

ضمیمه شماره 1 شرطنامه (مشخصات تخنیکي) پروژه تدارک 65 قلم تجهیزات برقی و 37 قلم آهن آلات و تجهیزات مورد نیاز پروژه های برق رسانی شبکه توزیعی تحت کار ساختمانی امور برق شامل دو لات

شماره داوطلبی: NPD/DABS/1403/G-524/NCB

اداره نیازمند: د افغانستان برشنا شرکت

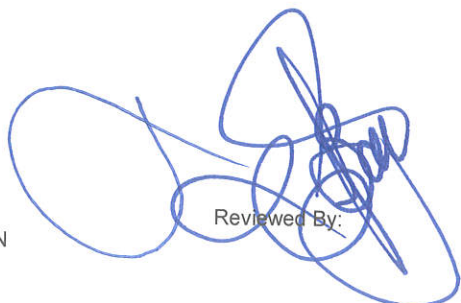
اداره تسهیل کننده طی مراحل تدارکاتی: ریاست تدارکات ملی ریاست عمومی اداره امور ۱.۱.۱

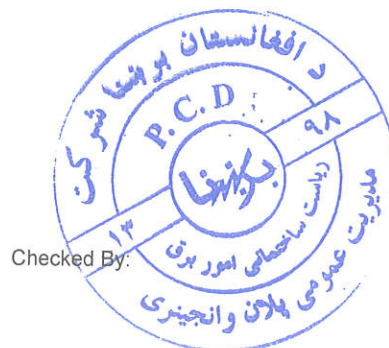
مشخصات تخنیکي

لات اول: 65 قلم تجهيزات برقی

**No 1: Technical Data for Distribution Transformer 630 kVA, 20/15/0.4 kV**

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	20/15	
- 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	%	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	

Reviewed By: 



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Resistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	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	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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**No - 2 : Technical Data for Distribution Transformer 400 kVA, 20/15/0.4kV**

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	20/15	
- 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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Resistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	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	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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### N0 -3: 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	%	±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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Resistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	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	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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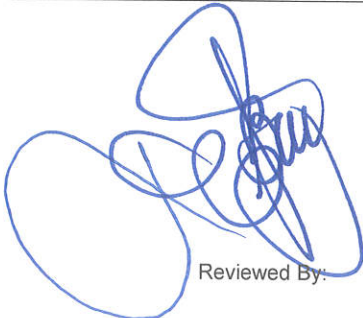


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#### No 4: Technical Data for Distribution Transformer 250 kVA, 20/15/0.4 kV

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	20/15	
- 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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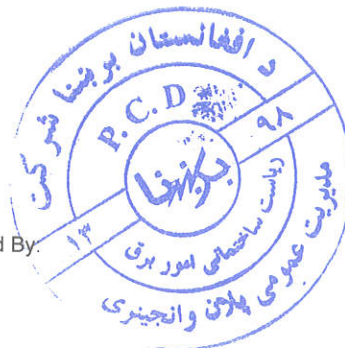
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Résistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	to be specified	
Sound pressure level	dB(A)	52	
Max. temperature rise at 45° C ambient temperature and at full load:			
- Winding	°C	to be specified	
- Iron core	°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	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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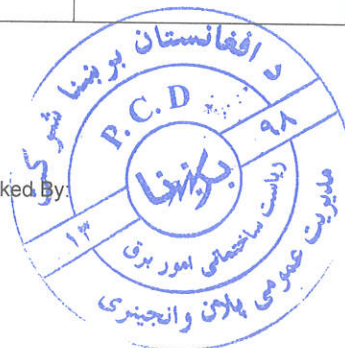


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Designation	Unit	Required	Offered
Manufacturer's Name		To be specified	
Type / Model		Oil-immersed	
Installation		With conservator	
Dielectric		outdoor	
Oil type		oil, without PCB	
Rated frequency	Hz	to be specified	
Rated power	kVA	50	
Number of phases		200	
Rated voltage:		3	
- High voltage side	kV		
- Low voltage side	kV	20	
Taps on HV side	%	0.4	
Rated currents		±2x2.5%, 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	
		10	

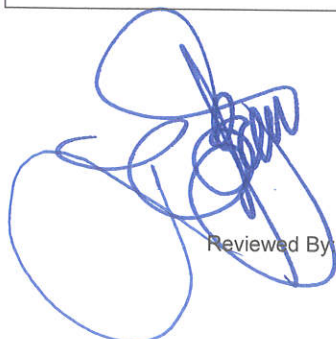
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Resistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	to be specified	
Sound pressure level	dB(A)	52	
Max. temperature rise at 45° C ambient temperature and at full load:			
- Winding	°C	to be specified	
- Iron core	°C	to be specified	
- Oil at top level	°C	to be specified	
Max. ambient temperature	°C	40	
Cooling system		ONAN	
Conductor material			
Insulating material of windings		Copper	
Insulation class		to be specified	
Standard bushings		yes	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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# No - 6: Technical Data for Distribution Transformer 160 kVA, 20/15/0.4 kV

Designation	Unit	Required	Offered
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		160	
Rated voltage:		3	
- High voltage side	kV	20/15	
- 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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Resistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	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	40	
Cooling system		ONAN	
Conductor material			
Insulating material of windings		Copper	
Insulation class		to be specified	
Standard bushings		yes	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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# No - 7: Technical Data for Distribution Transformer 100 kVA, 20/15/0.4 kV

Designation	Unit	Required	Offered
Manufacturer's Name		To be specified	
Type / Model		Oil-immersed With conservator	
Installation		Outdoor	
Dielectric		oil, without PCB	
Oil type		to be specified	
Rated frequency	Hz	50	
Rated power	kVA	100	
Number of phases		3	
Rated voltage:			
- High voltage side	kV	20/15	
- 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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### No -8: Technical Data for Distribution Transformer 50 kVA, 20/15/0.4 kV

Designation	Unit	Required	Offered
Manufacturer's Name		To be specified	
Type / Model		Oil-immersed With conservator	
Installation		outdoor	
Dielectric		oil, without PCB	
Oil type		to be specified	
Rated frequency	Hz	50	
Rated power	kVA	50	
Number of phases		3	
Rated voltage:			
- High voltage side	kV	20/15	
- 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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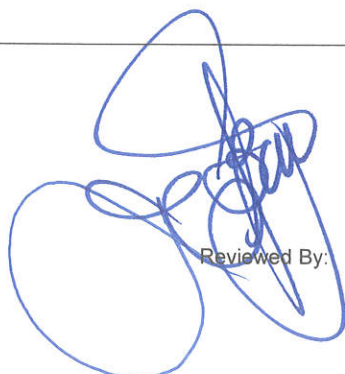
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Resistance per phase:			
- HV winding	$\Omega$	to be specified	
- LV winding	$\Omega$	to be specified	
Sound pressure level	dB(A)	52	
Max. temperature rise at 45° C ambient temperature and at full load:			
- Winding	°C	to be specified	
- Iron core	°C	to be specified	
- Oil at top level	°C	to be specified	
Max. ambient temperature	°C	40	
Cooling system		ONAN	
Conductor material			
Insulating material of windings		Copper	
Insulation class		to be specified	
Standard bushings		yes	
<b>Accessories:</b>			
- 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	
<b>Weights:</b>			
- Total	kg	to be specified	
- Oil	kg	to be specified	
<b>Dimensions:</b>			
- 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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# **NO - 9: 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(30A)	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	

