	2415 watts
141	Efficiency at 75 °C at unity P.F. at 125% load	0.9843
142	Efficiency at 75 °C at unity P.F. at 100% load	0.9873
143	Efficiency at 75 °C at unity P.F. at 75 % load	0.9893
144	Efficiency at 75 °C at unity P.F. at 50% load	0.999
145	Efficiency at 75 °C at unity P.F. at 25% load	0.9997
146	Efficiency at 75 °C at 0.8 P.F. lag at 125% load	0.9825
147	Efficiency at 75 °C at 0.8 P.F. lag at 100 % load	0.9845
148	Efficiency at 75 °C at 0.8 P.F. lag at 75 % load	0.9866
149	Efficiency at 75 °C at 0.8 P.F. lag at 50 % load	0.9863
150	Efficiency at 75 °C at 0.8 P.F. lag at 25% load	0.9924
151	Efficiency at 75 °C at 0.8 P.F. leading at 125% load	0.9825
152	Efficiency at 75 °C at 0.8 P.F. leading at 100% load	0.9845
153	Efficiency at 75 °C at 0.8 P.F. leading at 75% load	0.9866
154	Efficiency at 75 °C at 0.8 P.F. leading at 50%load	0.9863
155	Efficiency at 75°C at 0.8 P.F. leading at 25 % load	0.9924
156	Regulation at Unity P.F (in %)	0.97
157	Regulation at 0.8 P.F. lag. (in %)	3.89
158	Regulation at 0.8 P.F. leading. (in %)	-2.2
159	% Impedance value at 75°C	4.5+/- 10 % Tol As per IS.
160	Separate source power frequency withstand test for HV for 1 minute in kv(min) for Transformer	50 kV
161	Separate source power frequency withstand test for LV for 1 minute in kv(min) for Transformer	3 KV
162	Induced over voltage withstand test for 1 min. specify voltage frequency, time for test.(Transformer)	0.866 kV for 1 min at 100 Hz
163	Impulse test value (in KVp) for Transformer.	125kVp
164	Power frequency withstand voltage dry & wet in kV(rms) for H.V Bushing	50KV for one minute

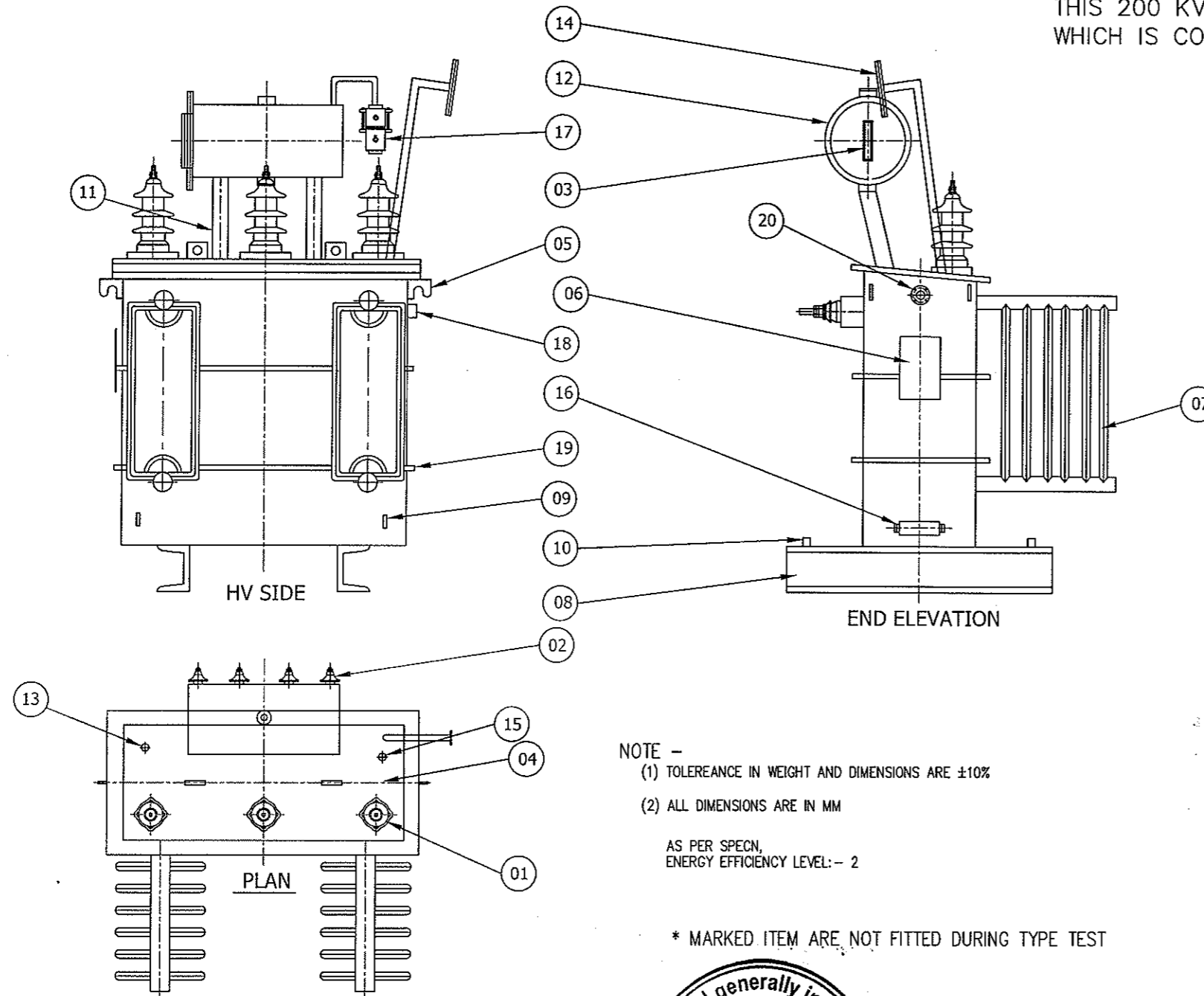


**MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED.
RATING 200 KVA 22KV/0.433 KV Level '2' DISTRIBUTION TRANSFORMER
GUARANTEED TECHNICAL PARTICULARS**

SR NO	GTP PARAMETERS	OFFERED
165	Dry lightning impulse withstand voltage test in kV (peak) Stating the wave form adopted for H.V. bushing	125KV duration of 1.2/50 micro seconds
166	The test Certificates of Aluminum / Copper conductor , core, insulating paper , porcelain bushing , steel plates is enclosed with the offer in soft copy (Yes/ No)	Yes
167	BIS Licence Copy is attached with this offer	Yes
168	All type test report of type tests carried out on transformer at NABL laboratory shall be submitted along with the offer as per cl. XXII (c) of Section (I) i.e. Instructions to renderers. (Yes/ No)	Yes
169	Unbalance current test, Air pressure test and temperature rise test shall be conducted as per format enclosed with the technical specification along with the offer (Yes/ No)	No
170	All drawings shall be furnished for each offered item separately along with this offer (Yes/ No)	Yes
171	Oil absorption calculation sheet shall be furnished for each offered item separately along with this offer (Yes/ No)	Yes
172	Heat dissipation calculation shall be furnished for each offered item separately along with this offer (Yes/ No)	Yes
173	Flux density calculation sheet with no. of Primary & Secondary turns shall be furnished for each offered item separately along with this offer (Yes/ No)	Yes
174	The performance Guarantee of the transformers in years	5 yrs from the date of commissioning or 5.5yrs from date of dispatch.
NOTE 1) Weights and Dimensions are subjected to +10% tolerance. No negative tolerance applicable		
2) Efficiency and Regulation are calculated based on the nominal values of NLL,LL@75 DEG.C.,%Z@75,DEG.C.		



THIS 200 KVA TRANSFORMER IS MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERD UNDER BIS GROUPING GUIDELINES.



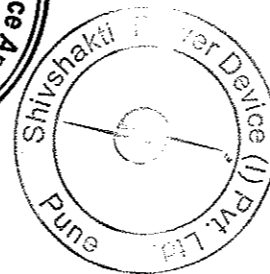
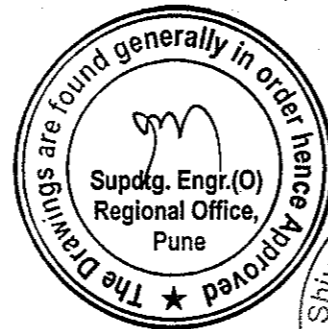
NOTE -
 (1) TOLEREANCE IN WEIGHT AND DIMENSIONS ARE $\pm 10\%$
 (2) ALL DIMENSIONS ARE IN MM
 AS PER SPECN,
 ENERGY EFFICIENCY LEVEL:- 2

