

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	DATA SHEETS FOR 11 KV OVER HEAD LINE EQUIPMENT								
شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱ از ۵۲
۰۵۳ - ۰۷۳ - ۹۱۸۴	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS FOR 11 KV OVER HEAD LINE EQUIPMENT

نگهداشت و افزایش تولید میدان نفتی بینک

D04	Jul.2022	AFC	H.Shakiba	M.Fakharian	M.Mehrshad	
D03	Feb.2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D02	Jan.2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D01	Dec.2021	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D00	Nov.2021	IFC	H.Shakiba	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 2	CLIENT Doc. Number: F0Z-707397
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status:

IDC: Inter-Discipline Check

IFC: Issued For Comment

IFA: Issued For Approval

AFC: Approved For Construction



AFP: Approved For Purchase

AFQ: Approved For Quotation

IFI: Issued For Information

AB-R: As-Built for CLIENT Review




AB-A: As-Built –Approved

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک								
	DATA SHEETS FOR 11 KV OVER HEAD LINE EQUIPMENT								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادرکننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۲ از ۲

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D00	D01	D02	D03	D04
1	X	X	X	X	X	47			X	X	X
2	X	X	X	X	X	48			X	X	X
3	X	X	X	X		49			X	X	
4	X	X	X	X		50			X	X	
5	X	X	X	X		51			X	X	
6	X	X	X	X		52			X	X	
7	X	X	X	X		53					
8	X	X	X	X		54					
9	X	X	X	X		55					
10	X	X	X	X		56					
11	X	X	X	X		57					
12	X	X	X	X		58					
13	X	X	X	X		59					
14	X	X	X	X		60					
15	X	X	X	X		61					
16	X	X	X	X		62					
17	X	X	X	X		63					
18	X	X	X	X		64					
19	X	X	X	X		65					
20	X	X	X	X		66					
21	X	X	X	X		67					
22	X	X	X	X		68					
23	X	X	X	X		69					
24	X	X	X	X		70					
25	X	X	X	X		71					
26	X	X	X	X		72					
27	X	X	X	X		73					
28	X	X	X	X		74					
29	X	X	X	X		75					
30	X	X	X	X		76					
31	X	X	X	X		77					
32	X	X	X	X		78					
33	X	X	X	X		79					
34	X	X	X	X		80					
35	X	X	X	X		81					
36	X	X	X	X		82					
37	X	X	X	X		83					
38	X	X	X	X		84					
39	X	X	X	X		85					
40		X	X	X		86					
41		X	X	X		87					
42		X	X	X		88					
43		X	X	X		89					
44		X	X	X		90					
45			X	X		91					
46			X	X		92					




 NISOC	تجهیزات و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه: BK	بسته کاری: SSGRL	صادر کننده: PEDCO	تسهیلات: 110	رشته: EL	نوع مدرک: DT	سریال: 0012	نسخه: D04	شماره صفحه: ۵۲ از ۳
DATA SHEET FOR PHASE CONDUCTOR (BK05)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Conductor Name					HYENA			
5	Applicable standard					ASTM B232, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
6	Max allowable temperature of conductor (°C)					85			
7	Retred short circuit current for 0.5 Sec. (KA)					18.8			
8	Max. temperature range (operation)					75			
9	Temperature range for installation(°C)					-5 ~ +55			
10	Stranding and wire diameter (nos./mm):								
11	Aluminium					7/4.39			
12	Steel					7/1.93			
13	Overall diameter(mm)					14.57			
14	Aluminium Area (mm ²)					106			
15	Steel area (mm ²)					20.48			
16	Total area (mm ²)					126.2			
17	Weight (kg/km):								
18	Aluminium					290			
19	Steel					160			
20	Total					450			
21	Nominal current in 30° (A)					441			
22	Ultimate tensile Strength (kg)					4090			
23	Coefficient of linear expansion (1 /C° x 10-6)					18.8			
24	Initial modulus of elasticity (kg/mm ²)					6000			
25	Final modulus of elasticity (kg/mm ²)					7450			
26	DC resistance at 20°C(Ω/km)					0.2713			
27	AC resistance at 25°C(Ω/km)					0.277			
28	AC resistance at 75°C(Ω/km)					0.3142			
29	Temperature range (transport / storage)					By vendor			
30	Pollution condition					Heavy			
31	Routine tests & Type test					Acc To IEC 61089			




 NISOC	تجهیزات و افزایش تولید میدان نفتی بینک فعالیت‌های رزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR SHIELD WIRE (BK05)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Code Name					7No.8 AWG			
5	Applicable standard					ASTM B416, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
8	Stranding and wire diameter (nos./mm):					7/3.26			
9	Overall diameter(mm)					9.78			
10	Total area (mm ²)					58.43			
11	Weight (kg/km):					390			
12	Ultimate tensile Strength (kg)					7226			
13	Coefficient of linear expansion (1 /C° x 10-6)					13			
14	Initial modulus of elasticity (kg/mm ²)					16000			
15	Final modulus of elasticity (kg/mm ²)					16000			
16	DC resistance at 20°C(Ω/km)					1.467			
17	Pollution condition					Heavy			
18	Routine tests & Type test					Acc To IEC 61089			




 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵ از ۵۲
DATA SHEET FOR INSULATOR (BK05)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					BALL & SOCKET				
2	Applicable Standard					IEC60120, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 426				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Material					Porcelain				
5	Nominal line to line voltage rating (kV)					11				
6	Maximum continuous line to line operating voltage (kV)					12				
7	Rated frequency (Hz)					50				
8	Creepage distance (mm/kV)					31				
9	Minimum creepage distance of insulator (mm)					372				
10	Minimum mechanical Failing Load (kN)					70				
11	Socket coupling size (IEC60120)					16				
12	Ball coupling size (IEC60120)					16				
13	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
14	Rated lightning impulse withstand voltage across the isolating dist. of Fuse base (kVpeak)					75				
15	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
16	Rated one minute PF withstand voltage across the isolating dist. of Fuse base (kVrms)					32				
17	Power Frequency Puncture Voltage (kV)					110				
18	Metallic Part material					Malleable Cast Iron				
19	Insulator material					Brown Glazed Porcelain				
20	Metallic parts					Malleable cast iron				
21	Washable in service					Yes				
22	Unit Spacing (mm)					By vendor				
23	Disc Diameter (mm)					By vendor				
24	Total Weight					By vendor				
25	Type and Material of Terminal					By vendor				
26	Pollution condition					Heavy				
27	Routine tests & Type test					Acc To IEC 383				




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۶ از ۵۲
DATA SHEET FOR FITTING SUSPENSION & TENSION SET (BK05)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					FORGED STEEL			
2	Applicable standard					IEC 61284, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 465			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material:					-			
5	Outer Part					AL.ALLOY			
6	Iner Part					FORGED STEEL, Hot Deep Galvanized.			
7	Jumper Plate					AL.ALLOY			
8	Terminal Jumper					AL.ALLOY			
9	Bolts & Nuts & Washers					STEEL, Hot Deep Galvanized.			
10	Split Pin					STAINLESS STEEL			
11	Min breaking strength					95% OF CONDUCTOR U.T.S			
12	Coupling Standard IEC					16 mmA			
13	Short Circuit Current					25kA/0.4Sec.			
14	Arcing Horn					STEEL			
15	Min breaking strength (KN)					80			
16	Anti-Climbing Devices and Safety Signs for Lines up to 400kV					ENA TS 43-90			
17	Tower Identification					Steel Sheet with 2mm Thickness			
18	Danger Alarm					Steel Sheet with 1.2mm Thickness			
19	Pollution condition					Heavy			
20	Routine tests & Type test					Acc To IEC 61284			




 NISOC	تکمیل داشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۲ از ۷۰
DATA SHEET FOR EARTHING SYSTEM (BK05)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	GROUND WIRE :								
2	Type					Copper Conductor			
3	Applicable standard					DIN 48201, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 409			
4	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
5	Stranding (No./mm)					7/2.5			
6	Total cross section (mm ²)					35			
7	Overall Diameter (mm)					7.5			
8	Unit Weight (kg/m)					0.31			
9	Calculated breaking load (kN)					13.77			
10	DC Resistance At 20°C (ohm/km)					0.5265			
11	TOWER BONDING CLAMP :								
12	Type of Body					Forged Steel			
13	Surface Coating					HOT DIP. GALV. Acc to ASTM A123 & A153 or BS729			
14	Type of Bolt & Nut					Steel			
15	Torgue on Bolt					20 NM			
16	Applicable standard					ST37 & DIN931,934,125,127			
17	Diameter of Wire catcher					Ø 8-13 mm			
18	Pollution condition					Heavy			
19	Routine tests & Type test					Acc To DIN 48201			

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		فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		عمومی و مشترک							شماره صفحه: ۵۲ از ۸	
		Data Sheets For 11 KV Over Head Line Equipment								
		پرورده	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR DISCONNECTOR SWITCH (BK05)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Installation (indoor / outdoor)					Outdoor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal system voltage, 3phase					11 kV				
5	System voltage variation					± 10%				
6	Nominal frequency and frequency variation					50 ± 5%				
7	Numbers of poles and current rating					3pole / 630 A				
8	Short circuit amper and time duration					25 kA / 1 s				
9	Rated peak withstand current					62.5 kA				
10	Creepage distance (mm/kV)					31				
11	Minimum creepage distance of insulator (mm)					372				
12	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
13	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
14	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
15	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
16	Mode of operation OPEN/CLOSE					open-close manual and with earth blad and earth switch manual				
17	Disconnectors & Earthing switches Operating					Hand operating				
18	Accessories					with earth blad and earth switch manual				
19	Disconnector Mechanism					Center break				
20	Construction					Three pole operation Containing Earthing switch				
21	Ingress protection of electrical enclosures					Min. IP55 (If Needed)				
22	Disconnector status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC				
23	Earthing switch status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC				
24	Interlocks(Electrical & Mechanical)					To prevent closure of earth switch when Disconnector is not in open position To prevent closure of Disconnector when earth switch is not in open position				
25	Dimensions & weights					By Vendor				
26	Pollution condition					Heavy				
27	Minimum Rating plate data					Manufacturer Type designation and serial number Rated voltage Rated lightning impulse withstand voltage across open pole Rated lightning impulse withstand voltage between poles Rated power frequency withstand voltage across open pole Rated power frequency withstand voltage between poles Rated normal current Rated duration of short circuit Rated no load transformer breaking current Year of manufacture Relevant standard with date of issue				
28	Routine Tests: a) dielectric test on the main circuit (clause 7.1 of IEC60694) b) tests on auxiliary and control circuits (Clause 7.2 of IEC60694) c) measurement of the resistance of the main circuit (Clause 7.3 of IEC60694); d) tightness test (Clause 7.4 of IEC60694) e) Design and visual checks (Clause 7.5 of IEC60694) f) Mechanical tests as per clause 7.101 of IEC62271-102					Witness & Report				
29	Type Tests					Certified Reports of test on the identical type according to IEC62271-102 or IEC129				