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# **NO - 10: 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(20A)	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	



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# **NO - 11: 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(16A)	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	

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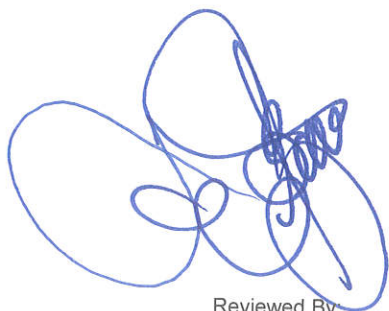
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# **NO - 12: Technical Data Disconnecting Switch Combination fuse 20kV, 630 A**

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(10A)	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	



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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(5A)	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	



Reviewed By:

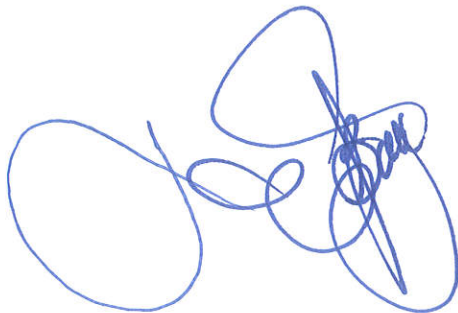


Checked By:

Approved By:

# **NO - 14: 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(2A)	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	



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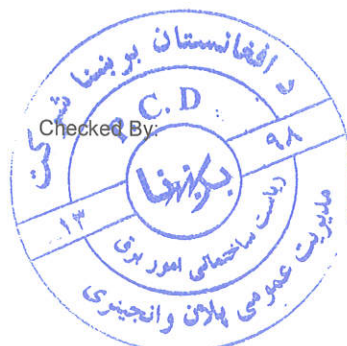
Approved By:

ke By:  
DECON

# No - 15: Technical Data Disconnecting Switch 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	
Operation mechanism		Manual	
All necessary accessories		to be confirmed	
Standard specifications		IEC 60129 VDE 0670	

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**No - 16: Surge Arrester**

Designation	Unit	Required	Offered
<b>Insulation levels</b>			
- 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	-	
<b>Pressure relief capacity</b>			
- Current amplitude (rms)	KA	17.5	
- X/R, asymmetry factor	-	17	
- Current duration	s	0.2	
<b>Weights and dimensions:</b>			
- Arrester height	mm	-	
- Arrester diameter	mm	-	
- Weight	kg	-	
<b>Accessories</b>			
Mounting hardware	-	Yes	
Ground Connector	-	Yes	
Insulating bases	-	Yes	
Discharge counter	-	-	
HV terminals connectors	-	Yes	
<b>Standards</b>	-	IEC 60099-4	
<b>Quality control</b>	-	ISO 9001	
<b>Installation</b>	-	Outdoor	

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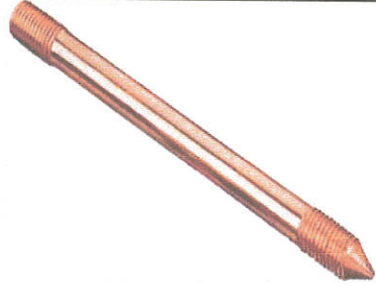
Reviewed By

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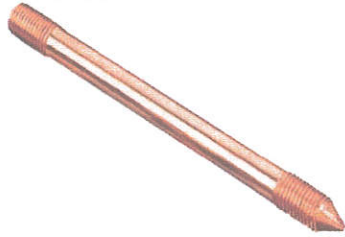
Approved By:



**No - 17: Copper Ground Ear thing Rod**

Diameter	30mm2
Usage/Application	Power Distribution Earthing
Material	Copper
Color	Copper
Length Of Rod	3000mm
Photo	

**No - 18: Copper Ground Ear thing Rod**

Diameter	20mm2
Usage/Application	Power Distribution Earthing
Material	Copper
Color	Copper
Length Of Rod	1000mm
Photo	

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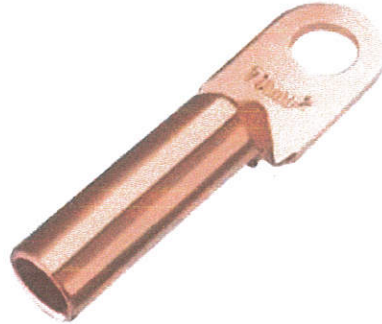
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Approved By:

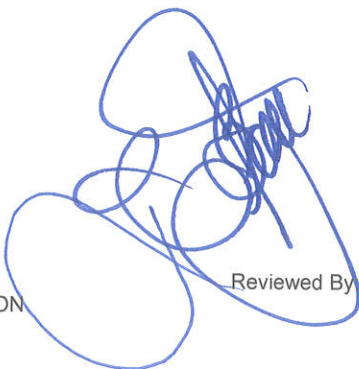
### No - 19 : Copper Compression Cable Lug 300mm<sup>2</sup>

Color	Golden
Material	Copper
Size:	300 mm <sup>2</sup>
Application	Power Distribution
Photo	

### No - 20 : Copper Compression Cable Lugs 240mm<sup>2</sup>

Color	Golden
Material	Copper
Size:	240 mm <sup>2</sup>
Application	Power Distribution
Photo	

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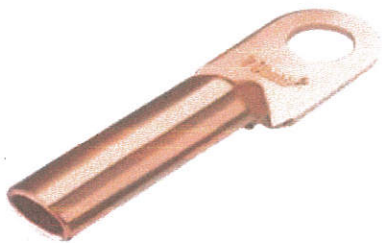


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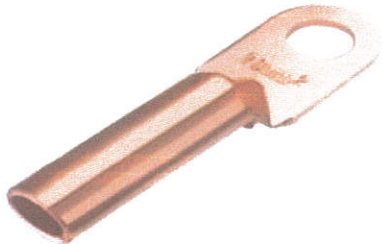
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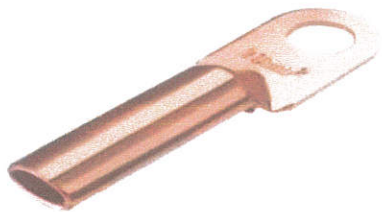
**No - 21 : Copper Compression Cable Lug 185mm<sup>2</sup>**

Color	Golden
Material	Copper
Size:	185 mm <sup>2</sup>
Application	Power Distribution
Photo	

**No - 22: Copper Compression Cable Lug 150mm<sup>2</sup>**

Color	Golden
Material	Copper
Size:	150 mm <sup>2</sup>
Application	Power Distribution
Photo	

**No - 23 : Copper Compression Cable Lug 120mm<sup>2</sup>**

Color	Golden
Material	Copper
Size:	120 mm <sup>2</sup>
Application	Power Distribution
Photo	

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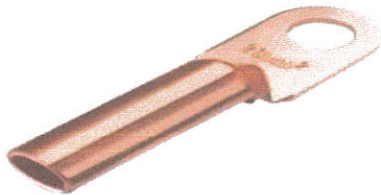
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Checked By:

