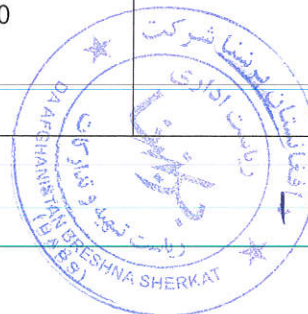


Table: Technical Data for Distribution Transformer 63 kVA, 20/6/0.4 kV

Designation	Unit	Required	Offered
Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With conservator	
Dielectric		outdoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		63	
Rated voltage:		3	
- High voltage side	kV	20/6	
- Low voltage side	kV	0.4	
Taps on HV side	%	$\pm 2 \times 2.5\%$, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	4	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding:			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding:			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	



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مشخصات فنی پروژه اصلاح شبکه برقسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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	
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	



مهر ۱۳۹۵/۰۱/۰۱

13.01.1445

Table: Technical Data for Distribution Transformer 160 kVA, 20/6/0.4 kV

Designation	Unit	Required	Offered
Manufacturer's Name		To be specified	
Type / Model		Oil-immersed With oil conservator	
Installation		outdoor	
Dielectric		oil, without PCB	
Oil type		to be specified	
Rated frequency	Hz	50	
Rated power	kVA	160	
Number of phases		3	
Rated voltage:			
- High voltage side	kV	20/6	
- Low voltage side	kV	0.4	
Taps on HV side	%	±2x2.5%, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	4	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	



مهم کاره: 2

12.10.1445

مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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 transformer	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	
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 specifications		IEC 60076-7 IEC 60354	



مهر کاره ۲۰۱۵

13.10.1445

مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

Table: Technical Data for Distribution Transformer 250 kVA, 20/6/0.4 kV

Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With oil conservator	
Dielectric		outdoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		250	
Rated voltage:		3	
- High voltage side	kV	20/6	
- Low voltage side	kV	0.4	
Taps on HV side	%	±2x2.5%, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	4	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	

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مشخصات تخنیکي پروژه اصلاح شبکہ برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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 transformer	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	
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 specifications		IEC 60076-7 IEC 60354	

فایل ۱۰: ۸



13.10.1445

مشخصات فنی پروژه اصلاح شبکه برق ۶ کیلوولت به ۲۰ کیلوولت مزار شریف.

Table: Technical Data for Distribution Transformer 250 kVA, 20/0.4 kV

Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With oil conservator	
Dielectric		outdoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		250	
Rated voltage:		3	
- High voltage side	kV	20	
- Low voltage side	kV	0.4	
Taps on HV side	%	±2x2.5%, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	4	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	



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مشخصات فنی پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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 transformer	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	
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 specifications		IEC 60076-7 IEC 60354	



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مشخصات فنیکی پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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		outdoor	
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	20	
- Low voltage side	kV	0.4	
Taps on HV side	%	$\pm 2 \times 2.5\%$, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	4	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	

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مهم کار ۱۰/۱۰/۱۴۴۵

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 transformer	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	
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 specifications		IEC 60076-7 IEC 60354	

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6

مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

Table: Technical Data for Distribution Transformer 400 kVA, 20/6/0.4kV

Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With oil conservator	
Dielectric		outdoor	
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	20/6	
- Low voltage side	kV	0.4	
Taps on HV side	%	±2x2.5%, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	4	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	

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مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزارشریف.

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 transformer	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	
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 specifications		IEC 60076-7 IEC 60354	

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6.10.1445

مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

Table: Technical Data for Distribution Transformer 630 kVA, 20/0.4 kV

Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With oil conservator	
Dielectric		outdoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		630	
Rated voltage:		3	
- High voltage side	kV	20	
- Low voltage side	kV	0.4	
Taps on HV side	%	$\pm 2 \times 2.5\%$, off load	
Rated currents			
- High voltage side	A	to be specified	
- Low voltage side	A	to be specified	
Impedance voltage	%	6	
Vector group		Dyn5	
Treatment of neutral (LV side)		Solidly earthed	
Losses:			
- No-load	W	To be specified	
- Load	W	To be specified	
Insulation level HV-winding			
Lightning-impulse test voltage	kV	125	
Power-frequency test voltage	kV	50	
Insulation level LV-winding			
Lightning-impulse test voltage	kV	30	
Power-frequency test voltage	kV	10	

