

**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
2. SPECIFICATIONS AS PER IS:2713 (PART I TO III : 1980)
3. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE



**BHUTAN POWER CORPORATION LIMITED**

ENGINEERING AND RESEARCH DEPARTMENT

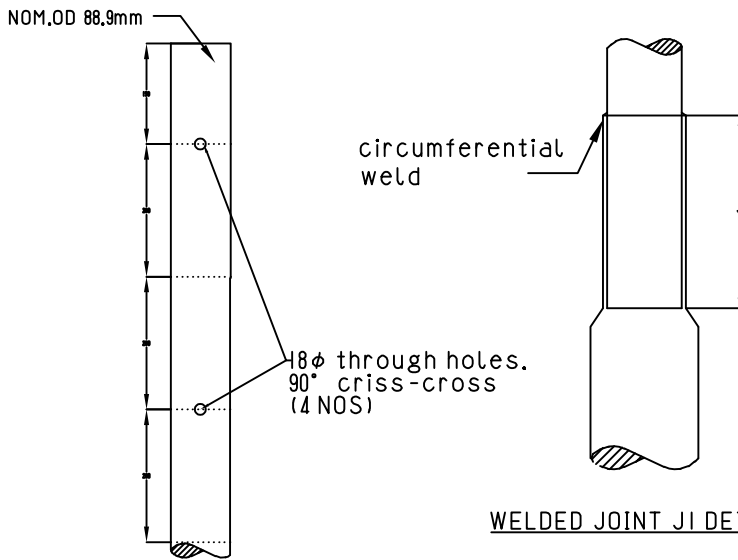
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

7.5 METERS SWAGED POLE ASSEMBLY

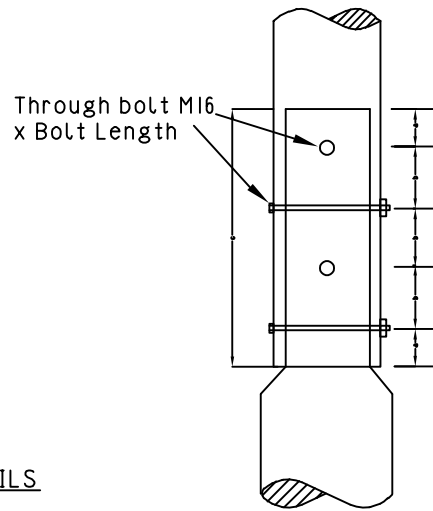
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-15/1-7

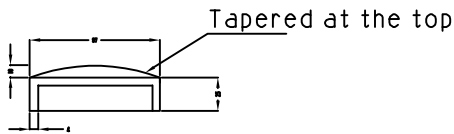
REVISION  
2022



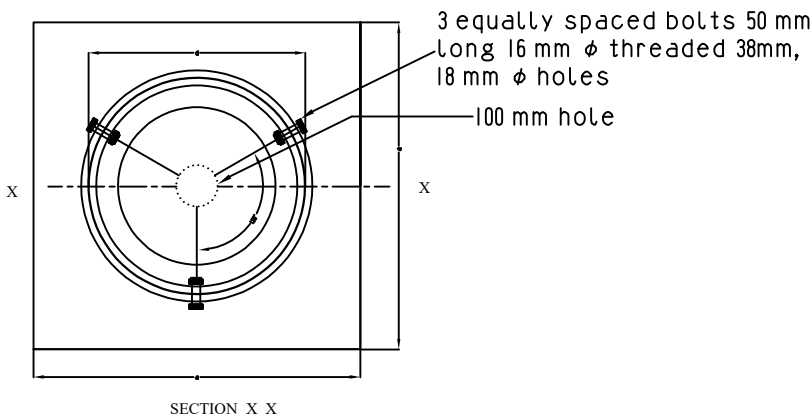
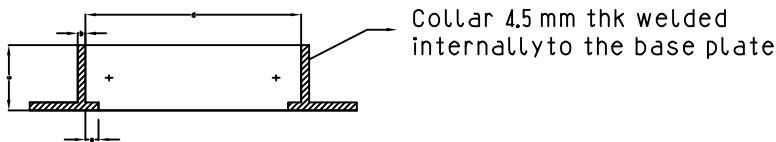
POLE TOP DETAILS



BOLTED JOINT J2 DETAILS



POLE CAP DETAILS (WELDED TO THE POLE)



DETAILS OF MS BASE PLATE (Seperately packed)

Pole Type		7.5 M (410-SP-9)	
Length		mm	7500
Top Segment	OD	mm	88.9
	Thickness	mm	3.25
	Length	mm	1500
Middle Segment	OD	mm	114.3
	Thickness	mm	3.65
	Length	mm	1500
Bottom Segment	OD	mm	139.7
	Thickness	mm	5.4
	Length	mm	4500
Joint J1	Welded Joint		
	d	mm	230
Joint J2	a	mm	45
	b	mm	70
	c	mm	300
	BL	mm	160
Planting Depth		mm	1250
Base plate details	a	mm	220
	b	mm	4.5
	c	mm	70
	d	mm	139.7
	e	mm	10

**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
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3. SPECIFICATIONS AS PER IS:2713 (PART I TO III : 1980)
4. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE



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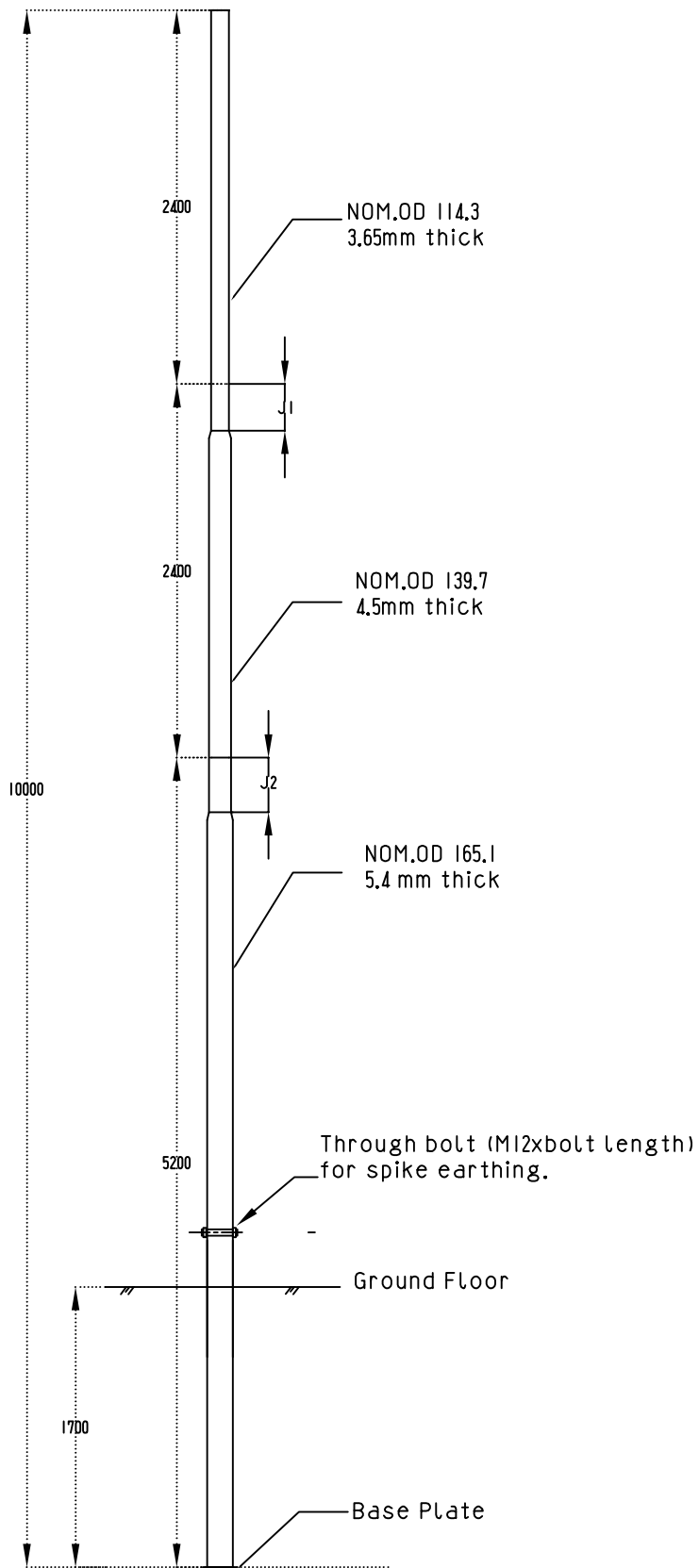
**DISTRIBUTION DESIGN & CONSTRUCTION STANDARD**

**7.5 METERS SWAGED POLE DETAILS**

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-15/2-7

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**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
2. SPECIFICATIONS AS PER IS:2713 (PART I TO III : 1980)
3. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE



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ENGINEERING AND RESEARCH DEPARTMENT

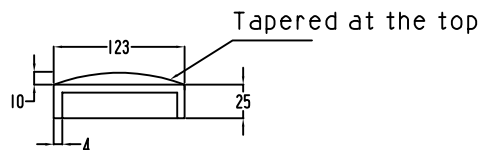
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

10 METER SWAGED POLE ASSEMBLY

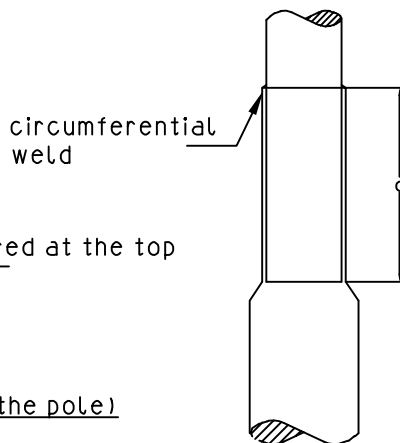
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-15/3-7

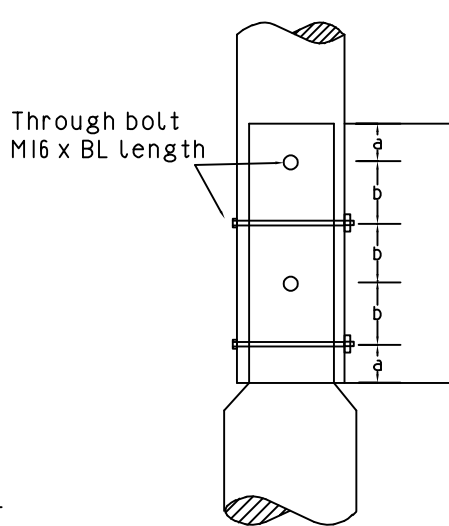
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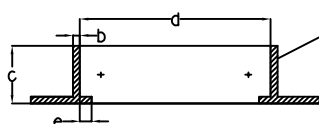
POLE CAP DETAILS (Welded to the pole)



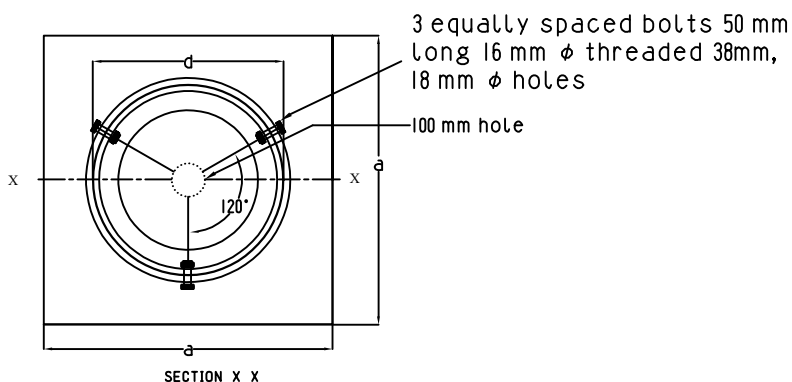
WELDED JOINT J1 DETAILS



BOLTED JOINT J2 DETAILS



Collar 4.5 mm thk welded internally to the base plate



DETAILS OF MS BASE PLATE (Seperately packed)

Pole Type		10 M (410-SP-45)	
Length		mm	10000
Top Segment	OD	mm	114.3
	Thickness	mm	3.65
Middle Segment	Length	mm	2400
	OD	mm	139.7
	Thickness	mm	4.5
Bottom Segment	Length	mm	2400
	OD	mm	165.1
	Thickness	mm	5.4
Joint J1	Welded Joint		
	d	mm	300
Joint J2	a	mm	55
	b	mm	80
	c	mm	350
	BL	mm	180
Planting Depth		mm	1700
Base plate details	a	mm	250
	b	mm	6
	c	mm	70
	d	mm	165.1
	e	mm	10

**NOTES**

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4. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE



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**ENGINEERING AND RESEARCH DEPARTMENT**

**DISTRIBUTION DESIGN & CONSTRUCTION STANDARD**

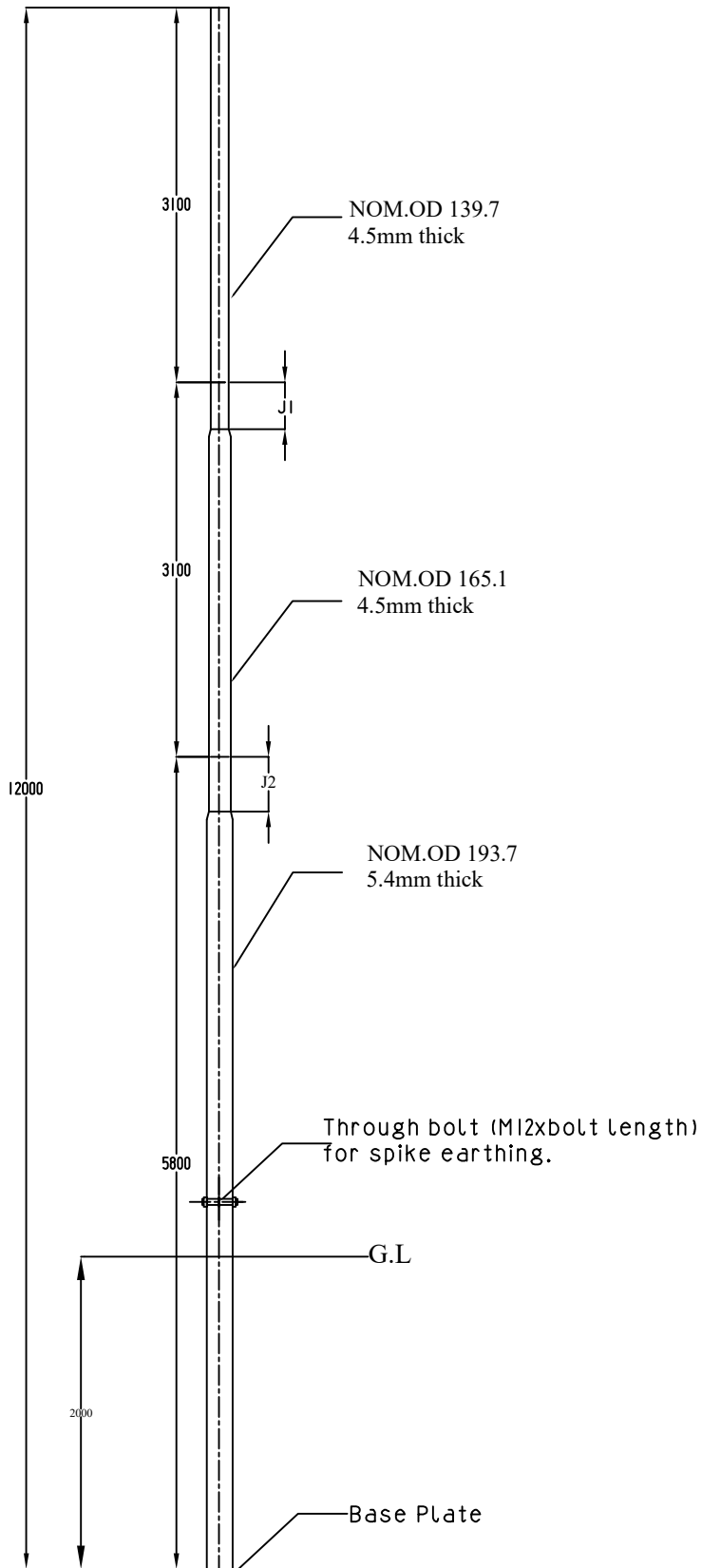
**10 METER SWAGED POLE DETAILS**

	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-15/4-7

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**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
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3. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE

450x450



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**ENGINEERING AND RESEARCH DEPARTMENT**

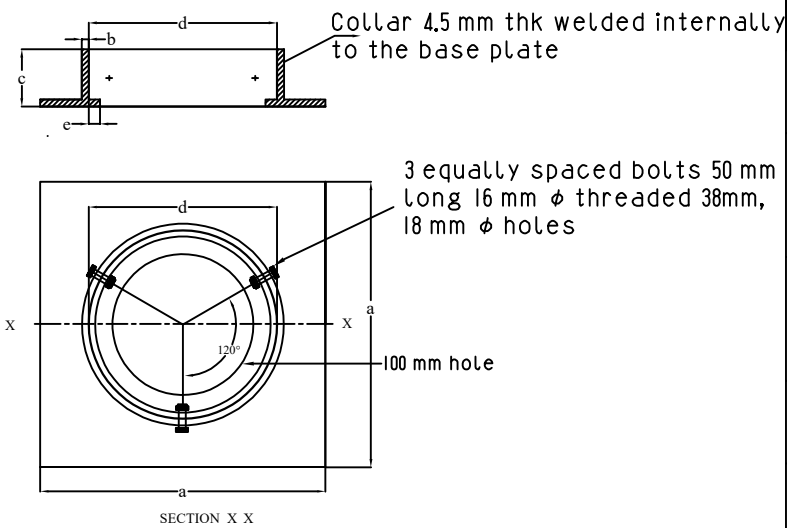
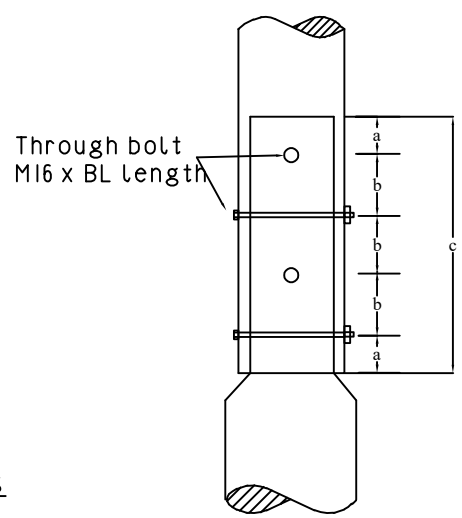
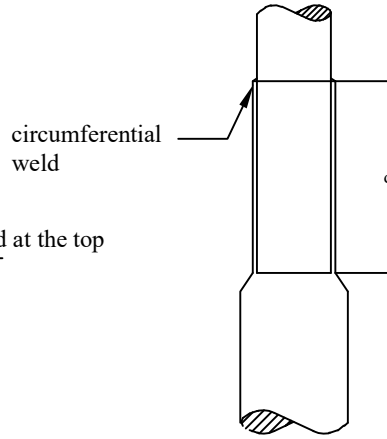
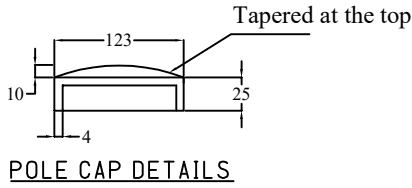
**DISTRIBUTION DESIGN AND CONSTRUCTION STANDARD**

**12 METERS SWAGED POLE ASSEMBLY**

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-15/5-7

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Pole Type			12 M (410-SP-62)
Length		mm	12000
Top Segment	OD	mm	139.7
	Thickness	mm	4.5
Middle Segment	Length	mm	3100
	OD	mm	165.1
	Thickness	mm	4.5
Bottom Segment	Length	mm	3100
	OD	mm	193.7
	Thickness	mm	5.4
Joint J1	Welded Joint		
	d	mm	350
Joint J2	a	mm	55
	b	mm	80
	c	mm	400
	BL	mm	180
Planting Depth		mm	2000
Base plate details	a	mm	250
	b	mm	6
	c	mm	50
	d	mm	193.7
	e	mm	10
BL for spike earthing		mm	210

**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.
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4. POLE TOP CAP -M.S. PLATE WOULD BE TAG WELDED TO THE POLE



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

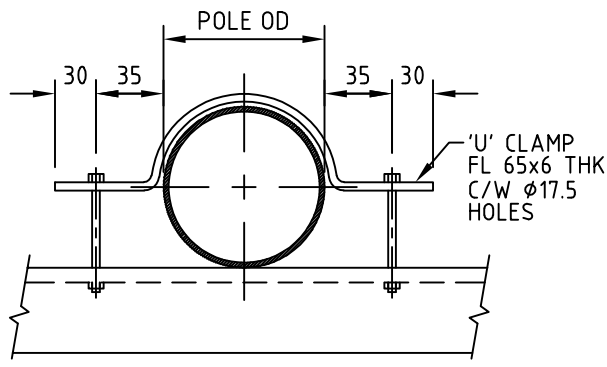
DISTRIBUTION DESIGN AND CONSTRUCTION STANDARD

12 METERS SWAGED POLE ASSEMBLY DETAILS

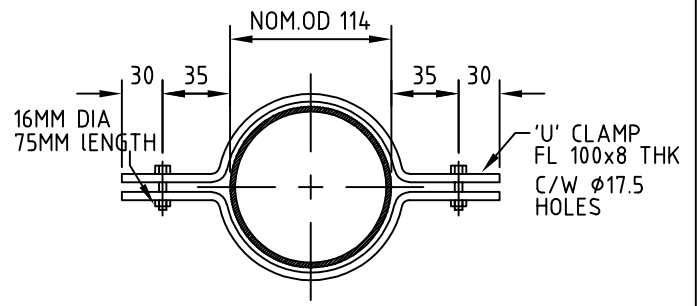
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DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-15/6-7

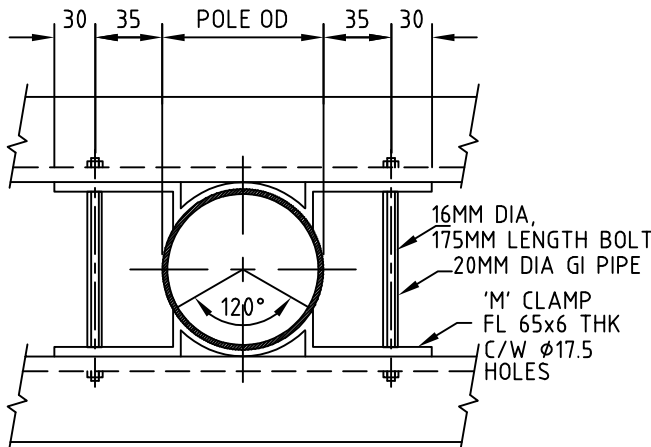
REVISION  
2022



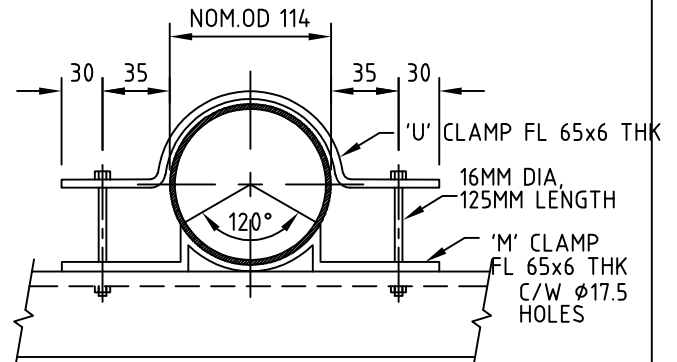
1 'U' CLAMP



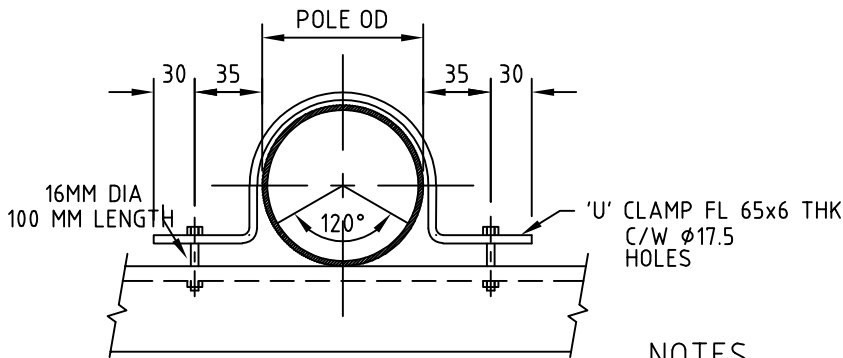
4 STAY CLAMP



2 'M' CLAMP



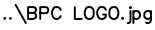
5 CROSS ARM CLAMP (U+M)

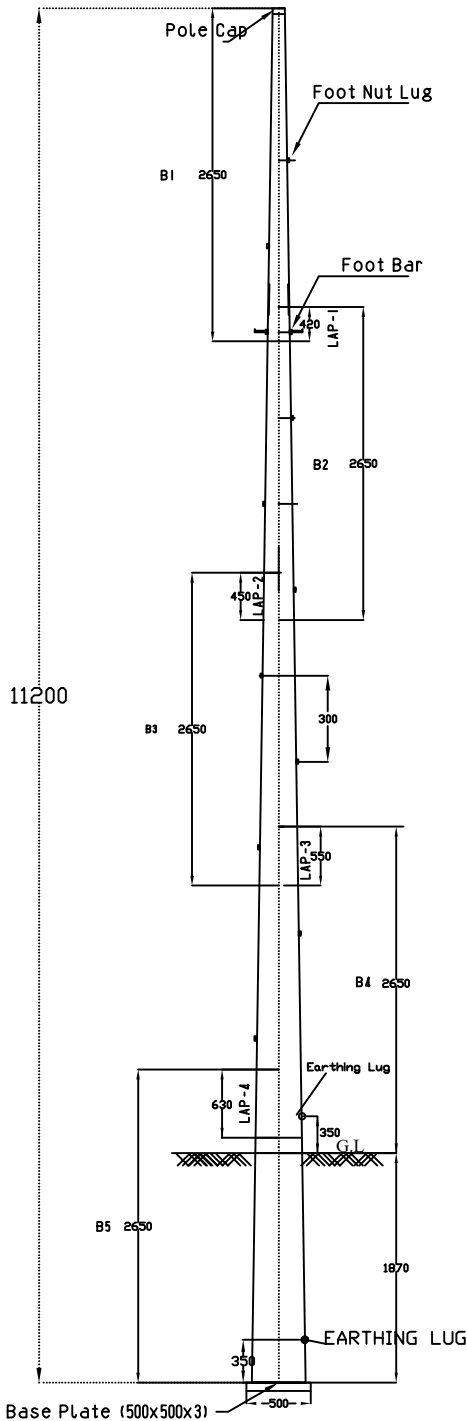


3 FULL CLAMP

NOTES

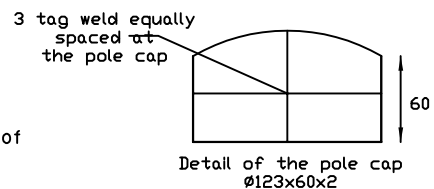
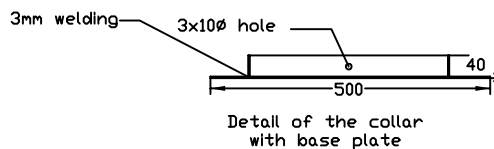
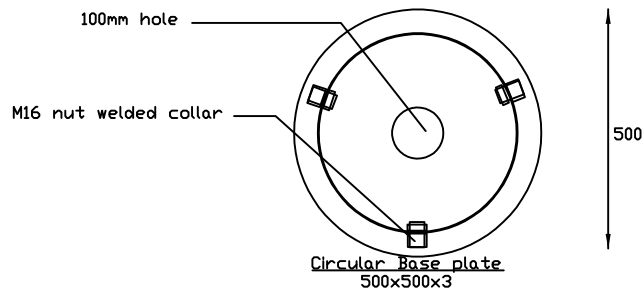
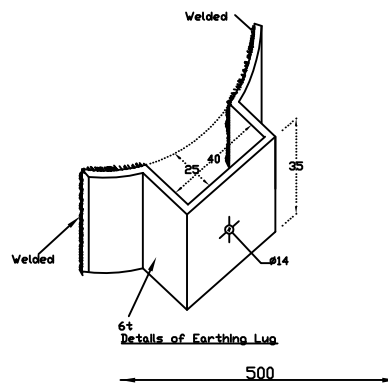
1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. ALL BOLTS TO BE  $\phi 16$  C/W NUTS & SPRING WASHERS.

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  33 & 11 KV CLAMP DETAILS FOR STEEL TUBULAR POLE	
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2022-15/7-7	REVISION 2022



PARAMETERS					
SECTION	B1	B2	B3	B4	B5
LENGTH(mm)	2650	2650	2650	2650	2650
THICKNESS(mm)	2.1	2.1	2.1	2.1	2.1
TOP DIAMETER(mm)	119	180	240	298	352
BOTTOM DIAMETER(mm)	197	258	318	375	430

OVERLAPS				
OVERLAPS	LAP-1 B1/B2	LAP-2 B2/B3	LAP-3 B3/B4	LAP-4 B4/B5
OVERLAPS	420	450	550	630



**Note:**

- \*All Parts shall be BS 4360: 1986 Grade 50 C and Galvanization as per IS 2629-1985 or BS 729-1971 or Equivalent National or International Standards and any revision thereof
- \*All Dimensions in mm
- \*Footing bar distance to be maintained at 300mm



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ENGINEERING AND RESEARCH DEPARTMENT

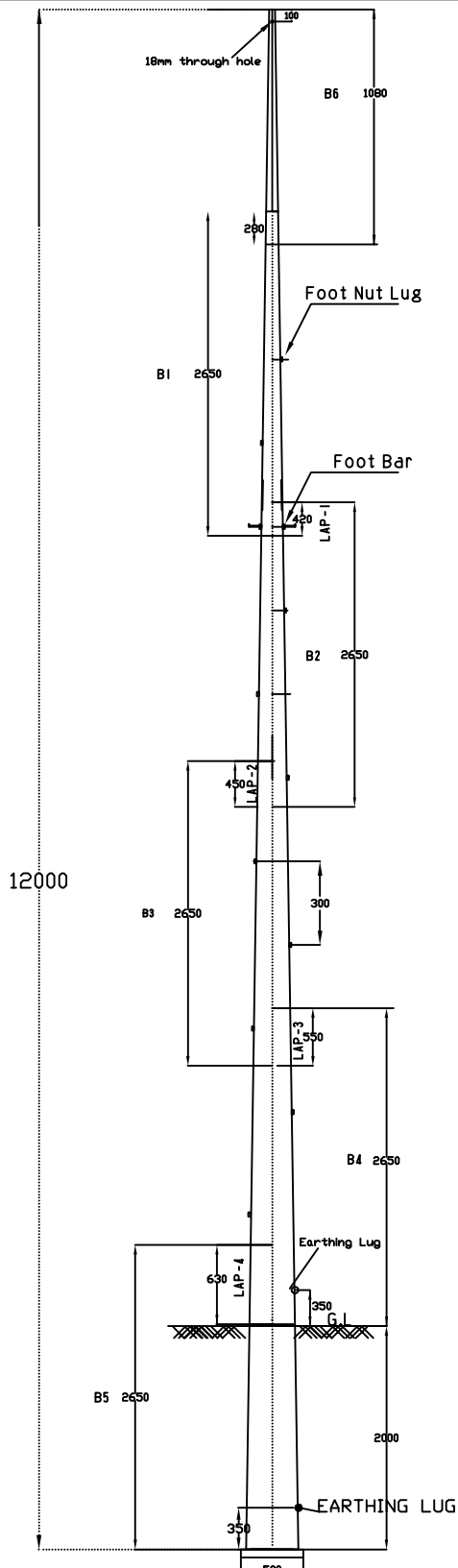
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

TELESCOPIC POLE DETAILS FOR 11.2M

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

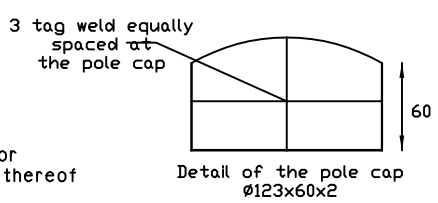
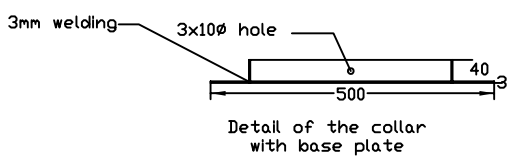
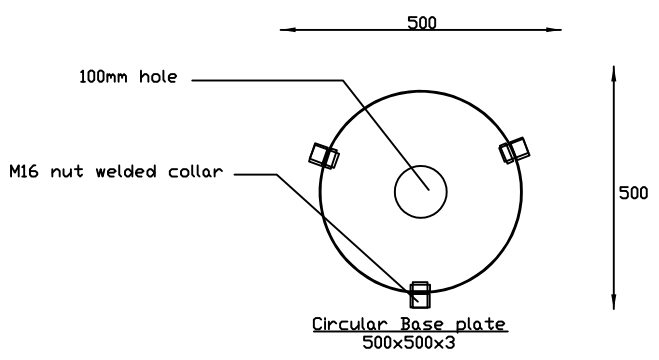
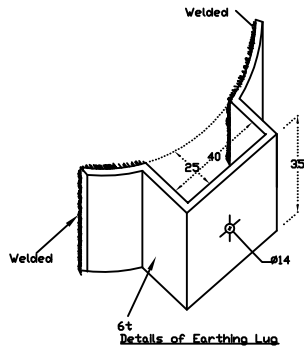
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PARAMETERS						
SECTION	B1	B2	B3	B4	B5	B6
LENGTH(mm)	2650	2650	2650	2650	2650	1080
THICKNESS(mm)	2.1	2.1	2.1	2.1	2.1	2.1
TOP DIAMETER(mm)	119	180	240	298	352	100
BOTTOM DIAMETER(mm)	197	258	318	375	430	132

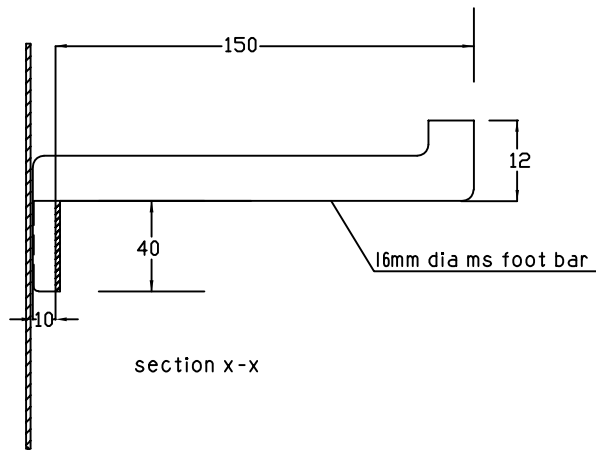
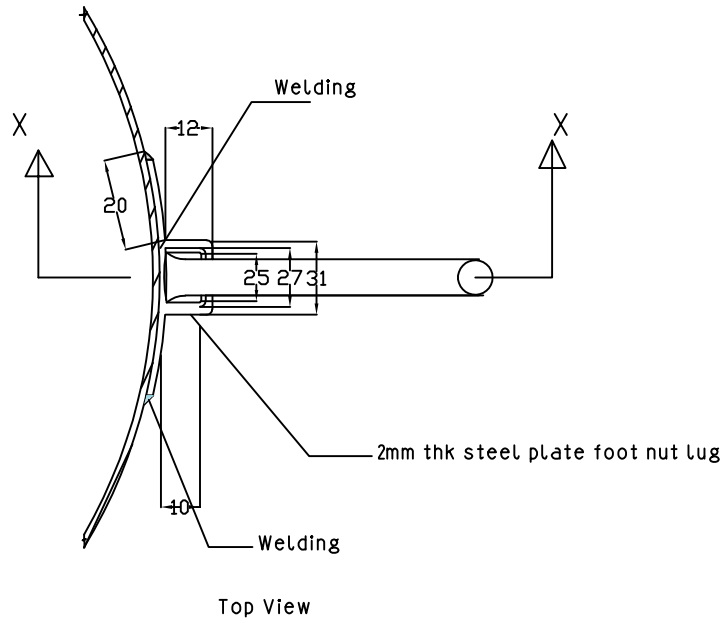
OVERLAPS					
OVERLAPS	LAP-1 B1/B2	LAP-2 B2/B3	LAP-3 B3/B4	LAP-4 B4/B5	LAP-5 B6/B1
OVERLAPS	420	450	550	630	280



Note:  
 \*All Parts shall be BS 4360: 1986 Grade 50 C and Galvanization as per IS 2629-1985 or BS 729-1971 or Equivalent National or International Standards and any revision thereof  
 \*All Dimensions in mm  
 \*Through hole dia 18mm at 100mm from the pole top for shielding wire  
 \*Footing bar distance to be maintained at 300mm

	<b>BHUTAN POWER CORPORATION LIMITED</b>		<b>ENGINEERING AND RESEARCH DEPARTMENT</b>	
			<b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b>	
<b>TELESCOPIC POLE DETAILS FOR 12M</b>				
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			<b>DRAWING NO. BPC-DDCS-2022-16/2-5</b>	<b>REVISION 2022</b>

Details of Footbar



NOTES

1. FERROUS PARTS HOT DIP GALVANIZED AS PER BS-729
2. DIMENSIONS AS SHOWN ARE IN mm.
3. TOLERANCE  $\pm 5\%$
4. DRAWING IS NOT TO SCALE.
5. FOUR NUMBERS PER POLE



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ENGINEERING AND RESEARCH DEPARTMENT

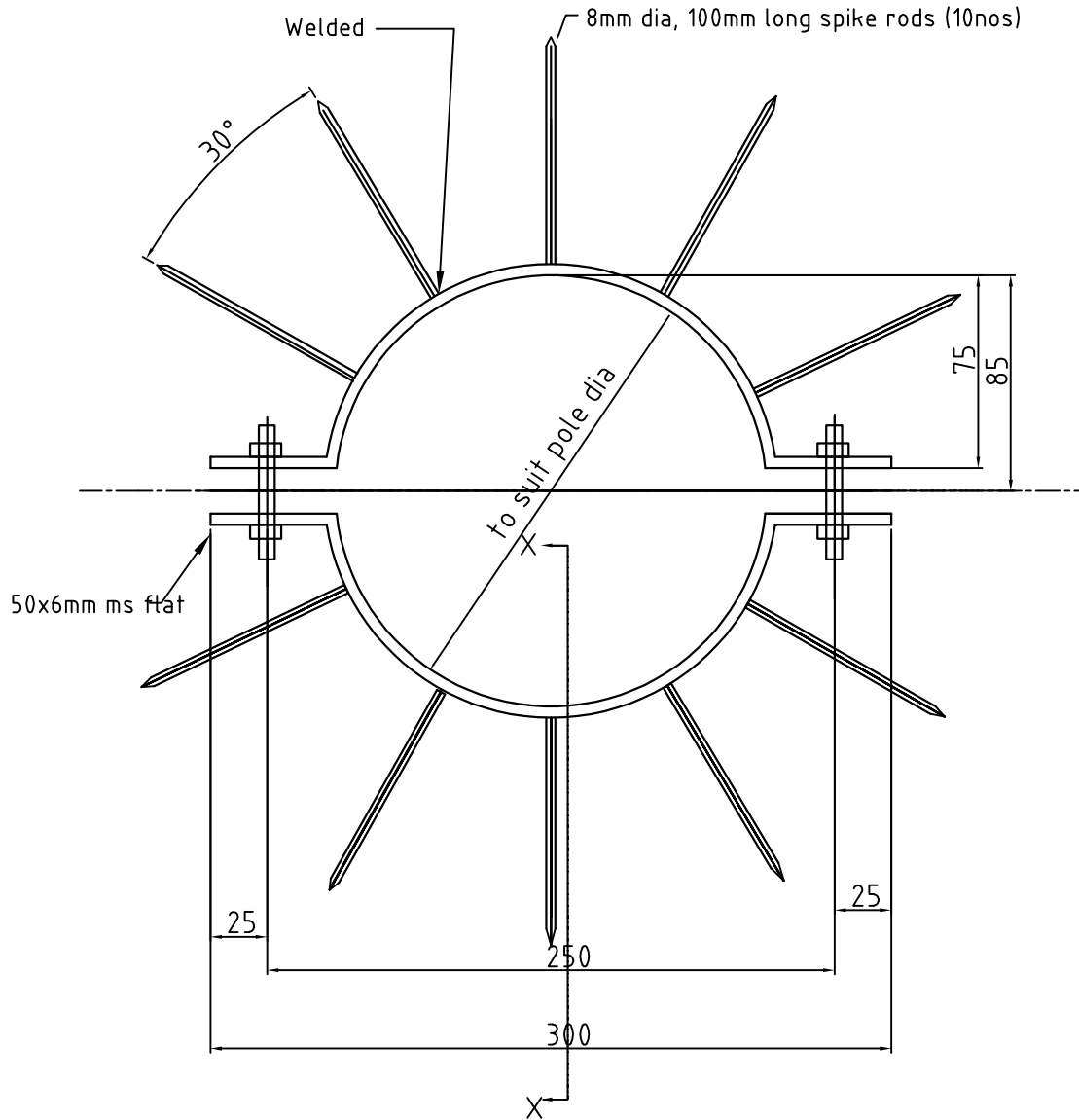
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

Foot Bar for Telescopic Pole

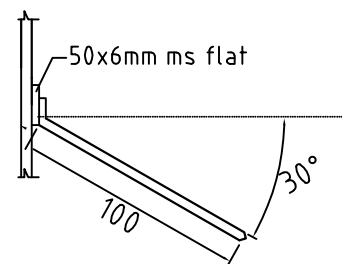
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2022



section X-X



NOTES

1. FERROUS PARTS HOT DIP GALVANIZED AS PER BS-729
2. DIMENSIONS AS SHOWN ARE IN mm.
3. TOLERANCE  $\pm 5\%$
4. DRAWING IS NOT TO SCALE.
5. ONE NUMBER PER POLE



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ENGINEERING AND RESEARCH DEPARTMENT

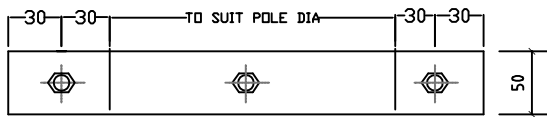
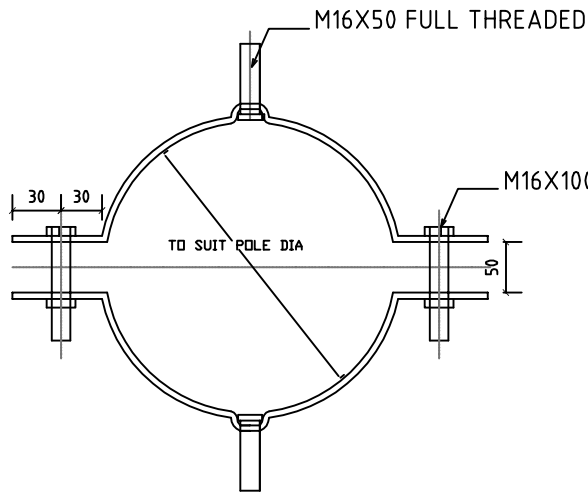
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