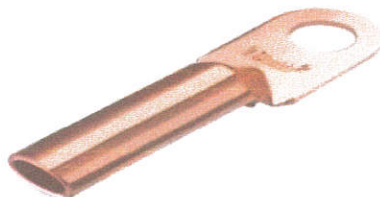
Approved By:



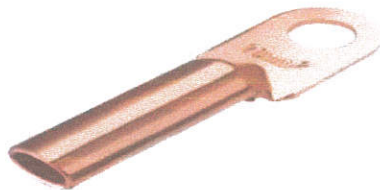
### No - 24 : Copper Compression Cable Lug 95mm<sup>2</sup>

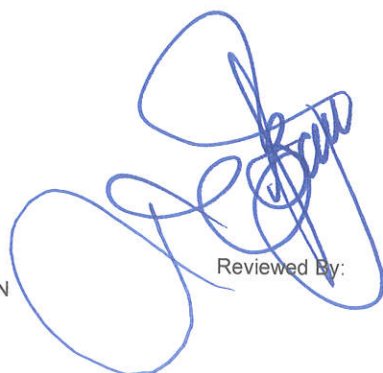
Color	Golden
Material	Copper
Size:	95 mm <sup>2</sup>
Application	Power Distribution
Photo	

### No - 25 : Copper Compression Cable Lug 70mm<sup>2</sup>

Color	Golden
Material	Copper
Size:	70 mm <sup>2</sup>
Application	Power Distribution
Photo	

### No - 26 : Copper Compression Cable Lug 50mm<sup>2</sup>

Color	Golden
Material	Copper
Size:	50 mm <sup>2</sup>
Application	Power Distribution
Photo	

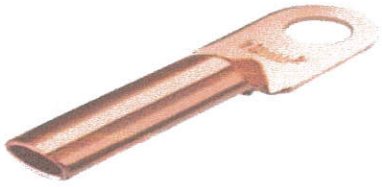
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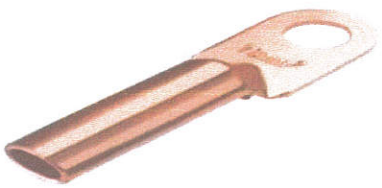
Checked By: DECON

Approved By:

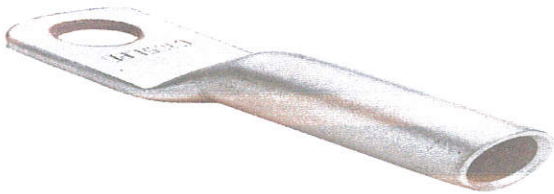
**No -27 : Copper Compression Cable Lug 35mm2**

Color	Golden
Material	Copper
Size:	35 mm2
Application	Power Distribution
Photo	

**No - 28 : Copper Compression Cable Lug 16mm2**

Color	Golden
Material	Copper
Size:	16 mm2
Application	Power Distribution
Photo	

**No - 29: Almuinum Compression Cable Lug 95mm2**

Color	silver
Material	Almuinum
Size	95 mm2
Application	Power Distribution
Photo	

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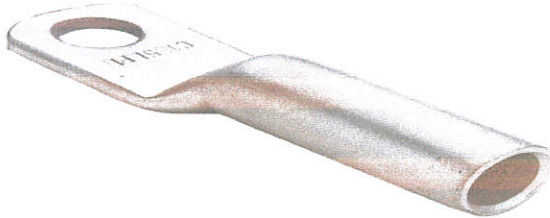
Checked By:


Approved By:

### No - 30 Almuinum Compression Cable Lug 70mm2

Color	silver
Material	Aluminum
Size	70 mm2
Application	Power Distribution
Photo	

### No - 31:Almunium Compression Cable Lug 50mm2

Color	silver
Material	Aluminum
Size	50 mm2
Application	Power Distribution
Photo	

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**No – 32 :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)		NYY	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	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-	

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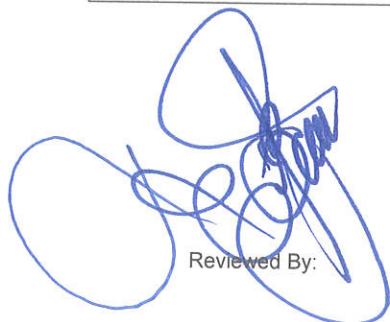


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**No - 33: LV Underground Cable 0.6/1 kV, NYY 1 x 240 RM**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (one – core)		NYY	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	240	
Insulation material of conductor		PVC	
Insulation thickness	mm	2.2	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.8	
Overall diameter of cable(D)	mm	27	
Weight of cable	kg/km	2650	
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	0.0912	
Max. admissible short circuit current (1s)	kA	27.6	
Current carrying capacity (in air)	A	483	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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DECON

**No - 34: LV Underground Cable 0.6/1 kV, NYY 4 x 185 Sm**

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 <sup>2</sup>	185	
Insulation material of conductor		PVC	
Insulation thickness	mm	2.0	
Outer sheath material		PVC	
Thickness of outer sheath	mm	2.8	
Overall diameter of cable (D)	mm	54	
Weight of cable	kg/km	8596	
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 d.c. resistance at 20° C	Ω/km	0.0991	
Max. admissible short circuit current (1s)	kA	21.3	
Current carrying capacity (in ground)	A	396	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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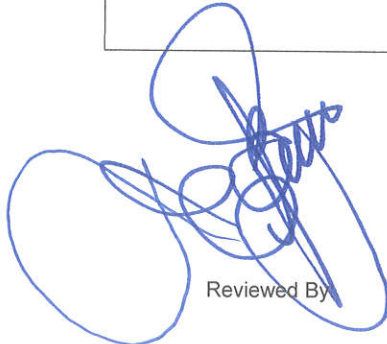


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Approved By:

**No - 35: LV Underground Cable 0.6/1 kV, NYY 1 x 185 Rm**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (one – core)		NYY	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	185	
Insulation material of conductor		PVC	
Insulation thickness	mm	2.0	
Outer sheath material		PVC	
Thickness of outer sheath	mm	2.8	
Overall diameter of cable (D)	mm	25	
Weight of cable	kg/km	1959	
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	0.0991	
Max. admissible short circuit current (1s)	kA	21.3	
Current carrying capacity (in ground)	A	410	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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**No -36: LV Underground Cable 0.6/1 kV, NYY 4 x 150 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 <sup>2</sup>	150	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.8	
Outer sheath material		PVC	
Thickness of outer sheath	mm	2.6	
Overall diameter of cable(D)	mm	49	
Weight of cable	kg/km	6910	
Weight of copper	kg/km	5660	
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 d.c. resistance at 20° C	Ω/km	0.124	
Max. admissible short circuit current (1s)	kA	17.2	
Current carrying capacity (in ground)	A	352	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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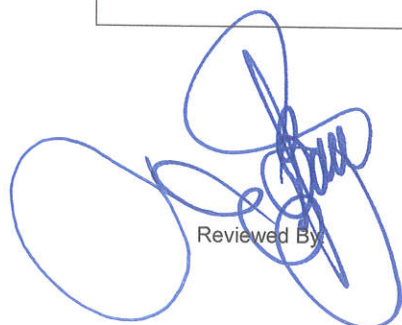


