




HONGSA MINE MOUTH POWER PROJECT
Material Handling System Package

GENERAL ARRANGEMENT, BOM & TECHNICAL DATA SHEET FOR
6.6kV CAPACITOR 400KVAr - WASTE LINE CONVEYOR SYSTEM

Rev	Date	Description	Prepared	Checked	Approved
A	22.07.13	ISSUE FOR APPROVAL	BV	SK	FX
B	05.09.13	AS PER CUSTOMER COMMENTS	BV	SK	FX
C	22.07.15	AS BUILT DRAWINGS	BV	SK	FX

CLIENT		HONGSA POWER COMPANY LIMITED				
		DRG. NO.				
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Date		22.07.13				
Signed		SK				
		Date	Name	Scale		
		Designed	22.07.13	BV		
ABB INDIA LTD Bangalore		Drawn	22.07.13	BV	Material	
		Checked	22.07.13	SK		
Sandvik Mining and Construction Materials Handling		Signed	22.07.13	SK	Mass	
Title		C1043-HONGSA MINE MOUTH POWER PROJECT-COAL HANDLING SYSTEM				
GENERAL ARRANGEMENT, BOM & TECHNICAL DATA SHEET FOR		Sandvik Drg. No. 1043C00M-30-802-01		Sheets	Rev.	Size
6.6kV CAPACITOR 400KVAr-WASTE LINE CONVEYOR SYSTEM		ABB Drg. No. 3BYN463001-BEV		10	C	A4

A

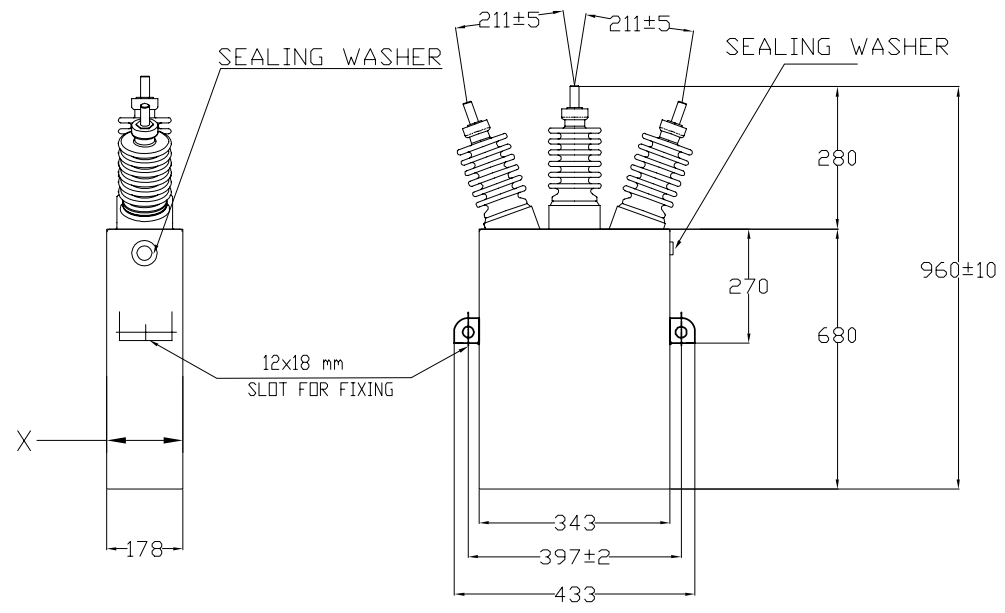
B

C

D

E

F



END VIEW

ELEVATION

X:EXPANDABLE UPTO 190MM

NOTE:

1. ALL DIMENSIONS ARE IN mm.
2. THIS DRAWING IS FOR 7.26kV, 484KVAR, STAR CONNECTED 3PH UNIT.
3. RATED FREQUENCY 50Hz.
4. UNIT IS EXTERNAL FUSED.
5. UNIT INSULATION LEVEL 28/75kV(RMS/peak).
6. REFERENCE STANDARD IEC 60871.
7. TIME TO DISCHARGE TO 50 V IN 600 SECONDS.
8. SS SHELL : 1.5MM THICK.
9. PAINT SHADE IS RAL 7032.

