
 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	DATA SHEETS FOR MV INDUCTION MOTORS							شماره صفحه ۱: از ۷	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	EL	DT	0009	D03	

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS FOR MV INDUCTION MOTORS

نگهداشت و افزایش تولید میدان نفتی بینک



Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	Client Approval
D03	Apr. 2023	AFC	H.Shakiba	M.Fakharian	A.M.Mohseni	
D02	May. 2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D01	Feb. 2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D00	Sep. 2021	IFC	H.Shakiba	M.Fakharian	M.Mehrshad	

Class:1

Client Doc. Number: F0Z-709026

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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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	DATA SHEETS FOR MV INDUCTION MOTORS							شماره صفحه: ۲ از ۷	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	EL	DT	0009	D03	



REVISION RECORD SHEET

PAGE	D00	D01	D02	D03	D04
1	X	X	X	X	
2	X	X	X	X	
3	X	X	X		
4	X	X			
5	X	X			
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DATA SHEETS FOR MV INDUCTION MOTORS																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	EL	DT	0009	D03																			



Data Sheets for MV Induction Motors			
Item	Category	Required Specification	Vendor Data
1	Driven Machine	Electrical Motor	
2	Driven Machine Tag No.	-	
3	Manufacturer	By Vendor	
4	Manufacturer's Number / Type	By Vendor	
5	Manufacturing Standard	IEC 60034 & IPS-M-EL-132(2)	
6	Location	[X] Outdoor (Under Shelter) [] Indoor	
7	Area Classification	Acc. to requisition data	
8	Ambient Temperature	5 to +55°C	
9	Relative Humidity	100 %	
10	Dust	[X] Yes [] No	
11	Corrosion	[X] Yes [] No	
12	Elevation	12.5m Above Sea Level	
13	Quantity	Acc. To Load List (BK-GCS-PEDCO-120-EL-LI-0001)	
14	Tag Number	Acc. To Load List (BK-GCS-PEDCO-120-EL-LI-0001)	
15	Motor Type	Asynchronous, Squirrel Cage	
16	Mounting	[] Horizontal [] Vertical	
17	Rotor Construction	<input checked="" type="checkbox"/> Brazed Copper Bars <input type="checkbox"/> Aluminum Die Cast	
18	Stator Case Material	Cast Iron	
19	Frame Material	Steel Sheet or Cast Iron	
20	Cooling Method	According to IPS-M-EL-131(2)	
21	Ingress Protection Degree for Motor	IP 54	
22	Ingress Protection Degree for Terminal Box	IP 55	
23	Explosion Protection of Motor	N/A for Safe Area Zone 2, IIB, T3	
24	Explosion Protection of Terminal Box	N/A for Safe Area Zone 2, IIB, T3	
25	Ex. Certificate Authority/Certificate No.	By Vendor	
26	Driven Machine Shaft Power Requirement (P _{mp})	As Per Related Mechanical Data sheet (to be Specified by Vendor)	
27	API Design Margin (Km)	1.10	
28	Motor output shaft power requirement @ site condition (=Pmp/Km)	As Per Related Mechanical Data sheet (to be Specified by Vendor)	

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	DATA SHEETS FOR MV INDUCTION MOTORS							شماره صفحه ۴ از ۷	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	EL	DT	0009	D03	



Data Sheets for MV Induction Motors			
Item	Category	Required Specification	Vendor Data
29	De-rating factor due to Ambient Temperature (Kt)	0.85 (MFR Shall Advise The Value)	
30	De-rating factor due to Altitude (Ka)	1 (MFR Shall Advise The Value)	
31	Motor Power (Defined for IEC condition i.e. 40°C)	As Per Related Mechanical Data sheet (to be Specified by Vendor)	
32	Standard Rated Motor Output = $K_m \times P_{mp} / (K_a K_t)$	By Vendor	
33	Frame Size	By Vendor	
34	Rated Voltage	11KV $\pm 10\%$ or 3.3KV $\pm 10\%$	
35	Rated Frequency	50 Hz $\pm 5\%$	
36	Voltage During Motor Start	80% U_n	
37	Synchronous Speed	By Vendor	
38	Full Load Speed [RPM]	By Vendor	
39	Number of Poles	By Vendor	
40	Starting Method	Direct on Line	
41	Direction of Rotation (Viewed from coupling end)	Shall be Proposed by MFR Based on Driven Load Rotation of Direction	<input type="checkbox"/> CW <input type="checkbox"/> CCW <input type="checkbox"/> Unidirectional <input type="checkbox"/> Bidirectional
42	Stator Winding Connection	Star	
43	Location of Terminal Box (Viewed from DE)	<input type="checkbox"/> Right <input type="checkbox"/> Left	
44	Insulation Class	Class F	
45	Class of Temperature Rise	Class B	
46	Max. Permissible Starting Time [s]	By Vendor	
47	Accelerating Time DOL starting, at 100% U_n [s]	By Vendor	
48	Accelerating Time DOL starting, at 80% U_n [s]	By Vendor	
49	Starting Torque at 100% U_n [N.m]	By Vendor	
50	Starting Torque at 80% U_n [N.m]	By Vendor	
51	Maximum Torque [N.m]	By Vendor	
52	Rated Torque [N.m]	By Vendor	
53	Rated Current [A]	By Vendor	
54	No Load Current [A]	By Vendor	
55	Locked Rotor Current [A]	$< 7I_n$	
56	Torque-Speed Class	Shall be Selected Based on Driven Load Torque Requirement	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	DATA SHEETS FOR MV INDUCTION MOTORS							شماره صفحه: ۵ از ۷	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
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Data Sheets for MV Induction Motors			
Item	Category	Required Specification	Vendor Data
57	Permit to Start Times	3C2H	
58	Reacceleration	Capable for connection to 100% main voltage with 30%, 180° out of phase residual voltage.	
59	Heating time Constant [minute]	By Vendor	
60	Cooling Time Constant [minute]	By Vendor	
61	Duty Cycle	S1	
62	Rotor Moment of Inertia [kgm ²]	By Vendor	
63	Driven Machine Moment of Inertia [kgm ²]	By Vendor	
64	Max. Allowable Load Moment of Inertia [kgm ²]	By Vendor	
65	Power Factor at ½ Rated Load	By Vendor	
66	Power Factor at ¾ Rated load	By Vendor	
67	Power factor at Rated Load	By Vendor	
68	Efficiency at ½ Rated Load	By Vendor	
69	Efficiency at ¾ Rated Load	By Vendor	
70	Efficiency at Rated Load	By Vendor	
71	Bearing (DE)		
	Type (Detail Description by Vendor)	<input type="checkbox"/> Antifriction (Ball Bearing) <input type="checkbox"/> Antifriction (Roller Bearing) <input checked="" type="checkbox"/> Sleeve (Spherical Self Aligned)	
	Manufacturer	By Vendor	
	Minimum Life Without Load	Minimum 100,000 Hours	
	Minimum Life With Load	By Vendor	
	Lubrication	Oil (oil specification shall be specified by manufacturer)	
	Lubrication system (To be advised by manufacturer considering ambient temperature)	<input type="checkbox"/> Grease (anti friction bearings) <input checked="" type="checkbox"/> Air cooled oil reservoir with Lubricating ring <input type="checkbox"/> Forced Oil Lubrication with air cooled radiator	
	Oil Capacity [Liter]	By Vendor	
	Permissible Trust Force [N]	By Vendor	
	Max. Normal Operating Temperature	By Vendor	
72	Bearing (NDE)		
	Type (Detail Description by Vendor)	<input type="checkbox"/> Anti friction (Ball Bearing) <input type="checkbox"/> Antifriction (Roller Bearing) <input checked="" type="checkbox"/> Sleeve (Spherical self aligned)	