* MARKED ITEM ARE NOT FITTED DURING TYPE TEST

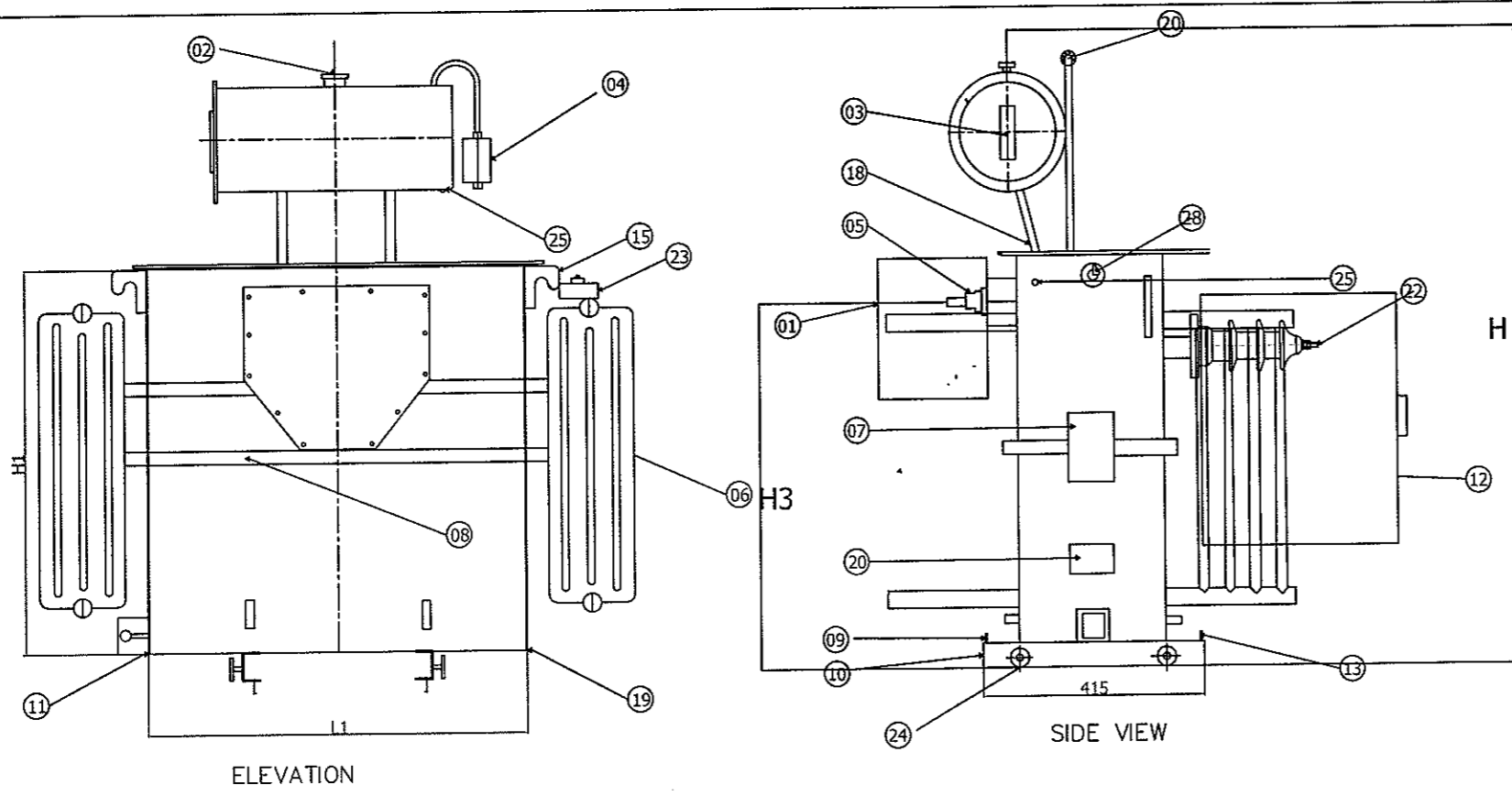
20	OFF LOAD TAPCHANGER HANDLE	01
19	50 X 50 X 5 Thk. STIFNER	02
18	FILTER VALVE	01
17	SILICAGEL BREATHER	01
16	DRAIN VALVE	01
15	AIR RELEASE PLUG	01
14	EXPLOSION VENT	01
13	THERMOMETER POCKET WITH CAP	01
12	CONSERVATOR WITH OIL FILLING CAP	01
11	CONSERVATOR TO MAIN TANK PIPE	02
10	EARTHING TERMINAL	02
9	PULLING LUGS AT LENGTH SIDE	04
8	BASE CHANNEL FOR POLE MOUNTING	02
7	RADIATORS (800 X 300) X 6 FINS	02
6	RATING & DIAGRAM PLATE	01
5	TANK LIFTING LUGS	04
4	TOP COVER LIFTING LUGS	02
3	PLAIN OIL LEVEL GAUGE	01
2	L.T. BUSHING	04
1	H.T. BUSHING	03
ITEM	DESCRIPTION	QTY.

WEIGHTS (KGS)		DIMMENSIONS (MM)	
CORE AND WINDING ASSEMBLY: 690 Kgs.		LENGTH	1110 MM
TANK AND FITTING	: 235 Kgs.	WIDTH	450 MM
OIL	: 400 Ltrs.	HEIGHT	1000-980 MM
TOTAL WEIGHT	: 1250 Kgs.	OVERALL TRANSFORMER	
SIDE PLATE THK 4 MM		LENGTH	1400 MM
TOP PLATE THK 6 MM		WIDTH	1020 MM
BOTTOM PLATE THK 6MM		HEIGHT	1800 MM
MINIMUM ELECTRICAL CLEARANCE IN AIR		TOLERANCE - $\pm 5\%$	
	HV	LV	CONSERVATOR SIZE
PHASE TO PHASE	330	75	315 DIA X 650 LENGTH
PHASE TO EARTH	230	40	

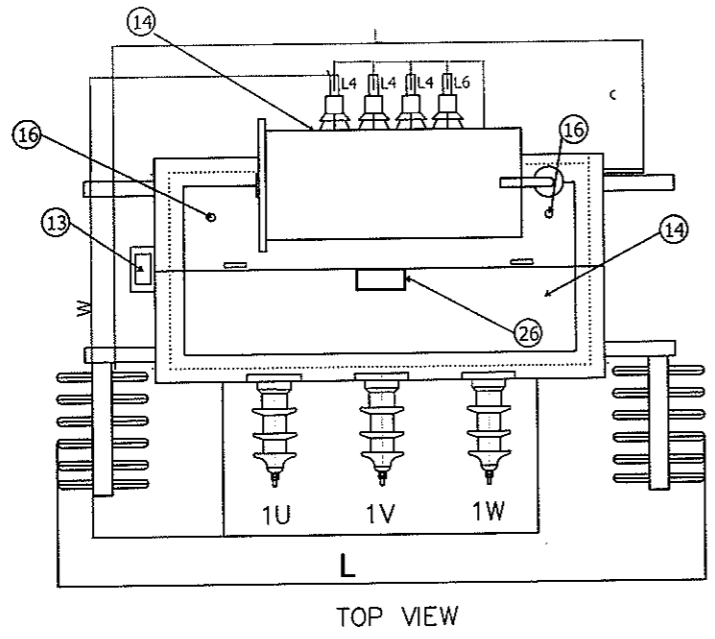
COOLING DETAILS			
Sr.No.		TANK + RADIATOR	= TOTAL
01.	TOTAL SURFACE AREA (TANK + RADIATOR)	3.08 Sq. M + 4.584 Sq. M	= 7.664 Sq. M
02	TOTAL No. OF COOLING FINS	12	
03	H x W - OF FINS (HV SIDE)	800 x 300 x 6 FINS - 2 Nos.	



SHIVSHAKTI POWER DEVICE INDIA PVT.LTD. S.NO.46/35 NARHE INDUSTRIAL AREA PUNE -46	DGN	NAME	SIGN.	DATE
	DRN			
	CHD			
	APPD			
TITLE	General Arrangements for 200KVA, 22/0.433KV, Distribution Transformer.		SCALE : N.T.S.	REV. 0
			DRAWING No. SPD/200/22/GA/01	DT.



SR.NO.	DESCRIPTION	AS PER SPEC.	AS PER OFFER	QTY.
1	LV CABLE BOX	M.S.	M.S.	1
2	CONSERVATOR WITH OIL FILLING HOLE 1/2" DRAIN PLUG.	M.S.	M.S.	1
3	OIL LEVEL GAUGE WITH 3 POSITIONS (5,30,98)	M.S.	M.S.	1
4	SILICA GEL BREATHER	POLYPROPOLINE	POLYPROPOLINE	1
5	LV TERMINALS -250 AMPS.12MM	TINNED COPPER	TINNED COPPER	4
6	COOLING RADIATORS 800 C/C X300 WIDE X 06 FINS.	1.25 MM	1.25 MM	2
7	RATING & TERMINAL MARKING PLATE	A/U ANODISED	A/U ANODISED	1
8	REINFORCING ANGLES -- (50X 50X 5)	M.S.	M.S.	1
9	EARTHIG TERMINAL 12 MM WITH LUGS 95MM	M.S.	M.S.	2
10	TRANSFORMER BASE CHANNEL 75MMX 40MM.	M.S.	M.S.	2
11	DRAIN VALVE	M.S.	M.S.	1
12	LT BUSHINGS - 1.1KV.250AMPS.	PORCELAIN	PORCELAIN	4
13	THERMOMETER POCKET	M.S.	M.S.	1
14	COVER LIFTING LUGS-8 MM	M.S.	M.S.	4
15	TANK PULLING LUGS-8MM	M.S.	M.S.	2
16	AIR RELEASE PLUG 30MM DIA.	M.S.	M.S.	1
17	CONSERVATOR PIPE 30MM	M.S.	M.S.	2
18	PULLING LUGS-8MM	M.S.	M.S.	4
19	TANK	M.S.	M.S.	-
20	EXPLOSION VENT WITH DIAPHARAM 1 MS	M.S.	M.S.	1
21	TOP COVER	M.S.	M.S.	1
22	HV BUDHINGS - 12KV, 250A	PORCELAIN	PORCELAIN	3
23	FILTER VALVE 32MM	----	----	1
24	ROLLER 150X 50MM	----	----	4
25	DRAIN PLUN FOR CONSERVATOR	M.S.	M.S.	1
26	INSPECTION COVER	M.S.	M.S.	1
27	HV CABLE BOX	M.S.	M.S.	1
28	TAPPING	INSTEP OF 2.5%	INSTEP OF 2.5%	1



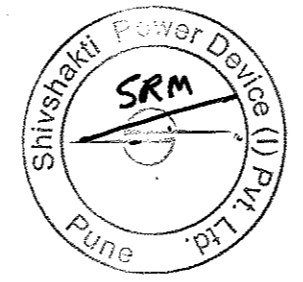
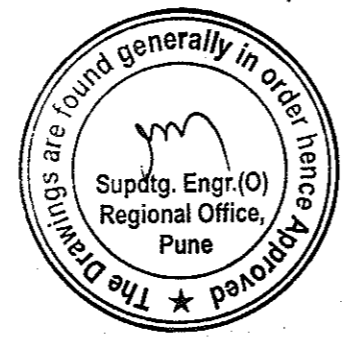
	L	B	H
LV BOX	600	360	450
HV BOX	760	550	600

COOLING DETAILS		
Sr.No.	TANK	RADIATOR
01.	TOTAL SURFACE AREA (TANK + RADIATOR)	3.08 Sq.M + 4.584 Sq. M =7.664 Sq.M
02	TOTAL No. OF COOLING FINS	12 nos.
03	H x W - OF FINS (HV SIDE)	800 x 300 x 6 FINS - 2 Nos.

