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| **طرح نگهداشت و افزایش تولید 27 مخزن** |
| **Motor Data Sheets Including Curves and Drawing****نگهداشت و افزایش تولید میدان نفتی بینک** |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |
| V00 | DEC. 2024 | IFA | AAC | M.FAKHARIAN | M.SADEGHIAN |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
|  |
| **Status:** | **IFA: Issued For Approval****IFI: Issued For Information****AFC: Approved For Construction**  |

**REVISION RECORD SHEET**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PAGE** | **V00** | **V01** | **V02** | **V03** | **V04** |  | **PAGE** | **V00** | **V01** | **V02** | **V03** | **V04** |
| **1** | X |  |  |  |  | **66** |  |  |  |  |  |
| **2** | X |  |  |  |  | **67** |  |  |  |  |  |
| **3** | X |  |  |  |  | **68** |  |  |  |  |  |
| **4** | X |  |  |  |  | **69** |  |  |  |  |  |
| **5** | X |  |  |  |  | **70** |  |  |  |  |  |
| **6** | X |  |  |  |  | **71** |  |  |  |  |  |
| **7** | X |  |  |  |  | **72** |  |  |  |  |  |
| **8** | X |  |  |  |  | **73** |  |  |  |  |  |
| **9** | X |  |  |  |  | **74** |  |  |  |  |  |
| **10** | X |  |  |  |  | **75** |  |  |  |  |  |
| **11** | X |  |  |  |  | **76** |  |  |  |  |  |
| **12** | X |  |  |  |  | **77** |  |  |  |  |  |
| **13** | X |  |  |  |  | **78** |  |  |  |  |  |
| **14** | X |  |  |  |  | **79** |  |  |  |  |  |
| **15** | X |  |  |  |  | **80** |  |  |  |  |  |
| **16** | X |  |  |  |  | **81** |  |  |  |  |  |
| **17** | X |  |  |  |  | **82** |  |  |  |  |  |
| **18** | X |  |  |  |  | **83** |  |  |  |  |  |
| **19** | X |  |  |  |  | **84** |  |  |  |  |  |
| **20** | X |  |  |  |  | **85** |  |  |  |  |  |
| **21** | X |  |  |  |  | **86** |  |  |  |  |  |
| **22** | X |  |  |  |  | **87** |  |  |  |  |  |
| **23** | X |  |  |  |  | **88** |  |  |  |  |  |
| **24** | X |  |  |  |  | **89** |  |  |  |  |  |
| **25** | X |  |  |  |  | **90** |  |  |  |  |  |
| **26** | X |  |  |  |  | **91** |  |  |  |  |  |
| **27** | X |  |  |  |  | **92** |  |  |  |  |  |
| **28** | X |  |  |  |  | **93** |  |  |  |  |  |
| **29** | X |  |  |  |  | **94** |  |  |  |  |  |
| **30** | X |  |  |  |  | **95** |  |  |  |  |  |
| **31** | X |  |  |  |  | **96** |  |  |  |  |  |
| **32** | X |  |  |  |  | **97** |  |  |  |  |  |
| **33** | X |  |  |  |  | **98** |  |  |  |  |  |
| **34** | X |  |  |  |  | **99** |  |  |  |  |  |
| **35** | X |  |  |  |  | **100** |  |  |  |  |  |
| **36** | X |  |  |  |  | **101** |  |  |  |  |  |
| **37** | X |  |  |  |  | **102** |  |  |  |  |  |
| **38** | X |  |  |  |  | **103** |  |  |  |  |  |
| **39** | X |  |  |  |  | **104** |  |  |  |  |  |
| **40** | X |  |  |  |  | **105** |  |  |  |  |  |
| **41** | X |  |  |  |  | **106** |  |  |  |  |  |
| **42** | X |  |  |  |  | **107** |  |  |  |  |  |
| **43** | X |  |  |  |  | **108** |  |  |  |  |  |
| **44** | X |  |  |  |  | **109** |  |  |  |  |  |
| **45** | X |  |  |  |  | **110** |  |  |  |  |  |
| **46** | X |  |  |  |  | **111** |  |  |  |  |  |
| **47** | X |  |  |  |  | **112** |  |  |  |  |  |
| **48** | X |  |  |  |  | **113** |  |  |  |  |  |
| **49** |  |  |  |  |  | **114** |  |  |  |  |  |
| **50** |  |  |  |  |  | **115** |  |  |  |  |  |
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| **58** |  |  |  |  |  | **123** |  |  |  |  |  |
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1. **INTRODUCTION**

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

**GENERAL DEFINITION**

The following terms shall be used in this document.

