

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک							
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طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS FOR LV SWITCHGEAR 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	May. 2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D00	Feb. 2022	IFC	H.Shakiba	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	Client Approval

Class:1

Client Doc. Number: F0Z-707393

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																	
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REVISION RECORD SHEET

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 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک								 شرکت توسعه و پارس
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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
1	GENERAL		
1.1	Name of Project / Plant	Binak Oilfield in Bushehr Province	
1.2	Reference Doc.	1- IPS-M-EL-143(3) 2- Single Line Diagram For LV Switchgear of Well Pads (BK-SSGRL-PEDCO-110-EL-SL-0002) 3- Specification For LV Switchgear & Motor Control Centers (BK-GNRAL-PEDCO-000-EL-SP-0001) 4- Electrical Typical Schematic Diagrams For LV Panels of Well Pads (BK-SSGRL-PEDCO-110-EL-DG-0001") 5- Electrical System Design Criteria (BK-GNRAL-PEDCO-000-EL-DC-0001) 6- Process Basis of Design (BK-GNRAL-PEDCO-000-PR-DB-0001)	
1.3	Manufacturer of Cubicles	By Vendor	
1.4	Manufacturer Type No./Country Origin	By Vendor	
1.5	Standard	IEC60439 ,IEC60947,IPS-M-EL-143(3)	
1.6	Type Of Cubicle - Fixed/ With draw able	With Draw Able	
1.7	Rated Voltage & Variation	400 VAC & ± 10%	
1.8	Rated Frequency & Variation	50 HZ & ± 5%	
1.9	Service Voltage	400 VAC	
1.10	Number of Phases	3PH + PE + N	
1.11	Number of Cubicles (With Spare)	By Vendor	
1.12	Number of Bus Sections	1	
1.13	Power Frequency (One Min)	1.89 KV (ACC to Table 8 of IEC 61439-1)	
1.14	Impulse Withstand	6 KV (ACC to Table G.1 of IEC 61439-1)	
1.15	Rated Normal Current Of Bus bars	630 A	
1.16	Rated Short Current Of Bus bars	50 KA	
1.17	Rated Peak Withstand Current	125 KA	
1.18	Rated Short Time Duration	1 SEC.	
1.19	System Earthing	Solidly Earthed At Transformer Neutral Point	
1.20	Voltage of Control Circuit	Incoming/Tie: 110 VDC Outgoing: 230 VAC (by Isolation Transformer for each Cubicle, According to "BK-SSGRL-PEDCO-110-EL-SL-0002"	
1.21	Incoming Feeder Signaling Circuit	110 VDC	
1.22	Motor & Heater Outgoing Feeder Signaling Circuit	230 VAC	
1.23	Distribution Outgoing Feeder Signaling Circuit	230 VAC	
1.24	Panel Light Auto. Door Micro Switch Operated	230 VAC	
1.25	Internal Safety Interlocks	Yes	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
2	SITE CONDITION		
2.1	Installation	Indoor, Safe Area	
2.2	Max. Ambient Temperature	52 °C	
2.3	Min. Ambient Temperature	-5 °C	
2.4	Relative Humidity (Max.)	100%	
2.5	Climate	Corrosive, Hot Atmosphere	
2.6	Altitude Above Sea Level	12.5 M	
3	CUBICLE CONSTRUCTION		
3.1	Enclosure	Metal Clad	
3.2	Indoor / Outdoor	Indoor	
3.3	Type of Installation	Floor Standing	
3.4	Bus bar Material	Hard Drown, High Conductivity Copper	
3.5	Main Bus Bar Insulation Material	Flame Retardant, Non Hygroscopic Insulation Material	
3.6	Bus Bar Color	L1: Red , L2: Yellow , L3: Blue , N: Black	
3.7	Shape of Main Bus bars	By Vendor	
3.8	Neutral Bus Bar Cross Section	By Vendor	
3.9	Type / Material of Main Bus bar Supporting Insulators	By Vendor	
3.10	Bus Bar Joints	Silver Plated	
3.11	Bus Bar Identification	By Vendor	
3.12	Bus Bar Arrangement (Single / Duplicate)	By Vendor	
3.13	Phase Bus Bar Cross Section	By Vendor	
3.14	Earth Bus Bar Cross Section	By Vendor	
