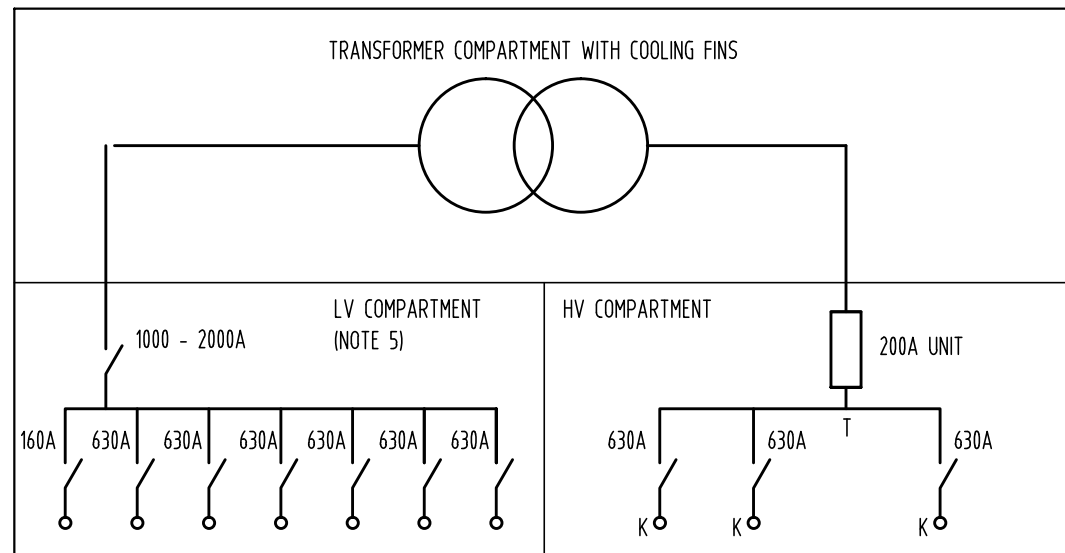


MK3 PACKAGE SUBSTATION GENERAL LAYOUT
SCALE 1:25



EXAMPLE SHOWN IS FOR KTK SUBSTATION WITH STRIPPLE FUSE UNIT

MANUFACTURER DETAILS

To AS 60076 (MEPS compliant)
WTC SERIAL NUMBER

OFF CIRCUIT TAPSELECTOR DE-ENERGISE BEFORE CHANGING TAPS

kVA		Insul. liquid Oil	MINERAL
Phase	3	Temp. rise Oil/Wdg	°C 55/60
Frequency	Hz 50	Total mass	kg
Volts (no load)	LV 433	Untanking mass	kg
Amps	HV 26.2	Liquid volume	l
Amps	LV 667	Pressure min/max (kPa abs)	50/130
Vector group	Dyn1	Year of manufacture	
Insulation level	LI95AC28/AC10	Impedance	%
Cooling type	ONAN		

Plan of tank

ACROSS	HV	POS	%	CONN	LV	ACROSS
A10 B10 C10	12100	1	110.0	6-5		a2 b2 c2
	11825	2	107.5	5-7		
	11550	3	105.0	7-4		
	11275	4	102.5	4-8		
	11000	5	100.0	8-3	433	
	10725	6	97.5	3-9		
	10450	7	95.0	9-2		

**PROPERTY OF
POWER & WATER CORPORATION**

This is a Sealed Transformer

NOTES:-

1. COMPRESSION LUGS ARE TO BE USED ON ALL LV CABLE CONNECTIONS FOR XLPE AND OTHER ALUMINIUM CONDUCTORS. CABLE LUGS WITH FINAL COMPRESSION OVER INSULATION TO EXCLUDE MOISTURE ARE ESSENTIAL. REFER TO DRAWING S02-2-2-10.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE PWC SPECIFICATIONS STS 001.
3. EACH CABLE ENTERING / LEAVING SUBSTATION IS TO HAVE A DESTINATION, TAG REFER TO DRAWING S2-1-8-25.
4. CABLES IN THE HV AND LV COMPARTMENTS SHALL HAVE HEAT SHRINK COLOURED SLEEVES TO MATCH PHASE AND CONNECTED TO SWITCHGEAR WITH R.W.B. FROM REAR OF CABINET TO FRONT. ALL COLOUR CODING SHALL BE ON UN-STRIPPED CABLE.
5. UNLESS SPECIFIED OTHERWISE, PACKAGE SUBSTATIONS SHALL BE SUPPLIED WITH LV PANEL INCLUDING STRIPPLE SWITCH FUSE UNITS.
6. THE CABLE TERMINATION FRAME CAN BE USED TO ASSIST IN CABLE ENTRY AND TERMINATION OF HV CABLES TO THE DRIESCHER MINEX SWITCHGEAR. REFER TO DRAWING S02-1-9-03.
7. ALL HV CABLE TERMINATIONS SHALL BE VIA 630A TYPE C SCREENED DEADBREAK CONNECTIONS.
8. LARGEST CABLE TO BE TERMINATED TO HV SWITCHGEAR IS 400sqmm ALUMINIUM.
9. ALL HV CABLE EARTH SCREENS SHALL BE CONNECTED TO THE HV EARTH BAR.
10. ALL HV CABLES SHALL BE SECURELY CLAMPED BELOW THEIR RESPECTIVE HV BUSHING USING PWC APPROVED CLAMPS. REFER TO DRAWING S02-1-9-03.
11. REFER TO DRAWING S02-2-6-37 FOR FOUNDATION DETAILS, S02-2-6-17 FOR EASEMENT DETAILS AND S02-2-5-09 FOR EARTHING ARRANGEMENTS.
12. HV CABLES CONNECTING THE TRANSFORMER BUSHINGS TO THE SWITCHGEAR FUSED TEE-OFF SHALL BE TERMINATED USING DEAD BREAK ELBOWS AND INSTALLED BY THE SUBSTATION MANUFACTURER.
13. SWITCH NUMBERS SHALL BE RIVETED TO A 40 x 40 ALUMINIUM ANGLE CHANNEL. ANGLE CHANNEL SHALL BE BOLTED TO THE SWITCHGEAR MOUNTING FRAME.
14. NOMINAL TAP POSITION IS TAP 5 (100%).
15. SUBSTATION DETAILS ARE NOT TO BE COPIED NOR THE INFORMATION HEREON DIVULGED TO ANY THIRD PARTY OR USE FOR THE MAKING OF APPARATUS WITHOUT THE WRITTEN PERMISSION OF WILSON TRANSFORMER CO. PTY. LTD.