4	BUSHING CLEARANCE (MIN)		
	L3 (HV)	330	PH.TO PH.
	L4 (LV)	75	PH.TO PH.
	L5 (HV)	230	PH.TO EARTH
	L6 (LV)	40	PH.TO EARTH
5	CONSERVATOR		
	DIA - d	315	mm
	LENGTH - l	650	mm

1	Sr.No.	DESCRIPTION	Wt in Kg	TRANSFORMER DIMENSIONS IN MM	
	i	CORE & COIL ASSY	690 kg	OVERALL	TANK(MIN)
	ii	TANK & FITTING	235 kg	L - 1600	L -1110
	iii	TOTAL OIL QTY.	420 Ltrs.	W - 1020	W -450
	iv	TOTAL WEIGHT	1287 kg	H - 1800	H -1000-980
2	THICKNESS IN mm			DIMENSION TOLERANCE	
		TANK WALL	4	T/F OIL QTY	ON NEG
		TOP COVER	6	MAIN TANK DIMENSIONS =	5%
		BOTTOM PLATE	6	OVERALL DIMENSIONS =	10%

NOTE :
 1 TOLERANCE IN WEIGHT AND DIMENSION ARE +/- 10%
 2 ALL DIMENSION ARE IN MM
 AS PER SPECIFICATION ENERGY EFFICIENCY LEVEL 2
 * MARKED ITEM ARE NOT FITTED DURING TYPE TEST



SHIVSHAKTI POWER DEVICE (I) PVT.LTD. Sr.No.46/35 Norhe Industrial Estate, Narhe Goan, Pune -411046	NAME	SIGN.	DATE
	DGN		
	DRN		
	CHD		
TITLE General ASSEMBLY DRAWING FOR 200 KVA, 22/0.433 KV,INDOOR DISTRIBUTION TRANSFORMER	APPD		
	SCALE : N.T.S.	REV. 0	
	DRAWING No.	DT.	
	SPD/200/22/GA/01		

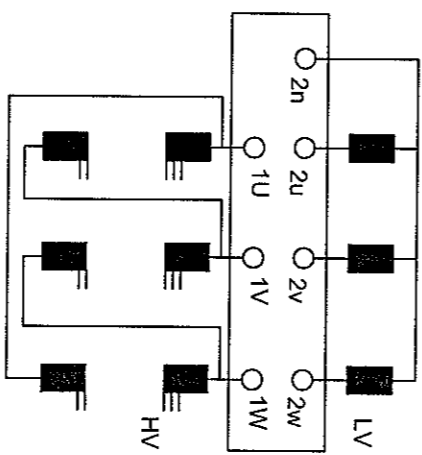
DISTRIBUTION TRANSFORMER

SHIVSHAKTI POWER DEVICE INDIA PVT. LTD.
S.NO.46/35 NARHE INDUSTRIAL AREA PUNE -46

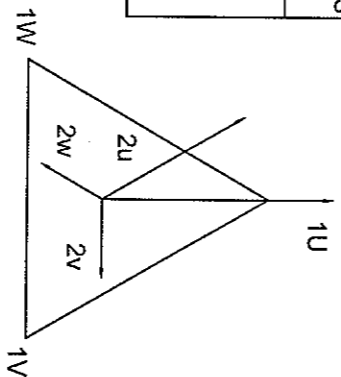
3 PHASE TRANSFORMER

STANDARD	IS 1180(PART-I)	ENERGY EFFECIENCY LEVEL	2
KVA	200	MAX. TOTAL LOSSES AT 50% RATED VOLTAGE	W 819
VOLTS AT NO LOAD	HV 22000 LV 433	MAX. TOTAL LOSSES AT 100% RATED VOLTAGE	W 2415
AMPERS	HV 5.25 LV 266.67	TYPE OF COOLING	ONAN
FREQUENCY	50	TEMP. RISE	OIL °C 35° C WDG °C 40° C
VECTOR GROUP	Dyn11	VOLUME OF OIL	Ltrs. 420
IMPEDANCE VOLTS %	4.50 %	WEIGHT OF OIL	Kg 362
TAPPING	04 NOS	WEIGHT OF CORE & COIL ASSEMBLY	Kg 690
GUARANTEE PERIOD	60 MONTHS	TOTAL WEIGHT	Kg 1287

CUSTOMER PO. NUMBER _____
SERIAL NO * _____



SWITCH POSITION	HV VOLTS	LV VOLTS
01	22550	433 ↑ ↓
02	22000	
03	21450	
04	20900	



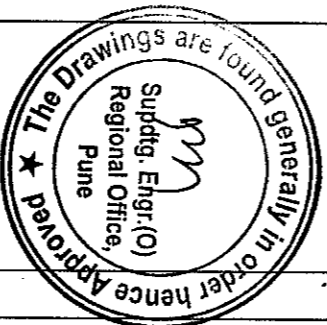
MADE IN INDIA

THIS 200 KVA TRANSFORMER IS MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERD UNDER BIS GROUPING GUIDELINES.

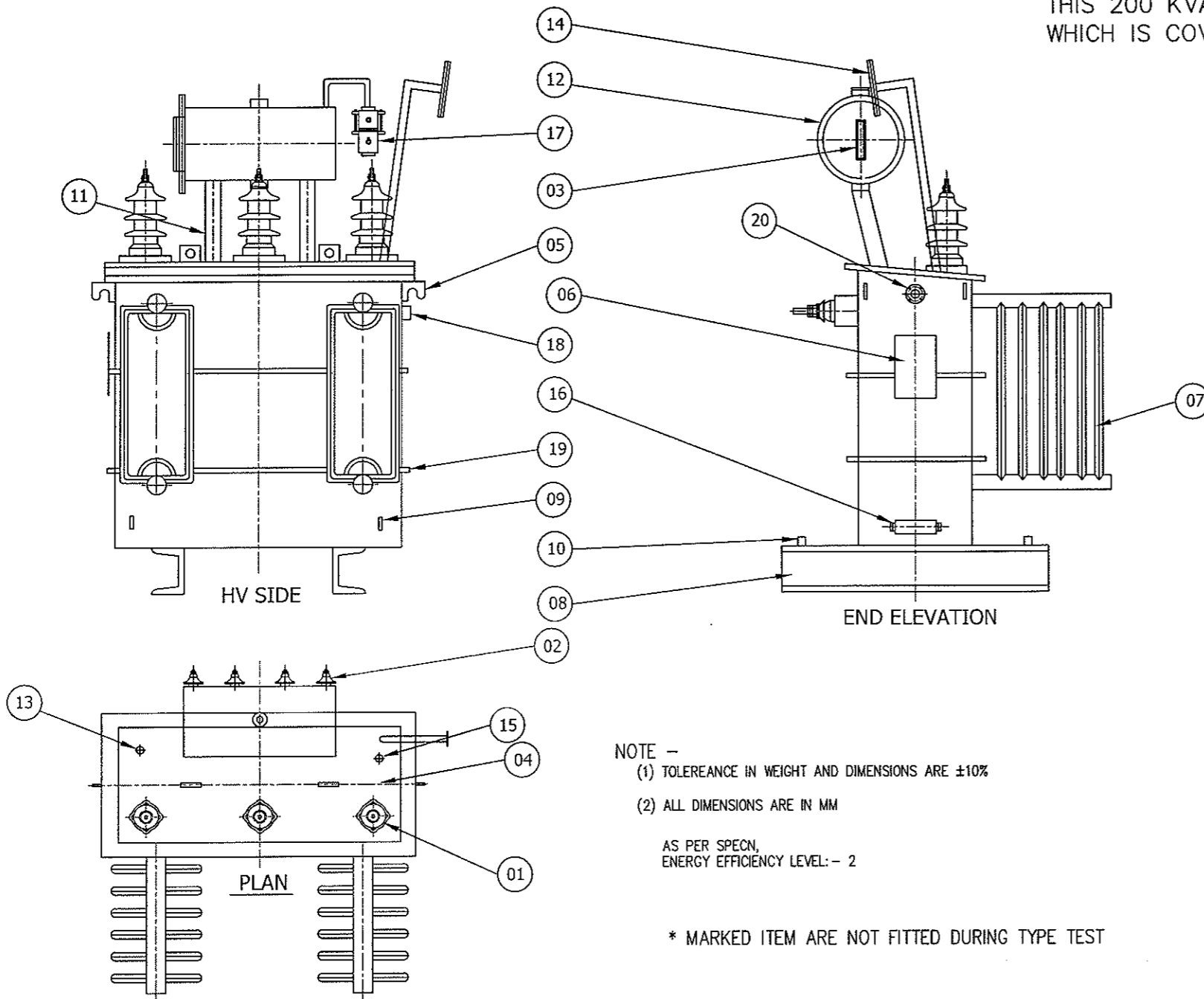
SHIVSHAKTI POWER DEVICE INDIA PVT.LTD. S.NO.46/35 NARHE INDUSTRIAL AREA PUNE -46	NAME	SIGN.	DATE
	DGN		
	DRN		
	CHD		
	APPD		

TITLE
RATING & NAME PLATE FOR 200 KVA,
22/0.433KV, DISTRIBUTION TRANSFORMER.

SCALE : N.T.S.	
DRAWING No. SPDI/22/200/NP/03	
REV. 0	DT.



THIS 200 KVA TRANSFORMER IS MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERD UNDER BIS GROUPING GUIDELINES.