3.15	Bus bar Cooling Method	Air Natural	
3.16	Rear / Front Access	Front Access	
3.17	Incomings / Outgoings To/From The Switchgear (Bus-Duct/Cable)	Incomings: Cable Outgoings: Cable	
3.18	Top / Bottom Entry	Cable: Bottom	
3.19	Degree of Protection	IP42	
3.20	Min. Cubicle Sheet & Door Thickness For Enclosure	2 mm	
3.21	Tropic Design	Yes	
3.22	Provision For Extension at Each End of Switchgear	Yes	
3.23	Paint Color Shade	Ral 7032 (Light Grey)	
3.24	Thickness of Paint Coating	60 – 80 Micron	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
4	CIRCUIT BREAKER (ACB)		
4.1	Manufacturer / Country	By Vendor	
4.2	Manufacturer Type No.	By Vendor	
4.3	Type Of Main CB (Air / Vacuum / Others)	Air	
4.4	No. of Poles in Main ACB	4 Pole	
4.5	Rated Insulation Voltage	1000 VAC	
4.6	Rated Operating Voltage	400 VAC	
4.7	Rated Current	By Vendor, Based on Load List (BK-SSGRL-PEDCO-110-EL-LI-0001)	
4.8	Rated Breaking Current *	50 KA	
4.9	Rated Making Current *	125 KA	
4.10	S/C Withstanding Time	1 SEC.	
4.11	Closing Time	By Vendor	
4.12	Tripping Time	By Vendor	
4.13	Rated Electrical Life	By Vendor	
4.14	Rated Short Circuit Life	By Vendor	
4.15	Power Consumption of Closing Coil	By Vendor	
4.16	Power Consumption of Tripping Coil	By Vendor	
4.17	Power Consumption of Spring Charging Motor	By Vendor	
4.18	Spring Charge Motor Voltage Supply	110 VDC	
4.19	No. of Circuit Breaker Operating With Charged Spring	2	
4.20	Anti-Pumping Feature	Yes	
4.21	Shutters	Yes	
4.22	Additional Auxiliary Contacts	By Vendor	
4.23	Mechanical Operations Counter	By Vendor	
4.24	Manual Mechanical Trip Facility	By Vendor	
4.25	Closed/Open Position Indication	Yes	
4.26	Charged/Discharged Spring Indication	Yes	
4.27	No. of Make Contacts	By Vendor	
4.28	No. of Break Contacts	By Vendor	
4.29	Rated Current at Voltage (By Vendor)	By Vendor	
4.30	Weight of One Unit	By Vendor	
5	MCCB		
5.1	Manufacturer of MCCB	By Vendor	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
5.2	Rated Insulation Voltage	1000 VAC	
5.3	Rated Operating Voltage	400 VAC	
5.4	Rated Current	According to "BK-SSGRL-PEDCO-110-EL-SL-0002"	
5.5	NO. of Poles	According to "BK-SSGRL-PEDCO-110-EL-SL-0002"	
6	SWITCH-FUSE		
6.1	Manufacturer of Switch-Fuse	By Vendor	
6.2	Rated Insulation Voltage	1000 VAC	
6.3	Rated Operating Voltage	400 VAC	
6.4	Rated Current	According to "BK-SSGRL-PEDCO-110-EL-SL-0002"	
6.5	NO. of Poles	3 Pole	
7	CONTACTOR		
7.1	Manufacturer Country	By Vendor	
7.2	Manufacturer Type No.	By Vendor	
7.3	Type of Contactor (Air / Vacuum)	Air/AC3	
7.4	Rated Insulation Voltage	1000 VAC	
7.5	Rated Operating Voltage	400 VAC	
7.6	Rated Current	By Vendor, Based On SLD	
7.7	Closing Time	By Vendor	
7.8	Tripping Time	By Vendor	
7.9	Power Consumption of Elec. Bobbin	By Vendor	
7.10	Rated Electrical Life	By Vendor	
7.11	Rated Short Circuit Life	By Vendor	
7.12	Elect. Bobbin Voltage Supply	230 VAC	
7.13	Utilization Category	By Vendor	
7.14	RC Element	Where Is Applicable	
7.15	Weight of One Unit	By Vendor	
7.16	NO. of poles	3 Pole	
8	THERMAL RELAYS		
8.1	Manufacturer Country	By Vendor	
8.2	Manufacturer Type No.	By Vendor	
8.3	Rated Operating Voltage	400 VAC	
8.4	Single Phasing Protection	Yes	
8.5	Thermal Relay Adjustable Range	By Vendor (ACC to Coordination type 2)	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
		, According to "BK-SSGRL-PEDCO-110-EL-SL-0002"	
8.6	Thermal Relay Reset Feature	Yes Via a Door Mounted Push-Button	
9	PT'S-FIXED TYPE		
9.1	Manufacturer Country	By Vendor	
9.2	Manufacturer Type No.	By Vendor	
9.3	Rated Operating Voltage	400/ $\sqrt{3}$ VAC	
9.4	Rated Secondary Voltage	110/ $\sqrt{3}$ VAC , 230/ $\sqrt{3}$ VAC	
