

PI- 240962165
PQR, Rev-00 (Withdrawable PTs)

Annexure-1

1) Bidder should be OEM

Documents Required: - *Self certified OEM declaration Certificate.*

2) Technical Experience: -

The OEM should have manufactured and supplied minimum 10 nos. of same or similar PT's to any Central / State Govt Organization / PSU / Public Listed Company through reputed switchgear manufacturer within last 2 Years before the bid opening date.

Documents required: - *Bidder to furnish Purchase Orders and Invoice(s) as proof of supply.*



PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

SG12913 REV.04

PAGE 1 OF 3

ANNEXURE-A

ANNEXURE-A TO PURCHASE INDENT NO.

REV.NO. 00

BHEL | Technical Specification for Withdrawable PTs

Bhopal |

SWE | PI no. : 240962165

| Enq. No:

| PO No:

W.O. Nos. : For Rate Contract

FOR DETAILED TECHNICAL SPECIFICATION, REFER PRODUCT STANDARD SG12913 REV.04

TABLE: 1

CLAUSE NO.	DESCRIPTION	BHEL'S REQUIREMENT	BIDDERS CONFIRMATION /COMMENTS
1.0	TECHNICAL PARAMETERS		
1.1	System Voltage (3Phase, 50 Hz) kV	11	
1.2	Insulation level		
1.2.1	System highest voltage kV	12	
1.2.2	Power freq. withstand voltage (primary) kV Power freq. withstand voltage (secondary) kV	28/ 2.5	
1.2.3	Lightening Impulse withstand voltage kVp	75	
1.3	Insulation class kV/kVrms/kVp	12/28/75	
1.4	Continuous Over voltage factor	1.2 cont & 1.9 for 8 Hrs.	
1.5	Mounting	Inside swgr panel	
1.6	Insulation class of PTs	B or better	
1.7	Primary Neutral to be brought out for Earthing.	Yes	
1.8	Connection	Star-Star	

TABLE: 2

11kV, 3 Phase, 50 Hz.

IT. NO.	PT RATIO	1PH.1POLE/ 1PH.2POLE/3P(WIT H HT FUSE)	ACCURACY / BURDEN		Vendor's drg. ref.	REMARKS/ DEVIATION
			WDG.I	WDG.II		
001	11000/110 V	3P (WITH HT & LT FUSE)	30VA per phase, Class - 0.2	Not applicable		
Bidders confirmation/ Comments						

Bidder scope of supply: IT-001 consists of following:

1. Epoxy resin cast, Indoor, 3 phase 3 limb withdrawable PT with PT HV & LV Fuse; Generally as per our Drg No. **35219001047**
2. PT fixed Portion primary mounting terminals spout for connecting to Panel HT Bus.
3. Base plate with Tracks for smooth movement of PT, Spout with mounting plate, Suitable Shutter arrangement, Flexible connection, Locking arrangement. DRG.NO:- **15219001003**-Var.00-REV.
4. Safety shutter along with lifting arrangement.

Note - Refer Drg No. **35219001007**, Rev-00 for sample base plate drawing prepared for two existing vendors as a reference only.



PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

SG12913 REV.04

PAGE 2 OF 3

TABLE : 3

3.0	CLIMATIC CONDITIONS	VENDOR CONFIRMATION/ COMMENTS
3.1	Ambient Air Temp. - -5°C (min) & 50°C (max.)	
3.2	Relative humidity - 10%(min) & 95%(max)	
3.3	Height above MSL - ≤ 1000 meters (consider suitable Altitude correction factor in Impulse withstand for height more than 1000 mtrs)	
3.4	Pollution Severity - Heavily polluted (with coal dust & Fly ash) & Highly corrosive environment.	
3.5	Seismic Coefficient - 0.3g	
3.6	Design Ambient Temp.- 50°C	

TABLE : 4

4.0	PACKING AND SHIPPING	BHEL'S REQUIREMENT	VENDORS CONFIRMATION / COMMENTS
4.1	Identification marking on PTs	"PO NO " "IT NO. " "PSPCL OR PSTCL"	

5.0 SPECIAL REQUIREMENT (if any) -

SL. NO.	REQUIREMENT	BIDDERS CONFIRMATION/ COMMENTS
5.1	ALL TYPE TEST (IMPULSE VOLTAGE WITHSTAND TEST AND TEMPERATURE RISE TEST) REPORTS SHALL NOT BE MORE THAN 5 YRS OLD. REPEAT TYPE TEST DUE TO THIS SHALL NOT ATTRACT ANY SEPARATE CHARGE.	
5.2	Service position locking mechanism shall be provided and indicated by bidder in relevant drawing. Rigidity of primary star point with earth bus in service position shall be confirmed.	
5.3	Connection of Primary neutral with main earth bus to be made with solid copper wire & minimum 10 mm diameter or equivalent copper flat.	
5.4	Contact tips of primary/secondary contacts shall be silver plated.	
5.5	Correct polarity shall be distinctly marked on primary and secondary terminal.	
5.6	Secondary terminal studs shall be provided with at least three nuts, two plain and two spring washers for fixing leads.	
a	The stud, nuts and washers shall be of brass, duly nickel plated.	
b	The minimum outside diameter of the studs shall be 6 mm. the length of at least 15 mm shall be available on the studs for inserting the leads.	
c	The space clearance between nuts on adjacent studs when fitted shall be at least 10 mm.	
5.7	Primary fuse replacement shall be possible with VT in withdrawn position	



PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

SG12913 REV.04

PAGE 3 OF 3

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SL. NO.	REQUIREMENT	BIDDERS CONFIRMATION/ COMMENTS
5.8	It can be plugged into and withdraw from service by pulling or pushing the PT by the handle provided on the PT. This action traverses the PT along the rails and shall automatically operate the spout shutters.	
5.9	The shutter drive also forms a latch which holds the PT in the service position and this latch shall be required to be released before PT can be isolated.	
5.10	Sealing arrangement of the PT with the carriage and secondary fuses are to be provided.	
5.11	Each PT shall be provided with Vector diagram plate as per relevant provision of IS showing primary and secondary terminals.	