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Approved By:

**No - 37: LV Underground Cable 0.6/1 kV, NYY 1 x 120 RM**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (one – core)		NYY	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	120	
Insulation material of conductor	mm	PVC	
Insulation thickness		1.6	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.8	
Overall diameter of cable (D)	mm	21	
Weight of cable	kg/km	1400	
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	0.184	
Max. admissible short circuit current (1s)	kA	13.8	
Current carrying capacity (in air)	A	310	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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ke By:  
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**No -38: LV Underground Cable 0.6/1 kV, NYY 4 x 120 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 <sup>2</sup>	120	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.6	
Outer sheath material		PVC	
Thickness of outer sheath	mm	2.4	
Overall diameter of cable (D)	mm	43	
Weight of cable	kg/km	5676	
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	0.187	
Max. admissible short circuit current (1s)	kA	13.8	
Current carrying capacity (in ground)	A	285	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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**No - 39: 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 <sup>2</sup>	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	

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Approved By:



# No - 40: LV Underground Cable 0.6/1 kV, NYY 4 x 70mm<sup>2</sup>

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 <sup>2</sup>	70	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.4	
Outer sheath material		PVC	
Thickness of outer sheath	mm	2.1	
Overall diameter of cable(D)	mm	36	
Weight of cable	kg/km	3375	
Weight of copper	kg/km	3243	
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 d.c. resistance at 20° C	Ω/km	0.268	
Max. admissible short circuit current (1s)	kA	8.05	
Current carrying capacity (in ground)	A	200	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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Approved By:

ke By:  
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# No - 41: LV Underground Cable 0.6/1 kV, NYY 4 x 50mm2

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	mm2	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	

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Approved By:

ke By:  
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**No - 42: LV Underground Cable 0.6/1 kV, NYY 4 x 35 mm<sup>2</sup>**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (four – core)		NYN	
Conductor material		Copper	
Conductor shape		Circular Stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	35	
Nominal cross-sectional area of conc. cond.	mm <sup>2</sup>	16	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.2	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.8	
Overall diameter of cable(D)	mm	30	
Weight of cable	kg/km	1999	
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 70° C	Ω/km	0.628	
Max. admissible short circuit current (1s)	kA	4.02	
Current carrying capacity (in ground)	A	157	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

Reviewed By:



Checked By:

Approved By:

ke By:  
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**No - 43: LV Underground Cable 0.6/1 kV, NYY- 4 x 25 mm<sup>2</sup>**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (four – core)		NYY	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	25	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.2	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.8	
Overall diameter of cable(D)	mm	27	
Weight of cable	kg/km	1541	
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 70° C	Ω/km	0.87	
Max. admissible short circuit current (1s)	kA	2.87	
Current carrying capacity (in ground)	A	129	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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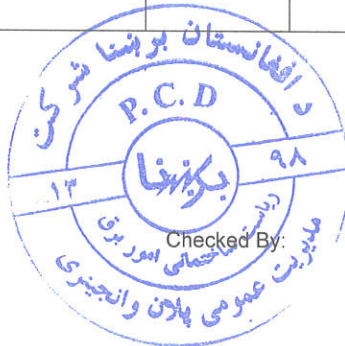
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DECON

**N0 - 44: LV Underground Cable 0.6/1 kV, NYY- 4x 16 mm2**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Cable type (four – core)		NYY	
Conductor material		Copper	
Conductor shape		Circular stranded	
Nominal cross-sectional area of conductor	mm <sup>2</sup>	16	
Insulation material of conductor		PVC	
Insulation thickness	mm	1.0	
Outer sheath material		PVC	
Thickness of outer sheath	mm	1.8	
Overall diameter of cable(D)	mm	24	
Weight of cable	kg/km	1100	
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 70° C	Ω/km	1.38	
Max. admissible short circuit current (1s)	kA	1.84	
Current carrying capacity (in ground)	A	90	
Inductance per conductor	mH/km	To be specified	
Standards		IEC 60502 DIN VDE 0271 VDE 0295 (IEC60228) VDE0293	

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# No - 45: Technical Data for Overhead Line Conductor ACSR 95/15 mm<sup>2</sup>

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Type		Aluminum conductor Steel – reinforced (ACSR)	
Nominal cross-section	mm <sup>2</sup>	95/15	
Cross-section ratio AL/St approx.		To be specified	
<b>Steel</b>			
- construction	N/mm	7/1.67	
- diameter	mm	5.01	
- cross-section	mm <sup>2</sup>	15.3	
<b>Aluminum</b>			
- construction	N/mm	26/2.15	
- cross-section	mm <sup>2</sup>	94.4	
Total cross-section	mm <sup>2</sup>	109.7	
Conductor diameter approx.	mm	13.6	
<b>Conductor weight</b>			
- steel	kg/km	120	
- aluminum	kg/km	260	
- grease	kg/km	2.2	
- with grease total approx.	kg/km	380.6	
Current carrying capacity	A	350	
Nominal conductor breaking load	KN	34.93	
Calculated conductor resistance at 20° C	Ω/km	0.3060	
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	

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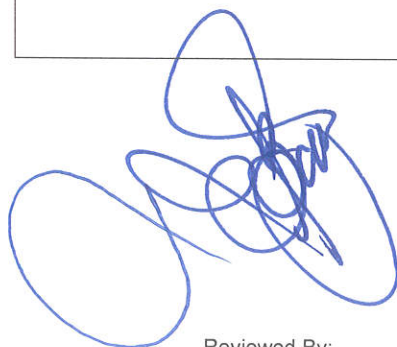
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# **No - 46: Technical Data for Overhead Line Conductor ACSR 70/12 mm<sup>2</sup>**

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Type		Aluminum conductor Steel – reinforced (ACSR)	
Nominal cross-section	mm <sup>2</sup>	70/12	
Cross-section ratio AL/St approx.		To be specified	
<b>Steel</b>			
- construction	N/mm	7/1,44	
- diameter	mm	4.32	
- cross-section	mm <sup>2</sup>	11.4	
<b>Aluminum</b>			
- construction	mm	26/1.85	
- cross-section	mm <sup>2</sup>	69.9	
Total cross-section	mm <sup>2</sup>	81.3	
Conductor diameter approx.	mm	11.7	
<b>Conductor weight</b>			
- steel	kg/km	89	
- aluminum	kg/km	193	
- grease	kg/km	1.7	
- with grease total approx.	kgVkm	283	
Current carrying capacity	A	290	
Nominal conductor breaking load	KN	26.27	
Calculated conductor resistance at 20° C	Ω/km	0.1432	
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	



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# No - 47: Technical Data for Overhead Line Conductor ACSR 50/8 mm<sup>2</sup>

