

**COMMENT RESOLUTION SHEET**

DRG / DOC TITLE		Dimension of GIS	
NTPC DRG / DOC NO.		9585-001-572-PVE-Y-0295	
Revision		0	
Reviewed By		NTPC	
Review Date / Location		29-04-2019 / NTPCEOC	
400kV GIS Switchyard			
SR. No.	Page No. / Clause No. / Sheet No.	NTPC Observations / Comments	Vendor Reply
1	Sheet 1	LCC Panel dimensions to be included.	Incorporated
2	Sheet 1	This document will be referred for Dimensions and weight only. For type of Material, Quantities and other details GTP will be referred. Kindly mention document the reference of GTP.	Noted and incorporated.
3	Sheet 1	Items like CT, PT and SA are the standard BOI of M/s Sieyuan. Any changes in the make of BOI and their dimensions in the approved GTP, this document will be revised by BHEL.	Noted.
4	Sheet 1	Size and Weight of Biggest unit to be handled by EOT crane need to be mentioned.	Incorporated
5	Sheet 1	This document need to be signed by M/s Sieyuan.	Incorporated

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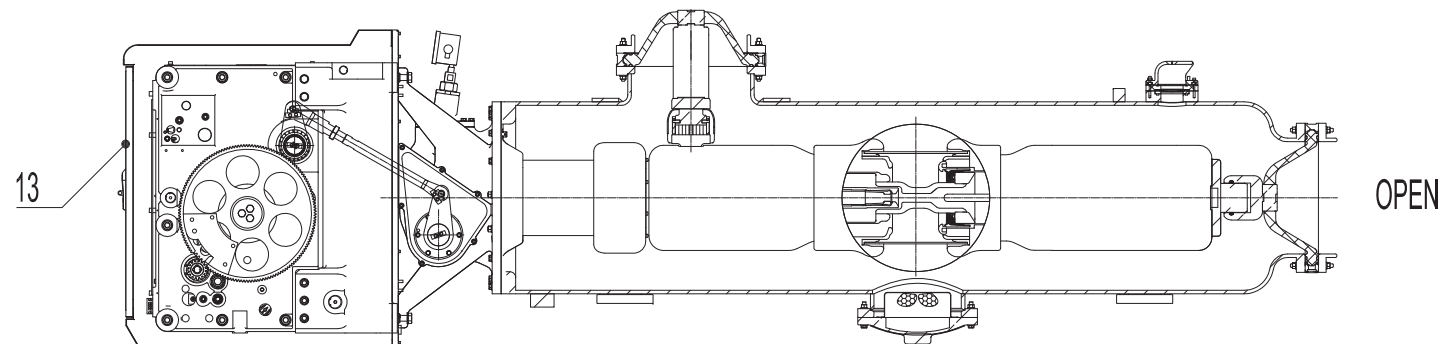
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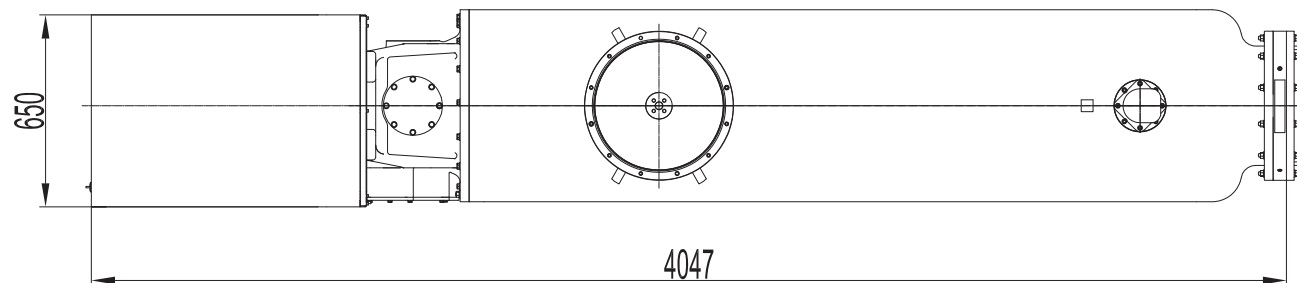
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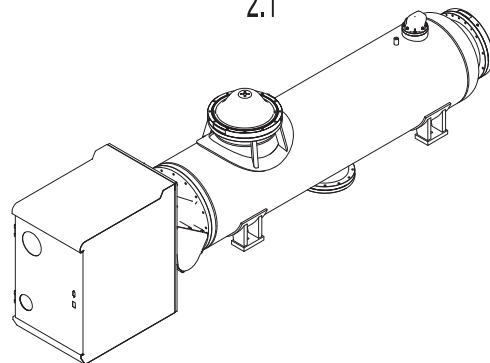
CLOSE



OPEN




Isometric View  
2:1



Notes: Cu : Copper W : Tungsten

PARAMETER OF CB			
Rated voltage	420 kV	Rated short time withstand current	63 kA
Rated current	4000 A	Rated peak withstand current	157.5 kA
Mass	1230 kg(Each pole)	Thickness of enclosure(min)	12 mm

