


 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک							  
	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS							
شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
۰۵۳ - ۰۷۳ - ۹۱۸۴	BK	SSGRL	PEDCO	110	EL	DT	0010	D03
شماره صفحه: ۸ از ۸								

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS

نگهداشت و افزایش تولید میدان نفتی بینک

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

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




 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک								
	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0010	نسخه D03	شماره صفحه: ۸ از ۲


REVISION RECORD SHEET

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3	X	X	X			53					
4	X	X				54					
5	X					55					
6	X	X	X			56					
7	X	X				57					
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 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک							 	
	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0010	نسخه D03	شماره صفحه: ۸ از ۳
Transformer Identification Number: TR-12, TR-15, TR-5, TR-007, TR-046									
Item	Description	Purchaser Requirement					Manufacturer Data		
1-GENERAL									
1.1	Name of Project / Plant	Binak Oilfield in Bushehr Province							
1.2	Manufacturer's Name	By Vendor							
1.3	Quantity	Well12-TR-01, Well15-TR-01, Well05-TR-01, Well07-TR-01, Well46-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							
1.6	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							
1.8	Rated Power in Service Condition	250 KVA							
1.9	Nominal Frequency & Frequency Variation	50 Hz \pm 5 %							
1.10	Winding Connection/Vector Group	Dyn11							
1.11	Nominal Primary Voltage, Phase to Phase & Voltage Variation	11000 V \pm 10 %							
1.12	Nominal Secondary Voltage (no load), Phase to Phase & Phase to Neutral	420 V / 242 V							
1.13	Tap Changer	\pm 5% in 2.5% Steps, off Load, on HV Winding							
1.14	Cooling System	ONAN							
1.15	Insulating Lliquid	Mineral Oil							
2-Environmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001)									
2.1	Installation	Outdoor, Safe Area, Under Shelter							
2.2	Hazardous Area Classification	Safe Area							
2.3	Altitude (Above Sea Level)	12.5 m							
2.4	Ambient Temperature	Min ~ Max: +5 ~ +52°C							
2.5	Relative Humidity	100%							
2.6	Climate	Corrosive, Hot Atmosphere							
3-Primary Winding Voltage Ratings									
3.1	Highest System Voltage	12 KV							
3.2	Rated Lightning Impulse Withstand Voltage	75 KV							
3.3	Rated Short Duration Power Frequency Withstand Voltage (rms)	28 KV							
3.4	Load Rejection Overvoltage (for Generator Transformer)	Not Applicable							
4-Secondary 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							
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							
5-Primary Winding Characteristics									
5-1	Reactance [Ω]	By Vendor							
5-2	Resistance [Ω] @ 75°C	By Vendor							
6-Secondary Winding Characteristics									
6.1	Reactance [Ω]	By Vendor							
6.2	Resistance [Ω] @ 75°C	By Vendor							

 NISOC		تگه‌داشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک						 		
		DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان:		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۴ از ۸
۰۵۳-۰۷۳-۹۱۸۴		BK	SSGRL	PEDCO	110	EL	DT	0010	D02	
Equipment Tag Number: TR-12, TR-15, TR-5, TR-007, TR-046										
Item	Description			Purchaser Requirement				Manufacturer Data		
7-Tolerances										
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 value						
7.4	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						
7.8	No-Load Losses at Rated Voltage & Principal Tap [W]			By Vendor						
7.9	I²R 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			Based on BK-SSGRL-PEDCO-110-EL-LI-0002						
7.15	External Terminations, Primary Side (Exposed Bushings/Cable Box)			Cable Box						
7.16	Secondary Cable Type & Size			Based on BK-SSGRL-PEDCO-110-EL-LI-0002						
7.17	External Terminations, Secondary Side (Exposed Bushings/Cable 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]			Less than 85 dB(A) Based on IEC 60076-10						
7.24	Oil Volume [liter]			By Vendor						
7.25	Oil Weight [kg]			By Vendor						
7.26	Oil Characteristics (Name/ Type/ Flash Point)			Acc. to IEC 60296						
8-Auxiliary Equipment										
8.1	Top Oil Temperature Indicator With Alarm & Trip Contacts			Required						
8.2	Pressure Relief Device with Contact (Shall Be Operated by Internal Pressure of Nitrogen)			Required						
8.3	Sudden Pressure Relief Valve With Contact			Required						
8.4	Oil Level Indicator with Contacts (Low & High) Magnetic Type			Required (Magnetic Type)						
8.5	Gas Pressure & Vacuum Indicator for Internal Pressure of Nitrogen Gas			Required						
8.6	Oil Drain/ Sampling Device			Required						
8.7	Earth Terminal			Required (2 Point on the Bottoms of the Tank)						
8.8	LV Terminal Box with Gland Plate			Required						
8.9	HV Terminal Box with Gland Plate			Required						
8.10	Instrument Connection Terminal Box			Required (Min IP55)						
8.11	Arching Horn			Not Required						
8.12	Drain Valve			Required						
8.13	Wheels, Bidirectional (Turn Able by 90°)			Required						
8.14	Lugs			Fixed to the Tanks for Lifting the Complete Transformer						
8.15	Lifting & Pulling Yes			Required						
8.16	CT to Be Supplied by (Transformer Manufacturer/Purchaser)			Transformer Manufacturer						
8.17	Neutral CT Ratio, Class & Burden			300/1A, 5P20, 10VA						
8.18	Rating Plate			Stainless Steel						
8.19	Accessory Equipment Contacts Current / Voltage Rating			5A / 250VAC						
8.20	Transformer Radiator			Welded						
8.21	Transformer Cover			To be Welded 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						

 NISOC	تجهیزات و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض عمومی و مشترک							 	
	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0010	نسخه D02	شماره صفحه: ۵ از ۸
Equipment Tag Number: TR-12, TR-15, TR-007, TR-046									
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.									