Designation	Unit	Required	Offered
Manufacturer's name		To be specified	
Type		Aluminum conductor Steel – reinforced (ACSR)	
Nominal cross-section	mm <sup>2</sup>	50/8	
Cross-section ratio AL/St approx.		To be specified	
<b>Steel</b>			
- construction	N/mm	1/3.2	
- diameter	mm	3.2	
- cross-section	mm <sup>2</sup>	8.04	
<b>Aluminum</b>			
- construction	N/mm	6/3.2	
- cross-section	mm <sup>2</sup>	48.3	
Total cross-section	mm <sup>2</sup>	56.3	
Conductor diameter approx.	mm	9.6	
<b>Conductor weight</b>			
- steel	kg/km	64	
- aluminum	kg/km	132	
- grease	kg/km	to be specified	
- with grease total approx.	kg/km	196	
Current carrying capacity	A	210	
Nominal conductor breaking load	KN	16.81	
Calculated conductor resistance at 20° C	Ω/km	0.5939	
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	

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# No - 48: Technical Data for ABC Low Voltage Cables LV ABC 4 x 95 mm<sup>2</sup>

Description	Unit	Required	Offered
Manufacturer			
Rated Voltage	kV	0.6/1	
<b><u>Phases and Neutral</u></b>			
Material		Aluminum	
Cross section	mm <sup>2</sup>	95	
Class		2	
Cross section shape		circular	
		compacted	
Number of wires		≥15	
Diameter of wires	mm	To be specified	
Diameter of conductor	mm	11.4	
Maximum conductor DC resistance at 20 °C	ohm/km	0.320	
Insulation Material		Black XLPE	
Insulation thickness	Mm	1.7	
Breaking load of single core, min.	KN	15	
Breaking load of complete cable, min.	KN	53.2	
<b><u>Technical Characteristics</u></b>			
Outer diameter of bundle (D)	mm	35.3	
Weight of conductor	kg/km	1350	
Minimum bending radius	mm	15 D	
Maximum lay of cores			
Current rating /ambient 40 °C	A	250	
Maximum conductor temperature/normal operation	°C	90	
Maximum conductor temperature/short circuit	°C	250	
Rated short circuit /phase	kA	6.8	
Length of conductor drum	m	To be specified	
Gross weight of loaded drum	kg	To be specified	
Standard		IEC 60502 NFA2X (VDE 0276 - 626 4F-1), AsXS (n) (PL WT92/K396), 1-AES (CSN 34761-4F) AS/NZS 3560.1	

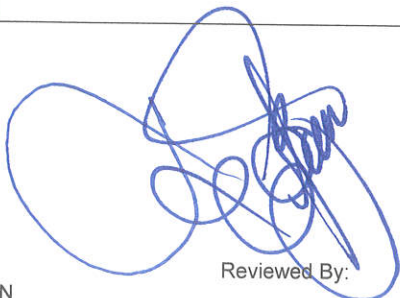
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**No - 49: Technical Data for ABC Low Voltage Cables LV ABC 4 x 70 mm<sup>2</sup>**

Description	Unit	Required	Offered
Manufacturer			
Rated Voltage	kV	0.6/1	
<b><u>Phases and Neutral</u></b>			
Material		Aluminum	
Cross section	mm <sup>2</sup>	70	
Class		2	
Cross section shape		Circular compacted	
Number of wires		≥12	
Diameter of wires	mm	To be specified	
Diameter of conductor	mm	9.7	
Maximum conductor DC resistance at 20 °C	ohm/km	0.443	
Insulation Material		Black XLPE	
Insulation thickness	Mm	1.5	
Breaking load of single core, min.	KN	11	
Breaking load of complete cable, min.	KN	39.2	
<b><u>Technical Characteristics</u></b>			
Outer diameter of bundle (D)	mm	31.3	
Weight of conductor	kg/km	960	
Minimum bending radius	mm	12 D	
Maximum lay of cores			
Current rating /ambient 40 °C	A	205	
Maximum conductor temperature/normal operation	°C	90	
Maximum conductor temperature/short circuit	°C	250	
Rated short circuit /phase	kA	5.0	
Length of conductor drum	m	To be specified	
Gross weight of loaded drum	kg	To be specified	
Standard		IEC 60502 NFA2X (VDE 0276 - 626 4F-1), AsXS (n) (PL WT92/K396), 1-AES (CSN 34761-4F) AS/NZS 3560.1	

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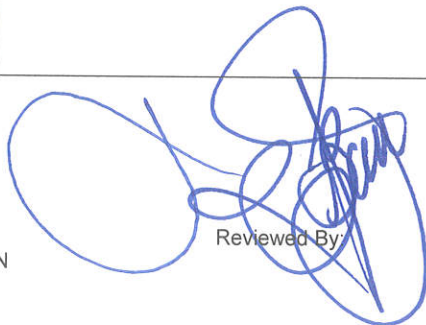
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**No - 50: Technical Data for ABC Low Voltage Cables LV ABC 4 x 50 mm<sup>2</sup>**

Description	Unit	Required	Offered
Manufacturer			
Rated Voltage	kV	0.6/1	
<b><u>Phases and Neutral</u></b>			
Material		Aluminum	
Cross section	mm <sup>2</sup>	50	
Class		2	
Cross section shape		circular compacted	
Number of wires		≥6	
Diameter of wires	mm	To be specified	
Diameter of conductor	mm	8.1	
Maximum conductor DC resistance at 20 °C	ohm/km	0.641	
Insulation Material		Black XLPE	
Insulation thickness	Mm	1.5	
Breaking load of single core, min.	KN	8.4	
Breaking load of complete cable, min.	KN	28	
<b><u>Technical Characteristics</u></b>			
Outer diameter of bundle (D)	mm	27.3	
Weight of conductor	kg/km	715	
Minimum bending radius	mm	12 D	
Maximum lay of cores			
Current rating /ambient 40 °C	A	165	
Maximum conductor temperature/normal operation	°C	90	
Maximum conductor temperature/short circuit	°C	250	
Rated short circuit /phase	kA	3.6	
Length of conductor drum	m	To be specified	
Gross weight of loaded drum	kg	To be specified	
Standard		IEC 60502 NFA2X (VDE 0276 - 626 4F-1), AsXS (n) (PL WT92/K396), 1-AES (CSN 34761-4F) AS/NZS 3560.1	

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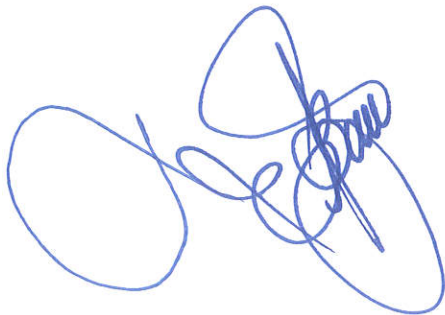


**No - 51: ACSR- Aluminum Connector for 20kV**

MATERIAL	ALUMINUM
STANDARD	SRPS N. F4.106
Cable cross-section(size)	120/50mm <sup>2</sup>
Color:	silver
Photo	
Designed for connection of non-insulated Al and Cu conductors.	

**No - 52 : ACSR- Aluminum Connector for 20kV**

MATERIAL	ALUMINUM
STANDARD	SRPS N. F4.106
Cable cross-section(size)	185/120mm <sup>2</sup>
Color:	silver
Photo	
Designed for connection of non-insulated Al and Cu conductors.	





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**No - 53 : ACSR- Aluminum Connector for 20kV**

MATERIAL	ALUMINUM
STANDARD	SRPS N. F4.106
Cable cross-section(size)	95/16mm <sup>2</sup>
Color:	silver
Photo	
Designed for connection of non-insulated Al and Cu conductors.	