CA. NO.		01/PVUNL-CS-9585-001-2/NOA-SC DATED 08/03/2018	
ADDITIONAL INFORMATION W.O.No.		PATRATU VIDYUT UTPADAN NIGAM LTD. PATRATRU SUPER THERMAL POWER PROJECT EXPANSION PHASE-I (3x800 MW)	
STATUS OF DRAWING		NAME OF CUSTOMER/PROJECT	
DISTRIBUTION OF PRINTS		 भारत हेवी इलेक्ट्रिकल्स लिमिटेड भारतीया विद्युत उत्पादन निगम BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION	
REV.	DATE	ALTERED CHECKED APPROVED	HONGKONG FAN YEANGDONG YEATHAO CAO
01	29/04/2019		
ZONE	DIMENSION DEPT. कोड CODE		उल्लापत / SCALE कर्ह कोड CARD CODE
Revise the drawings as the comments dated on 29/04/2019		धोषिक/TITLE Siewyan Electric Co., Ltd.	
DIMENSIONS OF GIS		ड्राईंग.नं./DRAWING NO. 9585-001-572-P15-12056 पुढील ड्रा.नं./SHEET NO. 02	
		पुढील ड्रा.नं./SHEET NO. 02 उगमा पुढील/NEXT SHEET 03	

Technical drawing of a mechanical assembly, likely a pump or valve component, showing a side view. The drawing includes dimensions: a vertical dimension of 652 and a horizontal dimension of 1443. Numbered callouts (1 through 7) point to specific features of the assembly.

Diagram illustrating the 'OPEN' position of the valve. The handle is rotated 90 degrees clockwise from the 'CLOSE' position, moving the internal plug to the right and allowing flow from the bottom inlet to the top outlet.

CLOSE

Isometric View

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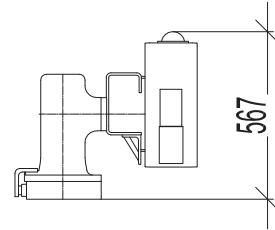
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inspection window  
for DS

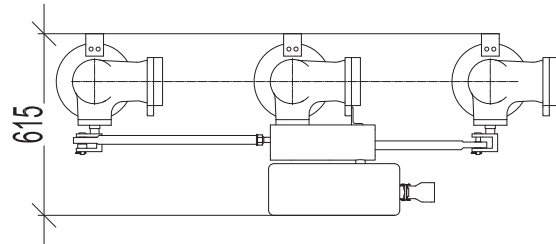
MATERIAL LIST				
No.	Description	Material Type	Unit	Qty.
1	Cover	Aluminum	nos.	3
2	Enclosure	Aluminum	nos.	1
3	Moving contact	Aluminum(silver plating)	set	3
4	Supporting seat	Aluminum	set	3
5	Disconnecter contact	Copper(silver plating)	set	3
6	Supporting seat	Aluminum	set	3
7	Basin insulator	Epoxy resin	nos.	6
8	Motor mechanism	/	set	1
9	Nameplate	Stainless steel	set	1
PARAMETER OF DS				
Rated voltage	420 kV	Rated short time withstand current	63 kA	
Rated current	4000 A	Rated peak withstand current	157.5 kA	
Mass	680 kg	Thickness of enclosure(min)	8 mm	

			CA NO.		01/PV/UNL-CS-9585-001-2/NOA-SC DATED 08/03/2018						
			ADDITIONAL INFORMATION W.O.No.		ग्राहक/परियोजना का नाम PATRATU VIDYUT UTPADAN NIGAM LTD. PATRATU SUPER THERMAL POWER						
			STATUS OF DRAWING		NAME OF CUSTOMER/PROJECT PROJECT EXPANSION PHASE-I (3x800 MW)						
			DISTRIBUTION OF PRINTS		<div>भारत हेवी इलेक्ट्रिकल्स लिमिटेड ट्रांसमिशन परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION</div> <div><div>ड्राइंग DRAWN चेक CHECKED एप्रूव APPROVED</div><div>नाम /NAME HG FAN यो दोंग YO DONG यी काओ YE CAO</div><div>हस्ता /SIGN. 14-04-2019</div><div>दि./DATE 14-04-2019</div></div>						
REV.	DATE	ALTERED	REV.	DATE	ALTERED	डिप्ट. DEPT. कोड CODE	अनुपात / SCALE	कार्ड कोड CARD CODE	VENDOR Sieyuan Electric Co., Ltd.		
		CHECKED	01	29/04/2019	Yashang DONG				ड्राइंग नं./DRAWING NO.		
		APPROVED			Yashao CAO				NTPC ORG NO. 9585-001-572P/E-1-0295		
ZONE	Revise the drawings as the comments dated on 29/04/2019					शीट नं./TITLE DIMENSIONS OF GIS		BHEL ORG NO.		पुनः/REV.	
								पृष्ठ नं./SHEET No. 03		अगला पृष्ठ/NEXT SHEET 04	

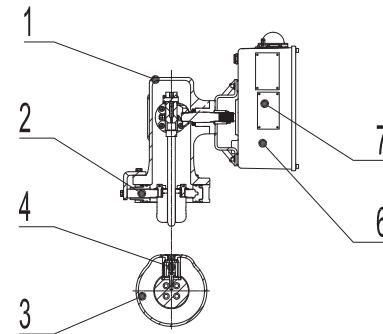
COMPUTER DRG. PATH NAME :	SIGN. & DATE	REF. DRG. No.