13.10.1445

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د افغانستان ښار بوشه شريف
رياست اداري
پيښور
رياست تهديد و تيار
DAKSHINAPRAKASH
SRESHA
(DABS)

مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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		Copper	
Insulating material of windings		to be specified	
Insulation class		yes	
Standard bushings		yes	
Accessories:			
- Dial type contactor thermometer transformer	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	
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 specifications		IEC 60076-7 IEC 60354	

750/750

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مشخصات فنی پروژه اصلاح شبکه برق 6 کیلوولت به 20 کیلوولت مزار شریف.

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	



۱۳۸۵/۰۵/۰۹

مشخصات فنی پروژه اصلاح شبکه برقسانی ۶ کیلوولت به ۲۰ کیلوولت مزار شریف.

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, 1/2 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	

13.10.1385



قلم کاره: ۱۵

مشخصات تخنیکي پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

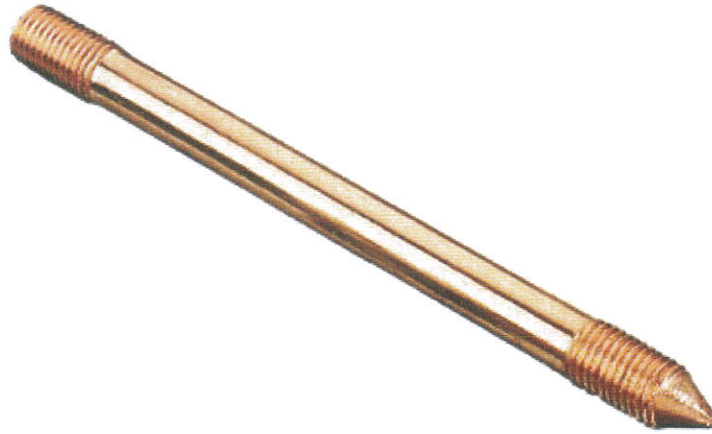
Table: Surge Arrester

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	

13.10.1445



مشخصات تخنیکي پروژه اصلاح شبکه برق رسانی 6 کیلوولت به 20 کیلوولت مزار شریف.



Copper Ground Ear thing Rod

Diameter	20mm2
Usage/Application	Power Distribution Earthing
Material	Copper
Color	Copper
Length Of Rod	1m

امام کاظم: ۱۸

18.10.1395



مشخصات فنیکی پروژه اصلاح شبکه برقرسانی 6 کیلوولت به 20 کیلوولت مزار شریف.



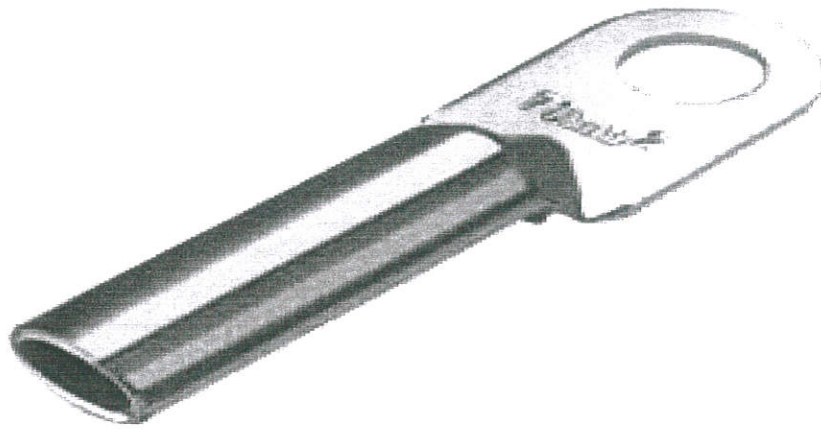
Compression Cable Lugs

Color	Golden
Material	Copper
Size:	16-185 mm ²
Application	Power Distribution

شخصات تحلیلی تجهیزات برقی پروژه مصلی ۶ کیلو ولت به ۲۰ کیلو ولت هزار شریف برای سال ۱۴۰۳