**No - 54 : ACSR- Aluminum Connector for 20kV**

MATERIAL	ALUMINUM
STANDARD	SRPS N. F4.106
Cable cross-section(size)	70/16mm <sup>2</sup>
Color:	silver
Photo	
Designed for connection of non-insulated Al and Cu conductors.	



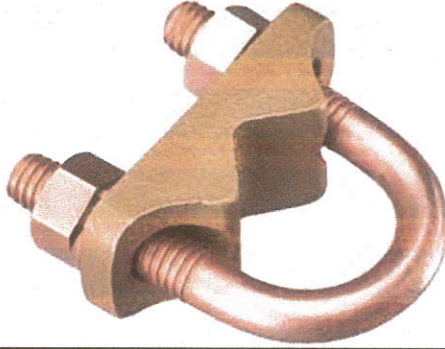

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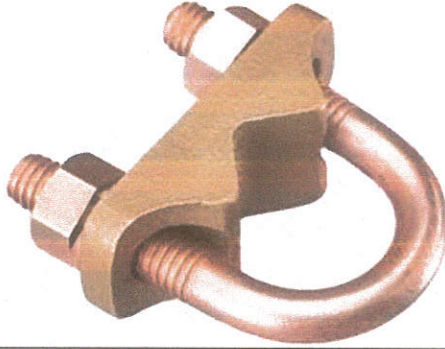
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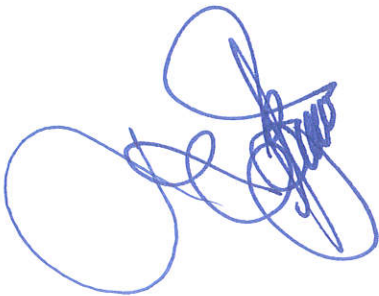
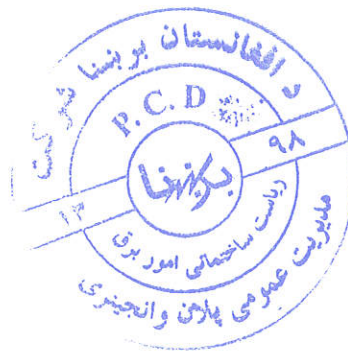
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**No - 55:ACSR- Aluminum Connector for 20kV**

MATERIAL	ALUMINUM
STANDARD	SRPS N. F4.106
Connector cross-section(Size)	20 mm
Color:	silver
Photo	
Designed for connection of non-insulated Al and Cu conductors.	

**No - 56:ACSR- Aluminum Connector for 20kV**

MATERIAL	ALUMINUM
STANDARD	SRPS N. F4.106
Connector cross-section(Size)	16 mm
Color:	silver
Photo	
Designed for connection of non-insulated Al and Cu conductors.	

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# No - 57: 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	

Signature of Reviewed By

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# No - 58: 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	

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# No – 59 : 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		As per IEC	

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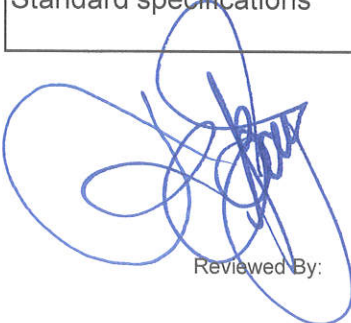
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## No - 60: Technical Data for Low Voltage Porcelain Tension Insulator

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		As per IEC	


  
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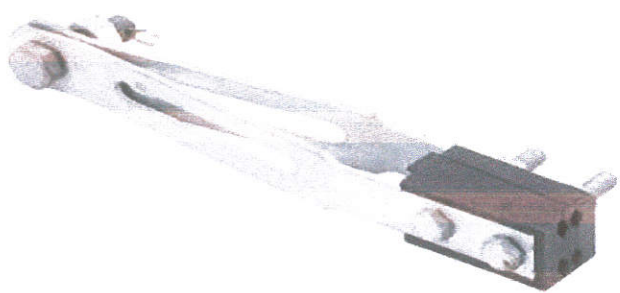
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### No - 61: LV ABC Cable Suspension Clamp

Usage	Line Fittings
Type	Suspension Clamp
Conductor Range	4x(35-120 )mm2
Application	Low Voltage 1kv
Photo	

### No - 62: AL-ABC -Tension Clamp

Usage	Line Fittings
Type	Tension Clamp
Conductor Range	4X(50-120 )mm2
Application	Low Voltage 1kv
Photo	

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**No - 63:Insulation piercing connector**

TYPE:	insulation piercing connector
Material:	PA66
Color:	Black
Size:	16-50 mm2
Photo	

**No – 64 : Insulation piercing connector**

TYPE:	insulation piercing connector
Material:	PA66
Color:	Black
Size:	50-120 mm2
Photo	

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**No - 65: Galvanized Iron Guy Wire:**

Material	Galvanized Iron	
Usage	For supported poles	
Guy Cables size	15m	
Guy Cables Thickness	70mm2	
Gay Cables Material	Steel	

