

نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض

عمومي و مشترك







NISOC

شماره پیمان: ۱۸۴ – ۷۷۳ – ۰۵۳

 DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

 نسخه
 سریال
 نوع مدر ک
 رشته
 تسهیلات
 صادر کننده
 بسته کاری
 پروژه

 BK
 SSGRL
 PEDCO
 110
 EL
 DT
 0010
 D03

شماره صفحه: ۱ از ۸

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

نگهداشت و افزایش تولید میدان نفتی بینک

Class: 1	1	CLIENT Dog Number: E07 70		1		l
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval
D00	Sep.2021	IFC	M.Asgharnejad	M.Fakharian	Sh.Ghalikar	
D01	Feb.2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D02	Jul.2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D03	Apr.2023	AFC	H.Shakiba	M.Fakharian	M.Mehrshad	

Class: 1 CLIENT Doc. Number: F0Z-707395

status: IDC: Inter-Discipline Check

IFC: Issued For Comment

IFA: Issued For Approval

AFD: Approved For Design

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



نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض

ت تومد شروارا^ن HIRGAN ENERGY



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DATA CHEETO COD	POWER TRANSFORMERS	OF WELL BADO
DATA SHEETS FUR	PUWER IRANSFURINERS	OF WELL PADS

شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه
· ۵۳ - · ۷۳ - 91 ۸ ۴	BK	SSGRL	PEDCO	110	EL	DT	0010	D03

شماره صفحه: ۲ از ۸

REVISION RECORD SHEET

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نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومي و مشترك







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DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

بسته کاری صادر کننده نوع مدرک تسهيلات سريال نسخه پروژه شماره پیمان: .04-.74-9174 ВК SSGRL PEDCO 0010 D03

شماره صفحه: ۳ از ۸

Transformer Identification Number: TR-12, TR-15, TR-5, TR-007, TR-046											
Item	Description	Purchaser Requirement	Manufacturer Data								
1-GENE	-	i di chaser Requirement	Manufacturer Data								
	Name of Project / Plant	Binak Oilfield in Bushehr Province									
	Manufacturer's Name	By Vendor									
	Quantity	Well12-TR-01, Well15-TR-01, Well05-TR-01, Well07-TR-01, Well46-TR-01									
	Transformer Operation Mode (Single or in Parallel)	Single									
	Standard	IPS-M-EL-152 (3), BK-GNRAL-PEDCO-000-EL-SP-0004									
	Kind/Construction of Transformer	Oil Immersed, Separate High & Low Windings, Two Winding									
	Transformer Type (Sealed/Conservator)	Oil Immersed, Hermitically Sealed With Pillow Nitrogen									
	Rated Power in Service Condition	250 KVA									
	Nominal Frequency & Frequency Variation	50 Hz ± 5 %									
	Winding Connection/Vector Group	Dyn11									
	Nominal Primary Voltage, Phase to Phase & Voltage Variation	11000 V ± 10 %									
	Nominal Secondary Voltage (no load), Phase to Phase & Phase to Neutral	420 V / 242 V									
	Tap Changer	±5% in 2.5% Steps, off Load, on HV Winding									
	Cooling System	ONAN									
	Insulating Lliquid	Mineral Oil									
	conmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-D										
_	Installation	Outdoor, Safe Area, Under Shelter									
	Hazardous Area Classification	Safe Area									
	Altitude (Above Sea Level)	12.5 m									
	Ambient Temperature	Min ~ Max: +5 ~ +52°C									
	Relative Humidity	100%									
	Climate	Corrosive, Hot Atmosphere									
	ary Winding Voltage Ratings	12 171									
	Highest System Voltage	12 KV									
	Rated Lightning Impulse Withstand Voltage	75 KV									
	Rated Short Duration Power Frequency Withstand Voltage (rms)	28 KV									
	Load Rejection Overvoltage (for Generator Transformer)	Not Applicable									
	ndary Winding Voltage Ratings										
	Highest System Voltage	1 KV									
	Rated Lightning Impulse Withstand Voltage	8 KV									
	Rated Short Duration Power Frequency Withstand Voltage (rms)	3 KV									
	Neutral Earthing System (Solidly Earthed / Resistance Earthed)	Solidly Earthed									
	Insulation Type	By Vendor									
	Insulation Class	Class A									
	Average Winding Temperature Rise (55°C Ambient)	Acc. to IEC 60076-2, Clause 4.2									
4.8	Top Oil Temperature Rise (55°C Ambient)	Acc. to IEC 60076-2, Clause 4.2									
4.9	Oil Preservation System	Not Applicable (Sealed Type)									
4.10	Short Circuit Level of MV System	Primary: 25 kA for 1 seconds									
	Required Short Circuit Impedance (if Different From Standard Values)	No									
4.12	Required Short Circuit Impedance @75°C	4%									
4.13	Zero Sequence Impedance	By Vendor									
4.14	X/R Ratio at Principal Tap	By Vendor									
4.15	Efficiency at Full Load & PF=0.8 Lag (100% Load)	By Vendor									
4.16	Efficiency at Full Load & PF=0.8 Lag (75% Load)	By Vendor									
4.17	Efficiency at Full Load & PF=0.8 Lag (50% Load)	By Vendor									
-Prima	ary Winding Characteristics										
51	Reactance $[\Omega]$	By Vendor									
5.2	Resistance[Ω] @ 75°C	By Vendor									
-Secor	ndary Winding Characteristics										
6.1	Reactance[Ω]	By Vendor									
	Resistance[Ω] @ 75°C	By Vendor									



نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومي و مشترك





DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سريال	نسخه
• ۵۳-• ۷۳-9 1 ۸۴		ВК	SSGRL	PEDCO	110	EL	DT	0010	D02

شماره صفحه: ۴ از ۸

		DK	JJUNE	PLDC		LL	וט	0010	D02		
		I	Equipme	nt Tag N	lumber: TR-12	2, TR-15, T	R-5, TR-007	, TR-046			
Item	Description					Purcha	ser Require	nent		Manufacturer D	ata
7-Toler	ances										
7.1	Voltage Ratio at Principal Tap & No-load						±0.5 %				
7.2	Voltage Ratio at Other Tapping				±0.5 %						
7.3	Short Circuit Impedance at Principal Tap					±10%	of declared v	alue			
7.4	Short Circuit Impedance at Other Tapping					±15%	of declared v	alue			
7.5	Anticipated Unbalance Loading in Percent of Rate	d Power					10%				
7.6	Core Construction					Lami	nated Silicon S	teel			
7.7	Flux Density in the Magnetic Circuit @Nominal Fr	equency & V	'oltage				By Vendor				
7.8	No-Load Losses at Rated Voltage & Principal Tap	[W]					By Vendor				
7.9	I ² R Loss at Rated Current & Principal Tap						By Vendor				
7.1	Stray Load Loss at Rated Current & Principal Tap						By Vendor				
7.11	Full Load Total Loss [W]						By Vendor				
7.12	Inrush Current						By Vendor				
7.13	Short Circuit Loss						By Vendor				
7.14	Primary Cable Type & Size				Base	ed on BK-SS	GRL-PEDCO-1	10-EL-LI-00	02		
7.15	External Terminations, Primary Side (Exposed Bu	shings/Cabl	e Box)				Cable Box				
7.16	Secondary Cable Type & Size				Base	ed on BK-SS	GRL-PEDCO-1	10-EL-LI-00	02		
	External Terminations, Secondary Side (Exposed	Bushings/Ca	ble Boxes)			Cable Box				
7.18	Type & Size of Cable Glands (Power Cable)						By Vendor				
7.19	Type & Size of Cable Glands (Control Cable)						By Vendor				
7.20	Dimension (W x D x H) [mm]						By Vendor				
7.21	Total Weight [kg]						By Vendor				
7.22	Weight of Transformer Without Oil						By Vendor				
7.23	Noise Level Limit (at 1m from Transformer) [dB]				Les	s than 85 dE	B(A) Based on	IEC 60076-1	10		
	Oil Volume [liter]						By Vendor				
	Oil Weight [kg]						By Vendor				
	Oil Characteristics (Name/ Type/ Flash Point)					Ac	c. to IEC 6029	5			
	iary Equipment										
_	Top Oil Temperature Indicator With Alarm & Trip						Required				
	Pressure Relief Device with Contact (Shall Be Ope Nitrogen)	rated by Inte	ernal Press	sure of			Required				
8.3	Sudden Pressure Relief Valve With Contact						Required				
8.4	Oil Level Indicator with Contacts (Low & High) Ma	agnetic Type				Requir	ed (Magnetic	Гуре)			
8.5	Gas Pressure & Vacuum Indicator for Internal Pre	ssure of Nitr	ogen Gas				Required				
8.6	Oil Drain/ Sampling Device						Required				
8.7	Earth Terminal				Requ	iired (2 Poin	t on the Botto	ms of the Ta	nk)		
_	LV Terminal Box with Gland Plate						Required				
	HV Terminal Box with Gland Plate						Required				
	Instrument Connection Terminal Box						uired (Min IP5	5)			
	Arching Horn					j	Not Required				
_	Drain Valve						Required				
	Wheels, Bidirectional (Turn Able by 90°)						Required				
	Lugs				Fixed to the	he Tanks for	Lifting the Co	mplete Trar	sformer		
	Lifting & Pulling Yes						Required				
	CT to Be Supplied by (Transformer Manufacturer,	/Purchaser)					rmer Manufa				
	Neutral CT Ratio, Class & Burden						/1A, 5P20, 10 ¹	/A			
	Rating Plate						tainless Steel				
_	Accessory Equipment Contacts Current / Voltage	Rating					5A / 250VAC				
	Transformer Radiator						Welded				
	Transformer Cover				To be V	Welded to th	e Tank With a	Continuous	Weld		
	Thickness of Radiator Plate						By Vendor				
	Thickness of Tank Wall, Base & Cover						By Vendor				
0.24											
	Tank Painting Specification Radiator Painting Specification						By Vendor By Vendor				



تگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک







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DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سريال	نسخه
۰۵۳-۰۷۳-۹۱۸۴		ВК	SSGRL	PEDCO	110	EL	DT	0010	D02

شماره صفحه: ۵ از ۸

	Equipment Tag	Number: TR-12, TR-15, TR-5, TR-007, TR-046	
Item	Description	Purchaser Requirement	Manufacturer Data
8-Auxi	liary Equipment		
8.26	Tank & Radiator Color	By Vendor	
8.27	Accessory Equipment Contacts Type	Dry Type	
8.28	Routine Tests Including	IEC60076	
	a) Measurement of Winding Resistance	Witness & Report	
	b) Measurement of Voltage Ratio & Check of Voltage Vector Relationship	Witness & Report	
	c) Measurement of Impedance Voltage (Principal tapping) Short-Circuit Impedance & Load Loss	Witness & Report	
	d) Measurement of no-Load Loss & Current	Witness & Report	
	e) Impedance & Load Losses at Rated Current on Principal Tap	Witness & Report	
	f) Applied Potential & Induced Potential Tests	Witness & Report	
	g) Dielectric Tests	Witness & Report (IEC60076-3)	
8.29	Type Test	Test Report on the Same Design Transformer is Required	
8.30	Painting & Finish	Manufacture Standard	
8.31	Special Tools if Any	By Vendor	
8.32	Deviation from this Specification if Any	By Vendor	

9-Notes

^{*} All required accessories shall be considered by vendor.



تگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشتر ک





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DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

	شماره پيمان:	پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سريال	نسخه	شماره صفحه: ۶ از ۸
• ۵۳-• ۷۳-9 ۱ ۸۴		ВК	SSGRL	PEDCO	110	EL	DT	0010	D02	سماره صفحه: ۱۲ر ۸