YC1H418353-031

REV.	BY	DATE	DESCRIPTION	CKD.	APP.
C	KR	05.09.14	As Built Drawing	KR	VK

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ABB Limited, Bangalore Sandvik Mining and Construction Materials Handling

Title 1043-HONGSA MINE MOUTH PROJECT-COAL HANDLING SYSTEM
CAPACITOR UNIT DRAWING
 ABB DWG. No. 3BYN463001-BEV

Released for Approval			
Date	14.06.2013		
Signed	KR		
Date	Name	Scale NTS	
Designed	22.07.13	KR	Material
Drawn	22.07.13	KR	
Checked	22.07.13	VK	Mass
Signed	22.07.13	KR	
Sandvik-Dwg.No.	Sheet 2 of 10	Rev	Size
1043C00M-30-802-01		C	A4

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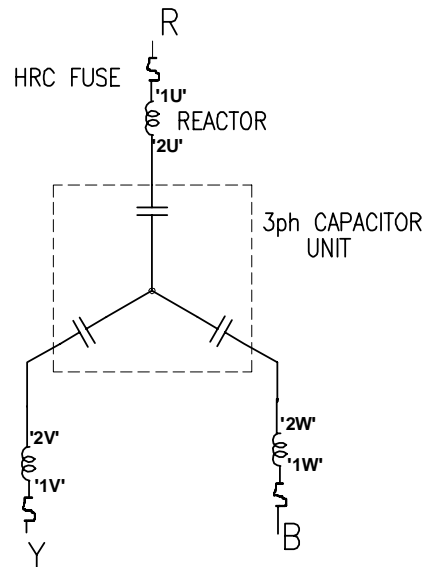
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SCHEMATIC DIAGRAM

LEGEND	DESCRIPTION
	HRC FUSE
	REACTOR
	CAPACITOR UNIT

YC1H318353-002

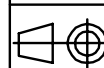
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Sandvik Mining and Construction
Materials Handling

Title 1043-HONGSA MINE MOUTH PROJECT-COAL HANDLING SYSTEM

SCHEMATIC DIAGRAM OF 6.6kV, 400kvar,
3Ph, ENCLOSED CAPACITOR BANK.

ABB DWG. No. 3BYN463001-BEJ

Released for Approval

Date 14.06.2013

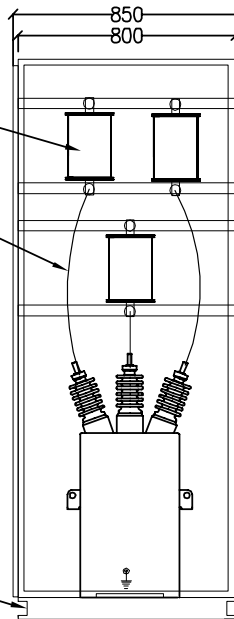
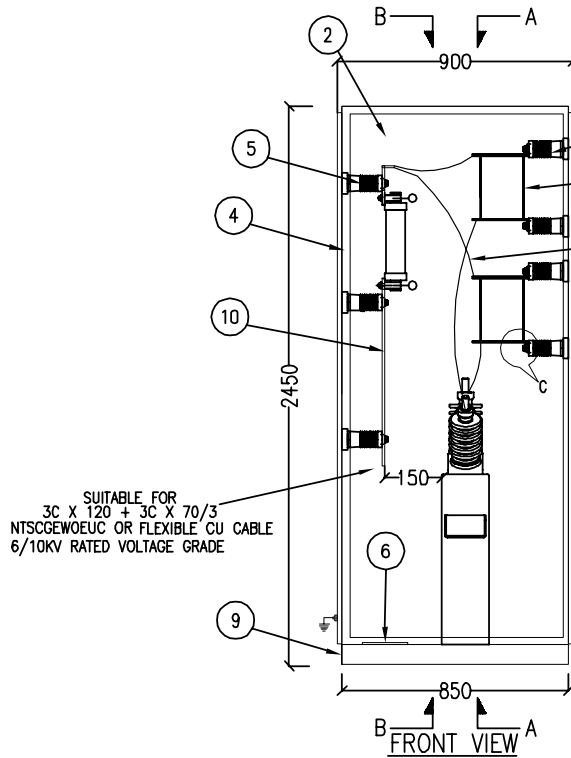
Signed VK