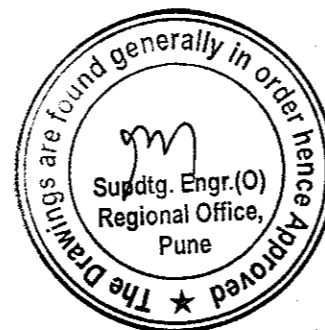
NOTE -
 (1) TOLERENCE IN WEIGHT AND DIMENSIONS ARE ±10%
 (2) ALL DIMENSIONS ARE IN MM
 AS PER SPECN,
 ENERGY EFFICIENCY LEVEL:- 2

* MARKED ITEM ARE NOT FITTED DURING TYPE TEST

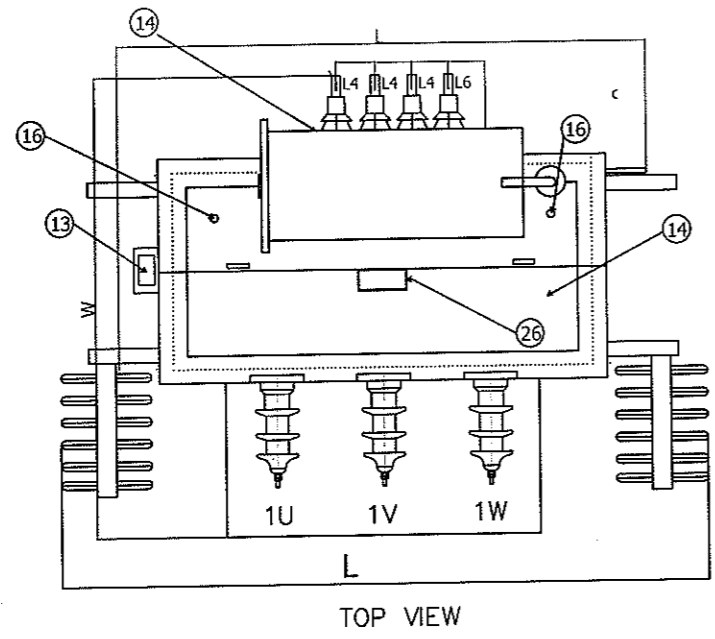
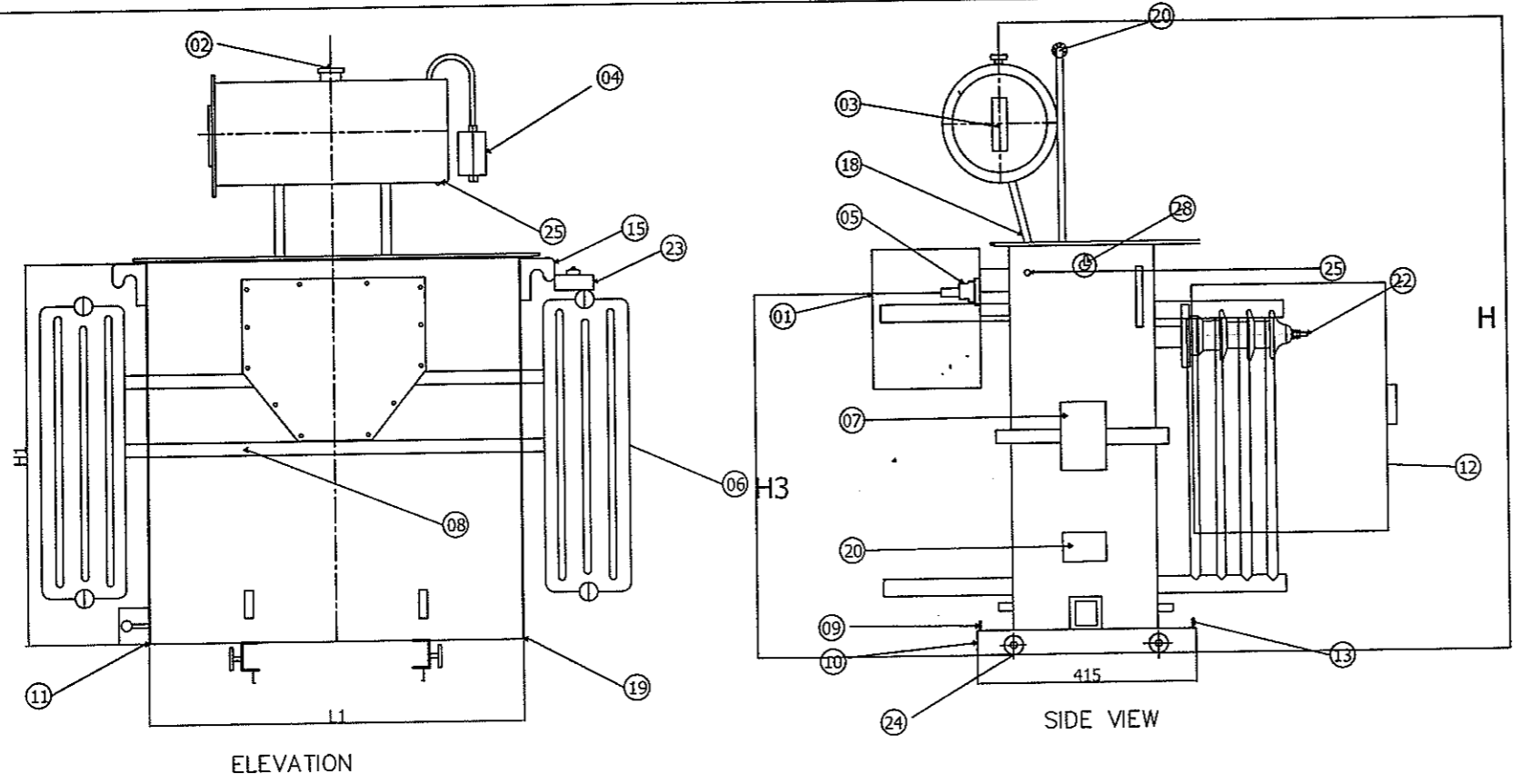
20	OFF LOAD TAPCHANGER HANDLE	01
19	50 X 50 X 5 Thk. STIFNER	02
18	FILTER VALVE	01
17	SILICAGEL BREATHER	01
16	DRAIN VALVE	01
15	AIR RELEASE PLUG	01
14	EXPLOSION VENT	01
13	THERMOMETER POCKET WITH CAP	01
12	CONSERVATOR WITH OIL FILLING CAP	01
11	CONSERVATOR TO MAIN TANK PIPE	02
10	EARTHING TERMINAL	02
9	PULLING LUGS AT LENGTH SIDE	04
8	BASE CHANNEL FOR POLE MOUNTING	02
7	RADIATORS (800 X 300) X 6 FINS	02
6	RATING & DIAGRAM PLATE	01
5	TANK LIFTING LUGS	04
4	TOP COVER LIFTING LUGS	02
3	PLAIN OIL LEVEL GAUGE	01
2	L.T. BUSHING	04
1	H.T. BUSHING	03
ITEM	DESCRIPTION	QTY.

WEIGHTS (KGS)		DIMMENSIONS (MM)	
CORE AND WINDING ASSEMBLY: 690 Kgs.		LENGTH	1110 MM
TANK AND FITTING : 235 Kgs.		WIDTH	450 MM
OIL : 400 Ltrs.		HEIGHT	1000-980 MM
TOTAL WEIGHT : 1250 Kgs.		OVERALL TRANSFORMER	
SIDE PLATE THK 4 MM		LENGTH	1400 MM
TOP PLATE THK 6 MM		WIDTH	1020 MM
BOTTOM PLATE THK 6MM		HEIGHT	1800 MM
MINIMUM ELECTRICAL CLEARANCE IN AIR		TOLERANCE - ± 5%	
	HV	LV	CONSERVATOR SIZE
PHASE TO PHASE	330	75	315 DIA X 650 LENGTH
PHASE TO EARTH	230	40	

COOLING DETAILS			
Sr.No.		TANK + RADIATOR	= TOTAL
01.	TOTAL SURFACE AREA (TANK + RADIATOR)	3.08 Sq. M + 4.584 Sq. M	= 7.664 Sq. M
02	TOTAL No. OF COOLING FINS	12	
03	H x W - OF FINS (HV SIDE)	800 x 300 x 6 FINS - 2 Nos.	



SHIVSHAKTI POWER DEVICE INDIA PVT.LTD. S.NO.46/35 NARHE INDUSTRIAL AREA PUNE -46	DGN	NAME	SIGN.	DATE
	DRN			
	CHD			
	APPD			
TITLE	General Arrangements for 200KVA, 22/0.433KV, Distribution Transformer.		SCALE : N.T.S.	REV. 0
			DRAWING No. SPD/200/22/GA/01	DT.



SR.NO.	DESCRIPTION	AS PER SPEC.	AS PER OFFER	QTY.
1	LV CABLE BOX	M.S.	M.S.	1
2	CONSERVATOR WITH OIL FILLING HOLE 1/2" DRAIN PLUG.	M.S.	M.S.	1
3	OIL LEVEL GAUGE WITH 3 POSITIONS (5,30,98)	M.S.	M.S.	1
4	SILICA GEL BREATHER	POLYPROPOLINE	POLYPROPOLINE	1
5	LV TERMINALS -250 AMPS.12MM	TINNED COPPER	TINNED COPPER	4
6	COOLING RADIATORS 800 C/C X300 WIDE X 06 FINS.	1.25 MM	1.25 MM	2
7	RATING & TERMINAL MARKING PLATE	A/U ANODISED	A/U ANODISED	1
8	REINFORCING ANGLES - (50X 50X 5)	M.S.	M.S.	1
9	EARTHING TERMINAL 12 MM WITH LUGS 95MM	M.S.	M.S.	2
10	TRANSFORMER BASE CHANNEL 75MMX 40MM.	M.S.	M.S.	2
11	DRAIN VALVE	M.S.	M.S.	1
12	LT BUSHINGS - 1.1KV.250AMPS.	PORCELAIN	PORCELAIN	4
13	THERMOMETER POCKET	M.S.	M.S.	1
14	COVER LIFTING LUGS-8 MM	M.S.	M.S.	4
15	TANK PULLING LUGS-8MM	M.S.	M.S.	2
16	AIR RELEASE PLUG 30MM DIA.	M.S.	M.S.	1
17	CONSERVATOR PIPE 30MM	M.S.	M.S.	2
18	PULLING LUGS-8MM	M.S.	M.S.	4
19	TANK	M.S.	M.S.	-
20	EXPLOSION VENT WITH DIAPHARAM 1 MS	M.S.	M.S.	1
21	TOP COVER	M.S.	M.S.	1
22	HV BUSHINGS - 12KV, 250A	PORCELAIN	PORCELAIN	3
23	FILTER VALVE 32MM	----	----	1
24	ROLLER 150X 50MM	----	----	4
25	DRAIN PLUN FOR CONSERVATOR	M.S.	M.S.	1
26	INSPECTION COVER	M.S.	M.S.	1
27	HV CABLE BOX	M.S.	M.S.	1
28	TAPPING	INSTEP OF 2.5%	INSTEP OF 2.5%	1

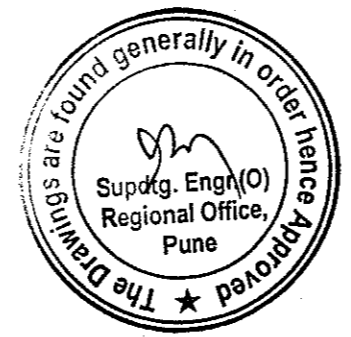
	L	B	H
LV BOX	600	360	450
HV BOX	760	550	600

COOLING DETAILS		
Sr.No.	TANK	RADIATOR
01.	TOTAL SURFACE AREA (TANK + RADIATOR) 3.08 Sq.M + 4.584 Sq. M =7.664 Sq.M	
02	TOTAL No. OF COOLING FINS 12 nos.	
03	H x W - OF FINS (HV SIDE) 800 x 300 x 6 FINS - 2 Nos.	

