



نگهداشت و افزایش تولید میدان نفتی بینک  
سطح الارض  
احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

DATA SHEETS FOR DIESEL GENERATOR

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D03	0003	DT	EL	120	PEDCO	GCS	BK

شماره صفحه: ۱ از ۱۰

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS FOR DIESEL GENERATOR

نگهداشت و افزایش تولید میدان نفتی بینک

Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	Client Approval
D03	Sep. 2024	IFA	H.Shakiba	M.Fakharian	M.Sadeghian	
D02	Mar. 2023	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D01	Aug. 2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D00	May. 2022	IFC	H.Shakiba	M.Fakharian	M.Mehrshad	

Class: 1

Client Doc. Number: F0Z-709020

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



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REVISION RECORD SHEET

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3	X	X			
4	X	X	X	X	
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شماره صفحه: ۳ از ۱۰

Technical Data Sheet for Diesel Generator of Compressor Station

Item	Description	Purchaser Requirement	Manufacturer Data
<b>1. Environmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001)</b>			
1.1	Location	Binak Oilfield in Bushehr Province	
1.2	Installation	Outdoor Under Shelter, Safe Area	
1.3	Installation Elevation	12.5m (Above Sea Level)	
1.4	Seismic Loads	Zone 3 UBC	
1.5	Relative Humidity	100%	
1.6	Ambient Temperature Range	5 ~ 52°C	
1.7	Atmosphere	Corrosive & Hot	
<b>2. General</b>			
2.1	Manufacturer's Name	By Vendor	
2.2	Model	By Vendor	
2.3	Quantity/Tag Number	1 /GCS-DG-001	
2.4	Electrical Standard	IPS-E-EL-100(1) IPS-M-EL-138 (1) BK-GNRAL-PEDCO-000-EL-SP-0009	
2.5	Mechanical Standard	IPS-M-PM-290 (2) BK-GCS-PEDCO-120-ME-SP-0012	
2.6	References	Calculation Note for Diesel Generator Sizing (BK-GCS-PEDCO-120-EL-CN-0007)	
2.7	Description of Equipment	Gen Set with Diesel Engine Prime Mover (Diesel Generator)	
<b>3. Engine Specifications</b>			
3.1	Genset Operation Mode (Single or Parallel)	Single	
3.2	Duty	Emergency Standby (Calculated for continuous operation)	
3.3	Aspiration	Turbo Charged, Intercooler	
3.4	Cylinder configuration	By Vendor	
3.5	Number of Cylinders	By Vendor	
3.6	Type	Industrial, 4 strokes, Direct Injection	
3.7	Displacement (liter)	By Vendor	
3.8	Bore/Stroke (mm)	By Vendor	
3.9	Compression Ratio	By Vendor	



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شماره صفحه: ۴ از ۱۰

Technical Data Sheet for Diesel Generator of Compressor Station

Item	Description	Purchaser Requirement	Manufacturer Data
3.10	Governor Type	Electronic	
3.11	Air Cleaner Type	Heavy Duty	
3.12	Engine speed (rpm)	1500	
3.13	Derating Factor for Working at Site Conditions (55°C)	0.97 (Vendor Shall Advise This Value)	
3.14	ISO Gross Shaft Power at (kw) Continuous Prime Maximum Standby	By Vendor >494 >506	D03
3.15	Cooling Fan Power Requirement (kw)	10	
3.16	ISO Net Shaft Power at (kw) Continuous Prime Maximum Standby	By Vendor >496 >510	
3.17	Piston Speed (m/s)	By Vendor	
3.18	Starting System	Electrical	
3.19	Type of Batteries	Vented Ni-Cd	
3.20	Number of Batteries (Cell)	20 Number Cells	
3.21	Size of Batteries (Ah)	Not Less than 200 Ah	
3.22	Max Startup & Loading Time up to Full Load (Sec)	10 Sec	
<b>4.Lubricating System</b>			
4.1	Type	Forced Feed by Gear Oil Pump	
4.2	Total Oil Capacity Min/Max (liter)	By Vendor	
4.3	Oil Filter	By Vendor	
4.4	Oil Cooler	Water Cooled	
4.5	Oil Type Required	By Vendor	
4.6	Lube Oil Consumption at: (gr/h) Continuous Power Prime Power Standby POWER	By Vendor	
<b>5 .Fuel System</b>			
5.1	Type of Fuel	Gas oil	
5.2	Fuel Filter Type	By Vendor	



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**DATA SHEETS FOR DIESEL GENERATOR**