9.5	Accuracy Class	Measuring : 1 Protection : 3P	
9.6	Burden	By Vendor	
9.7	Single-Phase / Three-Phase	3 Phase	
9.8	Type of Construction	By Vendor	
9.9	Rated Voltage Factor	By Vendor	
9.10	Dimension (L X W X H)	By Vendor	
9.11	Weight	By Vendor	
10	CTs		
10.1	Manufacturer Country	By Vendor	
10.2	Manufacturer Type No.	By Vendor	
10.3	Rated Operating Voltage	400 VAC	
10.4	Rated Primary Current	By Vendor, Based on SLD	
10.5	Rated Secondary Current	1 A	
10.6	Insulation Class	By Vendor	
10.7	Accuracy Class	Measuring: 1 Protection: 5P10	
10.8	Max. Thermal Withstand Current	By Vendor	
10.9	Burden	By Vendor	
10.10	Type of Construction	Cast Resin	
10.11	Type of Installation	FIX	
10.12	Dimension (L X W X H)	By Vendor	
10.13	Weight	By Vendor	
11	PROTECTION		
11.1	Manufacturer Country	By Vendor	
11.2	Manufacturer Designation No.	By Vendor	
11.3	Type of Protection Relays For Incomers/Tie	Multi-Function, Microprocessor Based	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
11.4	No. of Contacts	MIN. 4	
11.5	Contact Rating Current	5 A	
11.6	Auto Diagnostic & Self Supervision	YES	
11.7	Serial Link Communication Port	YES	
12	MEASURING & CONTROL SYSTEM		
12.1	Manufacturer of Indicators / Country	By Vendor	
12.2	Accuracy Class Of Indicators	CL.1	
12.3	Manufacturer Of Selector Switch	By Vendor	
12.4	Manufacturer of Push Buttons	By Vendor	
12.5	Manufacturer of Indication Lamps	By Vendor	
12.6	Manufacturer of Terminals	By Vendor	
12.7	Manufacturer of AUX. Relays	By Vendor	
12.8	Remote Control Indication / Alarm / Intertrip / ETC.	Yes	
12.9	Mimic Diagram	Not Applicable	
12.10	Size of Control Wiring	2.5 MM ² for CT'S 1.5 MM ² for Other	
12.11	Ammeter / Voltmeter Manufacture	By Vendor	
12.12	Ammeter / Voltmeter Class	CL.1	
12.13	Ammeter / Voltmeter range	According to "BK-SSGRL-PEDCO-110-EL-SL-0002"	
12.14	Multi Meters Manufacture	By Vendor	
12.15	Multi Meters Class	CL.0.5	
12.16	Transducer Model & Manufacturer	By Vendor	
13	MISCELLANEOUS		
13.1	Routine Tests Foreseen	Yes	
13.2	Type Tests Foreseen	No, If Certified	
13.3	Two Years Op. & Comis. Spare Parts Proposed	Yes	
13.4	Special Tools	Yes, If Required	
13.5	Accessories	Yes	
13.6	Mimic Diagram for Each Cubicle	Yes for Incoming	
13.7	Dimension of One Cubicle (H X W X D)	By Vendor	
13.8	Overall Dimension (H X W X D)	By Vendor	
13.9	Weight of One Cubicle	By Vendor	
13.10	Total Weight of Cubicles	By Vendor	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
13.11	Dynamic Load of One Cubicle	By Vendor	
13.12	Time Schedule Prepared	By Vendor	
13.13	Delivery Time	By Vendor	
13.14	Any Deviations From Spec.	By Vendor	
13.15	Cable Gland Delivery	Yes	
14	ACCESSORIES		
14.1	Illumination (Y/N)	Yes	
14.2	Lifting Lugs (Y/N)	Yes	
14.3	Space Heater With Thermostat (Y/N)	Yes	
14.4	Humidity Control System (Y/N)	Yes	
14.5	Mimic Diagram (Y/N)	Yes	
14.6	C.B. Position Indicator	Yes	
14.7	Door Key (Y/N)	Yes	
14.8	C.B. Charging / Retracting (Y/N)	Yes	
14.9	Installation Kit (Y/N)	Yes	
14.10	Voltage and Current Test Block for Protection Relays (Y/N)	Yes	
14.11	Lamp Test Facility (Y/N)	Yes	
14.12	Automatic Shutter (Y/N)	Yes	
14.13	Floor Frame (Y/N)	Yes	
14.14	C.B. Transfer Trolley (Y/N)	Yes	
14.15	Name Plate & Front Tag & Rear Side Tag (Y/N)	Yes	
14.16	Telescopic Rotary Handle for MCCB(Y/N)	Yes	
15	MECHANICAL INTERLOCK		
15.1	Door Shall Not Able To Open When C.B. Is Closed	Yes	
15.2	Impossibility of C.B. Rack-In / Rack-Out When C.B. Is Closed	Yes	
15.3	Padlock for C.B.	Yes	
15.4	MCCB Open / Close From Closed Door Through Lockable Telescopic Rotary Handle	Yes	
16	PANEL SPACE HEATER TECHNICAL DATA		
16.1	Type No.	By Vendor	
16.2	Control Type	By Vendor	