HV CABLE TERMINATION (COMPACT DEAD-BREAK ELBOW) ITEM NUMBERS

CABLE TYPE	11kV	22kV
35mm ² AL	503768	-
95mm ² AL	503766	-
240mm ² AL	503769	503772
400mm ² AL	503765	503773
120mm ² Cu	-	503767
240mm ² Cu	503769	503772
300mm ² Cu	503770	-

11kV SUBSTATION

RMU TYPE	SUBSTATION kVA		
3 WAY KKT	500	750	1000
ITEM No.	503369	504059	504064
RMU TYPE	SUBSTATION kVA		
4 WAY KTK	500	750	1000
ITEM No.	504056	504060	504065
OVERALL HEIGHT	1677	1807	
D	1554		

22kV SUBSTATION

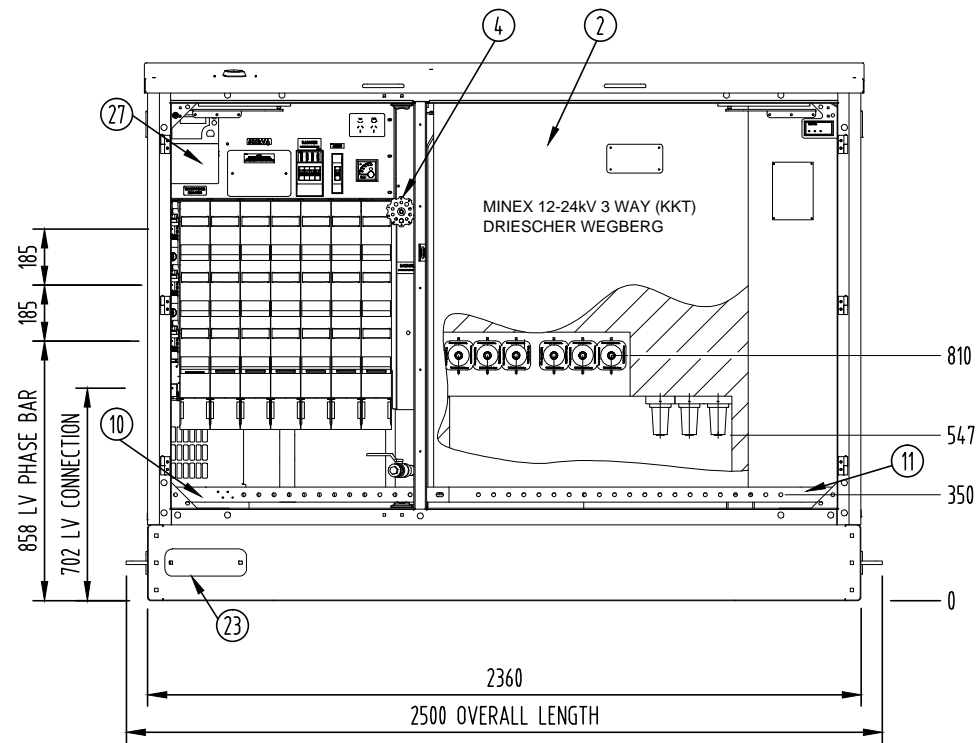
RMU TYPE	SUBSTATION kVA		
3 WAY KKT	500	750	1000
ITEM No.	504058	504062	504063
RMU TYPE	SUBSTATION kVA		
4 WAY KTK	500	750	1000
ITEM No.	504057	504061	504066

REFERENCE DRAWINGS AND DOCUMENTS	
DOCUMENT No.	DOCUMENT TITLE
S02-2-5-10	CABLE JOINTS AND TERMINATIONS 11kV AND 22kV CABLE KIT STOCK CODES