Date 14.06.13 Name DG Scale NTS

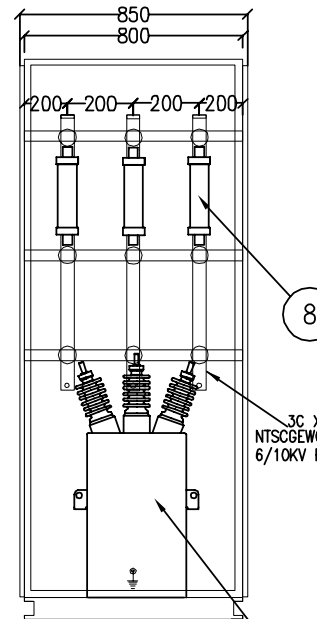
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Drawn	14.06.13	DG	Material	
Checked	14.06.13	DG	Mass	
Signed	14.06.13	VK		
Sandvik-Dwg.No.	Sheet 3 of 10	Rev C	Si A	

REVISION

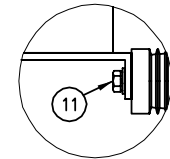
REV.	BY	DATE	DESCRIPTION	CKD.	APP.
C	DG	05.09.14	As Built Drawing	DG	VK



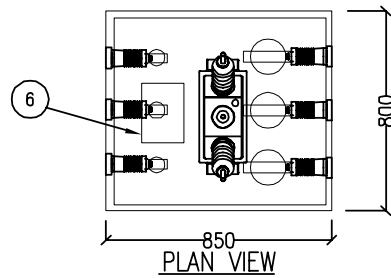
SECTION A-A



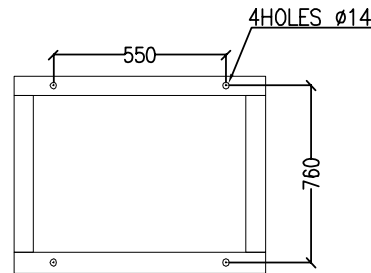
SECTION B-B



SUITABLE FOR
3C X 120 + 3C X 70/3
NTSCEWOEUC OR FLEXIBLE CU CABLE
6/10KV RATED VOLTAGE GRADE



PLAN VIEW



MOUNTING DETAILS

NOTES:

- A. ALL DIMENSIONS ARE IN mm AND DRAWING IS NOT TO SCALE
- B. DIMENSIONS ARE WITH TOLERANCE OF +/-5%
- C. CLEARANCES FOLLOWED ARE CORRESPONDING TO THE HIGHEST SYSTEM VOLTAGE FOR 7.2 KV
Ph-Ph :90 mm, Ph-Gnd :90 mm
- D. ALL THE COMPONENTS USED IN THE PANEL SUITABLE FOR 6.6KV UE SYSTEM.
- E. INDOOR PANEL, PROTECTION CLASS IP42.
- F. REF. BOM FOR THE DETAILS (1) TO (10)

YC1H318353-001

REVISION	REV.	BY	DATE	DESCRIPTION	CKD.	APP.
	C	DG	05.09.14	As Built Drawing	DG	VK

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ABB ABB Limited, Bangalore
SANDVIK Sandvik Mining and Construction Materials Handling

Title 1043-HONGSA MINE MOUTH PROJECT-COAL HANDLING SYSTEM
GA OF 6.6KV, 400kvar, 3Ph, ENCLOSED CAPACITOR BANK
ABB DWG. No. 3BYN463001-BEJ

Released for Approval			
Date	14.06.2013		
Signed	VK		
Date	Name	Scale	NTS
Designed	14.06.13	DG	Material
Drawn	14.06.13	DG	
Checked	14.06.13	DG	
Signed	14.06.13	VK	
Sandvik-Dwg.No.	Sheet 4 of 10	Rev C	Si: A.

