


Enclosure technical data sheet

1.0	<p>Enclosure:</p> <p>Outdoor type enclosure having modular construction of Galvanized Sheet Steel. The degree of protection for HT & LT switchgear compartment shall be IP54 & degree of protection of transformer compartment of the Enclosure shall be minimum IP23D. The enclosure exterior shall be painted with polyurethane paint / powder coated and tropicalized to Afghanistan Weather conditions. Each compartment will be provided with the door and pad locking arrangement. The Compartment illumination lamp with door-operated switch shall be provided for each compartment. Structure of the substation shall be able to withstand the gross weight of all equipment. It should be possible to transport the equipment along with transformer, RMU & LT Panel from one site to another.</p>		Vendor to specify the actual degree of protection.	
1.0	Interconnection between HT switchgear & Transformer using XLPE cable & Interconnection between Transformer & LT switchgear using Copper bus bars. Internal earthing connections by GI strips.		Vendor to confirm	
1.1	Dimension of the compact substation (approx.)		Vendor to specify	
2.0	<p>1. Package Sub-Station shall be outdoor Pad mounted type.</p> <p>2. Erection, Commissioning and Civil work for package substation is in the scope of DABS. However the bidder shall furnish the foundation Details.</p>		Vendor to confirm	

رابطہ تراست اسٹریجی سہاٹی طالب فہرہ



محمد


انجینئر محمد ذیشان

1/

Table: Technical Data for Distribution Transformer 100 kVA, 20/0.4 kV

Designation	Unit	Required	Offered
Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With conservator	
Dielectric		indoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		100	
Rated voltage:		3	
- High voltage side	kV		
- Low voltage side	kV	20	
Taps on HV side	%	0.4	
Rated currents		$\pm 2 \times 2.5\%$, off load	
- High voltage side	A		
- Low voltage side	A	to be specified	
Impedance voltage	%	to be specified	
Vector group		4	
Treatment of neutral (LV side)		Dyn5	
Losses:		Solidly earthed	
- No-load	W		
- Load	W	To be specified	
Insulation level HV-winding:		To be specified	
Lightning-impulse test voltage	kV		
Power-frequency test voltage	kV	125	
Insulation level LV-winding:		50	
Lightning-impulse test voltage	kV		
Power-frequency test voltage	kV	30	
	kV	10	

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Resistance per phase:			
- HV winding	Ω	to be specified	
- LV winding	Ω	to be specified	
Sound pressure level	dB(A)	52	
Max. temperature rise at 45° C ambient temperature and at full load:			
- Winding	°C	to be specified	
- Iron core	°C	to be specified	
- Oil at top level	°C	to be specified	
Max. ambient temperature	°C	45	
Cooling system		ONAN	
Conductor material			
Insulating material of windings		Copper	
Insulation class		to be specified	
Standard bushings		yes	
Accessories:			
- Dial type contactor thermometer	pcs.	1	
- Oil level indicator	pcs.	1	
- Pocket thermometer	pcs.	1	
- Grounding terminals	pcs.	2	
- Filter pipe	pcs.	1	
- Oil drain plug	pcs.	1	
- Rating plate	pcs.	1	
- Towing eye	pcs.	1	
- Wheels	Pcs.	4	
Weights:			
- Total	kg	to be specified	
- Oil	kg	to be specified	
Dimensions:			
- Length	mm	to be specified	
- Width	mm	to be specified	
- Height	mm	to be specified	
- Distance between wheels centers	mm	to be specified	
Standard		IEC 60076-7 IEC 60354	

قلم سمار (3) چمبول بیاورد

مدیرعامل ترانسفا رومر اسستنت مدیران هوای والیہ کمپوز

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Table: Technical Data for Distribution Transformer 400 kVA, 20/0.4kV

Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With oil conservator	
Dielectric		indoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		400	
Rated voltage:		3	
- High voltage side	kV		
- Low voltage side	kV	20	
Taps on HV side	%	0.4	
Rated currents		$\pm 2 \times 2.5\%$, off load	
- High voltage side	A		
- Low voltage side	A	to be specified	
Impedance voltage	%	to be specified	
Vector group		4	
Treatment of neutral (LV side)		Dyn5	
Losses:		Solidly earthed	
- No-load	W		
- Load	W	To be specified	
Insulation level HV-winding		To be specified	
Lightning-impulse test voltage	kV		
Power-frequency test voltage	kV	125	
		50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	

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مهندس ترانسفورماتورهاى متوسط و پائين ولتاژ

فيلماز (4) ۱۱۰۰۰

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Resistance per phase:			
- HV winding	Ω	to be specified	
- LV winding	Ω	to be specified	
Sound pressure level	dB(A)	52	
Max. temperature rise at 45° C ambient temperature and at full load:			
- Winding	°C	to be specified	
- Iron core	°C	to be specified	
- Oil at top level	°C	to be specified	
Max. ambient temperature	°C	45	
Cooling system		ONAN	
Conductor material			
Insulating material of windings		Copper	
Insulation class		to be specified	
Standard bushings		yes	
Accessories:			
- Dial type contactor thermometer	pcs.	1	
- Oil level indicator	pcs.	1	
- Pocket thermometer	pcs.	1	
- Grounding terminals	pcs.	2	
- Filter pipe	pcs.	1	
- Oil drain plug	pcs.	1	
- Rating plate	pcs.	1	
- Towing eye	pcs.	1	
- Wheels	Pcs.	4	
Weights:			
- Total	kg	to be specified	
- Oil	kg	to be specified	
Dimensions:			
- Length	mm	to be specified	
- Width	mm	to be specified	
- Height	mm	to be specified	
- Distance between wheels centers	mm	to be specified	
Standard		IEC 60076-7 IEC 60354	

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Table: Low voltage distribution switchboard with MCCB – 630 A

Description	Unit	Required	Offered
Manufacturer		To be specified	
Type		Indoor	
Materials for enclosure		Black steel with electrostatic powder	
Dimensions of enclosure (width x depth x height)	mm	To be specified	
Thickness	mm	1.5	
Mechanical shock withstand	J	20	
Weight	kg		
Rated maximum voltage	V	600	
Rated lightning impulse withstand voltage phase to earth (1.2/50 μ s wave)	KV peak	6	
Rated withstand voltage at power frequency between phase and frame	KV rms	2	
Phase barrier		Yes	
Phase puller (one per board)		yes	
MCCB : rated current	A	630	
Rated continues current	A	630	
Trip unit	A	630	
Ultimate breaking capacity	KA	> 50	
Pole quantity	pole	3	
Standard		IEC 60947.2	
Rated operation voltage	V	600	
Frequency	Hz	50	
Number of incoming feeders		1	
Number of outgoing feeders		To be specified according to BOQ	
The distribution cabinets shall be pre-wired with neutral and earth bus ready for service, complete with cable lugs.		yes	

تعمیم و جدول برآورد

روماتر استیشن میدان طحی و اب نمرور

از صفی (۱۵) صفی (۱۵) صفی (۱۵) صفی (۱۵)

رابطه صفی (۱۵) صفی (۱۵) صفی (۱۵) صفی (۱۵)

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Table : LOW VOLTAGE MCCB – 200 A FOR OUTGOING FEEDER

Description	Unit	Required	Offered
Manufacturer	-	To be specified	
MCCB: rated current	A	200	
Rated continues current	A	200	
Trip unit	A	200	
Ultimate breaking capacity	kA	>35	
Short circuit current	kA	4.56	
Rated operation voltage	V	415- 690	
Frequency	Hz	50	
Rated insulating voltage	V	800	
Temperature rang	C ⁰	-5 to +40	
Rated impulse voltage	KV	8	
Pole quantity	pole	3	
Standard	-	IEC 60947.2	

معملاً 5 جریس برآورد


مطابق استاندارد استین مدرین هوایی وایب نیمروز

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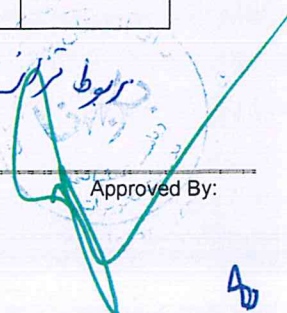



Table 1. Technical Data Sheet – 116KVAR, (0.4) KV - Capacitor

Description	Unit	Required	Offered
Manufacturer/Country			
Rated Voltage	V	600	
Nominal voltage	V	400	
KVAr output at rated voltage	KVAr	116	
Tolerance on units	%	0-(+10) of the rated Capacity	
Number of units	-		
Rating of single units	KVAr	116	
Mode of connection of banks	-	To be Specified	
(floating neutral)		To be Specified	
Frequency	Hz	50	
Number of phases	-	3	
Type of fuses	-	Internal/External	
Type of bank	-	Indoor type	
Steps	-	1	

مربوط ترانسفدر استیشن میدان هوایی ولایت نمرود
تکمیل کنه کار (5) جدول برآورد

۱/۲



کنه کار، ۲۶.۱۰.۲۰۲۰

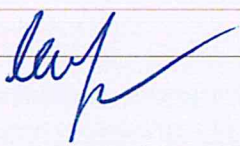
Table 2. Technical Requirements of Capacitor Units 116KVAR, 0.4KV