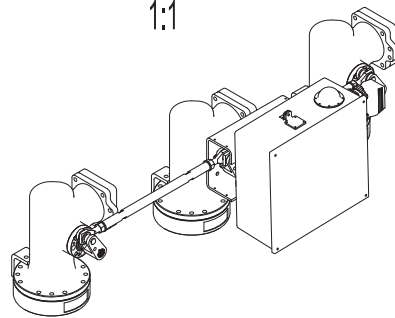
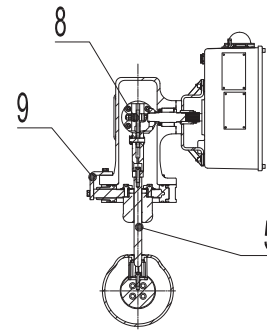
## Section View



OPEN



CLOSE



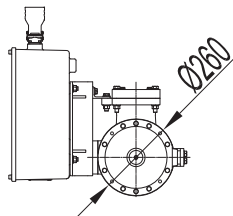
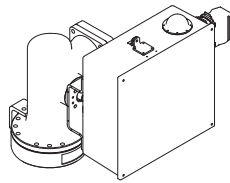
MATERIAL LIST				
No.	Description	Material Type	Unit	Qty.
1	Enclosure	Aluminum	nos.	1
2	Basin insulator	Epoxy resin	nos.	1
3	Conductor	Aluminum	set	1
4	Disconnecter contact	Copper(silver plating)	set	1
5	Moving contact	Aluminum(silver plating)	set	1
6	Motor mechanism	/	set	1
7	Nameplate	Stainless steel	set	1
8	Insulator plate	Epoxy resin	set	1
9	Earthing plate	Cu	set	1
PARAMETER OF ES				
Rated voltage		420 kV	Rated short time withstand current	
			63 kA	
Rated current		4000 A	Rated peak withstand current	
			157.5 kA	
Mass		180 kg	Thickness of enclosure(min)	
			10 mm	

REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED
ZONE			ZONE			ZONE			ZONE			ZONE			ZONE			ZONE		
																		01	29/04/2019	Honggang FAN Yuanqing ZONG Yaozhao CAO
																		Revise the drawings as the comments dated on 29/04/2019		

CA NO.				01/PVUNL-CS-9585-001-2/NOA-SC DATED 08/03/2018									
ADDITIONAL INFORMATION W.O.No.				ग्राहक/परियोजना का नाम				PATRATRU VIDYUT UTPADAN NIGAM LTD. PATRATRU SUPER THERMAL POWER					
STATUS OF DRAWING				NAME OF CUSTOMER/PROJECT				PROJECT EXPANSION PHASE-I (3x800 MW)					
DISTRIBUTION OF PRINTS				<div>भारत हेवी इलेक्ट्रिकल्स लिमिटेड भारतीय भारीयोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION</div>				ड्राइंग DRAWN	नाम /NAME HG FAN	हस्ता./SIGN. [Signature]	दि./DATE 11/04/2019		
								चेक CHECKED	YQ DONG	11/04/2019			
								स्वीकृत APPROVED	YZ CAO	11/04/2019			
REV.	DATE	ALTERED	Honggang FAN	विभाग	VENDDOR								
01	2304/2019	CHECKED	Yuangdong GAO	DEPT.	Sieyuan Electric Co., Ltd.								
ZONE		APPROVED	Yaozhao CAO	कोड									
				कोड									
				चौकण/TITLE	डाईग्रा. नं./DRAWING NO.								
					NTPC DRG NO. 9985-00157-2P/E-12095								
					BHEL DRG NO.								
Revise the drawings as the comments dated on 2304/2019				पृष्ठ नं./SHEET NO. 04		अगला पृष्ठ/NEXT SHEET 05							
DIMENSIONS OF GIS													

Technical drawing of the front view of the machine. It shows a vertical dimension of 576 mm. The machine has a rectangular body with a circular component on the right side and a vertical rod extending upwards from the top center.

1:1



The image contains two technical diagrams of a lock mechanism, labeled 'OPEN' and 'CLOSE'.



**OPEN Position:** This diagram shows the internal components of the lock when it is open. The handle (1) is in a horizontal position. The bolt (2) is retracted into the housing (3). The internal mechanism (4) is visible. The handle is connected to the bolt via a linkage (5). The handle has a rectangular window (6) and a keyhole (7). The handle is mounted on a base (8). The handle is labeled with the number 1. The handle is connected to the bolt via a linkage (5). The handle has a rectangular window (6) and a keyhole (7). The handle is mounted on a base (8).

**CLOSE Position:** This diagram shows the internal components of the lock when it is closed. The handle (1) is in a vertical position. The bolt (2) is extended from the housing (3). The internal mechanism (4) is visible. The handle is connected to the bolt via a linkage (5). The handle has a rectangular window (6) and a keyhole (7). The handle is mounted on a base (8).

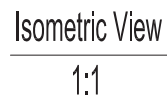
PARAMETER OF FES			
Rated voltage	420 kV	Rated short time withstand current	63 kA
Rated current	4000 A	Rated peak withstand current	157.5 kA
Mass	90 kg / Each pole	Thickness of enclosure(min)	10 mm

Rated voltage	420 kV	Rated short time withstand current	63 kA
Rated current	4000 A	Rated peak withstand current	157.5 kA
Mass	90 kg / Each pole	Thickness of enclosure(min)	10 mm

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CA NO.					
ADDITIONAL INFORMATION W.O.No.			ग्राहक/परियोजना का नाम PATRATRU VIDYUT UTPADAN NIGAM LTD. NAME OF CUSTOMER/PROJECT PATRATRU SUPER THERMAL POWER PROJECT EXPANSION PHASE-4 (3x800 MW)		
STATUS OF DRAWING					
DISTRIBUTION OF PRINTS			 भारत हेवी इलेक्ट्रिकल्स लिमिटेड भारतीया परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION		
REV.	DATE	ALTERED HONGGANG FAN CHECKED YUANDING DONG APPROVED YATBAO CAO	 उलुपात / SCALE DEPT. कोड CODE	खसका DRAWN HG FAN चेक CHECKED YZ CAO स्वीकृत APPROVED	नाम /NAME HG FAN हस्ता /SIGN. 15/04/2019 15/04/2019 11/04/2019
01	29/04/2019			VENDOR Sieyuan Electric Co., Ltd.	
ZONE	धारण/TITLE Revise the drawings as the comments dated on 29/04/2019		ड्राईंग नं./DRAWING NO. WPC DRG. NO. 9585401-572P/E-42055 BHEL DRG. NO. पुनः/REV. पुनः क्र./SHEET NO. 05 अगला पुनः/NEXT SHEET 06		
DIMENSIONS OF GIS					

COMPUTER DRG. PATH NAME :	SIGN. & DATE	REF. DRG. No.