SL.NO.	MATERIAL DESCRIPTION	MAKE	QUANTITY
1.	CAPACITOR OF RATING 7.26Kv, 484kVAr, 3ph 50HZ INTERNALLY STAR CONNECTED , EXTERNALLY FUSED PAINTED WITH PU PAINT OF SHADE RAL 7032 (SS CONTAINER)	ABB	1
2.	ENCLOSURE OF CRCA SHEET OF THICKNESS 2mm POWDER COATED WITH SHADE RAL 7032.	ABB	1
3.	50sqmm HT MERUNE COLOUR SLEEVED FLEXIBLE CU-CONDUCTOR(1RUN)	-	AS REQUIRED
4.	3mm CRCA SHEET FRAME FOR LOAD BEARING MEMBERS POWDER COATED WITH SHADE RAL 7032(MAIN FRAME)	ABB	
5.	12KV GRADE RESINCAST INSULATOR (240mm CREEPAGE).	ELCO	15
6.	MS GLAND PLATE OF THICKNESS 3MM. AT INCOMING CABLE ENTRY FROM BOTTOM WHICH IS SUITABLE FOR 3C X 120 + 3C X 70/3 NTSCGEWEOEUC OR FLEXIBLE CU CABLE WITHOUT PUNCHED HOLE.	ABB	1
7.	REACTOR (6.6KV, 38.49A, 50uH)	QUALITY POWER	3
8.	HRC FUSE (7.2KV, 90A)	COOPER BUSSMAN	3
9.	ISMC75 MS BASE CHANNEL PAINTED WITH BLACK COLOUR FOR MOUNTING.	-	AS REQUIRED
10.	40 X 10MM TINNED COPPER FLAT WITH HT COLOUR CODED SLEEVES.	-	AS REQUIRED
11.	HARDWARE (ZINC PASSIVATED)	-	AS REQUIRED
12.	TUBE LIGHT AND LIMIT SWITCH	PHILLIPS & VAISHNO	1
13.	MCB,2P,6 Amps	ABB	1
14.	SPACE HEATER	ENCORE	1
15.	THERMO START	GIRISH	1