۳۰/۱۰/۱۴۰۳





Compression Cable Lugs

Color	Silver
Material	Aluminium
Size:	16-120 mm ²
Application	Power Distribution

افراد کما، ۱۹، ۲۰، ۲۱، ۲۲



13.12.1445

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

Designation	Unit	Required	Offered
Cable			
Nominal voltage of cable	kV	12/20	
Cable type			
Insulation material of conductor		N2XS2Y	
Outer sheath material		XLPE	
Nominal cross-section	mm ²	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	kV		
Rated lightning – impulse test voltage	kV	>55	
Rated power – frequency withstand voltage		>145	
Direct current withstand Short-time	kA	>U ₀	
current withstand Dimension	mm	>75	
Weitht	kg	to be specified	
Standard specifications		to be specified	
		IEC 60, 230, 437, 502	
		VDE 0278	



24/10/2015

13.10.1445

Insulation piercing connectors for connections to cables

Application

All piercing connectors of EP and PX type (see page 9) can be used as a connection between LV-ABC and service or main cables.

The DZ6 connector is designed for connection of cables with large cross sections to insulated LV-ABC lines. When tightening the bolts, the teeth of the contact plates penetrate the insulation and establish a perfect contact. The bolts (wrench size 17 mm) are tightened until the heads shear off. Stripping of insulation is avoided and the cable end is sealed with a cap.

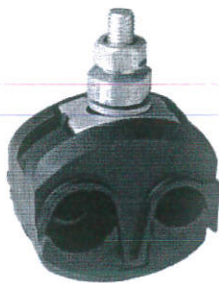
Features

- Suitable for aluminium and copper conductors
- Potential free tightening bolts allow safe installations on live lines
- Connectors type DZ6 exceed requirements according to UL486 and EATS 43-14, including 4 kV voltage withstand test in air
- Connector teeth are factory greased and covered with a rubber seal to retard water entry and corrosion
- Components not losable, end cap attached to body

- Insulation material made of weather and UV resistant glass fibre reinforced polymer
- Contact plates made of tinned copper, bolt made of steel with Geomet (Chromium free) protection

For inline connections of LV-ABC to cables see section "Complete connection kits" on 35.

For cable terminations and core protection tubing see pages 25 and 26.



Type: DZ6 UL-F



Type: P3X 95



Type: P2X 95 Mk2, EP95-13

Simultaneous piercing of main (insulated LV-ABC) and branch (cable core) conductor

Ordering description	Application range (mm ²)		Bolt	Torque (Nm)	Weight (kg/100 pcs)
	LV-ABC	Cable conductor			
EP95-13	16 – 95	1.5 – 10	1 x M6	7	5.0
P2X 95 Mk2	16 – 95	4 – 35	1 x M8	11	10.8
P3X 95	25 – 95	25 – 95	1 x M8	18	16.0
DZ6 UL-F-CHINA-N	25 – 120 (150*)	120 – 240	1 x M10	40	30.0

* Fits up to this conductor size, but current rating I_{max} of connector (300 A according to HD 626S1 part 6E) is lower than possible cable rating.

13.10.1445

20kV, 6kV, 20kV, 6kV, 20kV, 6kV

27.9.25

CHINA-ABC

Waterproof insulation piercing connectors – test voltage 6 kV in water

Application

The waterproof insulation piercing connectors are suitable for majority types of LV ABC conductors as well as connections to service and lighting cable cores.

When tightening the bolts, the teeth of the contact plates penetrate the insulation and establish a perfect contact. The bolts are tightened until the heads shear off. Stripping of insulation is avoided.

Features

- Tested for watertightness at a voltage of 6 kV for 30 min in a waterbath (NFC 33020, EN 50483-4 class 1)
- Potential free tightening bolts allow safe installations on live lines
- Suitable for aluminium and copper conductors
- Long neck 13 mm shear head nut ensuring reliable installations
- Exceeds requirements according to NFC 33020 and EN 50483-4
- Components not losable, end cap attached to body

- Insulation material made of weather and UV resistant glass fibre reinforced polymer
- Contact plates made of aluminium or copper, bolt: made of steel with Geomet (Chromium free) protection
- Designed that conductor breaking loads exceed cable system requirements: 80 % for self-supporting system 90 % for insulated neutral conductor and 60 % for phase conductors for system with insulated neutral messenger