Transformer Identification Number: TR-14										
Item	Description	Purchaser Requirement	Manufacturer Data							
-GENE	-									
1.1	Name of Project / Plant	Binak Oilfield in Bushehr Province								
1.2	Manufacturer's Name	By Vendor								
1.3	Quantity	Well14-TR-01								
1.4	Transformer Operation Mode (Single or in Parallel)	Single								
1.5	Standard	IPS-M-EL-152 (3), BK-GNRAL-PEDCO-000-EL-SP-0004								
	Kind/Construction of Transformer	Oil Immersed, Separate High & Low Windings, Two Winding								
1.7	Transformer Type (Sealed/Conservator)	Oil Immersed, Hermitically Sealed With Pillow Nitrogen								
	Rated Power in Service Condition	250 KVA								
	Nominal Frequency & Frequency Variation	50 Hz ± 5 %								
	Winding Connection/Vector Group	Dyn11								
1.11	Nominal Primary Voltage, Phase to Phase & Voltage Variation	33000 V ± 10 %								
	Nominal Secondary Voltage (no load), Phase to Phase & Phase to Neutral	420 V / 242 V								
1.13	Tap Changer	±5% in 2.5% Steps, off Load, on HV Winding								
	Cooling System	ONAN								
	Insulating Lliquid	Mineral Oil								
	ronmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB									
	Installation	Outdoor, Safe Area, Under Shelter								
	Hazardous Area Classification	Safe Area								
		Safe Area 12.5 m								
	Altitude (Above Sea Level)									
2.4	Ambient Temperature	Min ~ Max: +5 ~ +52°C								
	Relative Humidity	100%								
	Climate	Corrosive, Hot Atmosphere								
	ary Winding Voltage Ratings	2.1								
	Highest System Voltage	36 KV								
	Rated Lightning Impulse Withstand Voltage	170 KV								
	Rated Short Duration Power Frequency Withstand Voltage (rms)	70 KV								
	Load Rejection Overvoltage (for Generator Transformer)	Not Applicable								
-Secor	ndary Winding Voltage Ratings									
4.1	Highest System Voltage	1 KV								
4.2	Rated Lightning Impulse Withstand Voltage	8 KV								
4.3	Rated Short Duration Power Frequency Withstand Voltage (rms)	3 KV								
4.4	Neutral Earthing System (Solidly Earthed / Resistance Earthed)	Solidly Earthed								
4.5	Insulation Type	By Vendor								
4.6	Insulation Class	Class A								
4.7	Average Winding Temperature Rise (55°C Ambient)	Acc. to IEC 60076-2, Clause 4.2								
4.8	Top Oil Temperature Rise (55°C Ambient)	Acc. to IEC 60076-2, Clause 4.2								
4.9	Oil Preservation System	Not Applicable (Sealed Type)								
4.10	Short Circuit Level of MV System	Primary: 25 kA for 1 seconds								
4.11	Required Short Circuit Impedance (if Different From Standard Values)	No								
4.12	Required Short Circuit Impedance @75°C	4%								
4.13	Zero Sequence Impedance	By Vendor								
4.14	X/R Ratio at Principal Tap	By Vendor								
4.15	Efficiency at Full Load & PF=0.8 Lag (100% Load)	By Vendor								
	Efficiency at Full Load & PF=0.8 Lag (75% Load)	By Vendor								
	Efficiency at Full Load & PF=0.8 Lag (50% Load)	By Vendor								
	ary Winding Characteristics									
	Reactance $[\Omega]$	By Vendor								
	Resistance[Ω] @ 75°C	By Vendor								
	ndary Winding Characteristics									
	Reactance[Ω]	By Vendor								
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تگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشتر ک



DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

نسخه سریال نوع مدرک رشته تسهیلات صادرکتنده بسته کاری پروژه شماره پیمان: - Δ۳--۷۳-۹۱۸۴ BK SSGRL PEDCO 110 EL DT 0010 D02