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		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان:		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۹ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR CUT OUT FUSE (BK05)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Class					Outdoor				
2	Type					Channel Type				
3	Manufacturer of Fuse base & link					By Vendor				
4	Applicable Standard					IEC60282 , IEC60787, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
5	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
6	Nominal line to line voltage rating (kV)					11				
7	Maximum continuous line to line operating voltage (kV)					12				
8	Rated frequency (Hz)					50				
9	Color of Porcelain insulator					By Vendor				
10	Rated current of Fuse base (A)					100				
11	Rated current of Fuse link (A)					10				
12	Creepage distance (mm/kV)					31				
13	Minimum creepage distance of insulator (mm)					372				
14	Rated maximum braking current (kA)					16				
15	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
16	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
17	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
18	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
19	Fuse class					Full-range				
20	Operating pole					Required				
21	Mounting brackets and accessories					Required				
22	Provision for mounting of surge arrester					Required				
23	Weight of Fuse-base & Fuse link					By Vendor				
24	Dimension of Fuse-base					By Vendor				
25	Dimension of Fuse-link					By Vendor				
26	Pollution condition					Heavy				
27	Minimum data required on rating plate					On the fuse base: Manufacturer's name Manufacturer's type designation Rated insulation level Rated voltage Rated current On the fuse carrier: Manufacturer's name Rated voltage Rated current Rated breaking capacity and TRV class Rated frequency On the fuse links: Manufacturer's name Manufacturer's type designation Rated current and speed designation Rated voltage				
28	Routine Tests					Witness and Report according to IEC 60282-2				
29	Type Tests					Certified Report on the identical type according to IEC 60282-2				

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		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۱۰ از ۵۲
DATA SHEET FOR LIGHTNING ARRESTER (BK05)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					ZnO				
2	Applicable Standard					IEC60099-4, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal line to line voltage rating (kV)					11				
5	Maximum continuous line to line operating voltage (kV)					12				
6	Continuous Operating Voltage (Ucov)					9.6				
7	Rated frequency (Hz)					50				
8	Material of insulator					By vendor				
9	Earth fault factor					1.4				
10	Line discharge class per IEC 60099-4					2				
11	Minimum energy discharge capability (kJ/kV) U rated					Acc. To IEC				
12	Nominal discharge current with 8/20 microsecond wave (kA peak)					10				
13	Pressure relief class (kA)					20				
14	Creepage distance (mm/kV)					31				
15	Minimum creepage distance of insulator (mm)					372				
16	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
17	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
18	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
19	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
20	Whether surge counter required?					No				
21	Washable in service					Yes				
22	Temporary overvoltage factor (Ktov) at 1 Sec. at 10 Sec. at 100 Sec.					By vendor				
23	5kA, 8/20μs lightning impulse protective level					By vendor				
24	10kA, 8/20μs lightning impulse protective level (Ur 10kA, 8/20)					Residual voltage < 43.2kV				
25	20kA, 8/20μs lightning impulse protective level					By vendor				
26	125A, 30/60μs switching impulse protective level					By vendor				
27	Height of Surge Arrester					By vendor				
28	Diameter of Sheds					By vendor				
29	Total Weight of Surge Arrester					By vendor				
30	Type and Material of Terminal					By vendor				
31	Pollution condition					Heavy				
32	Minimum data required on rating plate					Manufacturer Manufacturer type designation Serial number Continuous operating voltage Rated voltage Rated frequency Nominal discharge current Pressure relief short time current Line discharge current Pollution degree Year of manufacture Relevant standard with date of issue				
33	Routine Tests a) Measurement of reference voltage Uref (Clause 8.1.a of IEC 60099-4) b) Residual voltage test (Clause 8.1.b of IEC 60099-4) c) Internal Partial Discharge test (Clause 8.1.c of IEC 60099-4); d) Leakage test for sealed housing arresters (Clause 8.1.d of IEC 60099-4) e) Design and visual checks acc. to purchase specifications					Witness and Report				
34	Type Tests					Certified Report on the identical type according to IEC 60099-4				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۱۱ از ۵۲
DATA SHEET FOR LOAD BREAK SWITCH (BK05)										
Item	DESCRIPTION						CHARACTERISTIC		Vendor data	
1	Manufacturer / Country						By vendor			
2	Standard						IEC 62271-103, IEC 60694, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions						Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Type						SF6			
5	Rated Voltage						11kV			
6	Rated Frequency						50Hz			
7	No. of Phases and Poles						3 Phase, 3 Pole			
8	1 minute power freq. withstand voltage To earth and between phases: Across isolating distance:						28kV 32kV			
9	Lightning impulse withstand voltage To earth and between phases: Across isolating distance:						60kV 75kV			
10	Rated Normal Current						630 A			
11	Mainly active load breaking current						By vendor (> 200A)			
12	Closed loop breaking current						By vendor			
13	Line charging breaking current						By vendor			
14	Cable charging breaking current						By vendor			
15	No load transformer breaking current						By vendor (> 0.74A)			
16	Rated Short Time Withstand Current						25kA, 3 Sec.			
17	Rated Peak Withstand Current						62.5kA			
18	Rated Short Circuit Making Current						62.5kA			
19	Number of breaking operation CO						By vendor			
20	Supporting Structure Material						Hot dipped galvanized steel			
21	Creepage distance (mm/kV)						31			
22	Min. Creepage Distance of insulators						372mm			
23	Ingress protection of el. Enclosures						Min. IP55			
24	Operating mechanism						Hand operated mechanism, common for three poles			
25	Permissible tensile force on terminals						By vendor			
26	Gas pressure indicator						Required			
27	Auxiliary Contacts: No. of Make Contacts No. of Break Contacts Rated Voltage Rated Current Breaking Current at 110V DC						By vendor: Min. 4 Min. 4 110V DC Min. 10A Min. 2A			
28	Anti-Condensation Heater						230V AC, 1Ph, 50Hz			
29	Interlocks with Earth Switch						Load Break Switch + Earth Switch integrated as one unit			
30	Dimensions and Weight						By vendor			
31	Pollution condition						Heavy			
32	Minimum data required on rating plate						Manufacturer Type designation and serial number Rated voltage One minute power frequency withstand voltage Lightning impulse withstand voltage Rated normal current Rated short time withstand current Mainly active load breaking current Closed loop breaking current Line charging breaking current Cable charging breaking current No load transformer breaking current Year of manufacture Relevant standard with date of issue			
33	Routine Tests a) Dielectric test on the main circuit (Clause 7.1 of IEC 60694) b) Tests on auxiliary and control circuits (Clause 7.2 of IEC 60694) c) Measurement of the resistance of the main circuit (Clause 7.3 of IEC60694) d) Tightness test (Clause 7.4 of IEC60694) e) Design and visual checks (Clause 7.5 of IEC60694) f) Mechanical tests as per clause 7.101 of IEC62271-100						Witness and Report			
34	Type Tests						Certified Report on the identical type according to IEC 62271-103			

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 		
	Data Sheets For 11 KV Over Head Line Equipment									
	شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۱۲ از ۵۲
DATA SHEET FOR TOWER (BK05)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Manufacturer / Country					By vendor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 440				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Type of Steel: Analysis of steel Carbon Manganese Sulphur Phosphorus Silicon					MILD High Strength ST 37(235JR) ST 52(355JR) 0.17 0.2 1.4 1.6 0.045 0.05 0.045 0.05 0.3 0.55				
5	Thickness of steel (1.6-3.2mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					65 65 460				
6	Thickness of steel (3.2-4.8mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					75 75 530				
7	Thickness of steel (4.8-6.4mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					85 85 600				
8	Strength in Tension Standard Designation					BS 8100 – Lattice Towers and Masts				
9	Strength in Tension (Ultimate tensile stress)					340-470 490-630				
10	Strength in Tension (Yield stress)					235 355				
11	Strength in Compression (Elongation)					24% 22%				
12	Strength in Compression (Min zinc coating)					85µ 85µ				
13	Bolts & Nuts Characteristics: Standard designation Steel material Property class Ultimate shearing stress (On bolt shank) Ultimate Bearing stress Min zinc coating					ANSI C 135-1 (Galvanized Steel Bolts and Nuts for Overhead Lines) Steel Steel 5.6 5.8 2100kg/cm2 2800kg/cm2 5400kg/cm2 6000kg/cm2 46µ 46µ				
14	Pollution condition					Heavy				
15	Routine tests & Type test					According to ASCE1090 Manual 52				




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 		
	Data Sheets For 11 KV Over Head Line Equipment									
	شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۳ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04		
DATA SHEET FOR PHASE CONDUCTOR (BK12)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Manufacture					By vendor				
2	Year of Manufacture					By vendor				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Conductor Name					HYENA				
5	Applicable standard					ASTM B232, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427				
6	Max allowable temperature of conductor (°c)					85				
7	Reted short circuit current for 0.5 Sec. (KA)					18.8				
8	Max. temperature range (operation)					75				
9	Temperature range for installation(°c)					-5 ~ +55				
10	Stranding and wire diameter (nos./mm):									
11	Aluminium					7/4.39				
12	Steel					7/1.93				
13	Overall diameter(mm)					14.57				
14	Aluminium Area (mm²)					106				
15	Steel area (mm²)					20.48				
16	Total area (mm²)					126.2				
17	Weight (kg/km):									
18	Aluminium					290				
19	Steel					160				
20	Total					450				
21	Nominal current in 30° (A)					441				
22	Ultimate tensile Strength (kg)					4090				
23	Coefficient of linear expansion (1 /C° x 10-6)					18.8				
24	Initial modulus of elasticity (kg/mm²)					6000				
25	Final modulus of elasticity (kg/mm²)					7450				
26	DC resistance at 20°C(Ω/km)					0.2713				
27	AC resistance at 25°C(Ω/km)					0.277				
28	AC resistance at 75°C(Ω/km)					0.3142				
29	Temperature range (transport / storage)					By vendor				
30	Pollution condition					Heavy				
31	Routine tests & Type test					Acc To IEC 61089				




 NISOC	تکمیل و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادرکننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۱۴ از ۵۲
DATA SHEET FOR SHIELD WIRE (BK12)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Code Name					7No.8 AWG			
5	Applicable standard					ASTM B416, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
8	Stranding and wire diameter (nos./mm):					7/3.26			
9	Overall diameter(mm)					9.78			
10	Total area (mm ²)					58.43			
11	Weight (kg/km):					390			
12	Ultimate tensile Strength (kg)					7226			
13	Coefficient of linear expansion (1 /C° x 10-6)					13			
14	Initial modulus of elasticity (kg/mm ²)					16000			
15	Final modulus of elasticity (kg/mm ²)					16000			
16	DC resistance at 20°C(Ω/km)					1.467			
17	Pollution condition					Heavy			
18	Routine tests & Type test					Acc To IEC 61089			