MATERIAL LIST				
No.	Description	Material Type	Unit	Qty.
1	Enclosure	Aluminum	nos.	1
2	Conductor	Aluminum	nos.	1
3	Conductor contact	Aluminum	nos.	1
4	Basin insulator	Epoxy resin	nos.	1
PARAMETER OF BUS				
Rated voltage	420 kV	Rated short time withstand current	63 kA	
Rated current	4000 A	Rated peak withstand current	157.5 kA	
Mass	65 kg / m	Thickness of enclosure(min)	6 mm	

[illegible]

CA NO.					
ADDITIONAL INFORMATION W.O.No.		प्राइव्हाट/परियोजना का नाम		PATRATU VIDYUT UTPADAN NIGAM LTD.	
STATUS OF DRAWING		NAME OF CUSTOMER/PROJECT		PATRATU SUPER THERMAL POWER PROJECT EXPANSION PHASE-I (3x800 MW)	
DISTRIBUTION OF PRINTS		 भारत हेवी इलेक्ट्रिकल्स लिमिटेड ट्रांसमिशन परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION		कर्माचारी / NAME HGFAN जांचा / CHECKED YD DONG स्वीकृत / APPROVED YD CAO	
REV.	DATE	ALTERED	डिजाइन / DEPT.	उत्पाद / SCALE	कार्ड कोड / CARD CODE
01	29042019	Hongyang FAN Yuesheng DONG Yaozhao CAO	कोड / CODE		
ZONE		शीट का / TITLE		VENDOR Siyeyuan Electric Co., Ltd.	
Review the drawings as the comments dated on 29042019		ड्राइंग क्र. / DRAWING NO. NTPC DRG NO. 9986-011-0724P16-02036		पुनः / REV	
		शीट क्र. / SHEET NO. 06		पुनः / NEXT SHEET 07	
		DIMENSIONS OF GIS			



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It must not be used directly or indirectly in anyway detrimental to the interest of the company.

COMPUTER DRG. PATH NAME :

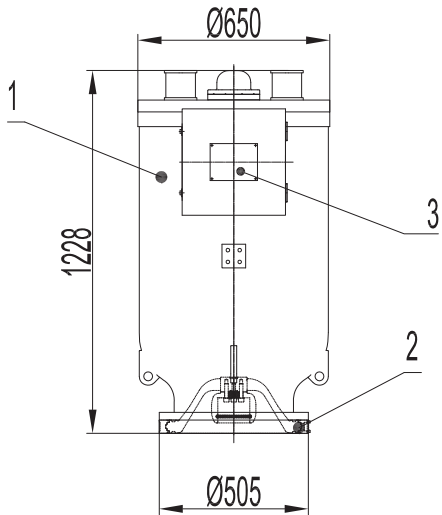
REF. DRG. No.

SIGN. & DATE

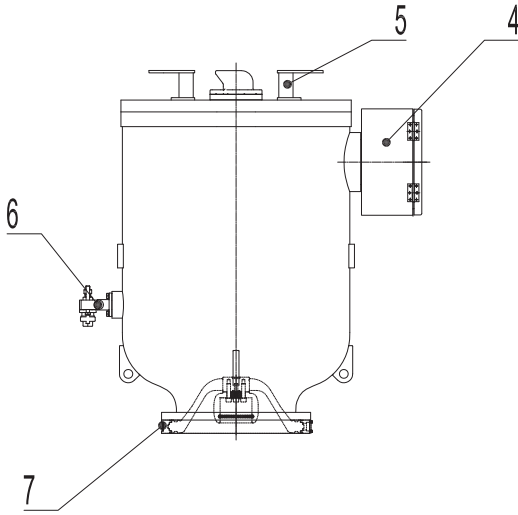
INVENTORY No.

DRAWING No. 9686-001-572-PT-E-Y-0296

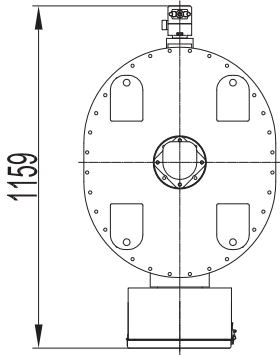
420kV PT



Front View

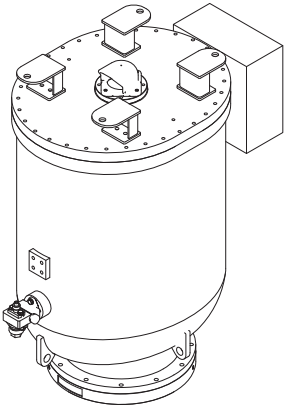


Section View





Plan View

Isometric View  
1:1



MATERIAL LIST					
No.	Description	Material Type	Unit	Qty.	
1	Enclosure	Aluminum	nos.	1	
2	Basin insulator	Epoxy resin	nos.	1	
3	Nameplate	Stainless steel	set	1	
4	Wiring box (IP 55)	Steel	nos.	1	
5	Support leg	Steel	set	1	
6	Gas valve	Aluminum	set	1	
7	Mechanical shock recorders		set	1	
PARAMETER OF PT					
Rated voltage		420 kV	Rated frequency		50 Hz
Mass		600 kg	Thickness of enclosure(min)		8 mm

REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED										
ZONE					ZONE					ZONE					ZONE					ZONE					ZONE					ZONE														
12					11					10					9					8					7					6					5									

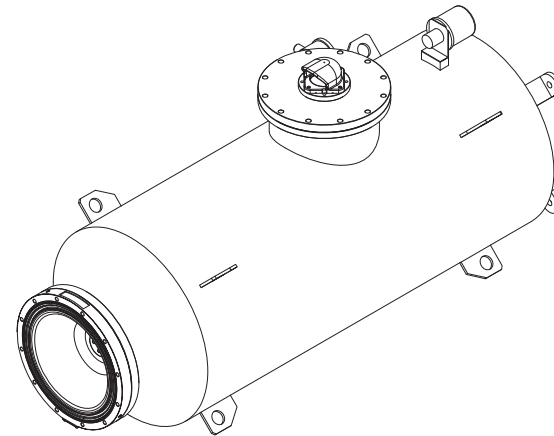
CA NO.														
ADDITIONAL INFORMATION W.O.No.			ग्राहक/परियोजना का नाम				PATRATU VIDYUT UTPADAN NIGAM LTD. PATRATU SUPER THERMAL POWER							
STATUS OF DRAWING			NAME OF CUSTOMER/PROJECT				PROJECT EXPANSION PHASE-I (3x800 MW)							
DISTRIBUTION OF PRINTS			<div>निराचडरता</div> <div></div> <div>भारत हेवी इलेक्ट्रिकल्स लिमिटेड भारत भारती परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION</div>				डिजाइन DRWNR		नाम / NAME HG FAN		हस्ता / SIGN. हस्ता		दि./DATE 15-04-2019	
			जिगा CHECKED		यु.डिंग YQ.DONG		पु.यु.चौ PU.YU.CHAU		15-04-2019					
			अनुमोदित APPROVED		यु.यु.चौ YU.YU.CHAU				15-04-2019					
REV. 01 DATE 29/04/2019 ALTERED CHECKED Yashdeep DONG APPROVED Yashdeep CAO			ग्राहक DEPT. कोड CODE		उत्पात / SCALE 		कार्ड कोड CARD CODE		VENDOR Sieyuan Electric Co., Ltd.					
ZONE			शीट/TITLE				ड्राफ्ट/क./DRAWING NO.					पुनर./REV.		
Revised the drawings as the comments dated on 29/04/2019			DIMENSIONS OF GIS				NTPC DRG NO. 9686-001-572-PT/E-Y-0296 BHEL DRG NO. 9686-001-572-PT/E-Y-0296							
							पृष्ठ क्र./SHEET No. 07					उपगता पृष्ठ/NEXT SHEET 08		



Technical drawing of the front view of a rectangular metal box. The drawing includes a central horizontal slot with a circular opening. On the left side, there is a vertical assembly with a circular component. On the right side, there is a vertical assembly with a circular component. The drawing is labeled with numbers 1 through 5 and a dimension Ø645.



Technical drawing of a rectangular plate with a total length of 2000. The plate features a central circular hole and four smaller rectangular holes, one in each corner. Mounting details are shown at the ends: a bracket-like assembly on the left and a series of three bolts on the right. A detail view of a bolt is labeled '6', and a detail view of a mounting bracket is labeled '7'.

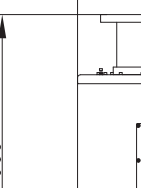
1:1



MATERIAL LIST				
No.	Description	Material Type	Unit	Qty.
1	Support leg	Steel	set	1
2	Counter	/	nos.	1
3	Enclosure	Aluminum	nos.	1
4	Basin insulator	Epoxy resin	nos.	1
5	Cover(including rupture disk)	/	nos.	1
6	Gas valve	Aluminum	set	1
7	Nameplate	Stainless steel	set	1
PARAMETER OF SA				
Rated voltage		390 kV	Rated frequency	50 Hz
Mass		330 kg	Thickness of enclosure(min)	8 mm

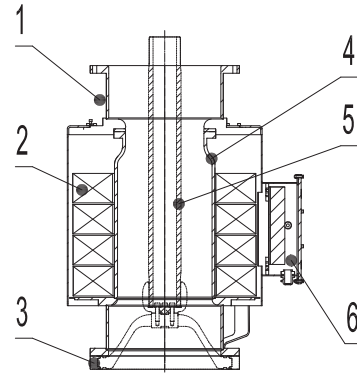
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ZONE			ZONE			ZONE			ZONE			ZONE			ZONE		
12			11			10			9			8			7		