4	BUSHING CLEARENCE (MIN)		
L3 (HV)	330	PH.TO PH.	
L4 (LV)	75	PH.TO PH.	
L5 (HV)	230	PH.TO EARTH	
L6 (LV)	40	PH.TO EARTH	
5	CONSERVATOR		
DIA - d	315	mm	
LENGTH - l	650	mm	

1	Sr.No.	DESCRIPTION	Wt in Kg	TRANSFORMER DIMENSIONS IN MM	
	i	CORE & COIL ASSY	690 kg	OVERALL	TANK(MIN)
	ii	TANK & FITTING	235 kg	L - 1600	L -1110
	iii	TOTAL OIL QTY.	420 Ltrs.	W - 1020	W -450
	iv	TOTAL WEIGHT	1287 kg	H - 1800	H -1000-980
2	THICKNESS IN mm		DIMENSION TOLERANCE		
	TANK WALL	4	T/F OIL QTY	ON NEG	
	TOP COVER	6	MAIN TANK DIMENSIONS = 5%		
	BOTTOM PLATE	6	OVERALL DIMENSIONS = 10%		

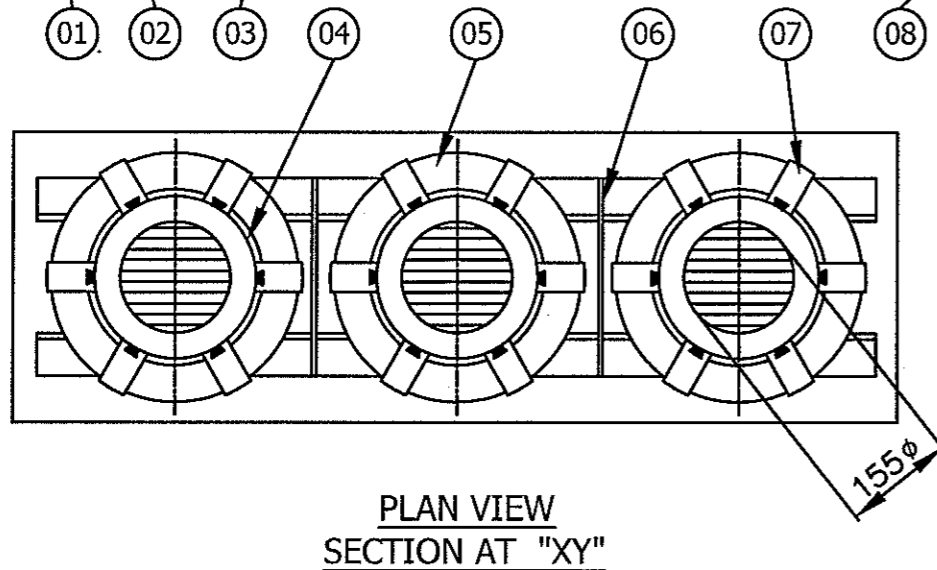
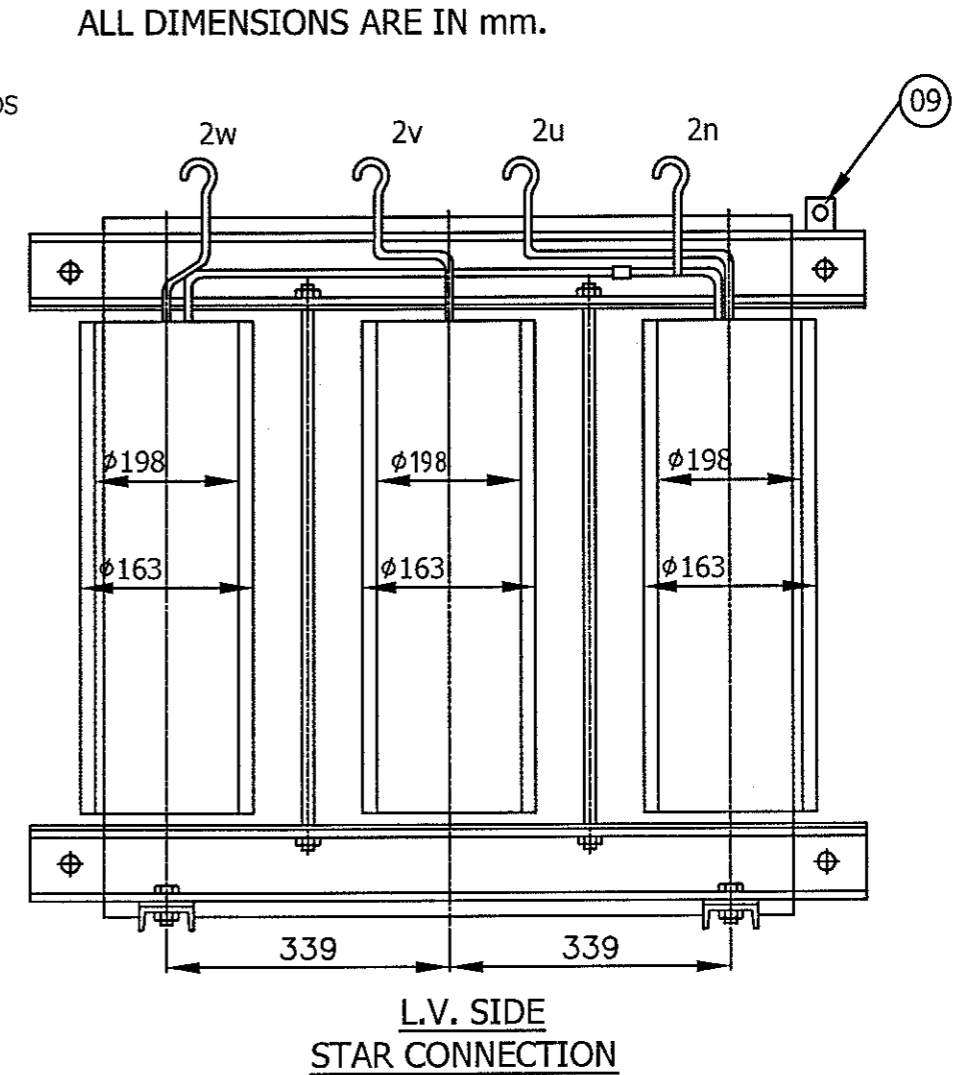
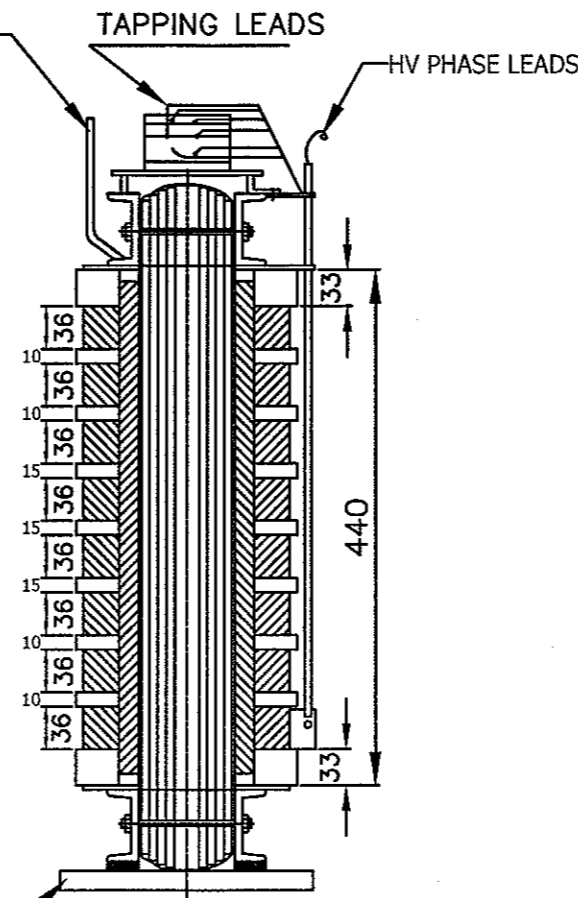
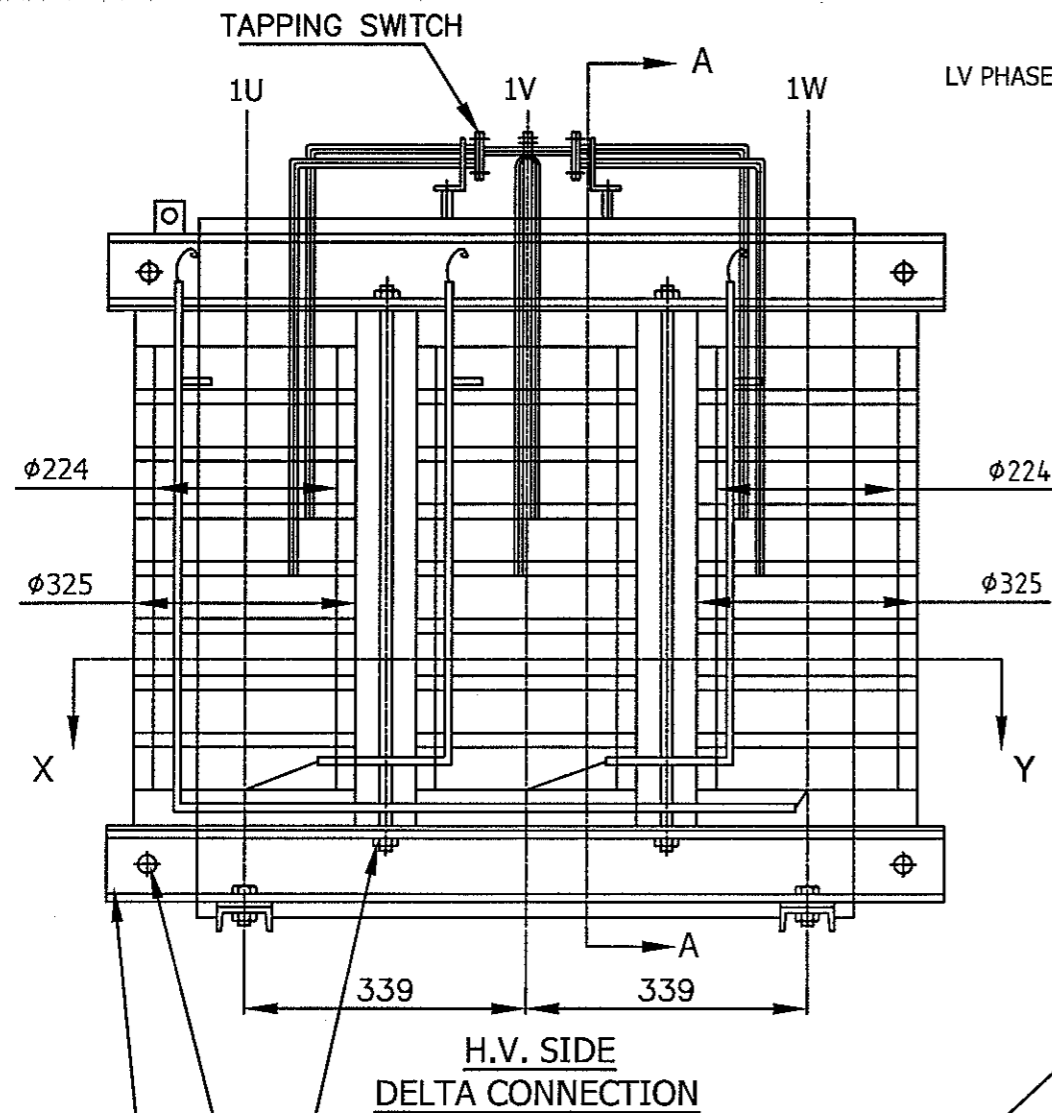
NOTE :
 1 TOLERANCE IN WEIGHT AND DIMENSION ARE +/- 10%
 2 ALL DIMENSION ARE IN MM
 AS PER SPECIFICATION ENERGY EFFICIENCY LEVEL 2
 * MARKED ITEM ARE NOT FITTED DURING TYPE TEST