|  |  |
| --- | --- |
| CLIENT:  | National Iranian South Oilfields Company (NISOC)  |
| PROJECT: | Binak Oilfield Development – Manufacturing (w/Engineering & Material Supply) of Air Coolers |
| EPD/EPC CONTRACTOR (GC):  | Petro Iran Development Company (PEDCO) |
| OWNER:  | OWNER is collectively refer to National Iranian South Oil Company (NISOC) and Petro Iran Development Company (PEDCO) |
| EPC CONTRACTOR: | Joint Venture of : Hirgan Energy – Design & Inspection(D&I) Companies |
| VENDOR: | Aban Air Cooler (AAC) |
| EXECUTOR:  | Executor is the party which carries out all or part of construction and/or commissioning for the project. |
| THIRD PARTY INSPECTOR (TPI): | Third Party Inspector |
| SHALL: | Is used where a provision is mandatory. |
| SHOULD: | Is used where a provision is advisory only. |
| WILL:  | Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR. |
| MAY:  | Is used where a provision is completely discretionary. |
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| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 1 | Driven Machine | Electrical Motor | Electrical Motor |
| 2 | Driven Machine Tag No. | - | AEM-2101 |
| 3 | Manufacturer | By Vendor | VEM |
| 4 | Manufacturer's Number / Type | By Vendor | K8KR 132 S4 |
| 5 | Manufacturing Standard | IEC 60034 & IPS-M-EL-131(2) | IEC 60034 |
| 6 | Location | [X] Outdoor (Under Shelter)[ ] Indoor | Outdoor |
| 7 | Area Classification | EExd IIB T3 | EExd IIC T3 |
| 8 | Ambient Temperature | 5 to +55°C | 5 to +55°C |
| 9 | Relative Humidity | 100 % |  |
| 10 | Dust | [X] Yes [ ] No | Yes  |
| 11 | Corrosion | [X] Yes[ ] No | Yes  |
| 12 | Elevation | 12.5m Above Sea Level | 12.5m Above Sea Level |
| 13 | Quantity | Acc. To Load List(BK-GCS-PEDCO-120-EL-LI-0001) | 6 |
| 14 | Tag Number | Acc. To Load List(BK-GCS-PEDCO-120-EL-LI-0001) | AEM-2101-1~6 |
| 15 | Motor Type | Asynchronous, Squirrel Cage | Asynchronous, Squirrel Cage |
| 16 | Mounting | [ ] Horizontal [ ] Vertical | Vertical, IMV3 |
| 17 | Rotor Construction | [ ] Brazed Copper Bars[ ] Aluminum Die Cast | Die Cast Aluminum |
| 18 | Frame Material | Steel Sheet or Cast Iron | Cast Iron |
| 19 | Rotor Cage Material | By Vendor | Die Cast Aluminum |
| 20 | Cooling Method | IC411 According to IPS-M-EL-131(2) | IC 411 |
| 21 | Ingress Protection Degree for Motor | IP 54 | IP55 |
| 22 | Ingress Protection Degree for TerminalBox | IP 55 | IP55 |
| 23 | Explosion Protection of Motor | N/A for Safe AreaZone 2, IIB, T3 | EExd IIC T3 |
| 24 | Explosion Protection of Terminal Box | N/A for Safe AreaZone 2, IIB, T3 | EExd IIC T3 |
| 25 | Ex. Certificate Authority/Certificate No. | By Vendor | CESI15ATEX017X |
| 26 | Driven Machine Shaft Power Requirement(Pmp) | As Per Related Mechanical Data sheet(to be Specified by Vendor) | 3.3 Kw |
| 27 | De-Rating Factor due to AmbientTemperature (Kt) | Vendor Shall Advise | 0.86 |
| 28 | De-Rating Factor Due to Altitude (Ka) | 1 | 1 |
| 29 | Design margin (Km) | Acc. to IPS Standard (Note 1) | API661  |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 30 | Motor Shaft Power Requirement @ Sitecondition (=Km X Pmp) | By Vendor | 3.3\*1.1 =3.63 Kw  |
| 31 | Standard Rated Motor Output=Km X Pmp/ (Ka Kt) | By Vendor | 4.73 |
| 32 | Frame Size | By Vendor | 132S |
| 33 | Frame Earth Boss | External | External |
| 34 | Rated Voltage | 400 V ±10% | 400 V ±10% |
| 35 | Rated Frequency | 50 Hz ±5% | 50 Hz ±5% |
| 36 | Protection Devices | Switch-Fuse | Switch-Fuse |
| 37 | Neutral Earthing System | TNS | TNS |
| 38 | Voltage During Motor Start | 80% Un | 80% Un |
| 39 | Synchronous Speed | By Vendor | 1500 |
| 40 | Full Load Speed [RPM] | By Vendor | 1435 |
| 41 | Over Speed Capability | By Vendor | 120 % |
| 42 | Number of Poles | By Vendor | 4 |
| 43 | Starting Method | Direct on Line | DOL |
| 44 | Direction of Rotation (Viewed from coupling end) | Shall be Proposed by MFR Based on Driven Load Rotation of Direction | [ ] CW[ ] CCW[ ] Unidirectional[X] Bidirectional |