Description	Unit	Required	Offered
Manufacturer/Country		To be specified	
Rated Voltage	kV	600	
Nominal voltage	kV	400	
Basic insulation level		To be specified	
AC withstand Voltage	V	Int – electro:2.5Un/10s	
Loss angle tangent (tan)	°	At the rated power –frequency voltage, 20c° tan 0°≤0.2%	
Ambient Temperature		-25c° to 50c°	
Allowable over – voltage (Un)	V	1.10 Of rated voltage (not greater than 8h in 24h)	
Allowable over – current (In)	A	1.43 of rated current	
Number of phases	-	3	
Number of bushings	-		
Voltage to the ground (Ue)	V	3000V AC 50Hz	
Discharge device	-	Built in discharge resistor	
Discharge time (max.)	S	180	
Type of dielectric	-	Polypropylene	
Type electrode	-	Aluminum foil	
Type of elements	-	Extended foil type	
Impregnante	-	Non-PCB, Non-toxic Biodegradable	
Standard	-	IEC 60831	

تعمیم (و) جدولی است

در ارتباط با ترانسفورماتور استیشن سیدان محوالتی و راجع به پروژه





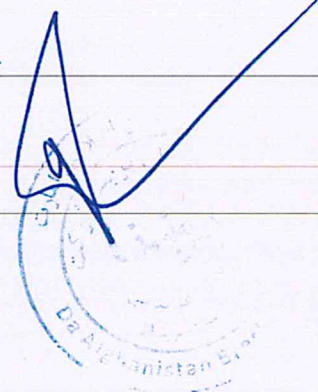


Table: Low voltage distribution switchboard transformer with MCCB – 250 A

Description	Unit	Required	Offered
Manufacturer		To be specified	
Type		Indoor	
Materials for enclosure		Black steel sheet with electrostatic powder	
Dimensions of enclosure (width x depth x height)	mm	To be specified	
Thickness	mm	1.5	
Mechanical shock withstand	J	20	
Weight	kg		
Rated maximum voltage	V	600	
Rated lightning impulse withstand voltage phase to earth (1.2/50 μ s wave)	KV peak	6	
Rated withstand voltage at power frequency between phase and frame	KV rms	2	
Phase barrier		Yes	
MCCB: rated current	A	250	
Rated continues current	A	250	
Trip unit	A	250	
Ultimate breaking capacity	kA	>35	
Standard		IEC 60947.2	
Rated operation voltage	V	600	
Frequency	Hz	50	
Pole quantity	pole	3	
Number of incoming feeders		1	
Number of outgoing feeders		To be specified according to BOQ	
The distribution cabinets shall be pre-wire with neutral and earth bus ready for service, complete with glands		yes	

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Table : LOW VOLTAGE MCCB – 100 A FOR OUTGOING FEEDER

Description	Unit	Required	Offered
Manufacturer	-	To be specified	
type		indoor	
MCCB: rated current	A	100	
Rated continues current	A	100	
Trip unit	A	100	
Ultimate breaking capacity	kA	>25	
Short circuit current	kA	2.28	
Rated operation voltage	V	415- 690	
Frequency	Hz	50	
Rated insulating voltage	V	800	
Temperature rang	C°	-5 to +40	
Rated impulse voltage	KV	8	
Pole quantity	pole	3	
Standard	-	IEC 60947.2	

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سرکار انتظام اسٹیشن میدان کھواں دالین غیر درجہ
عقلم شکار (6) جدول بہ آغوش

Table 1. Technical Data Sheet – 30KVAR, (0.4) KV - Capacitor

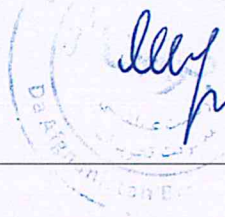
Description	Unit	Required	Offered
Manufacturer/Country			
Rated Voltage	V	600	
Nominal voltage	V	400	
KVAr output at rated voltage	KVAr	30	
Tolerance on units	%	0-(+10) of the rated Capacity	
Number of units	-		
Rating of single units	KVAr	30	
Mode of connection of banks	-	To be Specified	
(floating neutral)		To be Specified	
Frequency	Hz	50	
Number of phases	-	3	
Type of fuses	-	Internal/External	
Type of bank	-	Indoor type	
Steps	-	1	

تسمیہ: (6) جدول برآمد

ربوط میدان هوایی و ایٹمک فز

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26.11.2015

Table 2. Technical Requirements of Capacitor Units 30KVAR, 0.4KV

Description	Unit	Required	Offered
Manufacturer/Country		To be specified	
Rated Voltage	kV	600	
Nominal voltage	kV	400	
Basic insulation level		To be specified	
AC withstand Voltage	V	Int – electro:2.5Un/10s	
Loss angle tangent (tan)	°	At the rated power –frequency voltage, 20c° tan 0°≤0.2%	
Ambient Temperature		-25c° to 50c°	
Allowable over – voltage (Un)	V	1.10 Of rated voltage (not greater than 8h in 24h)	
Allowable over – current (In)	A	1.43 of rated current	
Number of phases	-	3	
Number of bushings	-		
Voltage to the ground (Ue)	V	3000V AC 50Hz	
Discharge device	-	Built in discharge resistor	
Discharge time (max.)	S	180	
Type of dielectric	-	Polypropylene	
Type electrode	-	Aluminum foil	
Type of elements	-	Extended foil type	
Impregnante	-	Non-PCB, Non-toxic Biodegradable	
Standard	-	IEC 60831	

تعمیم شد و با جدول برآورد ۹/۲

در صورت لزوم در میان عنوان و عبارت اصلاح



Table : 20KV Panel

Description	Unit	Required	Offered
20KV Panel			
Country		To be specified	
Manufacturer		To be specified	
Type		To be specified	
Rated Voltage	kV	24	
Nominal Voltage	kv	20	
Type installation	-	Indoor	
Material of enclosure	-	To be specified	
Dimension	-	To be specified	
Thickness		2	
Mechanical shock withstands	Mm	To be specified	
	-		
Rated lighting impulse withstand voltage	KV	125	
Rated withstand voltage at power frequency	KV	50	
		Yes	
Pre-wired with neutral and earth bus for service	-		
IP	-	54	
Ambient Temperature	C	45	
Type of Busbar		Copper	
Busbar Current	A	As per rating of Transformer and IEC standard	
Rated Frquency	Hz	50	
Rated Short Time Current Standard	KA	Up to 31.5 IEC 62271-1	

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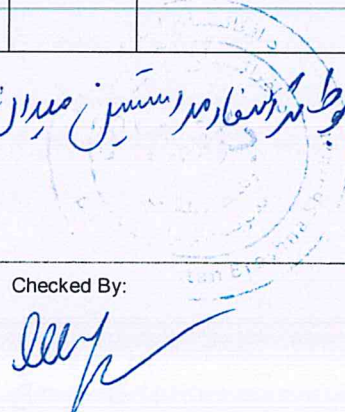
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علم نماز (8,7) اصول بر آورد
از علم نماز (15) صفحات الی (9)
صفحات مربوط علم نماز (8,7) بر آ
سی باشد

مربوط به سفارش سیمین میدان هوایی ولایت نیمروز



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Table J-1 : Load Break Switch with Fuse 10A - Indoor

Description	Unit	Required	Offered
Manufacturer		To be specified	
Country of origin		To be specified	
Service conditions		Indoor	
Number of poles		Wall mounted	
Insulating		3	
Rated Voltage	kV	SF6/Vacuum	
Rated impulse withstand voltage		24	
• phase to earth	kV	(1.2/50 μ s wave)	
• across the isolating distance	kV	125	
Rated power frequency. withstand voltage		145	
• phase earth	kV	(1mn rms)	
• across the isolating distance	kV	50	
Rated frequency	Hz	60	
Rated normal current	A	50	
Rated short time withstand current	kA/1s	630	
Rated peak withstand current	kA	12.5	
Rated mainly active load breaking current	A	31.5	
Rated closed loop breaking current	A	630	
Rated no load transformer breaking current	A	2.5	
Rated line charging breaking current	A	10	
Rated short circuit making current	kA	31	
Mechanical endurance		> 1000	
Electrical endurance at rated making and breaking operations		400 at least	
Electrical endurance at rated making operation		2 at least	
Installation on poles		Yes	
Suitable for horizontal, Vertical, triangular layout of conductors		Yes	
Suitable for connection with lugs		Yes	
Creepage distance	mm/kV	25	
Degree of protection of tank		IP/ 3X	
Breaking chamber		SF6	
SF6 gas pressure		1.3 bar	
SF6 service life		30 years	
Refilling of gas		No	
Certain separation of contacts		Yes	
Insulators or bushing material		Polymer or porcelain	
Dimensions		To be specified	
Weight	kg	To be specified	
Standard		IEC – 62271-102	
		IEC – 62271-105	
		IEC – 60529	


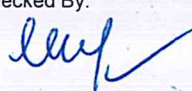

8
 قلم سمارت و جدول برآورد (ارائه)
 سیدان حسینی
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Table :20 KV CT