CA NO.					
ADDITIONAL INFORMATION W.O.No.			ग्राहक/परियोजना का नाम PATRATRU VIDYUT UTPADAN NIGAM LTD. NAME OF CUSTOMER/PROJECT PATRATRU SUPER THERMAL POWER PROJECT EXPANSION PHASE-4 (3x800 MW)		
STATUS OF DRAWING					
DISTRIBUTION OF PRINTS			 भारत हेवी इलेक्ट्रिकल्स लिमिटेड भारतीया परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION		
REV.	DATE	ALTERED HONGGANG FAN	 DEPT. गोंड CODE	उलुपात / SCALE गोंड कोड CARD CODE	VENDOR Sieyuan Electric Co., Ltd.
01	29/04/2019	CHECKED Yuangding DONG APPROVED Yaozhao CAO			ड्राईंग नं./DRAWING NO. NTPC DRG. NO. 99584011572P/E-4205 BHEL DRG. NO.
ZONE	Revise the drawings as the comments dated on 29/04/2019		DIMENSIONS OF GIS		पुनः/REV. पुनः क्र./SHEET NO. 08 अगला पुनः/NEXT SHEET 08

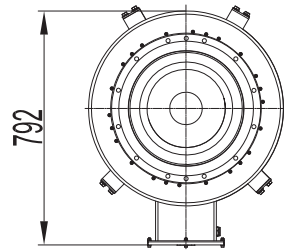


Front View

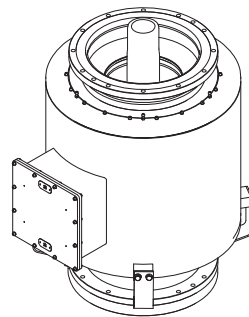
The front view of the machine base shows a rectangular structure with a total height of 983 and a top width of  $\varnothing 660$ . The base has a bottom width of  $\varnothing 505$ . A central square feature is labeled C3. A small detail on the right side is labeled p6. A dimension line on the right indicates a height of 7 for a specific feature.



### Section View



### Plan View



Isometric View

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1:1

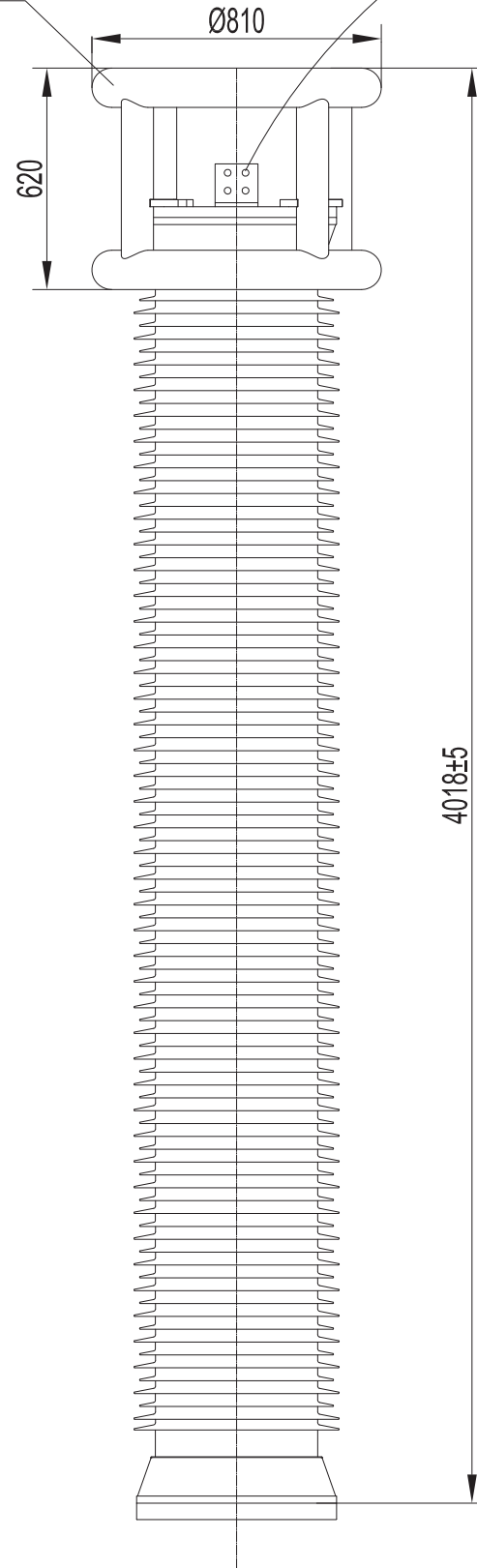
MATERIAL LIST				
No.	Description	Material Type	Unit	Qty.
1	Enclosure	Aluminum	nos.	1
2	Secondary cores	/	set	1
3	Basin insulator	Epoxy resin	nos.	1
4	Shielded canister	Aluminum	nos.	1
5	Conductor	Aluminum	nos.	1
6	Wiring box(IP 55)	Aluminum	nos.	1
7	Nameplate	Stainless steel	nos.	

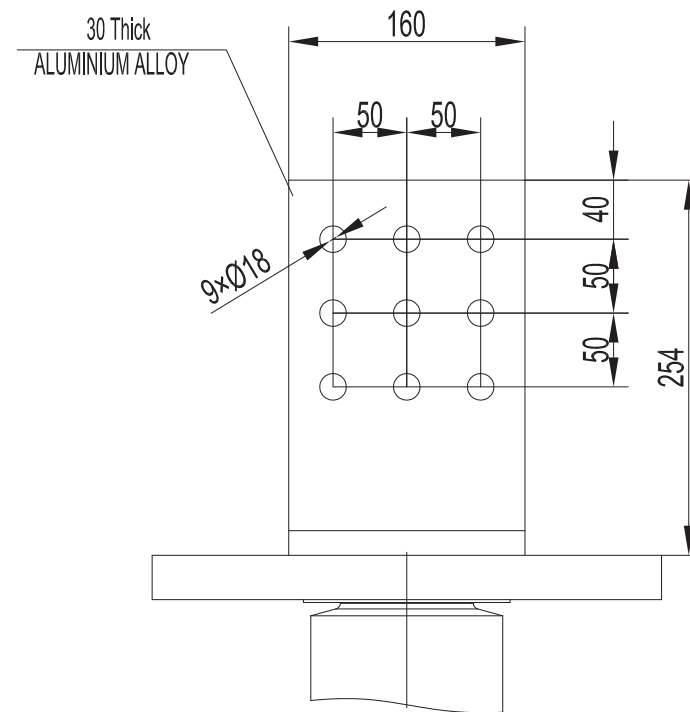
PARAMETER OF CT			
Rated voltage	420 kV	Rated frequency	50 Hz
Rated short-time withstand current	63 kA	Rated peak withstand current	157.5 kA
Mass	250 kg(Each pole)	Thickness of enclosure(min)	10 mm