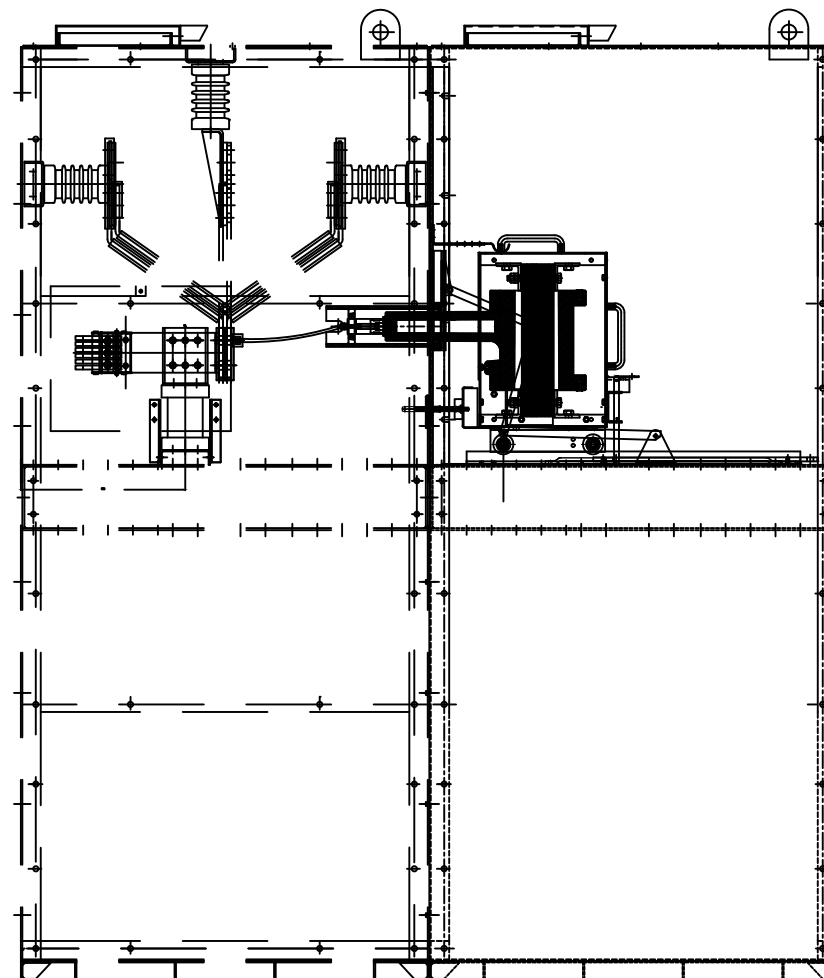
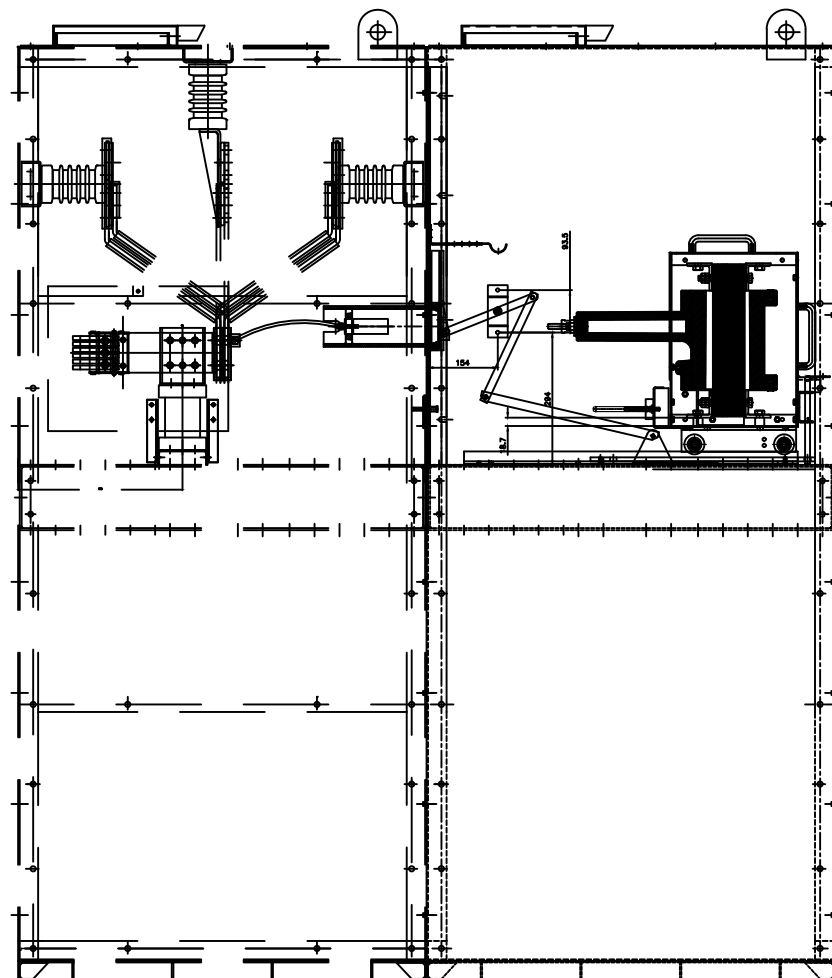
6.0 IMPORTANT NOTES

15.1	DEVIATION SHALL BE INDICATED ONLY IN ANNEXURE-D (SCHEDULE OF DEVIATIONS) . NO DEVIATION SHALL BE ACCEPTED IF WRITTEN ELSE WHERE. IF NO DEVIATION IS MENTIONED IN ANNEXURE-D THEN IT WILL BE CONSIDERED AS TOTAL COMPLIANCE TO OUR SPECIFICATION	
15.2	VENDORS TO ENCLOSE COPY OF SG12913 REV.04 DULY FILLED IN THE SPECIFIED FORMAT WITH EVERY ENQUIRY, FAILING WHICH THE OFFER MAY NOT BE CONSIDERED.	
15.3	ALL DRAWINGS / DOCUMENTS AS PER ANNEXURE-I CL.11.0 ENCLOSED.	