ANTI-CLIMBING DEVICE

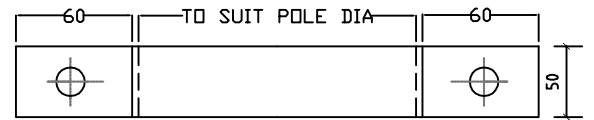
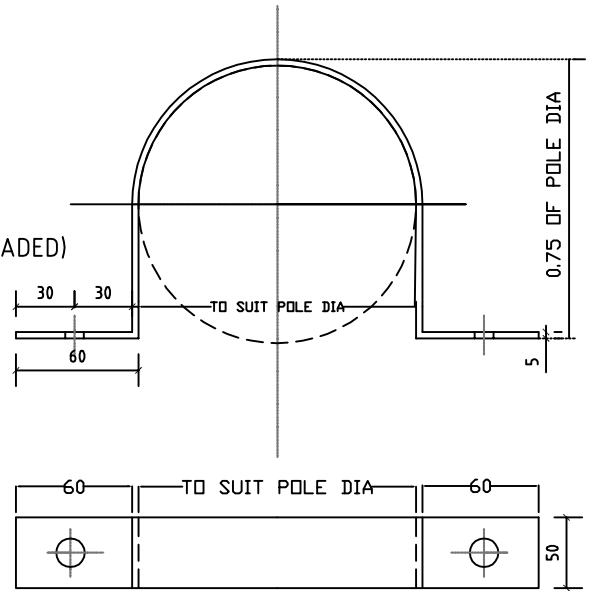
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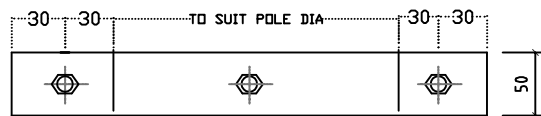
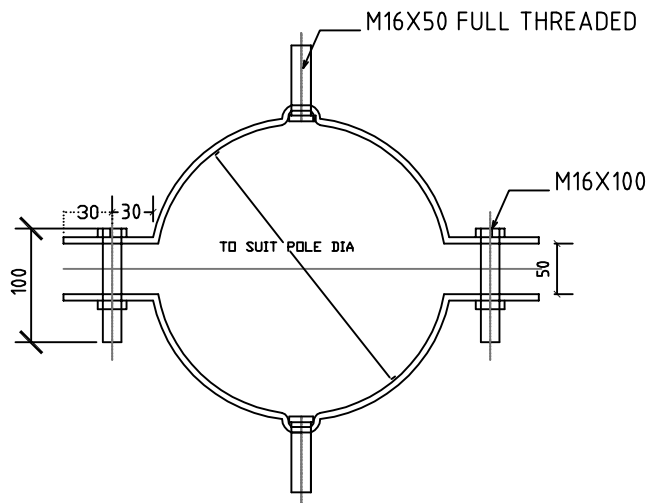
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Y TYPE - CLAMP (FULL CLAMP)



X TYPE - CLAMP (HALF CLAMP)



STAY CLAMP

NOTES

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2. DRAWING IS NOT TO SCALE.
3. ALL MATERIALS SHALL BE GALVANIZED
4. ALL THE BOLTS SHALL BE FULL THREADED TYPE



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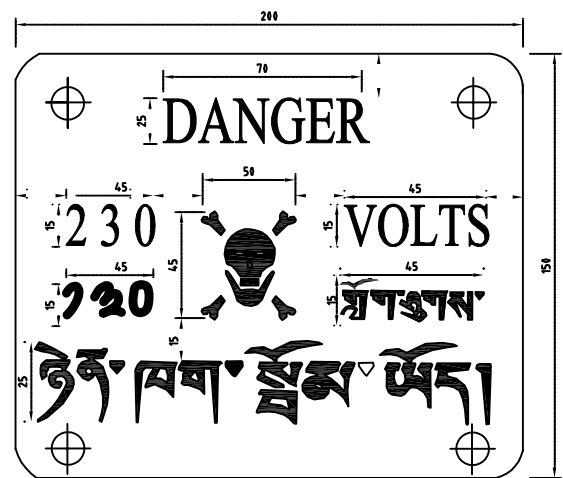
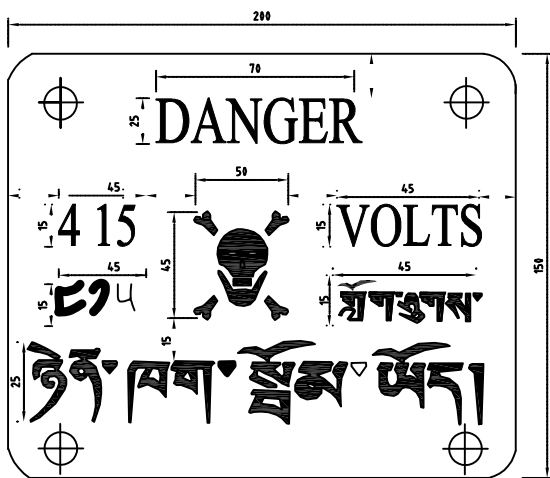
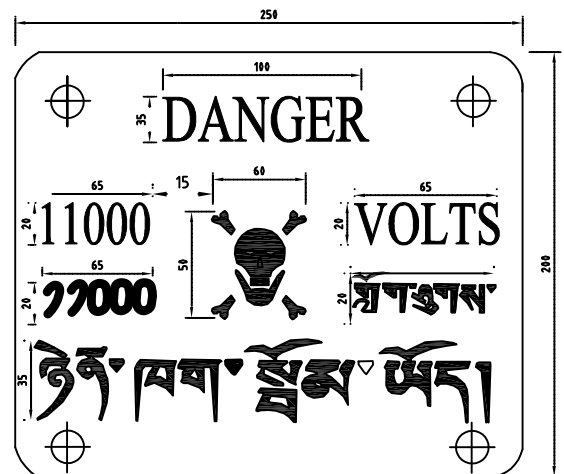
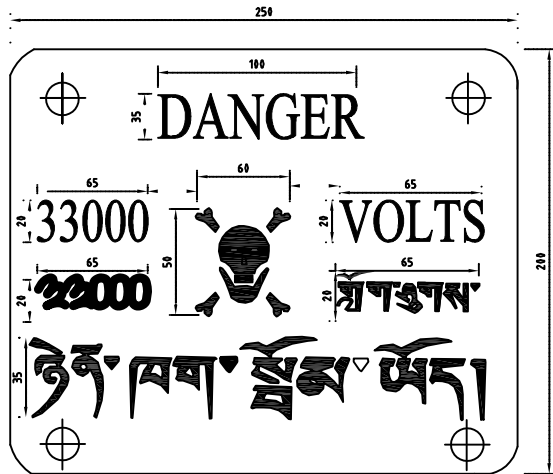
CLAMPS FOR TELESCOPIC POLE

TITLE	NAME	DATE
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1. DIMENSIONS AS SHOWN ARE IN MM
2. MS PLATE SHALL BE 2MM THICK
3. LETTERING AND FIGURE: RED ENAMELED  
BACK GROUND: WHITE ENAMELED  
BACK OF THE PLATE: BLACK ENAMELED
4. DESIGN OF DANGER PLATE IS AS PER IS:2551
5. CORNERS OF THE PLATE SHALL BE ROUND OFF
6. FASTENERS PER PLATE: 4 NOS. 16MM DIA WITH GI BOLTS
7. ONE DANGER PLATE PER STRUCTURE



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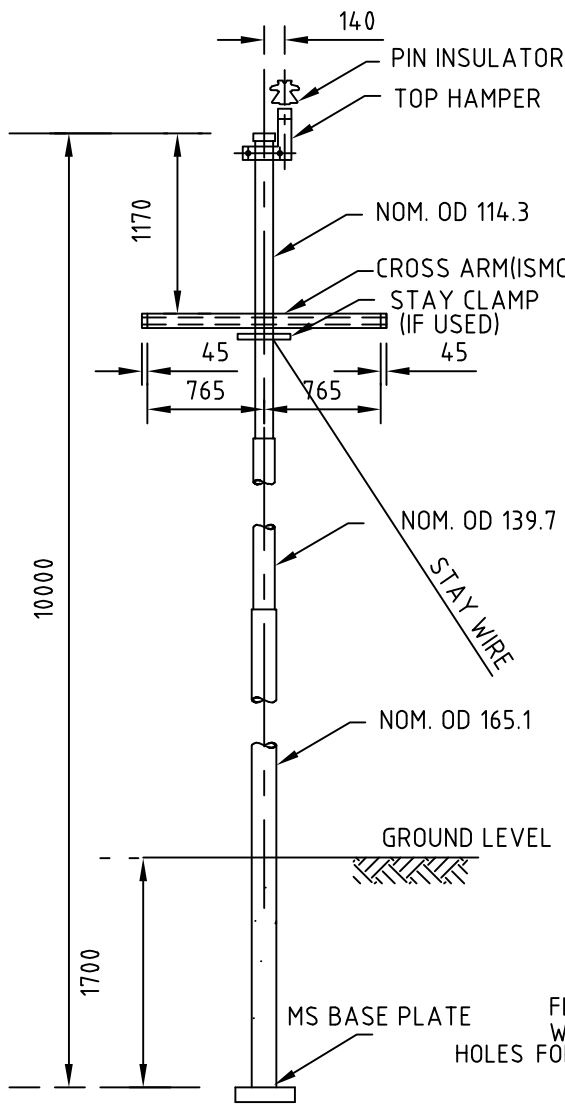
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

DANGER PLATE FOR 33kV and 11KV POLE AND LV POLE

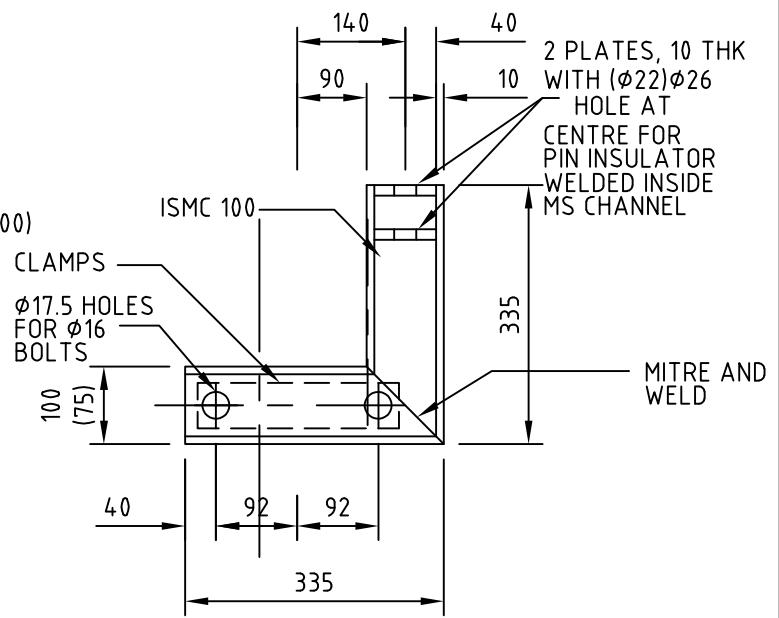
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APPROVED BY		

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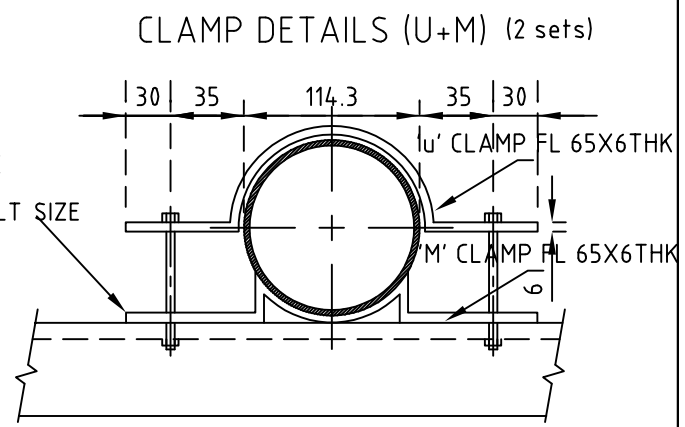
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POLE & CROSS ARM ASSEMBLY



TOP HAMPER FOR INSULATOR PIN DETAIL



CLAMP DETAILS (U+M) (2 sets)

NOTES

1. DIMENSIONS AS SHOWN ARE IN mm
2. DRAWING IS NOT TO SCALE.
3. ALL NUTS AND BOLTS TO BE HOT DIPPED GALVANISED

10M STEEL TUBULAR POLE	1	STEEL
CROSSARM CHANNEL	1	MS
TOP HAMPER WELDED IN "L" SHAPE	1	MS
PIN INSULATOR	3	PORCELAIN
CLAMP WITH NUTS & BOLTS (U+M)	2	MS
STAY SET ASSEMBLY	1	MS
BASE PLATE	1	MS
DESCRIPTION	QTY	MATERIAL



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

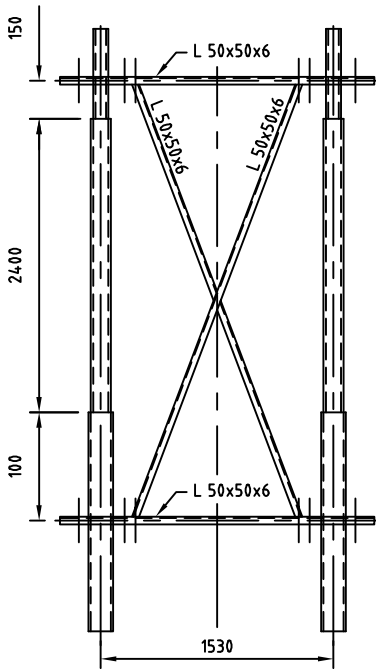
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  
STEEL TUBULAR-SINGLE POLE STRUCTURE DETAILS  
11 & 33 kV

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

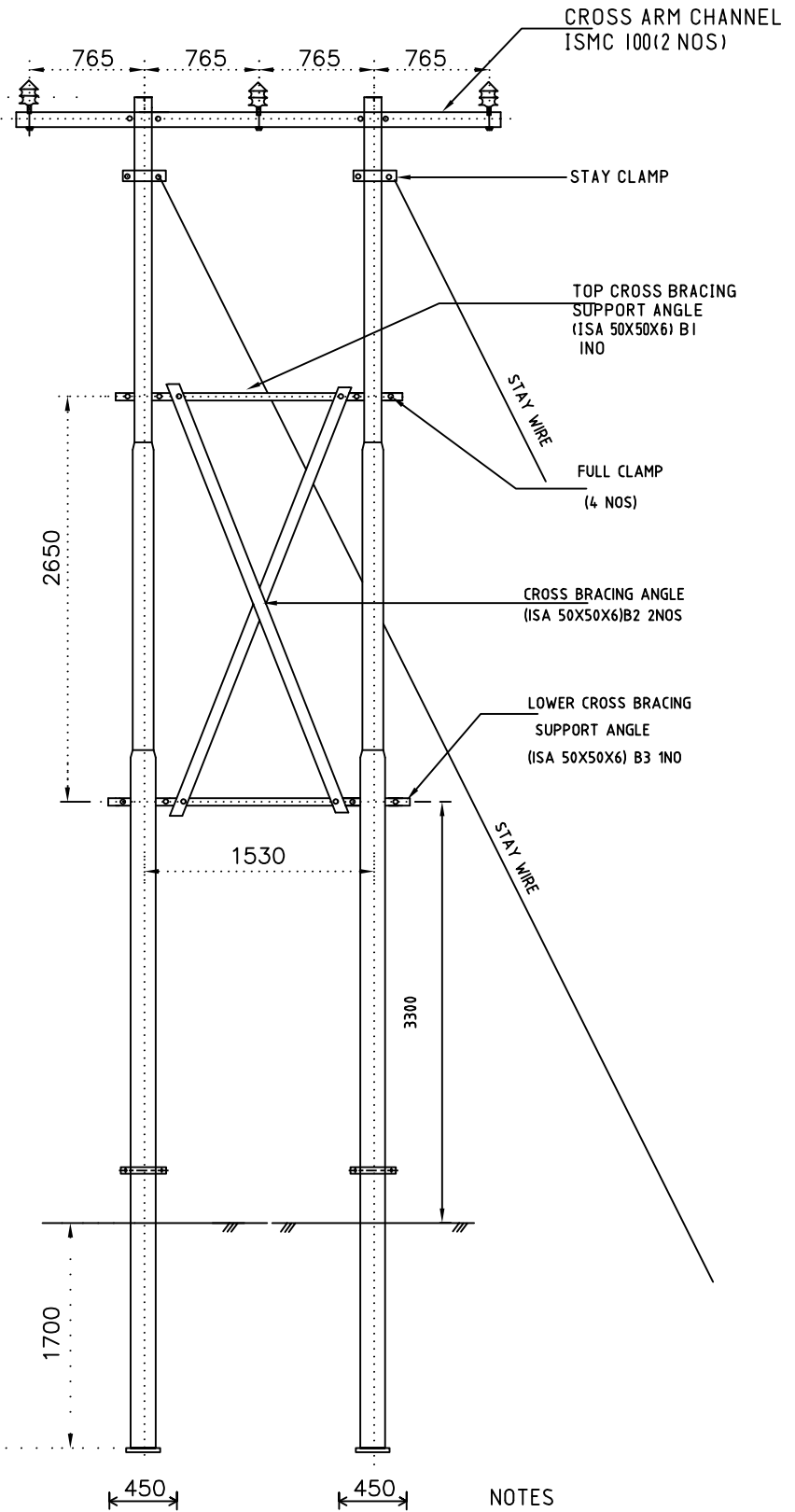
DRAWING NO. BPC-DDCS-2022-18/1-11

REVISION  
2022

BRACING ASSEMBLY DETAILS



(9000)  
10000



NOTES

1. DIMENSIONS AS SHOWN ARE IN mm
2. DRAWING IS NOT TO SCALE.

(9M) 10M STEEL TUBULAR POLE	2	STEEL
CROSSARM CHANNEL	2	MS
DISC INSULATOR SET	6	PORCELAIN
PIN INSULATOR SET	3	PORCELAIN
CLAMP WITH NUTS & BOLTS (U+M)	2	MS
STAY SET ASSEMBLY	2	MS
BASE PLATE	2	MS
DESCRIPTION	QTY	MATERIAL



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

11&33 KV H-FRAME

DOUBLE POLE ARRANGEMENT (STEEL TUBULAR POLES)

TITLE NAME DATE

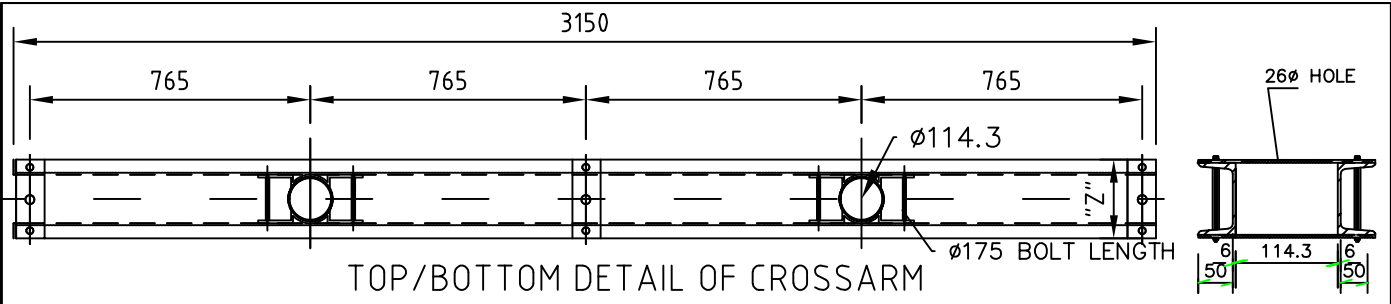
DESIGNED BY

CHECKED BY

APPROVED BY

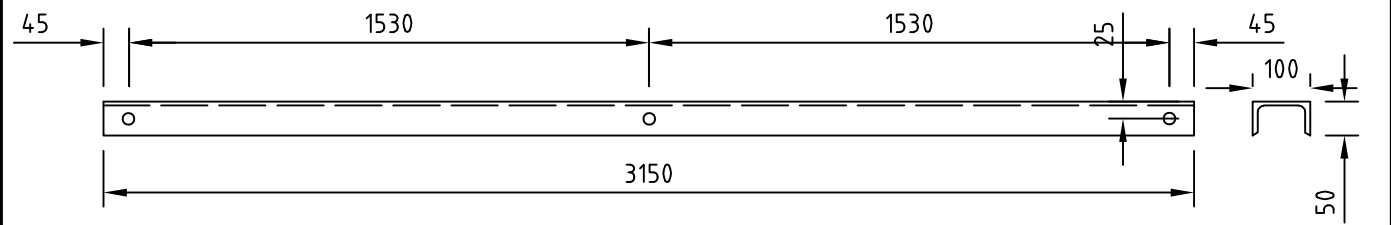
DRAWING NO.  
BPC-DDCS-2022-18/2-11

REVISION  
2022



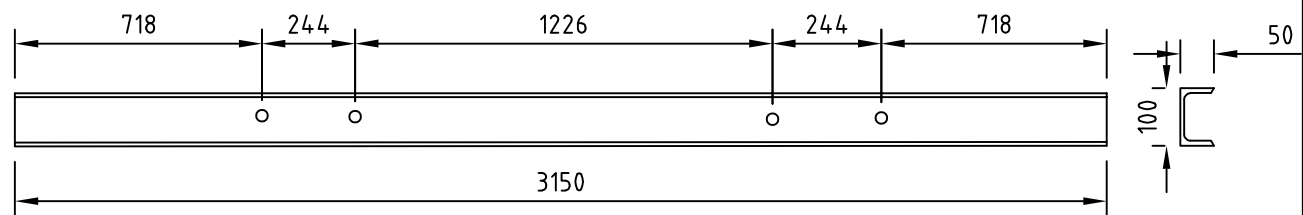
TOP/BOTTOM DETAIL OF CROSSARM

ISM C 100x50 (2NOS)



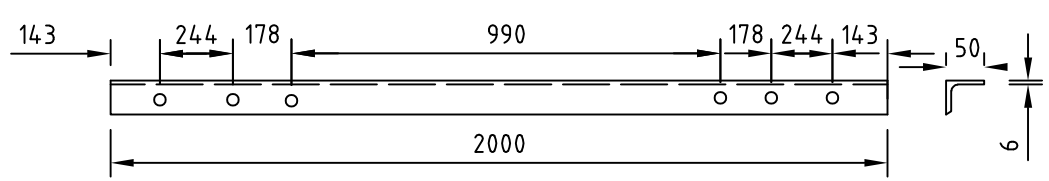
TOP VIEW OF CROSSARM - CHL

ISM C 100x50 (2 NOS)



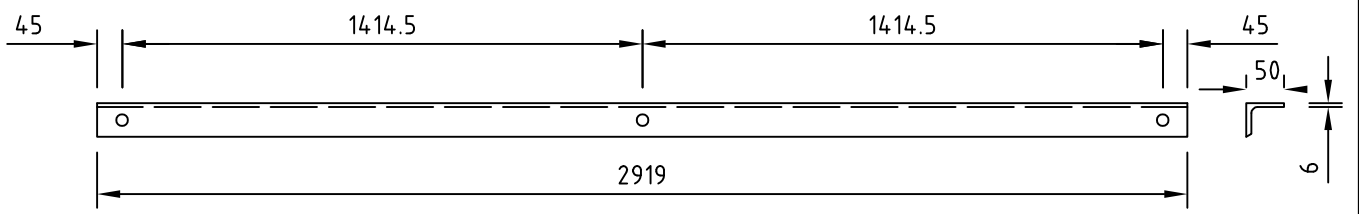
FRONT VIEW OF CROSSARM - CHL

ISM C 100x50 (2 NOS)



DETAIL OF BRACING - BI

ISA 50x50x6 (1 NO)




DETAIL OF BRACING - B2

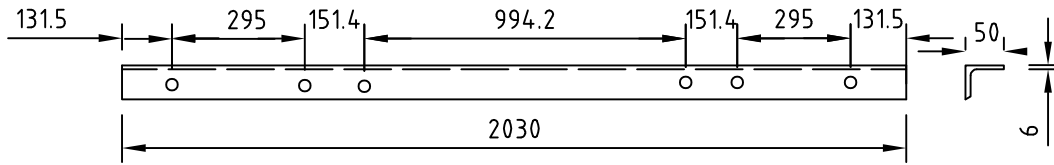
ISA 50x50x6 (2 NOS)

NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. ALL BOLT HOLES TO BE 18MM EXCEPT FOR THE ONE INDICATED.

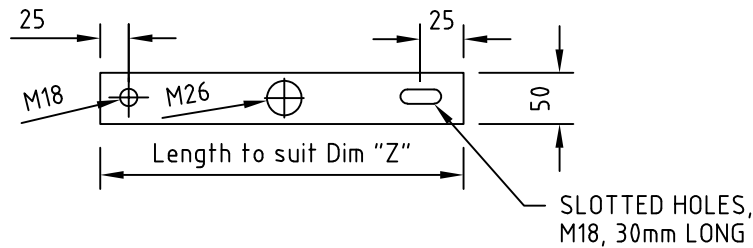
	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD 11 & 33 KV H-FRAME	
TITLE	NAME	DATE	CHANNEL & BRACING DETAIL (STEEL TUBULAR POLES)	
DESIGNED BY				
CHECKED BY				
APPROVED BY				
			DRAWING NO. BPC-DDCS-2022-18/3-II	REVISION 2022

## DETAIL OF BRACING - B3



ISA 50x50x6 (1 NO)

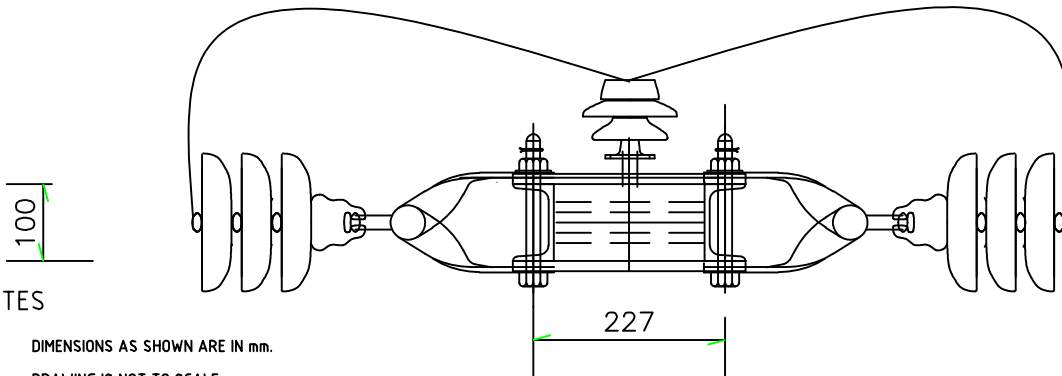
## DETAIL OF MS STRING LACING FLAT



FL 50x6 (6 NOS)

M16X185 MM BOLT LENGTH (6NOS)

## FIXING OF PIN AND DISC INSULATOR ON CROSSARM



### NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. STANDARDS  
 IS 2062-1992/IS 1161 OR EQUIVALENT STEEL FOR GENERAL STRUCTURAL PURPOSES  
 IS 808-1964: OR EQUIVALENT DIMENSIONS FOR HOT ROLLED STEEL BEAM COLUMN CHANNEL AND ANGLE SECTION
4. MINIMUM TENSILE STRENGTH - 420 MPA
5. ALL ITEMS SHALL BE MILD STEEL (MS) PAINTED WITH ONE COAT OF RED OXIDE PRIMER IN ACCORDANCE WITH ISO 12944-7 OR ANY OTHER EQUIVALENT INTERNATIONAL STANDARD. HOWEVER, NUTS AND BOLTS SHALL BE HOT DIPPED GALVANISED WITH ZINC COATING 600 GRAM PER SQUARE METER.
6. DISC ARRANGEMENT IS SHOWN FOR 33kV SYSTEM, TAKE ONE DISC INSULATOR FOR 11kV SYSTEM



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DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

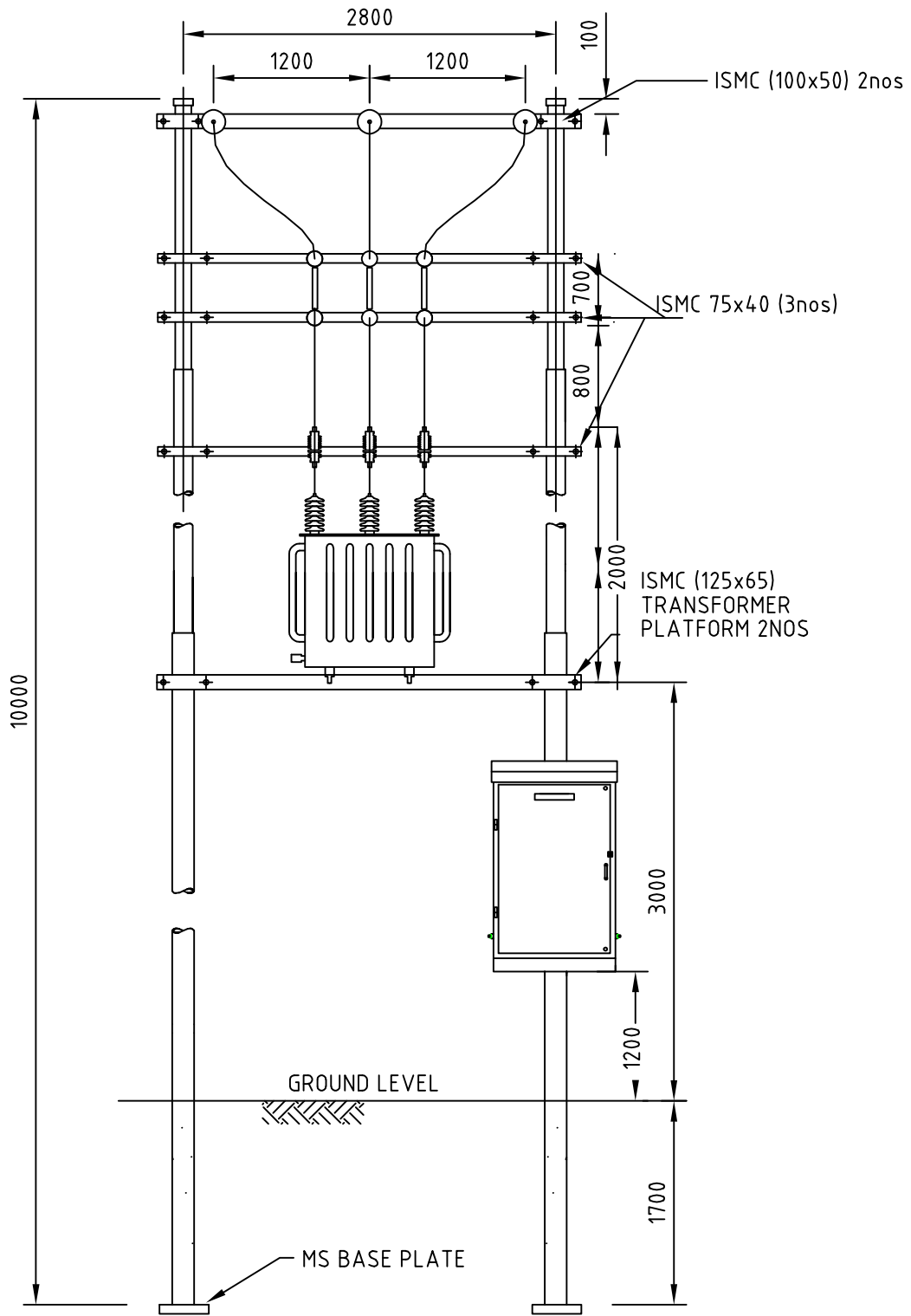
11 & 33 KV H-FRAME

CHANNEL & BRACING DETAIL (STEEL TUBULAR POLES)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO.  
BPC-DDCS-2022-18/4-II

REVISION  
2022



NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.



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ENGINEERING AND RESEARCH DEPARTMENT

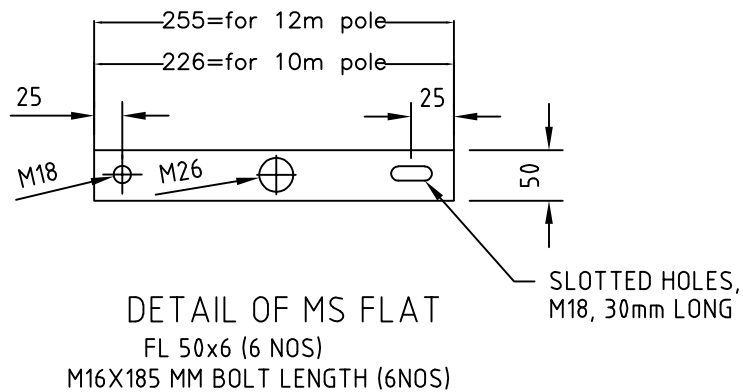
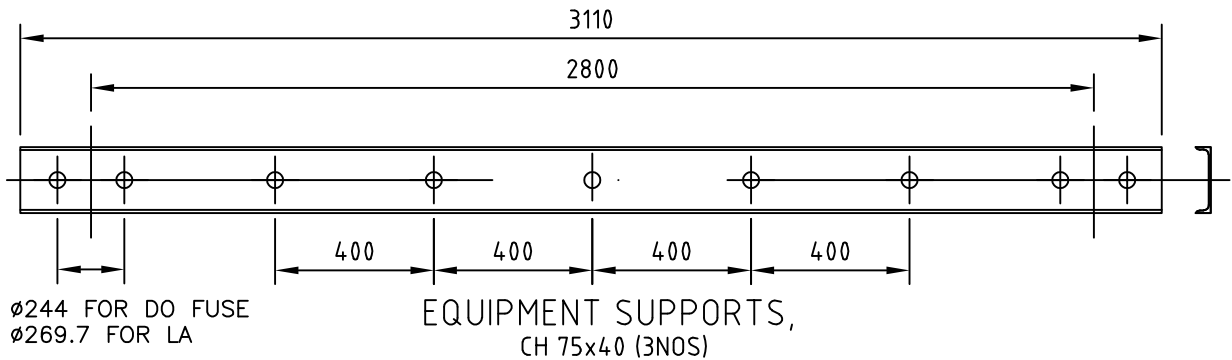
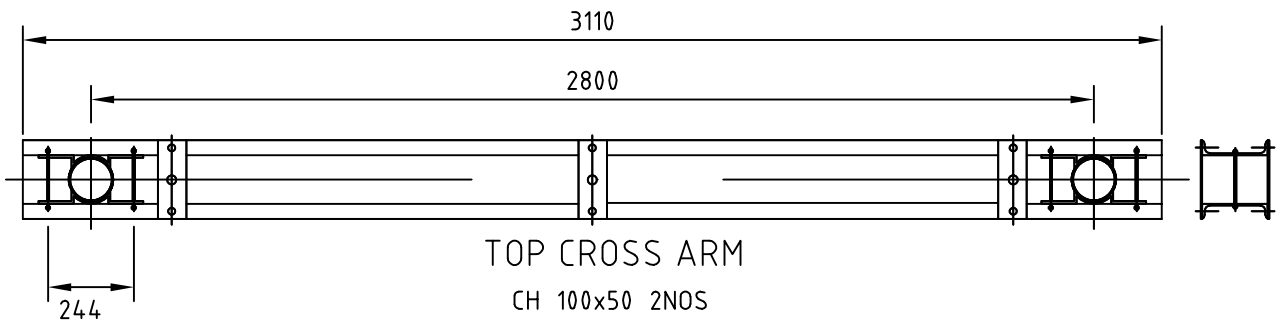
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

POLE MOUNTED SUBSTATIONSTRUCTURE DETAILS

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		


DRAWING NO. BPC-DDCS-2022-18/5-11

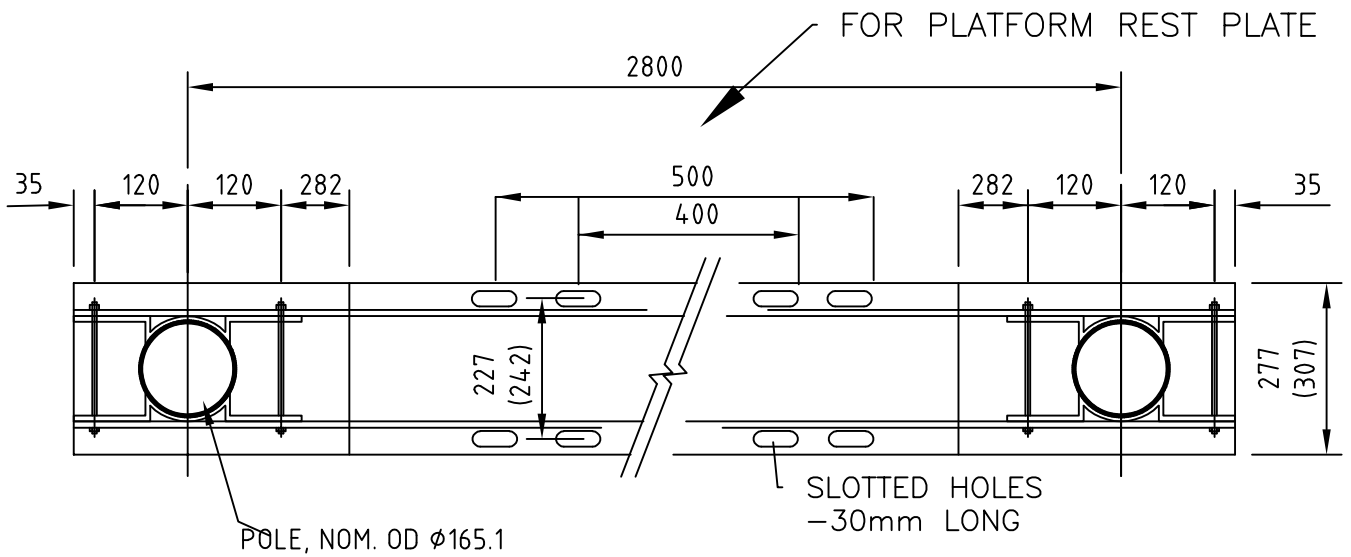
REVISION 2022



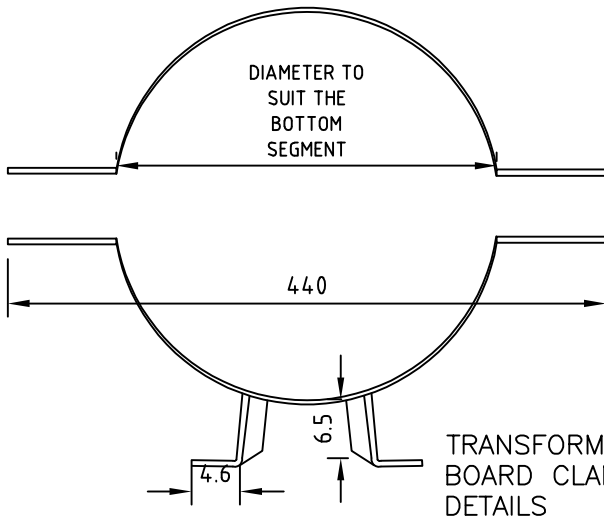
**NOTES**

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. TRANSFORMER LT PANEL SUPPORT REQUIRE ONLY FOR 125kVA TRANSFORMERS
4. GENERAL ARRANGEMENT OF SUBSTATION BE REFERRED FROM DRAWING NO. BPC-DDCS-(9 TO 11)

	<p>BHUTAN POWER CORPORATION LIMITED</p>		<p>ENGINEERING AND RESEARCH DEPARTMENT</p>		
			<p>DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</p>		
<p>TITLE</p>		<p>NAME</p>	<p>DATE</p>	<p>POLE MOUNTED SUBSTATIONSTRUCTURE DETAILS FOR STEEL TUBULAR POLE</p>	
<p>DESIGNED BY</p>					
<p>CHECKED BY</p>					
<p>APPROVED BY</p>					
			<p>DRAWING NO. BPC-DDCS-2022-18/6-11</p>		<p>REVISION 2022</p>

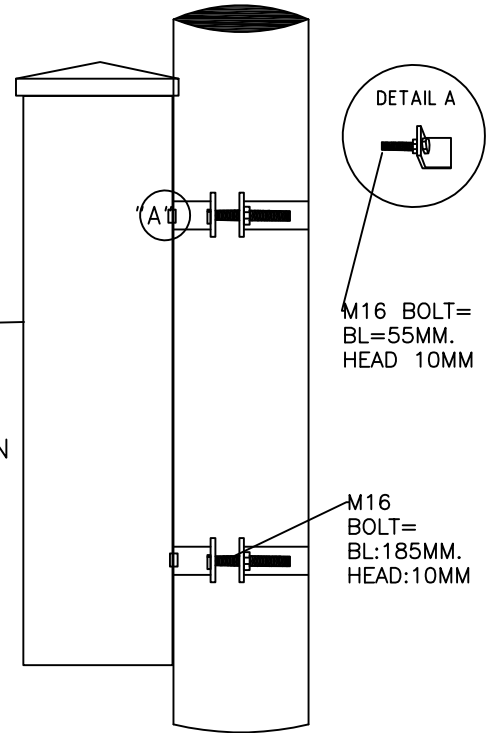


TRANSFORMER PLATFORM (2Nos.)  
ISMC 125x65



TRANSFORMER DISTRIBUTION BOARD CLAMP SUPPORT DETAILS

LV DISTRIBUTION BOARD




M16 BOLT= BL=55MM. HEAD 10MM

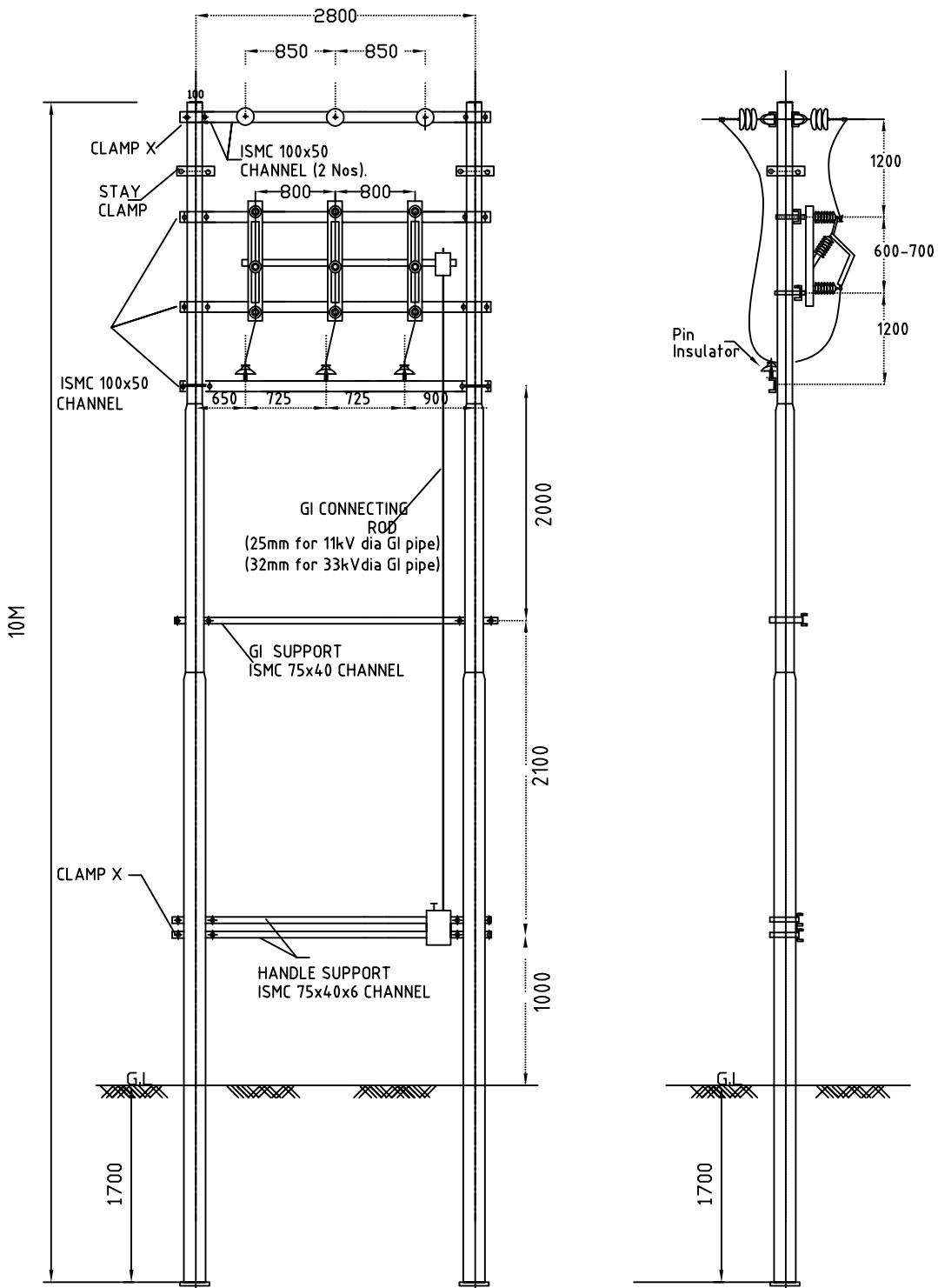
M16 BOLT= BL:185MM. HEAD:10MM

NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. 400 mm hole centre to centre length for 25 kVA and below  
500 mm hole centre to centre length for 63 kVA and above

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
TITLE			33 & 11 kV TRANSFORMER PLATFORM FOR STEEL TUBULAR POLE	
DESIGNED BY	NAME	DATE	DRAWING NO. BPC-DDCS-2022-18/7-11	
CHECKED BY				
APPROVED BY				
			REVISION 2022	





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ENGINEERING AND RESEARCH DEPARTMENT

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

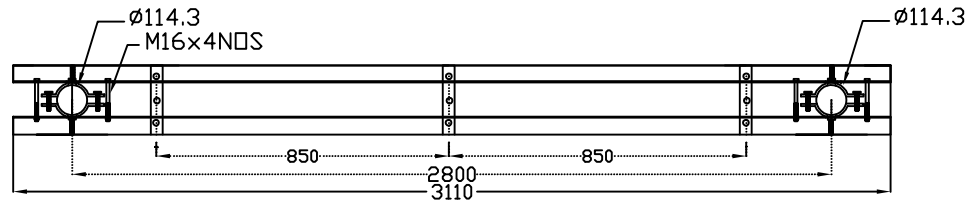
11 & 33kV AIRBREAK SWITCH ARRANGEMENT

STEEL TUBULAR POLE

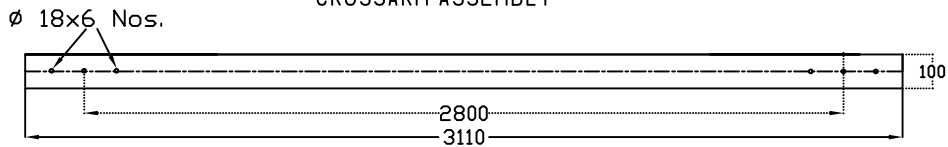
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-18/8-11

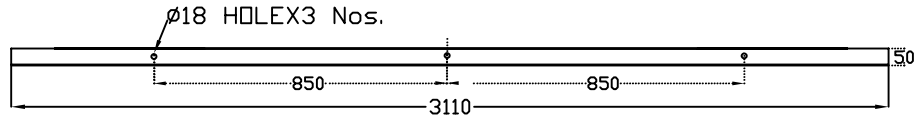
REVISION  
2022



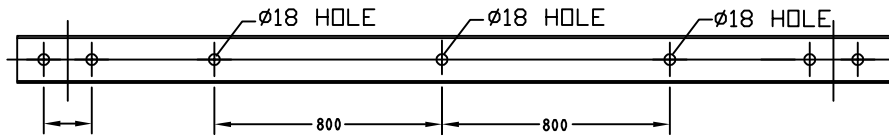
CROSSARM ASSEMBLY



CROSSARM CHANNEL (ISMC 100x50) - ELEVATION

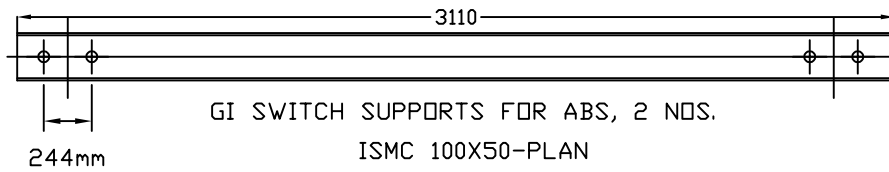


CROSSARM CHANNEL (ISMC 100x50) - PLAN



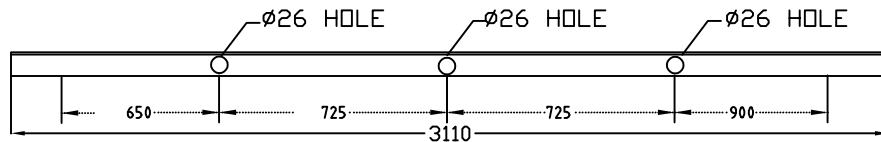
GI SWITCH SUPPORTS FOR ABS, 2 NOS.