SHIVSHAKTI POWER DEVICE (I) PVT.LTD. Sr.No.46/35 Norhe Industrial Estate, Narhe Goan, Pune -411046	NAME	SIGN.	DATE
	DGN		
	DRN		
	CHD		
TITLE General ASSEMBLY DRAWING FOR 200 KVA, 22/0.433 KV,INDOOR DISTRIBUTION TRANSFORMER	SCALE : N.T.S.		
	DRAWING No. SPD/200/22/GA/01		

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm.



ALL DIMENSIONS ARE IN mm.
ENERGY EFFICIENCY LEVEL 2

LV 0.75x3.75x2)AL.
HV 1.52 DIA DPC
BARE COVERING
The Drawings are for reference only. Generally in order hence Approved
Supdtg. Engr.(O)
Regional Office,
Pune


S.No.	DESCRIPTION	QTY.No.
09.	CORE & COIL LIFT MS	02
08.	FOOT PLATE M.S. CHANNEL 75 x 40	02
07.	SPACERS BET. HV COILS 8 TO A CIRCLE	72
06.	PHASE BARRIERS PRESS BOARD	02
05.	HV COILS 4 COIL / PHASE	12
04.	LV COILS 1 COIL / PHASE	03
03.	TIE RODS M. S.	08
02.	CORE BOLTS M. S.	08
01.	CORE CHANNELS 100 x 50 CHANNEL	04

THIS 200 KVA TRANSFORMER IS MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERD UNDER BIS GROUPING GUIDELINES.

SHIVSHAKTI POWER DEVICE INDIA PVT. LTD.
SR.NO. 46/35 NARHE INDUSTRIAL AREA, PUNE 411046

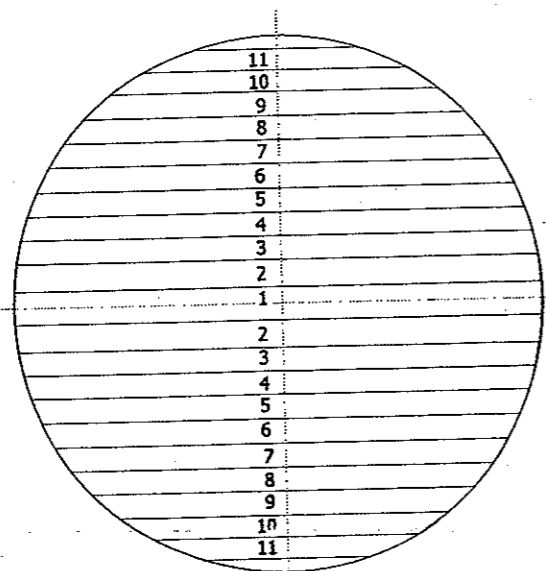
TITLE
GENERAL ARRENGMENT FOR 200 KVA,
22/0.433 KV, DISTRIBUTION TRANSFORMER

	NAME	SIGN.	DATE
DGN			
DRN			
CHD			
APPD			

SCALE : N.T.S. 
DRAWING No. SPDI/200/22/CCA/02
REV. 0
DT.

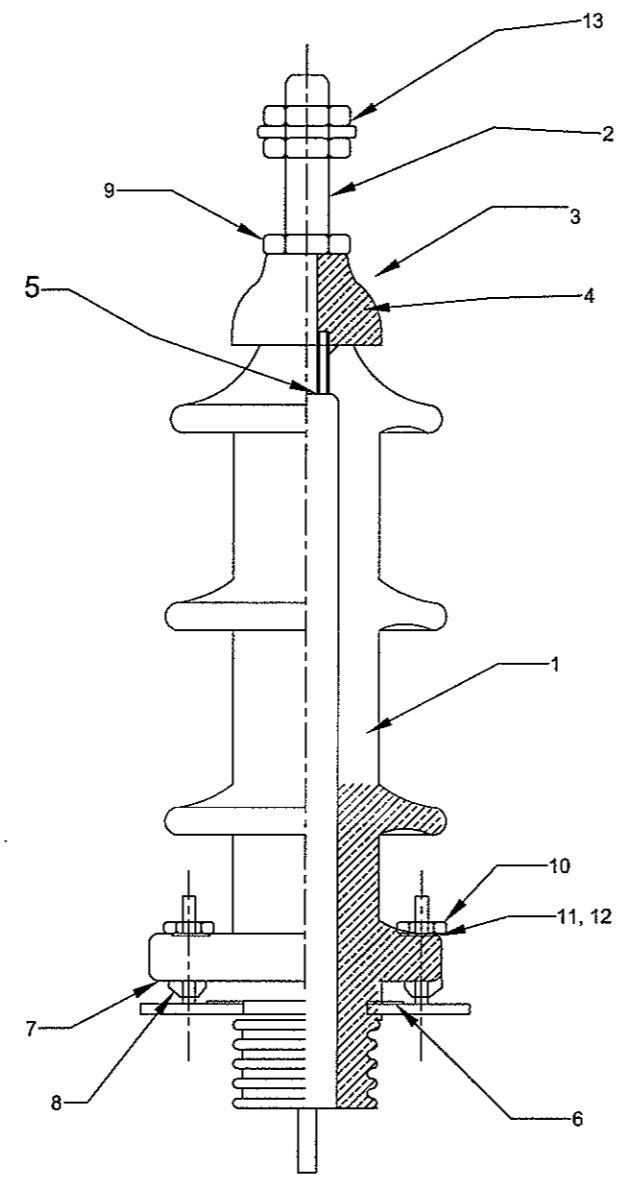
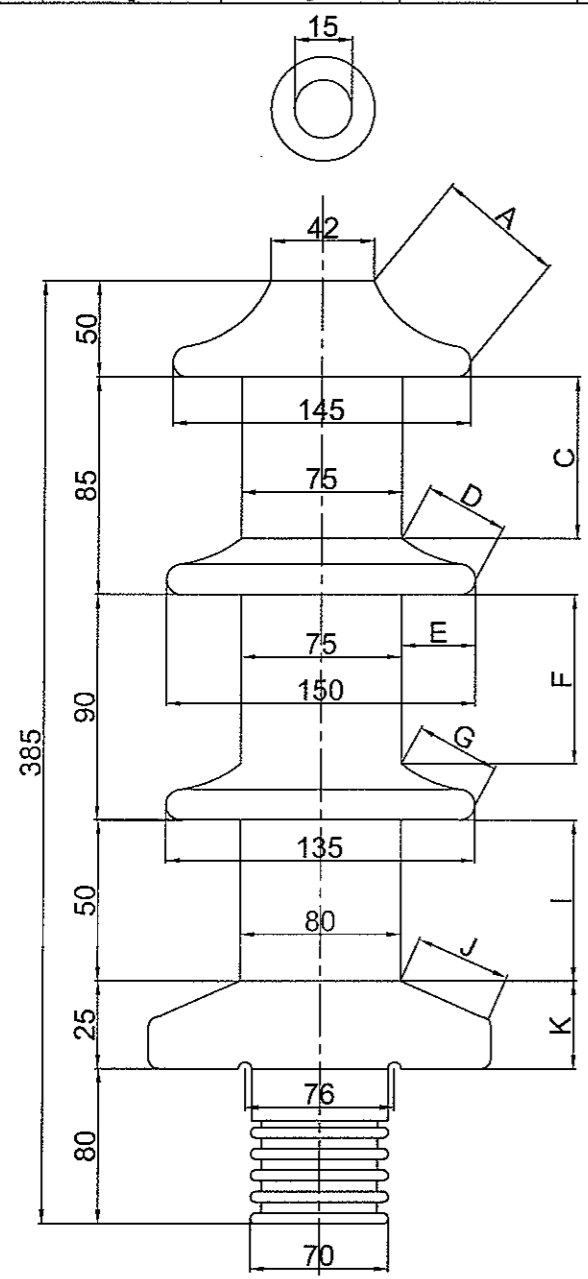
Sr.No.	DESCRIPTION	AS OFFERED
01	PRIMARY VOLTAGE KV	22
02	SECONDARY VOLTAGE KV	0.433
03	RATING KVA	200
04	VECTOR GROUP REF.	Dyn11
05	CONFORMING TO IS	IS: 1180: 2014
06	PERMISSIBLE VOLTAGE FLUCTUATION %	12.5
07	TEMP. RISE OF TOP OIL (MAX) °C	35°C
08	TEMP. RISE OF WINDING (MAX) °C	40°C
09	CORE DETAILS	
	a) CORE MATERIAL	C.R.G.O.
	b) PRINCIPAL SOURCE OF CORE MATERIAL	IMPORTED
	c) GRADE OF LAMINATION	M4
	d) FLUX DENSITY W/m ²	1.535
	e) NO. OF STEPS OF CORE (NOS.)	11
10	% IMPEDANCE	4.5% (±10% TOL)
11	CORE DIAMETER	155