7.0 Name Plate of PT indelibly marked -

SL. NO.	REQUIREMENT	BIDDERS CONFIRMATION/ COMMENTS
15.1	Name plate for the voltage transformer shall be provided with all the required details as per IEC 60044-2, IS 3156 Standards, including :- 1. Manufacturer's name 2. Serial number and a type designation 3. Rated primary and secondary voltage 4. Rated frequency 5. Rated output and accuracy class 6. Highest voltage of the equipment 7. Rated Insulation level 8. Class of Insulation for the equipment 9. Rated voltage factor and corresponding rated time. 10. Property Label - "Property of PSPCL OR PSTCL" 11. Order No., Date, Month & Year of supply	

DRG. NO. 15219001003

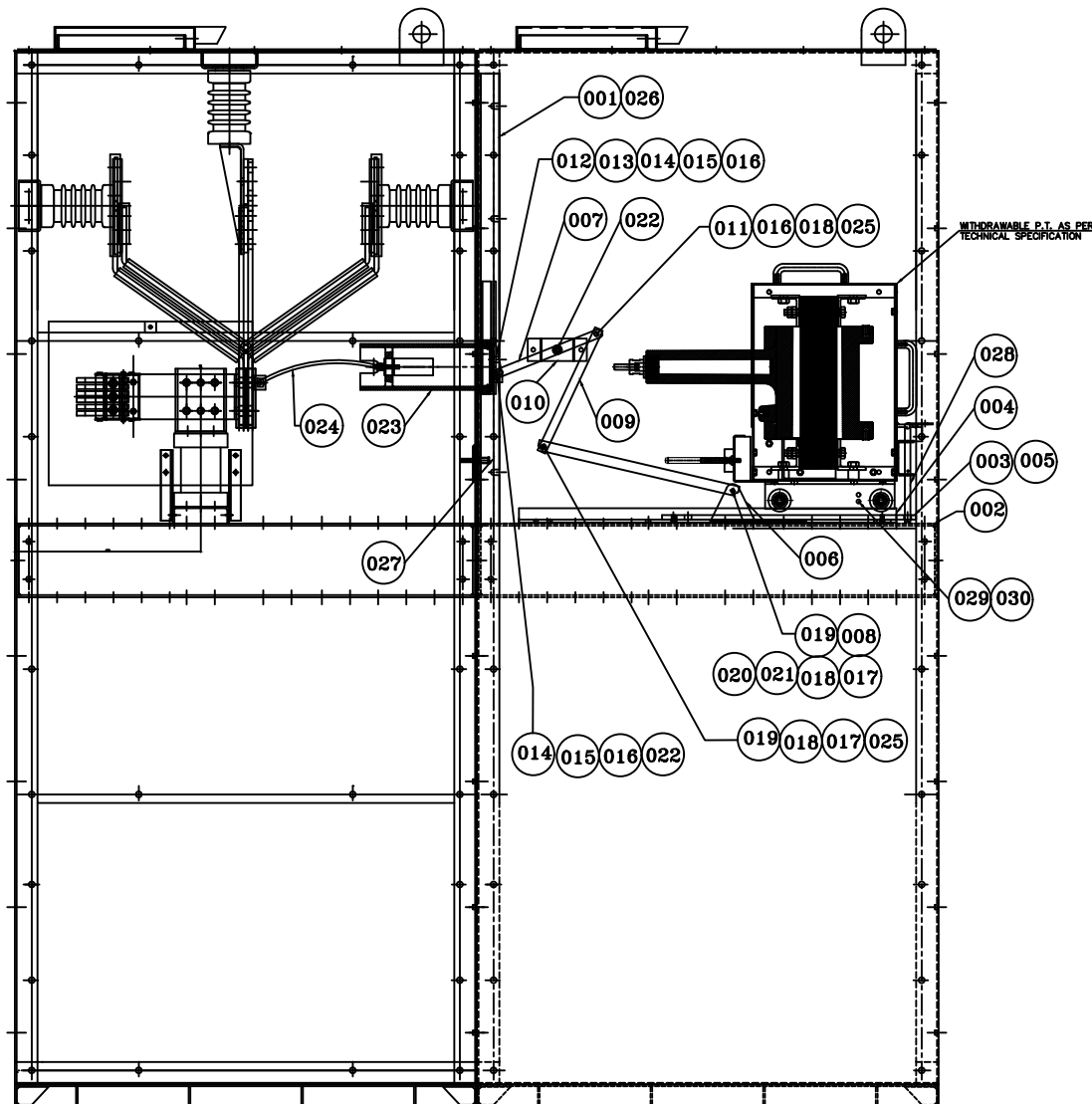


NOTE:

- 1) TRAVEL DISTANCE OF PT IS APPROXIMATELY 430MM.
- 2) PT DIMENSIONS MAY BE DIFFERENT BUT TRAY FIXING TO BE MAINTAINED.
- 3) OTHER DIMENSIONS MAY VARY. HOWEVER PROPER CONTACT OF SPOUT AND PT TERMINALS TO BE ENSURED.
- 4) FOR DIMENSIONAL SPECIFICATION OF WITHDRAWABLE PT, REFER 35219001047.

[illegible]

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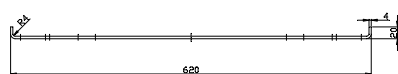
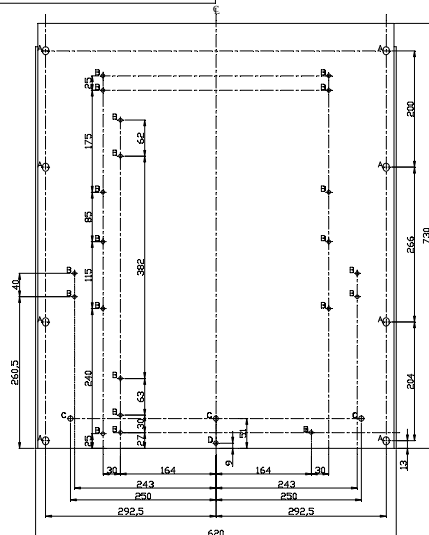
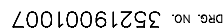