ISMC 100X50



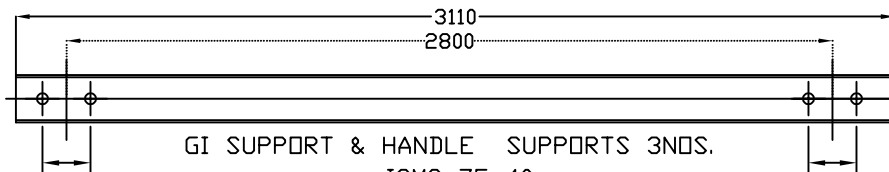
GI SWITCH SUPPORTS FOR ABS, 2 NOS.

ISMC 100X50-PLAN



PIN INSULATOR SUPPORTS, 1 NO.

ISMC 100x50



GI SUPPORT & HANDLE SUPPORTS 3NOS.

ISMC 75x40

CLAMP X-Ø139.7 FOR GI SUPPORT CLAMP  
X-Ø165.1 FOR HANDLE SUPPORT

NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. ALL HOLES ARE 18mm AND ALL BOLTS TO BE 16mm.



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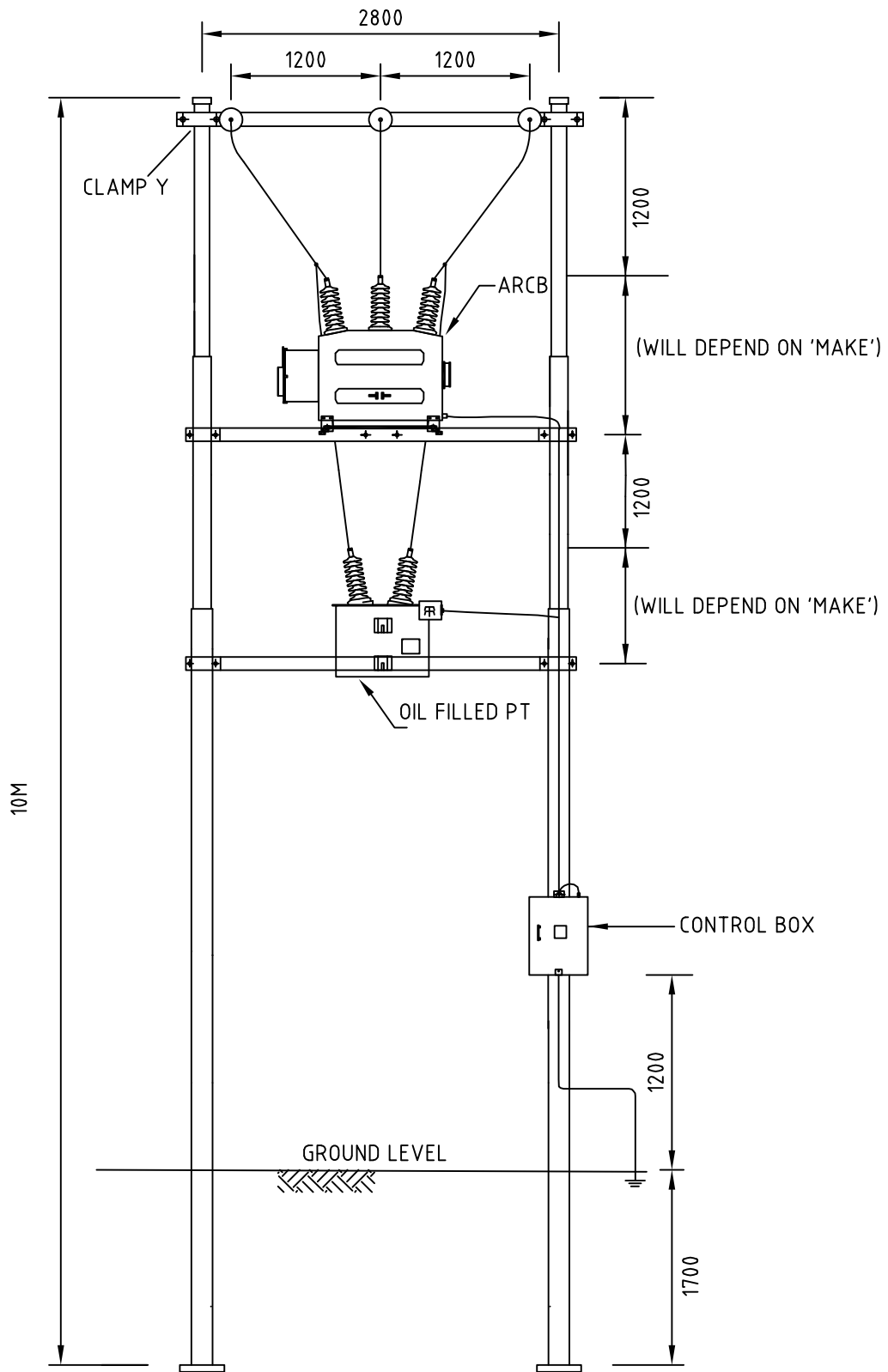
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

AIRBREAK SWITCH CROSS-ARM ASSEMBLY FOR STEEL TUBULAR POLE

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		


DRAWING NO. BPC-DDCS-2022-18/9-11

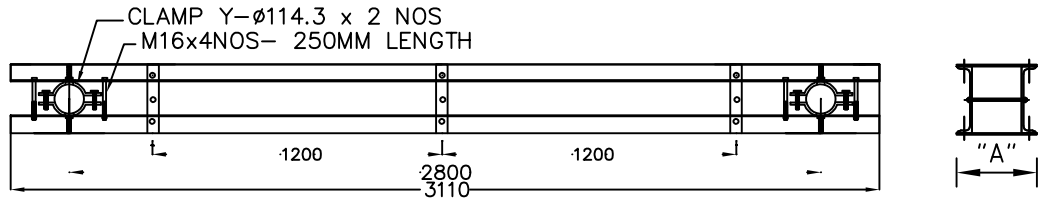
REVISION  
2022



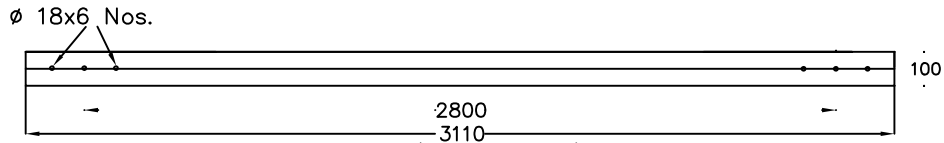
**NOTES**

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.

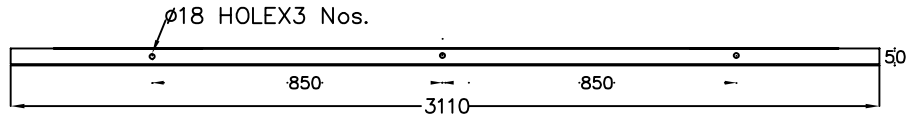
	<p style="text-align: center;"><b>BHUTAN POWER CORPORATION LIMITED</b></p>		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
TYPICAL ARCB ARRANGEMENT ON STEEL TUBULAR POLE				
TITLE	NAME	DATE	DRAWING NO. BPC-DDCS-2022-18/10-11 <span style="float: right;">REVISION 2022</span>	
DESIGNED BY				
CHECKED BY				
APPROVED BY				



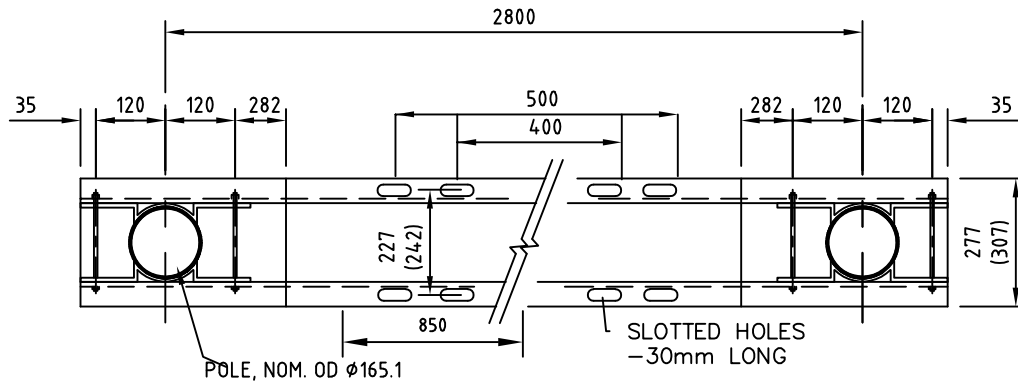
CROSSARM ASSEMBLY



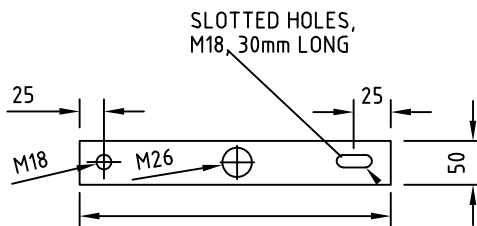
CROSSARM CHANNEL (ISMC 100x50) – ELEVATION



CROSSARM CHANNEL (ISMC 100x50) – PLAN




ARCB & PT PLATFORM (2Nos.)  
ISMC 125x65

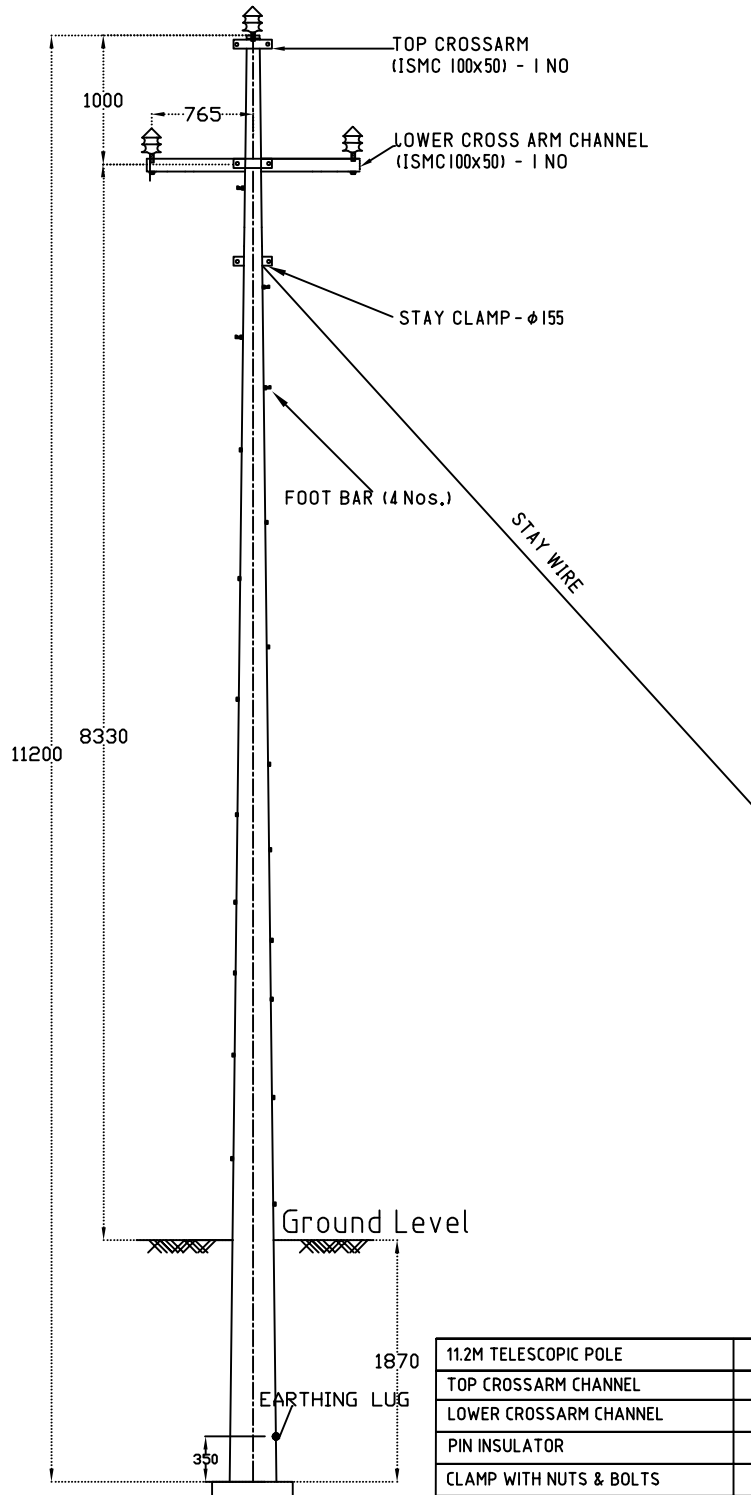


LENGTH TO SUIT "A" IN TOP CROSS ARM  
DETAIL OF MS FLAT  
FL 50x6 (6 NOS)  
M16 x185 MM BOLT LENGTH (6NOS)

NOTES

- DIMENSIONS AS SHOWN ARE IN mm.  
ALL HOLES ARE 18mm AND ALL BOLTS TO BE 16mm.  
DRAWING IS NOT TO SCALE.

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
			CROSS-ARM ASSEMBLY FOR MOUNTING ARCB ON STEEL TUBULAR POLE	
TITLE	NAME	DATE	DRAWING NO. BPC-DDCS-2022-18/11-11	
DESIGNED BY				
CHECKED BY				
APPROVED BY			REVISION 2022	



**NOTES**

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.

11.2M TELESCOPIC POLE	1	GS
TOP CROSSARM CHANNEL	1	GS
LOWER CROSSARM CHANNEL	1	GS
PIN INSULATOR	3	PORCELAIN
CLAMP WITH NUTS & BOLTS	2	GS
STAY SET ASSEMBLY	1	GS
BASE PLATE	1	GS
DESCRIPTION	QTY	MATERIAL



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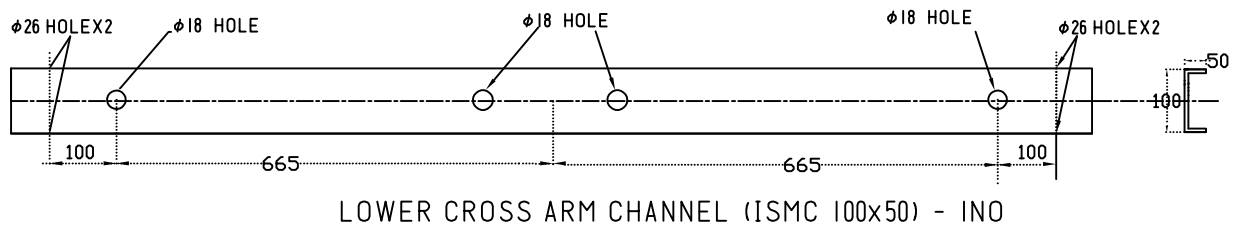
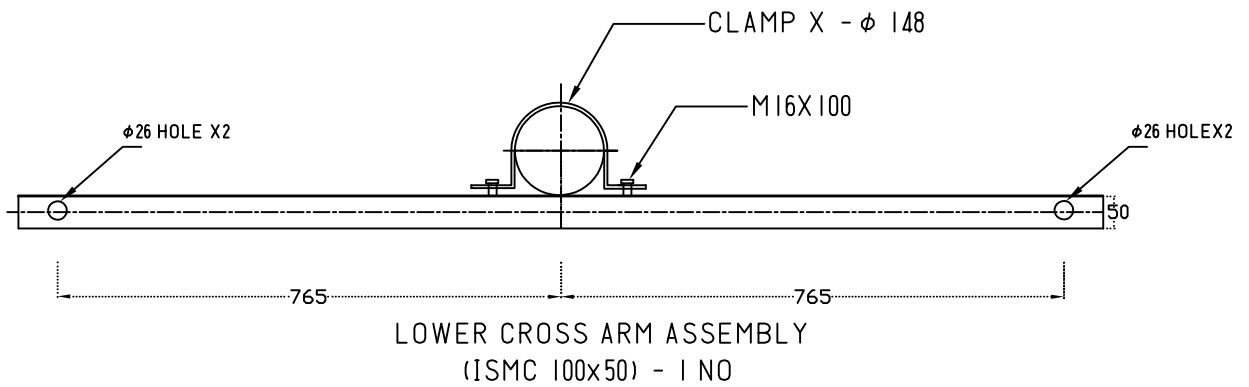
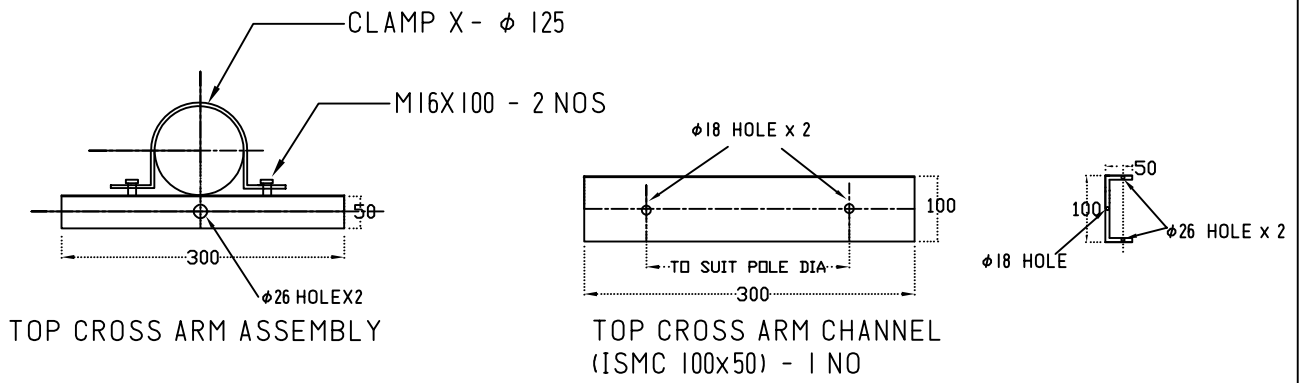
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

SINGLE POLE ASSEMBLY - 11.2 M TELESCOPIC POLE  
(11 kV & 33kV)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-19/1-21

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## NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. LENGTH OF THE BRACING ANGLE SHALL BE DESIGNED BY THE SUPPLIER



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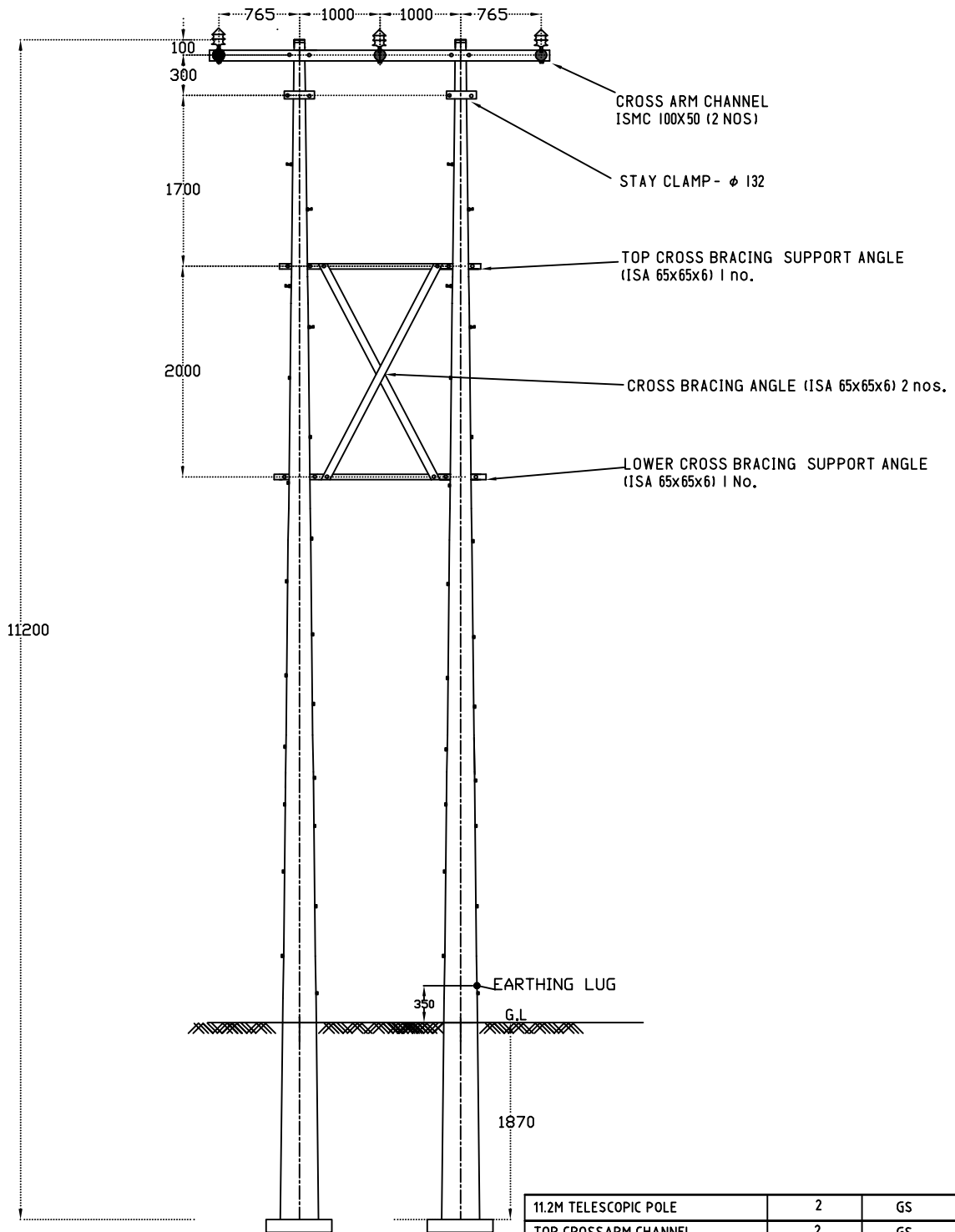
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

SINGLE POLE CROSS ARM ASSEMBLY - 11.2M TELESCOPIC POLE (11 kV & 33kV)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-19/2-21

REVISION  
2022



### NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.

11.2M TELESCOPIC POLE	2	GS
TOP CROSSARM CHANNEL	2	GS
DISC INSULATOR SET	6	PORCELAIN
PIN INSULATOR	3	PORCELAIN
CLAMP WITH NUTS & BOLTS	2	GS
STAY SET ASSEMBLY	1	GS
BASE PLATE	1	GS
DESCRIPTION	QTY	MATERIAL



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ENGINEERING AND RESEARCH DEPARTMENT

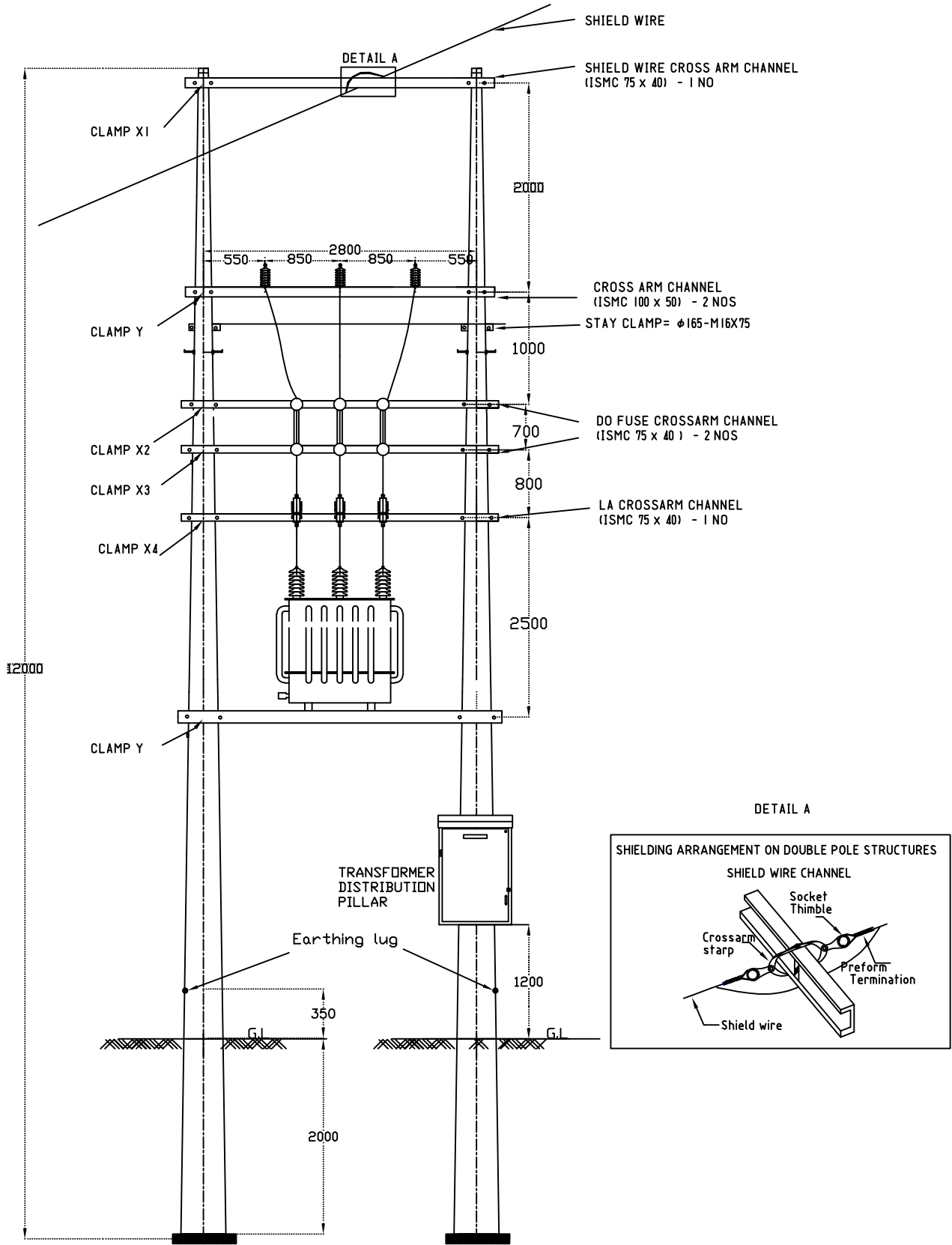
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

DOUBLE POLE ASSEMBLY - 11.2 M TELESCOPIC POLE  
(11 kV & 33kV)


TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-19/3-21

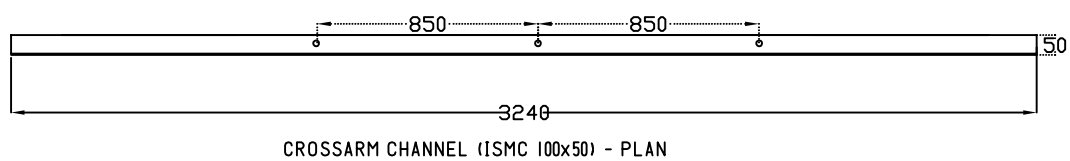
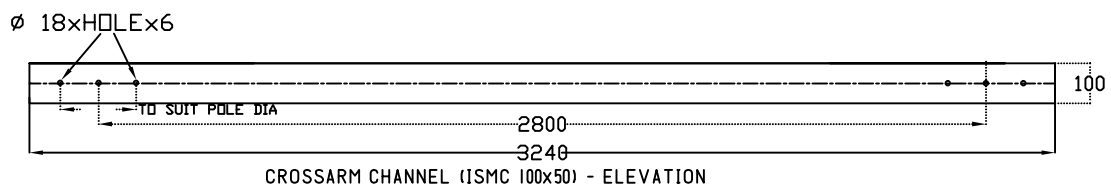
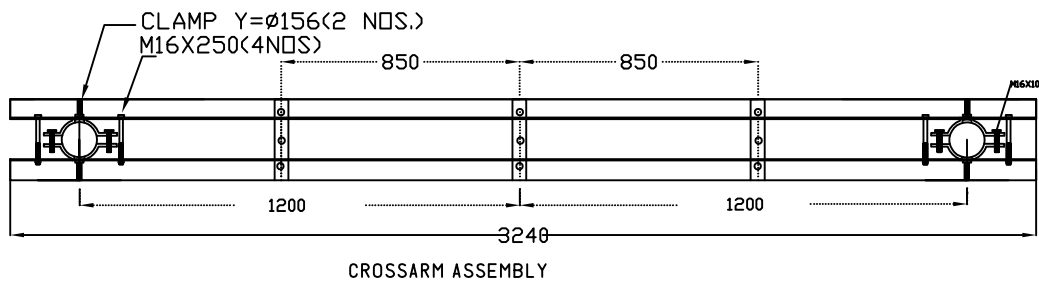
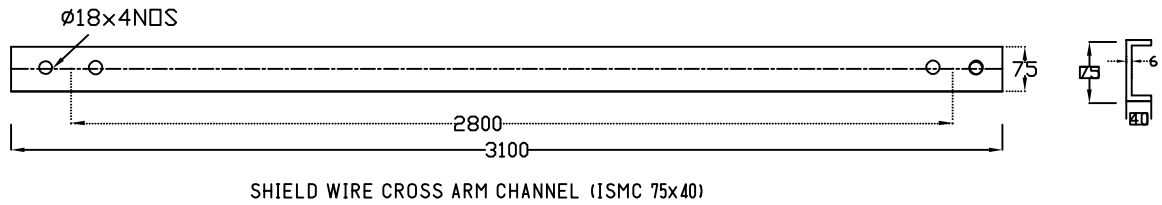
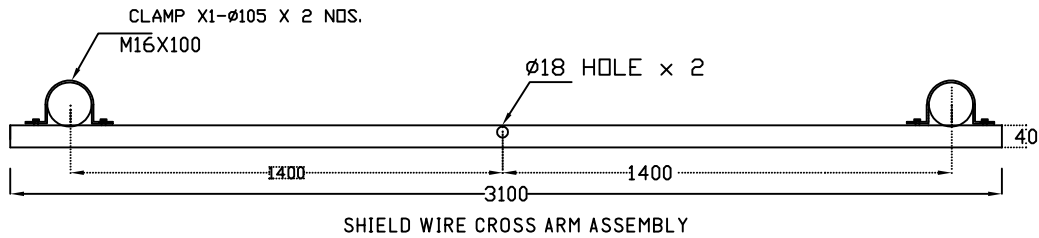
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DISTRIBUTION PILLAR MOUNTING CHANNEL ONLY REQUIRE FOR 125 kVA TRANSFORMERS  
 MOUNTING HEIGHT OF THE TOP DO FUSE TO BE ADJUSTED WITHIN 6M FOR USE OF HOT STICK


	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
		SUBSTATION (3 PHASE) STRUCTURE ASSEMBLY - 12 M TELESCOPIC POLE WITH SHIELDWIRE		
TITLE	NAME	DATE	DRAWING NO. BPC-DDCS-2022-19/14-21	
DESIGNED BY				
CHECKED BY				
APPROVED BY			REVISION 2022	





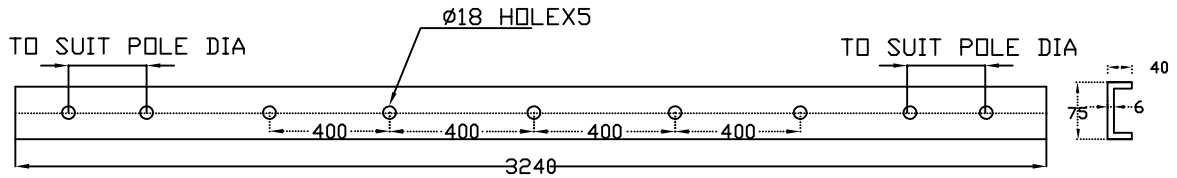
## NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. CLAMP X AND Y DETAILS AS PER DRAWING NO. BPC-DDCS-2020-29

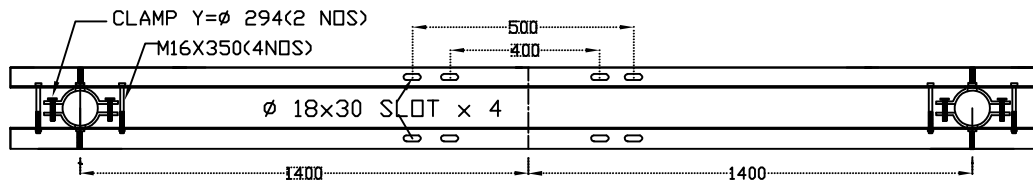
	<b>BHUTAN POWER CORPORATION LIMITED</b>		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
TITLE DESIGNED BY CHECKED BY APPROVED BY			SUBSTATION (1 or 3 PHASE) STRUCTURE CROSS-ARM ASSEMBLY FOR 12 M TELESCOPIC POLE WITH SHIELD WIRE	
NAME DATE			DRAWING NO. BPC-DDCS-2022-19/15-21	
			REVISION 2022	



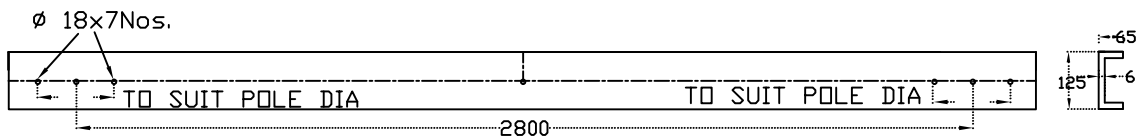
EQUIPMENT CROSSARM CHANNEL ASSEMBLY



EQUIPMENT CROSSARM CHANNEL (ISMC 75x40x6) - 3 NOS




TRANSFORMER SUPPORT CROSSARM CHANNEL (ISMC 125x65x6) - 2 NOS - ELEVATION

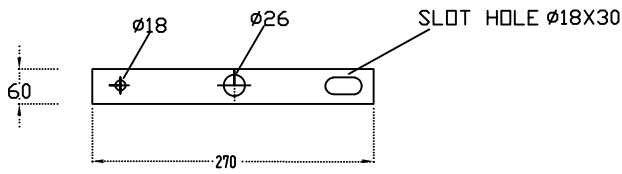


TRANSFORMER SUPPORT CROSSARM CHANNEL (ISMC 125x65x6) - 2 NOS - ELEVATION

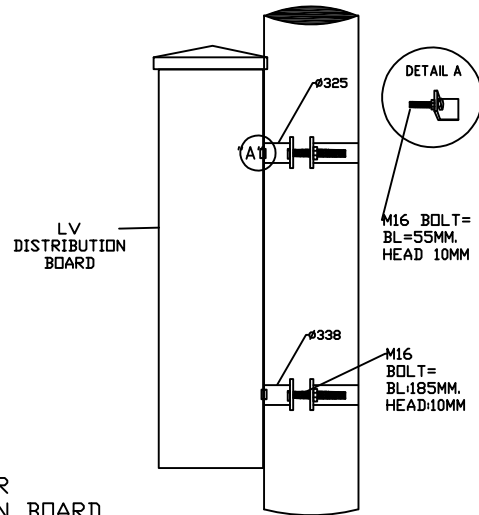
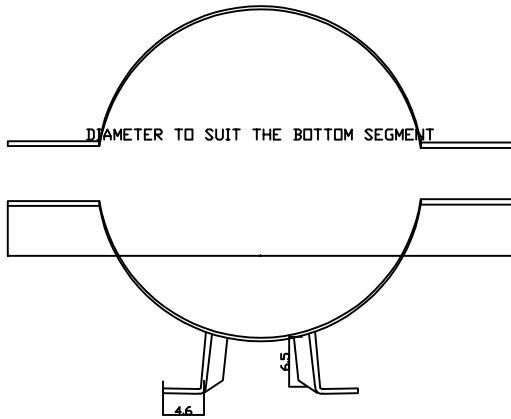
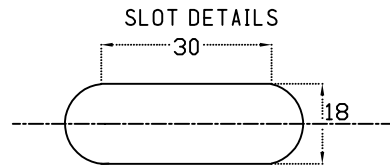
## NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. The hole centre to hole centre 400mm for trfs upto 25 kVA, 500mm for trfs above 63 kVA

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT		
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD		
TITLE		NAME	DATE	SUBSTATION (1 or 3 PHASE) STRUCTURE CROSS-ARM ASSEMBLY FOR 12 M TELESCOPIC POLE WITH SHIELD WIRE	
DESIGNED BY					
CHECKED BY					
APPROVED BY					
DRAWING NO. BPC-DDCS-2022-19/16-21				REVISION 2022	



MS TENSION STRAP (60x6) - 6 NOS  
M16X185



TRANSFORMER  
DISTRIBUTION BOARD  
CLAMP SUPPORT DETAILS

## NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. The hole centre to hole centre 400mm for trfs upto 25 kVA, 500mm for trfs above 63 kVA



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ENGINEERING AND RESEARCH DEPARTMENT