NO	DESCRIPTION	DRN	DATE	CKD	APPD
0	ISSUED FOR CONSTRUCTION	SHW	Sept 17	MP	MP
AMENDMENTS					

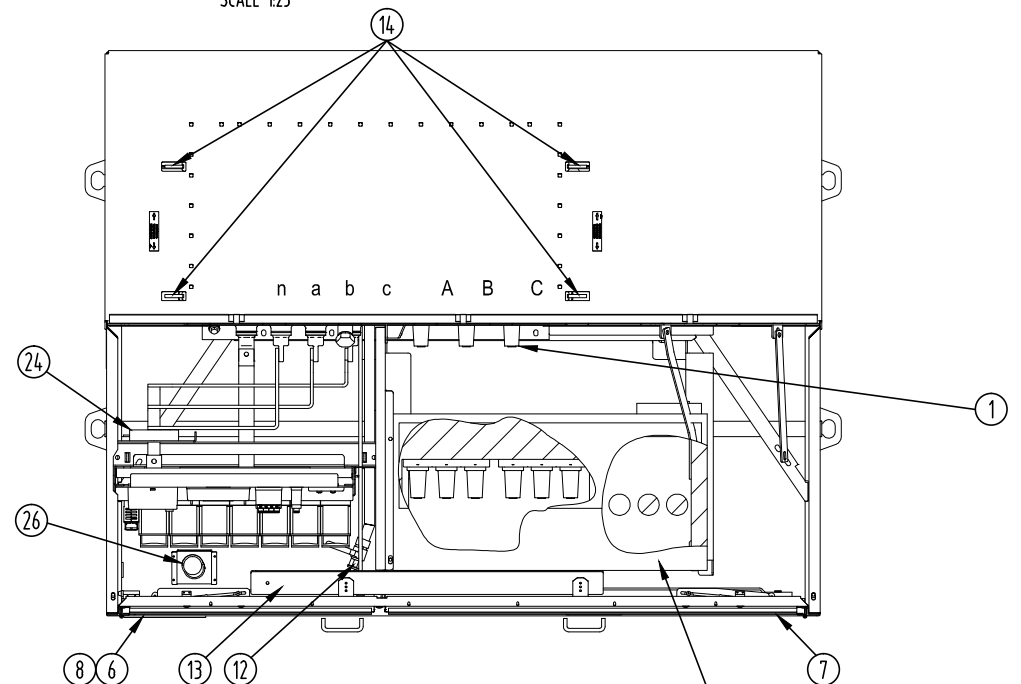


DES	PWC	POWER STANDARD DRAWING		
DRN	SHW	SUBSTATION MK3 PACKAGE SUBSTATION GENERAL ARRANGEMENT - SHEET 1 OF 4		
CKD	MP			
APPD	CS			
SCALE	AS SHOWN			
ISSUED	Sept 2017			
ALL DIM. IN mm		A3	DRAWING NUMBER	S02-1-7-18_1
DRAFTING STANDARD TO A.S.1100		CAD PRODUCT - DO NOT AMEND MANUALLY		AMDT