YC1H318353-004

REV.	BY	DATE	DESCRIPTION	CKD.	APP.
C	DG	05.09.14	As Built Drawing	DG	VK

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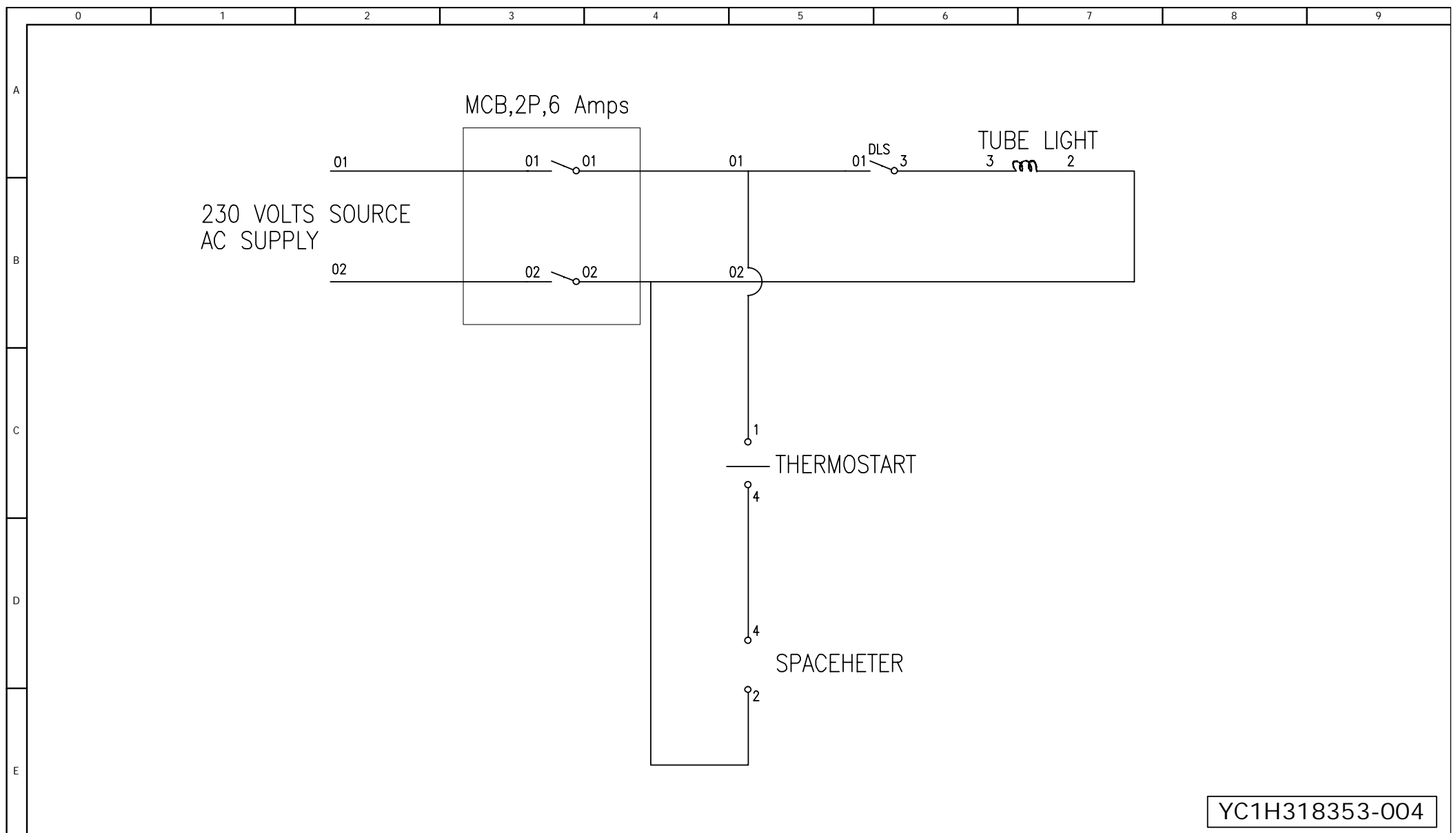



ABB Limited, Bangalore Sandvik Mining and Construction Materials Handling

Title 1043-HONGSA MINE MOUTH PROJECT-COAL HANDLING SYSTEM
BOM FOR 6.6kV, 400kvar, 3Ph, ENCLOSED
CAPACITOR BANK
ABB DWG. No. 3BYN463001-CEC

Released for Approval			
Date	14.06.2013		
Signed	VK		
Designed	Date	Name	Scale NTS
Drawn	14.06.13	DG	Material
Checked	14.06.13	DG	
Signed	14.06.13	VK	Mass
Sandvik-Dwg.No.	Sheet 5 of 10	Rev C	Size A4



YC1H318353-004

REV.	BY	DATE	DESCRIPTION	CKD.	APP.
C	DG	05.09.14	As Built Drawing	DG	VK

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ABB Limited, Bangalore Sandvik Mining and Construction Materials Handling



Title 1043-HONGSA MINE MOUTH PROJECT-COAL HANDLING SYSTEM

BOM FOR 6.6kV, 400kvar, 3Ph, ENCLOSED CAPACITOR BANK

ABB DWG. No. 3BYN463001-CEC



Released for Approval			
Date	14.06.2013		
Signed	VK		
Date	Name	Scale	NTS
Designed	14.06.13	DG	Material
Drawn	14.06.13	DG	
Checked	14.06.13	DG	Mass
Signed	14.06.13	VK	
Sandvik-Dwg.No.	Sheet 6 of 10	Rev C	Size A4