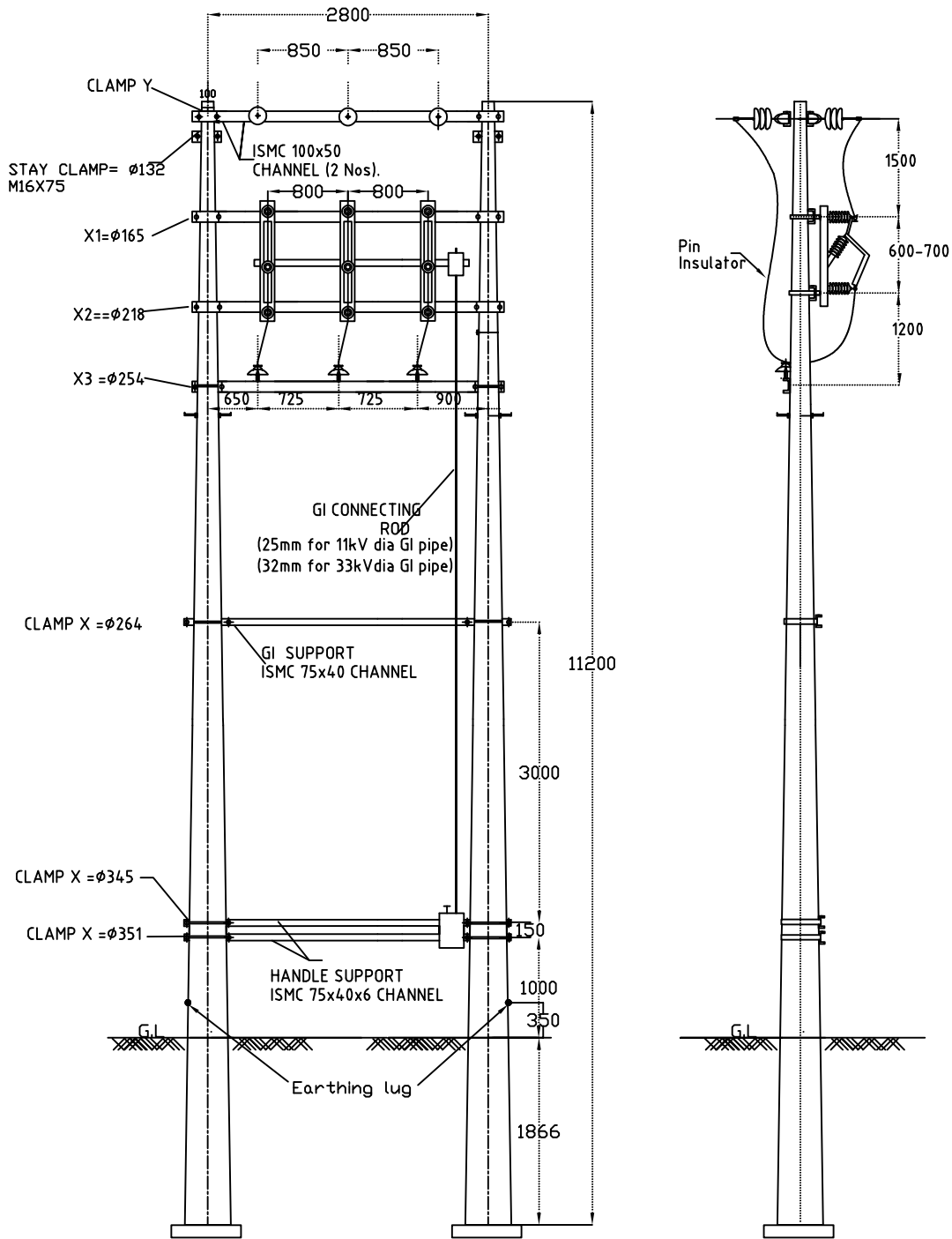
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD


SUBSTATION (1 or 3 PHASE) STRUCTURE CROSS-ARM  
ASSEMBLY FOR 12 M TELESCOPIC POLE WITH SHIELD WIRE

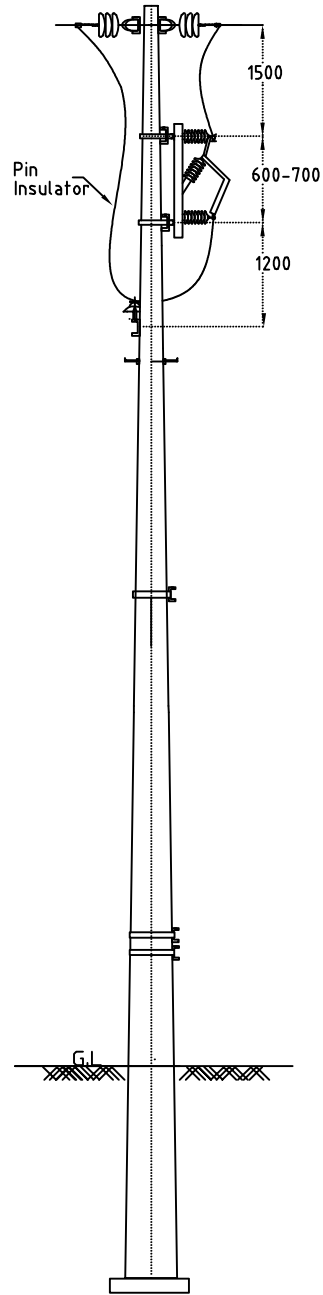
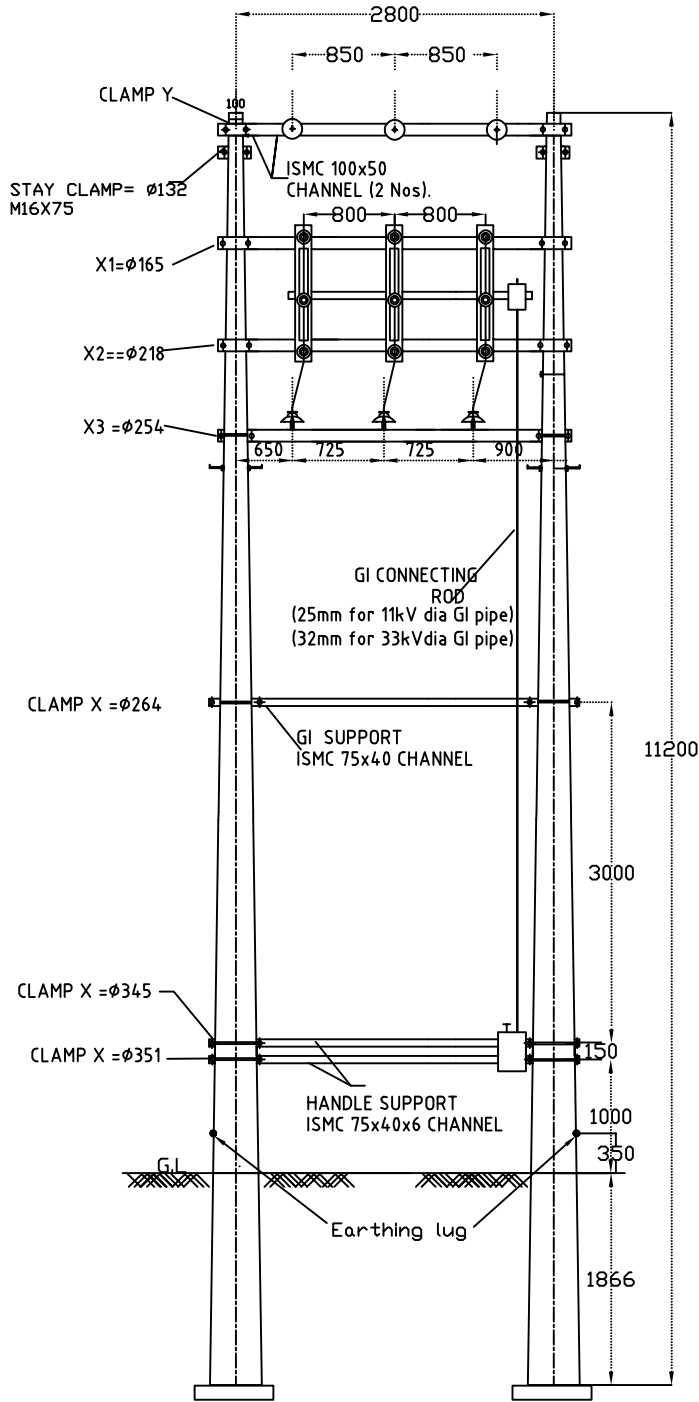
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-19/17-21

REVISION  
2022



	<b>BHUTAN POWER CORPORATION LIMITED</b>		<b>ENGINEERING AND RESEARCH DEPARTMENT</b>	
	<b>DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b>		<b>11 &amp; 33kV AIRBREAK SWITCH ARRANGEMENT-11.2M TELESCOPIC POLES</b>	
<b>TITLE</b>	<b>NAME</b>	<b>DATE</b>	<b>DRAWING NO. BPC-DDCS-2022-19/18-21</b>	
<b>DESIGNED BY</b>			<b>REVISION 2022</b>	
<b>CHECKED BY</b>				
<b>APPROVED BY</b>				



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

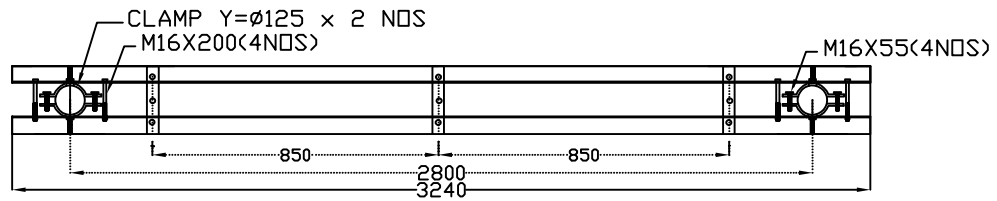
11 & 33kV AIRBREAK SWITCH ARRANGEMENT-11.2M

TELESCOPIC POLES

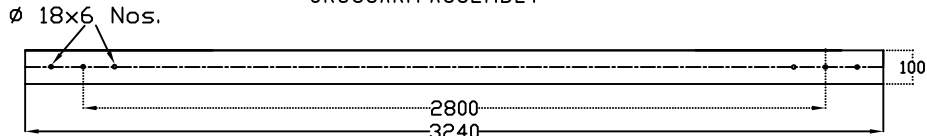
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-19/18-21

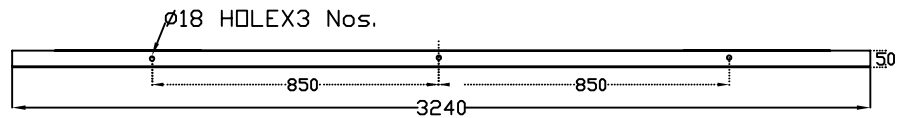
REVISION  
2022



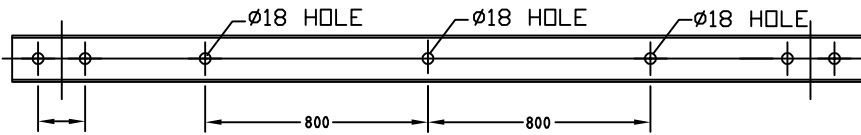
CROSSARM ASSEMBLY



CROSSARM CHANNEL (ISMC 100x50) - ELEVATION



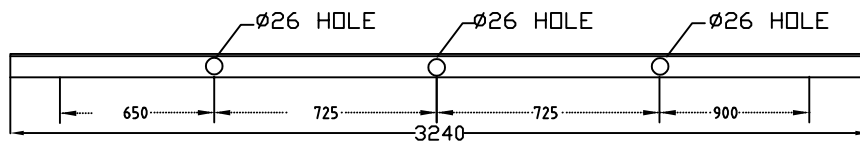
CROSSARM CHANNEL (ISMC 100x50) - PLAN



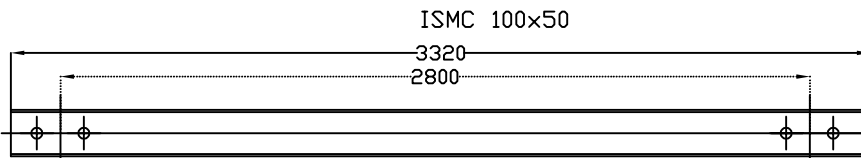
GI SWITCH SUPPORTS FOR ABS, 2 NOS.

ISMC 100x50

- X1-285mm
- X2- 338mm
- X3- 374mm
- M16X100



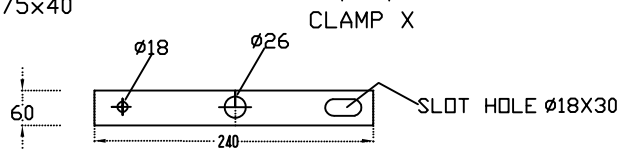
PIN INSULATOR SUPPORTS, 1 NO.



GI SUPPORT & HANDLE SUPPORTS 3NOS.

ISMC 75x40


- X-384mm - GI SUPPORT
- TOP-465mm-HANDLE SUPPORT
- BOTTOM-471mm-HANDLE SUPPORT
- M16X100

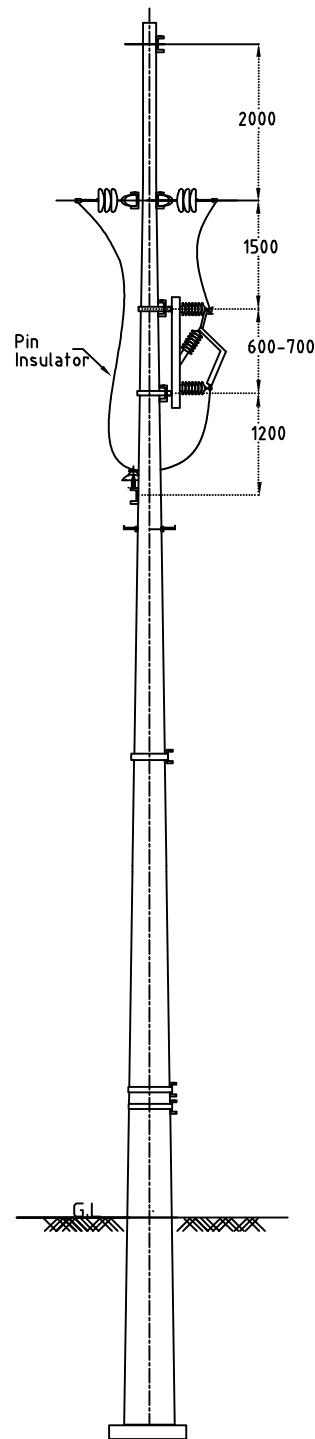
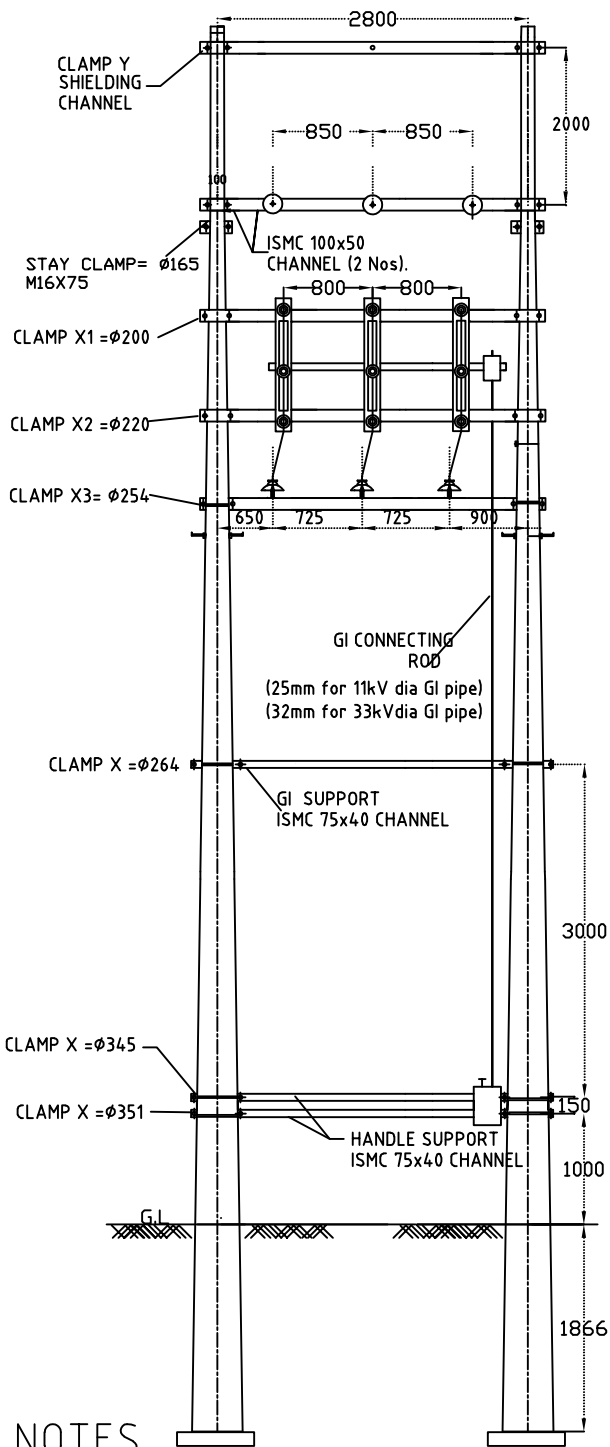


MS TENSION STRAP (60x6) - 6 NOS  
M16X185

NOTES


1. DIMENSIONS AS SHOWN ARE IN mm.
2. ALL HOLES ARE 18mm AND ALL BOLTS TO BE 16mm.
3. SHIELDING ASSEMBLY FOR 12M POLE TO BE SAME FOR ALL

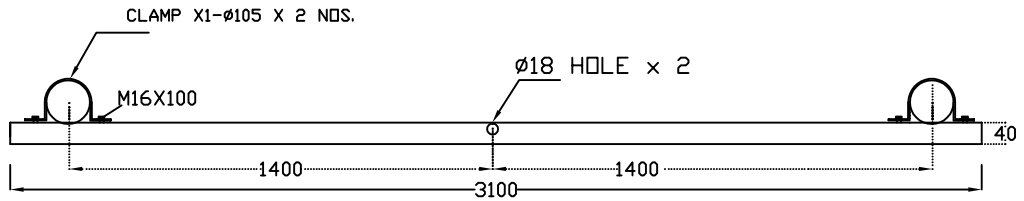
	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
		AIRBREAK SWITCH CROSS-ARM ASSEMBLY		
		FOR 11.2M & 12M TELESCOPIC POLE		
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2022-19/19-21	
			REVISION 2022	



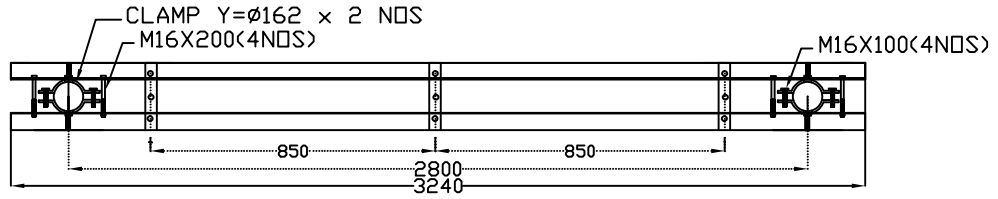
**NOTES**

1. DIMENSIONS AS SHOWN ARE IN mm.
2. ALL HOLES ARE 18mm AND ALL BOLTS TO BE 16mm.

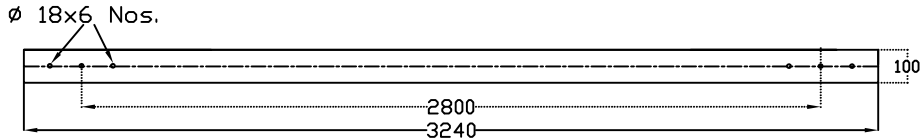
	<b>BHUTAN POWER CORPORATION LIMITED</b>	<b>ENGINEERING AND RESEARCH DEPARTMENT</b>	
		<b>DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b>	
<b>33 kV AIRBREAK SWITCH ARRANGEMENT-12M TELESCOPIC POLES</b>		<b>DRAWING NO. BPC-DDCS-2022-19/20-21</b>	
<b>TITLE</b>	<b>NAME</b>	<b>DATE</b>	<b>REVISION</b>
DESIGNED BY			2022
CHECKED BY			
APPROVED BY			



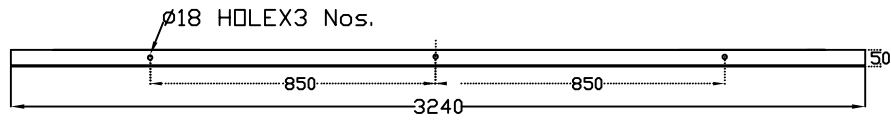
SHIELD WIRE CROSS ARM ASSEMBLY



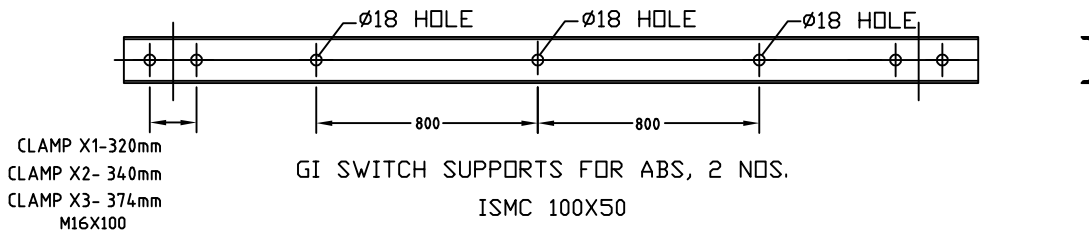
CROSSARM ASSEMBLY



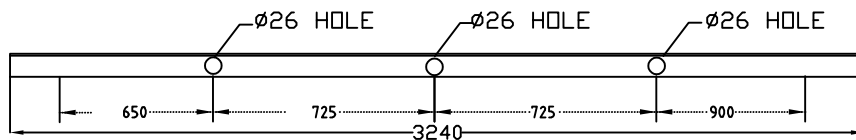
CROSSARM CHANNEL (ISMC 100x50) - ELEVATION



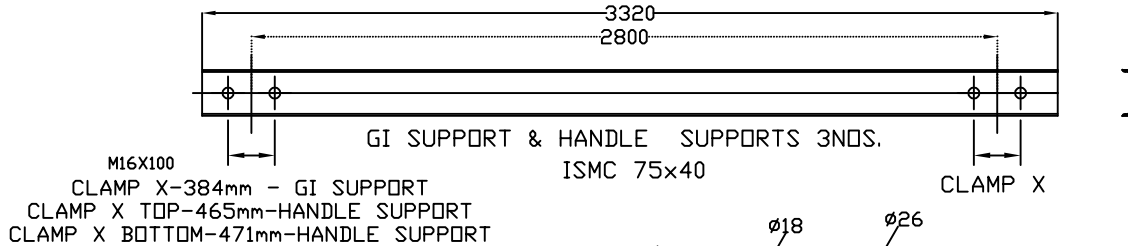
CROSSARM CHANNEL (ISMC 100x50) - PLAN



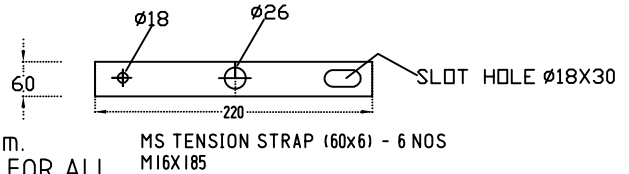
GI SWITCH SUPPORTS FOR ABS, 2 NOS.  
ISMC 100X50



PIN INSULATOR SUPPORTS, 1 NO.  
ISMC 100x50




GI SUPPORT & HANDLE SUPPORTS 3NOS.  
ISMC 75x40



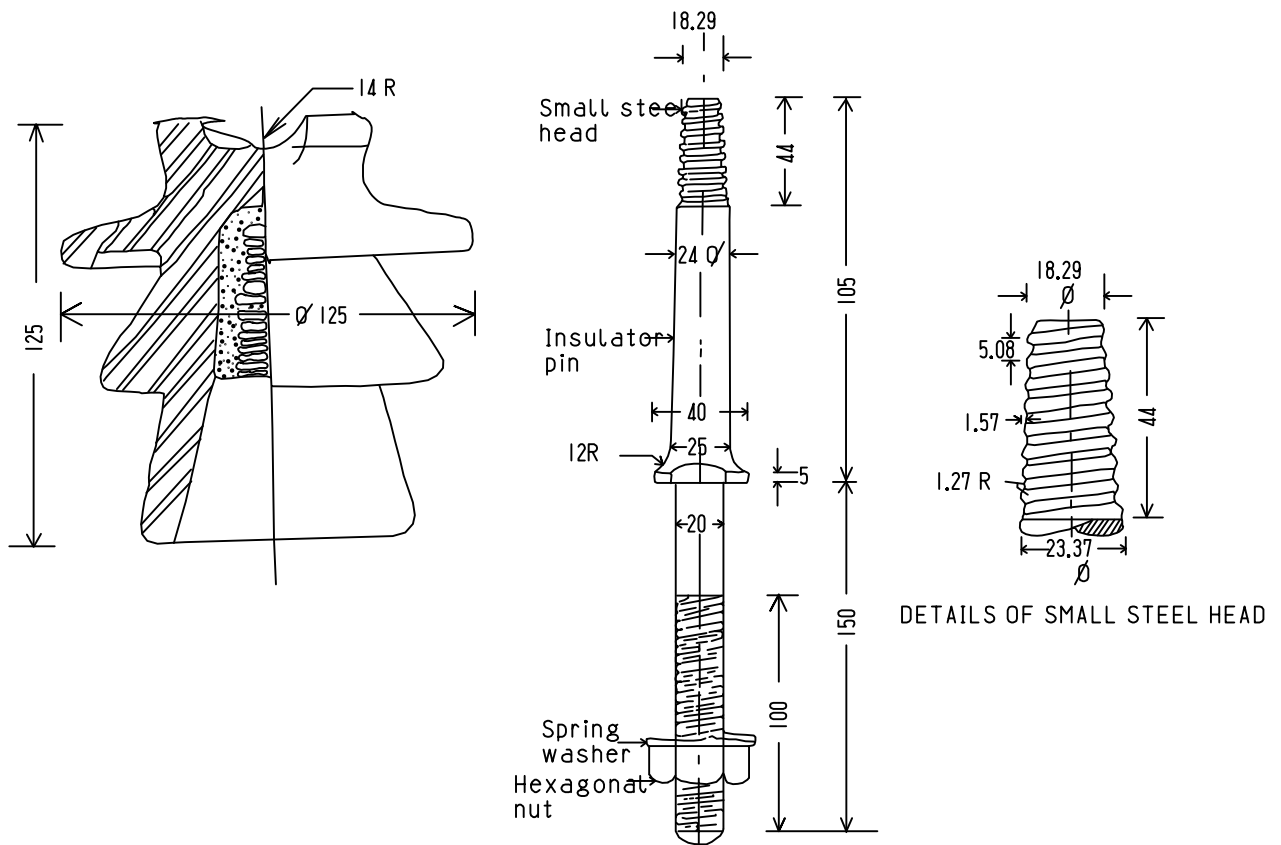
MS TENSION STRAP (60x6) - 6 NOS  
M16X185

NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. ALL HOLES ARE 18mm AND ALL BOLTS TO BE 16mm.
3. SHIELDING ASSEMBLY FOR 12M POLE TO BE SAME FOR ALL

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
		AIRBREAK SWITCH CROSS-ARM ASSEMBLY		
		FOR 11.2M & 12M TELESCOPIC POLE		
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2022-19/21-21	
			REVISION 2022	





Small Steel Head Pin for 11kV Pin Insulator

Note:

1. Specification no. IS 2486 (Part II)
2. All Dimensions in mm
3. Minimum Failing Load 5 kN



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ENGINEERING AND RESEARCH DEPARTMENT

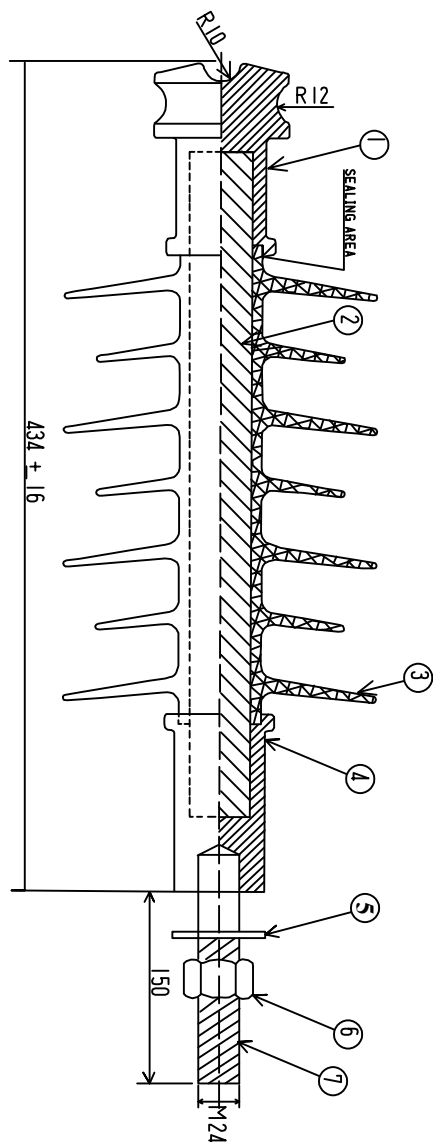
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

11kV -5kN PIN INSULATOR -SMALL HEAD

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DCS-2022-20/2-7

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2022



Sl.no	Description
1	Top Metal Fitting
2	Core Rod
3	Polymer Housing
4	Bottom Metal Fitting
5	Plain Washer
6	Nut
7	Stud

Guaranteed Technical Parameters

1. Min. Creepage Distance : 900 mm
2. Arcing Distance (Approximate) : 320 mm
3. Cantilever Failure Load : 10 kN
4. Nominal System Voltage : 33 kV
5. Highest System Voltage : 36 kV
6. System Frequency : 50 Hz
7. 1 Min. Power Freq. Withstand Voltage (Wet) : 75 kV (rms)
8. Dry Lightning Impulse Withstand Voltage : 170 kVp



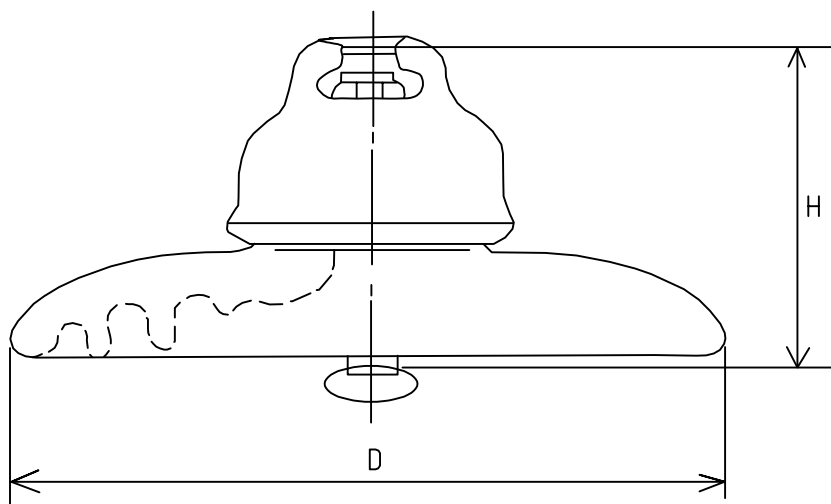
BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

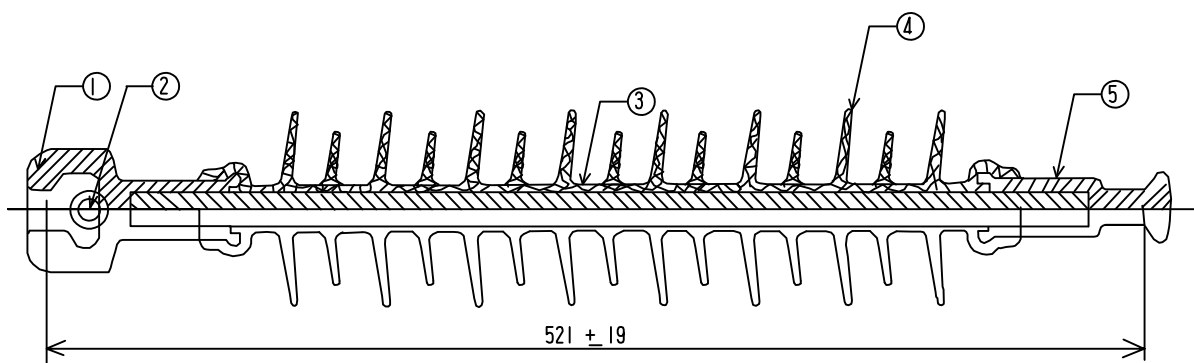
TITLE	NAME	DATE	33kV & 11kV - 10 kN COMPOSITE SILICONE RUBBER PIN INSULATOR	
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2022-20/3-7	REVISION 2022

### Porcelain Disc Insulator



Item	Dimensions (mm)		Rate Failure Load (kN)	Weight (kg)
	D	H		
11kV	255	146	70	5.2
33kV	255	146	70	5.2x3

### 33 kV & 11 kV - 70 kN COMPOSITE SILICONE RUBBER LONG ROD INSULATOR



Sl.no	Description
1	Socket Fitting
2	Security clip (R)
3	Core Rod
4	Polymer Housing
5	Ball fitting



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

PORCELAIN AND COMPOSITE SILICON RUBBER DISC INSULATOR

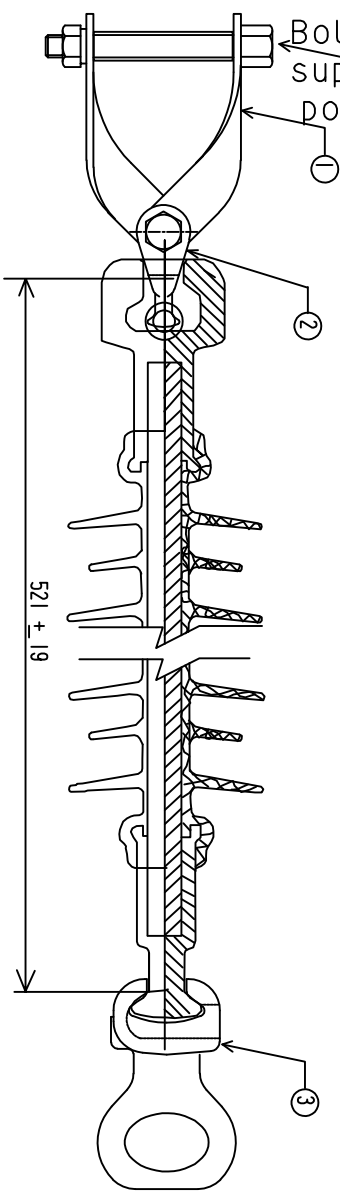
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-20/4-7

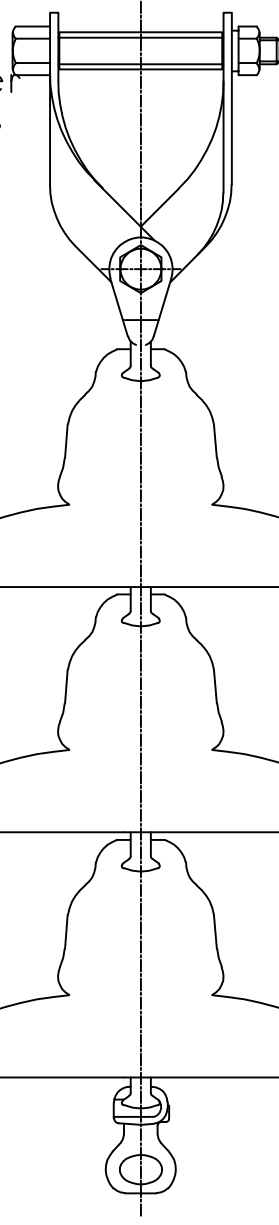
REVISION  
2022

SINGLE TENSION STRING

33 kV SINGLE TENSION STRING

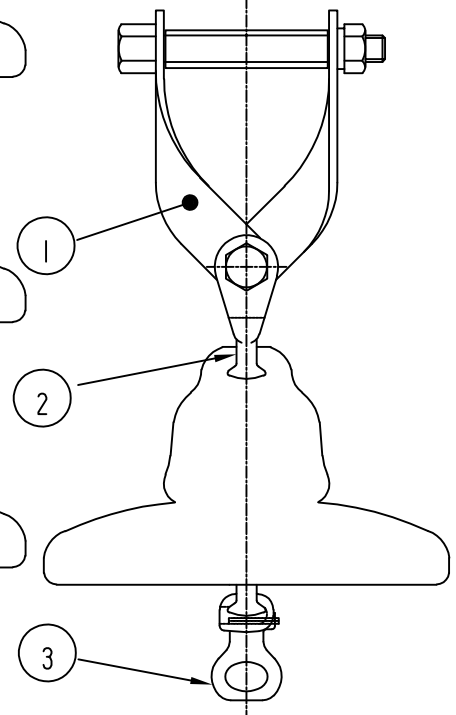


Bolt to be supplied under pole fittings



Bolt to be supplied under pole fittings

11 kV SINGLE TENSION STRING



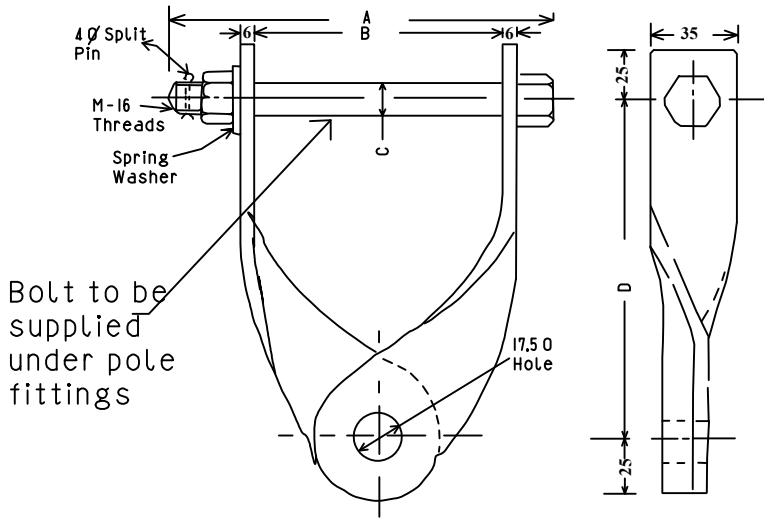
Notes:

1. All fittings shall be galvanised according to relevant standard

3	SOCKET THIMBLE	1	ALUMINIUM ALLOY
2	BALL EYE	1	FORGED STEEL
1	CROSSARM STRAP (TOGETHER, NOT SEPARATE)	1	GALVANISED IRON
ITEM	NAME OF ITEM	QTY	MATERIAL

<p>BHUTAN POWER CORPORATION LIMITED</p>	ENGINEERING AND RESEARCH DEPARTMENT	
	DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
ASSEMBLY FOR DISC INSULATOR ARRANGEMENT		
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		
DRAWING NO. BPC-DDCS-2022-20/5-7		REVISION 2022

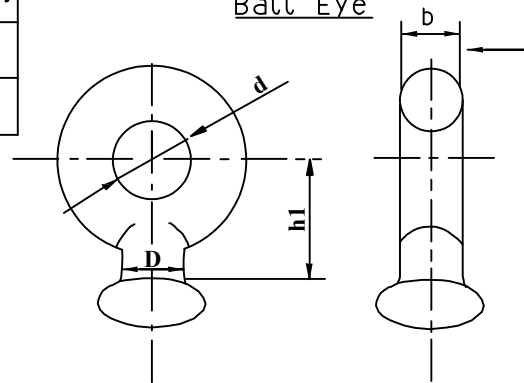
**CROSS ARM STRAP**



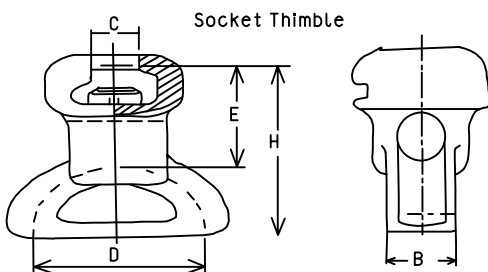
Bolt to be supplied under pole fittings

Dimensions (mm)				Rate Failure Load	Weight
A	B	C	D	(kN)	(kg)
150	100	16	140	70	-

**Ball Eye**



Dimensions (mm)				Rate Failure Load	Weight
D	h1	b	d	(kN)	(kg)
17	50	16	18	70	-



Dimensions (mm)					Rate Failure Load	Weight
B	C	D	E	H	(kN)	(kg)
32	17.6	60	60	95	70	1.20

**Notes:**

1. All fittings shall be galvanised according to relevant standard



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ENGINEERING AND RESEARCH DEPARTMENT

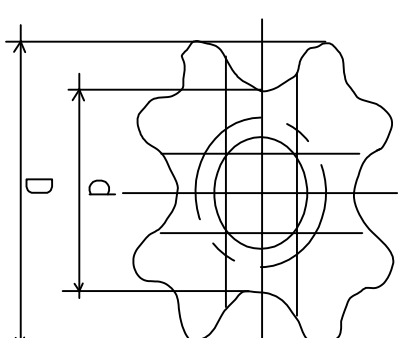
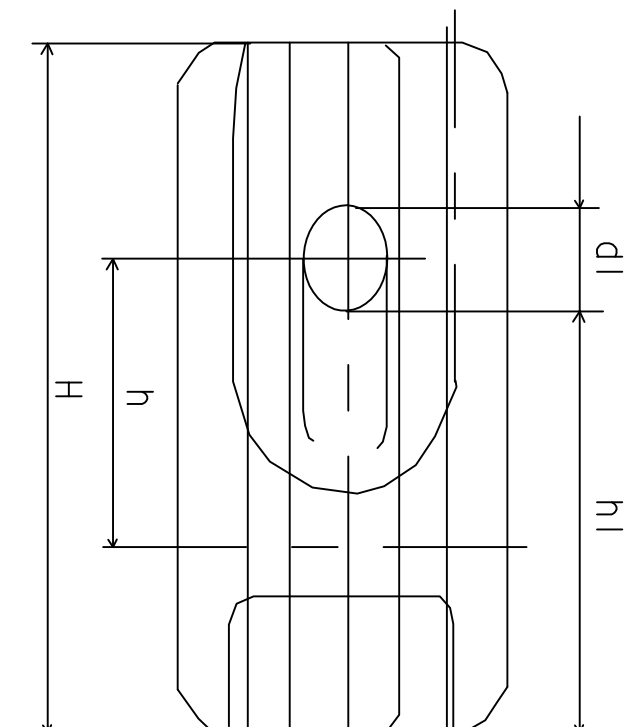
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

HARDWARE FITTINGS FOR DISC INSULATOR ARRANGEMENT

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-20/6-7

REVISION  
2022



Item	Dimensions					Rated Failure Load (KN)	Weight (kg)
	H	h	(mm)	d	h1		
11 & 33k V	171	67	89	60.3	114.3	25.4	89



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

TITLE NAME DATE

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

DESIGNED BY

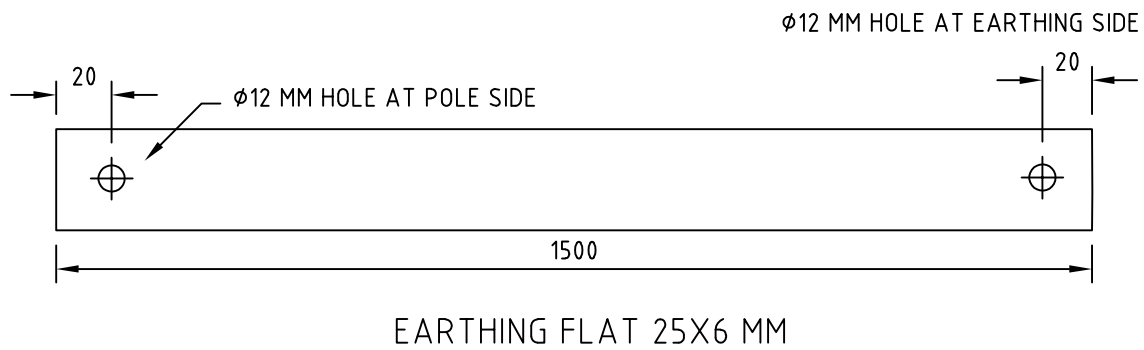
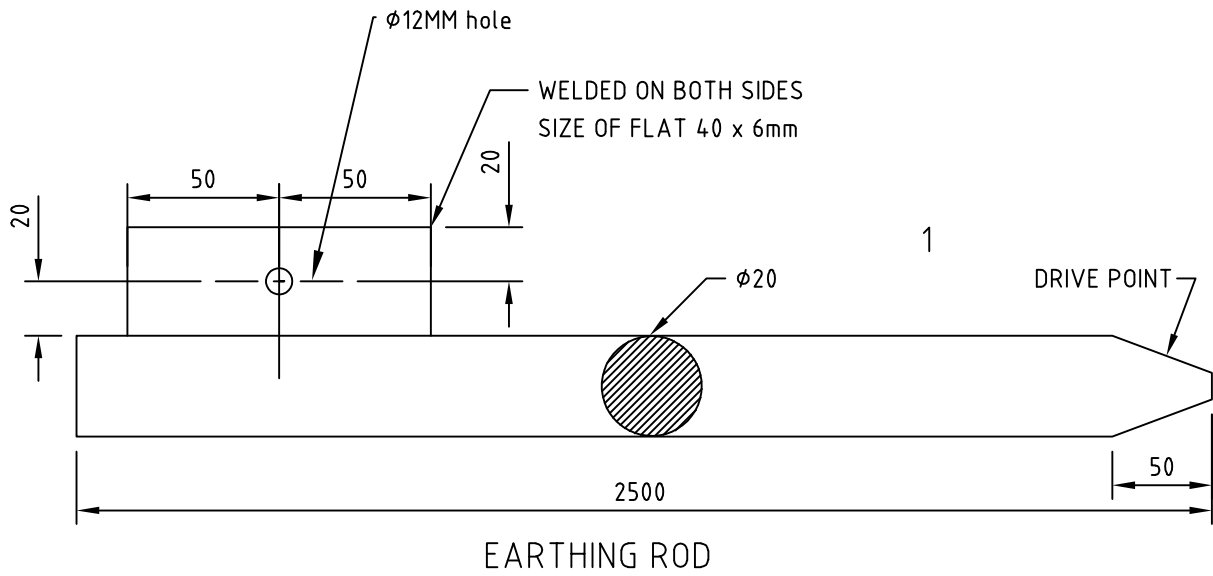
HT STAY INSULATOR