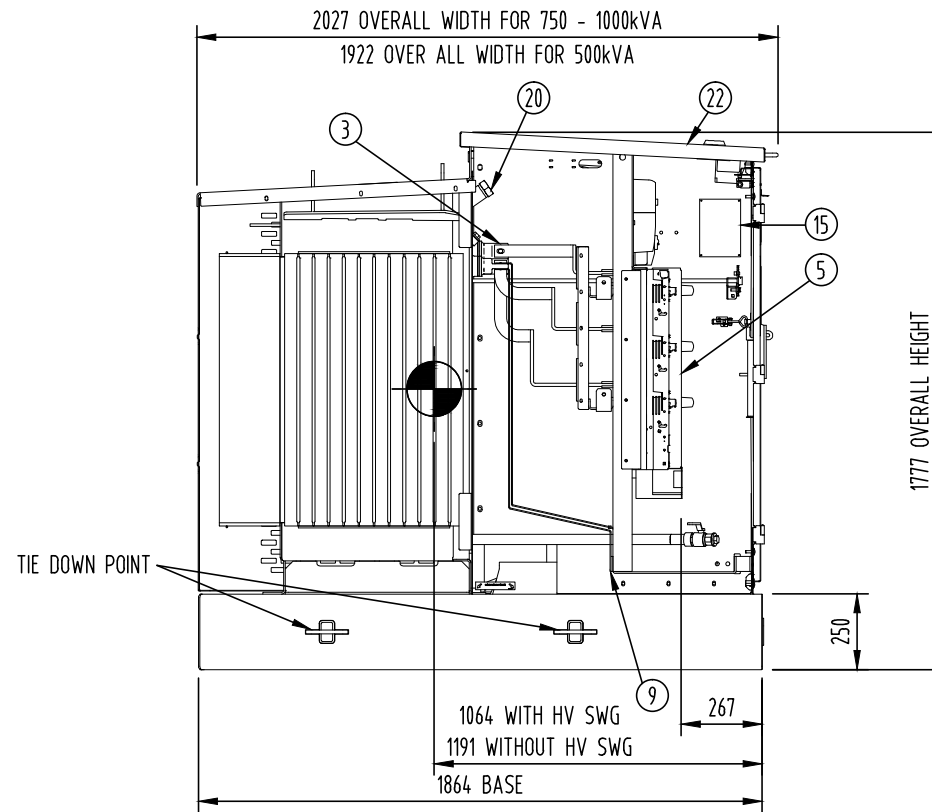
FRONT VIEW WITH DOORS REMOVED

SCALE 1:25



PLAN VIEW WITH UNIT COVER REMOVED

SCALE 1:25



SIDE VIEW

SCALE 1:25

DESCRIPTION LIST

1. HV BUSHING 630A SCREW TYPE (M16).
2. HV COMPARTMENT SUITABLE FOR FITTING MINEX 12-24kV 3 WAY AND 4 WAY RMU. CONNECT LH EARTH STUD LOCATED IN LH COMPARTMENT OF HV SWITCHGEAR TO CUBICLE HV EARTH BAR.
3. LV BUSHING ZEP 2/3/4m HOLE IN PALM Ø14.
4. OFF CIRCUIT TAP SELECTOR 7 POSITION -5% TO +10% WITH LOCKING FACILITIES.
5. LV SWITCHGEAR STANDARD IS LEFT TO RIGHT - 1 x 160A DIN FUSE BASE, 1 x 1000A GENERATOR / ISOLATOR STRIP, 6 x 630A FUSE STRIPS, MDI FITTED TO 'b' PHASE, EXTRA INSULATION ON 'b' PHASE BUSBAR (TX TO SWITCHGEAR), TEST BLOCK, DOUBLE GPO, 4 MINI TERASAKI CIRCUIT BREAKERS 10A 10kA, 1 MINI CIRCUIT BREAKER 2A 6kA FOR HV FAULT METER (COMPASS B), (REFER 165-A302-01 FOR FLUORESCENT LIGHTING AND SWITCHGEAR (CIRCUIT & WIRING DETAILS) CONNECTION SWITCHGEAR BUS WORK TO HAVE BOTH ENDS FITTED WITH COLOURED HEATSHRINK TO ID. PHASES.
6. PROVISION FOR MOUNTING PWC NUMBER PLATE PANEL ON INSIDE OF LV DOOR.
7. HV DOOR INTER-LOCKED WITH LV DOOR WITH OVERCENTRE LATCH. OWNERSHIP PLATE, RMU OPERATION LABEL & OPERATING HANDLE SUPPORT (INSIDE DOOR) 3 x HINGES AND DOOR STAY.
8. LV DOOR WITH SWING HANDLE (3 POINT LOCKING) WITH PROVISION FOR PAD LOCKING, DANGER PLATE (STICK-ON), 3 x HINGES AND DOOR STAY.
9. INSULATED NEUTRAL BAR 50 x 6.3 TINNED COPPER COMPLETE WITH 11 TAPPED HOLES M10 & REMOVABLE LINK TO EARTH BAR.
10. LV EARTH BAR 50 x 6.3 TINNED COPPER COMPLETE WITH 10 HOLES Ø13.
11. HV EARTH BAR 50 x 6.3 TINNED COPPER COMPLETE WITH 10 HOLES Ø13.
12. DRAIN / SAMPLE BALL VALVE Ø25 NOMINAL.
13. HV / LV COMPARTMENT LED LIGHT 40W.
14. CRANE LIFTING LUGS SLOT 40 x 60.
15. RATING AND DIAGRAM PLATE.
16. THERMOMETER POCKET IN LV COMPARTMENT.
17. FLUSH TYPE OIL GAUGE MARKED AT 15°C (BACKGROUND ON WALL OF TANK PAINTED WHITE BEHIND PERPEX) IN LV COMPARTMENT.
18. PRESSURE RELIEF VALVE IN LV COMPARTMENT.
19. SEALING PLUG IN LV COMPARTMENT.
20. FILLER CAP Ø40 NOMINAL IN LV COMPARTMENT.
21. COOLING FINS.
22. CUBICLE COVER WITH INSULATION ON UNDERSIDE OF COVER AND FITTED WITH HANDLES TO AID REMOVAL OF COVER.
23. BASE FRAME 250 x 50 CHANNEL GALVANISED WITH GENERATOR CABLE ACCESS POINT (COVER PLATE BOLT ON).
24. CT 800/5A FOR MDI'S (MOUNTED ON BUSBAR TO PHASE LV BUSHINGS)
25. LIGHT SWITCH BRACKET.
26. EXTERNAL ANTENNA.
27. MULTIFUNCTIONAL SMART METER & COMMUNICATION UNIT (MOUNTED ON LV BOARD).