Type: EP, P2X, P3X, P4X



Type: KZ 2-150 2B



Type: P31F

Simultaneous piercing of main and branch conductor

Ordering description	Application range (mm²)		Bolt	Torque	Weight
	Main	Tap		(Nm)	(kg/100 pcs)
for main to service connection					
EP35-13	2.5 – 35	1.5 – 6	1 x M6	7	5.0
EP95-13	6 – 95	1.5 – 10	1 x M6	7	5.0
P2X 95 Mk2	16 – 95	4 – 35 (50*)	1 x M8	11	10.8
EP120-13	16 – 120	1.5 – 6	1 x M8	8	5.4
P2X 150	50 – 150	6 – 35 (50*)	1 x M8	11	12.0
for main to main connections					
P2X 95 Mk2	16 – 35	16 – 35	1 x M8	11	10.8
P3X 95	25 – 95	25 – 95	1 x M8	18	16.0
P4X 120D	25 – 120	25 – 120	2 x M8	18	34.0
P4X 150D	50 – 150	50 – 150	2 x M8	18	34.0

* Fits up to this conductor size, but current rating I_{max} of connector (138 A according to HD 626S1 part 6E) is lower than possible cable ratings.

Independent connection of main (piercing) and branch conductor (strippable)

Ordering description	Application range (mm²)		Bolt	Torque (Nm)	Weight
	Main	Tap		Main/Tap	(kg/100 pcs)
for main to 2 service connections (Bp-piercing tap side, B-strippable tap side)					
KZ 2-150 2B	25 – 150	2 x 6 – 35	1 x M8/2 x M8	11/8	23.0
KZ 2-150 2Bp	25 – 150	2 x 6 – 35	1 x M8/2 x M8	11/10	23.0
for main to main connections (strippable tap side)					
P31F	35 – 150	35 – 70	1 x M8/1 x M10	18/10	21.6

* Fits up to this conductor size, but current rating I_{max} of connector (213 A according to HD 626S1 part 6E) is lower than possible cable ratings.