 NISOC		تکمیل و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادرکننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۱۵ از ۵۲
DATA SHEET FOR INSULATOR (BK12)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					BALL & SOCKET				
2	Applicable Standard					IEC60120, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 426				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Material					Porcelain				
5	Nominal line to line voltage rating (kV)					11				
6	Maximum continuous line to line operating voltage (kV)					12				
7	Rated frequency (Hz)					50				
8	Creepage distance (mm/kV)					31				
9	Minimum creepage distance of insulator (mm)					372				
10	Minimum mechanical Failing Load (kN)					70				
11	Socket coupling size (IEC60120)					16				
12	Ball coupling size (IEC60120)					16				
13	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
14	Rated lightning impulse withstand voltage across the isolating dist. of Fuse base (kVpeak)					75				
15	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
16	Rated one minute PF withstand voltage across the isolating dist. of Fuse base (kVrms)					32				
17	Power Frequency Puncture Voltage (kV)					110				
18	Metallic Part material					Malleable Cast Iron				
19	Insulator material					Brown Glazed Porcelain				
20	Metallic parts					Malleable cast iron				
21	Washable in service					Yes				
22	Unit Spacing (mm)					By vendor				
23	Disc Diameter (mm)					By vendor				
24	Total Weight					By vendor				
25	Type and Material of Terminal					By vendor				
26	Pollution condition					Heavy				
27	Routine tests & Type test					Acc To IEC 383				




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۶ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR FITTING SUSPENSION & TENSION SET (BK12)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					FORGED STEEL			
2	Applicable standard					IEC 61284, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 465			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material:					-			
5	Outer Part					AL.ALLOY			
6	Iner Part					FORGED STEEL, Hot Deep Galvanized.			
7	Jumper Plate					AL.ALLOY			
8	Terminal Jumper					AL.ALLOY			
9	Bolts & Nuts & Washers					STEEL, Hot Deep Galvanized.			
10	Split Pin					STAINLESS STEEL			
11	Min breaking strength					95% OF CONDUCTOR U.T.S			
12	Coupling Standard IEC					16 mmA			
13	Short Circuit Current					25kA/0.4Sec.			
14	Arcing Horn					STEEL			
15	Min breaking strength (KN)					80			
16	Anti-Climbing Devices and Safety Signs for Lines up to 400kV					ENA TS 43-90			
17	Tower Identification					Steel Sheet with 2mm Thickness			
18	Danger Alarm					Steel Sheet with 1.2mm Thickness			
19	Pollution condition					Heavy			
20	Routine tests & Type test					Acc To IEC 61284			




 NISOC	تکمیل داشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۱۷ از ۵۲
DATA SHEET FOR EARTHING SYSTEM (BK12)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	GROUND WIRE :								
2	Type					Copper Conductor			
3	Applicable standard					DIN 48201, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 409			
4	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
5	Stranding (No./mm)					7/2.5			
6	Total cross section (mm ²)					35			
7	Overall Diameter (mm)					7.5			
8	Unit Weight (kg/m)					0.31			
9	Calculated breaking load (kN)					13.77			
10	DC Resistance At 20°C (ohm/km)					0.5265			
11	TOWER BONDING CLAMP :								
12	Type of Body					Forged Steel			
13	Surface Coating					HOT DIP. GALV. Acc to ASTM A123 & A153 or BS729			
14	Type of Bolt & Nut					Steel			
15	Torgue on Bolt					20 NM			
16	Applicable standard					ST37 & DIN931,934,125,127			
17	Diameter of Wire catcher					Ø 8-13 mm			
18	Pollution condition					Heavy			
19	Routine tests & Type test					Acc To DIN 48201			


 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک						 		
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۸ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR DISCONNECTOR SWITCH (BK12)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Installation (indoor / outdoor)					Outdoor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal system voltage, 3phase					11 kV				
5	System voltage variation					± 10%				
6	Nominal frequency and frequency variation					50 ± 5%				
7	Numbers of poles and current rating					3pole / 630 A				
8	Short circuit amper and time duration					25 kA / 1 s				
9	Rated peak withstand current					62.5 kA				
10	Creepage distance (mm/kV)					31				
11	Minimum creepage distance of insulator (mm)					372				
12	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
13	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
14	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
15	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
16	Mode of operation OPEN/CLOSE					open-close manual and with earth blad and earth switch manual				
17	Disconnectors & Earthing switches Operating					Hand operating				
18	Accessories					with earth blad and earth switch manual				
19	Disconnector Mechanism					Center break				
20	Construction					Three pole operation Containing Earthing switch				
21	Ingress protection of electrical enclosures					Min. IP55 (If Needed)				
22	Disconnector status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC				
23	Earthing switch status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC				
24	Interlocks(Electrical & Mechanical)					To prevent closure of earth switch when Disconnector is not in open position To prevent closure of Disconnector when earth switch is not in open position				
25	Dimensions & weights					By Vendor				
26	Pollution condition					Heavy				
27	Minimum Rating plate data					Manufacturer Type designation and serial number Rated voltage Rated lightning impulse withstand voltage across open pole Rated lightning impulse withstand voltage between poles Rated power frequency withstand voltage across open pole Rated power frequency withstand voltage between poles Rated normal current Rated duration of short circuit Rated no load transformer breaking current Year of manufacture Relevant standard with date of issue				
28	Routine Tests: a) dielectric test on the main circuit (clause 7.1 of IEC60694) b) tests on auxiliary and control circuits (Clause 7.2 of IEC60694) c) measurement of the resistance of the main circuit (Clause 7.3 of IEC60694); d) tightness test (Clause 7.4 of IEC60694) e) Design and visual checks (Clause 7.5 of IEC60694) f) Mechanical tests as per clause 7.101 of IEC62271-102					Witness & Report				
29	Type Tests					Certified Reports of test on the identical type according to IEC62271-102 or IEC129				




 NISOC		تکداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک						 		
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان:		پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۹ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR CUT OUT FUSE (BK12)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Class					Outdoor				
2	Type					Channel Type				
3	Manufacturer of Fuse base & link					By Vendor				
4	Applicable Standard					IEC60282 , IEC60787, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
5	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
6	Nominal line to line voltage rating (kV)					11				
7	Maximum continuous line to line operating voltage (kV)					12				
8	Rated frequency (Hz)					50				
9	Color of Porcelain insulator					By Vendor				
10	Rated current of Fuse base (A)					100				
11	Rated current of Fuse link (A)					10				
12	Creepage distance (mm/kV)					31				
13	Minimum creepage distance of insulator (mm)					372				
14	Rated maximum braking current (kA)					16				
15	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
16	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
17	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
18	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
19	Fuse class					Full-range				
20	Operating pole					Required				
21	Mounting brackets and accessories					Required				
22	Provision for mounting of surge arrester					Required				
23	Weight of Fuse-base & Fuse link					By Vendor				
24	Dimension of Fuse-base					By Vendor				
25	Dimension of Fuse-link					By Vendor				
26	Pollution condition					Heavy				
27	Minimum data required on rating plate					On the fuse base: Manufacturer's name Manufacturer's type designation Rated insulation level Rated voltage Rated current On the fuse carrier: Manufacturer's name Rated voltage Rated current Rated breaking capacity and TRV class Rated frequency On the fuse links: Manufacturer's name Manufacturer's type designation Rated current and speed designation Rated voltage				
28	Routine Tests					Witness and Report according to IEC 60282-2				
29	Type Tests					Certified Report on the identical type according to IEC 60282-2				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۲۰ از ۵۲
DATA SHEET FOR LIGHTNING ARRESTER (BK12)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					ZnO				
2	Applicable Standard					IEC60099-4, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal line to line voltage rating (kV)					11				
5	Maximum continuous line to line operating voltage (kV)					12				
6	Continuous Operating Voltage (Ucov)					9.6				
7	Rated frequency (Hz)					50				
8	Material of insulator					By vendor				
9	Earth fault factor					1.4				
10	Line discharge class per IEC 60099-4					2				
11	Minimum energy discharge capability (kJ/kV) U rated					Acc. To IEC				
12	Nominal discharge current with 8/20 microsecond wave (kA peak)					10				
13	Pressure relief class (kA)					20				
14	Creepage distance (mm/kV)					31				
15	Minimum creepage distance of insulator (mm)					372				
16	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
17	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
18	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
19	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
20	Whether surge counter required?					No				
21	Washable in service					Yes				
22	Temporary overvoltage factor (Ktov) at 1 Sec. at 10 Sec. at 100 Sec.					By vendor				
23	5kA, 8/20μs lightning impulse protective level					By vendor				
24	10kA, 8/20μs lightning impulse protective level (Ur 10kA, 8/20)					Residual voltage < 43.2kV				
25	20kA, 8/20μs lightning impulse protective level					By vendor				
26	125A, 30/60μs switching impulse protective level					By vendor				
27	Height of Surge Arrester					By vendor				
28	Diameter of Sheds					By vendor				
29	Total Weight of Surge Arrester					By vendor				
30	Type and Material of Terminal					By vendor				
31	Pollution condition					Heavy				
32	Minimum data required on rating plate					Manufacturer Manufacturer type designation Serial number Continuous operating voltage Rated voltage Rated frequency Nominal discharge current Pressure relief short time current Line discharge current Pollution degree Year of manufacture Relevant standard with date of issue				
33	Routine Tests a) Measurement of reference voltage Uref (Clause 8.1.a of IEC 60099-4) b) Residual voltage test (Clause 8.1.b of IEC 60099-4) c) Internal Partial Discharge test (Clause 8.1.c of IEC 60099-4); d) Leakage test for sealed housing arresters (Clause 8.1.d of IEC 60099-4) e) Design and visual checks acc. to purchase specifications					Witness and Report				
34	Type Tests					Certified Report on the identical type according to IEC 60099-4				