REFERENCE DRAWINGS AND DOCUMENTS	
DOCUMENT No.	DOCUMENT TITLE
S02-2-5-10	CABLE JOINTS AND TERMINATIONS 11kV AND 22kV CABLE KIT STOCK CODES

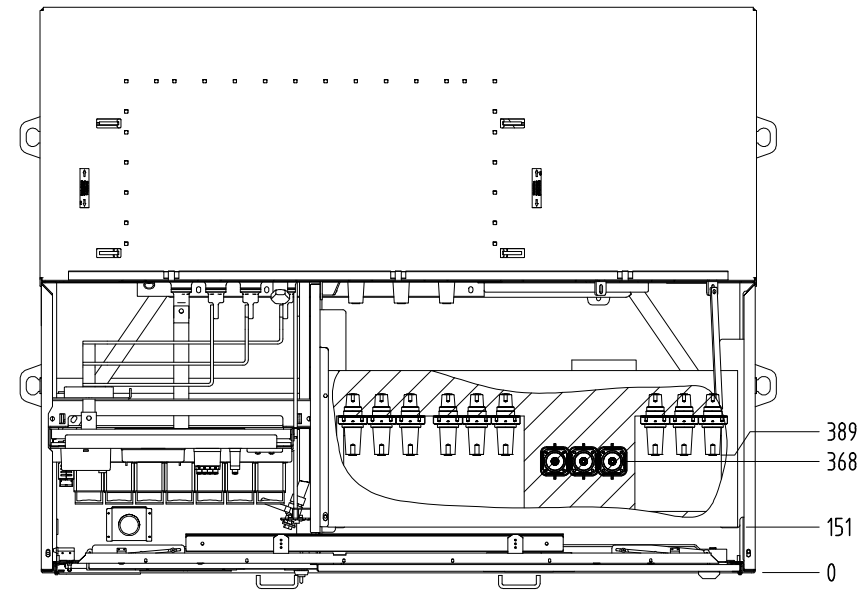