CHECKED BY

DRAWING NO. BPC-DDCS-2022-20/7-7


APPROVED BY

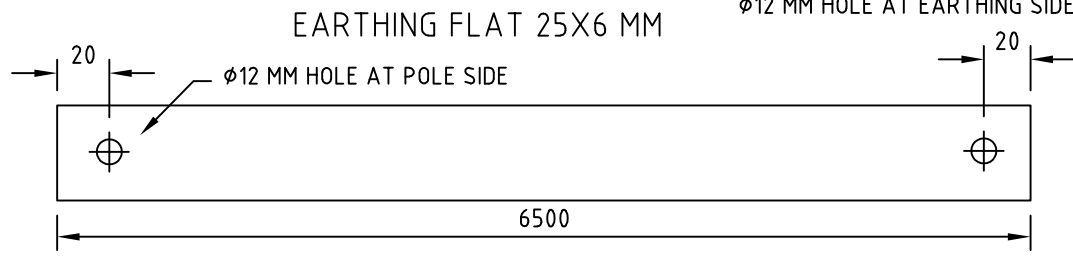
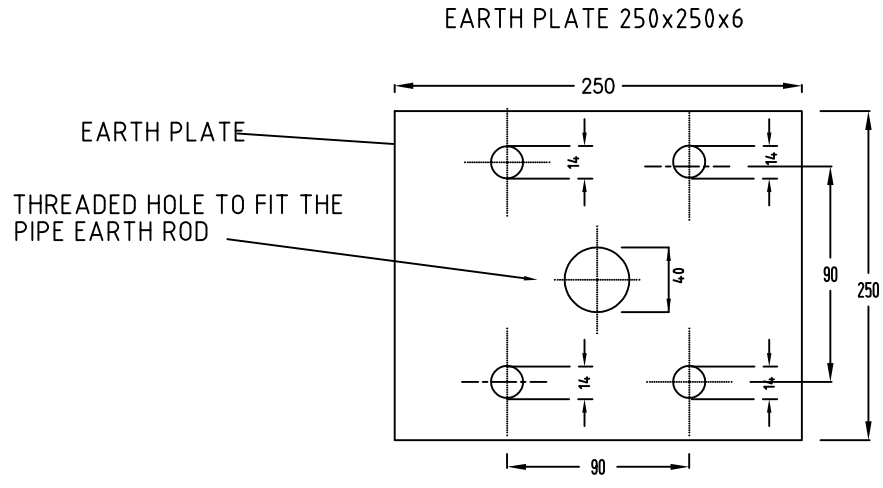
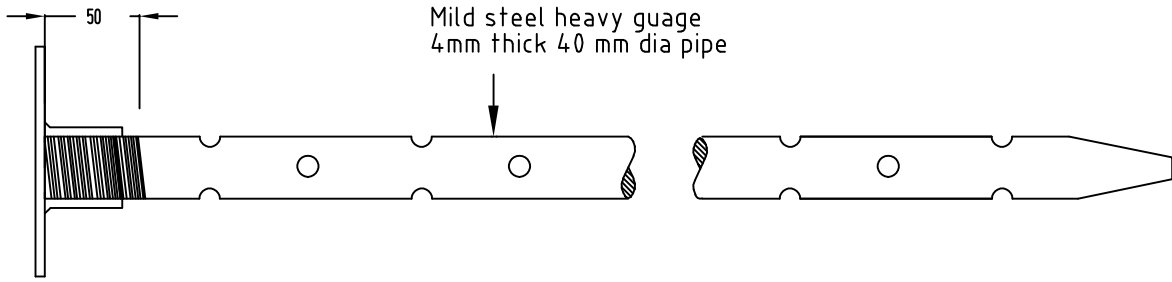
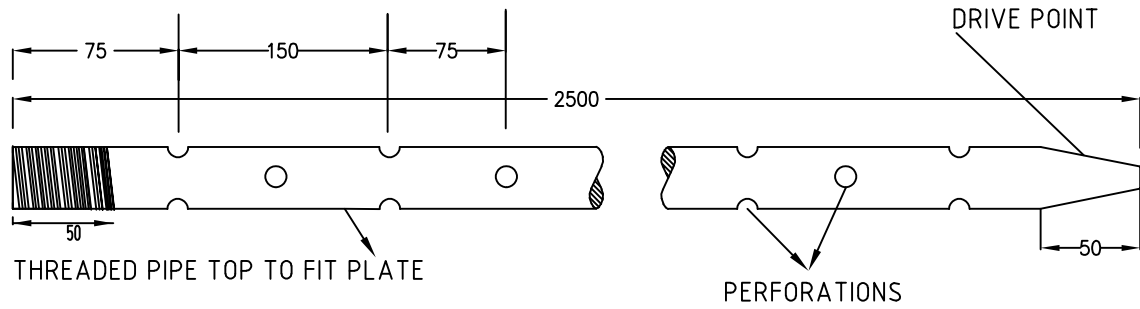
REVISION 2022



GRADE OF STEEL: BS 4360 GRADE 43A OR EQUIVALENT  
 GALVANISED TO: BS 729 OR EQUIVALENT  
 PACKING: EARTING RODS, NUTS & BOLTS, FLATS  
 TO BE PACKED SEPARATELY

5	WASHER SPRING	4	HDG STEEL	M12
4	NUT HEX	4	HDG STEEL	M12
3	EARTHING FLAT 25X6MM	1	HDG STEEL	1.5Meter
2	BOLT HEX	4	HDG STEEL	M12 x 25 x FT
1	EARTHING ROD	1	HDG STEEL	M20 x 2500
ITEM	NAME OF ITEM	QTY	MATERIAL	SIZE

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRUBUTION DESIGN & CONSTRUCTION STANDARD	
TITLE	NAME	DATE	SPIKE EARTHING SET	
DESIGNED BY			DRAWING NO.BPC -DDCS -2022-21/1-2	
CHECKED BY				
APPROVED BY				



GRADE OF STEEL: BS 1387 OR EQUIVALENT  
 GALVANISED TO: BS 729 OR EQUIVALENT  
 PACKING: EARTING ROD,LUGS, BOLTS & NUTS  
 PLATE PACKED SEPARATELY

EARTHING FLAT (6.5 METER)	11	H.D.G STEEL
FLANGED PLATE	1	H.D.G STEEL
SPRING WASHER	4	H.D.G STEEL
HEX NUT M06	4	H.D.G STEEL
HEX BOLT M06X25	4	H.D.G STEEL
EARTHING ROD	1	H.D.G STEEL
NAME OF THE ITEM	QTY	MATERIAL



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

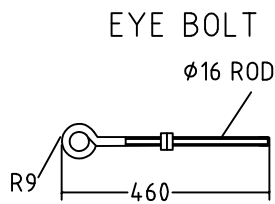
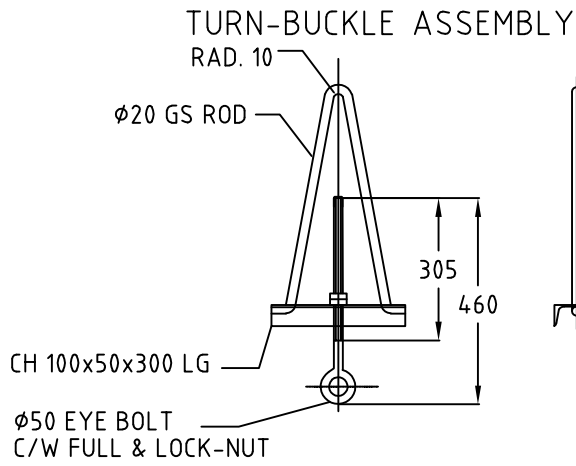
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

PIPE EARTHING

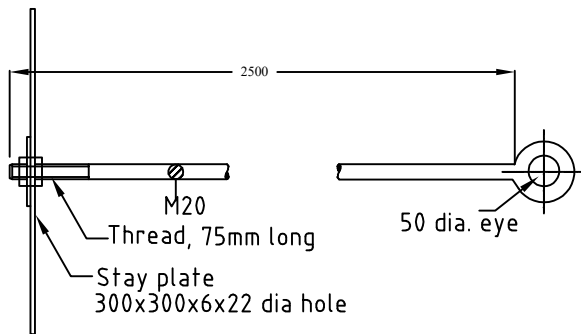
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC -DDCS -2022-21/2-2	REVISION 2022
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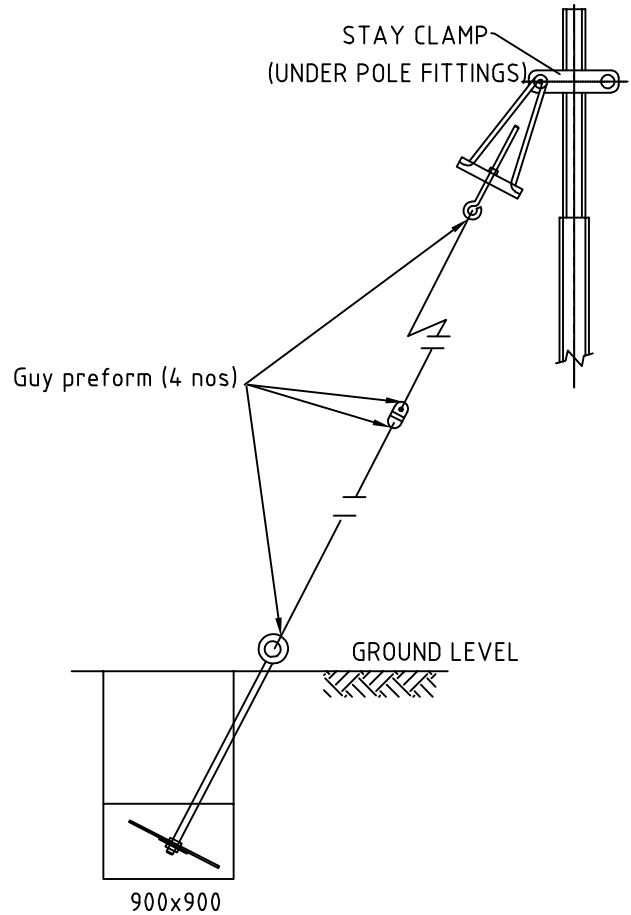
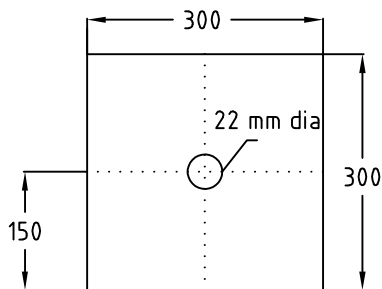




ANCHOR ROD ASSEMBLY



STAY PLATE



NOTES

- Stay rod and nuts assembled and packed together
- Anchor plates packed separately
- Material :- BS 4360 Grade 43A
- Galvanizing :- BS 729
- Threads :- ISO Metric
- Nut :- BS 4190 Grade 4.0

STAY WIRE (7/8 SWG) (IN METERS)	IM+POLE HEIGHT	H.D.G STEEL
STAY ROD (2.5 M) WITH THIMBLE	1	H.D.G STEEL
ANCHOR PLATE (300 X 300 X 6MM)	1	H.D.G STEEL
TURN BUCKLE ASSEMBLY WITH THIMBLE	1	H.D.G STEEL
GUY PREFORMED SUITABLE FOR 7/8 SWG	4	GALVANISED STEEL WIRE
STAY INSULATOR	1	PORCELAIN
NAME OF THE ITEM	QTY	MATERIAL



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

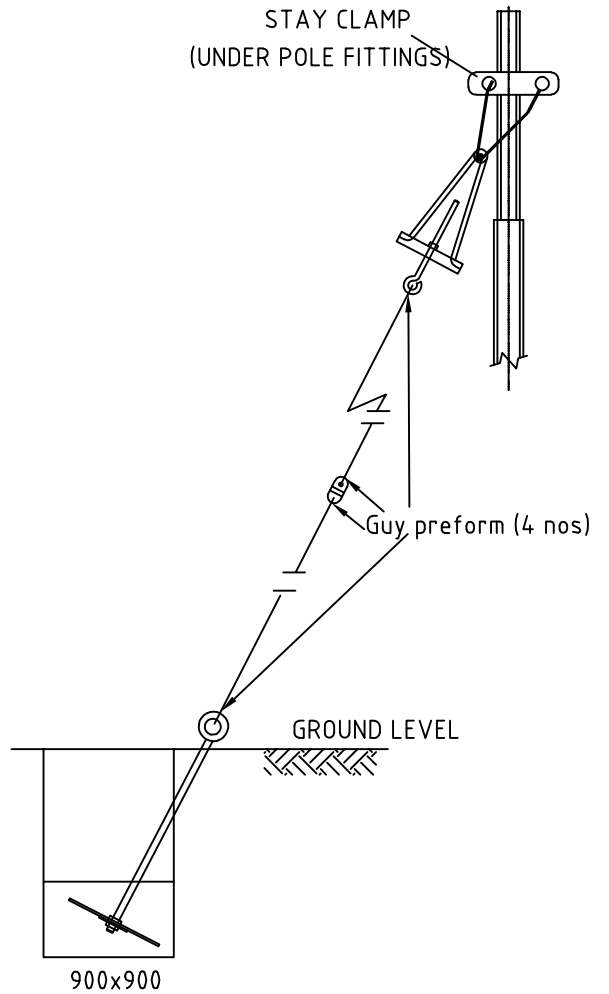
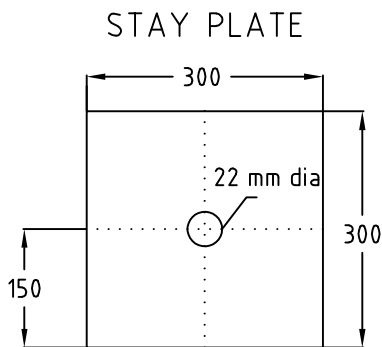
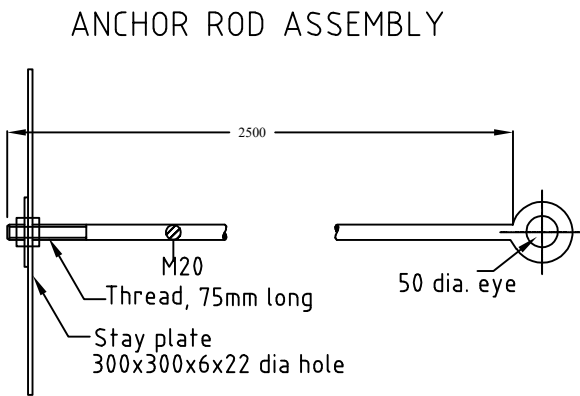
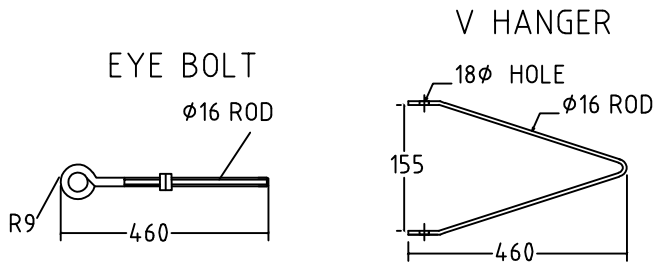
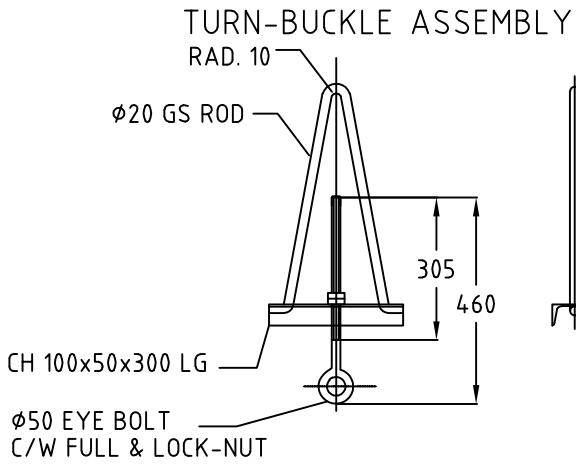
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

STAY SET ASSEMBLY FOR STEEL TUBULAR

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-22/1-2

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### NOTES

- Stay rod and nuts assembled and packed together
- Anchor plates packed separately
- Material :- BS 4360 Grade 43A
- Galvanizing :- BS 729
- Threads :- ISO Metric
- Nut :- BS 4190 Grade 4.0

V-HANGER	1	H.D.G STEEL
STAY WIRE (7/8 SWG) (IN METERS)	1M+POLE HEIGHT	H.D.G STEEL
STAY ROD (2.5 M) WITH THIMBLE	1	H.D.G STEEL
ANCHOR PLATE (300 X 300 X 6MM)	1	H.D.G STEEL
TURN BUCKLE ASSEMBLY WITH THIMBLE	1	H.D.G STEEL
GUY PREFORMED SUITABLE FOR 7/8 SWG	4	GALVANISED STEEL WIRE
STAY INSULATOR	1	PORCELAIN
NAME OF THE ITEM	QTY	MATERIAL



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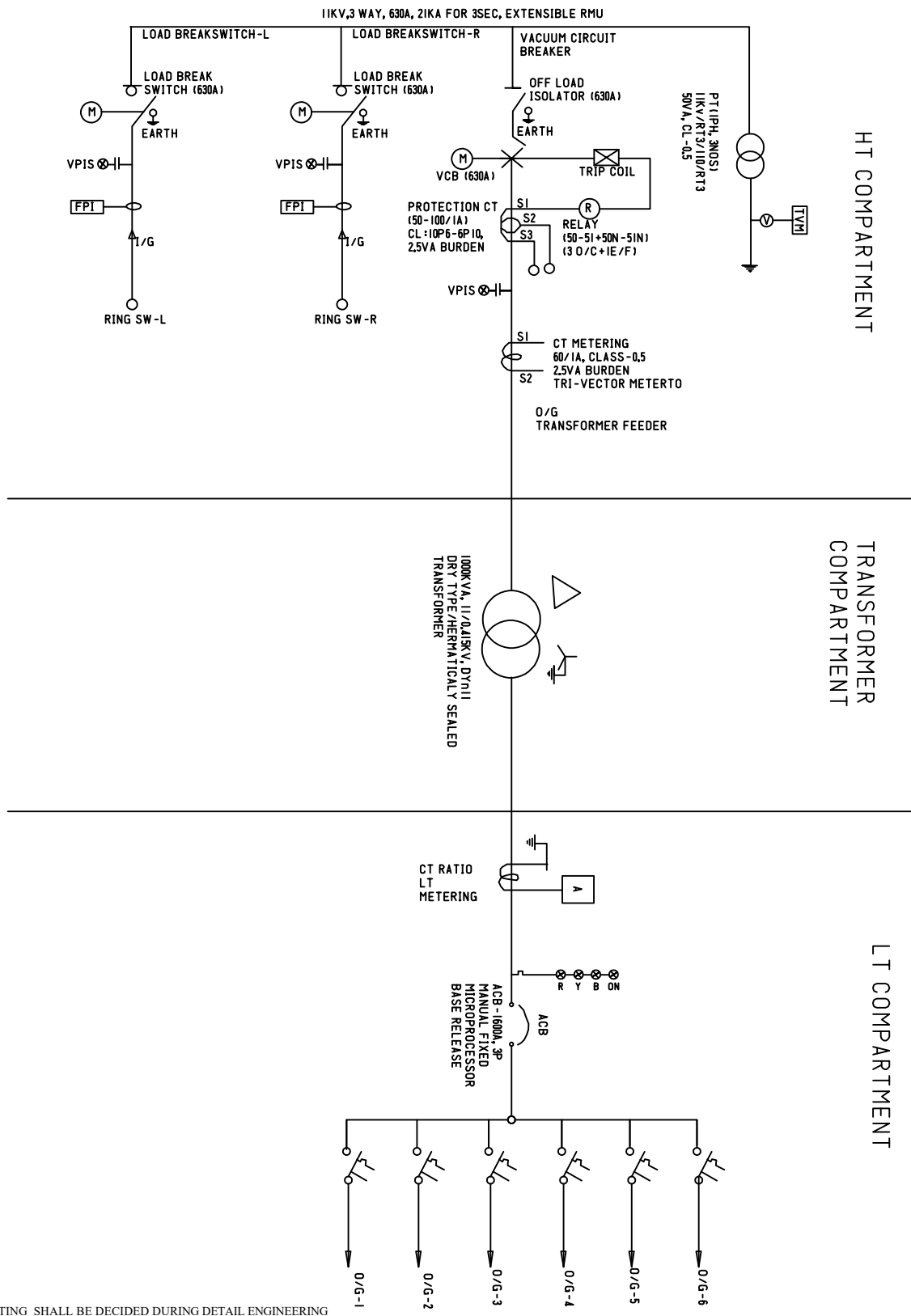
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

STAY SET ASSEMBLY FOR TELESCOPIC POLE

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-22/2-2

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**NOTE**

MCCB RATING SHALL BE DECIDED DURING DETAIL ENGINEERING



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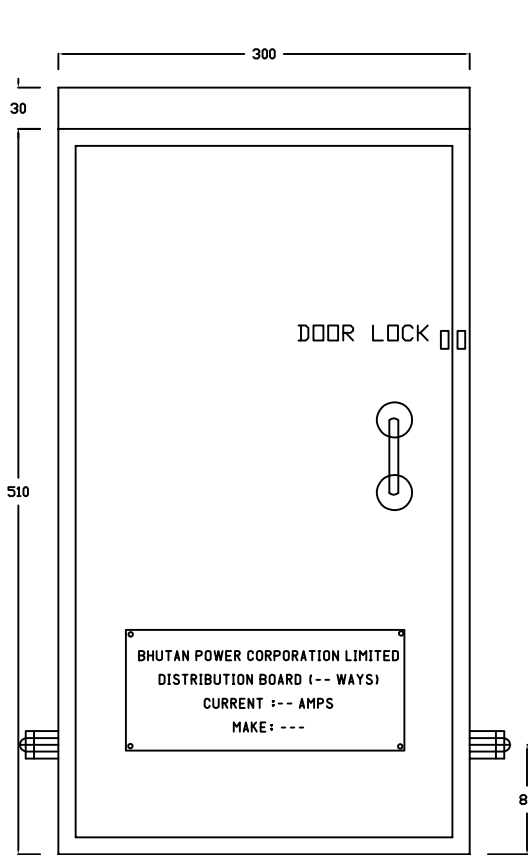
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

GENERAL ARRANGEMENT OF 4WAYS UNITIZED SUBSTATION

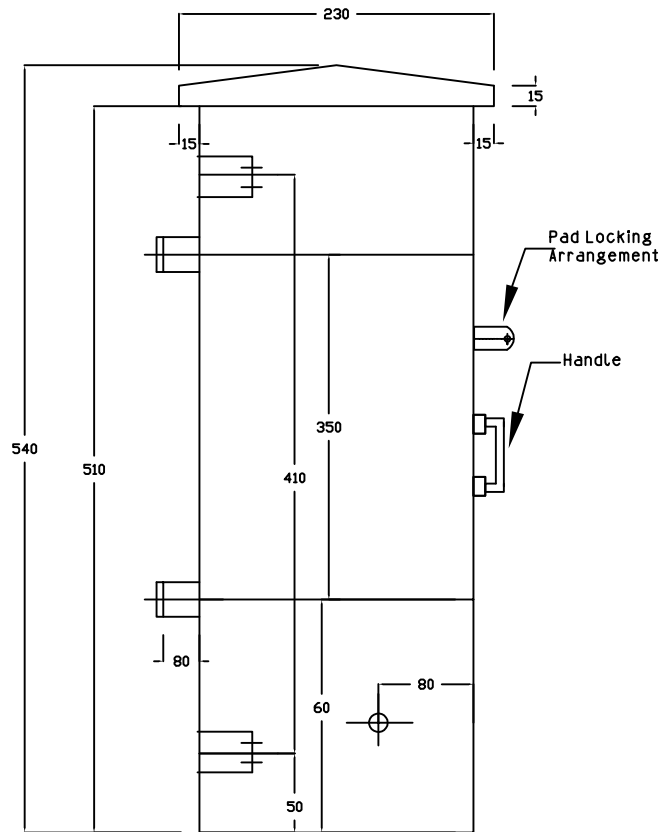
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DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-23

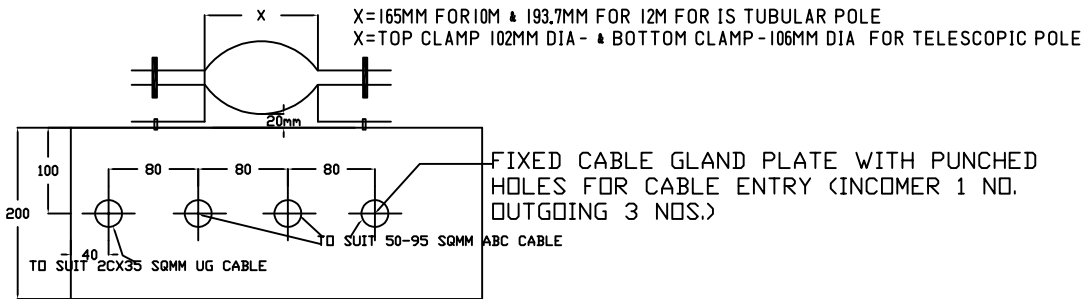
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FRONT VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:

KVA RATING	MCCB RATING	PHASE BUSBAR SIZE	NEUTRAL BUSBAR SIZE
10 kVA	63A	12x6MM AL.ALLOY, GR-610I	12x4MM AL.ALLOY, GR-610I
16 kVA	100A	20x5MM AL.ALLOY, GR-610I	20x2MM AL.ALLOY, GR-610I
25 kVA	160A	25x6MM AL.ALLOY, GR-610I	25x4MM AL.ALLOY, GR-610I

BAYONET LAMP (IND) TO BE PROVIDED AND REFER TABLE 101 & 101 IN DDCS FOR CABLE AND MCCB RATING



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ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

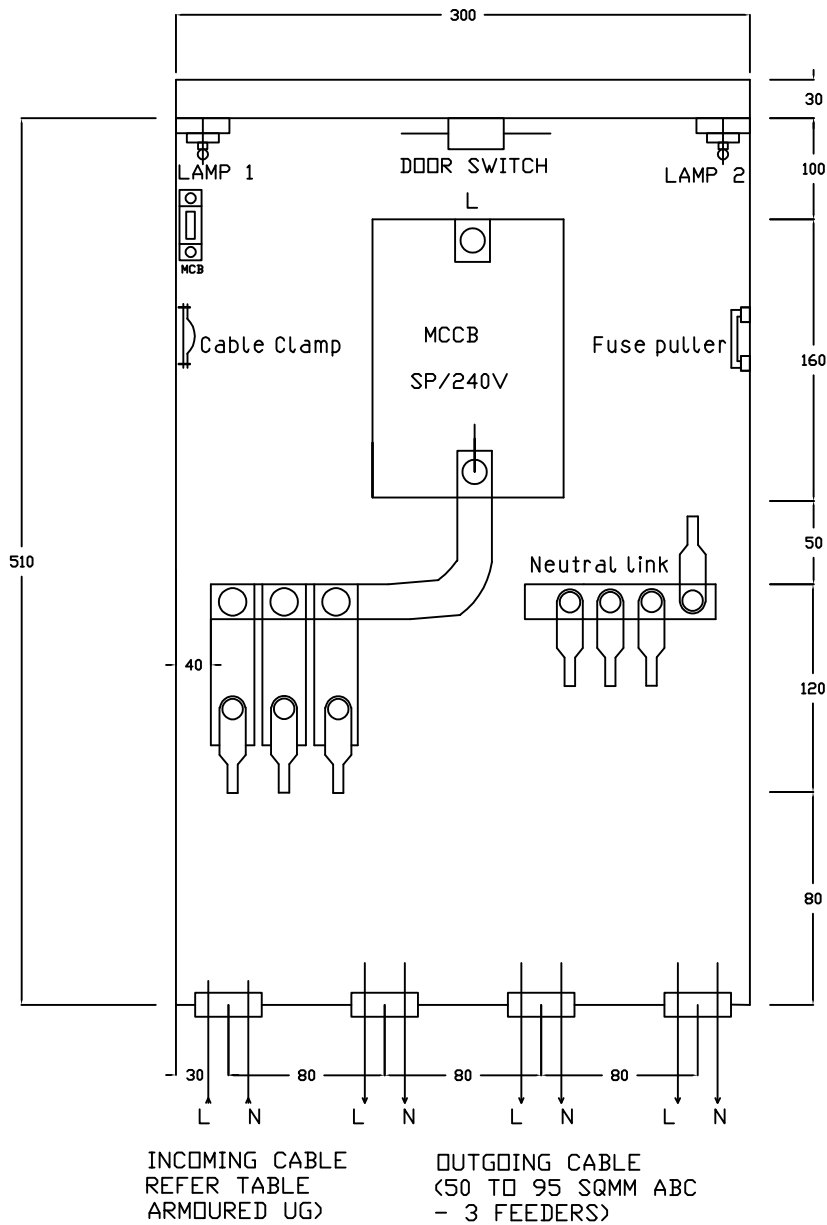
SINGLE PHASE TRANSFORMER LV DISTRIBUTION BOARD, 3 WAYS, INCOMER MCCB- UPTO 160 A, OUTGOING HRC FUSE UPTO 100 A (EXTERNAL VIEW)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC -DDCS -2022-24A /2-2

REVISION

2022



## NOTES

### INNER DEVICE:

- MCCB UPTO 63 TO 160A, 1NO. SP- 240V
- HRC FUSES: UPTO 100A, 3NOS/2NOS DEPENDING ON NUMBER OF WAYS.
- PROVIDE ONE NUMBER OF HRC FUSE PULLER FOR EVERY BOARD.
- CABLE LUG TO BE SUPPLIED FIXED WITH THE BOARD FOR APPROPRIATE CABLE SIZES.



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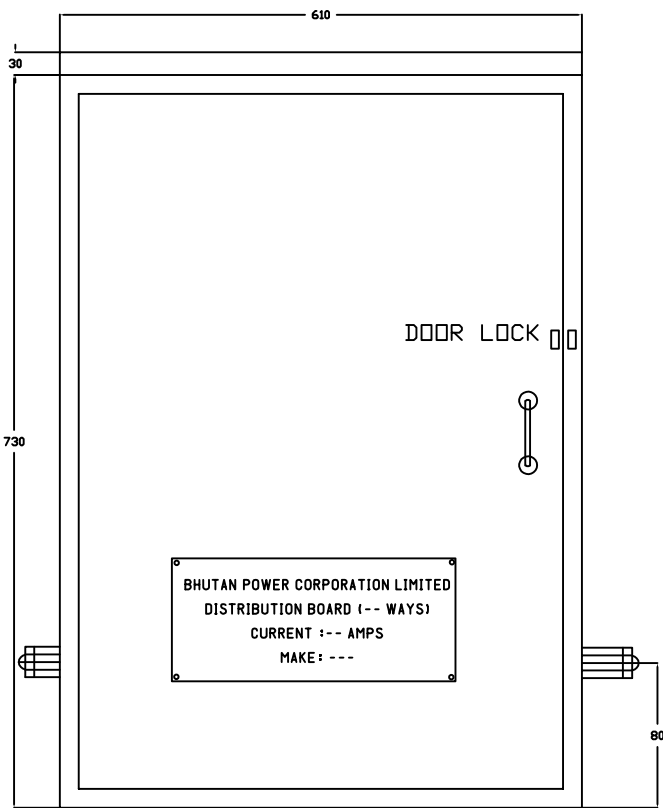
ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  
SINGLE PHASE TRANSFORMER LV DISTRIBUTION BOARD, 3 WAYS, INCOMER  
MCCB -  
UPTO 160 A, OUTGOING HRC FUSE UPTO 100 A (INTERNAL VIEW)

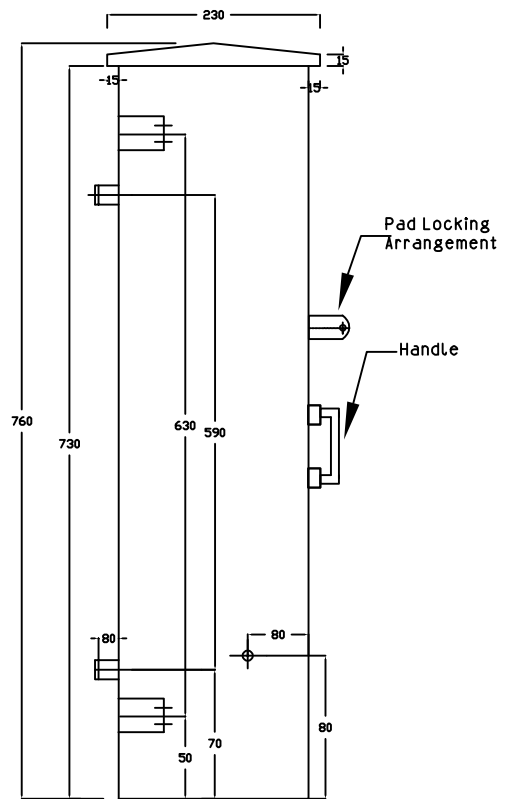
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-24A/1-2

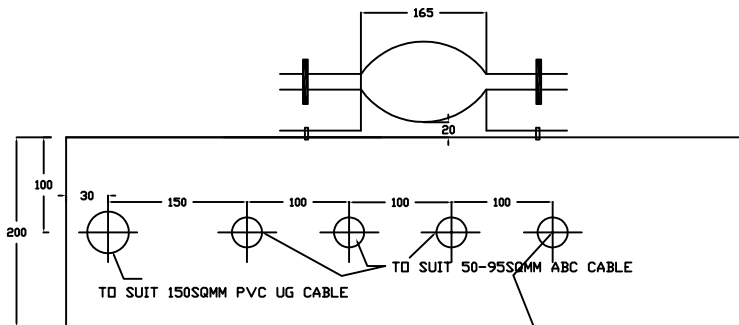
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2022



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

FIXED CABLE GLAND PLATE WITH PUNCHED HOLES FOR CABLE ENTRY (OUTGOING 4 NOS) AND (INCOMING 1ND)

NOTE:

KVA RATING	MCCB RATING	PHASE BUSBAR SIZE	NEUTRAL BUSBAR SIZE
16	63A	12x6MM AL.ALLOY, GR-610I	12x4MM AL.ALLOY, GR-610I
25	63A	12x6MM AL.ALLOY, GR-E91E	12x4MM AL.ALLOY, GR-610I
63	160A	25x6MM AL.ALLOY, GR-E91E	25x4MM AL.ALLOY, GR-610I
125	250A	50x5MM AL.ALLOY, GR-E91E	25x5MM AL.ALLOY, GR-610I

- \*BAYONET LAMP (IND) TO BE PROVIDED
- \*REFER TABLE 101 & 101 IN DDCS FOR CABLE AND MCCB RATING



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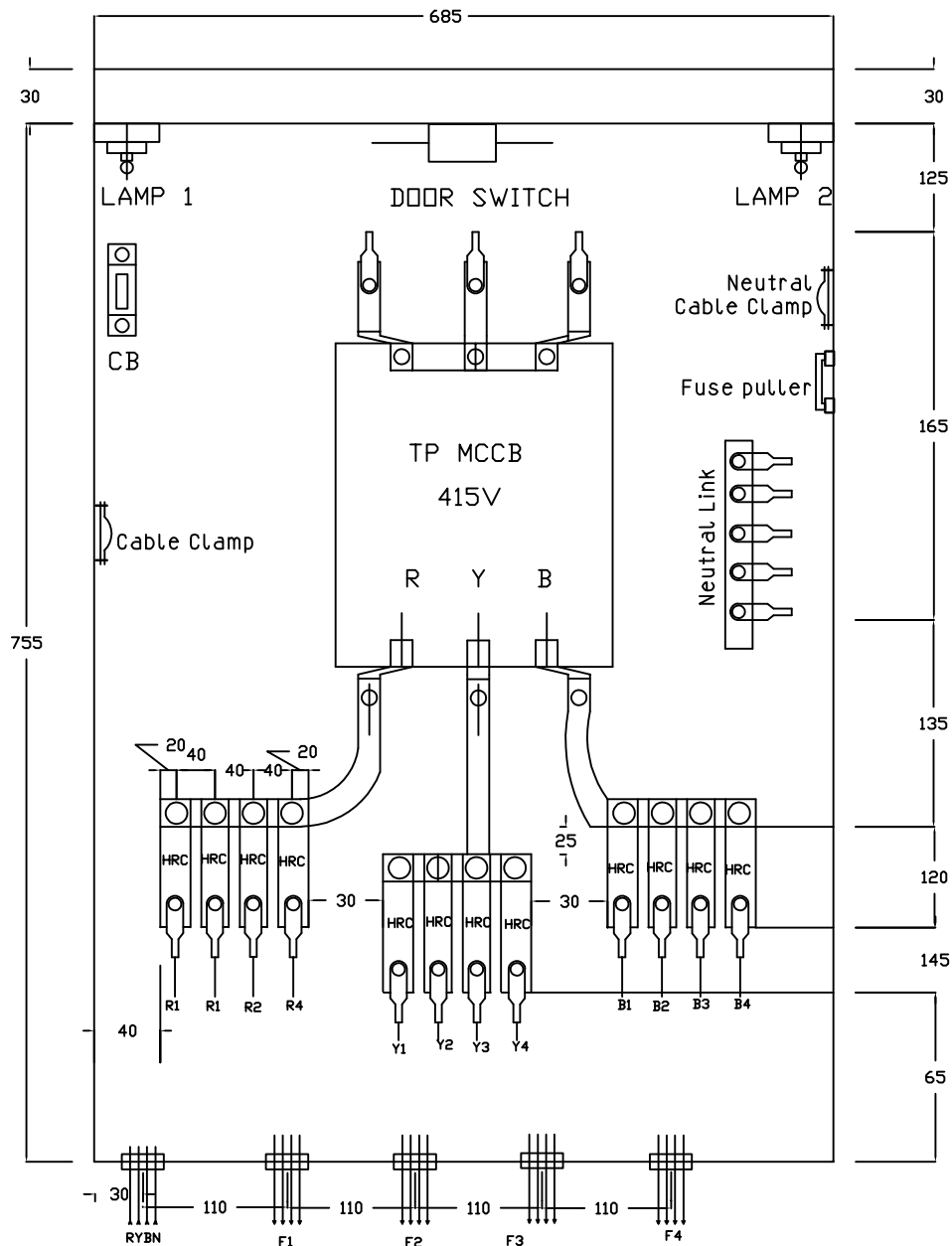
ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  
THREE PHASE TRANSFORMER LV DISTRIBUTION BOARD, 4 WAYS, INCOMER  
MCCB-UPTO  
250A, OUTGOING HRC FUSE UPTO 125A (EXTERNAL VIEW)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

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INCOMING CABLE  
95MMSQ  
ARMOURED UG)

OUTGOING CABLE (10SQMM  
ABC - 4 FEEDERS)

## NOTES

### INNER DEVICE:

- MCCB UPTO 32 TO 250A, 1NO. TP-415V
- HRC FUSES: UPTO 125A, 6 NOS/12NOS DEPENDING ON NUMBER OF WAYS.
- PROVIDE ONE NUMBER OF HRC FUSE PULLER FOR EVERY BOARD.
- CABLE LUG TO BE SUPPLIED FIXED WITH THE BOARD FOR APPROPRIATE CABLE SIZES.
- TO BE USED WITH 16kVA, 25 kVA, 63 kVA & 125 kVA 3 PHASE TRANSFORMER RATING



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ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

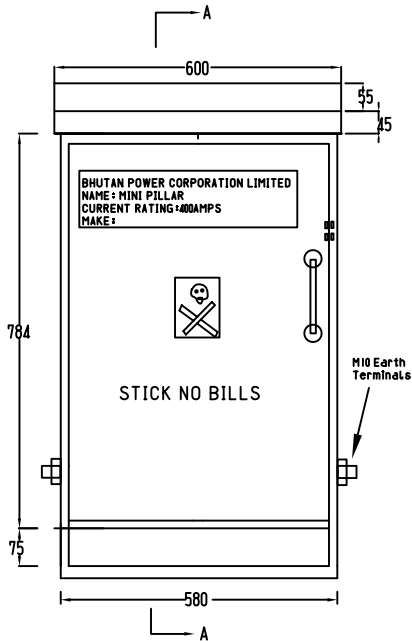
THREE PHASE TRANSFORMER LV DISTRIBUTION BOARD, 4 WAYS,  
INCOMER MCCB-UPTO 250A, OUTGOING HRC FUSE UPTO 125A (INTERNAL  
VIEW)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

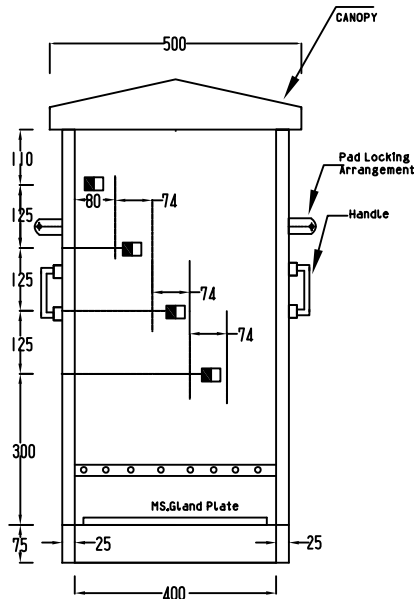
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REVISION

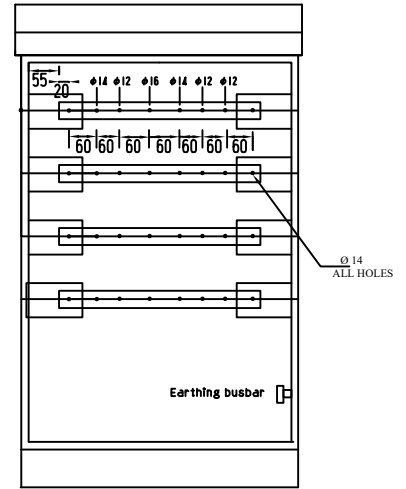
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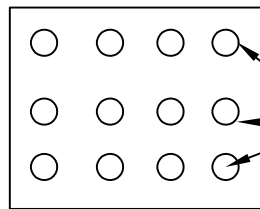
FRONT ELEVATION



SIDE ELEVATION: (A:A)

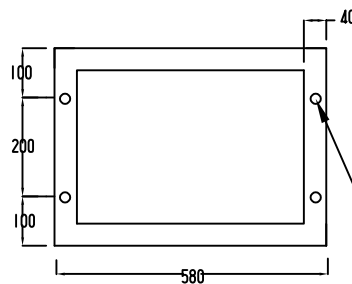


FRONT ELEVATION WITHOUT DOOR

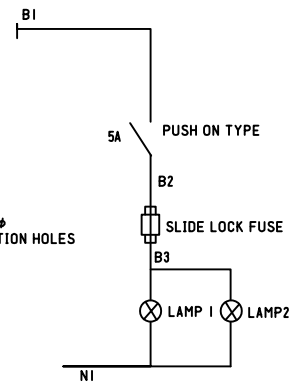


GLAND PLATE DETAILS

PUNCH HOLES FOR CABLE ENTRY VARIOUS SIZE OF CABLES FROM 16SQ.MM TO 300SQ.MM



FOUNDATION PLAN



PHASE BUS BAR - 1X10X50MM AL. ALLOY  
 NEUTRAL - 1X10X50MM AL. ALLOY.  
 MATERIAL - THE FEEDER PILLAR (INCLUDING BASE CHANNEL SHALL BE FABRICATED OUT OF 2.5MM MS SHEET  
 PAINT - RAL 7035  
 EARTH BUS BAR - 1X10X20MM AL. ALLOY.