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک</p> <p>فعالیت های روزمینی در بسته های کاری تحت الارض</p> <p>عمومی و مشترک</p>							 	
	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0010	نسخه D02	شماره صفحه: ۸ از ۸
Transformer Identification Number: TR-14									
Item	Description	Purchaser Requirement					Manufacturer Data		
1-GENERAL									
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							
1.6	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							
1.8	Rated Power in Service Condition	250 KVA							
1.9	Nominal Frequency & Frequency Variation	50 Hz \pm 5 %							
1.10	Winding Connection/Vector Group	Dyn11							
1.11	Nominal Primary Voltage, Phase to Phase & Voltage Variation	33000 V \pm 10 %							
1.12	Nominal Secondary Voltage (no load), Phase to Phase & Phase to Neutral	420 V / 242 V							
1.13	Tap Changer	\pm 5% in 2.5% Steps, off Load, on HV Winding							
1.14	Cooling System	ONAN							
1.15	Insulating Lliquid	Mineral Oil							
2-Environmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001)									
2.1	Installation	Outdoor, Safe Area, Under Shelter							
2.2	Hazardous Area Classification	Safe Area							
2.3	Altitude (Above Sea Level)	12.5 m							
2.4	Ambient Temperature	Min ~ Max: +5 ~ +52°C							
2.5	Relative Humidity	100%							
2.6	Climate	Corrosive, Hot Atmosphere							
3-Primary Winding Voltage Ratings									
3.1	Highest System Voltage	36 KV							
3.2	Rated Lightning Impulse Withstand Voltage	170 KV							
3.3	Rated Short Duration Power Frequency Withstand Voltage (rms)	70 KV							
3.4	Load Rejection Overvoltage (for Generator Transformer)	Not Applicable							
4-Secondary 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							
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							
5-Primary Winding Characteristics									
5-1	Reactance [Ω]	By Vendor							
5-2	Resistance[Ω] @ 75°C	By Vendor							
6-Secondary Winding Characteristics									
6.1	Reactance[Ω]	By Vendor							
6.2	Resistance[Ω] @ 75°C	By Vendor							

 NISOC	تکداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک							 	
	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0010	نسخه D02	شماره صفحه: ۷ از ۸
Transformer Identification Number: TR-14									
Item	Description	Purchaser Requirement					Manufacturer Data		
7-Tolerances									
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 value							
7.4	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							
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	Based on BK-SSGRL-PEDCO-110-EL-LI-0002							
7.15	External Terminations, Primary Side (Exposed Bushings/Cable Box)	Cable Box							
7.16	Secondary Cable Type & Size	Based on BK-SSGRL-PEDCO-110-EL-LI-0002							
7.17	External Terminations, Secondary Side (Exposed Bushings/Cable 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]	Less than 85 dB(A) Based on IEC 60076-10							
7.24	Oil Volume [liter]	By Vendor							
7.25	Oil Weight [kg]	By Vendor							
7.26	Oil Characteristics (Name/ Type/ Flash Point)	Acc. to IEC 60296							
8-Auxiliary Equipment									
8.1	Top Oil Temperature Indicator With Alarm & Trip Contacts	Required							
8.2	Pressure Relief Device with Contact (Shall Be Operated by Internal Pressure of Nitrogen)	Required							
8.3	Sudden Pressure Relief Valve With Contact	Required							
8.4	Oil Level Indicator with Contacts (Low & High) Magnetic Type	Required (Magnetic Type)							
8.5	Gas Pressure & Vacuum Indicator for Internal Pressure of Nitrogen Gas	Required							
8.6	Oil Drain/ Sampling Device	Required							
8.7	Earth Terminal	Required (2 Point on the Bottoms of the Tank)							
8.8	LV Terminal Box with Gland Plate	Required							
8.9	HV Terminal Box with Gland Plate	Required							
8.10	Instrument Connection Terminal Box	Required (Min IP55)							
8.11	Arching Horn	Not Required							
8.12	Drain Valve	Required							
8.13	Wheels, Bidirectional (Turn Able by 90°)	Required							
8.14	Lugs	Fixed to the Tanks for Lifting the Complete Transformer							
8.15	Lifting & Pulling Yes	Required							
8.16	CT to Be Supplied by (Transformer Manufacturer/Purchaser)	Transformer Manufacturer							
8.17	Neutral CT Ratio, Class & Burden	300/1A, 5P20, 10VA							
8.18	Rating Plate	Stainless Steel							
8.19	Accessory Equipment Contacts Current / Voltage Rating	5A / 250VAC							
8.20	Transformer Radiator	Welded							
8.21	Transformer Cover	To be Welded 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							

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	DATA SHEETS FOR POWER TRANSFORMERS OF WELL PADS								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	پروژه BK	بسته کاری SSGRL	صادر کننده PEDCO	تسهیلات 110	رشته EL	نوع مدرک DT	سریال 0010	نسخه 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.									