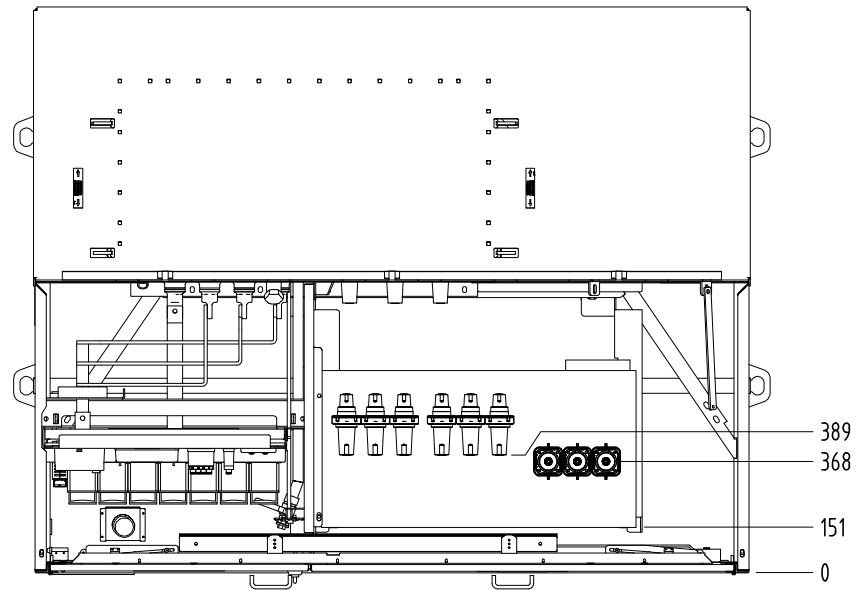
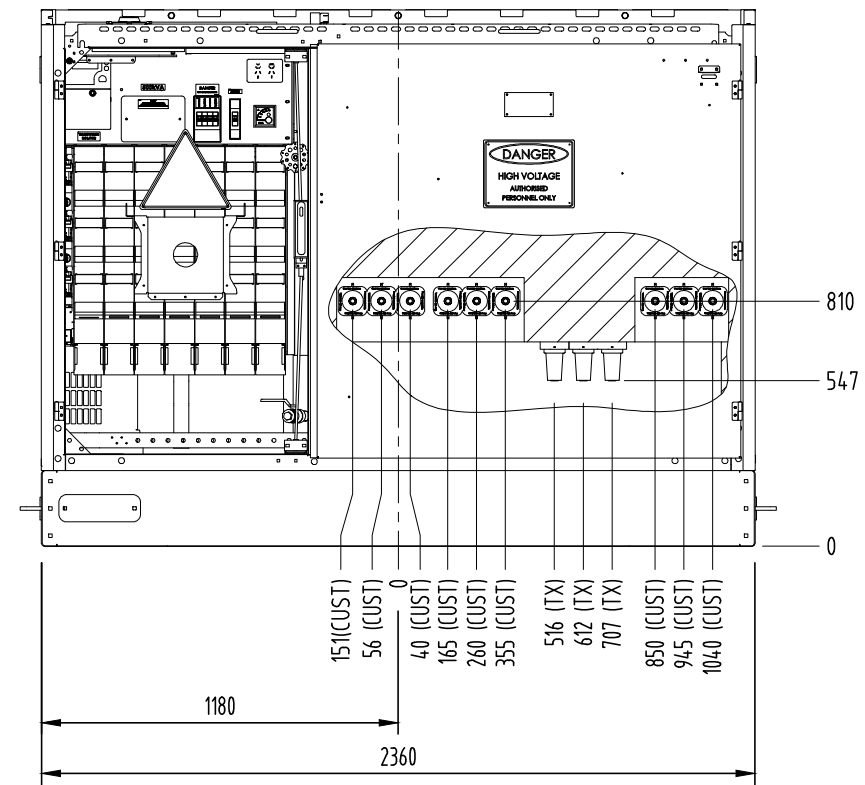
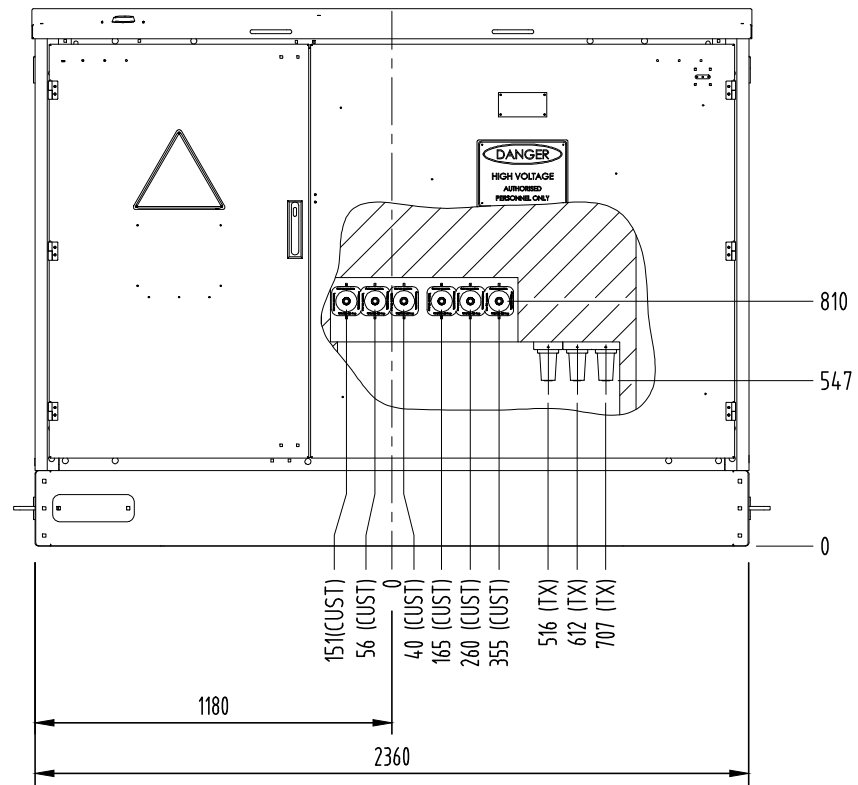
NO	DESCRIPTION	DRN	DATE	CKD	APPD
0	ISSUED FOR CONSTRUCTION	SHW	Sept 17	MP	MP
AMENDMENTS					