[illegible]

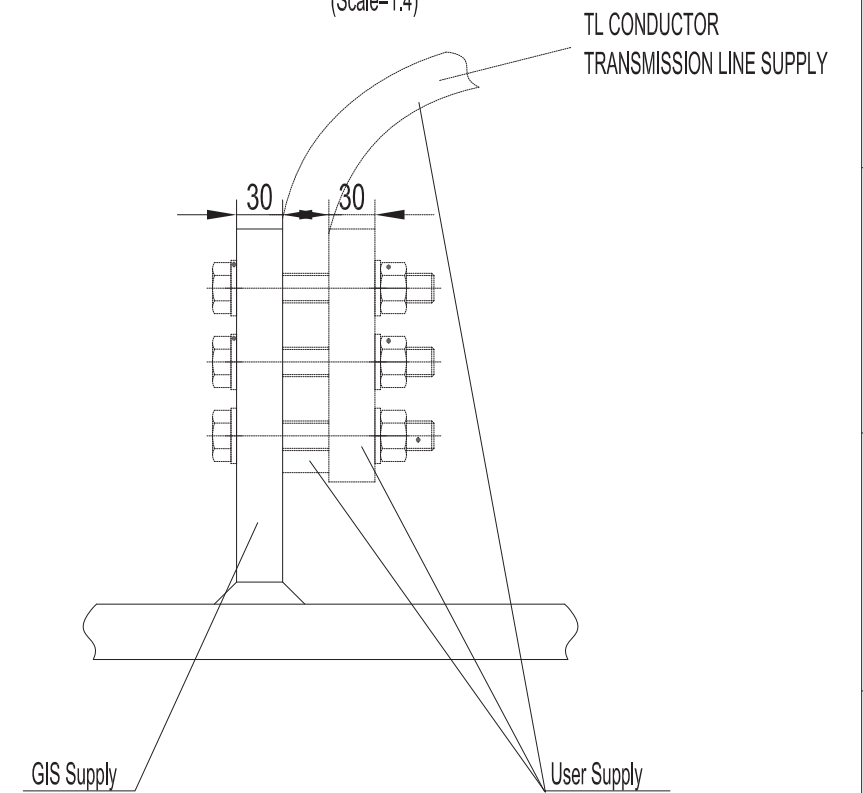
Equalizer ring



(Scale=1:4)