STEP No.	01	02	03	04	05	06	07	08	09	10	11
L mm	150	145	140	135	125	115	105	90	75	60	40
W mm	39.10	15.70	11.70	9.60	15.50	12.30	10.10	12.20	9.50	7.30	6.80
CROSS SECT. MM ²	5865	2276.5	1638.0	1296.0	1937.5	1414.5	1060.5	1098.0	712.5	438.0	272.0
TOTAL CROSS SECTION AREA MM ² = 18009											
EFFECTIVE CROSS AREA MM ² = 18009 x 0.97 = 17468											



THIS 200 KVA TRANSFORMER IS MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERD UNDER BIS GROUPING GUIDELINES.

		NAME	SIGN.	DATE
SHIVSHAKTI POWER DEVICE INDIA PVT LTD. S. NO. 46/35, NARHE INDUSTRIAL ESTATE , PUNE 46.	DGN			
	DRN			
	CHD			
	APPD			
TITLE		SCALE : N.T.S.		
TECHNICAL DETAILS /CORE DRAWING FOR 200KVA, 22/0.433KV, Distribution Transformer		DRAWING No. 200/22/TD/04	REV. 0 DT.	



No.	DESCRIPTION	MATERIAL	QTY.
1	INSULATOR	PORCELAIN	1
2	STEM - M12 x 1.75 (E-TINNED)	BRASS	1
3	END CAP (E-TINNED)	BRASS	1
4	SEALING WASHER FOR STEM	NITRILE RUBBER	1
5	SEPARATOR	ASBESTOS FIBRE	1
6	SEALING WASHER FOR GENERAL PURPOSE	NRBC	1
7	CLAMPING RING	CRCA STEEL	1
8	CLAMPING MEMBER	ALUMINIUM ALLOY	4
9	HEX NUT FOR STEM - M12 x 1.75 (E-TINNED)	BRASS	3
10	HEX NUT - M10 (HDG)	M.S.	4
11	PLAIN WASHER M10 (HDG)	M.S.	4
12	SPRING WASHER M10 (HDG)	M.S.	4
13	PLAIN WASHER M12 (E. TINNED)	BRASS	2

- ELECTRICAL CHARACTERISTICS: -**
1. RATED VOLTAGE: - 24 kV
 2. RATED CURRENT: - 250 Amps
 3. POWER FREQUENCY WITHSTAND VOLTAGE: - 50 kV/1MIN
 4. IMPULSE WITHSTAND VOLTAGE: 125 kvp
 5. CREEPAGE DISTANCE: 600 mm

NOTE: -
PERFORMANCE REQUIREMENTS OF THE BUSHING SHALL CONFORM TO IS: 3347
NRBC = NITRILE RUBBER BONDED CORK

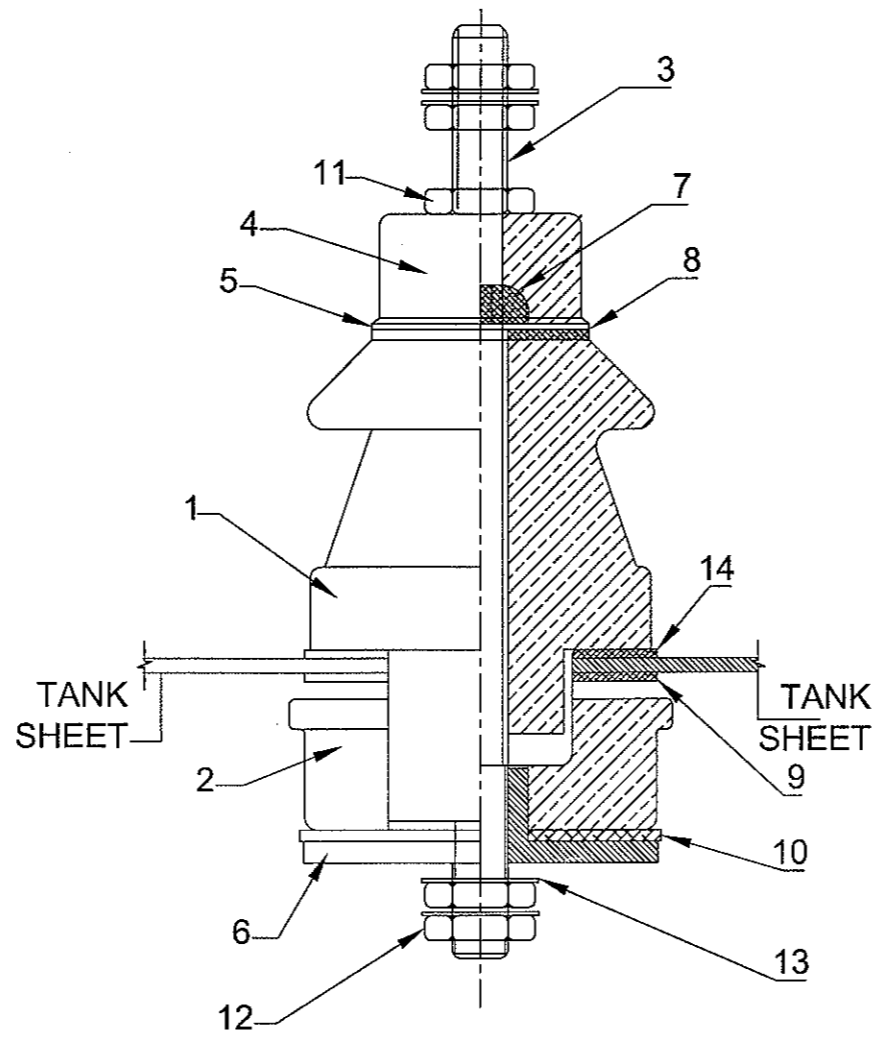
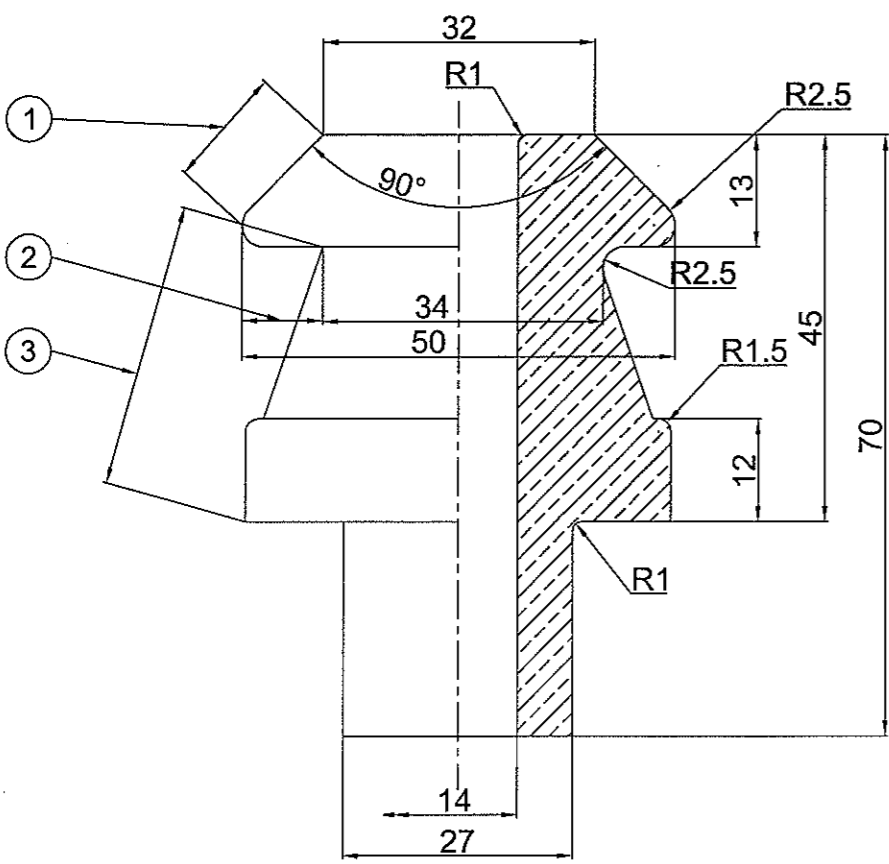
CREEPAGE DISTANCE IN MM

A	90
B	47
C	77
D	52
E	50
F	60
G	56
H	45
I	62
J	23
K	43
TOTAL	605
<small>LESS 4MM CLAMPING NET CREEPAGE DIST. 601</small>	



THIS 200 KVA TRANSFORMER TO MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERED UNDER BIS GROUPING UNDER LINES.