DES	PWC
DRN	SHW
CKD	MP
APPD	CS
SCALE	AS SHOWN
ISSUED	Sept 2017
ALL DIM. IN mm	
DRAFTING STANDARD TO A.S.1100	

POWER STANDARD DRAWING		
SUBSTATION MK3 PACKAGE SUBSTATION GENERAL ARRANGEMENT - SHEET 2 OF 4		
A3	DRAWING NUMBER	S02-1-7-18_2
CAD PRODUCT - DO NOT AMEND MANUALLY		





HV SWITCHGEAR CONNECTION LOCATION FOR 3 WAY MINEX (KKT)
SCALE 1:25

HV SWITCHGEAR CONNECTION LOCATION FOR 4 WAY MINEX (KTKT)
SCALE 1:25

REFERENCE DRAWINGS AND DOCUMENTS	
DOCUMENT No.	DOCUMENT TITLE
S02-2-5-10	CABLE JOINTS AND TERMINATIONS 11kV AND 22kV CABLE KIT STOCK CODES

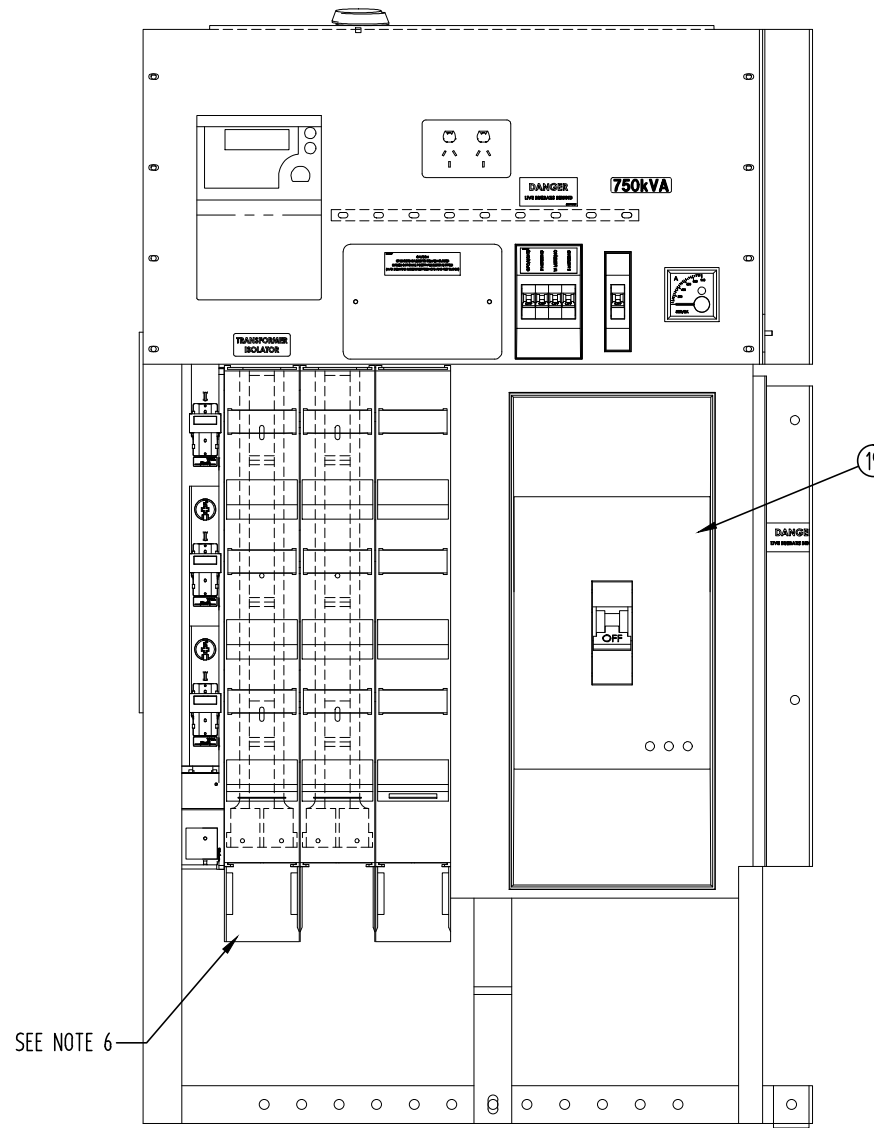
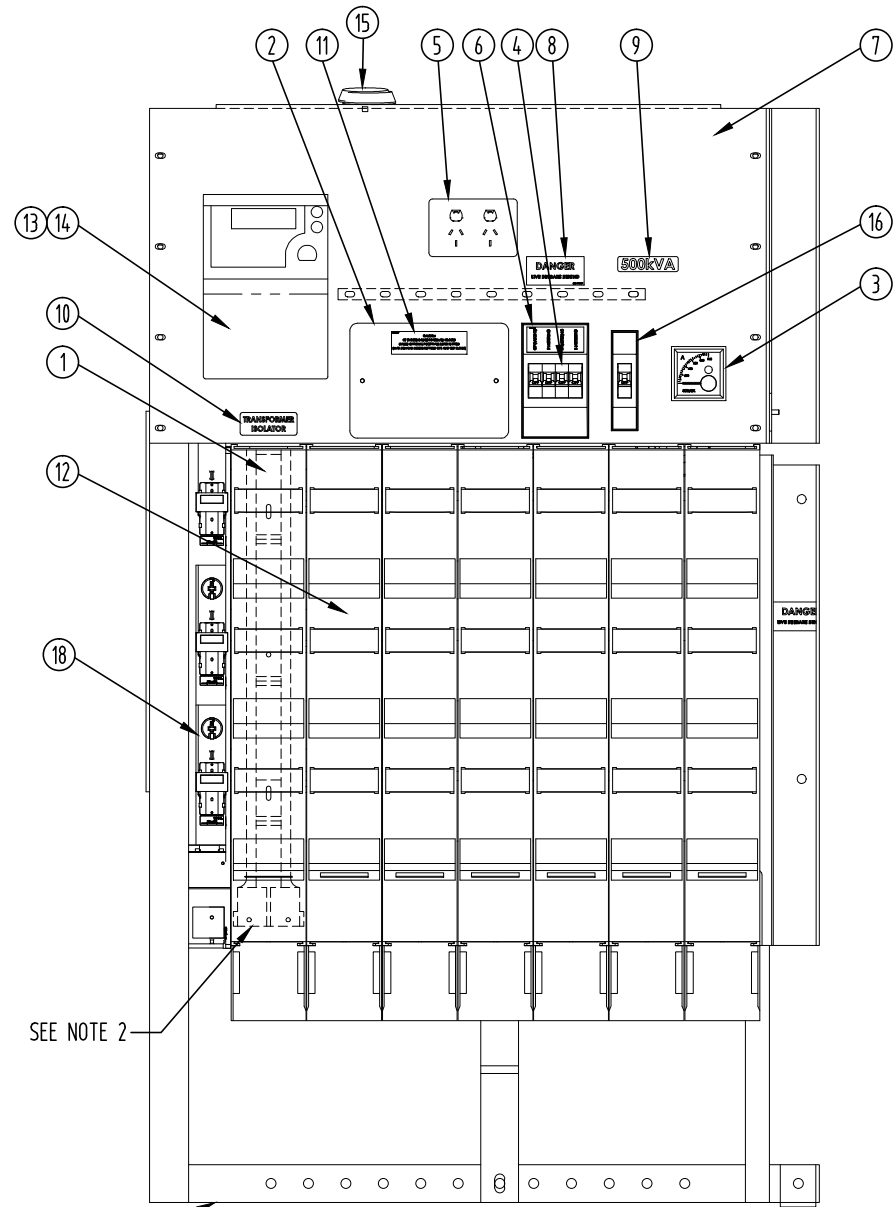
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AMENDMENTS					