 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۲۱ از ۵۲
DATA SHEET FOR LOAD BREAK SWITCH (BK12)										
Item	DESCRIPTION						CHARACTERISTIC		Vendor data	
1	Manufacturer / Country						By vendor			
2	Standard						IEC 62271-103, IEC 60694, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions						Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Type						SF6			
5	Rated Voltage						11kV			
6	Rated Frequency						50Hz			
7	No. of Phases and Poles						3 Phase, 3 Pole			
8	1 minute power freq. withstand voltage To earth and between phases: Across isolating distance:						28kV 32kV			
9	Lightning impulse withstand voltage To earth and between phases: Across isolating distance:						60kV 75kV			
10	Rated Normal Current						630 A			
11	Mainly active load breaking current						By vendor (> 200A)			
12	Closed loop breaking current						By vendor			
13	Line charging breaking current						By vendor			
14	Cable charging breaking current						By vendor			
15	No load transformer breaking current						By vendor (> 0.74A)			
16	Rated Short Time Withstand Current						25kA, 3 Sec.			
17	Rated Peak Withstand Current						62.5kA			
18	Rated Short Circuit Making Current						62.5kA			
19	Number of breaking operation CO						By vendor			
20	Supporting Structure Material						Hot dipped galvanized steel			
21	Creepage distance (mm/kV)						31			
22	Min. Creepage Distance of insulators						372mm			
23	Ingress protection of el. Enclosures						Min. IP55			
24	Operating mechanism						Hand operated mechanism, common for three poles			
25	Permissible tensile force on terminals						By vendor			
26	Gas pressure indicator						Required			
27	Auxiliary Contacts: No. of Make Contacts No. of Break Contacts Rated Voltage Rated Current Breaking Current at 110V DC						By vendor: Min. 4 Min. 4 110V DC Min. 10A Min. 2A			
28	Anti-Condensation Heater						230V AC, 1Ph, 50Hz			
29	Interlocks with Earth Switch						Load Break Switch + Earth Switch integrated as one unit			
30	Dimensions and Weight						By vendor			
31	Pollution condition						Heavy			
32	Minimum data required on rating plate						Manufacturer Type designation and serial number Rated voltage One minute power frequency withstand voltage Lightning impulse withstand voltage Rated normal current Rated short time withstand current Mainly active load breaking current Closed loop breaking current Line charging breaking current Cable charging breaking current No load transformer breaking current Year of manufacture Relevant standard with date of issue			
33	Routine Tests a) Dielectric test on the main circuit (Clause 7.1 of IEC 60694) b) Tests on auxiliary and control circuits (Clause 7.2 of IEC 60694) c) Measurement of the resistance of the main circuit (Clause 7.3 of IEC 60694) d) Tightness test (Clause 7.4 of IEC 60694) e) Design and visual checks (Clause 7.5 of IEC 60694) f) Mechanical tests as per clause 7.101 of IEC 62271-100						Witness and Report			
34	Type Tests						Certified Report on the identical type according to IEC 62271-103			

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۲ از ۲۲
DATA SHEET FOR TOWER (BK12)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Manufacturer / Country					By vendor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 440				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Type of Steel: Analysis of steel Carbon Manganese Sulphur Phosphorus Silicon					MILD High Strength ST 37(235JR) ST 52(355JR) 0.17 0.2 1.4 1.6 0.045 0.05 0.045 0.05 0.3 0.55				
5	Thickness of steel (1.6-3.2mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m² * Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m²=µm*7.067					65 65 460				
6	Thickness of steel (3.2-4.8mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m² * Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m²=µm*7.067					75 75 530				
7	Thickness of steel (4.8-6.4mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m² * Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m²=µm*7.067					85 85 600				
8	Strength in Tension Standard Designation					BS 8100 – Lattice Towers and Masts				
9	Strength in Tension (Ultimate tensile stress)					340-470 490-630				
10	Strength in Tension (Yield stress)					235 355				
11	Strength in Compression (Elongation)					24% 22%				
12	Strength in Compression (Min zinc coating)					85µ 85µ				
13	Bolts & Nuts Characteristics: Standard designation Steel material Property class Ultimate shearing stress (On bolt shank) Ultimate Bearing stress Min zinc coating					ANSI C 135-1 (Galvanized Steel Bolts and Nuts for Overhead Lines) Steel Steel 5.6 5.8 2100kg/cm² 2800kg/cm² 5400kg/cm² 6000kg/cm² 46µ 46µ				
14	Pollution condition					Heavy				
15	Routine tests & Type test					According to ASCE1090 Manual 52				




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 		
	Data Sheets For 11 KV Over Head Line Equipment									
	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۲۳ از ۵۲
۰۵۳-۰۷۳-۹۱۸۴	BK	SSGRL	PEDCO	110	EL	DT	0012	D04		
DATA SHEET FOR PHASE CONDUCTOR (BK15)										
Item	DESCRIPTION					CHARACTERISTIC		Vendor data		
1	Manufacture					By vendor				
2	Year of Manufacture					By vendor				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Conductor Name					HYENA				
5	Applicable standard					ASTM B232, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427				
6	Max allowable temperature of conductor (°c)					85				
7	Reted short circuit current for 0.5 Sec. (KA)					18.8				
8	Max. temperature range (operation)					75				
9	Temperature range for installation(°c)					-5 ~ +55				
10	Stranding and wire diameter (nos./mm):									
11	Aluminium					7/4.39				
12	Steel					7/1.93				
13	Overall diameter(mm)					14.57				
14	Aluminium Area (mm²)					106				
15	Steel area (mm²)					20.48				
16	Total area (mm²)					126.2				
17	Weight (kg/km):									
18	Aluminium					290				
19	Steel					160				
20	Total					450				
21	Nominal current in 30° (A)					441				
22	Ultimate tensile Strength (kg)					4090				
23	Coefficient of linear expansion (1 /C° x 10-6)					18.8				
24	Initial modulus of elasticity (kg/mm²)					6000				
25	Final modulus of elasticity (kg/mm²)					7450				
26	DC resistance at 20°C(Ω/km)					0.2713				
27	AC resistance at 25°C(Ω/km)					0.277				
28	AC resistance at 75°C(Ω/km)					0.3142				
29	Temperature range (transport / storage)					By vendor				
30	Pollution condition					Heavy				
31	Routine tests & Type test					Acc To IEC 61089				




 NISOC	تجهیزات و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۵۲ از ۲۴
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR SHIELD WIRE (BK15)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Code Name					7No.8 AWG			
5	Applicable standard					ASTM B416, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
8	Stranding and wire diameter (nos./mm):					7/3.26			
9	Overall diameter(mm)					9.78			
10	Total area (mm ²)					58.43			
11	Weight (kg/km):					390			
12	Ultimate tensile Strength (kg)					7226			
13	Coefficient of linear expansion (1 /C° x 10-6)					13			
14	Initial modulus of elasticity (kg/mm ²)					16000			
15	Final modulus of elasticity (kg/mm ²)					16000			
16	DC resistance at 20°C(Ω/km)					s			
17	Pollution condition					Heavy			
18	Routine tests & Type test					Acc To IEC 61089			




 NISOC		تکمیل و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۲۵ از ۵۲
DATA SHEET FOR INSULATOR (BK15)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					BALL & SOCKET				
2	Applicable Standard					IEC60120, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 426				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Material					Porcelain				
5	Nominal line to line voltage rating (kV)					11				
6	Maximum continuous line to line operating voltage (kV)					12				
7	Rated frequency (Hz)					50				
8	Creepage distance (mm/kV)					31				
9	Minimum creepage distance of insulator (mm)					372				
10	Minimum mechanical Failing Load (kN)					70				
11	Socket coupling size (IEC60120)					16				
12	Ball coupling size (IEC60120)					16				
13	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
14	Rated lightning impulse withstand voltage across the isolating dist. of Fuse base (kVpeak)					75				
15	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
16	Rated one minute PF withstand voltage across the isolating dist. of Fuse base (kVrms)					32				
17	Power Frequency Puncture Voltage (kV)					110				
18	Metallic Part material					Malleable Cast Iron				
19	Insulator material					Brown Glazed Porcelain				
20	Metallic parts					Malleable cast iron				
21	Washable in service					Yes				
22	Unit Spacing (mm)					By vendor				
23	Disc Diameter (mm)					By vendor				
24	Total Weight					By vendor				
25	Type and Material of Terminal					By vendor				
26	Pollution condition					Heavy				
27	Routine tests & Type test					Acc To IEC 383				




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادرکننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۲۶ از ۵۲
DATA SHEET FOR FITTING SUSPENSION & TENSION SET (BK15)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					FORGED STEEL			
2	Applicable standard					IEC 61284, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 465			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material:					-			
5	Outer Part					AL.ALLOY			
6	Iner Part					FORGED STEEL, Hot Deep Galvanized.			
7	Jumper Plate					AL.ALLOY			
8	Terminal Jumper					AL.ALLOY			
9	Bolts & Nuts & Washers					STEEL, Hot Deep Galvanized.			
10	Split Pin					STAINLESS STEEL			
11	Min breaking strength					95% OF CONDUCTOR U.T.S			
12	Coupling Standard IEC					16 mmA			
13	Short Circuit Current					25kA/0.4Sec.			
14	Arcing Horn					STEEL			
15	Min breaking strength (KN)					80			
16	Anti-Climbing Devices and Safety Signs for Lines up to 400kV					ENA TS 43-90			
17	Tower Identification					Steel Sheet with 2mm Thickness			
18	Danger Alarm					Steel Sheet with 1.2mm Thickness			
19	Pollution condition					Heavy			
20	Routine tests & Type test					Acc To IEC 61284			




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	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۲۷ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR EARTHING SYSTEM (BK15)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	GROUND WIRE :								
2	Type					Copper Conductor			
3	Applicable standard					DIN 48201, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 409			
4	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
5	Stranding (No./mm)					7/2.5			
6	Total cross section (mm2)					35			
7	Overall Diameter (mm)					7.5			
8	Unit Weight (kg/m)					0.31			
9	Calculated breaking load (kN)					13.77			
10	DC Resistance At 20°C (ohm/km)					0.5265			
11	TOWER BONDING CLAMP :								
12	Type of Body					Forged Steel			
13	Surface Coating					HOT DIP. GALV. Acc to ASTM A123 & A153 or BS729			
14	Type of Bolt & Nut					Steel			
15	Torgue on Bolt					20 NM			
16	Applicable standard					ST37 & DIN931,934,125,127			
17	Diameter of Wire catcher					Ø 8-13 mm			
18	Pollution condition					Heavy			
19	Routine tests & Type test					Acc To DIN 48201			

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		فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض							
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		عمومی و مشترک						شماره صفحه: ۲۸ از ۵۲	
		Data Sheets For 11 KV Over Head Line Equipment							
		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04
DATA SHEET FOR DISCONNECTOR SWITCH (BK15)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Installation (indoor / outdoor)					Outdoor			
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Nominal system voltage, 3phase					11 kV			
5	System voltage variation					± 10%			
6	Nominal frequency and frequency variation					50 ± 5%			
7	Numbers of poles and current rating					3pole / 630 A			
8	Short circuit amper and time duration					25 kA / 1 s			
9	Rated peak withstand current					62.5 kA			
10	Creepage distance (mm/kV)					31			
11	Minimum creepage distance of insulator (mm)					372			
12	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60			
13	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75			
14	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28			
15	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32			
16	Mode of operation OPEN/CLOSE					open-close manual and with earth blad and earth switch manual			
17	Disconnectors & Earthing switches Operating					Hand operating			
18	Accessories					with earth blad and earth switch manual			
19	Disconnector Mechanism					Center break			
20	Construction					Three pole operation Containing Earthing switch			
21	Ingress protection of electrical enclosures					Min. IP55 (If Needed)			
22	Disconnector status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC			
23	Earthing switch status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC			
24	Interlocks(Electrical & Mechanical)					To prevent closure of earth switch when Disconnector is not in open position To prevent closure of Disconnector when earth switch is not in open position			
25	Dimensions & weights					By Vendor			
26	Pollution condition					Heavy			
27	Minimum Rating plate data					Manufacturer Type designation and serial number Rated voltage Rated lightning impulse withstand voltage across open pole Rated lightning impulse withstand voltage between poles Rated power frequency withstand voltage across open pole Rated power frequency withstand voltage between poles Rated normal current Rated duration of short circuit Rated no load transformer breaking current Year of manufacture Relevant standard with date of issue			
28	Routine Tests: a) dielectric test on the main circuit (clause 7.1 of IEC60694) b) tests on auxiliary and control circuits (Clause 7.2 of IEC60694) c) measurement of the resistance of the main circuit (Clause 7.3 of IEC60694); d) tightness test (Clause 7.4 of IEC60694) e) Design and visual checks (Clause 7.5 of IEC60694) f) Mechanical tests as per clause 7.101 of IEC62271-102					Witness & Report			
29	Type Tests					Certified Reports of test on the identical type according to IEC62271-102 or IEC129			