Designation	Unit	Required	Offered
Manufacturer	-	To be specified	
Country of origin	-	To be specified	
Type	-	VB24	
Color	-	brown	
Nominal characteristics	-		
Rated max. network operating voltage	kV	24	
Rated operating voltage (Ur)	kV	24	
Rated continuous operating voltage (Uc)	kV	20	
Rated lightning impulse withstand voltage (peak)	kV	125	
Rated power frequency withstand voltage (r.m.s)	Kv	50	
Test voltage	kv	50/125	
Rated frequency	Hz	50	
Primary rated current	A	10	
Secondary rated current	A	5	
Rated short-time Thermal current [1s]	A	To be specified	
Rated dynamic current	kA	To be specified	
Accuracy class		0.2	
Weight approx.	kg	To be specified	
Standard		IEC – 60044-1/6	

تعمیم جدول شماره (7) برآورد

بروط ترانسفاور استیشن میدان هوایی وادیت نمرور

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Table :VT-20KV

Manufacturer		To be specified	
Country of origin		To be specified	
Type		VB 24	
Test voltage for Equipment Um (r.m.s)	kV	24	
Rated power frequency with stand voltage (r.m.s)	kV	50	
Rated lightning impulse withstand voltage (peak)	KV	125	
Heist voltage for equipment Um (r.m.s)	kV	24	
Test voltage	KV	50/125	
Rated frequency	Hz	50	
Rated primary voltage Um [max]	KV	20/√3	
Secondary voltage	V	100/√3	
Rated burden in class 0.2,0.5,1.5	VA	20	
Thermal limiting current for earth fault detection winding	A	6	
Rated voltage factor [8h]		1.9Un	
Weight [approx.]	Kg	To be specified	
Accuracy class		0.2	
Standard		IEC 600442	
		IEC 61869	

تمت سنجش (7) جداول برآورد

ربوط ترانسفورماتیشن میدان جوالی و آلات مغز

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Table :20 KV CT

Designation	Unit	Required	Offered
Manufacturer	-	To be specified	
Country of origin	-	To be specified	
Type	-	VB24	
Color	-	brown	
Nominal characteristics	-		
Rated max. network operating voltage	kV	24	
Rated operating voltage (Ur)	kV	24	
Rated continuous operating voltage (Uc)	kV	20	
Rated lightning impulse withstand voltage (peak)	kV	125	
Rated power frequency withstand voltage (r.m.s)	Kv	50	
Test voltage	kv	50/125	
Rated frequency	Hz	50	
Primary rated current	A	20	
Secondary rated current	A	5	
Rated short-time Thermal current [1s]	A	To be specified	
Rated dynamic current	kA	To be specified	
Accuracy class		0.2	
Weight approx.	kg	To be specified	
Standard		IEC – 60044-1/6	

تعمیمات (8) جدول برآورد
 مربوطه تراشه‌های استین میدان هوایی ولایت نمرود

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Table J-1 : Load Break Switch with Fuse 20A - Indoor

Description	Unit	Required	Offered
Manufacturer		To be specified	
Country of origin		To be specified	
Service conditions		Indoor	
Number of poles		Wall mounted	
Insulating		3	
Rated Voltage	kV	SF6/Vacuum	
Rated impulse withstand voltage		24	
• phase to earth	kV	(1.2/50 μ s wave)	
• across the isolating distance	kV	125	
Rated power frequency. withstand voltage		145	
• phase earth	kV	(1mn rms)	
• across the isolating distance	kV	50	
Rated frequency	Hz	60	
Rated normal current	A	50	
Rated short time withstand current	kA/1s	630	
Rated peak withstand current	kA	12.5	
Rated mainly active load breaking current	A	31.5	
Rated closed loop breaking current	A	630	
Rated no load transformer breaking current	A	2.5	
Rated line charging breaking current	A	10	
Rated short circuit making current	kA	31	
Mechanical endurance		> 1000	
Electrical endurance at rated making and breaking operations		400 at least	
Electrical endurance at rated making operation		2 at least	
Installation on poles		Yes	
Suitable for horizontal, Vertical, triangular layout of conductors		Yes	
Suitable for connection with lugs		Yes	
Creepage distance	mm/kV	25	
Degree of protection of tank		IP/ 3X	
Breaking chamber		SF6	
SF6 gas pressure		1.3 bar	
SF6 service life		30 years	
Refilling of gas		No	
Certain separation of contacts		Yes	
Insulators or bushing material		Polymer or porcelain	
Dimensions		To be specified	
Weight	kg	To be specified	
Standard		IEC – 62271-102	
		IEC – 62271-105	
		IEC – 60529	

تعمیم نمائید و ۲۸ میل برآورد.

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Table: Technical data for 24/20kv Cable Termination- indoor

Designation	Unit	Required	Offered
Cable			
Nominal voltage of cable	kV	12/20	
Cable type		N2XS2Y	
Insulation material of conductor		XLPE	
Outer sheath material		PE	
Nominal cross-section	mm ²	35	
Nominal cross-section	mm ²	50	
Nominal cross-section	mm ²	70	
Nominal cross-section	mm ²	95	
Nominal cross-section	mm ²	120	
Nominal cross-section	mm ²	150	
Nominal cross-section	mm ²	185	
Nominal cross-section	mm ²	240	
Termination			
Manufacturer		to be specified	
Type		to be specified	
Design		track resistant, silicon rubber insulator with an detector for controlling the electrical field	
Installation			
Rated lightning – impulse test voltage	kV	>55	
Rated power – frequency withstand voltage	kV	>145	
Direct current withstand		>U ₀	
Short-time current withstand	kA	>75	
Dimension	mm	to be specified	
Weitht	kg	to be specified	
Standard specifcations		IEC 60, 230, 437, 502 VDE 0278	

تتم سنجش (9,10) جدول برآورد

سرویس ترانسفارماتور (شش حیدان کھوایی) دالیت نینروز

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Table: LV Underground Cable 0.6/1 kV, NYY 1 x 300 RM

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (one – core)		NYN	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm ²	300	
Insulation material of conductor	mm	PVC	
Insulation thickness		2.2	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.8	
Overall diameter of cable(D)	mm	30	
Weight of cable	kg/km	3219	
Minimum bending radius	mm	15 D	
Nominal voltage	kV	0.6/1.0	
Max. Permissible operating voltage	kV	1.2	
Service voltage	kV	0.4/0.230	
Frequency	Hz	50	
Effective a.c. resistance at 70° C	Ω/km	0.075	
Max. admissible short circuit current (1s)	kA	34.5	
Current carrying capacity (in air)	A	557	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502	
		DIN VDE 0271	
		VDE 0295	
		(IEC60228)	
		VDE0293-	

قلم (13) برآورد

مردود آفریننده سیستم مدیریت منابع

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22

Table: LV Underground Cable 0.6/1 kV, NYY 1 x 50 RM

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (one – core)		NYN	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm ²	50	
Insulation material of conductor	mm	PVC	
Insulation thickness		1.4	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.4	
Overall diameter of cable (D)	mm	14.3	
Weight of cable	kg/km	562	
Minimum bending radius	mm	12 D	
Nominal voltage	kV	0.6/1.0	
Max. Permissible operating voltage	kV	1.2	
Service voltage	kV	0.4/0.230	
Frequency	Hz	50	
Effective a.c. resistance at 20° C	Ω/km	0.387	
Max. admissible short circuit current (1s)	kA	5.75	
Current carrying capacity (in air)	A	240	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

رابطه ترانسفا در این جدولی نیماورد
 سیم ۱۴ جدول برآورد

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۳۳



Compression Cable Lugs

Color	Golden
Material	Copper
Size:	35-300 mm ²
Application	Power Distribution

رېوېټ ټرانسفارمېشن ميدان ځواکي، واليت نيمروز



برای اعلام شماره (16, 15, 38, 39) جدول برآورد

Table L-1 : Fuse Cut-Out

Description	Unit	Required	Offered
<i>Fuse Cut-out</i>			
Country		To be specified	
Manufacturer		To be specified	
Type		To be specified	
Nominal Voltage	kV	20	
Max Voltage	kV	24	
current of unit	A	630	
Rated mainly active load current breaking capacity	A	to be specified	
Dry impulse withstand voltage	KV	125	
Power frequency withstand voltage	KV	50	
Rated no-load transformer breaking capacity	A	to be specified	
Insulator		Porcelain	
Asymmetrical Interrupt Current	KA	12	
Creepage distance	mm/kv	25	
Termination and brackets, bolts, washers, nuts		Sufficient	
<u>2 Fuse link</u>			
Manufacturer/Country		1.5xl-rated	
Continuous current		3.5 ± 0.5 sec at 5xl-rated	
Maximum clearing time		0.75 ± 0.15 sec at 10xl-rated	
Maximum clearing time		0.1 ± 0.03 sec at 30xl-rated	
Maximum clearing time		0.045 ± 0.01 sec at 50xl-rated	
Time-Current characteristics		Sufficient	
Standard		IEC 60282	

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تعمیم شماره (۱۶) جدول برآورد
رابطه برآورد استین سیران عنوانی در این سند