DES	PWC
DRN	SHW
CKD	MP
APPD	CS
SCALE	AS SHOWN
ISSUED	Sept 2017
ALL DIM. IN mm	
DRAFTING STANDARD TO A.S.1100	

POWER STANDARD DRAWING		
SUBSTATION MK3 PACKAGE SUBSTATION GENERAL ARRANGEMENT - SHEET 3 OF 4		
A3	DRAWING NUMBER	S02-1-7-18_3
CAD PRODUCT - DO NOT AMEND MANUALLY		





500kVA LV PANEL

- LV SWITCHGEAR LEFT TO RIGHT
- 1 x 160A DIN FUSE STRIP, 1 x 1000A GENERATOR / ISOLATOR STRIP, 6 x 630A FUSE STRIPS

500 - 1000kVA LV PANEL WITH MCCB

- LV SWITCHGEAR LEFT TO RIGHT
- 500kVA - 1 x 160A DIN FUSE STRIP, 1 x 1000A GENERATOR / ISOLATOR STRIP, 2 x 630A FUSE STRIPS
- 750kVA & 1000kVA - 1 x 160A DIN FUSE STRIP, 1 x 2000A GENERATOR / ISOLATOR STRIP, 1 x 630A FUSE STRIP

MCCB KITS	ITEM NUMBER
800A	503922
1250A	503923
1600A	503919
2000A	503924

ITEM No.	DESCRIPTION	DEFAULT/QTY
1	JEAN MULLER 1250A REAR CONNECT GENERATOR	1
2	BOX TEST IPD-KWHTB02	1
3	METER MAX DEMAND 0-800/5A WHITE	1
4	CIRCUIT BREAKER TERASAKI 10A 10kA 1 PHASE DTCB10110C	4
5	SOCKET GPO 10A CLIPSAL 25	1
6	CIRCUIT BREAKER ENCLOSURE 4CC4WE_CLI	1
7	BARRIER - PERSPEX COVER	1
8	LABEL - DANGER	2
9	LABEL 500-1000kVA	1
10	LABEL - TRANS ISOLATOR	1
11	LABEL - IMPORTANT SHORTING LINKS	1
12	JEAN MULLER 630A FEEDER	6
13	METER 800/5A CT (PWC) (NOT SHOWN)	1
14	SMART METER COMMUNICATION UNIT TLM	1
15	SMART METER ANTENNA	1
16	CIRCUIT BREAKER CLIPSAL 2A 6kA 1 PHASE 4CB102/6	1
17	LV NEUTRAL BAR	1
18	JEAN MULLER 160A FUSE STRIP SL00-3X (L5461001T)	1
19	TERASAKI CIRCUIT BREAKER	1

NOTES:-

- ALL CONNECTING BUS WORK TO BE MARKED BOTH ENDS WITH COLOURED HEAT SHRINK TO IDENTIFY PHASES.
- THE GENERATOR LUGS TO BE MARKED WITH COLOURED DOTS TO IDENTIFY PHASES.
- ALL CURRENT CARRYING BOLTED CONNECTIONS SHALL BE VIA CLASS 8.8 STAINLESS STEEL BOLTS TO THE FOLLOWING TORQUE SPECIFICATIONS:
M8 : 10 - 15Nm
M10 : 30 - 35Nm
M12 : 35 - 40Nm
ALL CONNECTIONS SHALL USE A SPRING WASHER BETWEEN A FLAT WASHER AND THE NUT. WHERE CAPTIVE NUTS ARE USED THE SPRING WASHER SHALL BE ON THE BOLT SIDE OF THE CONNECTION.
ALL STAINLESS STEEL BOLTS REQUIRE A COATING OF ANTI-SIEZE BEFORE INSTALLATION. WHERE MULTIPLE BOLTS ARE USED TO MAKE A CONNECTION, DO NOT APPLY FULL TORQUE TO THE BOLTS ON THE FIRST PASS.
- TO AVOID POSSIBLE CONTACT BY EXTERNAL SOURCES ALL LV BUSHING TO SWITCHBOARD BUSBARS SHALL BE COVERED BY COLOURED HEATSHRINK.
- 1000A GENERATOR / ISOLATOR STRIP SHALL BE USED FOR 500kVA. 2000A GENERATOR / ISOLATOR STRIP SHALL BE USED FOR 750-1000kVA.
- THE NUMBER OF 630A FUSE STRIP AVAILABLE ON A MCCB LV PANEL DEPENDS ON THE SIZE OF THE MCCB AND THE SIZE OF THE PACKAGE.
- ALL MCCB KITS ARE INSTALLED BY MANUFACTURE ON REQUEST AT THE TIME OF ORDERING THE PACKAGE SUB AND MCCB KIT.

REFERENCE DRAWINGS AND DOCUMENTS	
DOCUMENT No.	DOCUMENT TITLE
S02-2-5-10	CABLE JOINTS AND TERMINATIONS 11kV AND 22kV CABLE KIT STOCK CODES

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DES	PWC
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ISSUED	Sept 2017
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POWER STANDARD DRAWING	
SUBSTATION MK3 PACKAGE SUBSTATION GENERAL ARRANGEMENT - SHEET 4 OF 4	
A3	DRAWING NUMBER S02-1-7-18_4
CAD PRODUCT - DO NOT AMEND MANUALLY	