NOTE:
1) FOR DIMENSIONAL SPECIFICATION OF WITHDRAWABLE P.T.
PLEASE REFER 35219001047
2) ITEM 010- BRACKET:
FOR 3-LIMB PT: 35219001077 V00
FOR 5-LIMB PT: 35219001077 V01

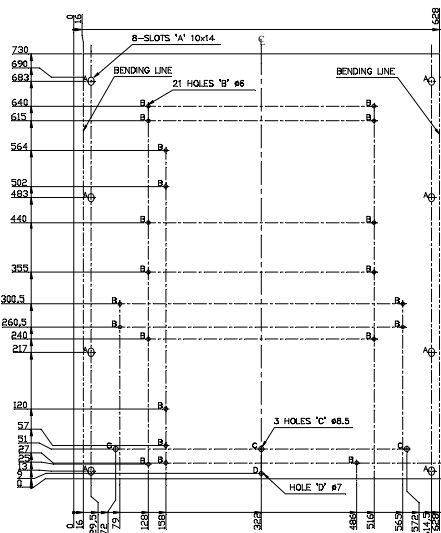
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DRAWING NO. 01		CARGO TYPE-1		CARGO TYPE-2	
ADDITIONAL INFORMATION			1. ☐ 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐ 7. ☐ 8. ☐ 9. ☐ 10. ☐ 11. ☐ 12. ☐ 13. ☐ 14. ☐ 15. ☐ 16. ☐ 17. ☐ 18. ☐ 19. ☐ 20. ☐ 21. ☐ 22. ☐ 23. ☐ 24. ☐ 25. ☐ 26. ☐ 27. ☐ 28. ☐ 29. ☐ 30. ☐ 31. ☐ 32. ☐ 33. ☐ 34. ☐ 35. ☐ 36. ☐ 37. ☐ 38. ☐ 39. ☐ 40. ☐ 41. ☐ 42. ☐ 43. ☐ 44. ☐ 45. ☐ 46. ☐ 47. ☐ 48. ☐ 49. ☐ 50. ☐ 51. ☐ 52. ☐ 53. ☐ 54. ☐ 55. ☐ 56. ☐ 57. ☐ 58. ☐ 59. ☐ 60. ☐ 61. ☐ 62. ☐ 63. ☐ 64. ☐ 65. ☐ 66. ☐ 67. ☐ 68. ☐ 69. ☐ 70. ☐ 71. ☐ 72. ☐ 73. ☐ 74. ☐ 75. ☐ 76. ☐ 77. ☐ 78. ☐ 79. ☐ 80. ☐ 81. ☐ 82. ☐ 83. ☐ 84. ☐ 85. ☐ 86. ☐ 87. ☐ 88. ☐ 89. ☐ 90. ☐ 91. ☐ 92. ☐ 93. ☐ 94. ☐ 95. ☐ 96. ☐ 97. ☐ 98. ☐ 99. ☐ 100. ☐ 101. ☐ 102. ☐ 103. ☐ 104. ☐ 105. ☐ 106. ☐ 107. ☐ 108. ☐ 109. ☐ 110. ☐ 111. ☐ 112. ☐ 113. ☐ 114. ☐ 115. ☐ 116. ☐ 117. ☐ 118. ☐ 119. ☐ 120. ☐ 121. ☐ 122. ☐ 123. ☐ 124. ☐ 125. ☐ 126. ☐ 127. ☐ 128. ☐ 129. ☐ 130. ☐ 131. ☐ 132. ☐ 133. ☐ 134. ☐ 135. ☐ 136. ☐ 137. ☐ 138. ☐ 139. ☐ 140. ☐ 141. ☐ 142. ☐ 143. ☐ 144. ☐ 145. ☐ 146. ☐ 147. ☐ 148. ☐ 149. ☐ 150. ☐ 151. ☐ 152. ☐ 153. ☐ 154. ☐ 155. ☐ 156. ☐ 157. ☐ 158. ☐ 159. ☐ 160. ☐ 161. ☐ 162. ☐ 163. ☐ 164. ☐ 165. ☐ 166. ☐ 167. ☐ 168. ☐ 169. ☐ 170. ☐ 171. ☐ 172. ☐ 173. ☐ 174. ☐ 175. ☐ 176. ☐ 177. ☐ 178. ☐ 179. ☐ 180. ☐ 181. ☐ 182. ☐ 183. ☐ 184. ☐ 185. ☐ 186. ☐ 187. ☐ 188. ☐ 189. ☐ 190. ☐ 191. ☐ 192. ☐ 193. ☐ 194. ☐ 195. ☐ 196. ☐ 197. ☐ 198. ☐ 199. ☐ 200. ☐ 201. ☐ 202. ☐ 203. ☐ 204. ☐ 205. ☐ 206. ☐ 207. ☐ 208. ☐ 209. ☐ 210. ☐ 211. ☐ 212. ☐ 213. ☐ 214. ☐ 215. ☐ 216. ☐ 217. ☐ 218. ☐ 219. ☐ 220. ☐ 221. ☐ 222. ☐ 223. ☐ 224. ☐ 225. ☐ 226. ☐ 227. ☐ 228. ☐ 229. ☐ 230. ☐ 231. ☐ 232. ☐ 233. ☐ 234. ☐ 235. ☐ 236. ☐ 237. ☐ 238. ☐ 239. ☐ 240. ☐ 241. ☐ 242. ☐ 243. ☐ 244. ☐ 245. ☐ 246. ☐ 247. ☐ 248. ☐ 249. ☐ 250. ☐ 251. ☐ 252. ☐ 253. ☐ 254. ☐ 255. ☐ 256. ☐ 257. ☐ 258. ☐ 259. ☐ 260. ☐ 261. ☐ 262. ☐ 263. ☐ 264. ☐ 265. ☐ 266. ☐ 267. ☐ 268. ☐ 269. ☐ 270. ☐ 271. ☐ 272. ☐ 273. ☐ 274. ☐ 275. ☐ 276. ☐ 277. ☐ 278. ☐ 279. ☐ 280. ☐ 281. ☐ 282. ☐ 283. ☐ 284. ☐ 285. ☐ 286. ☐ 287. ☐ 288. ☐ 289. ☐ 290. ☐ 291. ☐ 292. ☐ 293. ☐ 294. ☐ 295. ☐ 296. ☐ 297. ☐ 298. ☐ 299. ☐ 300. ☐ 301. ☐ 302. ☐ 303. ☐ 304. ☐ 305. ☐ 306. ☐ 307. ☐ 308. ☐ 309. ☐ 310. ☐ 311. ☐ 312. ☐ 313. ☐ 314. ☐ 315. ☐ 316. ☐ 317. ☐ 318. ☐ 319. ☐ 320. ☐ 321. ☐ 322. ☐ 323. ☐ 324. ☐ 325. ☐ 326. ☐ 327. ☐ 328. ☐ 329. ☐ 330. ☐ 331. ☐ 332. ☐ 333. ☐ 334. ☐ 335. ☐ 336. ☐ 337. ☐ 338. ☐ 339. ☐ 340. ☐ 341. ☐ 342. ☐ 343. ☐ 344. ☐ 345. ☐ 346. ☐ 347. ☐ 348. ☐ 349. ☐ 350. ☐ 351. ☐ 352. ☐ 353. ☐ 354. ☐ 355. ☐ 356. ☐ 357. ☐ 358. ☐ 359. ☐ 360. ☐ 361. ☐ 362. ☐ 363. ☐ 364. ☐ 365. ☐ 366. ☐ 367. ☐ 368. ☐ 369. ☐ 370. ☐ 371. ☐ 372. ☐ 37		