REVISION

CAPACITOR BANK					
1.	Manufacturer's Name			Unit	ABB Ltd.
2.	Maker's Type Designation				CHD
3.	Standard followed				IEC 60871-1
4.	Purpose				Power Factor Improvement
5.	Location				Indoor
6.	System Specifications:				
	Voltage			KV	6.6 (+/-10%)
	Frequency			Hz	50 (+/-3%)
7.	Ambient Temperature:				
	Max. & Min Temperature			°C	50°C
	Rise Over Ambient Temperature			°C	0°C
8.	Capacitor Bank				400KVAR Bank
	8.1 Rated output (Installed)			KV	7.26
				KVAR	484
	8.2 Rated output (Effective)			KV	6.6
				KVAR	400
	8.3 No. of Phases				-----3-----
	8.4 Type of connection				-----InternalStar-----
	8.5 No. of units per bank				1
	8.6 Power frequency withstand voltage			KV _{rms}	28
	8.7 Impulse withstand voltage			KV _{peak}	75
	8.8 Type of mounting				Vertical, type mounting
	8.9 Terminal Arrangement (a) Incoming				Suitable for 3C X120+ 3C X 70/3 NTSCGEWEOEUC OR Equivalent Flexible Copper cable 6/10 KV Rated Voltage grade
Rev No	Revision	Appd	Year	Week	Customer : M/S HONGSA POWER COMPANY LIMITED
<u>Article No.</u>				<u>Description</u>	
YC1H418146-110				Data Sheet For Outdoor Capacitor Bank (As Built)	
Design Checked by DG		Prepared by AS		<u>Order Reference</u> 4200699010	<u>Enquiry Reference</u> 10167
Drawing Approved by VK	Issued by Dept PPHVC	Year 2013	Week 34	Format no.	Rev C
					Sheet 1 Cont. 2
		ABB DWG NO: 3BYN463001-BEV		 SANDVIK DWG NO: 1043C00M-30-802-01	

CAPACITOR BANK					
				Unit	
9.1	Rated Output			KVAR	400KVAR BANK
9.2	Rated Voltage			KV	6.6kV
9.3	Rated Current			Amps	38.49A
9.4	No. of Bushings				-----3-----
9.5	Unit Protection				External Fuses
9.6	Losses (In Capacitor Units only) (After a few hours of energization)			Watts/ KVAR	-----less than 0.2-----
9.7	Di - electric type				All Poly Propylene
9.8	Insulation level				
	a. Power Frequency withstand voltage			KV _{rms}	28
	b. Impulse withstand voltage			KV _{peak}	75
9.9	Permissible Load				
	a. Voltage			}	As Per IEC 60871-1
	b. Current				
	c. Output				
9.10	Discharge device to discharge capacitor to 50 V or less in 600 seconds after disconnection from supply Directly connected internal discharge resistor				Yes
9.11	Container Material & Thickness				Stainless steel , 1.5mm
10.	Creepage distance			mm/KV	-----31-----
11.	Clearances				
	• From phase to phase			mm	90
	• From phase to earth			mm	90
12.	Quantity of Banks			Nos.	18
13	Drawing No.				YC1H418352-031 YC1H418353-031
14.	System Earthing				Un Earth System
Rev No	Revision	Appd	Year	Week	Customer : M/S HONGSA POWER COMPANY LIMITED
<u>Article No.</u>				<u>Description</u>	
YC1H418146-110				Data Sheet For Outdoor Capacitor Bank (As Built)	
Design Checked by DG		Prepared by DG		Order Reference 4200699010	Enquiry Reference 10167
Drawing Approved by VK	Issued by Dept PPHVC	Year 2013	Week 34	Format no.	Rev C
ABB		ABB DWG NO: 3BYN463001-BEV		SANDVIK	SANDVIK DWG NO: 1043C00M-30-802-01