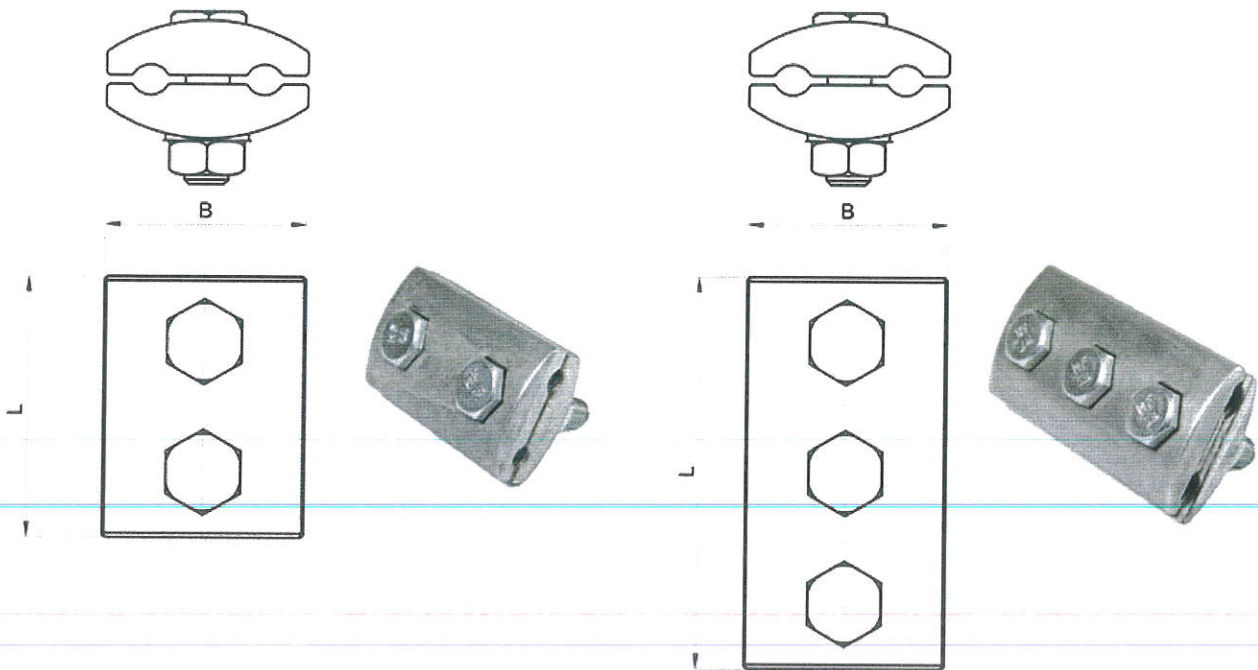
13.10.1445

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Handwritten text in Dari: "پروژه احداث شبکه 6 کلو 20 کلو" and "تاریخ: 26/10/1445".

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.

اصلاحی: 28, 29, 30, 31

13.10.1445



مشخصات فنی پروژه اصلاح شبکه برقسانی 6 کیلوولت به 20 کیلوولت مزار شریف.

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	



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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	



13.10.1405

Table: Technical Data for Low Voltage Porcelain pin Insulator

Designation	Unit	Required	Offered
Manufacturer's Name		to be specified	
Type		pin insulator	
Material		porcelain	
Rated voltage	kV	0.4	
Dry flashover voltage	kV	25	
Wet flashover voltage	kV	15	
One minute dry voltage	kV	23	
One minute wet voltage	kV	13	
Puncture voltage	kV	33	
Mechanical breaking load	kg	1350	
Weight	kg	to be specified	
With all necessary accessories for Installation incl. metal thimbles threaded for screwing on to steel spindles		to be specified	
Standard specifications		IEC 61109	



سندھ کے لیے بجلی کی پیداوار کے لیے 20 میگاواٹ کے پاور ٹرانسمیٹر کے لیے 1403

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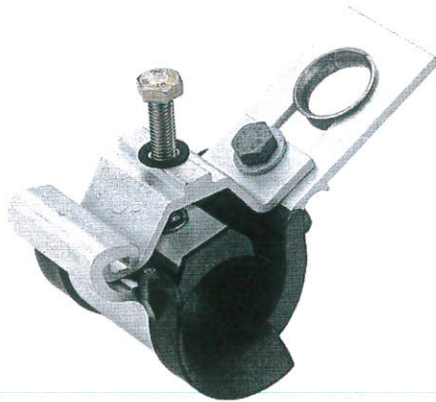
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Table: Technical Data for Low Voltage Porcelain Tension Insulator

Designation	Unit	Required	Offered
Manufacturer's Name		to be specified	
Type		tension insulator	
Material		porcelain	
Rated voltage	kV	0.4	
Dry flashover voltage	kV	35	
Wet flashover voltage	kV	18	
One minute dry voltage	kV	32	
One minute wet voltage	kV	16	
Puncture voltage	kV	46	
Mechanical breaking load	kg	9100	
Weight	kg	to be specified	
With all necessary accessories for installation		to be specified	
Standard specifications		IEC 61109	

مستخلصه: بخشی تجهیزات برق پرورده اصلاح یافته ۶ کیلووات به ۲۰ کیلووات مزار شریف برای سال ۱۴۰۳

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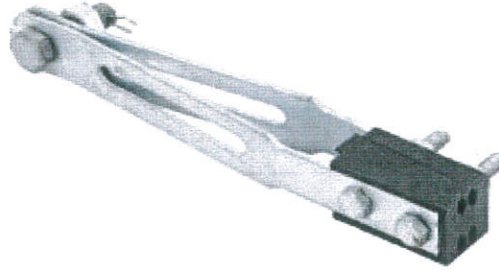
LV ABC Cable Suspension Clamp

MODEL	CROSS-SECTION(mm2)
SM140	95mm2

شخصات فنی تجهیزات برقی پروژه اصلاحاتی 6 کیلوولت به 20 کیلوولت منیرا شریف برائیل 1403

30.10.1445





AL-ABC - Tension Clamp

Usage	Line Fittings
Type	Tension Clamp
Conductor Range	70-150mm ²
Application	Low Voltage 1kv
Materials	AL- Robber

شخصیات تحسینی تجهیزات برقی پروژه ملایمانی 6 کیلو ولت به 20 کیلو ولت هزار شریف برآورد 403

30.10.1445