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(001)



DEVELOPMENT OF ITEM-001

FINISH:— EPOXY POLYESTER POWDER COATING TO AA0674124
FOR SHADE NO REFER. ENGG. SPEC./MID.

UNSPECIFIED TOLERANCE SHALL BE :-
FOR MACHINING MEDIUM AAQ230208
FOR SHEARING OF PLATES/SHEETS AS PER AAQ230409

W/S PLASTOFAB DESIGN		002	4THK. X 644 X 730 LG. HRCSS. SHEET			AA1011713160	NA	KG	14.762				
						AA10113			001				
M/S BMC DESIGN		001	4THK. X 644 X 730 LG. HRCSS. SHEET			AA1011713160	NA	KG	14.762				
						AA10113			001				
65	75	78	79	25	27	29	31	34	45	55	58	60	72
REMARKS		VAR NO.	ITEM NO.	DESCRIPTION			DRAWING NO.		UNIT	UNIT WT.		QTY.	
							IT.NO.	MATL. CODE					
							32 VAR.	46 MATL. SPCL.					

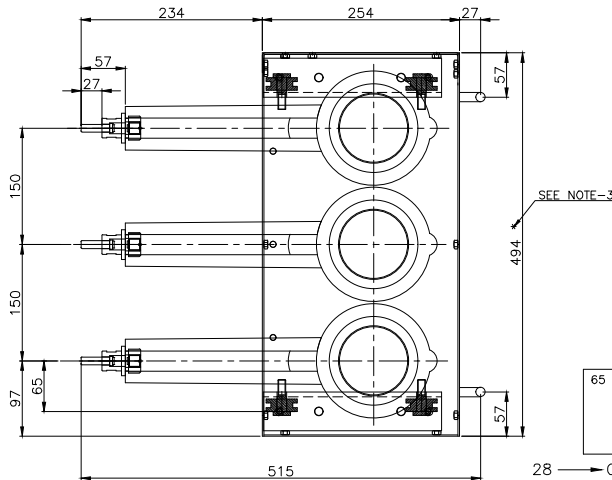
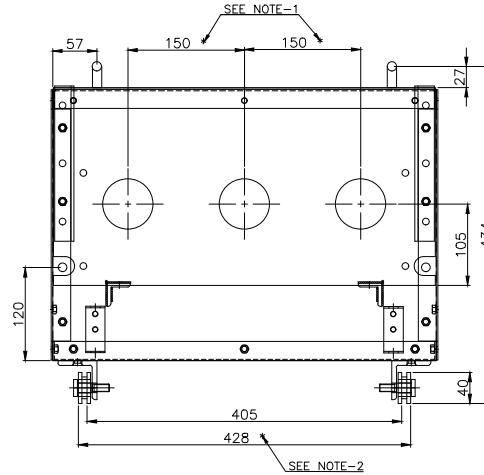
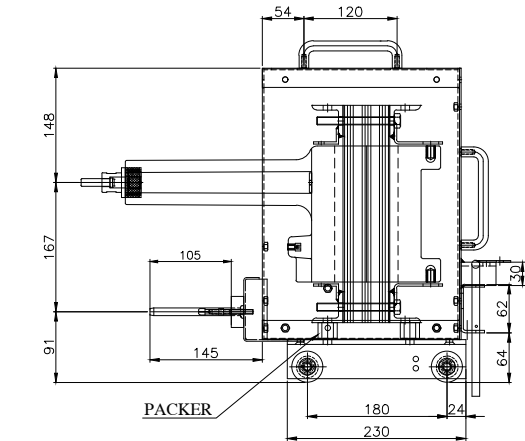
28 —→ CARD TYPE-3

28 —→ CARD TYPE-1

28 → CARD TYPE-2

ADDITIONAL INFORMATION		उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		VM-12 (700W)		वे.क्र. की संख्या NO. OF VCR	
STATUS OF DRAWING		भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL		काम का DRG चक्र CYC प्रमाणित APPRO		वे.क्र./NAME AKN PUNIT HRP	
DISTRIBUTION OF PRINTS		भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL		हस्ताक्षर/ SIGN sd/- sd/- sd/-		दिनांक/DATE 15.10.11 15.10.11 15.10.11	
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CHECKED		अनुमोदित SCALE 1:1		अनुमोदित SCALE 1:1		अनुमोदित SCALE 1:1	
APPROVED		अनुमोदित SCALE 1:1		अनुमोदित SCALE 1:1		अनुमोदित SCALE 1:1	
श्रीविक/TITLE		BASE SHEET		उपरोक्त का ड्राइंग नं. 35219001007		उपरोक्त का ड्राइंग नं. 35219001007	
पृष्ठ सं./SHT. No.		01		पृष्ठों की संख्या/NO. OF SHT.		02	

DRG. NO. 35219001047



NOTE:-

- 1) PHASE-TO-PHASE CLEARANCE SHALL BE CLEARLY INDICATED. THE SAME CLEARANCES SHALL BE CALLED IN PT MOUNTING SHEET (DRG NO. 35219001003-001).
- 2) THE WHEEL BASE SHALL BE CLEARLY INDICATED. REFER BASE PLATE (DRG NO. 35219001007-001) FOR PERMISSIBLE WHEEL BASE. THE WHEEL RAILS MUST BE MOUNTED ON THE BASE PLATE.
- 3) THE MAXIMUM PERMISSIBLE WIDTH OF THE P.T. FRAME SHALL BE 600 mm.