 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک						 		
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان:		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۲۹ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR CUT OUT FUSE (BK15)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Class					Outdoor				
2	Type					Channel Type				
3	Manufacturer of Fuse base & link					By Vendor				
4	Applicable Standard					IEC60282 , IEC60787, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
5	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
6	Nominal line to line voltage rating (kV)					11				
7	Maximum continuous line to line operating voltage (kV)					12				
8	Rated frequency (Hz)					50				
9	Color of Porcelain insulator					By Vendor				
10	Rated current of Fuse base (A)					100				
11	Rated current of Fuse link (A)					10				
12	Creepage distance (mm/kV)					31				
13	Minimum creepage distance of insulator (mm)					372				
14	Rated maximum braking current (kA)					16				
15	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
16	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
17	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
18	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
19	Fuse class					Full-range				
20	Operating pole					Required				
21	Mounting brackets and accessories					Required				
22	Provision for mounting of surge arrester					Required				
23	Weight of Fuse-base & Fuse link					By Vendor				
24	Dimension of Fuse-base					By Vendor				
25	Dimension of Fuse-link					By Vendor				
26	Pollution condition					Heavy				
27	Minimum data required on rating plate					On the fuse base: Manufacturer's name Manufacturer's type designation Rated insulation level Rated voltage Rated current On the fuse carrier: Manufacturer's name Rated voltage Rated current Rated breaking capacity and TRV class Rated frequency On the fuse links: Manufacturer's name Manufacturer's type designation Rated current and speed designation Rated voltage				
28	Routine Tests					Witness and Report according to IEC 60282-2				
29	Type Tests					Certified Report on the identical type according to IEC 60282-2				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۳۰ از ۵۲
DATA SHEET FOR LIGHTNING ARRESTER (BK15)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					ZnO				
2	Applicable Standard					IEC60099-4, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal line to line voltage rating (kV)					11				
5	Maximum continuous line to line operating voltage (kV)					12				
6	Continuous Operating Voltage (Ucov)					9.6				
7	Rated frequency (Hz)					50				
8	Material of insulator					By vendor				
9	Earth fault factor					1.4				
10	Line discharge class per IEC 60099-4					2				
11	Minimum energy discharge capability (kJ/kV) U rated					Acc. To IEC				
12	Nominal discharge current with 8/20 microsecond wave (kA peak)					10				
13	Pressure relief class (kA)					20				
14	Creepage distance (mm/kV)					31				
15	Minimum creepage distance of insulator (mm)					372				
16	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
17	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base (kV peak)					75				
18	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
19	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
20	Whether surge counter required?					No				
21	Washable in service					Yes				
22	Temporary overvoltage factor (Ktov) at 1 Sec. at 10 Sec. at 100 Sec.					By vendor				
23	5kA, 8/20μs lightning impulse protective level					By vendor				
24	10kA, 8/20μs lightning impulse protective level (Ur 10kA, 8/20)					Residual voltage < 43.2kV				
25	20kA, 8/20μs lightning impulse protective level					By vendor				
26	125A, 30/60μs switching impulse protective level					By vendor				
27	Height of Surge Arrester					By vendor				
28	Diameter of Sheds					By vendor				
29	Total Weight of Surge Arrester					By vendor				
30	Type and Material of Terminal					By vendor				
31	Pollution condition					Heavy				
32	Minimum data required on rating plate					Manufacturer Manufacturer type designation Serial number Continuous operating voltage Rated voltage Rated frequency Nominal discharge current Pressure relief short time current Line discharge current Pollution degree Year of manufacture Relevant standard with date of issue				
33	Routine Tests a) Measurement of reference voltage Uref (Clause 8.1.a of IEC 60099-4) b) Residual voltage test (Clause 8.1.b of IEC 60099-4) c) Internal Partial Discharge test (Clause 8.1.c of IEC 60099-4); d) Leakage test for sealed housing arresters (Clause 8.1.d of IEC 60099-4) e) Design and visual checks acc. to purchase specifications					Witness and Report				
34	Type Tests					Certified Report on the identical type according to IEC 60099-4				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۳۱ از ۵۲
DATA SHEET FOR LOAD BREAK SWITCH (BK15)										
Item	DESCRIPTION						CHARACTERISTIC		Vendor data	
1	Manufacturer / Country						By vendor			
2	Standard						IEC 62271-103, IEC 60694, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions						Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Type						SF6			
5	Rated Voltage						11kV			
6	Rated Frequency						50Hz			
7	No. of Phases and Poles						3 Phase, 3 Pole			
8	1 minute power freq. withstand voltage To earth and between phases: Across isolating distance:						28kV 32kV			
9	Lightning impulse withstand voltage To earth and between phases: Across isolating distance:						60kV 75kV			
10	Rated Normal Current						630 A			
11	Mainly active load breaking current						By vendor (> 200A)			
12	Closed loop breaking current						By vendor			
13	Line charging breaking current						By vendor			
14	Cable charging breaking current						By vendor			
15	No load transformer breaking current						By vendor (> 0.74A)			
16	Rated Short Time Withstand Current						25kA, 3 Sec.			
17	Rated Peak Withstand Current						62.5kA			
18	Rated Short Circuit Making Current						62.5kA			
19	Number of breaking operation CO						By vendor			
20	Supporting Structure Material						Hot dipped galvanized steel			
21	Creepage distance (mm/kV)						31			
22	Min. Creepage Distance of insulators						372mm			
23	Ingress protection of el. Enclosures						Min. IP55			
24	Operating mechanism						Hand operated mechanism, common for three poles			
25	Permissible tensile force on terminals						By vendor			
26	Gas pressure indicator						Required			
27	Auxiliary Contacts: No. of Make Contacts No. of Break Contacts Rated Voltage Rated Current Breaking Current at 110V DC						By vendor: Min. 4 Min. 4 110V DC Min. 10A Min. 2A			
28	Anti-Condensation Heater						230V AC, 1Ph, 50Hz			
29	Interlocks with Earth Switch						Load Break Switch + Earth Switch integrated as one unit			
30	Dimensions and Weight						By vendor			
31	Pollution condition						Heavy			
32	Minimum data required on rating plate						Manufacturer Type designation and serial number Rated voltage One minute power frequency withstand voltage Lightning impulse withstand voltage Rated normal current Rated short time withstand current Mainly active load breaking current Closed loop breaking current Line charging breaking current Cable charging breaking current No load transformer breaking current Year of manufacture Relevant standard with date of issue			
33	Routine Tests a) Dielectric test on the main circuit (Clause 7.1 of IEC 60694) b) Tests on auxiliary and control circuits (Clause 7.2 of IEC 60694) c) Measurement of the resistance of the main circuit (Clause 7.3 of IEC 60694) d) Tightness test (Clause 7.4 of IEC 60694) e) Design and visual checks (Clause 7.5 of IEC 60694) f) Mechanical tests as per clause 7.101 of IEC 62271-100						Witness and Report			
34	Type Tests						Certified Report on the identical type according to IEC 62271-103			

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	Data Sheets For 11 KV Over Head Line Equipment									
	شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۲ از ۳۲
DATA SHEET FOR TOWER (BK15)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Manufacturer / Country					By vendor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 440				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Type of Steel: Analysis of steel Carbon Manganese Sulphur Phosphorus Silicon					MILD High Strength ST 37(235JR) ST 52(355JR) 0.17 0.2 1.4 1.6 0.045 0.05 0.045 0.05 0.3 0.55				
5	Thickness of steel (1.6-3.2mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					65 65 460				
6	Thickness of steel (3.2-4.8mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					75 75 530				
7	Thickness of steel (4.8-6.4mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					85 85 600				
8	Strength in Tension Standard Designation					BS 8100 – Lattice Towers and Masts				
9	Strength in Tension (Ultimate tensile stress)					340-470 490-630				
10	Strength in Tension (Yield stress)					235 355				
11	Strength in Compression (Elongation)					24% 22%				
12	Strength in Compression (Min zinc coating)					85µ 85µ				
13	Bolts & Nuts Characteristics: Standard designation Steel material Property class Ultimate shearing stress (On bolt shank) Ultimate Bearing stress Min zinc coating					ANSI C 135-1 (Galvanized Steel Bolts and Nuts for Overhead Lines) Steel Steel 5.6 5.8 2100kg/cm2 2800kg/cm2 5400kg/cm2 6000kg/cm2 46µ 46µ				
14	Pollution condition					Heavy				
15	Routine tests & Type test					According to ASCE1090 Manual 52				




 NISOC		تجهادهاست و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک						 	
		Data Sheets For 11 KV Over Head Line Equipment							
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04
شماره صفحه: ۵۲ از ۳۳									
DATA SHEET FOR PHASE CONDUCTOR (W007S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Conductor Name					HYENA			
5	Applicable standard					ASTM B232, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
6	Max allowable temperature of conductor (°c)					85			
7	Reted short circuit current for 0.5 Sec. (KA)					18.8			
8	Max. temperature range (operation)					75			
9	Temperature range for installation(°c)					-5 ~ +55			
10	Stranding and wire diameter (nos./mm):								
11	Aluminium					7/4.39			
12	Steel					7/1.93			
13	Overall diameter(mm)					14.57			
14	Aluminium Area (mm ²)					106			
15	Steel area (mm ²)					20.48			
16	Total area (mm ²)					126.2			
17	Weight (kg/km):								
18	Aluminium					290			
19	Steel					160			
20	Total					450			
21	Nominal current in 30° (A)					441			
22	Ultimate tensile Strength (kg)					4090			
23	Coefficient of linear expansion (1 /C° x 10-6)					18.8			
24	Initial modulus of elasticity (kg/mm ²)					6000			
25	Final modulus of elasticity (kg/mm ²)					7450			
26	DC resistance at 20°C(Ω/km)					0.2713			
27	AC resistance at 25°C(Ω/km)					0.277			
28	AC resistance at 75°C(Ω/km)					0.3142			
29	Temperature range (transport / storage)					By vendor			
30	Pollution condition					Heavy			
31	Routine tests & Type test					Acc To IEC 61089			




 NISOC	تکهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادرکننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۳۴ از ۵۲
DATA SHEET FOR SHIELD WIRE (W007S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Code Name					7No.8 AWG			
5	Applicable standard					ASTM B416, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
8	Stranding and wire diameter (nos./mm):					7/3.26			
9	Overall diameter(mm)					9.78			
10	Total area (mm ²)					58.43			
11	Weight (kg/km):					390			
12	Ultimate tensile Strength (kg)					7226			
13	Coefficient of linear expansion (1 /C° x 10-6)					13			
14	Initial modulus of elasticity (kg/mm ²)					16000			
15	Final modulus of elasticity (kg/mm ²)					16000			
16	DC resistance at 20°C(Ω/km)					1.467			
17	Pollution condition					Heavy			
18	Routine tests & Type test					Acc To IEC 61089			