NOTES

1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

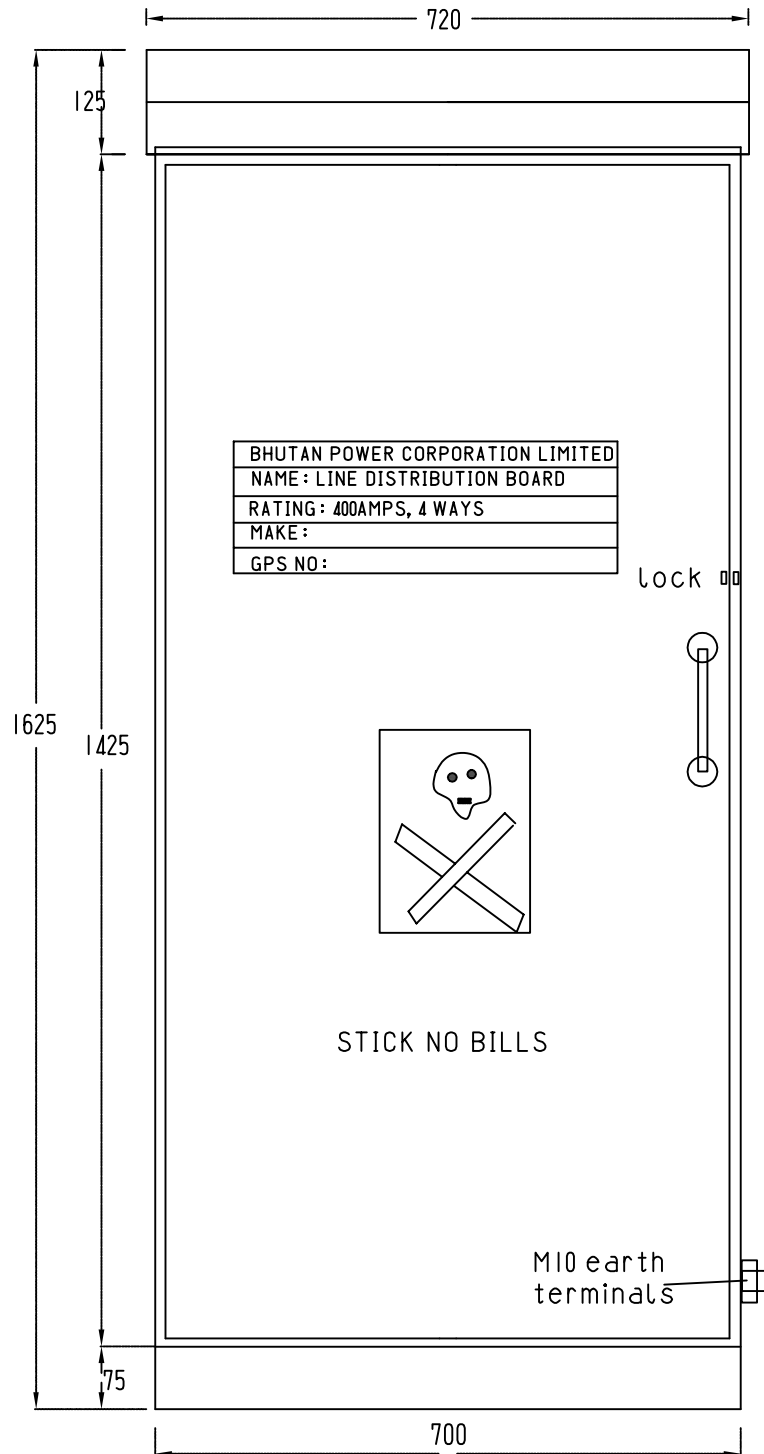
MINI FEEDER PILLAR 400AMPS

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-25


REVISION  
2022

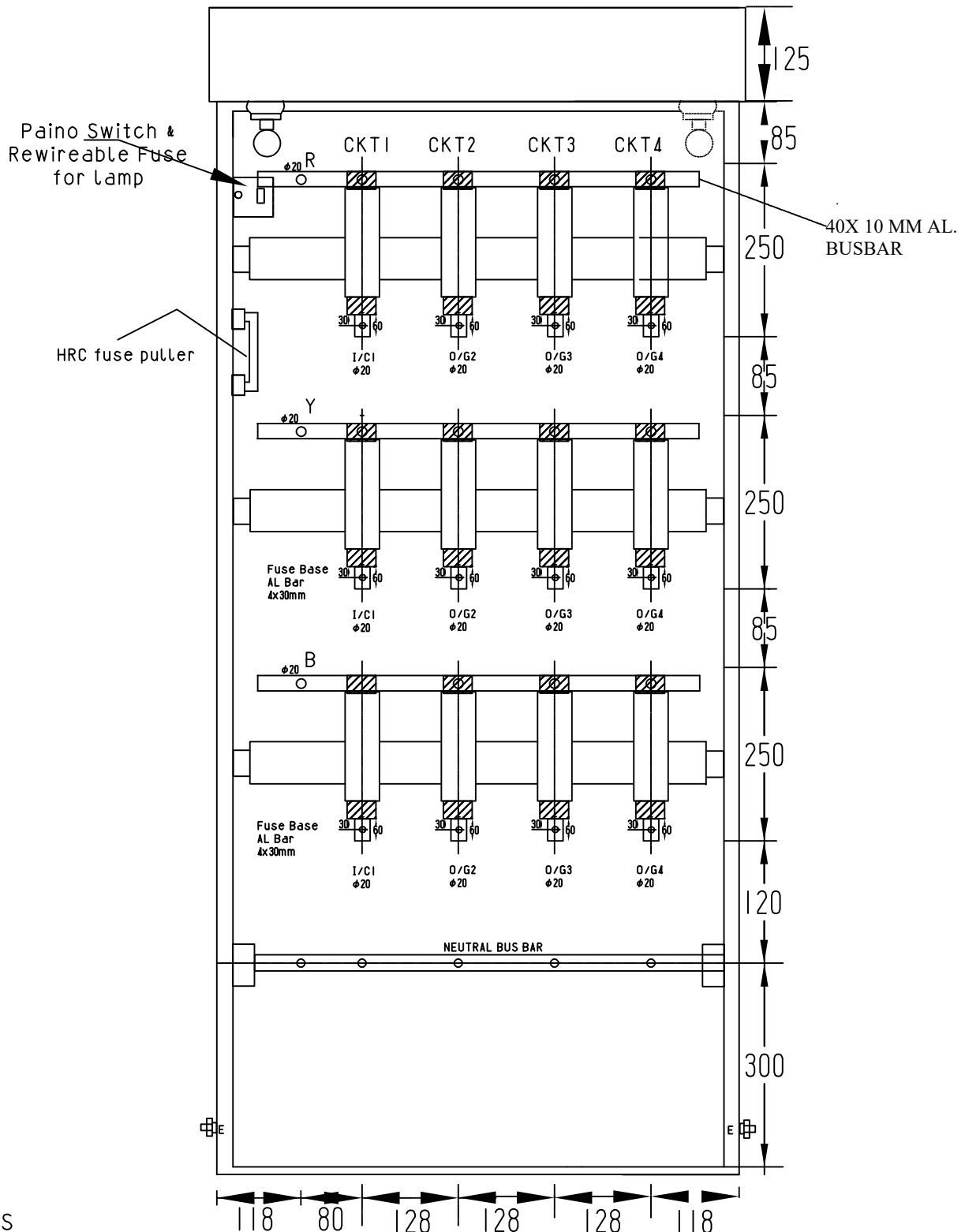




**NOTES**


1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.

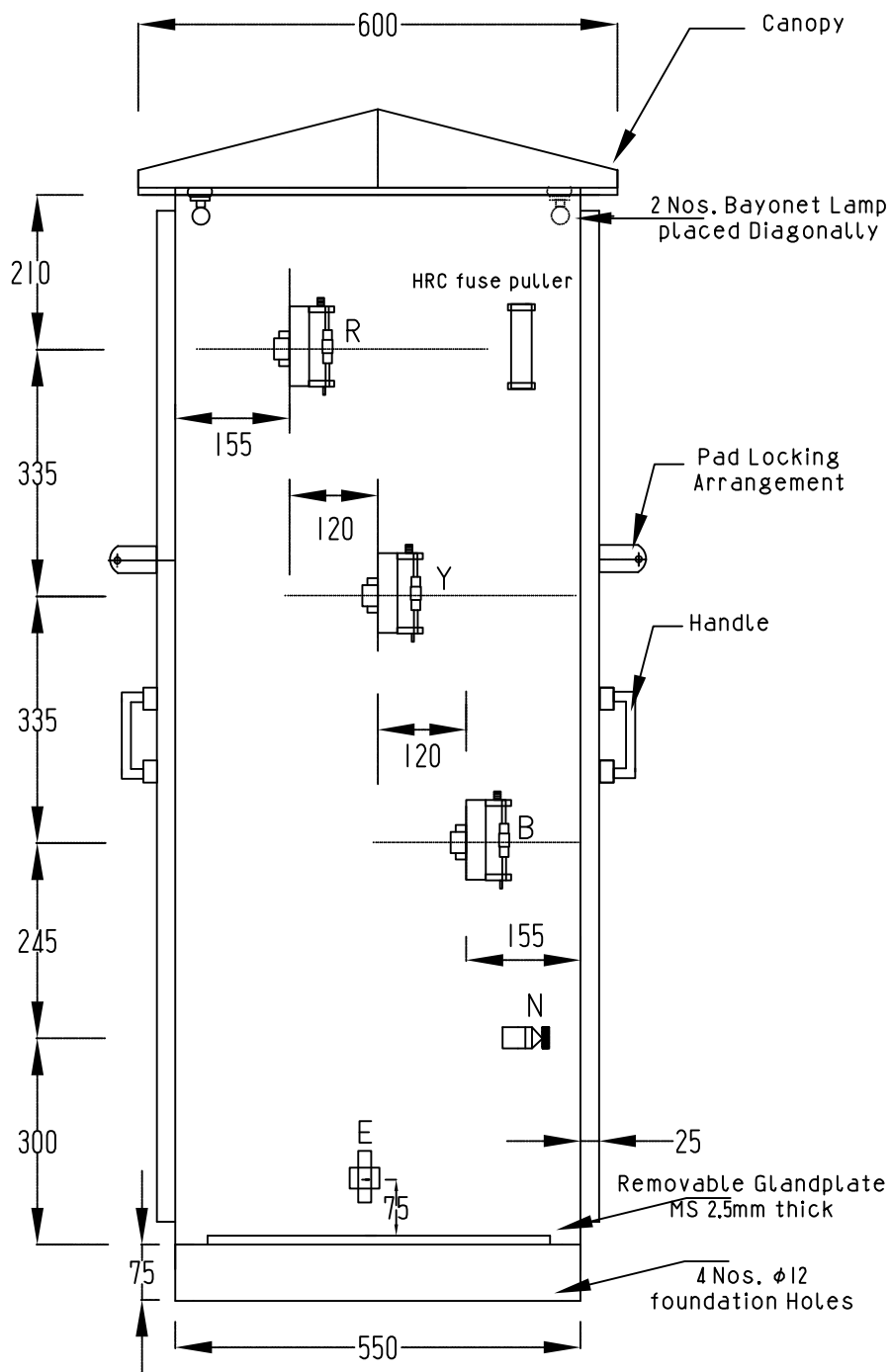
 <p><b>BHUTAN POWER CORPORATION LIMITED</b></p>			ENGINEERING AND RESEARCH DEPARTMENT	
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD 4WAYS DISTRIBUTION PILLAR FRONT ELEVATION & SIDE ELEVATION	
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2022-26/1-5	REVISION 2022



**NOTES**


1. DIMENSIONS AS SHOWN ARE IN MM.
2. PROVIDE ONE NO. OF FUSE PULLER FOR EVERY DISTRIBUTION BOARD.

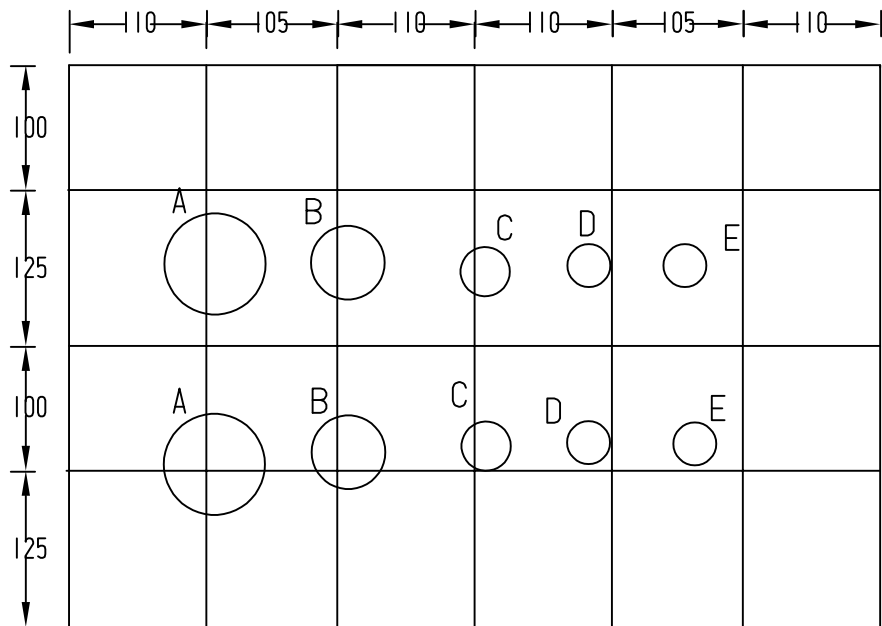
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			<b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b> <b>4WAYS DISTRIBUTION PILLAR</b> <b>(FRONT ELEVATION WITHOUT DOOR)</b>	
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2022-26/2-5	REVISION 2022



**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM. THE PILLAR SHALL BE TWO SIDED DOORS
2. DRAWING NOT TO SCALE.

	<b>BHUTAN POWER CORPORATION LIMITED</b>		<b>ENGINEERING AND RESEARCH DEPARTMENT</b>	
			<b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b>	
<b>4WAYS DISTRIBUTION PILLAR</b>				
<b>TITLE</b>	<b>NAME</b>	<b>DATE</b>	<b>DRAWING NO. BPC-DDCS-2022-26/3-5</b>	
<b>DESIGNED BY</b>				
<b>CHECKED BY</b>				
<b>APPROVED BY</b>				
			<b>REVISION</b> 2022	



GLAND PLATE	HOLE SIZE
A-4CX300sq.mm-KNOCKOUT	2.78"
B-4CX185sq.mm-KNOCKOUT	2.29"
C-4CX150sq.mm-KNOCKOUT	2.09"
D-2CX10sq.mm-KNOCKOUT	0.75
E-2CX6sq.mm-KNOCKOUT	0.65"



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ENGINEERING AND RESEARCH DEPARTMENT

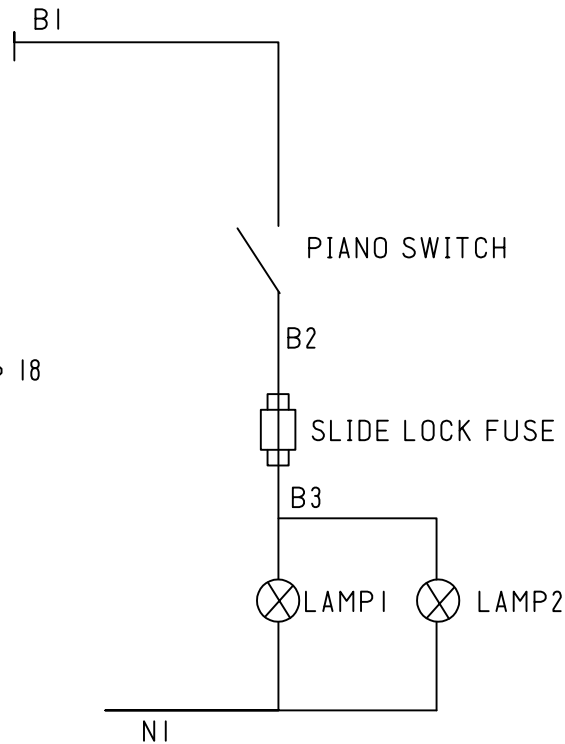
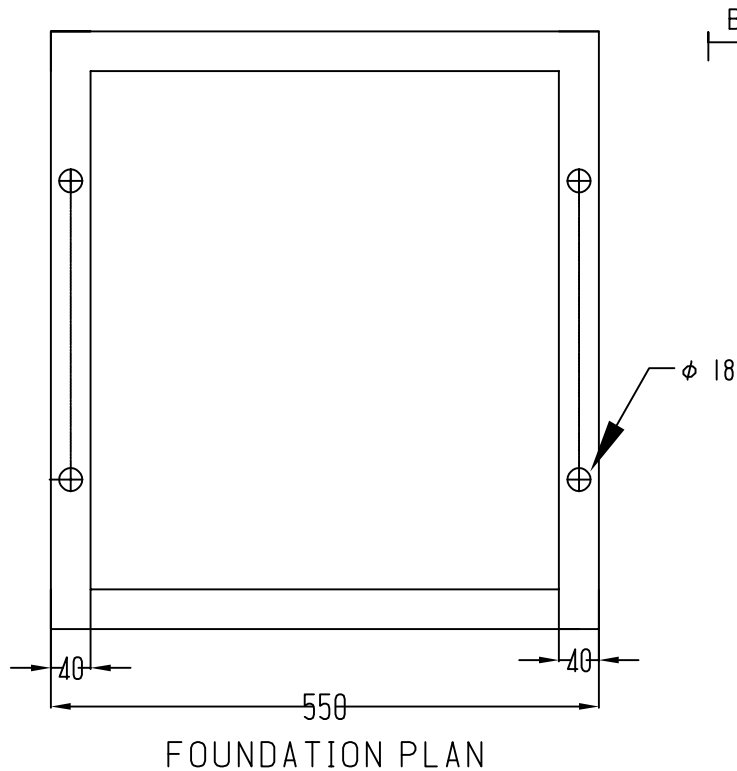
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

4WAYS DISTRIBUTION PILLAR  
(GLAND PLATE DETAIL)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-26/4-5


REVISION  
2022

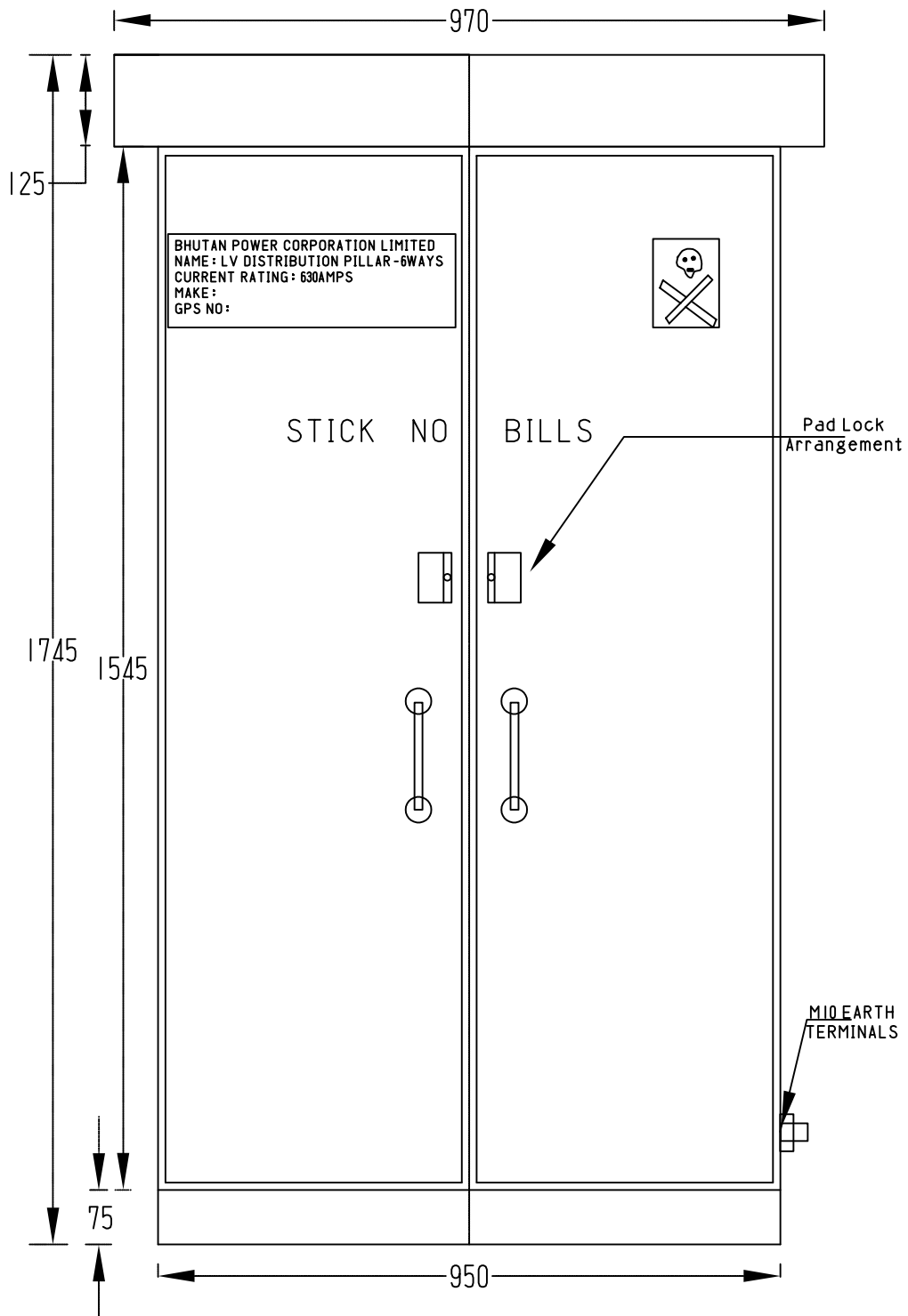


NOTES:

PHASE - 40X10MM AL - 3NOS. & NEUTRAL - 40X10 MM , EARTH - 1X10X20MM, AL ALLOY AL - 1 NO. MATERIAL - THE FEEDER PILLAR (INCLUDING BASE CHANNEL) SHALL BE FABRICATED OUT OF 2.5MM MS SHEET PAINT - SEIMENS GREY.


CORRECT CABLE GLAND SIZE TO BE USED ACCORDINGLY WITH CABLE SIZE  
REFER TABLE 105 FROM DDCS FOR FUSE RATING

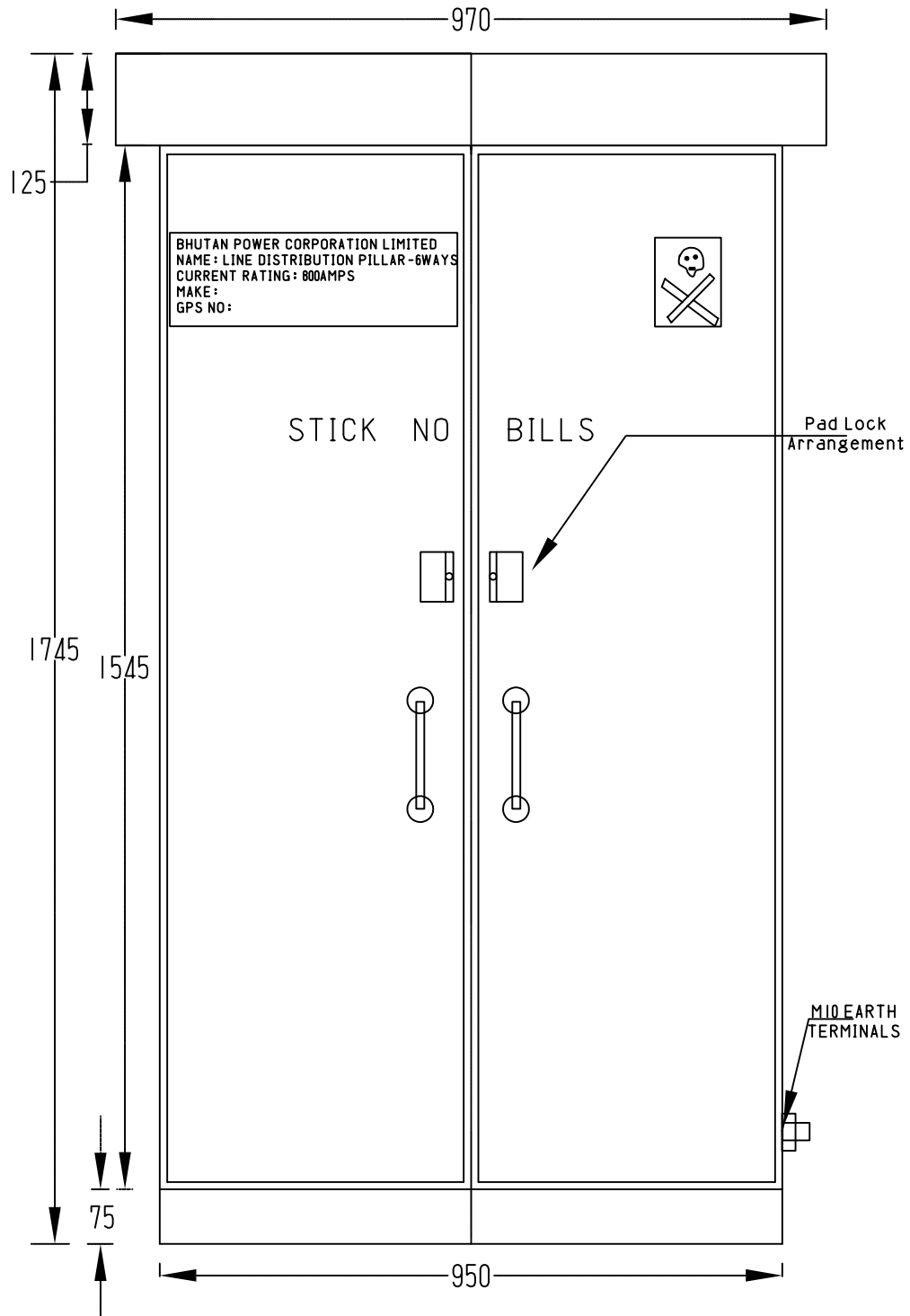
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			<b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b> <b>4WAYS DISTRIBUTION PILLAR (FOUNDATION DETAILS AND LIGHTING CIRCUIT)</b>	
TITLE	NAME	DATE	DRAWING NO. BPC-DDCS-2022-26/5-5	
DESIGNED BY				
CHECKED BY				
APPROVED BY				
			<b>REVISION</b> 2022	



**NOTES**


1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.

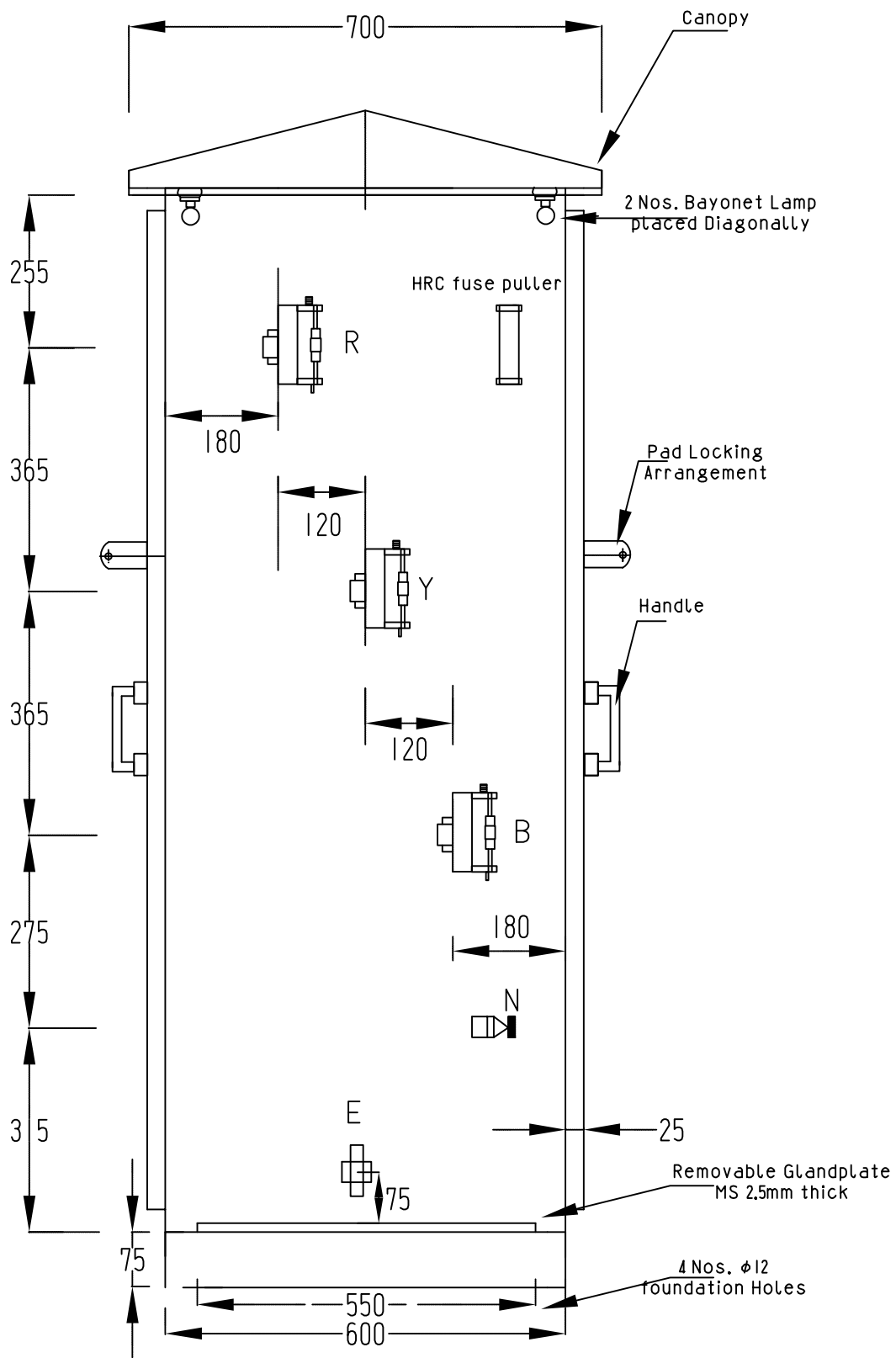
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			<p>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</p> <p>315 KVA - 630AMPS - 6WAYS TRANSFORMER DISTRIBUTION PILLAR (FRONT ELEVATION)</p>	
TITLE	NAME	DATE	DRAWING NO. BPC-DDCS-2020-27B/1-5	REVISION 2020
DESIGNED BY				
CHECKED BY				
APPROVED BY				



**NOTES**


1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.

	<b>BHUTAN POWER CORPORATION LIMITED</b>	<b>ENGINEERING DESIGN &amp; RESEARCH DEPARTMENT</b>		
		<b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b>		
<b>DISTRIBUTION PILLAR (FRONT ELEVATION)</b>				
<b>TITLE</b>	<b>NAME</b>	<b>DATE</b>	<b>DRAWING NO.</b> BPC -DDCS -2022 -27/1 -5	<b>REVISION</b> 2022
<b>DESIGNED BY</b>				
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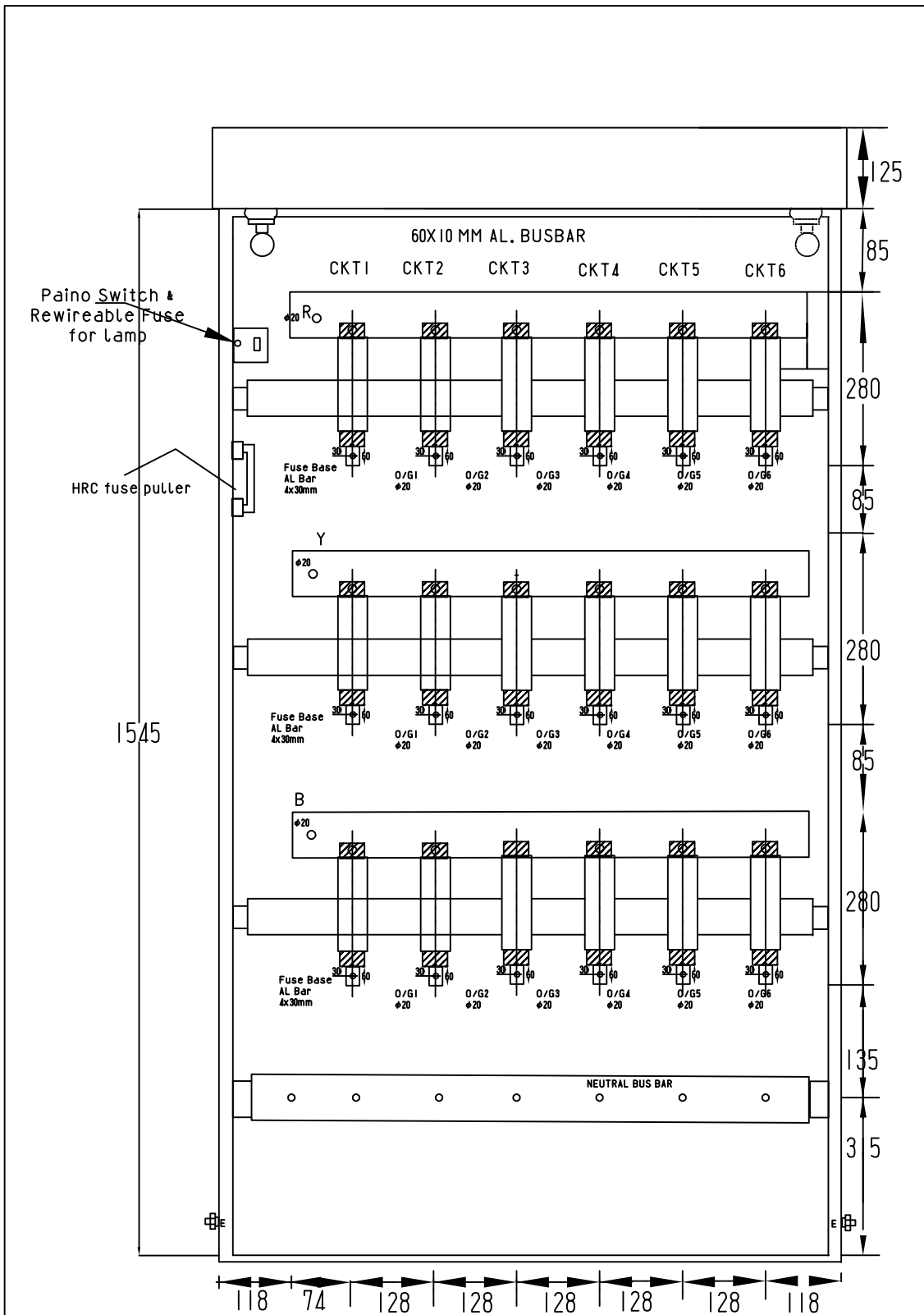


**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.THE PILLAR SHALL BE TWO SIDED DOORS
2. DRAWING NOT TO SCALE.


	<p style="text-align: center;"><b>BHUTAN POWER CORPORATION LIMITED</b></p>		<p><b>ENGINEERING DESIGN &amp; RESEARCH DEPARTMENT</b></p>	
			<p><b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b></p> <p><b>315 kVA - 630AMPS - 6WAYS TRANSFORMER</b></p> <p><b>DISTRIBUTION PILLAR</b></p> <p><b>(SIDE ELEVATION)</b></p>	
TITLE	NAME	DATE	<p>DRAWING NO.</p> <p>BPC -DDCS -2020-27B /2-5</p>	<p>REVISION</p> <p>2020</p>
DESIGNED BY				
CHECKED BY				
APPROVED BY				

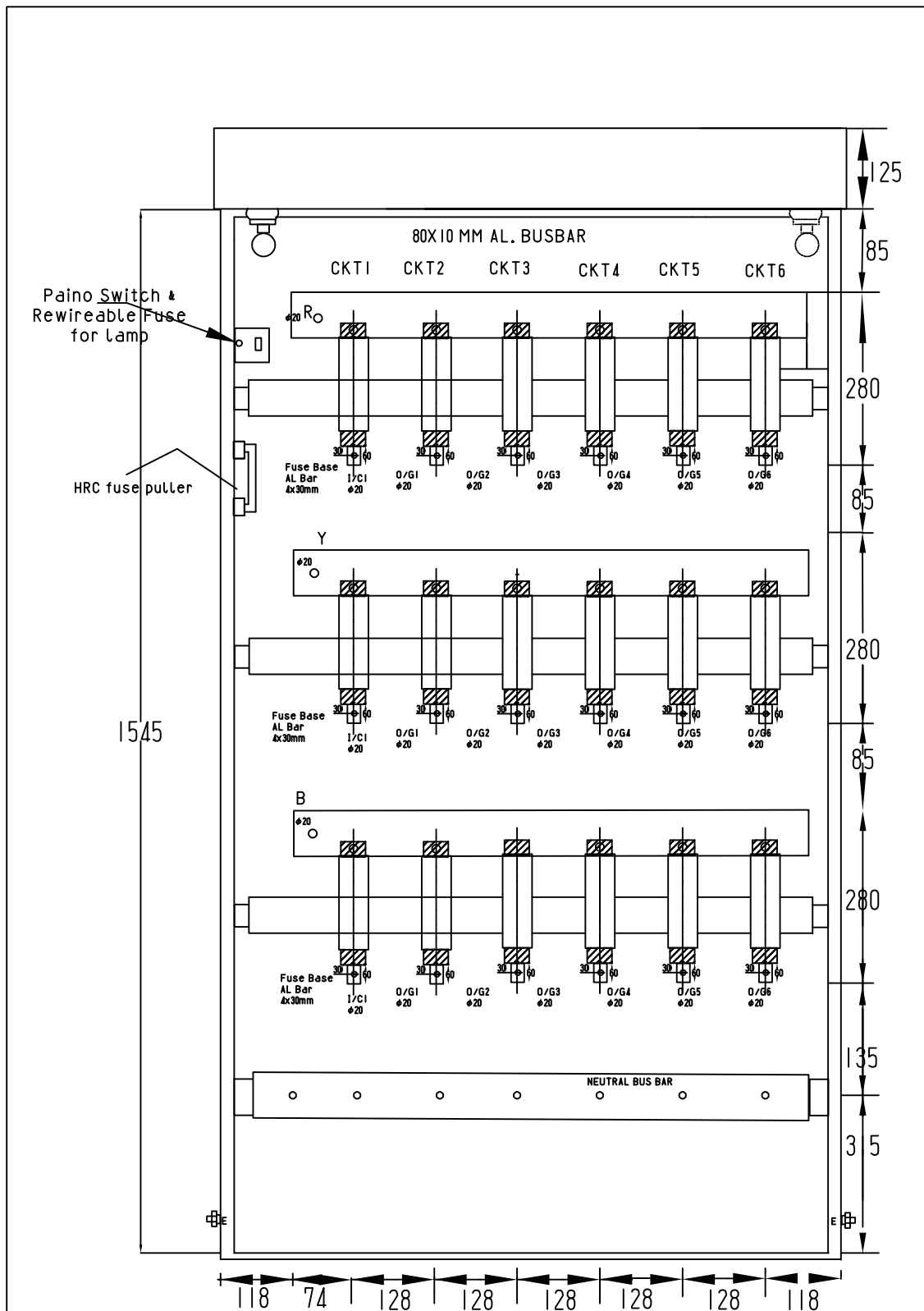




**NOTES**


1. DIMENSIONS AS SHOWN ARE IN MM.
2. PROVIDE ONE NO. FUSE FULLER FOR EVERY DISTRIBUTION BOARD
3. HRC FUSE RATING :500 A

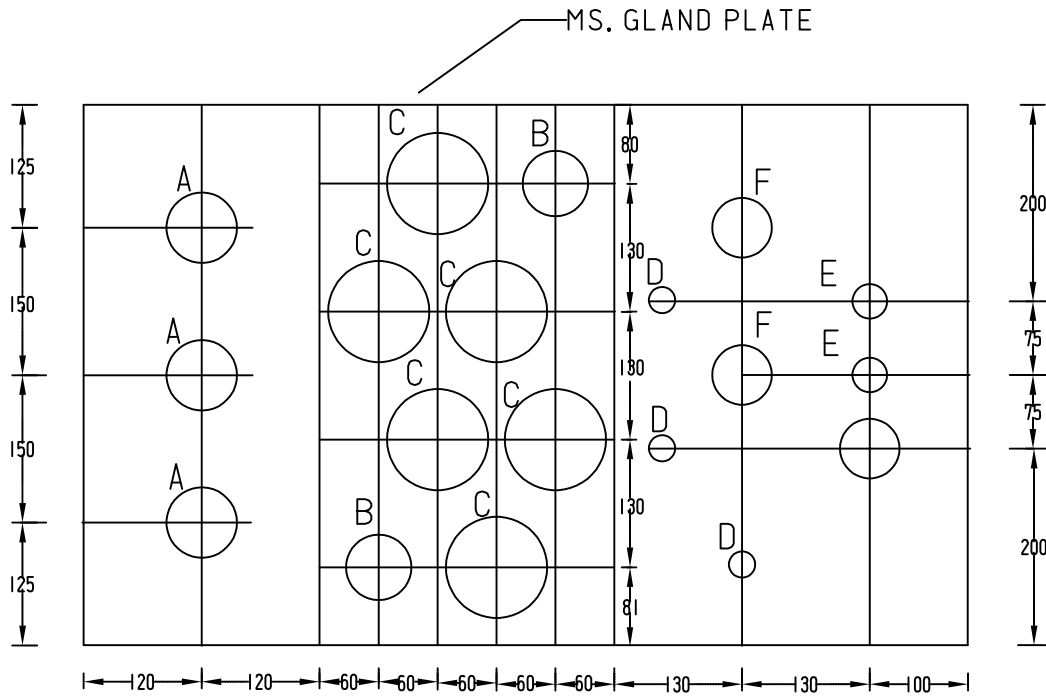
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			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD 315 kVA - 630AMPS - 6WAYS TRANSFORMER DISTRIBUTION PILLAR (FRONT ELEVATION WITHOUT DOOR)	
TITLE	NAME	DATE	DRAWING NO. BPC - DDCS - 2020 - 27B / 3 - 5	
DESIGNED BY				
CHECKED BY				
APPROVED BY				
			REVISION 2020	