۵۳

Table L-2 : Load Breaking Fuse Cut Out

Description	Unit	Required	Offered
Load breaking Fuse Cut Out			
Rated voltage	kV	f 11.5 phase to ground	
Rated max voltage	kV	f 20, phase to phase	
	kV	f 14 phase to ground	
		f 24, phase to phase	
Rated current	A	630	
Frequency	Hz	50	
Rated asymmetrical interrupting current	kA (rms)	10	
Impulse withstand voltage	kVp	125	
BIL Power frequency withstand voltage	kV (rms)	50	
Creepage distance	mm/kV	25	
Max. ambient temperature	°C	45	
Max. relative humidity	%	95	
Bushing type		Porcelain	
Fuse holder cap compatible with universal fuse links		Yes / No	
		Yes / No	
		Yes / No	
NEMA cross-arm bracket included			
Terminals can be connected with aluminum / copper cables			

تعمیم شده (17) فصل برآورد 9/2

رابطه ترانسفورماتور استیشن میدان هواچی واریت بخیروز

Make By:
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Table L-1 : Fuse Cut-Out

Description	Unit	Required	Offered
<i>Fuse Cut-out</i>			
Country		To be specified	
Manufacturer		To be specified	
Type		To be specified	
Nominal Voltage	kV	20	
Max Voltage	kV	24	
current of unit	A	630	
Rated mainly active load current breaking capacity	A	to be specified	
Dry impulse withstand voltage	KV	125	
Power frequency withstand voltage	KV	50	
Rated no-load transformer breaking capacity	A	to be specified	
Insulator		Porcelain	
Asymmetrical Interrupt Current	KA	12	
Creepage distance	mm/kv	25	
Termination and brackets, bolts, washers, nuts		Sufficient	
<u>2 Fuse link</u>			
Manufacturer/Country		1.5xl-rated	
Continuous current		3.5 ± 0.5 sec at 5xl-rated	
Maximum clearing time		0.75 ± 0.15 sec at 10xl-rated	
Maximum clearing time		0.1 ± 0.03 sec at 30xl-rated	
Maximum clearing time		0.045 ± 0.01 sec at 50xl-rated	
Time-Current characteristics		Sufficient	
Standard		IEC 60282	

مقدمه ۱۸ جدول برآورد و
 مربوط ترانسفاوریشن میدان هوایی ولایت نغردوز

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DECON

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۲۶

Table L-2 : Load Breaking Fuse Cut Out

Description	Unit	Required	Offered
Load breaking Fuse Cut Out			
Rated voltage	kV	f 11.5 phase to ground	
Rated max voltage	kV	f 20, phase to phase	
	kV	f 14 phase to ground	
		f 24, phase to phase	
Rated current	A	630	
Frequency	Hz	50	
Rated asymmetrical interrupting current	kA (rms)	10	
Impulse withstand voltage	kVp	125	
BIL Power frequency withstand voltage	kV (rms)	50	
Creepage distance	mm/kV	25	
Max. ambient temperature	°C	45	
Max. relative humidity	%	95	
Bushing type		Porcelain	
Fuse holder cap compatible with universal fuse links		Yes / No	
		Yes / No	
NEMA cross-arm bracket included			
Terminals can be connected with aluminum / copper cables			

تعمیم شده 18 جدول با جدول 2/2

در بطن از انشعاب استیشن میدان حوالی وایف بخرد

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82

Table: Technical Data Disconnecting Switch Combination fuse 20kV, 630 A

Description	Unit	Required	Offered
Manufacturer's Name		to be specified	
Type / Model		to be specified	
Installation		pole mounted	
Nominal Voltage	kV	20	
Rated Voltage	kV	24	
Rated Frequency	Hz	50	
Rated Normal Current	A	630	
Rated Breaking current			
Rated lightning-impulse withstand voltage	kV	125	
Power frequency test voltage	kV	50	
Rated short-time current	kA	25	
Rated short-circuit making current	kA	63	
Creepage distance for insulators	mm/kV	25	
Distance between phase centers (min)	mm	350	
Link Fuse	A	To be specified according to BOQ	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	

تجهیزات ۱۹ جدول برآورد

رابطه ترانسفورماتور سیدان محوالتی و الت نیمروز

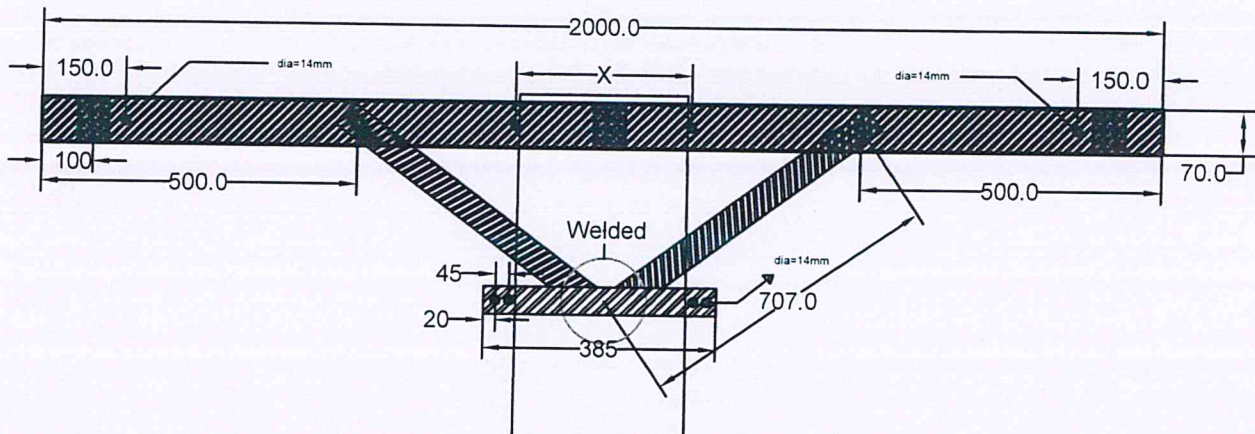
Make By:
DECON

Reviewed By:

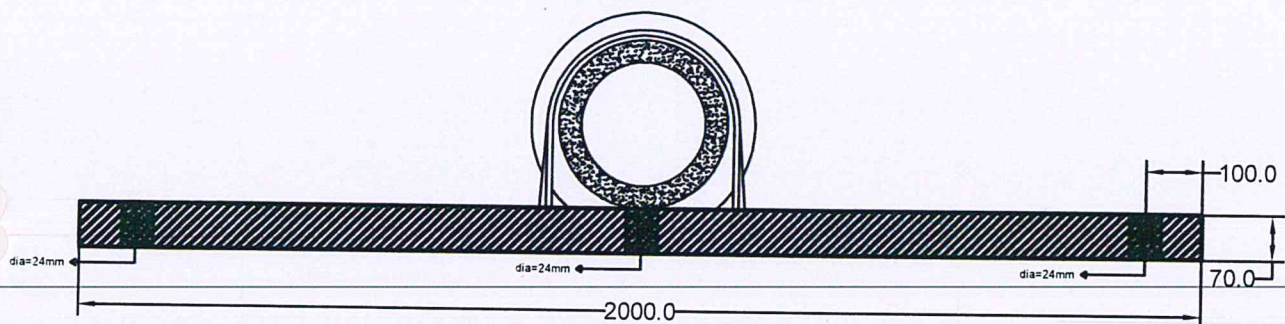
Checked By:

Approved By:

20KV Single Circuit Suspension Cross Arm Front Veiw



20KV Single Circuit Suspension Cross Arm Top Veiw



Note:

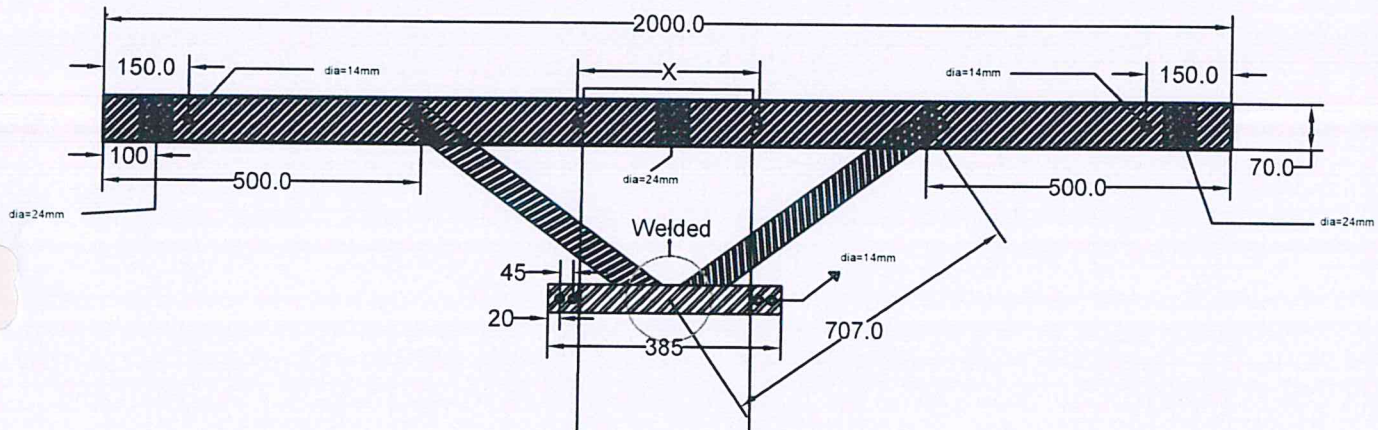
- All dimensions are in mm, unless otherwise specified.
- X dimensions must be taken from pole diameter.
- Cross arm thickness 7mm.
- Cross arm must be hot-dip galvanized.
- (70x70x7)mm