شماره صفحه: ۷ از ۸

	- MIIII- IIII		PEDCO	110	EL	DI	0010	D02	
			Transform	ner Identifica	ation Num	ber: TR-14			
Item	Description			Purcha	Manufacturer Data				
7-Tolei									
	Voltage Ratio at Principal Tap & No-load					±0.5 %			
7.2	Voltage Ratio at Other Tapping					±0.5 %			
	Short Circuit Impedance at Principal Tap			±10% of declared value					
	Short Circuit Impedance at Other Tapping			±15% of declared value					
7.5	Anticipated Unbalance Loading in Percent of Rated Power			10%					
7.6	Core Construction			Laminated Silicon Steel					
7.7	Flux Density in the Magnetic Circuit @Nominal Frequency & Voltage			By Vendor					
	No-Load Losses at Rated Voltage & Principal Tap [W]			By Vendor					
7.9	I ² R Loss at Rated Current & Principal Tap					By Vendor			
7.1	Stray Load Loss at Rated Current & Principal Tap					By Vendor			
	Full Load Total Loss [W]			By Vendor					
	Inrush Current					By Vendor			
	Short Circuit Loss				1 PM 000	By Vendor	0 51 11 00	22	
	Primary Cable Type & Size			Base	u on BK-SS(GRL-PEDCO-11	U-EL-LI-UU	JZ	
	External Terminations, Primary Side (Exposed Bushings/Cable Box)			D _a	d on DV CCC	Cable Box GRL-PEDCO-11	0 EL 1100	12	
	Secondary Cable Type & Size			Base	u on BK-550		0-EL-LI-00	J.L	
7.17	External Terminations, Secondary Side (Exposed Bushi	igs/ Cable Boxes]	'			Cable Box By Vendor			+
7.19		Type & Size of Cable Glands (Power Cable)				By Vendor			
	Type & Size of Cable Glands (Control Cable) Dimension (W x D x H) [mm]					By Vendor			
7.21	Total Weight [kg]					By Vendor			
	Weight of Transformer Without Oil					By Vendor			
	Noise Level Limit (at 1m from Transformer) [dB]			Loca	than 85 dB	-	FC 60076-1	0	
	Oil Volume [liter]			Less than 85 dB(A) Based on IEC 60076-10 By Vendor					
	Oil Weight [kg]			By Vendor					
	Oil Characteristics (Name/ Type/ Flash Point)			Acc. to IEC 60296					
	iary Equipment				110				
	Top Oil Temperature Indicator With Alarm & Trip Cont	acts				Required			
	Pressure Relief Device with Contact (Shall Be Operated		ure of						
8.2	Nitrogen)	.,				Required			
8.3	Sudden Pressure Relief Valve With Contact					Required			
8.4	Oil Level Indicator with Contacts (Low & High) Magneti	с Туре			Require	ed (Magnetic T	ype)		
8.5	Gas Pressure & Vacuum Indicator for Internal Pressure	of Nitrogen Gas				Required			
8.6	Oil Drain/ Sampling Device					Required			
8.7	Earth Terminal			Requi	ired (2 Poin	t on the Botton	ns of the Ta	nk)	
8.8	LV Terminal Box with Gland Plate					Required			
8.9	HV Terminal Box with Gland Plate					Required			
8.10	Instrument Connection Terminal Box				Requ	uired (Min IP5	5)		
	Arching Horn				N	Not Required			
	Drain Valve					Required			
	Wheels, Bidirectional (Turn Able by 90°)					Required			
8.14	Lugs			Fixed to th	e Tanks for	Lifting the Cor	nplete Tran	sformer	
	Lifting & Pulling Yes					Required			
	CT to Be Supplied by (Transformer Manufacturer/Purc	naser)			Transfo	rmer Manufac	turer		
	Neutral CT Ratio, Class & Burden					/1A, 5P20, 10V	A		
	Rating Plate					tainless Steel			
8.19	Accessory Equipment Contacts Current / Voltage Rating	3			5	SA / 250VAC			
8.20	Transformer Radiator					Welded			
8.21	Transformer Cover			To be W	elded to the	Tank With a	Continuous	Weld	
8.22	Thickness of Radiator Plate					By Vendor			
8.23	Thickness of Tank Wall, Base & Cover					By Vendor			
8.24	Tank Painting Specification					By Vendor			
8.25	Radiator Painting Specification					By Vendor			



تگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک







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DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سريال	نسخه
• ۵۳-• ٧٣-٩ ١ ٨۴		ВК	SSGRL	PEDCO	110	EL	DT	0010	D02

شماره صفحه: ۸ از ۸

Transformer Identification Number: TR-14							
Item	Description	Purchaser Requirement	Manufacturer Data				
8-Auxiliary Equipment							
8.26	Tank & Radiator Color	By Vendor					
8.27	Accessory Equipment Contacts Type	Dry Type					
8.28	Routine Tests Including	IEC60076					
	a) Measurement of Winding Resistance	Witness & Report					
	b) Measurement of Voltage Ratio & Check of Voltage Vector Relationship	Witness & Report					
	c) Measurement of Impedance Voltage (Principal tapping) Short-Circuit Impedance & Load Loss	Witness & Report					
	d) Measurement of no-Load Loss & Current	Witness & Report					
	e) Impedance & Load Losses at Rated Current on Principal Tap	Witness & Report					
	f) Applied Potential & Induced Potential Tests	Witness & Report					
	g) Dielectric Tests	Witness & Report (IEC60076-3)					
8.29	Type Test	Test Report on the Same Design Transformer is Required					
8.30	Painting & Finish	Manufacture Standard					
8.31	Special Tools if Any	By Vendor					
8.32	Deviation from this Specification if Any	By Vendor					

9-Notes

^{*} All required accessories shall be considered by vendor.