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Technical Data Sheet for LV Switchgear of Well Pads			
ITEM	DESCRIPTION	REQUIREMENT	VENDOR'S DATA
16.3	Protection Type	By Vendor	
16.4	Voltage	230 VAC	
16.5	Power Consumption	By Vendor	
17	PANEL LIGHT TECHNICAL DATA		
17.1	Type No.	By Vendor	
17.2	Control Type	By Vendor	
17.3	Protection Type	By Vendor	
17.4	Voltage	230 VAC	
17.5	Power Consumption	By Vendor	

Note:

- 1- This data sheet is valid for all 6 numbers of well named as, BK-12, BK-15, BK-05, WS-007, WS-046 & BK-14.
- 2- According to IPS-M-EL-143(3), the rated ultimate short circuit breaking capacity (Icu) and rated service short circuit breaking capacity (Ics) shall be equal.
- 3- All signal colors shall be listed and explained by Vendor.
- 4- Technical data for all labels shall be given by Vendor.
- 5- For all CB sizing, SLD shall be considered as reference.
- 6- All CBs accessories shall be mentioned by Vendor such as:
 - Shunt trip coil & close coil
 - Spring charged motor and hand operated
 - Anti-pumping device
 - Circuit breaker racking-in/out lever
 - Mechanical signaling device for C.B. open / close
 - Operation counter
 - Earthing contact on truck
- 7- According to note 2 of "Electrical Typical Schematic Diagrams for LV Panel (BK-GCS-PEDCO-120-EL-DG-0002-D05)": "Control circuit voltage for outgoing is 230 VAC which will be supplied for each LV cubicle. In other words for each LV cubicle one isolated dry type transformer shall be considered by vendor".

*: These items will be finalized after preparations and finalized of related document such as power system study, Transformer sizing, load list etc.