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Data Sheets for MV Induction Motors			
Item	Category	Required Specification	Vendor Data
	Manufacturer	By Vendor	
	Minimum Life Without Load	Minimum 100,000 Hours	
	Minimum Life With Load	By Vendor	
	Lubrication	Oil (Specification must be specified by manufacturer)	
	Oil Capacity [Liter]	By Vendor	
	Permissible Trust Force [N]	Shall meet coupled machine trust	
	Max. Normal Operating Temperature	By Vendor	
73	DE Bearing Temperature Sensor / Meter	<input type="checkbox"/> Not Required <input type="checkbox"/> PTC <input checked="" type="checkbox"/> RTD <input checked="" type="checkbox"/> Thermometer (Dial) <input type="checkbox"/> Temperature Switch	
74	NDE Bearing Temperature Sensor	<input type="checkbox"/> Not Required <input type="checkbox"/> PTC <input checked="" type="checkbox"/> RTD <input checked="" type="checkbox"/> Thermometer (Dial) <input type="checkbox"/> Temperature Switch	
75	Winding Temperature Sensor	<input type="checkbox"/> Not Required <input type="checkbox"/> PTC <input checked="" type="checkbox"/> RTD (9 RTD's 3 per phase)	
76	Space Heater	Required	
	Space Heater Voltage [V]	230VAC, 50Hz, 1Ph	
	Space Heater Power [W]	By Vendor	
77	Terminal Boxes	<input checked="" type="checkbox"/> MV main Terminal Box <input checked="" type="checkbox"/> Space heater / RTD's / Switches Terminal Box	
78	Main Power Cable Specification & Size & Orientation	According to BK-GCS-PEDCO-120-EL-CN-0003	
79	Method of Cable Entry	<input checked="" type="checkbox"/> Cable Gland <input type="checkbox"/> Sealing Gasket	
80	Short Circuit Capability of Terminal Box	25 kA for 0.2 S	
81	Power terminal box connection method	Motor & Supply wires with cable shoe to be fixes on suitable post insulators	
82	Sound Level at 1 distance (m) From Motor	Max. 85 dB(A)	
83	Finish Color	Manufacturer Standard	
84	Test & Inspection Routine tests including: a) Insulation resistance test on windings, heaters, temperature detectors and bearing insulations	For P<=500kW Witness on test of all motors[X] Report of test of all motors[X] For P>500kW	

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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
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Data Sheets for MV Induction Motors			
Item	Category	Required Specification	Vendor Data
	b) Measurement of winding resistance (cold) c) Measurement of winding resistance (hot) d) Bearing temperature rise e) No load current f) Current unbalance at full load g) Locked rotor current (at full or reduced voltage) h) Locked rotor torque (at full or reduced voltage) i) Torque speed curve j) No load losses k) Direction of rotation l) Slip and nominal speed and full load m) Vibration severity n) Noise test o) bearings inspection Type test: p) Heat run test	Witness on test of all motors[X] Report of test of all motors[X] For P≤1000kW Report of test of one identical motor[X] For P>1000kW Witness on test of One project motor[X] Report of test of above mentioned test[X]	

DE: Drive End
 NDE: Non Drive End
 CW: Clockwise
 CCW: Counter Clockwise

Note 1: IPS design margin is defined in accordance with standard output power rating of motor:

	Standard Output Power Rating	Design margin
1	Up to 22kW	1.25
2	from 22kW to 55kW	1.15
3	Above 55kW	1.10

Note 2: **Conventional** Differential protection (**not self-balancing**) is required for motors with rated power 1000kW and above. CTs shall be provided by vendor and installed in the motor terminal box. And special care shall be considered on CT window size and motor cables overall diameter to be coordinate with each other.