**NOTES**


1. DIMENSIONS AS SHOWN ARE IN MM.
2. PROVIDE ONE NO. FUSE FULLER FOR EVERY DISTRIBUTION BOARD

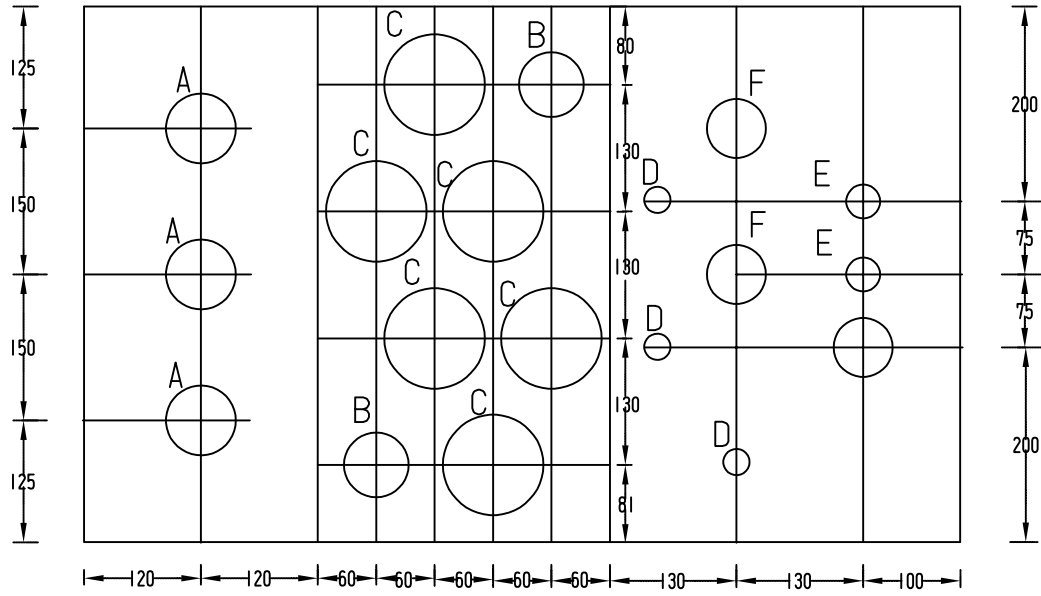
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	TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		
DISTRIBUTION PILLAR (FRONT ELEVATION WITHOUT DOOR)		
DRAWING NO. BPC-DDCS-2022-27/3-5		REVISION 2022



**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.
3. CORRECT CABLE GLAND SIZE TO BE USED ACCORDINGLY WITH CABLE SIZE

 <p><b>BHUTAN POWER CORPORATION LIMITED</b></p>	ENGINEERING DESIGN & RESEARCH DEPARTMENT	
	TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD 315 kVA - 630AMPS - 6WAYS TRANSFORMER DISTRIBUTION PILLAR (GLAND PLATE DETAILS)	
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		
DRAWING NO. BPC-DDCS-2020-27B/4 -5		REVISION 2020



MS. GLAND PLATE

HOLE SIZE

A - 1CX500SQ.MM-KNOCKOUT	6.72"
B - 4CX400SQ.MM-KNOCKOUT	3.16"
C - 4CX300SQ.MM-KNOCKOUT	2.78"
D - 4CX240SQ.MM-KNOCKOUT	2.25"
E - 2CX6SQ.MM	0.75"
F - 2CX10SQ.MM	1"



BHUTAN POWER CORPORATION LIMITED

ENGINEERING DESIGN & RESEARCH DEPARTMENT

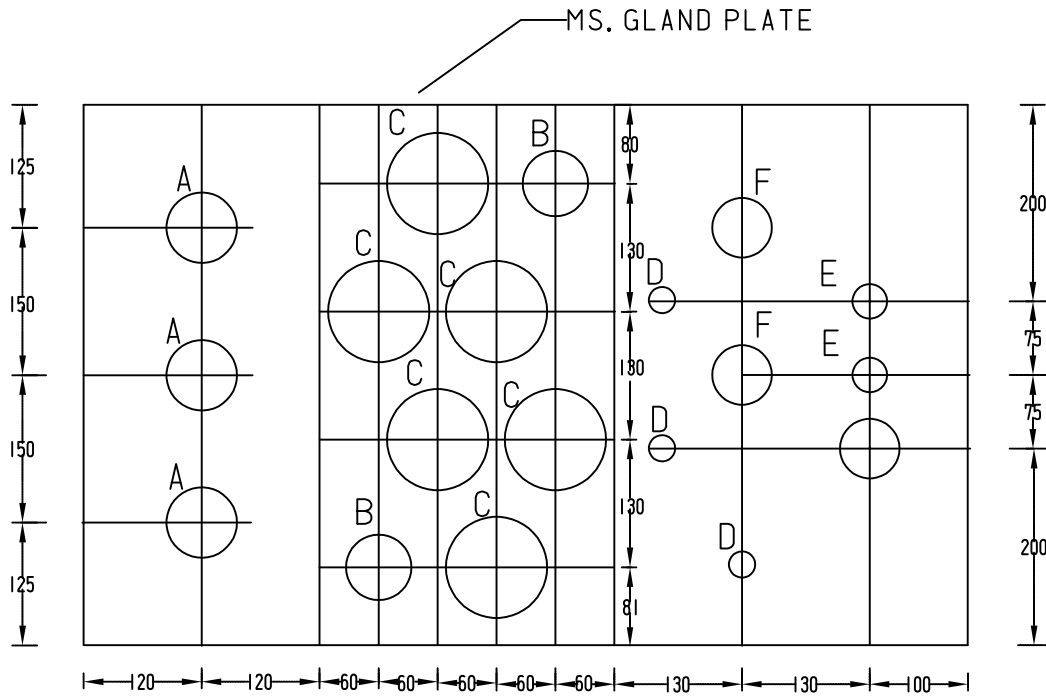
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

DISTRIBUTION PILLAR  
(GLAND PLATE DETAILS)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		


DRAWING NO.  
BPC-DDCS-2022-27/4 -5

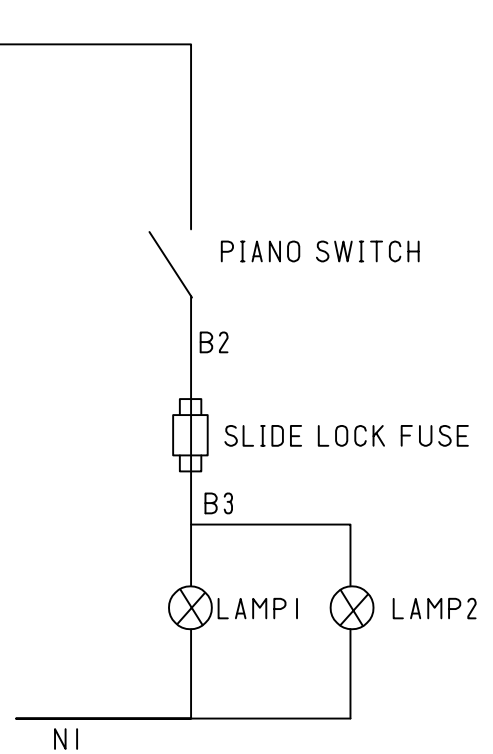
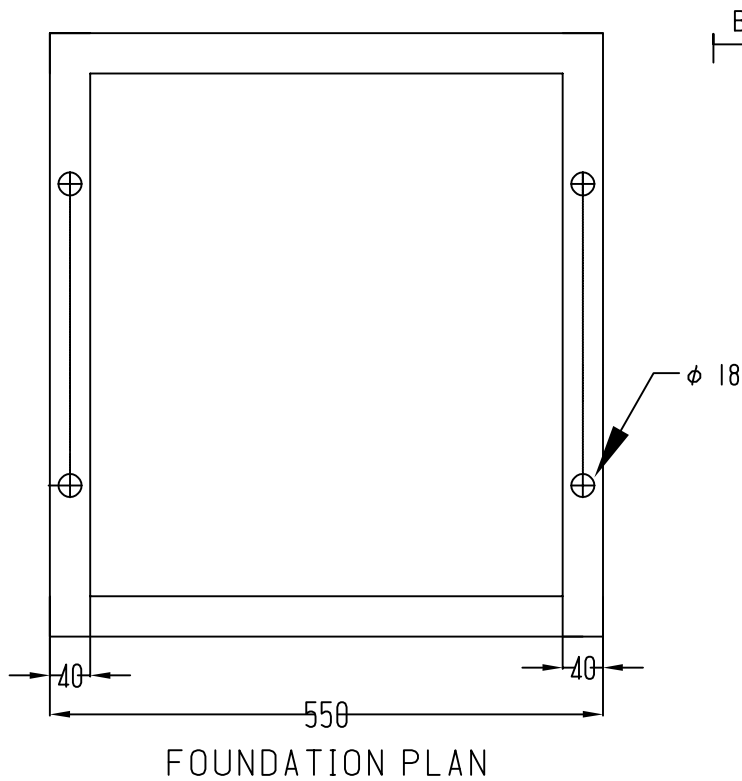
REVISION  
2022



**NOTES**

1. DIMENSIONS AS SHOWN ARE IN MM.
2. DRAWING NOT TO SCALE.
3. CORRECT CABLE GLAND SIZE TO BE USED ACCORDINGLY WITH CABLE SIZE


	<b>BHUTAN POWER CORPORATION LIMITED</b>		<b>ENGINEERING DESIGN &amp; RESEARCH DEPARTMENT</b>	
			<b>TITLE : DISTRIBUTION DESIGN &amp; CONSTRUCTION STANDARD</b> <b>315 kVA - 630AMPS - 6WAYS TRANSFORMER</b> <b>DISTRIBUTION PILLAR</b> <b>(GLAND PLATE DETAILS)</b>	
TITLE	NAME	DATE		
DESIGNED BY				
CHECKED BY				
APPROVED BY			DRAWING NO. BPC-DDCS-2020-27B/4 -5	REVISION 2020

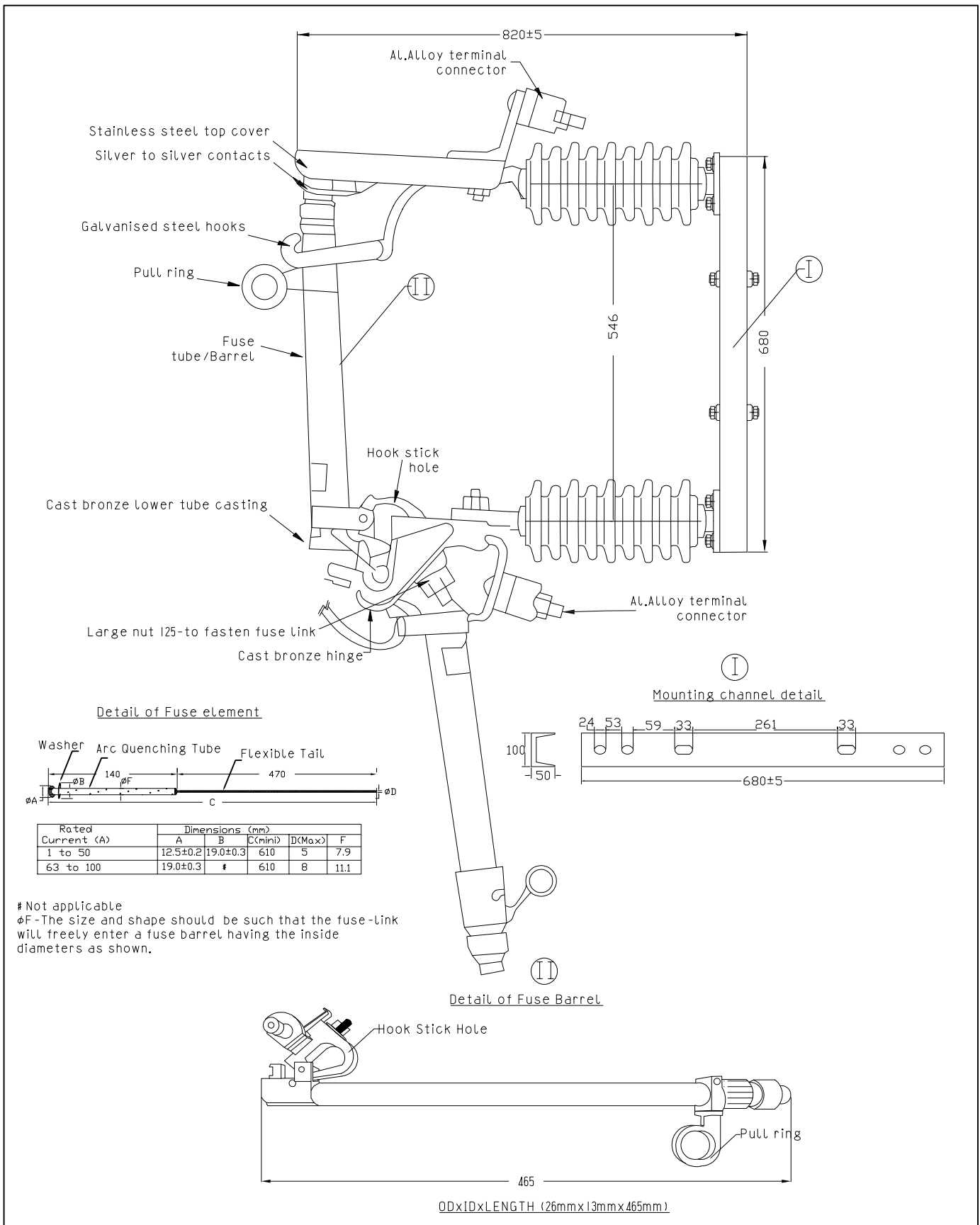


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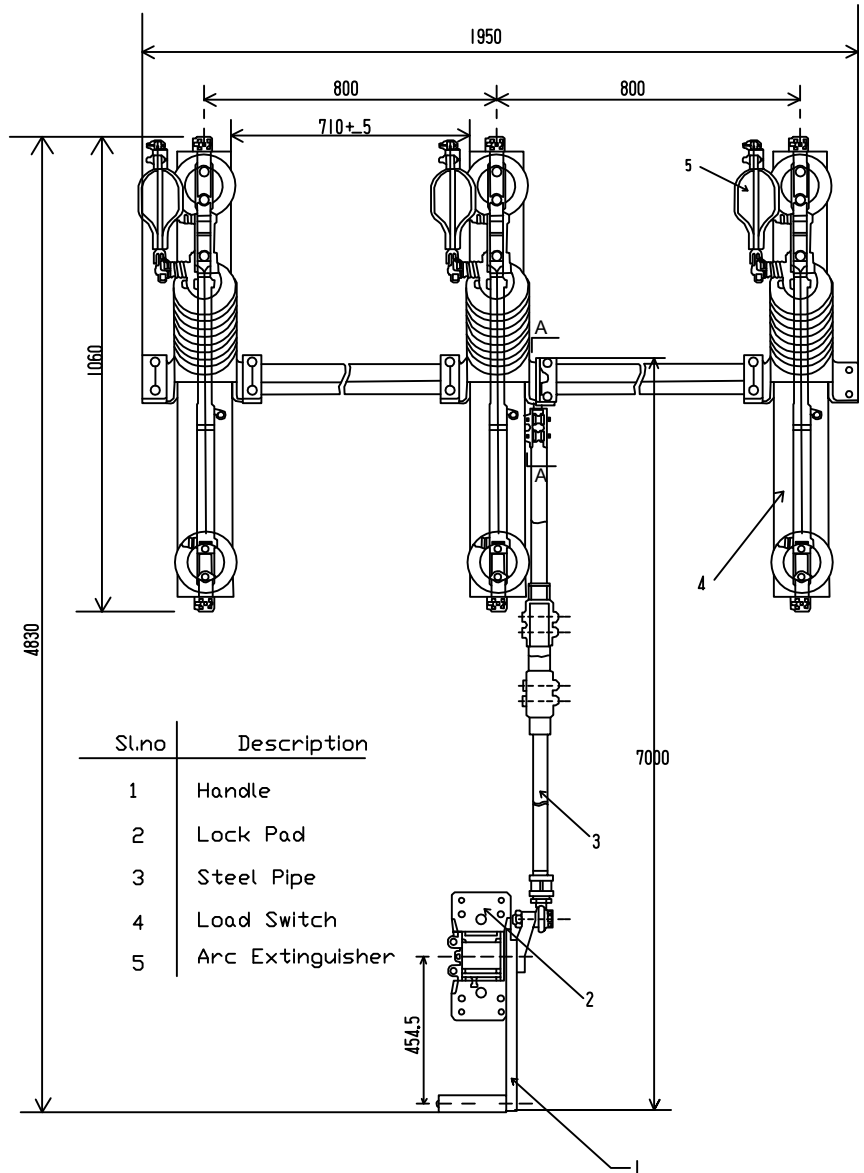
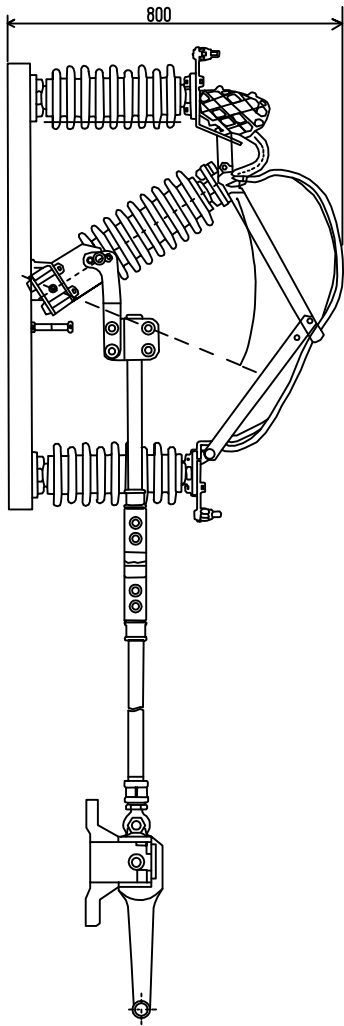
PHASE - 80x10MM AL - 3NOS., NEUTRAL - 80x5MM AL - 1 NO. MATERIAL & EARTH - 1X6X20MM, AL ALLOY. THE FEEDER PILLAR (INCLUDING BASE CHANNEL) SHALL BE FABRICATED OUT OF 2.5MM MS SHEET PAINT - SEIMENS GREY.

CORRECT CABLE GLAND SIZE TO BE USED ACCORDINGLY WITH CABLE SIZE  
REFER TABLE 105 FROM DDCS FOR FUSE RATING

	BHUTAN POWER CORPORATION LIMITED		ENGINEERING DESIGN & RESEARCH DEPARTMENT	
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  DISTRIBUTION PILLAR (FOUNDATION DETAILS AND LIGHTING CKT)	
TITLE	NAME	DATE	DRAWING NO. BPC - DDCS - 2022 - 27/5 - 5	
DESIGNED BY				
CHECKED BY				
APPROVED BY				
			REVISION 2022	



	<b>BHUTAN POWER CORPORATION LIMITED</b>		ENGINEERING AND RESEARCH DEPARTMENT	
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
TITLE	NAME	DATE	Details of 11 kV and 33 kV Fuse Cut-out	
DESIGNED BY				
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APPROVED BY				
			DRAWING NO. BPC-DDCS-2022-28	REVISION 2022



Sl.no	Description
1	Handle
2	Lock Pad
3	Steel Pipe
4	Load Switch
5	Arc Extinguisher

Rated Voltage:  
 Rated short time Withstand current for 1 sec.  
 Current Rating:  
 Diameter and length of the GI operating Pipe  
 Size & length of the channel for mounting  
 Minimum clearances between phases  
 Type of mounting  
 Power frequency withstand Voltage  
 1) Across Isolating Distance  
 2) To earth and between poles  
 Lightning impulse withstand Voltage  
 1) Across Isolating Distance  
 2) To earth and between poles  
 Type of Insulator

11kV	33kV
20kA	16kA
630A	630A
25mm NBx6 mtr. length	32mmx7 mtr. Length
75mmx40mmx660mm Long	75mmx40mmx660mm Long
800mm	800mm
vertical	vertical
32kV	80kV
28kV	70kV
85kV	195kV
75kV	170kV
Post Type with alternating shed	Post type with alternating shed



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ENGINEERING AND RESEARCH DEPARTMENT

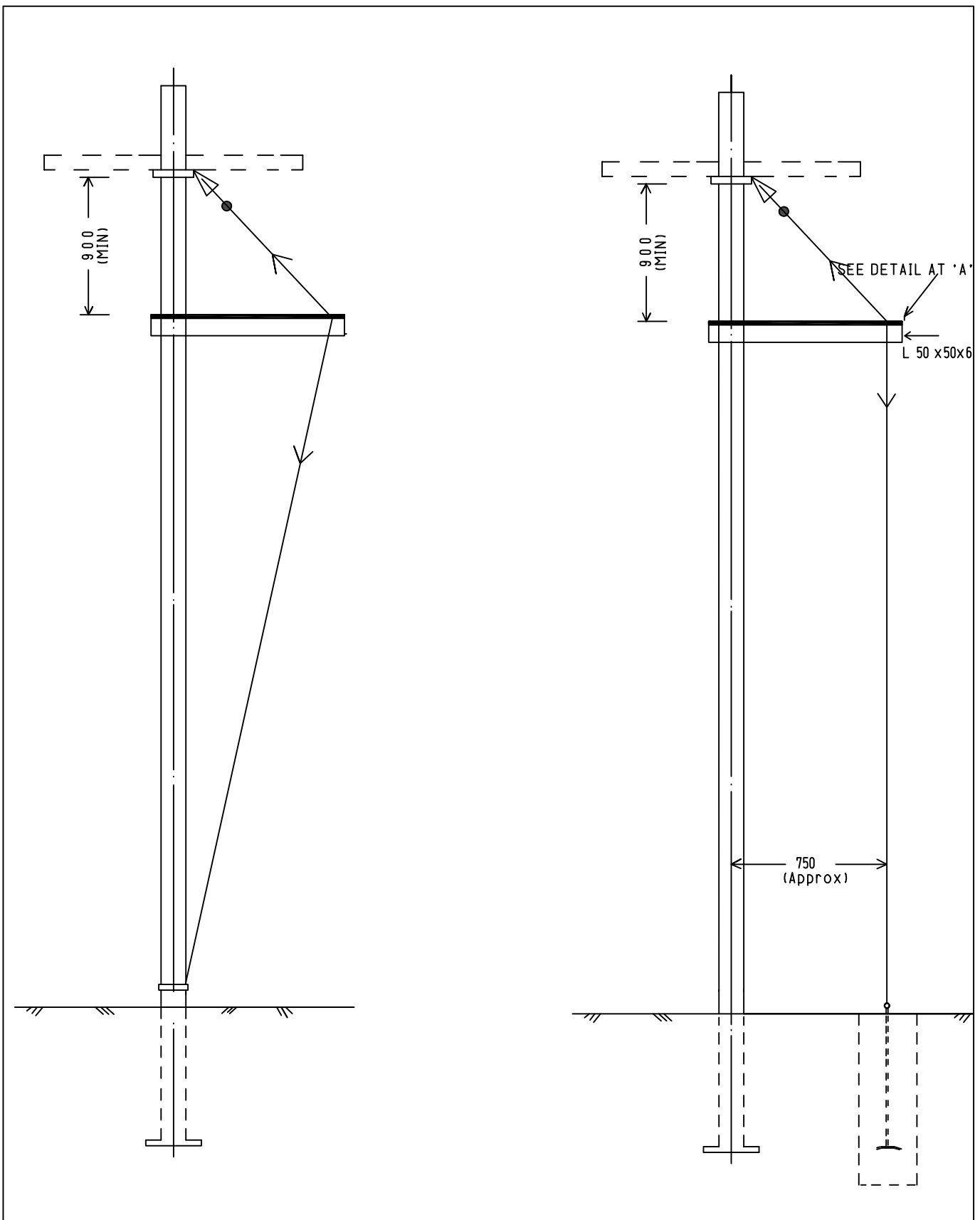
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD


Typical Arrangement of 11kV & 33 KV LBS/ABS

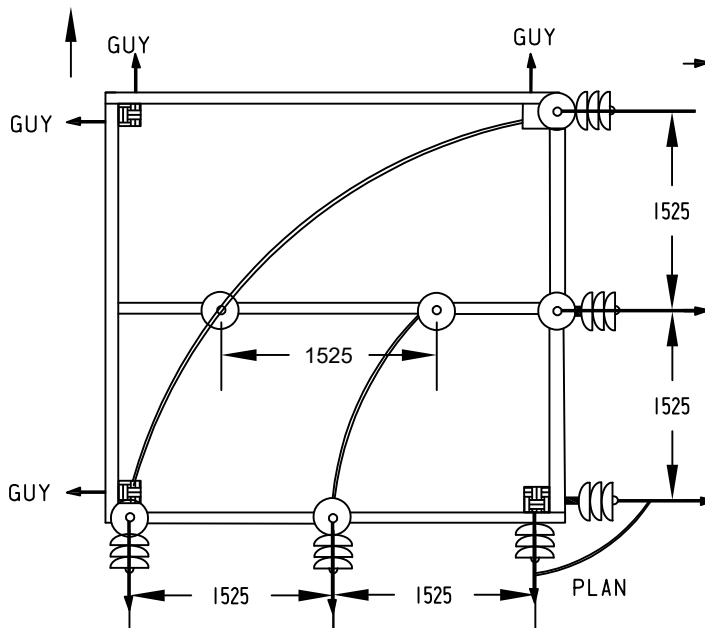
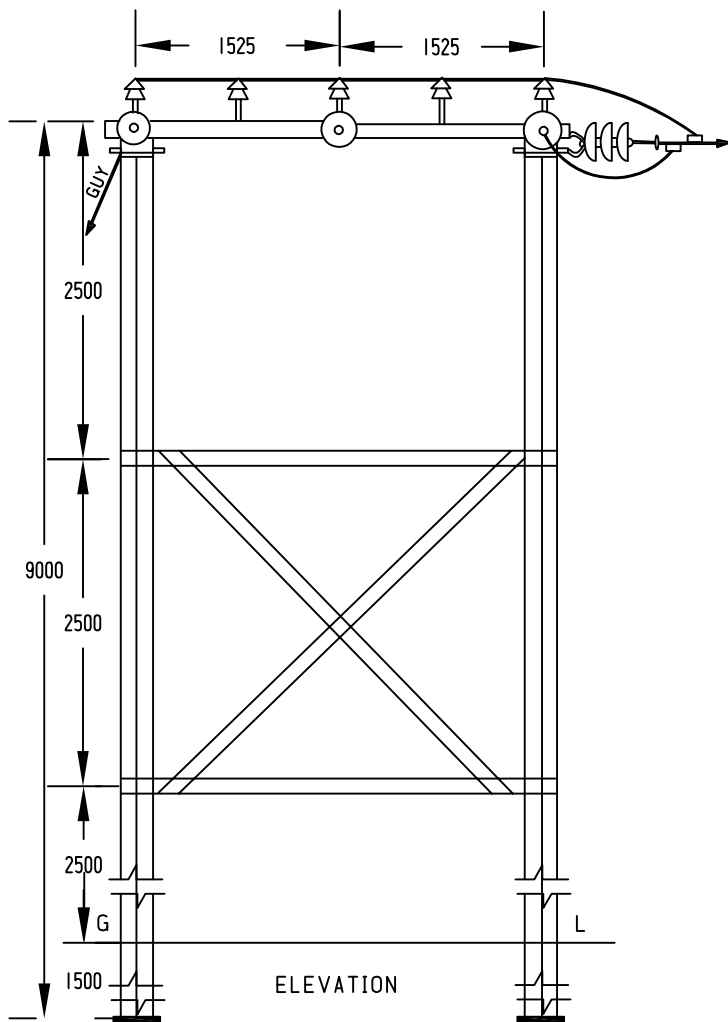
TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-29	REVISION 2022
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	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT	
			DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
ARRANGEMENT OF BOW-GUY				
TITLE	NAME	DATE		
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APPROVED BY			DRAWING NO. BPC-DDCS-2022-30	REVISION 2022



**BILL OF MATERIAL**

SUPPORT 9.0M	4 Nos.
33kV PIN INSULATORS	6 Nos.
33kV DISC INSULATORS	6 SETs
M.S CHANNEL 100X50X6 - 3I50	5 Nos.
∠65X65X6 BELT	8 Nos.
∠50X50X6 BRACING	8 Nos.
EARTHING MATERIAL	AS REQD.
NUTS, BOLTS, POLE CLAMPS ETC	AS REQD.
BASE PLATE	4 Nos.
GUY SET	4 Nos.

ALL DIMENSION ARE IN mm



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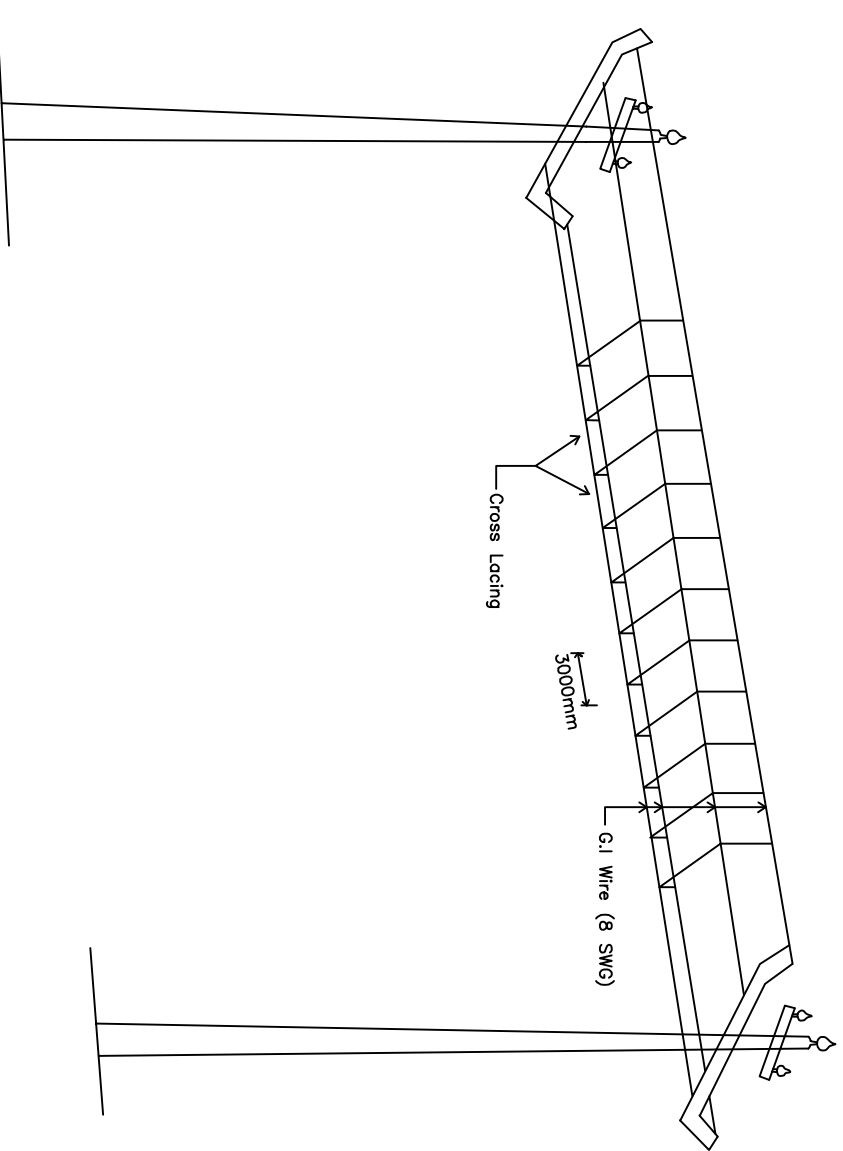
**TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD**

TITLE	NAME	DATE
DESIGNED BY		
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APPROVED BY		

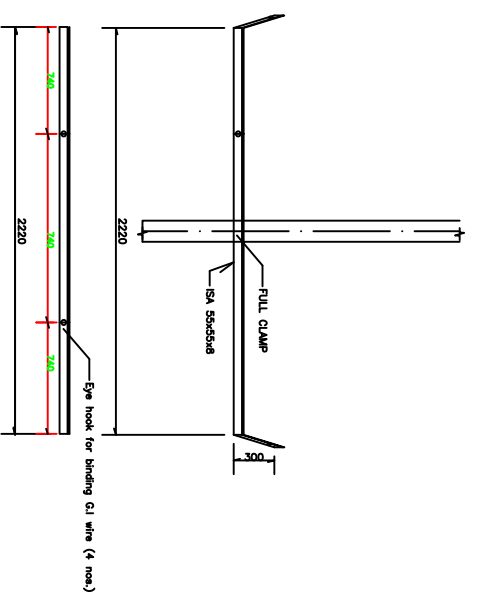
ARRANGEMENT OF CONDUCTORS AT ANGLE LOCATIONS - FOUR POLE STRUCTURE (60° TO 90° DEVIATION)

DRAWING NO. BPC-DDCS-2022-31

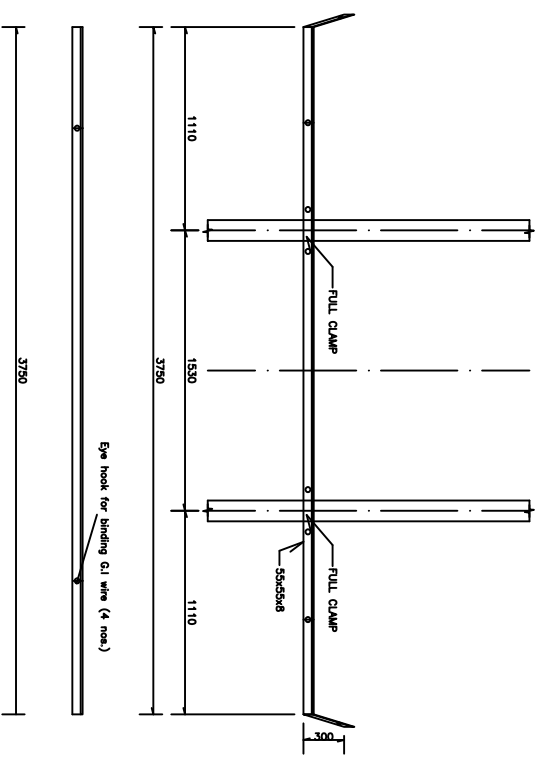
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Cradle Type Guarding



SINGLE POLE GUARD ARM



DOUBLE POLE GUARD ARM FOR IS POLE



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DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

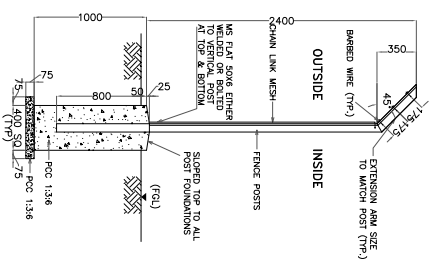
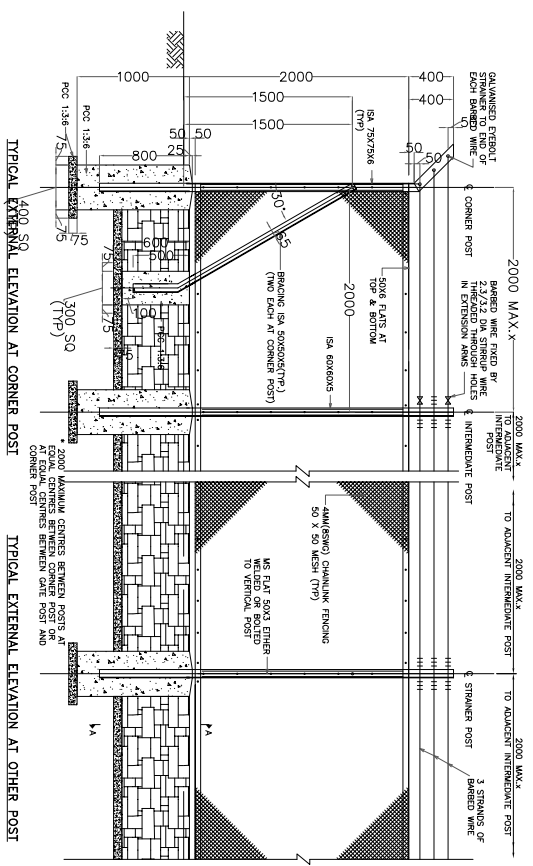
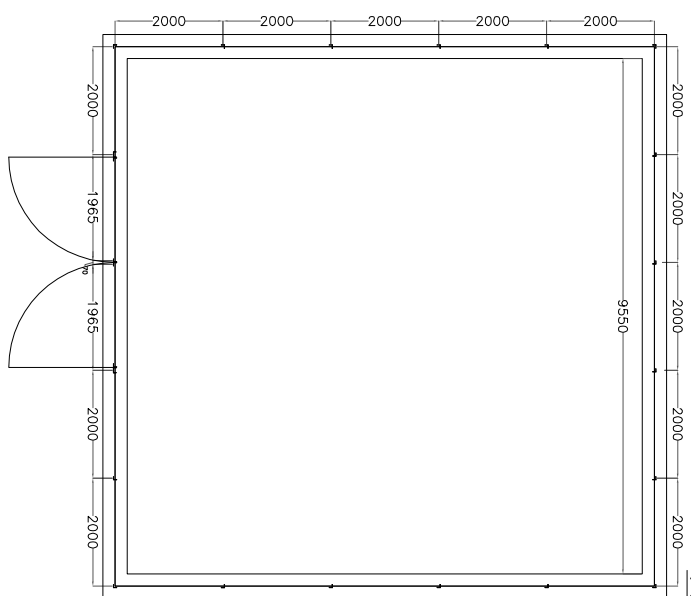
INDICATIVE DRAWING OF GUARDING FOR 11 & 33 KV SYSTEM FOR IS POLE

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-32

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TYPICAL ELEVATION OF CHAIN LINK FENCE



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TITLE

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

DESIGNED BY

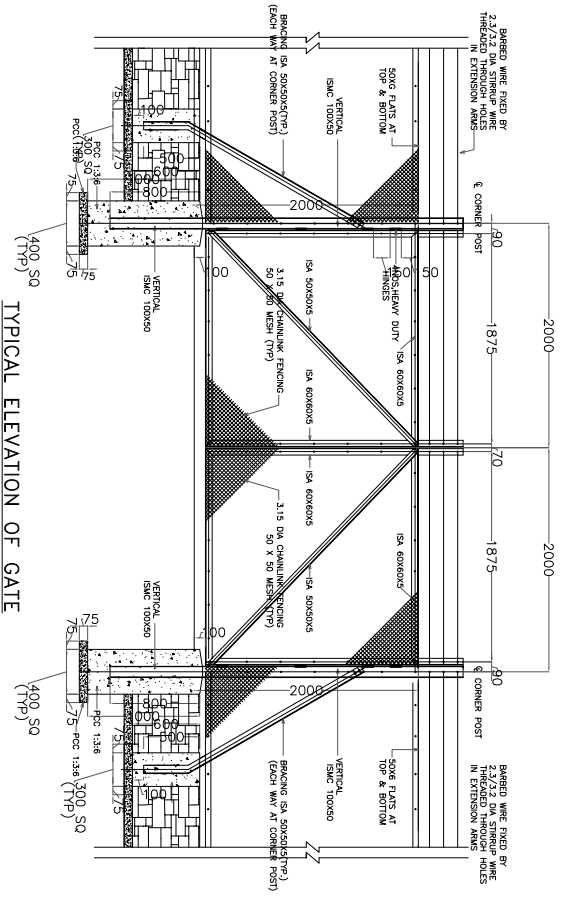
CHAIN LINK FENCING FOR SUBSTATION (10 m X 10 m)

CHECKED BY

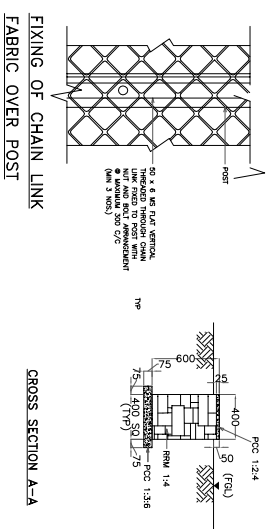
DRAWING NO. BPC - DDCS - 2022 - 33A

APPROVED BY

REVISION 2022



TYPICAL ELEVATION OF GATE



- NOTES:-
1. ALL DIMENSION ARE IN MM & LEVELS IN METERS.
  2. BRACING SHALL BE ISK50x50 AND
  3. EVERY CORNER POST SHALL HAVE TWO STAY POST ALONG THE FENCING.
  4. ALL WELD SHALL BE 6MM THK. UNLESS NOTED OTHERWISE.
  5. MIN. OF 50MM DIA. HETTER AND CORNER POST SHALL BE OF 50MM DIA.
  6. POST/BRACING/FLATS SHALL BE COATED WITH TWO OR MORE COATS OF APPROVED STANDARD MAKE SYNTHETIC ENAMEL PAINT OVER A COAT OF STANDARD STEEL PRIMER.
  7. POST FINDER SHALL BE OF MIN PCC 1:3:6
  8. LEAN CONCRETE SHALL BE OF MIX PCC 1:3:6



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TITLE

NAME

DATE

DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

CHAIN LINK FENCING FOR SUBSTATION (10 m X10 m)

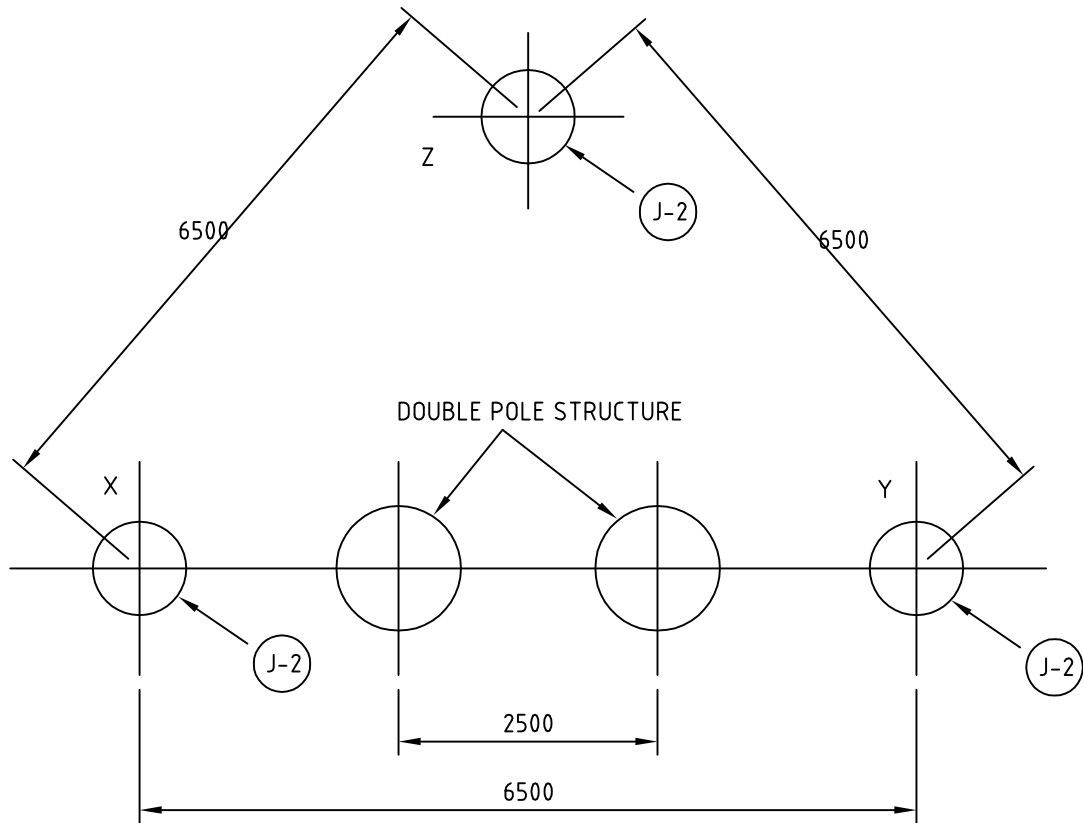
DESIGNED BY

CHECKED BY

APPROVED BY

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**NOTES**

1. THE CONNECTIONS TO THE THREE EARTH ELECTRODES SHOULD BE AS FOLLOWS:
  - a. TO ONE OF THE EARTH ELECTRODES ON EITHER SIDE OF DOUBLE POLE STRUCTURE ( X-Y )  
ONE DIRECT CONNECTION FROM THREE, 33kV OR 11kV LIGHTNING ARRESTERS, AND TRANSFORMER TANK
  - b. TO EACH OF THE REMAINING TWO EARTH-ELECTRODES
    - ( i ) ONE SEPARATE CONNECTION FROM THE NEUTRAL OF THE LOW VOLTAGE SIDE OF THE TRANSFORMER.
    - ( ii ) ONE SEPARATE CONNECTION FROM THE TRANSFORMER AND THE HANDLE OF 33kV/11kV AB SWITCH.
    - ( iii ) ONE SEPARATE CONNECTION FROM THE EARTH TERMINAL OF THE POLES.
2. 25 x 6 mm GALVANISED IRON STRAP LEADS.
3. J-2 ARE 40mm x 2500mm PIPE ELECTODES.
4. EARTH ELECTRODES X,Y AND Z TO BE BONDED TOGETHER USING 25x6mm GALVANISED IRON STRAP BURIED 100mm BELOW GROUND LEVEL.
5. REFER DWG BPC-DCS-019 FOR EARTH POINTS ON TRANSFORMER AND STRUCTURE.