Drawn by: Survey and Engineering Unit of DABS

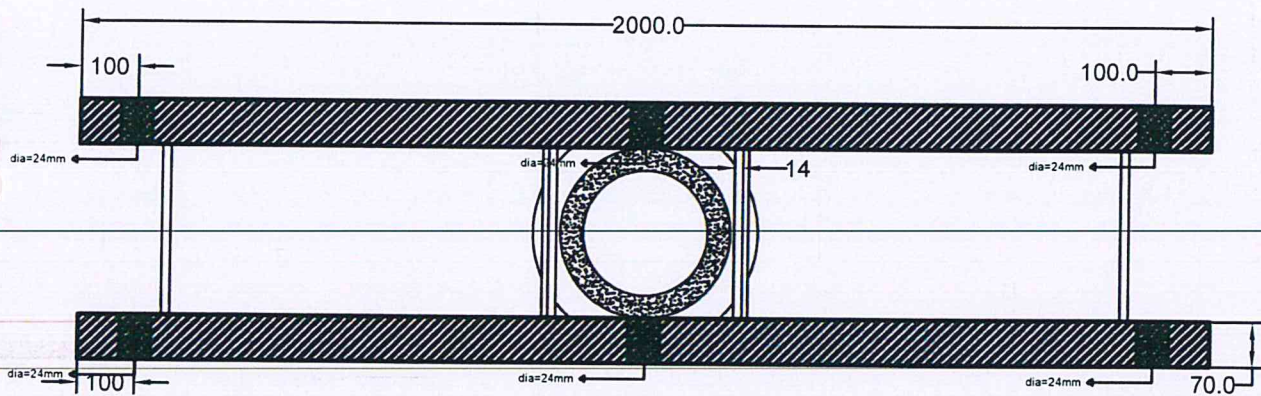
معلم محمد حسن
چاپ برآمد
C of 110.1444

حرمه خانم
37

20KV Single Circuit Tension Cross Arm Front Veiw



20KV Single Circuit Tension Cross Arm Top Veiw



Note:

- All dimensions are in mm, unless otherwise specified.
- X dimensions must be taken from pole diameter.
- Cross arm thickness 7mm.
- Cross arm must be hot-dip galvanized.
- (70x70x7)mm

Drawn by: Survey and Engineering Unit of DABS

(24) جدول برآورد

43

✓ 207.10.1444

محمد طاهر افشاری شمس الدین محمدی مولای علی محمدی

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h

Table: Pre-Stressed Steel concrete Poles (12m/800kfg)

Description	Unit	Required	Offered
Concrete Poles			
Manufacturer			
Type / Form		circular	
Pole Length	m	12	
Load			
Nominal	kgf	800	
Breaking	kg		
Safety Factor (minimum)		2.5	
Dimension of Top	mm	270	
Dimension of Base	mm	450	
Dimension of 1.80m from butt end	mm		
Type of Cement			
Weight of Pole	kg		
Minimum Cement Content	kg/m ³		
Maximum Water/Cement Ratio			
Maximum Diameter Aggregates	mm		
Concrete Cylinder Strength at 28 days	Mpa		
Concrete Additives		Yes/No	
If yes, add details			
Curing Method			
Reinforcing Steel	Mpa		
Yield Stress			
Electrical grounding	mm ²	35	
- Ground wire			
(Stranded soft drawn cooper)			

تعمیم نمائے 22 جدول برآورد

محمد عزیز گلستان خیل حوری ولایت پنجاب

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39

Table: Pre-Stressed Steel concrete Poles (12m/400kgf)

Description	Unit	Required	Offered
Concrete Poles			
Manufacturer			
Type / Form		Circular	
Pole Length	m	12	
Load			
Nominal	kgf	400	
Breaking	kg		
Safety Factor (minimum)		2.5	
Dimension of Top	mm	225	
Dimension of Base	mm	405	
Dimension of 1.80m from butt end	mm		
Type of Cement			
Weight of Pole	kg		
Minimum Cement Content	kg/m ³		
Maximum Water/Cement Ratio			
Maximum Diameter Aggregates	mm		
Concrete Cylinder Strength at 28 days	Mpa		
Concrete Additives		Yes/No	
If yes, add details			
Curing Method			
Reinforcing Steel	Mpa		
Yield Stress			
Electrical grounding	mm ²	35	
- Ground wire			
(Stranded soft drawn cooper)			

تعمیم نمائے 23 جدول آؤور

حریز علی محمد صاحب

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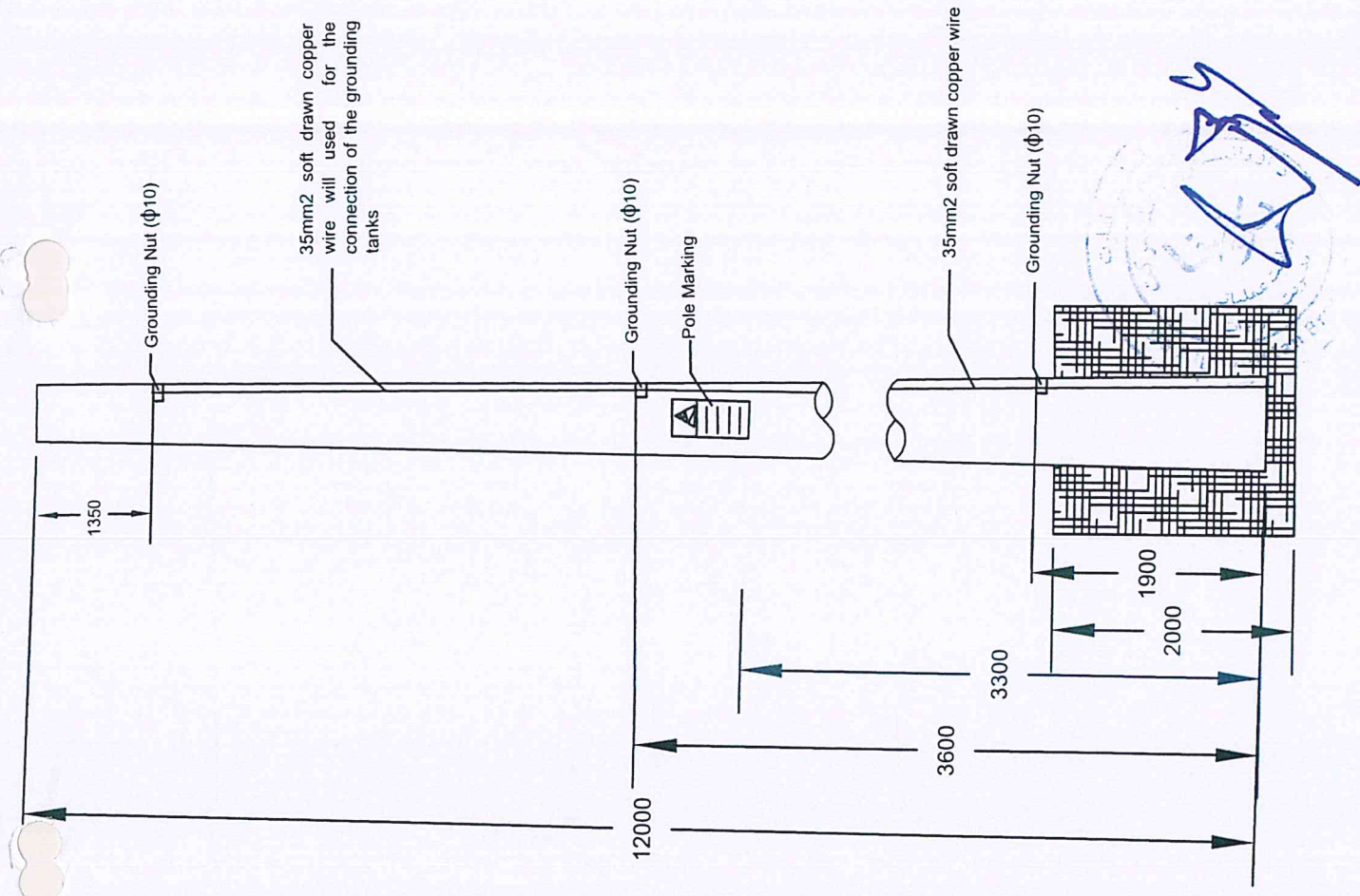
Reviewed By:

Checked By:

38

Approved By:

35



تسمیہ محمد زید محمد صلیب آراء
 سرپرست نرسنگ ہمارا تعلق ہے ان جوانی محسن

NOTE :
 1. All dimension are in millimeter.
 2. The 35mm² soft drawn copper wire have to consider 5cm
 plussage from the bottom.

پروسیجر انتخاب سمپل و تست پایه های آهن کاتکریتی

قبل از انتخاب نمونه و اجرای تست ، شرکت قراردادی مکلف به اجرای امور ذیل می باشد :



درج مشخصات بر روی پایه ها (Labeling):

سطر اول : نام شرکت برشنا.