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شماره صفحه: ۵ از ۱۰

**Technical Data Sheet for Diesel Generator of Compressor Station**

Item	Description	Purchaser Requirement	Manufacturer Data
5.3	Permissible Suction Head	By Vendor	
5.4	Permissible Return Head	By Vendor	
5.5	Specified Fuel Consumption at: (gr/kwh) 100% Maximum Standby Power Prime Power 100% Continuous Power	By Vendor	
5.6	Daily Tank	For 8 Hours Operation	
<b>6. Cooling System</b>			
6.1	Total Coolant Capacity (liter)	By Vendor	
6.2	Water Pump Type	Centrifugal	
6.3	Temp. Rise Across Engine at: °C Continuous Power Prime Power Standby Power	By Vendor	
6.4	Heat Rejection to Exhaust (Prime Power) (kw)	By Vendor	
6.5	Heat Rejection to Coolant (Prime Power) (kw)	By Vendor	
6.6	Heat Rejection to Intercooler (Prime Power) (kw)	By Vendor	
6.7	Heat Rejection by Radiation From Engine Surface (Prime Power) (kw)	By Vendor	
6.8	Cooling Air Required for Radiator (Prime Power) (kw)	By Vendor	
<b>7. Air Intake</b>			
7.1	Combustion Air Flow at: (m <sup>3</sup> /h) Standby Power Prime Power Continuous Power	By Vendor	
7.2	Max. Air Intake Restriction of Engine : hPa With New Filter With Used Filter	By Vendor	
7.3	Alternator Cooling Air (m <sup>3</sup> /h)	By Vendor	
<b>8. Exhaust System</b>			
8.1	Max. Allowable Back Pressure for Exhaust Line (pa)	By Vendor	
8.2	Exhaust Flow (at Standby Power) (m <sup>3</sup> /h)	By Vendor	
8.3	Exhaust Gas Temp. After Turbine (at Standby Power) (°C)	By Vendor	
8.4	Silencer Type	Residential	



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Technical Data Sheet for Diesel Generator of Compressor Station

Item	Description	Purchaser Requirement	Manufacturer Data
8.5	Spark Arrester	Required	
<b>9. Engine Auxiliaries</b>			
9.1	Alternator Manufacturer	By Vendor	
9.2	Alternator Voltage (v)	By Vendor	
9.3	Alternator Current (A)	By Vendor	
9.4	Starter Manufacturer	By Vendor	
9.5	Starter Motor Voltage (v)	By Vendor	
9.6	Starter Motor Power (kw)	By Vendor	
<b>10. Generator Specifications</b>			
10.1	Quantity / Duty	1 X 100% / Continuous	
10.2	Manufacturer / Type	By Vendor	
10.3	Continuous Rating (MCR) at Standard Condition for Class F Temperature Rise (kva)	> 512kVA to meet continuous operation > 539kVA to meet starting conditions	D03
10.4	De-Rating Factor for Ambient Temperature $K_t$	0.9 (MFR shall advise his value)	
10.5	De-Rating Factor for Altitude $K_a$	1.0	
10.6	Total Generator De-Rating Factor $K_d=K_a*K_t$	0.9 (MFR Shall Advise His Value)	
10.7	Continuous Rating (MCR) at Site Conditions for Class F Temp. Rise (kva)	394	
10.8	Permissible Overload (Class H Temp. Rise & Standby Duty) (kva)	10% of Rated Current for a Period of One Hour (in Each 12 Hours Function)	
10.9	Starting Capability (12% Voltage Dip at gen. Terminal)	Starting of the biggest motor while having the other loads in operation PF=0.80	
10.10	Unbalance Loading Capacity (%)	15%	
10.11	Power Factor	0.80	
10.12	Terminal Voltage (v)	400	
10.13	Stator Winding Connection	Series Star	
10.14	Frequency (Hz)	50	
10.15	Grounding	Solidly Grounded	
10.16	Neutral Point	Brought out	
10.17	Insulation Class	F	



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**Technical Data Sheet for Diesel Generator of Compressor Station**

Item	Description	Purchaser Requirement	Manufacturer Data
10.18	Temp. Rise for Continuous Duty	B	
10.19	Ingress Protection of Terminal Box	IP55W	
10.20	Ingress Protection for Generator	IP23	
10.21	Short Circuit Ratio at Rated Volts & Current	By Vendor	
10.22	Synchronous Reactance Xd (Base 600kVA, 400V, Saturated) (pu)	By Vendor	
10.23	Direct Axis Transient Reactance X'd1(pu)	By Vendor	
10.24	Direct Axis sub-Trans. Reactance X''d (pu)	By Vendor	
10.25	Quadrature Axis Reactance Xq (pu)	By Vendor	
10.26	Quadrature Axis Sub-Trans. Reactance X''q (pu)	By Vendor	
10.27	Zero Sequence Reactance X0 (pu)	By Vendor	
10.28	Negative Sequence Reactance X2 (pu)	By Vendor	
10.29	Leakage Reactance XL (pu)	By Vendor	
10.30	Time Constants (sec) Td' Td'' Ta	By Vendor	
10.31	Generator Efficiency at: 1/2 Full Load (%) 3/4 Full Load (%) 4/4 Full Load (%)	By Vendor	
10.32	Number of Bearings	1 (2 is preferred)	
10.33	Type of Bearings / Lubrication	Anti-friction / Grease	
10.34	Generator Space Heater - Voltage (v) - Power (w)	Required 230 By Vendor	
10.35	Exciter Type	Self-Excited (PMG is preferred) Brushless, 3 phase sensing	
10.36	Exciter Voltage	By Vendor	
10.37	Exciter Manufacturer	By Vendor	
10.38	AVR Model	By Vendor	
10.39	Voltage Regulation	±5%	