GUARANTEE TECHNICAL PARTICULARS

SERIES REACTOR						
1.	Reference Standard	Unit	IEC- 60076-6			
2.	System Specification <ul style="list-style-type: none"> • Voltage • Frequency 	KV Hz	6.6 (+/-10%) 50 (+/-3%)			
3.	Ambient Temperature <ul style="list-style-type: none"> • Maximum Temperature • Minimum Temperature 	°C °C	50°C 0°C			
4.	Type of Reactor <ul style="list-style-type: none"> 4.1 Purpose 4.2 Location 4.3 Mounting 4.4 Core 4.5 Shielding 4.6 No. Of phases 4.7 Connection 		Air Core Dry Type Inrush Current limiting Indoor Mounted within metal enclosure Air Non-Shielded Open Execution type 3Nos. of 1 Phase Coils/ Bank Line Side			
5.	Reactor Rating <ul style="list-style-type: none"> 5.1 Rated fundamental current 5.2 Inductance 5.3 Inductance Reactance 	Amps mH Ohms/ph	400KVAR BANK 38.49 50µH 0.0157			
6.	Short time Current winding <ul style="list-style-type: none"> • Terminal • Winding 	KA/2Sec. KA/2Sec.	25 times of rated current 25 times of rated current			
7.	Max permissible continuous current		130% times of the rated current			
Rev No	Revision	Appd	Year	Week	Customer: M/S HONGSA POWER COMPANY LIMITED	
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;"><u>Article No.</u> YC1H418146-54</td> <td style="width: 50%; text-align: center;"><u>Description</u> DATA SHEET FOR DRY TYPE SERIES REACTOR (As Built)</td> </tr> </table>					<u>Article No.</u> YC1H418146-54	<u>Description</u> DATA SHEET FOR DRY TYPE SERIES REACTOR (As Built)
<u>Article No.</u> YC1H418146-54	<u>Description</u> DATA SHEET FOR DRY TYPE SERIES REACTOR (As Built)					
Design Checked by DG		Prepared by DG		Order Reference 4200699010	Enquiry Reference 10167	
Drawing Approved by VK	Issued by Dept PPHVC	Year 2013	Week 34	Format No.	Rev C Sheet 1 Cont. 2	
	ABB DWG NO: 3BYN463001-BEV				SANDVIK DWG NO: 1043C00M-30-802-01	

SERIES REACTOR						
8.	Tolerance in inductance				0 to 20%	
9.	Class of insulation				F	
10.	Insulation level <ul style="list-style-type: none"> Power frequency withstand voltage Impulse withstand voltage 	KV _{rms} KV _{peak}			28 75	
11.	Terminal Arrangement <ul style="list-style-type: none"> Incoming Outgoing 				Suitable for Copper Conductor Suitable for Copper Conductor	
12.	Winding material				Aluminum	
13.	Clearances: <ul style="list-style-type: none"> From phase to phase From phase to earth 	mm mm			NA- Reactor are single phase	
14.	Magnetic clearances	mm			As per GA drawings	
15.	Creepage distance	mm/KV			25	
16.	Quantity	Nos.			3 No per bank	
17.	GA Drawing No.				QP-AN-GA-14422-13 QP-AN-GA-14424-14	
Rev No	Revision	Appd	Year	Week	Customer: M/S HONGSA POWER COMPANY LIMITED	
<u>Article No.</u> YC1H417571-054				<u>Description</u> DATA SHEET FOR DRY TYPE SERIES REACTOR (As Built)		
Design Checked by DG		Prepared by AS		Order Reference 4200699010	Enquiry Reference 10167	
Drawing Approved by VK	Issued by Dept PPHVC	Year 2013	Week 34	Format No.	Rev C	Sheet 2 Cont. -
	ABB DWG NO: 3BYN463001-BEV				SANDVIK DWG NO: 1043C00M-30-802-01	