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۲ از ۳۵
DATA SHEET FOR INSULATOR (W007S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					BALL & SOCKET			
2	Applicable Standard					IEC60120, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 426			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material					Porcelain			
5	Nominal line to line voltage rating (kV)					11			
6	Maximum continuous line to line operating voltage (kV)					12			
7	Rated frequency (Hz)					50			
8	Creepage distance (mm/kV)					31			
9	Minimum creepage distance of insulator (mm)					372			
10	Minimum mechanical Failing Load (kN)					70			
11	Socket coupling size (IEC60120)					16			
12	Ball coupling size (IEC60120)					16			
13	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60			
14	Rated lightning impulse withstand voltage across the isolating dist. of Fuse base (kVpeak)					75			
15	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28			
16	Rated one minute PF withstand voltage across the isolating dist. of Fuse base (kVrms)					32			
17	Power Frequency Puncture Voltage (kV)					110			
18	Metallic Part material					Malleable Cast Iron			
19	Insulator material					Brown Glazed Porcelain			
20	Metallic parts					Malleable cast iron			
21	Washable in service					Yes			
22	Unit Spacing (mm)					By vendor			
23	Disc Diameter (mm)					By vendor			
24	Total Weight					By vendor			
25	Type and Material of Terminal					By vendor			
26	Pollution condition					Heavy			
27	Routine tests & Type test					Acc To IEC 383			




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۳۶ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR FITTING SUSPENSION & TENSION SET (W007S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					FORGED STEEL			
2	Applicable standard					IEC 61284, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 465			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material:					-			
5	Outer Part					AL.ALLOY			
6	Iner Part					FORGED STEEL, Hot Deep Galvanized.			
7	Jumper Plate					AL.ALLOY			
8	Terminal Jumper					AL.ALLOY			
9	Bolts & Nuts & Washers					STEEL, Hot Deep Galvanized.			
10	Split Pin					STAINLESS STEEL			
11	Min breaking strength					95% OF CONDUCTOR U.T.S			
12	Coupling Standard IEC					16 mmA			
13	Short Circuit Current					25kA/0.4Sec.			
14	Arcing Horn					STEEL			
15	Min breaking strength (KN)					80			
16	Anti-Climbing Devices and Safety Signs for Lines up to 400kV					ENA TS 43-90			
17	Tower Identification					Steel Sheet with 2mm Thickness			
18	Danger Alarm					Steel Sheet with 1.2mm Thickness			
19	Pollution condition					Heavy			
20	Routine tests & Type test					Acc To IEC 61284			




 NISOC	تجهیزات و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۳۷ از ۵۲
DATA SHEET FOR EARTHING SYSTEM (W007S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	GROUND WIRE :								
2	Type					Copper Conductor			
3	Applicable standard					DIN 48201, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 409			
4	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
5	Stranding (No./mm)					7/2.5			
6	Total cross section (mm ²)					35			
7	Overall Diameter (mm)					7.5			
8	Unit Weight (kg/m)					0.31			
9	Calculated breaking load (kN)					13.77			
10	DC Resistance At 20°C (ohm/km)					0.5265			
11	TOWER BONDING CLAMP :								
12	Type of Body					Forged Steel			
13	Surface Coating					HOT DIP. GALV. Acc to ASTM A123 & A153 or BS729			
14	Type of Bolt & Nut					Steel			
15	Torgue on Bolt					20 NM			
16	Applicable standard					ST37 & DIN931,934,125,127			
17	Diameter of Wire catcher					Ø 8-13 mm			
18	Pollution condition					Heavy			
19	Routine tests & Type test					Acc To DIN 48201			


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		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۳۸ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR DISCONNECTOR SWITCH (W007S)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Installation (indoor / outdoor)					Outdoor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal system voltage, 3phase					11 kV				
5	System voltage variation					± 10%				
6	Nominal frequency and frequency variation					50 ± 5%				
7	Numbers of poles and current rating					3pole / 630 A				
8	Short circuit amper and time duration					25 kA / 1 s				
9	Rated peak withstand current					62.5 kA				
10	Creepage distance (mm/kV)					31				
11	Minimum creepage distance of insulator (mm)					372				
12	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
13	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
14	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
15	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
16	Mode of operation OPEN/CLOSE					open-close manual and with earth blad and earth switch manual				
17	Disconnectors & Earthing switches Operating					Hand operating				
18	Accessories					with earth blad and earth switch manual				
19	Disconnector Mechanism					Center break				
20	Construction					Three pole operation Containing Earthing switch				
21	Ingress protection of electrical enclosures					Min. IP55 (If Needed)				
22	Disconnector status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC				
23	Earthing switch status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC				
24	Interlocks(Electrical & Mechanical)					To prevent closure of earth switch when Disconnector is not in open position To prevent closure of Disconnector when earth switch is not in open position				
25	Dimensions & weights					By Vendor				
26	Pollution condition					Heavy				
27	Minimum Rating plate data					Manufacturer Type designation and serial number Rated voltage Rated lightning impulse withstand voltage across open pole Rated lightning impulse withstand voltage between poles Rated power frequency withstand voltage across open pole Rated power frequency withstand voltage between poles Rated normal current Rated duration of short circuit Rated no load transformer breaking current Year of manufacture Relevant standard with date of issue				
28	Routine Tests: a) dielectric test on the main circuit (clause 7.1 of IEC60694) b) tests on auxiliary and control circuits (Clause 7.2 of IEC60694) c) measurement of the resistance of the main circuit (Clause 7.3 of IEC60694); d) tightness test (Clause 7.4 of IEC60694) e) Design and visual checks (Clause 7.5 of IEC60694) f) Mechanical tests as per clause 7.101 of IEC62271-102					Witness & Report				
29	Type Tests					Certified Reports of test on the identical type according to IEC62271-102 or IEC129				




 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک						 		
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان:		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۳۹ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR CUT OUT FUSE (W007S)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Class					Outdoor				
2	Type					Channel Type				
3	Manufacturer of Fuse base & link					By Vendor				
4	Applicable Standard					IEC60282 , IEC60787, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
5	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
6	Nominal line to line voltage rating (kV)					11				
7	Maximum continuous line to line operating voltage (kV)					12				
8	Rated frequency (Hz)					50				
9	Color of Porcelain insulator					By Vendor				
10	Rated current of Fuse base (A)					100				
11	Rated current of Fuse link (A)					10				
12	Creepage distance (mm/kV)					31				
13	Minimum creepage distance of insulator (mm)					372				
14	Rated maximum braking current (kA)					16				
15	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
16	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
17	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
18	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
19	Fuse class					Full-range				
20	Operating pole					Required				
21	Mounting brackets and accessories					Required				
22	Provision for mounting of surge arrester					Required				
23	Weight of Fuse-base & Fuse link					By Vendor				
24	Dimension of Fuse-base					By Vendor				
25	Dimension of Fuse-link					By Vendor				
26	Pollution condition					Heavy				
27	Minimum data required on rating plate					On the fuse base: Manufacturer's name Manufacturer's type designation Rated insulation level Rated voltage Rated current On the fuse carrier: Manufacturer's name Rated voltage Rated current Rated breaking capacity and TRV class Rated frequency On the fuse links: Manufacturer's name Manufacturer's type designation Rated current and speed designation Rated voltage				
28	Routine Tests					Witness and Report according to IEC 60282-2				
29	Type Tests					Certified Report on the identical type according to IEC 60282-2				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۴۰ از ۵۲
DATA SHEET FOR LIGHTNING ARRESTER (W007S)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					ZnO				
2	Applicable Standard					IEC60099-4, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal line to line voltage rating (kV)					11				
5	Maximum continuous line to line operating voltage (kV)					12				
6	Continuous Operating Voltage (Ucov)					9.6				
7	Rated frequency (Hz)					50				
8	Material of insulator					By vendor				
9	Earth fault factor					1.4				
10	Line discharge class per IEC 60099-4					2				
11	Minimum energy discharge capability (kJ/kV) U rated					Acc. To IEC				
12	Nominal discharge current with 8/20 microsecond wave (kA peak)					10				
13	Pressure relief class (kA)					20				
14	Creepage distance (mm/kV)					31				
15	Minimum creepage distance of insulator (mm)					372				
16	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
17	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base (kV peak)					75				
18	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
19	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
20	Whether surge counter required?					No				
21	Washable in service					Yes				
22	Temporary overvoltage factor (Ktov) at 1 Sec. at 10 Sec. at 100 Sec.					By vendor				
23	5kA, 8/20μs lightning impulse protective level					By vendor				
24	10kA, 8/20μs lightning impulse protective level (Ur 10kA, 8/20)					Residual voltage < 43.2kV				
25	20kA, 8/20μs lightning impulse protective level					By vendor				
26	125A, 30/60μs switching impulse protective level					By vendor				
27	Height of Surge Arrester					By vendor				
28	Diameter of Sheds					By vendor				
29	Total Weight of Surge Arrester					By vendor				
30	Type and Material of Terminal					By vendor				
31	Pollution condition					Heavy				
32	Minimum data required on rating plate					Manufacturer Manufacturer type designation Serial number Continuous operating voltage Rated voltage Rated frequency Nominal discharge current Pressure relief short time current Line discharge current Pollution degree Year of manufacture Relevant standard with date of issue				
33	Routine Tests a) Measurement of reference voltage Uref (Clause 8.1.a of IEC 60099-4) b) Residual voltage test (Clause 8.1.b of IEC 60099-4) c) Internal Partial Discharge test (Clause 8.1.c of IEC 60099-4); d) Leakage test for sealed housing arresters (Clause 8.1.d of IEC 60099-4) e) Design and visual checks acc. to purchase specifications					Witness and Report				
34	Type Tests					Certified Report on the identical type according to IEC 60099-4				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۴۱ از ۵۲
DATA SHEET FOR LOAD BREAK SWITCH (W007S)										
Item	DESCRIPTION						CHARACTERISTIC		Vendor data	
1	Manufacturer / Country						By vendor			
2	Standard						IEC 62271-103, IEC 60694, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions						Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Type						SF6			
5	Rated Voltage						11kV			
6	Rated Frequency						50Hz			
7	No. of Phases and Poles						3 Phase, 3 Pole			
8	1 minute power freq. withstand voltage To earth and between phases: Across isolating distance:						28kV 32kV			
9	Lightning impulse withstand voltage To earth and between phases: Across isolating distance:						60kV 75kV			
10	Rated Normal Current						630 A			
11	Mainly active load breaking current						By vendor (> 200A)			
12	Closed loop breaking current						By vendor			
13	Line charging breaking current						By vendor			
14	Cable charging breaking current						By vendor			
15	No load transformer breaking current						By vendor (> 0.74A)			
16	Rated Short Time Withstand Current						25kA, 3 Sec.			
17	Rated Peak Withstand Current						62.5kA			
18	Rated Short Circuit Making Current						62.5kA			
19	Number of breaking operation CO						By vendor			
20	Supporting Structure Material						Hot dipped galvanized steel			
21	Creepage distance (mm/kV)						31			
22	Min. Creepage Distance of insulators						372mm			
23	Ingress protection of el. Enclosures						Min. IP55			
24	Operating mechanism						Hand operated mechanism, common for three poles			
25	Permissible tensile force on terminals						By vendor			
26	Gas pressure indicator						Required			
27	Auxiliary Contacts: No. of Make Contacts No. of Break Contacts Rated Voltage Rated Current Breaking Current at 110V DC						By vendor: Min. 4 Min. 4 110V DC Min. 10A Min. 2A			
28	Anti-Condensation Heater						230V AC, 1Ph, 50Hz			
29	Interlocks with Earth Switch						Load Break Switch + Earth Switch integrated as one unit			
30	Dimensions and Weight						By vendor			
31	Pollution condition						Heavy			
32	Minimum data required on rating plate						Manufacturer Type designation and serial number Rated voltage One minute power frequency withstand voltage Lightning impulse withstand voltage Rated normal current Rated short time withstand current Mainly active load breaking current Closed loop breaking current Line charging breaking current Cable charging breaking current No load transformer breaking current Year of manufacture Relevant standard with date of issue			
33	Routine Tests a) Dielectric test on the main circuit (Clause 7.1 of IEC 60694) b) Tests on auxiliary and control circuits (Clause 7.2 of IEC 60694) c) Measurement of the resistance of the main circuit (Clause 7.3 of IEC 60694) d) Tightness test (Clause 7.4 of IEC 60694) e) Design and visual checks (Clause 7.5 of IEC 60694) f) Mechanical tests as per clause 7.101 of IEC 62271-100						Witness and Report			
34	Type Tests						Certified Report on the identical type according to IEC 62271-103			