NOTE:-

REFER WITHDRAWABLE P.T. ARRANGEMENT DRG. NO. 15219001003

65	75	78	79	25	27	29	58	59	60	77	29	31	34	45	55	56	58	72	
REMARKS	VAR. NO.	ITEM NO.	DESCRIPTION				STD	DRAWING NO.				IT.NO.	34	MATL. CODE	45	55	56	58	72
												32	33	46	54	A	57	68	UNIT WT.
CARD TYPE-3						CARD TYPE-1					CARD TYPE-2								

ADDITIONAL INFORMATION

STATUS OF DRAWING

DISTRIBUTION OF PRINTS

O.COPY-----1
SWM-----3
TCX-----1

उत्पाद का प्रकार या
ग्रहक/परियोजना का नाम
TYPE OF PRODUCT OR
NAME OF CUSTOMER/PROJECT

VM-12 (700W)



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
भोपाल
BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

क्रमांक DRN	नाम/ NAME	हस्ता/ SIGN	दिनांक/ DATE	वे. र. की संख्या NO. OF VAR
जेंचा CKD	MKN	Sd/-	07.03.13	-
अनुमोदित APPD	RG	Sd/-	07.03.13	
	MAK	Sd/-	07.03.13	

विभाग
DEPT SWE

उत्प. टल. माप की श्रेणी
UNTO.DIMS. GR.
M

कोड
CODE 409

आवृत्ति
SCALE

भार. वजन
WEIGHT (K.G.)

उत्प. इकाई का संदर्भ
REF. TO ASSY. DRG.

मद. नं.
ITEM NO.

मद. संख्या
NO. OF
ITEM

शीर्षक/ TITLE

GENERAL ARRANGEMENT
OF WITHDRAWABLE P.T.

आरेख नं./ DRAWING NO.

35219001047

पुन./ REV

00

पृष्ठ नं./SHT. No. 01

पृष्ठों की संख्या/ NO. OF SHT. 01

		बीएचईएल BHEL	PRODUCT STANDARD		SG12913 REV.04
			SWITCHGEAR ENGINEERING DIVISION		PAGE 1 OF 10
Annexure-I General Technical Specification & Format for Offers 3.3kV to 33kV Indoor Resin Cast Potential Transformers					
GENERAL : Resin cast PTs are used in indoor metal clad switchgears for metering and protection purposes. This product standard is intended to cover the general technical requirement common to all indoor resin cast current transformers.					
GENERAL REQUIREMENT & GUIDELINES TO VENDORS:					
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to interest of Co.		SL. NO.	BHEL'S REQUIREMENT	BIDDERS CONFIRMATION/ COMMENTS	
		1	OFFERS SUBMITTED IN THIS SPECIFIED FORMAT (ANNEXURE-I) ONLY SHALL BE EVALUATED. OFFERS IN ANY OTHER FORMAT MAY NOT BE CONSIDERED FOR EVALUATION. SOFT COPY OF THE FORMAT SHALL BE MADE AVAILABLE TO SUPPLIERS ON DEMAND.		
		2	Offers shall be opened in single bid only. Incomplete offers in any respect will be rejected without any correspondence/ clarification with/from the vendor.		
		3	The specification 'Annexure-A' given alongwith the enquiry document will be overriding in case of difference.		
		4	Mounting plate shall be rigidly fixed with PT using suitable inserts and shall be zinc plated.		
		5	Clear space for fixing the mounting plate in switchgear with pneumatic tool shall be provided.		
		6	10% each of extra primary fuse covers, fuse clamps & secondary terminal covers shall be provided with each order.		
		7	1 complete set of loose rating plates shall be provided for all PTs.		

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		 PRODUCT STANDARD SWITCHGEAR ENGINEERING DIVISION	SG12913 REV.04																																																
			PAGE 2 OF 10																																																
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		SWITCHGEAR ENGINEERING DIVISION		PAGE 3 OF 10
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to interest of Co.	6.4	The PTs shall be completely encapsulated and terminal marking shall be properly & legibly provided without any requirement to interfere with wiring connections.		
	6.5	The resin to be used in construction shall be high grade, mixed under high vacuum and poured also in vacuum to prevent any void remaining in the casting.		
	6.6	The PTs should be cured properly so that the final product is non hygroscopic.		
	6.7	VI characteristic for each winding shall be in straight line upto 120% of rated voltage.		
	6.8	Upto 11kV class, PTs shall be complete with GEC Alstom make HT fuses type VTF11-3A or equivalent, rated 3A and of 50KA rupturing capacity. In case any other make fuses are provided, the type test certificates and performance certificate shall be furnished on demand.		
	6.9	For voltage class above 11kV and upto 33kV, PTs shall be supplied without fuses and loose HT fuses (qty. as per cl.6.11 below) of Anand Fuses type - AVT (Eswari Electrical Make or equivalent) shall be supplied against separate item of respective enquiry. Length = 500mm, Dia. = 23mm		Not applicable
	6.10	2 nos. fuse mounting brackets & 1 no. L-clamp shall be supplied loose alongwith each PT of voltage class above 11kV and upto 33kV.		Not applicable
	6.11	For voltage class above 11kV and upto 33kV, the quantities of fuses (to be supplied loose) shall be as below:- Single Pole PT - 1 No. with each PT. Double Pole PT - 2 Nos. with each PT. Three phase PT - 3 Nos. with each PT.		Not applicable
	7.0	Q.A. PLAN		
		As per BHEL's standard Q.A. plan ref. QAQC/SCR/15/053 enclosed. Suppliers to specifically confirm adherence to this Q.A. plan in their offers.		
	8.0	INSPECTION		
		PTs shall be tested & inspected at supplier's works by BHEL/BHEL's customer/BHEL's authorized representative in line with above Q.A. plan. Supplier shall give 2 weeks advance intimation.		
	9.0	TESTS		
	9.1	TYPE TESTS		
	9.1.1	Preferably TYPE TESTED design of PTs shall be offered. Type test reports for Impulse and temperature rise shall be furnished for all varieties of PTs.		