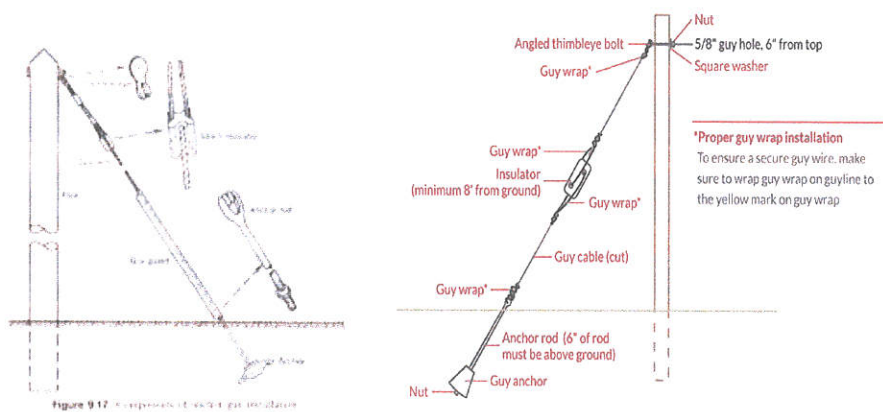


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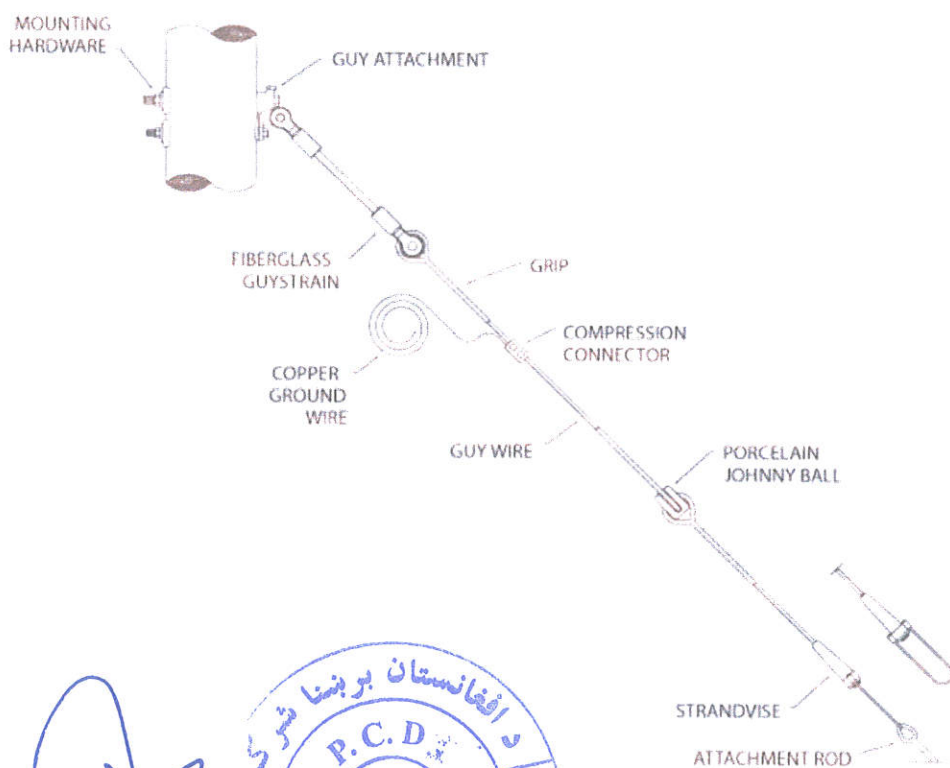
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## Guy Grip



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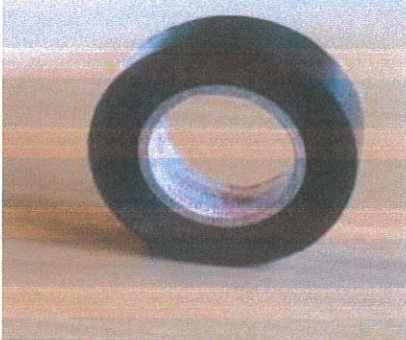
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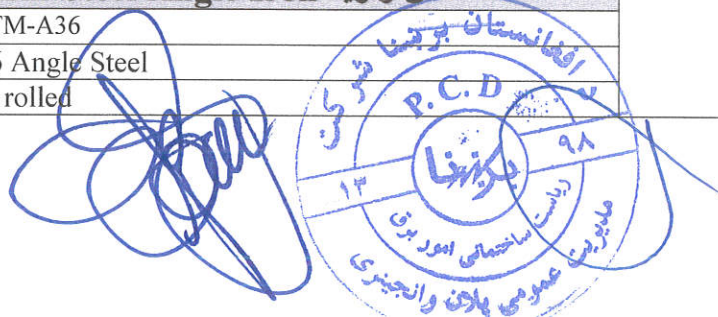
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## مشخصات تخنيکی

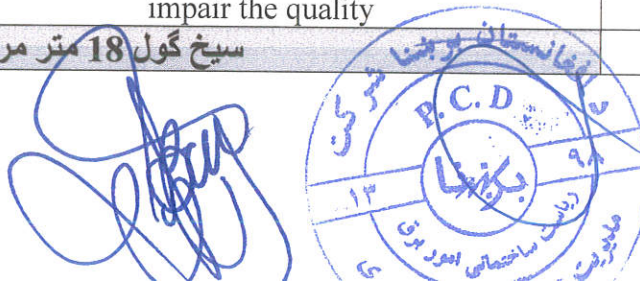
لات دوم: 37 قلم آهن آلات و تجهيزات

Sr. No	مشخصات لات دوم تجهیزات و آهن آلات Technical Specifications	ملاحظات
1	رأبرتيب به چهار رنگ	
	Material	polyvinyl chloride (PVC)
	Color	Red, Yellow, Blue, Black
	Width	25mm
	Length	25mm
	Thickness	0.15mm
	Photo	
2	ذغال از چوب بلوط	
	Specifications	Charcoal is made of oak wood and is 2-5 mm in size
3	چونه	
	Specifications	Building Chalk that has excellent quality and is in the form of fine grains To be transferred in 7 kilo maps
4	نمک	
	Specifications	The physical characteristics of edible salt are ionic solids and are powdered by impact. In the solid state, it is not an electrical conductor, but in the solution (aq) and molten state, it becomes an electrical conductor. Most of the volume of salt consists of sodium chloride (NaCl). It is worth mentioning that salt should be prepared in crushed form To be transferred in 7 kilo maps
5	آهن زاویه ( 75x75 x 6 ) mm Steel Angle Iron	
	Standard	ASTM-A36
	Item	A36 Angle Steel
	Technique	Hot rolled
	Type	Equal Angle
	Surface	Black
	Grade	A36
	Width	75mm
	High	75mm
	Thickness	6mm
6	آهن زاویه ( 60x60 x 6 ) mm Steel Angle Iron	
	Standard	ASTM-A36
	Item	A36 Angle Steel
	Technique	Hot rolled





	Type	Equal Angle
	Surface	Black
	Grade	A36
	Width	60mm
	High	60mm
	Thickness	6mm
7	آهن پتی 50x3mm	
	Width	Width
	Thickness	Thickness
	Weight	Weight
	Length	Length
8	آهن پتی 30x3mm پطره آرپی	
	Width	30mm
	Thickness	3mm
	Weight	0.7065kg/m
9	شیشه محافظوی برای چشم در هنگام ولدنگ	
	Specification	A mask that is suitable for welding and of excellent quality according to the market,
	Weight	300-600gm
	Photo	
10	سیخ گول 22 ملی متر مربع	
	Specification	Mild Steel Plain Round Bar (MS Bar) of structural or intermediate grade conforming to ASTM specification A51 or A615 Reinforcing steel shall be free from flaws or defects. It must be free from rust, grease, pitting, mud, loose scale, mortar or any other foreign, material or materials that may impair the quality
11	سیخ گول 20 ملی متر مربع	
	Specification	Mild Steel Plain Round Bar (MS Bar) of structural or intermediate grade conforming to ASTM specification A51 or A615 Reinforcing steel shall be free from flaws or defects. It must be free from rust, grease, pitting, mud, loose scale, mortar or any other foreign, material or materials that may impair the quality
12	سیخ گول 18 ملی متر مربع	



	Specification	Mild Steel Plain Round Bar (MS Bar) of structural or intermediate grade conforming to ASTM specification A51 or A615 Reinforcing steel shall be free from flaws or defects. It must be free from rust, grease, pitting, mud, loose scale, mortar or any other foreign, material or materials that may impair the quality	
13	سیخ گول 14 ملی متر مربع		
	Specification	Mild Steel Plain Round Bar (MS Bar) of structural or intermediate grade conforming to ASTM specification A51 or A615 Reinforcing steel shall be free from flaws or defects. It must be free from rust, grease, pitting, mud, loose scale, mortar or any other foreign, material or materials that may impair the quality	
14	سیخ ولدنگ اصلی 3 ملی		
	Package	2.5/5kgs /Inner Box and 20kg Outer Box	
	Specification	3.2x350mm	
	Trademark	Great Wall	
	Color	Any	
	Size	302mm	
15	سیخ چوریدار 22 ملی متر		
	Specification	AISI, ASTM, DIN, GB, JIS, CE	
	Item Name	Bolt Rod	
	Bolt Diameter	22mm	
	Rod Length	12m	
16	سیخ چوریدار 14 ملی متر		
	Specification	AISI, ASTM, DIN, GB, JIS, CE	
	Item Name	Bolt Rod	
	Bolt Diameter	14mm	
	Rod Length	12m	
17	نت معه واشر 22 ملی		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Thread Depth	22mm	
18	نت معه واشر 14 ملی		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Thread Depth	14mm	
19	8x130mm نت و بولت معه واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M8x130	
	Diameter	8mm	
	Length	130mm	