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۴۲ از ۵۲
DATA SHEET FOR TOWER (W007S)										
Item	DESCRIPTION						CHARACTERISTIC		Vendor data	
1	Manufacturer / Country						By vendor			
2	Standard						IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 440			
3	Environmental conditions						Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Type of Steel: Analysis of steel Carbon Manganese Sulphur Phosphorus Silicon						MILD High Strength ST 37(235JR) ST 52(355JR) 0.17 0.2 1.4 1.6 0.045 0.05 0.045 0.05 0.3 0.55			
5	Thickness of steel (1.6-3.2mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² * Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067						65 65 460			
6	Thickness of steel (3.2-4.8mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² * Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067						75 75 530			
7	Thickness of steel (4.8-6.4mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² * Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067						85 85 600			
8	Strength in Tension Standard Designation						BS 8100 – Lattice Towers and Masts			
9	Strength in Tension (Ultimate tensile stress)						340-470 490-630			
10	Strength in Tension (Yield stress)						235 355			
11	Strength in Compression (Elongation)						24% 22%			
12	Strength in Compression (Min zinc coating)						85µ 85µ			
13	Bolts & Nuts Characteristics: Standard designation Steel material Property class Ultimate shearing stress (On bolt shank) Ultimate Bearing stress Min zinc coating						ANSI C 135-1 (Galvanized Steel Bolts and Nuts for Overhead Lines) Steel Steel 5.6 5.8 2100kg/cm2 2800kg/cm2 5400kg/cm2 6000kg/cm2 46µ 46µ			
14	Pollution condition						Heavy			
15	Routine tests & Type test						According to ASCE1090 Manual 52			




 NISOC	تکهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۴۳ از ۵۲
DATA SHEET FOR PHASE CONDUCTOR (W046S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Conductor Name					HYENA			
5	Applicable standard					ASTM B232, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
6	Max allowable temperature of conductor (°c)					85			
7	Reted short circuit current for 0.5 Sec. (KA)					18.8			
8	Max. temperature range (operation)					75			
9	Temperature range for installation(°c)					-5 ~ +55			
10	Stranding and wire diameter (nos./mm):								
11	Aluminium					7/4.39			
12	Steel					7/1.93			
13	Overall diameter(mm)					14.57			
14	Aluminium Area (mm ²)					106			
15	Steel area (mm ²)					20.48			
16	Total area (mm ²)					126.2			
17	Weight (kg/km):								
18	Aluminium					290			
19	Steel					160			
20	Total					450			
21	Nominal current in 30° (A)					441			
22	Ultimate tensile Strength (kg)					4090			
23	Coefficient of linear expansion (1 /C° x 10-6)					18.8			
24	Initial modulus of elasticity (kg/mm ²)					6000			
25	Final modulus of elasticity (kg/mm ²)					7450			
26	DC resistance at 20°C(Ω/km)					0.2713			
27	AC resistance at 25°C(Ω/km)					0.277			
28	AC resistance at 75°C(Ω/km)					0.3142			
29	Temperature range (transport / storage)					By vendor			
30	Pollution condition					Heavy			
31	Routine tests & Type test					Acc To IEC 61089			




 NISOC	تجهیزات و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴۴ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR SHIELD WIRE (W046S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Manufacture					By vendor			
2	Year of Manufacture					By vendor			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Code Name					7No.8 AWG			
5	Applicable standard					ASTM B416, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 427			
8	Stranding and wire diameter (nos./mm):					7/3.26			
9	Overall diameter(mm)					9.78			
10	Total area (mm ²)					58.43			
11	Weight (kg/km):					390			
12	Ultimate tensile Strength (kg)					7226			
13	Coefficient of linear expansion (1 /C° x 10-6)					13			
14	Initial modulus of elasticity (kg/mm ²)					16000			
15	Final modulus of elasticity (kg/mm ²)					16000			
16	DC resistance at 20°C(Ω/km)					1.467			
17	Pollution condition					Heavy			
18	Routine tests & Type test					Acc To IEC 61089			




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴۵ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR INSULATOR (W046S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					BALL & SOCKET			
2	Applicable Standard					IEC60120, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 426			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material					Porcelain			
5	Nominal line to line voltage rating (kV)					11			
6	Maximum continuous line to line operating voltage (kV)					12			
7	Rated frequency (Hz)					50			
8	Creepage distance (mm/kV)					31			
9	Minimum creepage distance of insulator (mm)					372			
10	Minimum mechanical Failing Load (kN)					70			
11	Socket coupling size (IEC60120)					16			
12	Ball coupling size (IEC60120)					16			
13	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60			
14	Rated lightning impulse withstand voltage across the isolating dist. of Fuse base (kVpeak)					75			
15	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28			
16	Rated one minute PF withstand voltage across the isolating dist. of Fuse base (kVrms)					32			
17	Power Frequency Puncture Voltage (kV)					110			
18	Metallic Part material					Malleable Cast Iron			
19	Insulator material					Brown Glazed Porcelain			
20	Metallic parts					Malleable cast iron			
21	Washable in service					Yes			
22	Unit Spacing (mm)					By vendor			
23	Disc Diameter (mm)					By vendor			
24	Total Weight					By vendor			
25	Type and Material of Terminal					By vendor			
26	Pollution condition					Heavy			
27	Routine tests & Type test					Acc To IEC 383			




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴۶ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR FITTING SUSPENSION & TENSION SET (W046S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	Type					FORGED STEEL			
2	Applicable standard					IEC 61284, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 465			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Material:					-			
5	Outer Part					AL.ALLOY			
6	Iner Part					FORGED STEEL, Hot Deep Galvanized.			
7	Jumper Plate					AL.ALLOY			
8	Terminal Jumper					AL.ALLOY			
9	Bolts & Nuts & Washers					STEEL, Hot Deep Galvanized.			
10	Split Pin					STAINLESS STEEL			
11	Min breaking strength					95% OF CONDUCTOR U.T.S			
12	Coupling Standard IEC					16 mmA			
13	Short Circuit Current					25kA/0.4Sec.			
14	Arcing Horn					STEEL			
15	Min breaking strength (KN)					80			
16	Anti-Climbing Devices and Safety Signs for Lines up to 400kV					ENA TS 43-90			
17	Tower Identification					Steel Sheet with 2mm Thickness			
18	Danger Alarm					Steel Sheet with 1.2mm Thickness			
19	Pollution condition					Heavy			
20	Routine tests & Type test					Acc To IEC 61284			




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیتهای روزمینی در بستههای کاری تحت الارض عمومی و مشترک							 	
	Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴۷ از ۵۲
	BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR EARTHING SYSTEM (W046S)									
Item	DESCRIPTION					CHARACTERISTIC		Vendor data	
1	GROUND WIRE :								
2	Type					Copper Conductor			
3	Applicable standard					DIN 48201, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 409			
4	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
5	Stranding (No./mm)					7/2.5			
6	Total cross section (mm2)					35			
7	Overall Diameter (mm)					7.5			
8	Unit Weight (kg/m)					0.31			
9	Calculated breaking load (kN)					13.77			
10	DC Resistance At 20°C (ohm/km)					0.5265			
11	TOWER BONDING CLAMP :								
12	Type of Body					Forged Steel			
13	Surface Coating					HOT DIP. GALV. Acc to ASTM A123 & A153 or BS729			
14	Type of Bolt & Nut					Steel			
15	Torgue on Bolt					20 NM			
16	Applicable standard					ST37 & DIN931,934,125,127			
17	Diameter of Wire catcher					Ø 8-13 mm			
18	Pollution condition					Heavy			
19	Routine tests & Type test					Acc To DIN 48201			

 NISOC		تجهیزات و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04
شماره صفحه: ۴۸ از ۵۲									
DATA SHEET FOR DISCONNECTOR SWITCH (W046S)									
Item	DESCRIPTION					CHARACTERISTIC			Vendor data
1	Installation (indoor / outdoor)					Outdoor			
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Nominal system voltage, 3phase					11 kV			
5	System voltage variation					± 10%			
6	Nominal frequency and frequency variation					50 ± 5%			
7	Numbers of poles and current rating					3pole / 630 A			
8	Short circuit amper and time duration					25 kA / 1 s			
9	Rated peak withstand current					62.5 kA			
10	Creepage distance (mm/kV)					31			
11	Minimum creepage distance of insulator (mm)					372			
12	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60			
13	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75			
14	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28			
15	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32			
16	Mode of operation OPEN/CLOSE					open-close manual and with earth blad and earth switch manual			
17	Disconnectors & Earthing switches Operating					Hand operating			
18	Accessories					with earth blad and earth switch manual			
19	Disconnector Mechanism					Center break			
20	Construction					Three pole operation Containing Earthing switch			
21	Ingress protection of electrical enclosures					Min. IP55 (If Needed)			
22	Disconnector status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC			
23	Earthing switch status Auxiliary Contacts: No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current Breaking Current At 110V DC					12NC (Normally close) 12NO (Normally open) 110V DC 25 ADC 5 ADC			
24	Interlocks(Electrical & Mechanical)					To prevent closure of earth switch when Disconnector is not in open position To prevent closure of Disconnector when earth switch is not in open position			
25	Dimensions & weights					By Vendor			
26	Pollution condition					Heavy			
27	Minimum Rating plate data					Manufacturer Type designation and serial number Rated voltage Rated lightning impulse withstand voltage across open pole Rated lightning impulse withstand voltage between poles Rated power frequency withstand voltage across open pole Rated power frequency withstand voltage between poles Rated normal current Rated duration of short circuit Rated no load transformer breaking current Year of manufacture Relevant standard with date of issue			
28	Routine Tests: a) dielectric test on the main circuit (clause 7.1 of IEC60694) b) tests on auxiliary and control circuits (Clause 7.2 of IEC60694) c) measurement of the resistance of the main circuit (Clause 7.3 of IEC60694); d) tightness test (Clause 7.4 of IEC60694) e) Design and visual checks (Clause 7.5 of IEC60694) f) Mechanical tests as per clause 7.101 of IEC62271-102					Witness & Report			
29	Type Tests					Certified Reports of test on the identical type according to IEC62271-102 or IEC129			