			PRODUCT STANDARD SWITCHGEAR ENGINEERING DIVISION		SG12913 REV.04
					PAGE 4 OF 10
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to interest of Co.	9.1.2	In case, type test report is not directly applicable to the offered PT(s) the applicability justification of Impulse test certificate & temperature rise for each variety of PTs shall be submitted in format as per Annexure-A, Table-5.			
	9.1.3	Wherever the type tests have not been carried out, the offer should indicate clearly such cases and the party should specifically mention in the offer itself to 'conduct and clear' the type tests required at a govt. approved independent test laboratory without any extra charges or delivery repercussions.			
	9.1.4	It may be required to repeat the TYPE TESTS, if so desired by our customer. In such a case, separate charges shall be quoted for TYPE TEST.			
	9.2	ROUTINE TESTS			
		As per enclosed QA plan.			
	9.3	SPECIAL TESTS			
		Temperature rise test, shall be conducted free of cost on each type of PT against each order and report to be furnished to BHEL.			
	10.0	PACKING AND SHIPPING			
	10.1	Identification marking on PTs shall be as per Annexure-A			
	10.2	The equipment is to be transported adequately sealed against water ingress. They shall be packed and security clamped against movement in robust, non returnable packing cases to ensure safe transit in rough terrain, cross country road conditions and in heavy rains from the manufacturer's works to the specified destinations.			
	10.3	It shall be the responsibility of the supplier to make good the damage caused due to insufficient packing.			
	10.4	Each packing case shall be indelibly marked with the following :- Individual serial number. Purchaser's name. P.O. number/date. Destination. Manufacturer's name. Customer/Project name			
	10.5	Each crate or container shall be marked clearly on the outside of the case to show TOP and BOTTOM positions.			

		 PRODUCT STANDARD SWITCHGEAR ENGINEERING DIVISION	SG12913 REV.04 PAGE 7 OF 10																																																																																																																												
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**QUALITY PLAN
FOR
INDOOR RESIN CAST POTENTIAL
TRANSFORMERS
(3.3 kV to 33 kV)**

QP NO. : QAQC/SCR/15/053

REV. : 00 REVIEWED BY APPROVED BY

**DATE:
10.03.04**

**PAGE: 01
OF 02**

SL. NO.	COMPONENT & PROCESS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
1	2	3	4	5	6	7	8	9	10
A. RAW MATERIALS :									
1.00	LAMINATION	a) PHYSICAL	B	V	5%	SUPPLIER'S SPEC.+++	T.C	P V RR	
		b) ELECTRICAL	B	T	100%-M		T.C.	P V RR	
2.00	ENAMELLED COPPER	a) WIRE SIZE	C	M	10%	IS4800/IS 13730	T.R.	P V RR	
		b) ENAMEL COATING	B	T	10%		T.R.	P V RR	
		c) ELECTRICAL PROPERTIES	A	T	10%		T.R.	P V RR	
3.00	H.T.FUSE	PHYSICAL	C	M	100%	SUPPLIER'S SPEC.+++	T.C./T.R.	P P RR	
4.00	RESIN & HARDENER	CHEMICAL	B	T	100%	SUPPLIER'S SPEC.+++	T.C.	P RR RR	
5.00	POLYESTER FILM	a) DIMENSION	C	M	100%-M,10%-C	SUPPLIER'S SPEC.+++	T.C.	P RR RR	
		b) ELECTRICAL PROPERTIES	B	T	100%-M,10%-C		T.C.	P RR RR	
B. MANUFACTURING PROCESS:									
1.00	MOULDING PROCESS	a) LEVEL OF VACUUM DURING POURING	A	M	FOR EACH BATCH	SUPPLIER'S SPEC.+++	P.R.	P RR	
		b) CURING TEMPERATURE AND	A	M			P.R.	P RR	
2.00	EPOXY CASTING	SHAPE & SURFACE FINISH	B	V	100%	SHAPE: AS PER APPROVED DRG./FINISH: DEFECT FREE	O.S	V RR	

LEGEND : A:CRITICAL,B:MAJOR,C:MINOR;M:MEASUREMENT,V:VISUAL,T:TEST,RR:RECORD REVIEW,P.R: PROCESS RECORD,T.C:TEST CERTIFICATE,T.R.:TEST REPORT,O.S:OBSERVATION SHEET; QA DOCUMENTATION ; M:MANUFACTURER/SUB CONTRACTOR, C: SUPPLIER,I:BHEL/INSPECTION AGENCY (P:PERFORM,W: WITNESS & V: VERIFICATION AS APPROPRIATE,CHP :CUSTOMER'S HOLD POINT;+++ SUPPLIER'S SPECIFICATION TO BE APPROVED BY BHEL, *SP (SAMPLING PLAN) AS PER IS:2500,PART I,AQL : 0.65, GENERAL INSPECTION LEVEL -II,SINGLE SAMPLING PLAN (REDUCED INSPECTION;TABLE-2C)**