سطر دوم : طول پایه به متر و مقاومت نارمل پایه بر حسب کیلوگرام قوه.

سطر سوم : نام فابریکه تولید کننده پایه.

سطر چهارم : تاریخ ساخت روز- ماه - سال.

سطر پنجم: سریال نمبر هر پایه.

انتخاب سمپل (نمونه) برای تست:

در صورتیکه تعداد پایه های قرارداد شده بیشتر از 100 اصله باشد قراردادی مکلف است بعد از تولید یک محموله که 100 اصله پایه می شود لست آن را با درج مشخصات و سریال نمبر آن به شرکت برشنا ارسال نماید که بعدا هیئت موظف برشنا شرکت از هر محموله (100) اصله پایه یک اصله آنرا جهت تست انتخاب می نماید و در صورتیکه تعداد مجموعی پایه های قرارداد شده از 100 اصله کمتر باشد باز هم یک اصله پایه از هر نوع آن برای تست انتخاب می گردد.

همچنان قراردادی باید قبل از رفتن هیئت موظف برشنا شرکت به ساحه تست، تمام امکانات ذیل را آماده سازد:

1. آماده سازی محل تست مطابق هدایت هیئت موظف.
2. آماده سازی پایه هایکه قبلا توسط هیئت موظف در لست محموله تولید شده برای تست انتخاب گردیده است.
3. آماده سازی داینومومتر (قوه سنج) با ظرفیت معادل حداقل دو برابر قوه نهایی پایه هایکه تست می گردد.
4. اسناد و سرتیفیکیت عیار سازی داینومومتر (قوه سنج) که توسط یک نهاد معتبر عیار سازی انجام گردیده باشد.
5. محموله پایه های تولید شده باید طوری جابجا گردیده باشد که مشخصات آن قابل دید باشد.

پروسیجر تست پایه ها:

تست پایه های آهن کاتکریتی به دو گروپ تقسیم می شود:

- 1- تست بصری (شکل ظاهری تمام محموله تولید شده چک می گردد).
- 2- تست قوه برداشت نهایی (بالای پایه هایکه توسط هیئت موظف انتخاب گردیده انجام می گردد).

تست بصری پایه های آهن کاتکریتی:

در تست بصری تمام پایه ها شامل محموله باید از رویت ظاهری تمام ابعاد آن مطابق نقشه تائید شده بررسی گردد، پذیرش ابعادی قرار ذیل می باشد:

- 1- تفاوت طول پایه نظر به نقشه: ± 15 ملی متر
 - 2- تفاوت قطر پایه نظر به نقشه: کمتر از 2 ملی متر و بیشتر از 4 ملی متر نباشد
 - 3- تفاوت انحنا پایه نظر به نقشه: ± 15 ملی متر
 - 4- قطر سوراخ ها مطابق به نقشه: 0- ملی متر و $+2$ ملی متر
 - 5- تفاوت موقعیت نسبی سوراخ ها نظر به نقشه: ± 5 ملی متر
 - 6- حداقل سطح مقطع تخته چوب های بین قطار پایه: چوب چهار تراش 8×8 سانتی متر مربع
- نوت: حداکثر فاصله اولین تخته چوب از سر پایه 2 متر ، حداکثر فاصله آخرین تخته چوب از ته پایه 2 متر و حداکثر فواصل تخته های میانی از یکدیگر 4 متر می باشد.

روش نگهداری پایه ها:

حداکثر قطار برای دیپو پایه های 200 کیلوگرام ، 5-6 قطار ، حداکثر قطار برای دیپو پایه های 400 و 600 کیلوگرام 4-5 قطار و حداکثر قطار برای دیپو پایه های 800 و 1200 کیلوگرام ، 3-4 قطار می باشد.



برای قلمی (20 و 30) مودل برای
آب و هوا از انحصار زمین
والایب بتمیزند

بای

معیارات قبولی پایه هنگام تست:

اگر پایه های تست شده معیارات مندرج ذیل را دارا باشد ، محموله 100 اصله پایه ها مورد تائید هیئت موظف قرار میگیرد .
(الف) پس از حذف قوه در مرحله 40% از بار نهایی در پایه هیچ گونه درزی ایجاد نگردد .
(ب) انحراف دائمی پایه مورد نظر بعد از دور ساختن 60% قوه نهایی اعمال شده ، کمتر از 10% انحراف 60% قوه نهایی باشد .
(ج) زمانی که 60% قوه به پایه وارد گردید و در پایه درز ایجاد شد ، بعد از حذف قوه ها ، درزها باید بشکل کامل بسته گردد .
(د) قوه اعمال شده تست در هنگام شکست پایه باید بیشتر از قوه نهایی آن باشد .
(ر) قطر سیخ ها ، طول ، محل گز نمک ها ، فاصله بین سیخ ها پایه که تحت تست شکست نموده مطابق به نقشه تائید شده باشد .
علاوه بر تست های بالا ، کلیه پایه های کانکریتی باید از لحاظ شکل ظاهری مورد بررسی بصری قرار گیرند .
نوت : انجام کلیه تست ها بر روی هر محموله از سفارشات الزامی میباشد و نیز تمام هزینه آن باید قراردادی متحمل شود .

محل تست:

در هر فابریکه باید جایگاه مشخص جهت تست پایه موجود باشد

1. استفاده از تخته های صاف در محل تست ، استفاده از تکیه گاه چوبی نیم دایره برای انجام تست پایه الزامیست ، همچنان در صورت موجود نبودن تکیه گاه نیم دایره در فابریکه ، مسئولیت کم شدن قوه مقاومت نهایی در پایه به عهده فابریکه تولید کننده می باشد .
2. عملیات محکم نمودن پایه در محل تست بگونه ای انجام شود که درز و شکستگی در پایه بوجود نیاید .
3. در صورت بروز شکستگی در مرحله فوق الذکر ، باید پایه سالم توسط هیئت موظف با سریال نمبر متفاوت جایگزین آن گردد .
4. استفاده از وسیله چرخدار که حرکت رفت و برگشت پایه را تسهیل نماید از راس پایه الزامیست .
5. موجودیت خط کش درجه دار جهت اندازه گیری انحراف پایه در پروسه تست الزامیست .
6. میله نصب شده در راس پایه جهت اندازه گیری انحراف آن باید به اندازه سر پایه بوده و در مطابقت با استاندارد باشد .
7. جهت کشش پایه استفاده از تسمه نخ و یا کیبل استاندارد مورد استفاده پایه الزامیست .
8. دستگاه تست باید مطابق به استاندارد بوده و دارای سرتیفیکیت کالیبریشن و مشخصات آن باشد .

مراحل تست:

- 1- تست بر روی نمونه انتخاب شده توسط هیئت ، از محموله 100 اصله ای پایه های یک نوع که دارای مشخصات و سریال نمبر قبلاً انتخاب شده انجام داده میشود .
- 2- حداقل عمر پایه جهت تست 28 روز و حداکثر عمر آن 40 روز از تاریخ تولید می باشد . قبل از قراردادن پایه در محل تست از سلامت ظاهری پایه اطمینان حاصل شود ، همچنان پایه باید حالت مستقیم خود را هنگام بلند کردن با کرن حفظ نماید و حالت انحناء در آن مشاهده نگردد .
- 3- جهت قوه وارده کاملاً عمود بر محور طولی پایه با حداکثر $\pm 5^\circ$ درجه انحراف اعمال می گردد . سرعت وارد کردن قوه باید در تمامی مراحل یکنواخت باشد به نحوی که از وارد آمدن هرگونه قوه های لرزه ای به پایه جلوگیری صورت گیرد .
- 4- اعمال قوه باید به شکل تدریجی صورت گیرد قسمی که در هر مرحله ، 10% قوه نهایی اعمال گردد .
- 5- در مرحله 40% از قوه نهایی هیچ گونه درزی در پایه ایجاد نگردد و بعد از دور ساختن قوه پایه به حالت اولیه (صفر) باز گردد .
- 6- بعد از حداقل دو دقیقه زمان استراحت ، اعمال قوه به شکل تدریجی از سر گرفته شود و الی 60% قوه نهایی ادامه یابد .
- 7- در تست مرحله 60% قوه نهایی ، تعداد درزها با مارکر بطور شماره وار علامت گذاری شوند و بعد از رها سازی قوه ، درزها به حالت اولیه باز گردند .
- 8- در تست مرحله 100% قوه نهایی ، مراحل افزایش قوه از 60% تا 100% با زمان انتظار 2 دقیقه برای هر مرحله انجام شود و تا زمان شکست پایه ادامه یابد .

یادداشت :

- الف- در صورت قبول شدن تست های فوق و شرایط ظاهری ، محموله 100 اصله پایه مورد تائید می باشد .
ب- در صورت رد شدن نمونه انتخاب شده ، تست بر روی یک نمونه دیگر از همان محموله توسط هیئت تکرار گردد . شرط پذیرش و یا عدم پذیرش محموله وابسته به نتیجه تست پایه دومی می باشد .