M/S. SHIVSHAKTI POWER DEVICE INDIA PVT LTD		TITLE:	
FACTORY : 46/36, NARHE INDUSTRIAL ESTATE, NARHE - DHAYARI ROAD, NARHE GAON, PUNE - 411041, MAHARASHTRA, INDIA.		HV BUSHING CREEPAGE DISTANCE DRAWING - 22/0.433 KV, 200 KVA	
DATE		PROJECTION	
DRN BY			
CHK. BY		DRG. NO. SPD/200/22- 05	
SCALE			



No.	DESCRIPTION	MATERIAL	QTY.
14	SEALING WASHER (TYPE-N)	NRBC	1
13	PLAIN WASHER M12 (E. TINNED)	BRASS	3
12	HEX LOCK NUT - M12x1.75 (E-TINNED)	BRASS	2
11	HEX NUT - M12x1.75 (E-TINNED)	BRASS	3
10	SEALING GASKET	NRBC	1
9	SEALING WASHER (TYPE-N)	NRBC	1
8	SEALING WASHER (TYPE-N)	NRBC	1
7	SEALING WASHER (STEM)	SYNTHETIC RUBBER	1
6	BOTTOM NUT (E-TINNED)	BRASS	1
5	STEM WASHER (E-TINNED)	BRASS	1
4	TOP END WASHER (E-TINNED)	BRASS	1
3	STEM - M20 x 1.75 (E-TINNED)	COPPER	1
2	INSULATOR LOWER	PORCELAIN	1
1	INSULATOR UPPER	PORCELAIN	1

NOTE:-
 PERFORMANCE REQUIREMENTS OF THE BUSHING SHALL CONFORM TO IS: 3347
 NRBC = NITRILE RUBBER BONDED CORK

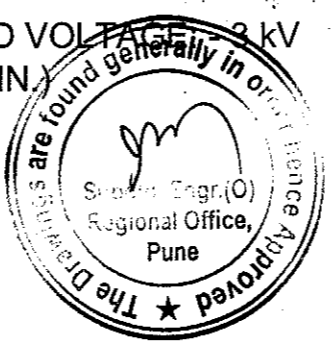
CREEPAGE DISTANCE	
PT. No.	DIM.
1	16
2	9
3	30
TOTAL = 55mm	

NOTE:-
 1. DIMENSIONS ARE CONFORMING TO IS:3347 (PART-I/SEC.1)-1983
 2. COLUR : DARK BROWN.
 3. CREEPAGE DISTANCE : 25mm (MIN.)

ELECTRICAL CHARACTERISTICS :-
 1. RATED VOLTAGE: - 1 kV
 2. RATED CURRENT: - 630 Amps
 3. POWER FREQUENCY WITHSTAND VOLTAGE: - 2 kV
 4. CREEPAGE DISTANCE: 25 mm (MIN.)

THIS 200 KVA TRANSFORMER TO MEANT ONLY FOR B/S CERTIFICATION WHICH IS COVERED UNDER B/S GROUPING UNDER LINES.

* CREEPAGE DISTANCE IS MEASURED ALONG THE OTHER PORCELAIN SURFACE.

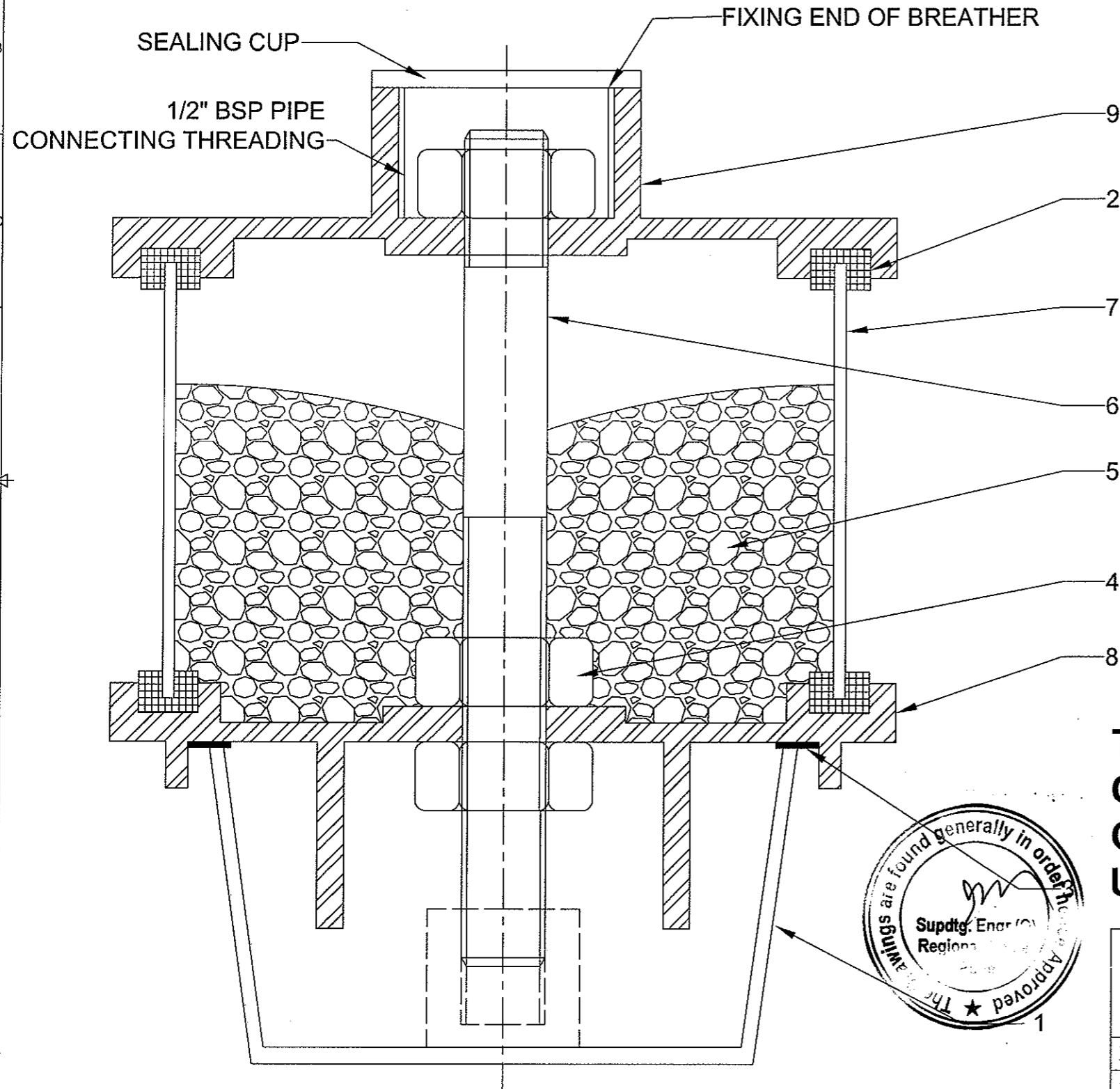


M/S. SHIVSHAKTI POWER DEVICE INDIA PVT LTD			
FACTORY : 46/36, NARHE INDUSTRIAL ESTATE, NARHE - DHAYARI ROAD, NARHE GAON, PUNE - 411041, MAHARASHTRA, INDIA.			
DATE		PROJECTION	TITLE: L.V.BUSHING & CREEPAGE DWG, 200KVA, 22/0.433 KV DISTRIBUTION TRANSFORMER
DRN BY			
CHK. BY			
SCALE		DRG. NO. SPD/200/22/ 06	

SILICA GEL BREATHER 500g FOR 200KVA TRANSFORMER

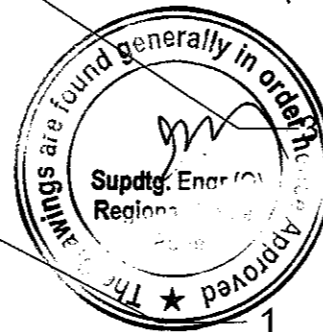
THE FOLLOWING INSTRUCTIONS TO BE FOLLOWED BEFORE FIXING SILICA GEL BREATHER:

1. REMOVE THE SEALING CAP PROVIDED AT THE FIXING END OF THE BREATHER AND ALSO PVC CAP PROVIDED AT THE END OF THE BREATHER FIXING PIPE ON THE CONSERVATOR.
2. FILL THE OIL IN THE OIL CUP TO THE LEVEL SHOWN.



No.	DESCRIPTION	MATERIAL
1	OIL CUP	SAN
2	PLAIN GASKET	NITRILE RUBBER
3	BOTTOM COVER	ALUMINIUM (LM 6)
4	LOCK NUT	M.S.
5	SILICA GEL (BLUE)	SILICA GEL
6	STUD	M.S.
7	TRANSPARENT TUBE	SAN
8	U - GASKET	NITRILE RUBBER
9	TOP COVER	ALUMINIUM (LM 6)
10	QUANTITY OF SILICA GEL	500GMS

THIS 200 KVA TRANSFORMER TO MEANT ONLY FOR BIS CERTIFICATION WHICH IS COVERED UNDER BIS GROUPING UNDER LINES.



M/S. SHIVSHAKTI POWER DEVICE INDIA PVT LTD

FACTORY : 46/36, NARHE INDUSTRIAL ESTATE, NARHE - DHAYARI ROAD, NARHE GAON, PUNE - 411041, MAHARASHTRA, INDIA.

DATE		PROJECTION 	TITLE:
DRN BY			SILICA GEL BREATHER (500g) FOR 22KV/200 KVA DIST. TRANSFORMER
CHK. BY			
SCALE		DRG. NO. SPD/200/22/ 07	