		 PRODUCT STANDARD SWITCHGEAR ENGINEERING DIVISION	SG12913 REV.04 PAGE 10 OF 10																			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to interest of Co.	 QUALITY PLAN FOR INDOOR RESIN CAST POTENTIAL TRANSFORMERS (3.3 kV to 33 kV)	QP NO. : QAQC/SCR/15/053 REV. : 00 REVIEWED BY APPROVED BY DATE: 09.08.04 PAGE: 02 OF 02																				
	<table><tr><td>SL. NO.</td><td>COMPONENT & PROCESS</td><td>CHARACTERISTICS</td><td>CLASS</td><td>TYPE OF CHECK</td><td>QUANTUM OF CHECK</td><td>REFERENCE DOCUMENT</td><td>FORMAT OF RECORD</td><td>AGENCY</td><td>REMARKS</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>11</td></tr></table>	SL. NO.	COMPONENT & PROCESS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS	1	2	3	4	5	6	7	8	9	11	
	SL. NO.	COMPONENT & PROCESS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS												
	1	2	3	4	5	6	7	8	9	11												
	C. ROUTINE TESTS:																					
	1.00	FINISHED PT	a) OGA DIMENSION	B	M	AS PER SAMPLING PLAN(SP)***	BHEL'S APPROVED DRAWING	O.S.	P V													
			b) SIZE OF BASE PLATE	B	T			O.S.	P V													
	2.00	ELECTRICAL TESTING	a) TERMINAL MARKINGS & POLARITY	A	T	100%-C, SP-I	S-3156/ IEC-18	T.R.	P W	CHP												
			b) DETERMINATION OF ERROR	A	T	100%-C, SP-I		T.R.	P W	CHP												
			c) HV TEST	A	T	100%-C, SP-I		T.R.	P W	CHP												
		d) INDUCED VOLTAGE TEST ON PRIMARY WDG.	A	T	100%-C, SP-I	T.R.		P W	CHP													
		e) PARTIAL DISCHARGE TEST	A	T	100%-C, SP-I	T.R.		P W	CHP													
3.00	ADDITIONAL TESTS	AS PER BHEL'S P.O.	A	T	100%-C, SP-I		T.R.	P W	CHP													
D. TYPE TESTS(AS PER BHEL'S P.O.):																						
		a) IMPULSE	A	T		S3156 / IEC-18	T.R.	P W	CHP													
		b) TEMPERATURE RISE	A	T			T.R.	P W	CHP													
LEGEND : A:CRITICAL,B:MAJOR,C:MINOR;M:MEASUREMENT,V:VISUAL,T:TEST,RR:RECORD REVIEW,P,R: PROCESS RECORD,T,C:TEST CERTIFICATE,T.R.:TEST REPORT,O.S:OBSERVATION SHEET; QA DOCUMENTATION ; M:MANUFACTURER/SUB CONTRACTOR, C: SUPPLIER,I:BHEL/INSPECTION AGENCY (P:PERFORM,W: WITNESS & V: VERIFICATION AS APPROPRIATE,CHP :CUSTOMER'S HOLD POINT;*** SUPPLIER'S SPECIFICATION TO BE APPROVED BY BHEL, ***SP (SAMPLING PLAN) AS PER IS:2500,PART I,AQL : 0.65, GENERAL INSPECTION LEVEL -II,SINGLE SAMPLING PLAN (REDUCED INSPECTION; TABLE-2C)																						



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Cir. No.: IEEMA(PVC)/CTPT (R-1)/07/2026

July 2026

To: All members of Instrument Transformer division and respective PVC mailing list.
All utilities & listed purchasing organizations.

**Basic prices of raw materials, components used in the manufacture of Instrument Transformers prevailing
as on 1st working day of the month of July 2026
and all India average consumer price index number for May 2026**

This is for the application in IEEMA's Price Variation Clauses effective from 1st January 2021 as under:

- Instrument Transformers up to 72.5 KV using Polymer Insulator: IEEMA(PVC)/INST.TR_Polymer Insulator_upto 72.5 KV
- Instrument Transformers above 72.5 KV using Polymer Insulator: IEEMA(PVC)/INST.TR_Polymer Insulator_Above 72.5 KV
- Instrument Transformers up to 72.5 KV using Porcelain Insulator: IEEMA(PVC)/INST.TR_Porcelain Insulator_upto 72.5 KV
- Instrument Transformers above 72.5 KV using Porcelain Insulator: IEEMA(PVC)/INST.TR_Porcelain Insulator_Above 72.5 KV
- Capacitive Voltage Transformer: IEEMA(PVC)/INST.TR_CVT
- Dry type Instrument Transformers up to 72.5 KV : IEEMA(PVC)/INST.TR_Dry Type upto 72.5 KV

Sr. No.	Description	Price/Index	Variation over previous month
1.	LME ALUMINIUM : (AI) LME Average Settlement Price including Premium for Ingot for the month of July 2026	Rs. 3,69,091.00 /MT	(-) 27,341.00
2.	COPPER: (C) Average LME settlement price of copper wire bars for the month of June 2026 Average LME settlement price of copper wire bars for the month of July 2026	Rs. 13,66,071.00 /MT Rs. 13,58,414.00 /MT	(-) 2,359.00 (-) 7,657.00
3.	CRGO Electrical Steel Lamination (ES)	Rs. 6,13,082.00 /MT	+ 18,819.00
4.	WHOLESALE PRICE INDEX NUMBER (FE) * Wholesale price index number for 'Manufacture of Basic Metal' (Base:2022-23=100) for the Month May 2026	104.90	+ 1.40
5.	WHOLESALE PRICE INDEX NUMBER: (IN) * Wholesale price index number for 'Insulators' (Base: 2022-23=100) for the Month May 2026	122.50	+ 4.70
6.	Epoxy Resin Grade CT-5900 (ER)	Rs. 1,065.31 /Kg	+ 138.95
7.	Insulating Materials (IM) Pre-compressed pressboard of size 3mm thick C&F price converted into Indian Rupees	Rs. 1,447.75 /Kg	(-) 53.83
8.	TRANSFORMER OIL: (TO) Transformer Oil conforming to IS: 335-1993 supplied in drums (Ex-Refinery, Mumbai)	Rs. 2,16,212.00 /K.Ltr.	(-) 13,125.00
9.	CONSUMER PRICE INDEX NUMBER: (W) All India average consumer price index number for industrial workers (Base: 2016=100) for the month of May 2026	150.80	+ 0.90

* Refer Cir no.: 154/PVC/CLAR/02, dated 03 Jul 2026 for the change in base of WPI

QE/PVC/38 (R-06)
ISSUED DATE: 19.08.2026

Authorised Signatory

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