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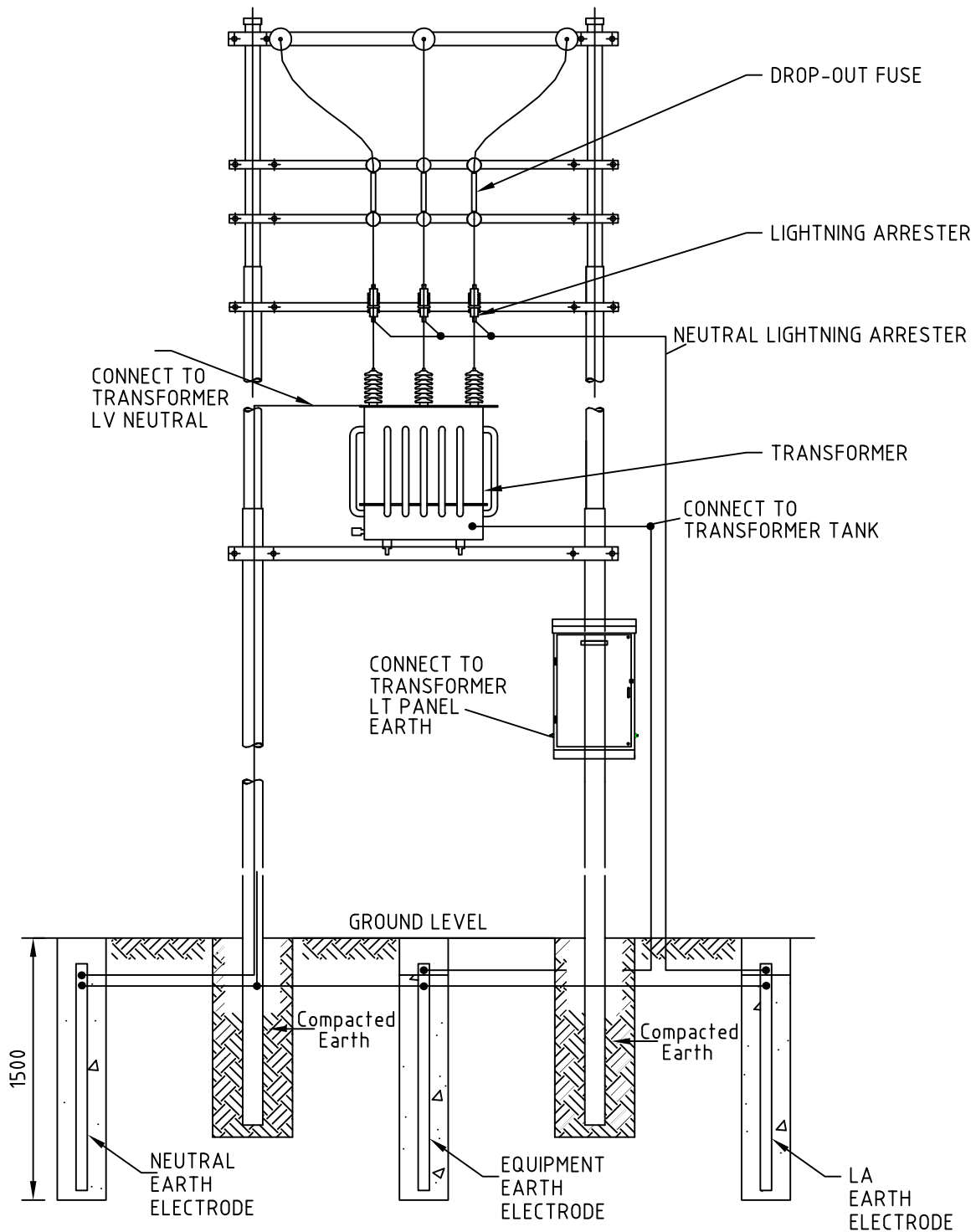
**TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD**

**33 kV OR 11 kV / 415 V DISTRIBUTION SUB-STATION  
LOCATION OF PIPE EARTH**

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NOTES

1. DIMENSIONS AS SHOWN ARE IN mm.
2. DRAWING IS NOT TO SCALE.
3. EARTH CONDUCTOR IS 25 x 6 MS FLAT



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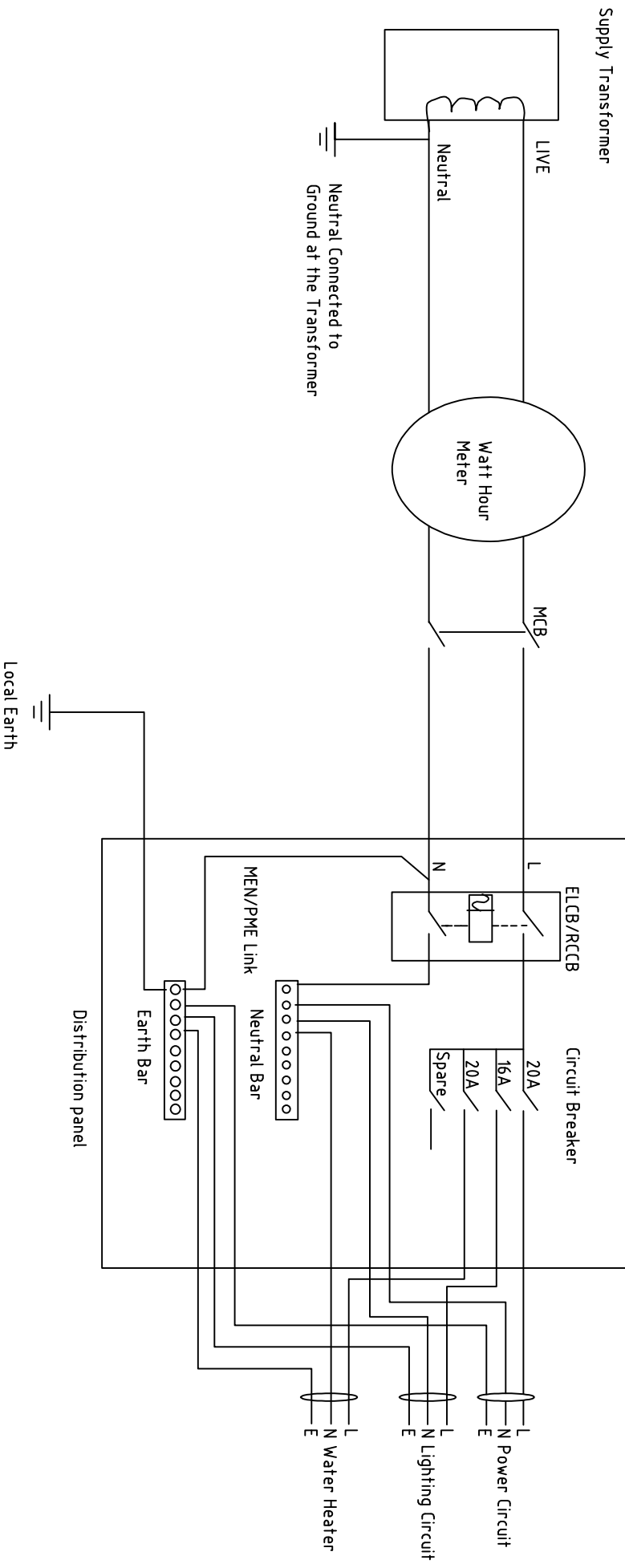
ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  
DISTRIBUTION SUBSTATION TYPICAL EARTHING SCHEME ARRANGEMENT

TITLE	NAME	DATE
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Alternative neutral earth connection where RCCB is used.



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APPROVED BY		

ENGINEERING AND RESEARCH DEPARTMENT

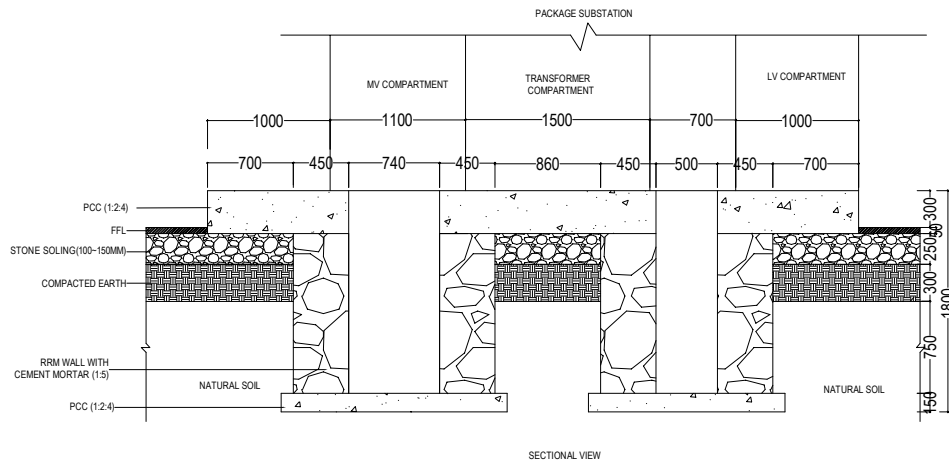
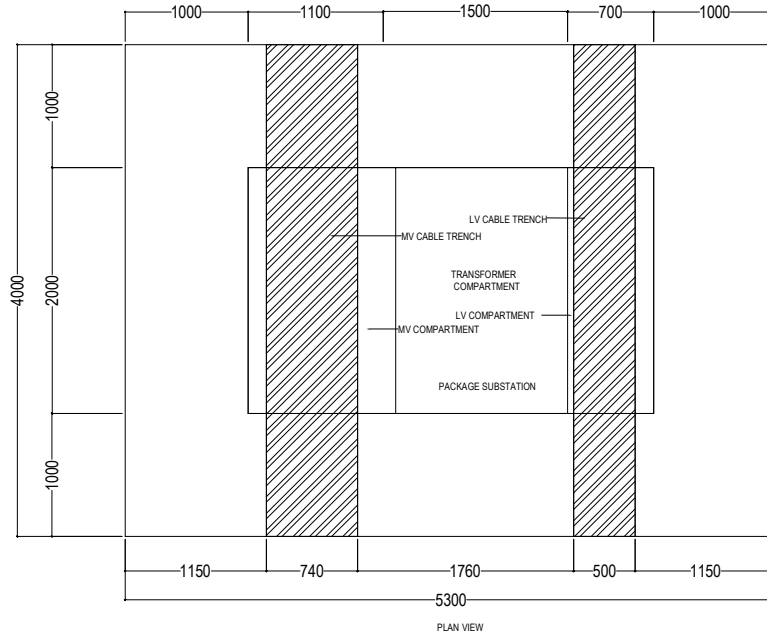
DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  
CONSUMER CONNECTION ARRANGEMENT

DRAWING NO. BPC-DDCS-2022-36

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11kV 750kVA (7T)

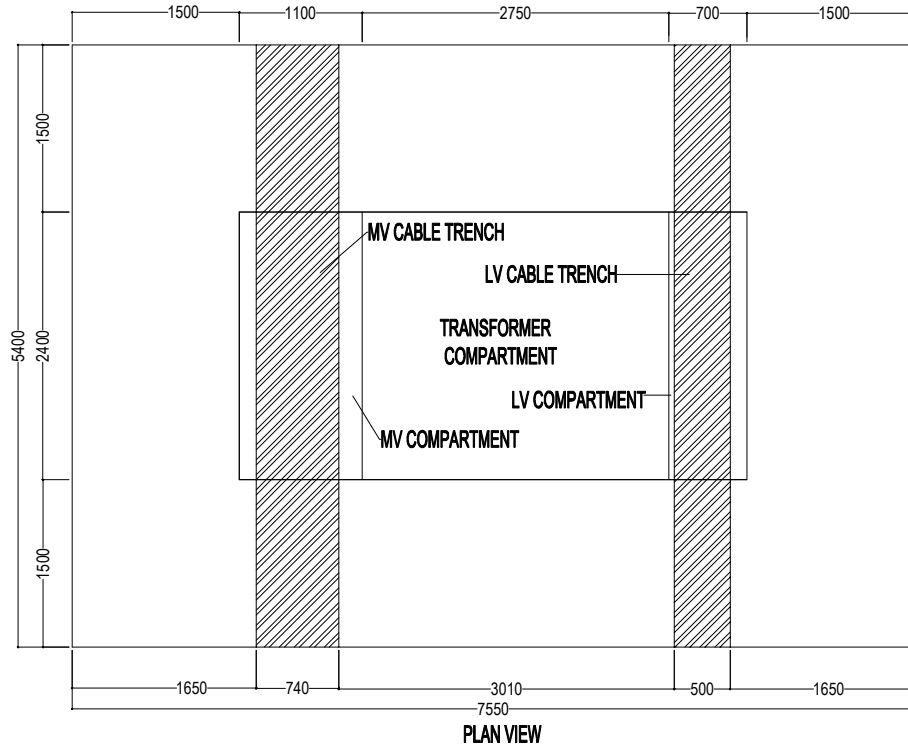


**NOTES:-**

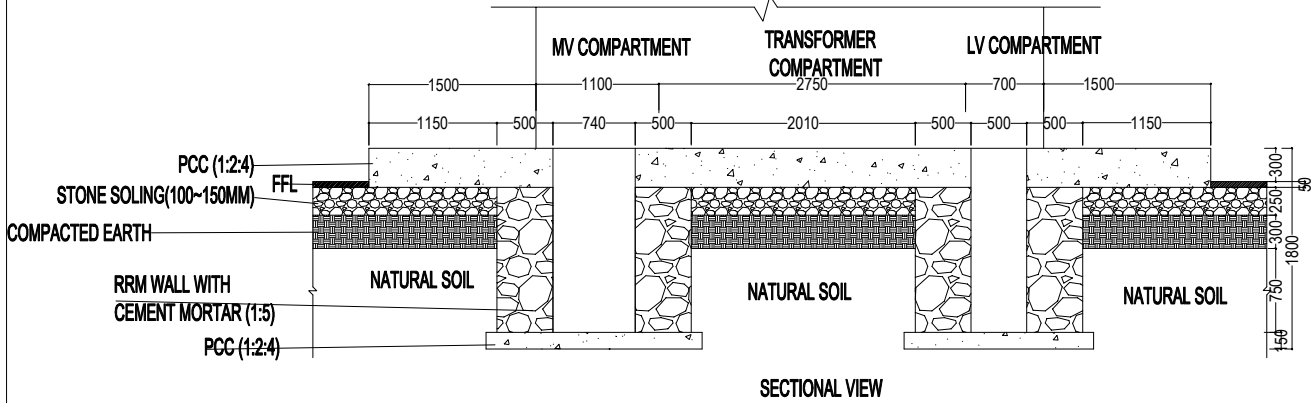
1. ALL DIMENSIONS SHALL BE IN MM UNLESS OTHERWISE SPECIFIED.
2. SUITABLE CUT OUTS IN TRENCHES FOR CABLE ENTRY/EXIT FROM EQUIPMENT SHALL BE MADE.
3. THE MINIMUM PERMISSIBLE BENDING RADII FOR 33 kV CABLES :- 15D ( "D" IS THE OUTER DIAMETER OF THE CABLE) SHALL BE MAINTAINED DURING INSTALLATION.
4. A SLOPE OF 1:100 SHALL BE MAINTAINED ALONG THE RUN OF THE CABLE AND PERPENDICULAR TO THE RUN OF THE CABLE .
5. A PROPER DRAINAGE SHALL BE MAINTAINED AT THE SITE

 <p><b>BHUTAN POWER CORPORATION LIMITED</b></p>	ENGINEERING AND RESEARCH DEPARTMENT	
	TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
UNITIZED SUBSTATION FOUNDATION - (7TON)		
TITLE	NAME	DATE
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CHECKED BY		
APPROVED BY		
DRAWING NO. BPC -DDCS -2022 -37A		REVISION 2022

33kV 1250/1000kVA (9T)




PACKAGE SUBSTATION

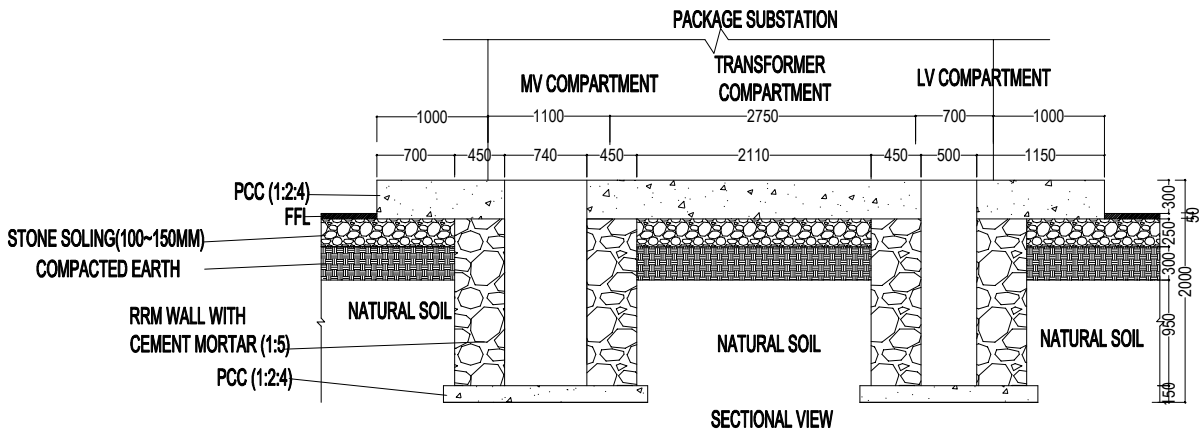
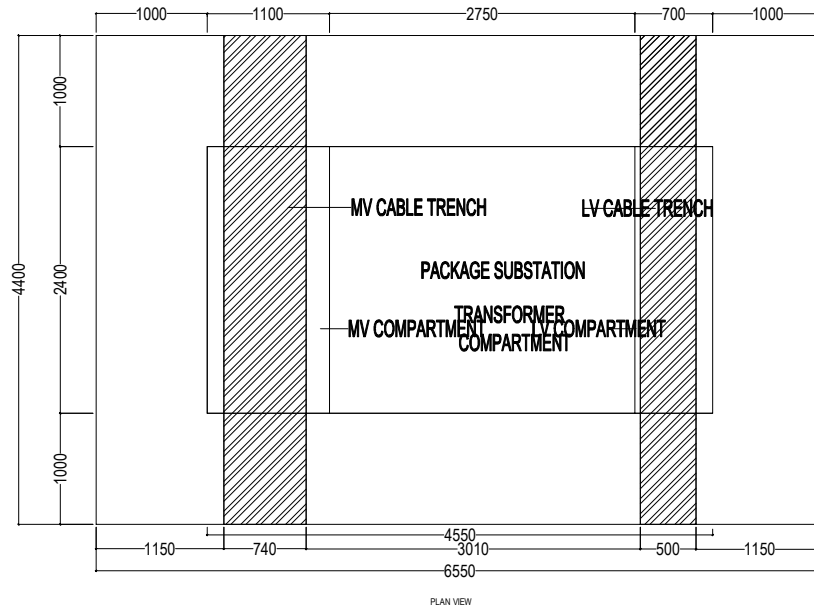


NOTES:-

1. ALL DIMENSIONS SHALL BE IN MM UNLESS OTHERWISE SPECIFIED.
2. SUITABLE CUT OUTS IN TRENCHES FOR CABLE ENTRY/EXIT FROM EQUIPMENT SHALL BE MADE.
3. THE MINIMUM PERMISSIBLE BENDING RADII FOR 33 kV CABLES :- 15D ( "D "IS THE OUTER DIAMETER OF THE CABLE) SHALL BE MAINTAINED DURING INSTALLATION.
4. A SLOPE OF 1:100 SHALL BE MAINTAINED ALONG THE RUN OF THE CABLE AND PERPENDICULAR TO THE RUN OF THE CABLE .
5. A PROPER DRAINAGE SHALL BE MAINTAINED AT THE SITE


	BHUTAN POWER CORPORATION LIMITED		ENGINEERING AND RESEARCH DEPARTMENT		
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD		
TITLE		NAME		DATE	
DESIGNED BY					
CHECKED BY					
APPROVED BY					
UNITIZED SUBSTATION FOUNDATION (9TON)				DRAWING NO. BPC -DDCS -2022 - 37B	
				REVISION 2022	

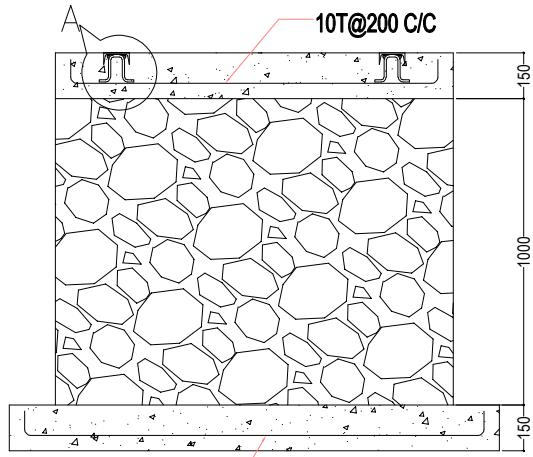
33kV 750kVA (8T)



**NOTES:-**

1. ALL DIMENSIONS SHALL BE IN MM UNLESS OTHERWISE SPECIFIED.
2. SUITABLE CUT OUTS IN TRENCHES FOR CABLE ENTRY/EXIT FROM EQUIPMENT SHALL BE MADE.
3. THE MINIMUM PERMISSIBLE BENDING RADII FOR 33 kV CABLES :- 15D ( "D" IS THE OUTER DIAMETER OF THE CABLE) SHALL BE MAINTAINED DURING INSTALLATION.
4. A SLOPE OF 1:100 SHALL BE MAINTAINED ALONG THE RUN OF THE CABLE AND PERPENDICULAR TO THE RUN OF THE CABLE .
5. A PROPER DRAINAGE SHALL BE MAINTAINED AT THE SITE

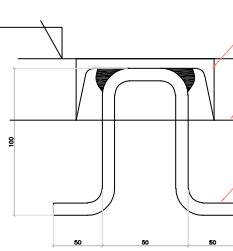
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			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD	
			UNITIZED SUBSTATION FOUNDATION - (8TON)	
TITLE	NAME	DATE		
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CHECKED BY				
APPROVED BY			DRAWING NO. BPC -DDCS -2022 -37C	REVISION 2022



10T@200 C/C

**SECTION 1-1**

T/O CHANEL  
TO  
FLUSH  
WITH  
T.O.C.

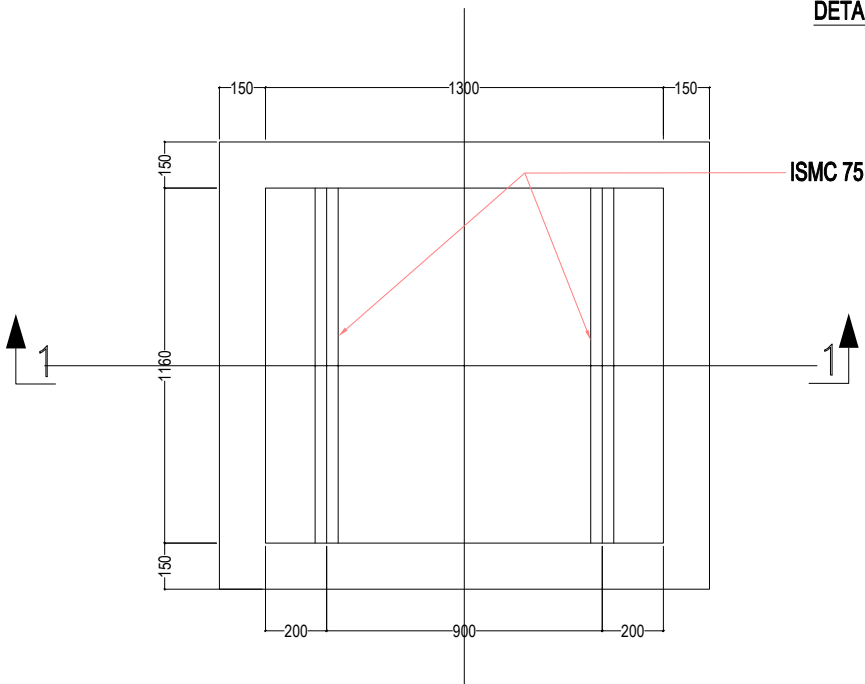


**DETAIL-A**

ISM 75

REBAR (REFER DETAIL B)

12Ø M.S.  
BAR  
LUG  
@  
500  
c/c



**FOUNDATION PLAN**



**BHUTAN POWER CORPORATION LIMITED**

**ENGINEERING AND RESEARCH DEPARTMENT**

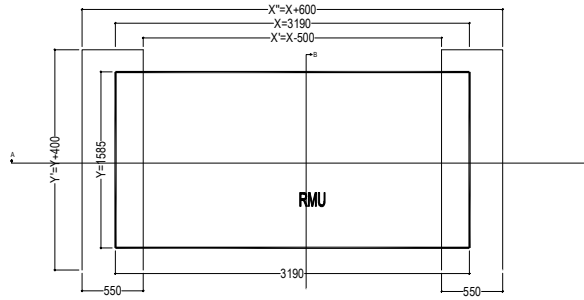
**TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD**

**TRANSFORMER FOUNDATION UPTO  
500kVA - (2.5 TON)**

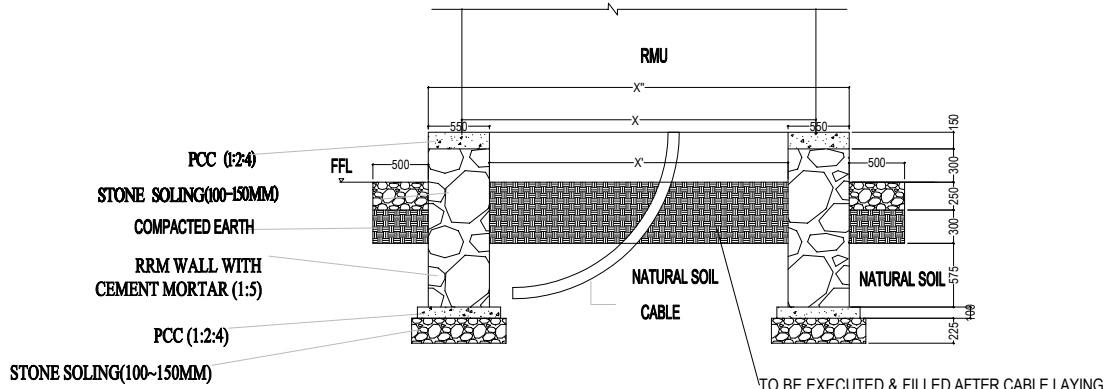
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APPROVED BY		

**DRAWING NO. BPC-DDCS-2022-38**

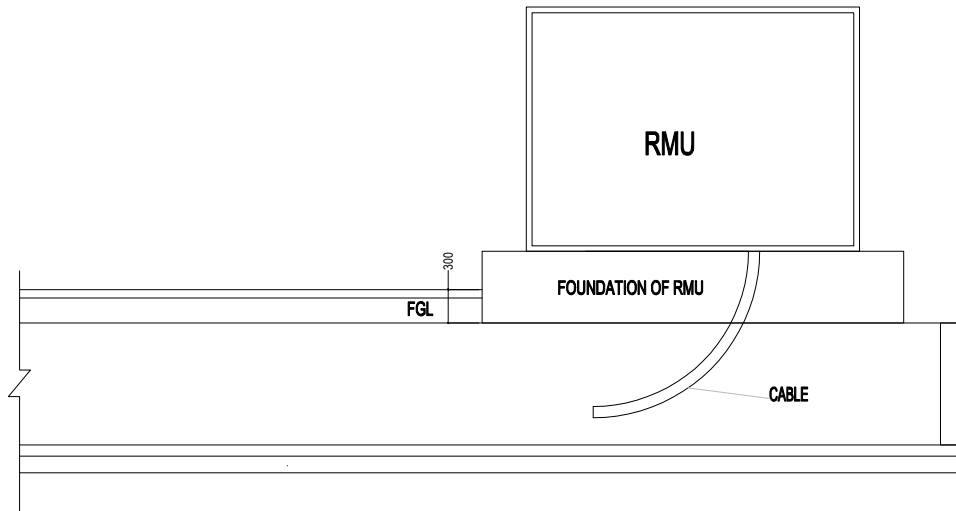
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2022**



PLAN VIEW



SECTION A-A



TYPICAL SECTION FOR THE CABLE TERMINATION AT RMU

SECTION B-B

NOTES:-

1. ALL DIMENSIONS SHALL BE IN MM UNLESS OTHERWISE SPECIFIED.
2. SUITABLE CUT OUTS IN TRENCHES FOR CABLE ENTRY/EXIT FROM EQUIPMENT SHALL BE MADE.
3. THE MINIMUM PERMISSIBLE BENDING RADII FOR 33 kV CABLES :- 15D ( "D" IS THE OUTER DIAMETER OF THE CABLE) SHALL BE MAINTAINED DURING INSTALLATION.
4. A SLOPE OF 1:100 SHALL BE MAINTAINED ALONG THE RUN OF THE CABLE AND PERPENDICULAR TO THE RUN OF THE CABLE .



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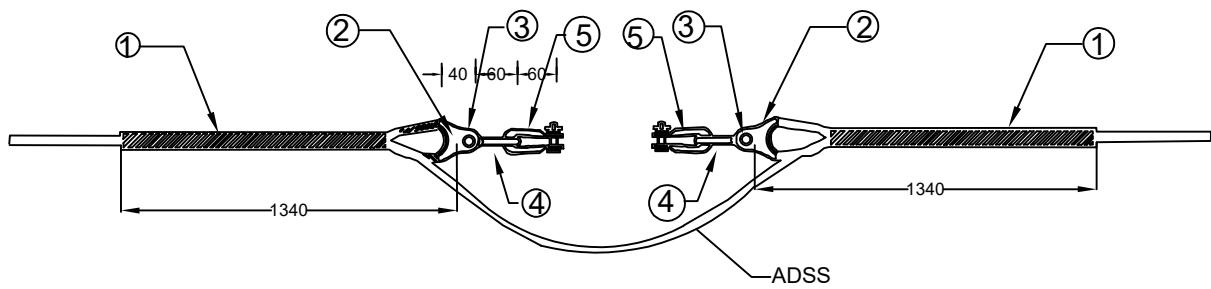
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

TYPICAL RMU (6 WAYS) FOUNDATION DRAWING

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DDCS-2022-39

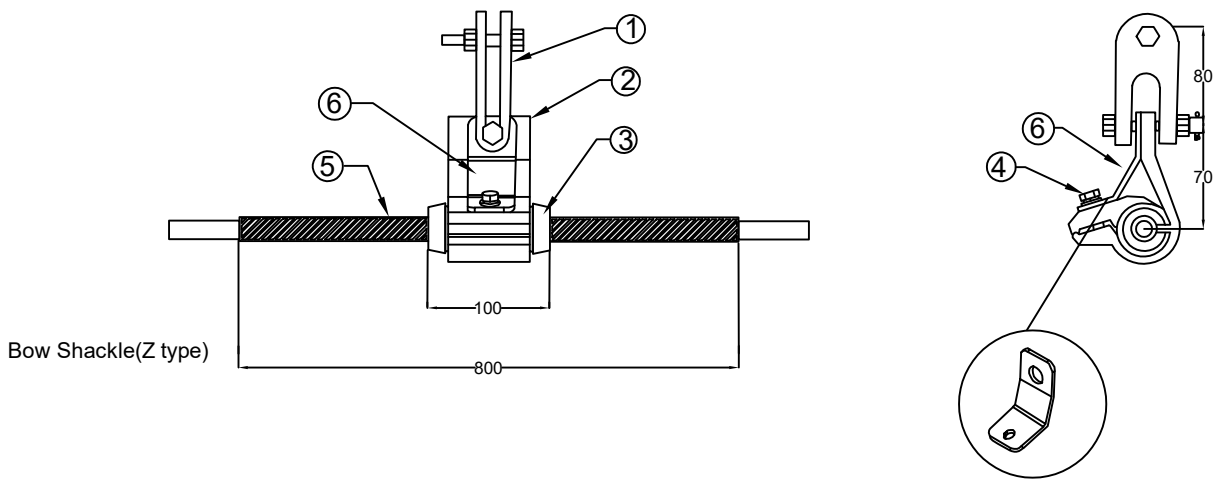
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NOTE:

1. Span :100m
2. Diameter of cable 14.3mm to 15.3mm
3. Max. Tensile Force>13kN


5	2	Bow Shackle		Forged Steel
4	2	Extension Link		Forged Steel
3	2	Bolt	M12*50	Forged Steel
2	2	Clevis Thimble		Steel or Ductile Iron
1	2	Reinforcing Rods		Al Clad Steel
ITEM	QTY	DESCRIPTION	TYPE	MATERIAL

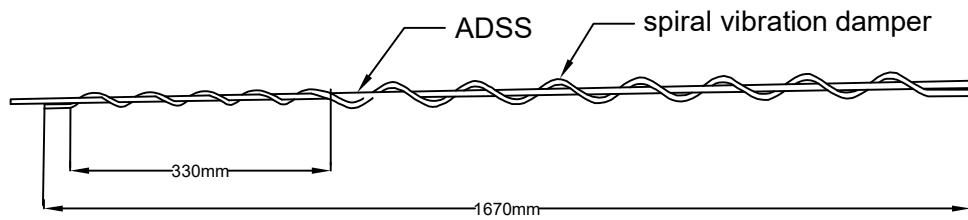


6	1	Fastening Part		Forged Steel
5	1	Reinforcing Rods		Al Clad Steel
4	1	Bolt	M8*40	Stainless Steel
3	1	Rubber Insert	Ø 19.9	Synthetic rubber
2	1	Housing		Aluminium alloy
1	1	Bow Shackle(Z type)		Forged Steel
ITEM	QTY	DESCRIPTION	TYPE	MATERIAL

NOTE:

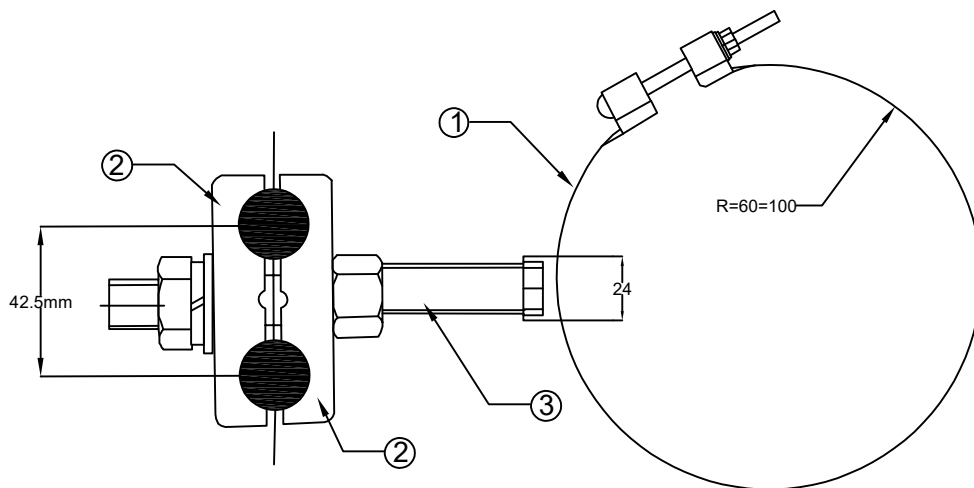
1. Span :100m
2. Diameter of cable 14.3mm to 15.3mm
3. Max. Tensile Force>13kN
4. Clamping force > 14% of RTS

	<b>BHUTAN POWER CORPORATION LIMITED</b>		ENGINEERING AND RESEARCH DEPARTMENT	
			TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD  TWO-WAY TENSION FOR 100M -ADSS CABLE	
TITLE	NAME	DATE	DRAWING NO. BPC-DDCS-2022-40A  REVISION 2022	
DESIGNED BY				
CHECKED BY				
APPROVED BY				



Note:

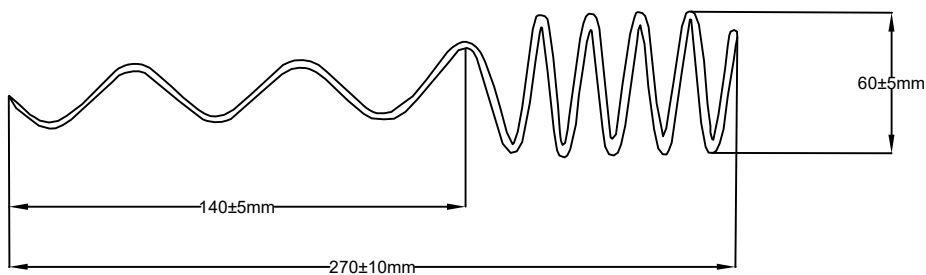
1. To ensure for diameter of cable from 14.31 to 19.3 millimetre
2. High-elasticity PVC plastic, nonmetallic



Note:

1. Pole diameter rage : 120-200 mm
2. To ensure for diameter of cable from 13.4 to 17.7 millimetre

DOWN LEAD CLAMP



CORONA COIL



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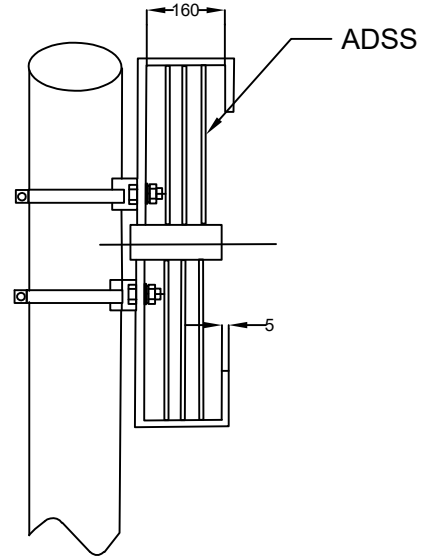
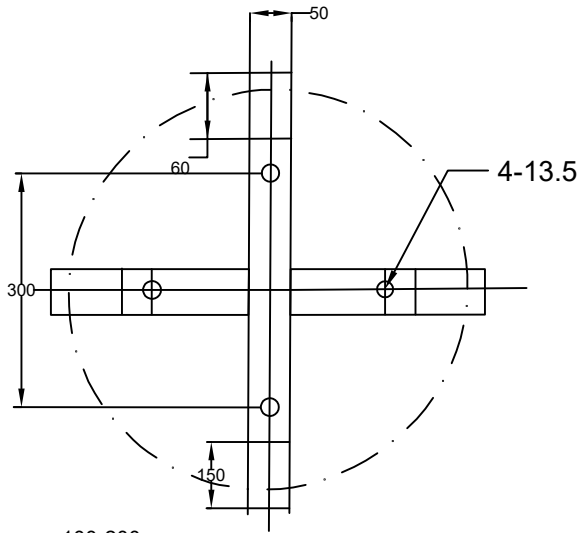
TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

SPIRAL VIBRATION DAMPER , DOWN LEAD CLAMP& CORONA COIL

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

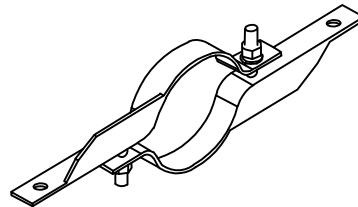
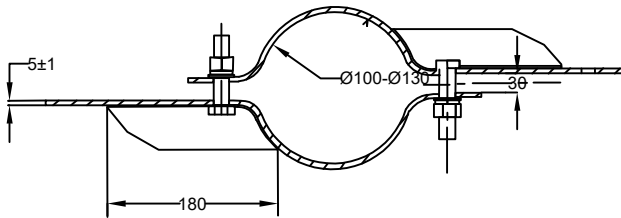
DRAWING NO. BPC -DDCS -2022 - 40B

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2022

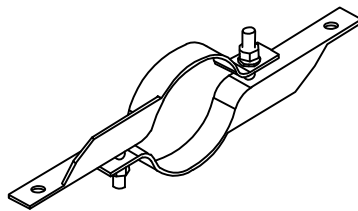
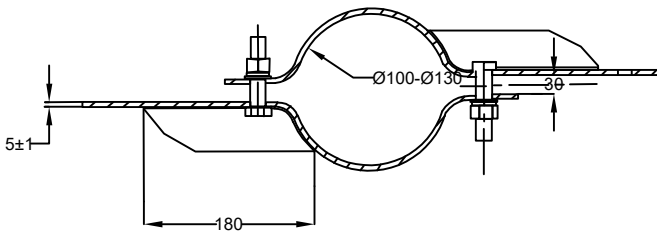
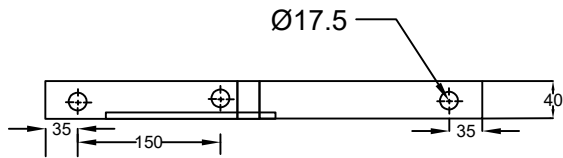


Note:

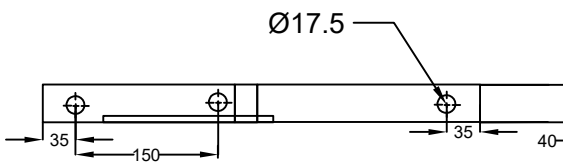
1. Pole diameter range : 100-200 mm
2. Hot Galvanization.



Pole Clamp for SUSPENSION



Pole Clamp for Tension



BHUTAN POWER CORPORATION LIMITED

ENGINEERING AND RESEARCH DEPARTMENT

TITLE : DISTRIBUTION DESIGN & CONSTRUCTION STANDARD

CROSS ARM & POLE CLAMPS (SUSPENSION & TENSION)

TITLE	NAME	DATE
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING NO. BPC-DCS-2022-40C

REVISION  
2022