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**Technical Data Sheet for Diesel Generator of Compressor Station**

Item	Description	Purchaser Requirement	Manufacturer Data
10.40	Exciter Current at: (A) Continuous Operation Short time Overload	By Vendor	
<b>11. Control Panel</b>			
11.1	Manufacturer	By Vendor	
11.2	Standard	IEC, IPS-M-EL-143(3)	
11.3	Type	Fixed	
11.4	Construction	Self-Standing	
11.5	Sheet Steel Thickness	2mm Wall / 2.5 mm Frame	
11.6	Access	Front Via Hinged Door	
11.7	Location	Outdoor (Under Shelter)	
11.8	Ingress Protection	IP54	
11.9	Busbar System	3Ph+N+PE	
11.10	Rated Busbar Current (A)	800	
11.11	Busbar Material	Copper (Insulated With Heat Shrink)	
11.12	Protection Functions (Embedded in ACB Protection Unit)	- Overload 49 - Phase over current 50/51 Earth fault 50N/51N	
11.13	Protection Functions (Other Than ACB Protection Unit)	According to "BK-GCS-PEDCO-120-EL-SL-0002"	
11.14	Controller Manufacturer / Model no.	By Vendor	
11.15	Indicators on Panel	- Gen. Voltages (Analogue) - Gen. Currents - Gen. Frequency (Analogue) - Battery charging ammeter - Power factor meter - Jacket water temperature - Lubricating oil temp. - Lubricating oil press. - Hours run meter - Watt meter - Watt-hour meter - VAR-hour meter - VAR meter	
11.16	Transducers (4~20mA Output)	- Generator Voltage - Frequency	
11.17	Generator Neutral CT Manufacturer	Required for 51G protection Required for 64R protection	





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شماره صفحه : ۹ از ۱۰

**Technical Data Sheet for Diesel Generator of Compressor Station**

Item	Description	Purchaser Requirement	Manufacturer Data
	Rating & Class	By Vendor 51G: 800/5A, Cl. 5P10	
11.18	Earth Fault Protections Manufacturer Type Setting Range	Required BY Vendor Solid state By Vendor	
11.19	Panel Accessories	Anti-Condensation Heater Panel Lighting Removable Gland Plate	
11.20	Finish Color	RAL 7032	
11.21	Cable entry	Bottom via Cable Gland	
11.22	Cable Specification & Size From Generator to Local Panel: From Local Panel to LV switchgear:	CU/XLPE/AWA/PVC By Vendor 2x(1x300mm <sup>2</sup> ) Phase 1 2x(1x300mm <sup>2</sup> ) Phase 2 2x(1x300mm <sup>2</sup> ) Phase 3 1x(1x3300mm <sup>2</sup> ) Neutral	 D03
<b>12. Switching Device</b>			
12.1	Type of Switching Device	ACB	
12.2	Manufacturer	By Vendor	
12.3	Type Designation	By Vendor	
12.4	Operating Mechanism	Motor Operated, Spring Charged, Stored Energy, Trip Free Mechanism	
12.5	Number of Poles	4	
12.6	Rated Current (A)	800	
12.7	Rated Voltage (V)	690	
12.8	Standard	IEC	
12.9	Rated Breaking Current	Not Less Than 35kA	
12.10	Charging Motor Operating Voltage (V)	24 (Fed from diesel batteries)	
12.11	Trip Unit	Electronic type	
12.12	Trip Unit Functions	49, 50, 51, 50N, 51N	
12.13	Trip Unit Model	By Vendor	
<b>13. Generator Accessories</b>			
13.1	RTD (Pt100)	Yes (9 RTD's for S > 500kVA)	
13.2	Lifting Bolts	Yes	

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																	
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BK	GCS	PEDCO	120	EL	DT	0003	D03											

Technical Data Sheet for Diesel Generator of Compressor Station			
Item	Description	Purchaser Requirement	Manufacturer Data
13.3	Earthing Bolt	Yes	
13.4	Drain Plug	Yes	
<b>14.General</b>			
14.1	Noise Level	Not More than 81dB @ No Load	
14.2	Weight of Diesel Engine Without Oil and Water (Kg)	By Vendor	
14.3	Weight of Generator (Kg)	By Vendor	
14.3	Weight of Diesel Generator Skid (Kg)	By Vendor	
14.4	Overall Dimension of Diesel Generator Skid (W x D x H) (mm)	By Vendor	
14.5	Dimension of Control Panel (W x D x H) (mm)	By Vendor	

Note 1: Cable size shall be according to “BK-GCS-PEDCO-120-EL-LI-0002”.

Note 2: All required accessories shall be considered by vendor.