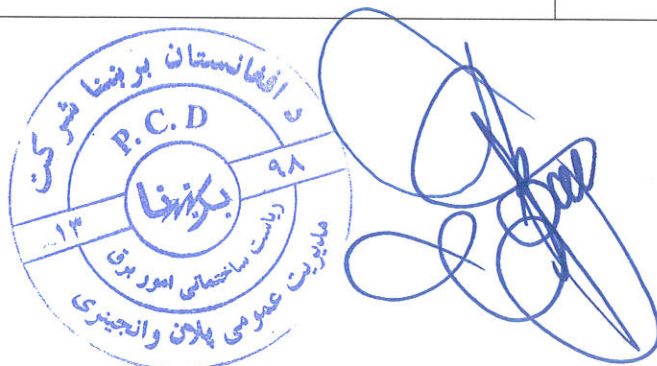







	Photo		
20	10x60mm نټ و بولټ معه واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M10x60	
	Diameter	10mm	
	Length	60mm	
	Photo		
21	10x40mm نټ و بولټ معه واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M10x40	
	Diameter	10mm	
	Length	40mm	
	Photo		
22	10x6mm نټ و بولټ معه واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M10x6	
	Diameter	10mm	
	Length	6mm	



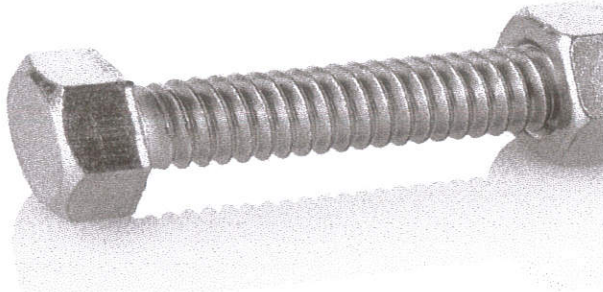




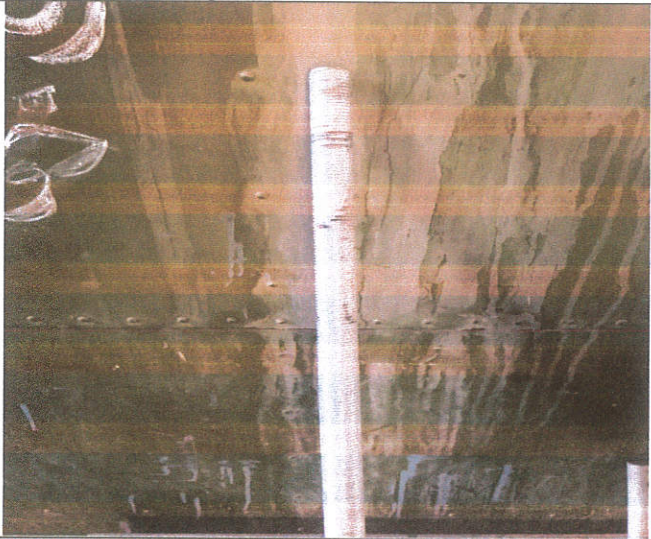
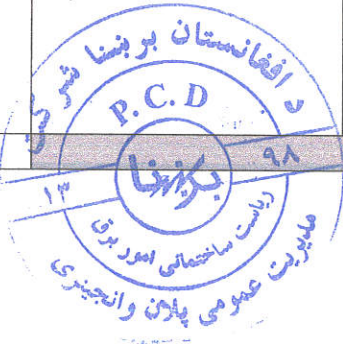



	Photo		
23	12x40mm نٹ و بولٹ معہ واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M12x40	
	Diameter	12mm	
	Length	40mm	
	Photo		
24	12x60mm نٹ و بولٹ معہ واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M12x60	
	Diameter	12mm	
	Length	60mm	
	Photo		
25	10x20mm نٹ و بولٹ معہ واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M10x20	
	Diameter	10mm	
	Length	20mm	






	Photo		
26	100x16mm نټ و بولټ معه واشر		
	Specification	AISI,ASTM,DIN,GB,JIS,CE	
	Type	M100x16	
	Diameter	100mm	
	Length	16mm	
	Photo		
27	بولټ که از سیخ چوری 30 ملی به طول 80 سانتی متر دوطرف چوری کشی شده باشد معه نټ و بولټ واشر		
	Specifications	Anchor bolt made from a 30 mm long 80 cm long skewer, which is pulled from both sides.	
	Photo		
28	رنگ روغنی		
	Specifications	Oil paint for metal (Stainless Steel Metal), Its Color be Grey14, Thin (by volume) 15-20% for Conventional air spray, Application can be done by brush, roller and air spray. Container weight be 1 Kg.	
چوب تخته 3سانتی متر			





29	Material	چوب خار(thorn wood)	
	Width	200mm	
	Length	6000mm	
	Thickness	30mm	
30	پل آره آهن بری همراه کمان		
	Blade type	iron on	
	Iron along the blade	300mm	
	Material	Carbon steel	
	Photo		
31	پل برش 14 ملی		
	Max Speed	Operational	80m/s
	RPM	6000	
	Size	14"	
	Type	Metal Grinding Wheel	
	Photo		
32	پل برمه 12 ملی برای فلز		
	Size	12.0mm	
	Material	High Speed Steel	
	Photo		

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33	پل برمه 10 ملی برای فلز	
	Size	10.0mm
	Material	High Speed Steel
	Photo	
34	پل برمه 8 ملی برای فلز	
	Size	8.0mm
	Material	High Speed Steel
	Photo	
35	پل چرخ 9 انچ	
	Max Operational Speed	80m/s
	Rpm	6600
	Size	9"
	Type	Metal cutting Wheel
	Dimension	230x3x22mm
	ISO Type	9001
36	قفل برای صندوق	
	Specification	Steel-colored stone locks of excellent quality, size 40

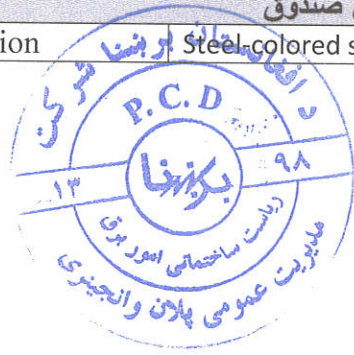



	Photo		
37	پیپ PVC خادہ ۶ مترہ		
	Materials	Steel-colored stone locks of excellent quality, size 40	
	Standard	BSI 3505 , BSI 350 ,DIN 19531 و , DIN 19532 , ASTM D-3915 , ASTM F-789	
	length of each row	4m	
	Diameter	3"	
	weight	6kg	