 NISOC		تک‌داشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک						 		
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان:		پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴۹ از ۵۲
		BK	SSGRL	PEDCO	110	EL	DT	0012	D04	
DATA SHEET FOR CUT OUT FUSE (W046S)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Class					Outdoor				
2	Type					Channel Type				
3	Manufacturer of Fuse base & link					By Vendor				
4	Applicable Standard					IEC60282 , IEC60787, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
5	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
6	Nominal line to line voltage rating (kV)					11				
7	Maximum continuous line to line operating voltage (kV)					12				
8	Rated frequency (Hz)					50				
9	Color of Porcelain insulator					By Vendor				
10	Rated current of Fuse base (A)					100				
11	Rated current of Fuse link (A)					10				
12	Creepage distance (mm/kV)					31				
13	Minimum creepage distance of insulator (mm)					372				
14	Rated maximum braking current (kA)					16				
15	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
16	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base(kV peak)					75				
17	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
18	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
19	Fuse class					Full-range				
20	Operating pole					Required				
21	Mounting brackets and accessories					Required				
22	Provision for mounting of surge arrester					Required				
23	Weight of Fuse-base & Fuse link					By Vendor				
24	Dimension of Fuse-base					By Vendor				
25	Dimension of Fuse-link					By Vendor				
26	Pollution condition					Heavy				
27	Minimum data required on rating plate					On the fuse base: Manufacturer's name Manufacturer's type designation Rated insulation level Rated voltage Rated current On the fuse carrier: Manufacturer's name Rated voltage Rated current Rated breaking capacity and TRV class Rated frequency On the fuse links: Manufacturer's name Manufacturer's type designation Rated current and speed designation Rated voltage				
28	Routine Tests					Witness and Report according to IEC 60282-2				
29	Type Tests					Certified Report on the identical type according to IEC 60282-2				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۰ از ۵۲
DATA SHEET FOR LIGHTNING ARRESTER (W046S)										
Item	DESCRIPTION					CHARACTERISTIC			Vendor data	
1	Type					ZnO				
2	Applicable Standard					IEC60099-4, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Nominal line to line voltage rating (kV)					11				
5	Maximum continuous line to line operating voltage (kV)					12				
6	Continuous Operating Voltage (Ucov)					9.6				
7	Rated frequency (Hz)					50				
8	Material of insulator					By vendor				
9	Earth fault factor					1.4				
10	Line discharge class per IEC 60099-4					2				
11	Minimum energy discharge capability (kJ/kV) U rated					Acc. To IEC				
12	Nominal discharge current with 8/20 microsecond wave (kA peak)					10				
13	Pressure relief class (kA)					20				
14	Creepage distance (mm/kV)					31				
15	Minimum creepage distance of insulator (mm)					372				
16	Rated lightning impulse withstand voltage to earth and between poles (kV peak)					60				
17	Rated lightning impulse withstand voltage across the isolating distance of Fuse - base (kV peak)					75				
18	Rated one minute power frequency withstand voltage to earth and between poles (kV rms)					28				
19	Rated one minute power frequency withstand voltage across the isolating distance of Fuse - base (kV rms)					32				
20	Whether surge counter required?					No				
21	Washable in service					Yes				
22	Temporary overvoltage factor (Ktov) at 1 Sec. at 10 Sec. at 100 Sec.					By vendor				
23	5kA, 8/20μs lightning impulse protective level					By vendor				
24	10kA, 8/20μs lightning impulse protective level (Ur 10kA, 8/20)					Residual voltage < 43.2kV				
25	20kA, 8/20μs lightning impulse protective level					By vendor				
26	125A, 30/60μs switching impulse protective level					By vendor				
27	Height of Surge Arrester					By vendor				
28	Diameter of Sheds					By vendor				
29	Total Weight of Surge Arrester					By vendor				
30	Type and Material of Terminal					By vendor				
31	Pollution condition					Heavy				
32	Minimum data required on rating plate					Manufacturer Manufacturer type designation Serial number Continuous operating voltage Rated voltage Rated frequency Nominal discharge current Pressure relief short time current Line discharge current Pollution degree Year of manufacture Relevant standard with date of issue				
33	Routine Tests a) Measurement of reference voltage Uref (Clause 8.1.a of IEC 60099-4) b) Residual voltage test (Clause 8.1.b of IEC 60099-4) c) Internal Partial Discharge test (Clause 8.1.c of IEC 60099-4); d) Leakage test for sealed housing arresters (Clause 8.1.d of IEC 60099-4) e) Design and visual checks acc. to purchase specifications					Witness and Report				
34	Type Tests					Certified Report on the identical type according to IEC 60099-4				

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 	
		Data Sheets For 11 KV Over Head Line Equipment								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴		پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۱ از ۵۲
DATA SHEET FOR LOAD BREAK SWITCH (W046S)										
Item	DESCRIPTION						CHARACTERISTIC		Vendor data	
1	Manufacturer / Country						By vendor			
2	Standard						IEC 62271-103, IEC 60694, IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375			
3	Environmental conditions						Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)			
4	Type						SF6			
5	Rated Voltage						11kV			
6	Rated Frequency						50Hz			
7	No. of Phases and Poles						3 Phase, 3 Pole			
8	1 minute power freq. withstand voltage To earth and between phases: Across isolating distance:						28kV 32kV			
9	Lightning impulse withstand voltage To earth and between phases: Across isolating distance:						60kV 75kV			
10	Rated Normal Current						630 A			
11	Mainly active load breaking current						By vendor (> 200A)			
12	Closed loop breaking current						By vendor			
13	Line charging breaking current						By vendor			
14	Cable charging breaking current						By vendor			
15	No load transformer breaking current						By vendor (> 0.74A)			
16	Rated Short Time Withstand Current						25kA, 3 Sec.			
17	Rated Peak Withstand Current						62.5kA			
18	Rated Short Circuit Making Current						62.5kA			
19	Number of breaking operation CO						By vendor			
20	Supporting Structure Material						Hot dipped galvanized steel			
21	Creepage distance (mm/kV)						31			
22	Min. Creepage Distance of insulators						372mm			
23	Ingress protection of el. Enclosures						Min. IP55			
24	Operating mechanism						Hand operated mechanism, common for three poles			
25	Permissible tensile force on terminals						By vendor			
26	Gas pressure indicator						Required			
27	Auxiliary Contacts: No. of Make Contacts No. of Break Contacts Rated Voltage Rated Current Breaking Current at 110V DC						By vendor: Min. 4 Min. 4 110V DC Min. 10A Min. 2A			
28	Anti-Condensation Heater						230V AC, 1Ph, 50Hz			
29	Interlocks with Earth Switch						Load Break Switch + Earth Switch integrated as one unit			
30	Dimensions and Weight						By vendor			
31	Pollution condition						Heavy			
32	Minimum data required on rating plate						Manufacturer Type designation and serial number Rated voltage One minute power frequency withstand voltage Lightning impulse withstand voltage Rated normal current Rated short time withstand current Mainly active load breaking current Closed loop breaking current Line charging breaking current Cable charging breaking current No load transformer breaking current Year of manufacture Relevant standard with date of issue			
33	Routine Tests a) Dielectric test on the main circuit (Clause 7.1 of IEC 60694) b) Tests on auxiliary and control circuits (Clause 7.2 of IEC 60694) c) Measurement of the resistance of the main circuit (Clause 7.3 of IEC 60694) d) Tightness test (Clause 7.4 of IEC 60694) e) Design and visual checks (Clause 7.5 of IEC 60694) f) Mechanical tests as per clause 7.101 of IEC 62271-100						Witness and Report			
34	Type Tests						Certified Report on the identical type according to IEC 62271-103			

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض عمومی و مشترک							 		
	Data Sheets For 11 KV Over Head Line Equipment									
	شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0012	نسخه D04	شماره صفحه: ۵۲ از ۵۲
DATA SHEET FOR TOWER (W046S)										
Item	DESCRIPTION					CHARACTERISTIC		Vendor data		
1	Manufacturer / Country					By vendor				
2	Standard					IPS-E-EL-160, Islamic Republic of Iran Vice Presidency for Strategic Planning and Supervision, General Technical Specification and Execution Procedures for overhead and cable power distribution lines NO: 374,375 & General Technical Specification and Execution Procedures for Transmission Lines NO: 440				
3	Environmental conditions					Acc. to document number: BK-00-HD-000-PR-DB-0001 (Process Basis of Design)				
4	Type of Steel: Analysis of steel Carbon Manganese Sulphur Phosphorus Silicon					MILD High Strength ST 37(235JR) ST 52(355JR) 0.17 0.2 1.4 1.6 0.045 0.05 0.045 0.05 0.3 0.55				
5	Thickness of steel (1.6-3.2mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					65 65 460				
6	Thickness of steel (3.2-4.8mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					75 75 530				
7	Thickness of steel (4.8-6.4mm): Galvanizingdegree Coating thickness (µm) Coating thickness* gr/m ² <small>* Thickness amounts in µm are the galvanizing degree. this are calculated from gr/m2=µm*7.067</small>					85 85 600				
8	Strength in Tension Standard Designation					BS 8100 – Lattice Towers and Masts				
9	Strength in Tension (Ultimate tensile stress)					340-470 490-630				
10	Strength in Tension (Yield stress)					235 355				
11	Strength in Compression (Elongation)					24% 22%				
12	Strength in Compression (Min zinc coating)					85µ 85µ				
13	Bolts & Nuts Characteristics: Standard designation Steel material Property class Ultimate shearing stress (On bolt shank) Ultimate Bearing stress Min zinc coating					ANSI C 135-1 (Galvanized Steel Bolts and Nuts for Overhead Lines) Steel Steel 5.6 5.8 2100kg/cm2 2800kg/cm2 5400kg/cm2 6000kg/cm2 46µ 46µ				
14	Pollution condition					Heavy				
15	Routine tests & Type test					According to ASCE1090 Manual 52				