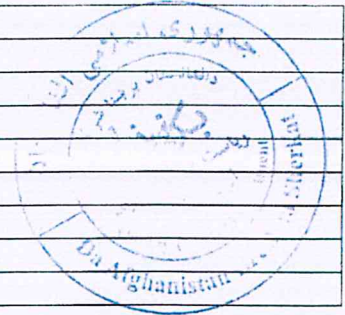
برای اطلاع شما (23,22) عمل برآمد را سفارش دهید
سیداصغری وایسند نفروز



د افغانستان پرمختيا او ښارونو وزارت

Concrete Pole Test Report

Form Number	CFO/QC:CPTR023
Project Code	
Location	
Date of Testing	
Type of Pole	
Pole Serial Number	
Working Load (kgf)	
Safety Factor	
Maximum Test Load	



Observation of Load Test

Sr.	Load Applied (kgf)	% Ultimate load	Deflection (mm)	No of Cracks	Remarks
1		10%			
2		20%			
3		30%			
4		40%			
5		0			
6		10%			
7		20%			
8		30%			
9		40%			
10		50%			
11		60%			
12		0			
13		10%			
14		20%			
15		30%			
16		40%			
17		50%			
18		60%			
19		70%			
20		80%			
21		90%			
22		100%			
23		0			

Rep. of QC/Dept.

Rep. of DABS

Rep. of Contractor

Verified by:

Head of QC Dept.

برای تایید (مهر و امضاء)
رئیس اداره فنی و مهندسی
سازمان فنی و مهندسی



Table: Technical Data for 20 kV Fiber pin Insulator

Description	Unit	Required	Offered
Manufacturer's Name		to be specified	
Type		pin insulator	
Material		silicon rubber	
Rated voltage	kV	24	
Power frequency withstand voltage:	KV	65	
Dry Lightning impulse withstand voltage:	KV	145	
Leakage distance	mm	610	
Min Arc distance	mm	215	
Section length	mm	305	
Specified mechanical load	KN	11	
Nominal diameter "D"	mm	to be specified	
Maximum height "H"	mm	to be specified	
Min. nominal creepage distance	mm	to be specified	
Number of the fiber	number	to be specified	
Unit weight	kg	to be specified	
With all necessary accessories for Installation incl. metal thimbles threaded for screwing on to steel spindles			
Reference standard		IEC 61109	

تکمیل شد 24 کلوولت برآورد

در سطح آشنایی بیشتر با مشخصات و ابعاد

Make By:
DECON

Reviewed By:

Checked By:

Approved By:

Table: Technical Data for 20 kV Fiber Tension Insulator

Designation	Unit	Required	Offered
Manufacturer's Name		to be specified	
Type		tension insulator	
Material		silicon rubber	
Rated voltage	kV	24	
Minimum mechanical failing load	kN	70	
Height	MM	450	
Insulating distance Li.	MM	235	
Min.nominal creepage distance	MM	635	
Diameter of shed	MM	148/118	
1 min power frequency wet withstand voltage not less than	KV	42	
Full wave lightning impulse voltage (peak value)	KV	150	
Dry impulse withstand voltage:	KV	to be specified	
Minimum puncture voltage in oil	kV	to be specified	
Number of elements	number	to be specified	
Weight	kg	to be specified	
With all necessary accessories for installation			
standard		IEC 61109	

حکم شماره 25 جدول آورده

محمد باقر شمس الدین حسینی

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Approved By:

Table: MV Underground Cable 20 kV, N2XS2Y 1 x 120 RM/16

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Type		N2XS2Y	
Conductor material and form		Copper / Circ. Stranded	
Nominal cross section of conductor	mm ²	120	
Nominal cross section of screen	mm ²	16	
Insulation material of conductor		XLPE	
Insulation thickness	mm	5.5	
Outer sheath material		PE	
Thickness of outer sheath	mm	2.5	
Overall diameter of cable (D)	mm	35.5	
Weight of cable	Kg/km	1,900	
Minimum bending radius	mm	15 D	
Nominal voltage	kV	20	
Service voltage actual (future)	kV	(20)	
Frequency	Hz	50	
Effective a.c. resistance at 90° C	Ω/km	0.199	
Operating capacitance	μF/km	0.235	
Max. admissible short circuit current (1s) of conductor (screen)	kA	17.2	
<u>Installation in ground</u>			
Current carrying capacity	A	368	
Ohmic losses per cable	KW/km	To be specified	
Inductance per conductor	mH/km	0.403	
Standards		IEC 60502 IEC 60228 DIN VDE 0273 HD 620	

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Checked By:

Approved By:

Table: Technical Data for Overhead Line Conductor ACSR 120/20 mm²

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Type		Aluminum conductor Steel – reinforced (ACSR)	
Nominal cross-section	mm ²	120/20	
Cross-section ratio AL/St approx.		To be specified	
Steel			
- construction	N/mm	7/1.9	
- diameter	mm	5.7	
- cross-section	mm ²	19.8	
Aluminum			
- construction	N/mm	26/2.44	
- cross-section	mm ²	121.6	
Total cross-section	mm ²	141.4	
Conductor diameter approx.	mm	15.5	
Conductor weight			
- steel	kg/km	156	
- aluminum	kg/km	335	
- grease	kg/km	2.9	
- with grease total approx.	kg/km	493.9	
Current carrying capacity	A	410	
Nominal conductor breaking load	KN	44.5	
Calculated conductor resistance at 20° C	Ω/km	0.2376	
Standard length per reel approx.	m	to be specified	
Dispatch reel nominal size	m	to be specified	
Standard specifications		IEC 209 DIN 48204 BS EN 50182	

تعمیم کیا رہے (27) قبول ہوا اور

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سرپرست نثر اسفند، صدر السیئین، میدان مولوی وادیہ تعمیرات

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Table: Surge Arrester

Designation	Unit	Required	Offered
Manufacturer	-	-	
Country of origin	-		
Type	-	station metal oxide gapless	
Housing	-	silicon rubber	
Color	-	grey	
Nominal characteristics	-		
Rated max. network operating voltage	kV	24	
Rated operating voltage (Ur)	kV	24	
Rated continuous operating voltage (Uc)	kV	20	
Rated discharge current (peak)	kA	10	
Switching impulse current (peak)	kA	2	
Line discharge class (IEC 99-4)	-		
Rated frequency	Hz	50	
Protection characteristics			
Max. residual voltages			
- For a steep impulse current, ½ µs front, 10 kA.	kV	71	
- For lightning impulse current, 8/20 µs, 10 kA.	kV	67	
- For a switching impulse current 30/60 µs, 0.5 kA	kV	52	
Energy absorbing capacity	kJ/kV	4.3	
Operating performances			
High current impulse withstand (4/10 µs)	kA	100	
Temporary over voltage withstand (for 10s)	kV	24	

تم ستان 28 جون 2014

دستور العمل استن (میراں ہوائی ولایت نمبر ۱۰)

Make By:
DECON

Reviewed By:

Checked By:

Approved By:

۱۰۰۷۱۰۱۴۴۶

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Table: Surge Arrester

Designation	Unit	Required	Offered
Insulation levels			
- Lightning impulse withstand voltage	kV	125	
- Power frequency withstand voltage (1 m wet)	kV	50	
- Creepage distance	mm/kV	25	
- Cantilever strength	kN	-	
- Torsion strength	N-m	-	
Pressure relief capacity			
- Current amplitude (rms)	KA	17.5	
- X/R, asymmetry factor	-	17	
- Current duration	s	0.2	
Weights and dimensions:			
- Arrester height	mm	-	
- Arrester diameter	mm	-	
- Weight	kg	-	
Accessories			
Mounting hardware	-	Yes	
Ground Connector	-	Yes	
Insulating bases	-	Yes	
Discharge counter	-	-	
HV terminals connectors	-	Yes	
Standards	-	IEC 60099-4	
Quality control	-	ISO 9001	
Installation	-	Outdoor	

Make By:
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Reviewed By:

Checked By:

Approved By:

Table: MV Underground Cable 20 kV, N2XS2Y 1 x 35 RM/16

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Type		N2XS2Y	
Conductor material and form		Copper / Circ. Stranded	
Nominal cross section of conductor	mm ²	35	
Nominal cross section of screen	mm ²	16	
Insulation material of conductor		XLPE	
Insulation thickness	mm	5.5	
Outer sheath material		PE	
Thickness of outer sheath	mm	2.5	
Overall diameter of cable (D)	mm	29.5	
Weight of cable	Kg/km	970	
Minimum bending radius	mm	15 D	
Nominal voltage	kV	20	
Service voltage actual (future)	kV	(20)	
Frequency	Hz	50	
Effective a.c. resistance at 90° C	Ω/km	0.671	
Operating capacitance	μF/km	0.159	
Max. admissible short circuit current (1s) of conductor (screen)	kA	5	
<u>Installation in ground</u>			
Current carrying capacity	A	189	
Ohmic losses per cable	KW/km	To be specified	
Inductance per conductor	mH/km	0.488	
Standards		IEC 60502 IEC 60228 DIN VDE 0273 HD 620	

علم سہاو 30 جدول برآورد

مربعہ اتر ایشیائی برقی کمپنی
میں برقی کابلیں ڈالنے والے انجینئرز

Make By:
DECON

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Checked By:

Approved By:

hh

Table: MV Underground Cable 20 kV, N2XS2Y 1 x 70 RM/16

Designation	Unit	Required	Offered
Manufacturer's name	-	To be specified	
Type	-	N2XS2Y	
Conductor material and form	-	Copper / Circ. Stranded	
Nominal cross section of conductor	mm ²	70	
Nominal cross section of screen	mm ²	16	
Insulation material of conductor		XLPE	
Insulation thickness	mm	5.5	
Outer sheath material		PE	
Thickness of outer sheath	mm	2.5	
Overall diameter of cable(D)	mm	32.5	
Weight of cable	Kg/km	1,400	
Minimum bending radius	mm	15 D	
Nominal voltage	kV	20	
Service voltage actual (future)	kV	(20)	
Frequency	Hz	50	
Effective a.c. resistance at 90° C	Ω/km	0.345	
Operating capacitance	μF/km	0.196	
Max. admissible short circuit current (1s) of conductor (screen)	kA	10	
<u>Installation in ground</u>			
Current carrying capacity	A	272	
Ohmic losses per cable	kW/km	To be specified	
Inductance per conductor	mH/km	0.438	
Standards		IEC 60502	
		IEC 60228	
		DIN VDE 0273	
		HD 620	

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Table: Technical data for 24/20kv Cable Termination- Outdoor

Designation	Unit	Required	Offered
Cable			
Nominal voltage of cable	kV	12/20	
Cable type		N2XS2Y	
Insulation material of conductor		XLPE	
Outer sheath material		PE	
Nominal cross-section	mm ²	35	
Nominal cross-section	mm ²	50	
Nominal cross-section	mm ²	70	
Nominal cross-section	mm ²	95	
Nominal cross-section	mm ²	120	
Nominal cross-section	mm ²	150	
Nominal cross-section	mm ²	185	
Nominal cross-section	mm ²	240	
Termination			
Manufacturer		to be specified	
Type		to be specified	
Design		track resistant, silicon rubber insulator with an detector for controlling the electrical field	
Installation			
Rated lightning – impulse test voltage	kV	>55	
Rated power – frequency withstand voltage	kV	>145	
Direct current withstand		>U ₀	
Short-time current withstand	kA	>75	
Dimension	mm	to be specified	
Weight	kg	to be specified	
Standard specifications		IEC 60, 230, 437, 502	
		VDE 0278	

اقدام شماره (32, 34, 33) صورت گرفته است

بروزگار استغفار استیگن میدان محواری ولایت بجنورد

Make By:
DECON

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Checked By:

Approved By:

9h

Table: LV Underground Cable 0.6/1 kV, NYY 4 x 50SM

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (four – core)		NYN	
Conductor material		Copper	
Conductor shape		Sector Stranded	
Nominal cross-sectional area of conductor	mm ²	50	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.4	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.9	
Overall diameter of cable(D)	mm	32	
Weight of cable	kg/km	2498	
Weight of copper	kg/km	2359	
Minimum bending radius	mm	15 D	
Nominal voltage	kV	0.6/1.0	
Max. Permissible operating voltage	kV	1.2	
Service voltage	kV	0.4/0.230	
Frequency	Hz	50	
Effective a.c. resistance at 70° C	Ω/km	0.233	
Max. admissible short circuit current (1s)	kA	5.75	
Current carrying capacity (in ground)	A	165	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

تعليم شماره (35) جدول برآورد

Make By:
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Reviewed By:

Checked By:

Approved By:

zh

Table: LV Underground Cable 0.6/1 kV, NYY 4 x 95 SM

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (four – core)		NYY	
Conductor material		Copper	
Conductor shape		Sector Stranded	
Nominal cross-sectional area of conductor	mm ²	95	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.6	
Outer sheath material		PVC	
Thickness of outer sheath	mm	2.3	
Overall diameter of cable(D)	mm	41	
Weight of cable	kg/km	4281	
Weight of copper	kg/km	3643	
Minimum bending radius	mm	15 D	
Nominal voltage	kV	0.6/1.0	
Max. Permissible operating voltage	kV	1.2	
Service voltage	kV	0.4/0.230	
Frequency	Hz	50	
Effective a.c. resistance at 70° C	Ω/km	0.233	
Max. admissible short circuit current (1s)	kA	10.9	
Current carrying capacity (in ground)	A	245	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

قلم کار 363 صہیل پراورد

محکمہ انجمن سہیل پراورد وادیہ شہر

Made By:
DECON

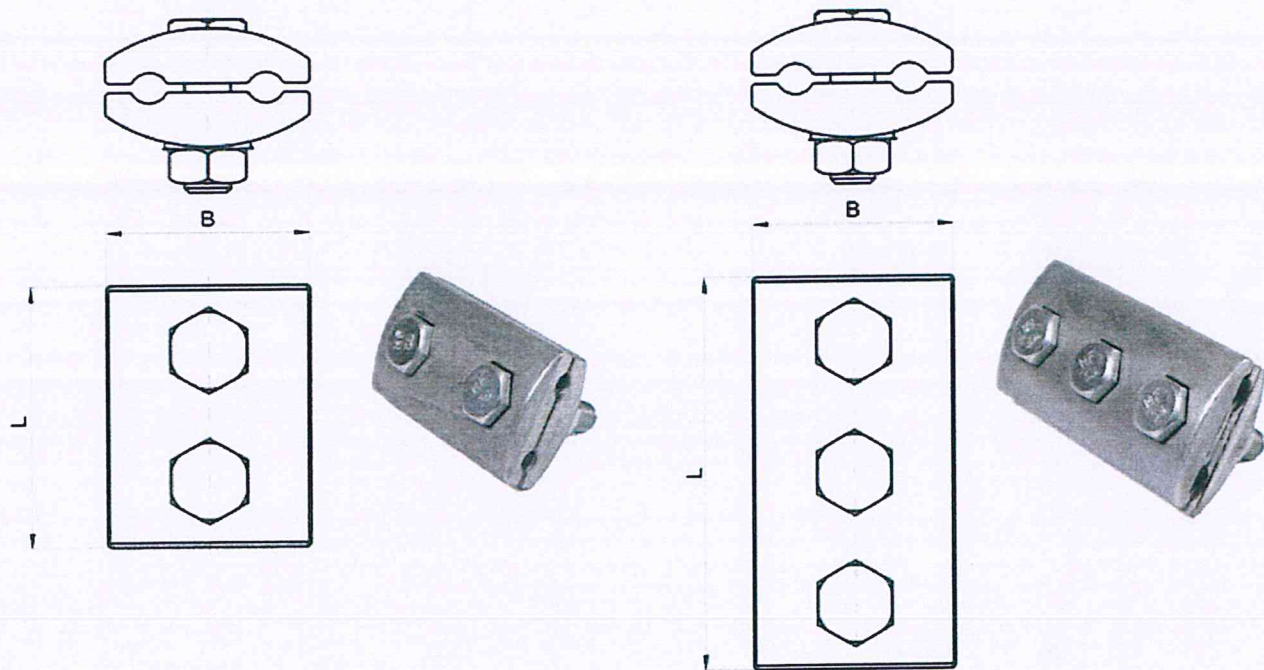
Reviewed By:

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Approved By:

Bh

Materijal: Al legura DIN 226
Standard: DIN 48 075



AlAl Groove Clamps are used to joint two parallel aluminum alloy conductors (AAAC), aluminum conductors steel reinforced (ACSR) or ends of ABC of the same or similar cross sections from which the insulation has been removed. Their technical characteristics enable jointing of phase conductors at the places where high tensile strength and stiffness is required (joint done in accordance with Standard DIN 48 075). AlAl Groove Clamps are made using die casting process and the inside grooves are cogged, which increases safety regarding pulling out and provides high-quality electrical contact (the grooves are made in such a way that aluminum oxide from the conductor surface is broken, which reduces transitional resistance between the clamp and the conductor). The body of the clamp is made of aluminum alloy of high tensile strength and is corrosion resistant. Their technical characteristics provide fast, easy and reliable installation and long-life and safe usage with minor losses on the network due to very low transitional resistance. Bolts and nuts are Zinc plated. Inside grooves are protected with electrical contact grease. with electrical contact grease.

NOTE: On Customer's request the clamps can be delivered with hot-dip galvanized or stainless steel X 5 CrNi 18-10 bolt parts.

سرہوا آزاد سٹیشن سیدان پھواری طالب نمبر ۴۶۹



تایم لاین اجرای پروژه برق رسانی (میدان هوایی ولایت نیمروز)

بکوزینا
د افغانستان برېښنا شرکت

Time line (schedule) for implementing of Nimruz prison MV feeder and compact substation power supply project																					
catagories	discription	Weeks																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MV feeder works	Site cleaning																				
	Poles fundition digging																				
	poles PCC working and instalition																				
	Baracket instalition																				
	Insulators instalition																				
	ACSR Line instalition																				
Electrical works	Compact substation asssembling																				
	Assembling of disconnectors and lighting arrester on MV poles																				
	Burrying of MV cables																				
	Extension of 20 kv cables and accessories																				
	Extension of 0.4 kv cable and conection points																				
	Test and commessioning of all equipment																				
	Conection to MV overheaed gride v																				

Designed by
Eng.Nooruddin Kamal
Deputy Head of Operational Nim.dabs