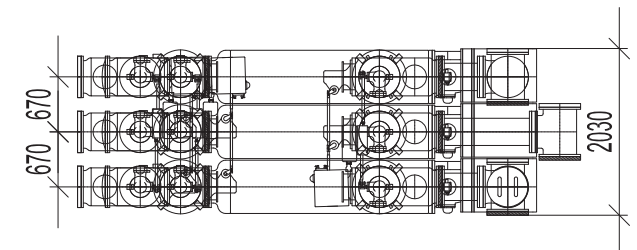
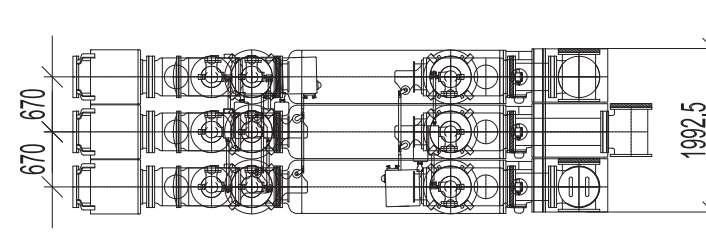
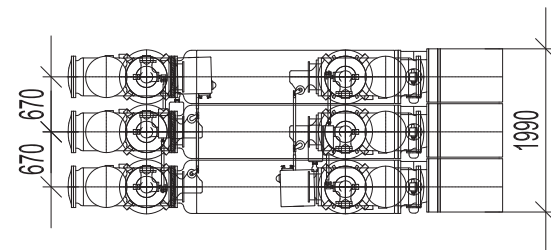
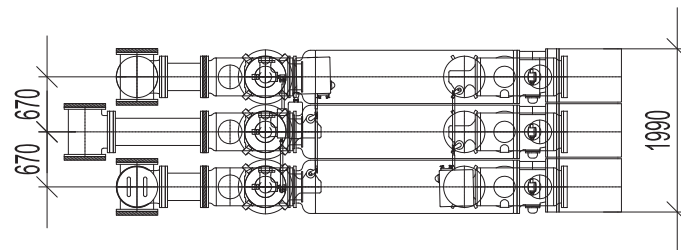
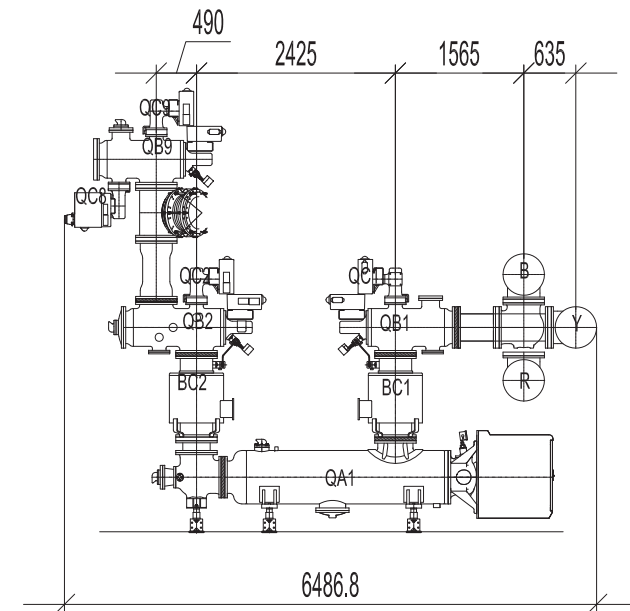
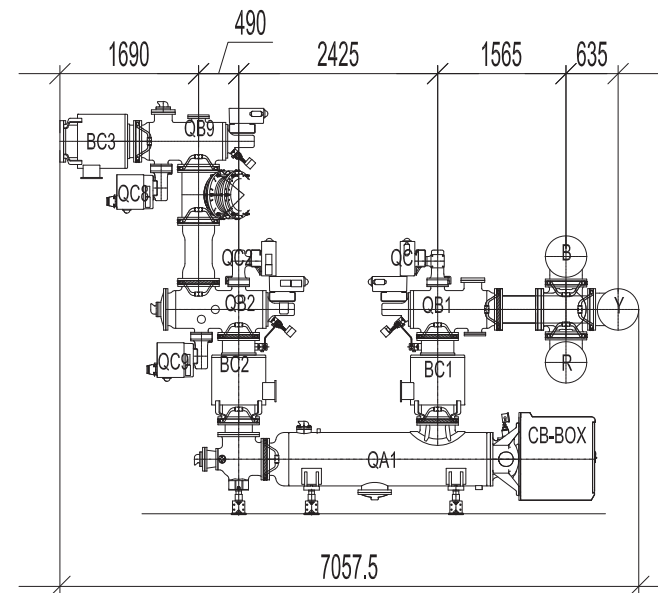
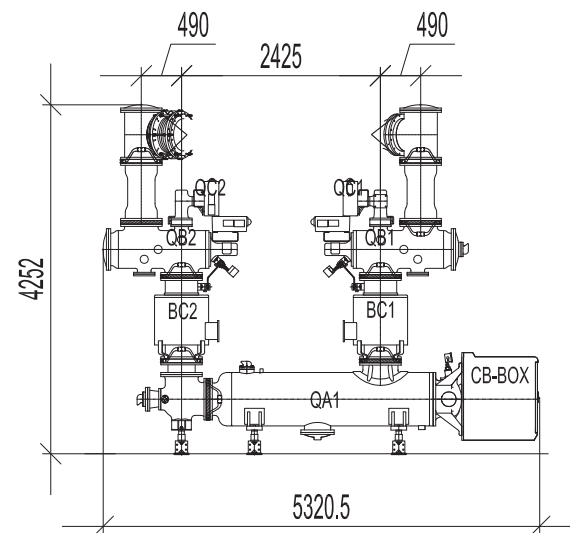
(Scale=1:4)



Parameter of SF6 to Air bushing	
Applicable Standard	IEC 60137
Material	Silicone Rubber
Weight	465 kg
Rated Power Frequency Withstand Voltage	=650kV
Rated Lightning Impulse Withstand Voltage	=1425kV
Creepage distance	=25mm/kV
Minimum total Creepage Distance	=11550mm
Altitude	≤1000 m
Rated Voltage(kV)	=420kV
Rated Current(A)	=3150A
Cantilever Strength (kN)	10 kN
Norminal pressure	=0.58MPa
Gas Re-fill pressure	=0.55MPa
Gas low pressure	=0.53MPa
Weight of SF6 gas	=24 kg

CA No.					
ADDITIONAL INFORMATION W.O.No.			आरुह्य/परियोजना का नाम PATRATRU VIDYUT UTPADAN NIGAM LTD. NAME OF CUSTOMER/PROJECT PATRATRU SUPER THERMAL POWER PROJECT EXPANSION PHASE I (3x80 MW)		
STATUS OF DRAWING			निर्यात डेवी इलेक्ट्रिकल्स लिमिटेड EXPORTER DEVI ELECTRICALS LTD. डाउनशिफान परियोजना शिवाग DOWNSHIFAN PROJECT DIVISION		
DISTRIBUTION OF PRINTS			BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION		
REV.	DATE	ALTERED CHECKED APPROVED	गिम्मा DEPT. कोड CODE	अनुपात / SCALE 	कर्ड कोड CARD CODE
01	2024/019	Harogang FAN Yashoo GAO			VENDOR Sieyuan Electric Co., Ltd.
ZONE	Revise the drawings as the comments dated on 29/04/2019		ड्राइंग/क./TITLE ड्राइंग/क./TITLE		पुनः/REV. 01
			DIMENSIONS OF GIS		ड्राइंग/क./DRAWING NO. NTPC DRG NO. 696-001-572P/6-14205 BHEL DRG NO.
			पुनः क./SHEET No. 10		अगला पुनः/NEXT SHEET 11





Bus Reactor Bay  
Bay 413 / Bay 415

[illegible]