| 45 | Stator Winding Connection | Delta | Delta |
| 46 | Location of Terminal Box (Viewed from DE) | [ ] Right [ ] Left | Top  |
| 47 | Insulation Class | Class F | F |
| 48 | Class of Temperature Rise | Class B | B |
| 49 | Max. Permissible Starting Time [s] | By Vendor |  |
| 50 | Accelerating TimeDOL starting, at 100% Un [s] | By Vendor | 3 |
| 51 | Accelerating TimeDOL starting, at 80% Un [s] | By Vendor | 5.16 |
| 52 | Starting Torque at 100% Un [N.m] | By Vendor | 87.84 |
| 53 | Starting Torque at 80% Un [N.m] | By Vendor | 56.22 |
| 54 | Maximum Torque [N.m] | By Vendor | 109 |
| 55 | Pull-Up Torque | By Vendor | 80.52 |
| 56 | Locked Rotor Torque | By Vendor | 84 |
| 57 | Rated Torque [N.m] | By Vendor | 36.6 |
| 58 | Rated Current [A] | By Vendor | 11 |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 59 | Max Starting Current | By Vendor | ≤700 In |
| 60 | No Load Current [A] | By Vendor | 4.6 |
| 61 | Locked Rotor Current [A] | <7In | 6.1 |
| 62 | Locked Rotor Power Factor [A] | By Vendor | 0.49 |
| 63 | Torque-Speed Class | Shall be Selected Based on DrivenLoad Torque Requirement | [ ] A [ ] B[ ] C [ ] D |
| 64 | Duty Cycle | S1 | S1 |
| 65 | Current at ½ Rated Load | By Vendor | 6.35 |
| 66 | Current at ¾ Rated load | By Vendor | 8.46 |
| 67 | Current at Rated Load | By Vendor | 11 |
| 68 | Starting Power Factor | By Vendor | 0.49 |
| 69 | Power Factor at ½ Rated Load | By Vendor | 0.71 |
| 70 | Power Factor at ¾ Rated load | By Vendor | 0.8 |
| 71 | Power Factor at Rated Load | By Vendor | 0.85 |
| 72 | Efficiency at ½ Rated Load | By Vendor | 83.2 |
| 73 | Efficiency at ¾ Rated Load | By Vendor | 85 |
| 74 | Efficiency at Rated Load | By Vendor | 84.7 |
| 75 | No Load Losses | By Vendor | 0.35 |
| 76 | Stall Time (Hot/Cold) (Sec) | By Vendor | 10/15 |
| 77 | Transient Reactance (X'd) | By Vendor |  |
| 78 | Sub - Transient Reactance (X"d) | By Vendor |  |
| 79 | Acceleration Time At 80% Un (Sec) | By Vendor | 5.16 |
| 80 | Bearing (DE) |
| Type (Detail Description by Vendor) | Anti Friction (Ball Bearing) | 6208-2Z C3 |
| Manufacturer | By Vendor | SKF Or NSK |
| Minimum Life Without Load | Minimum 40000 Hours | 40000 |
| Minimum Life With Load | Minimum 32000 Hours | 32000 |
| Lubrication | Grease | Grease |
| Cooling Water/ Oil Capacity | N/A | N/A |
| Permissible Trust Force [N] | By Vendor |  |
| 81 | Bearing (NDE) |
| Type (Detail Description by Vendor) | Anti friction (ball bearing) | 6208-2Z C3 |
| Manufacturer | By Vendor | SKF Or NSK |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
|  | Minimum Life Without Load | Minimum 40000 Hours | 40000 |
| Minimum Life With Load | Minimum 32000 Hours | 32000 |
| Lubrication | Grease | Grease  |
| Cooling Water/ Oil Capacity | N/A | N/A |
| Permissible Trust Force [N] | By Vendor |  |
|  | Space Heater | Not Required | N/A  |
| Space Heater Voltage [V] | 230VAC, 50Hz, 1Ph | N/A  |
| Space Heater Power [W] | By Vendor | N/A  |
| 82 | Temp. Detector (Winding/Bearing) | By Vendor | N/A |
| 83 | Terminal Boxes | [X] Power Terminal Box[X] Space heater (if required) | Power TB  |
| 84 | Main Power Cable Specification & Size &Orientation | According to(BK-GCS-PEDCO-120-EL-CN-0003) |  |
| 85 | Motor Weight (Net/Shipped) | By Vendor | 79 |
| 86 | Rotor Moment of Inertia | By Vendor | 0.02 |
| 87 | Method of Cable Entry | [X] Cable Gland[ ] Sealing Gasket | Gland  |
| 88 | Cable Gland Hub of Main Terminal Box | By Vendor | 2 x M32 x1.5 |
| 89 | Cable Gland Entry for aux. Terminal Box(if applicable) | 1 X M25 (if Required) | N/A  |
| 90 | Short Circuit Capability of Terminal Box | 30 kA for 0.2 S | 10KA for 1Sec |
| 91 | Sound Level at 1 distance meter FromMotor | Max. 85 dB(A) | Below 85 dB |
| 92 | Finish Color | Manufacturer Standard | 7031 |
| 93 | Load Torque/Slip, Current/Slip Curves | By Vendor | After fan finalization  |
| 94 | Motor Torque/Slip, Current/Slip Curves | By Vendor | Attached |
| 95 | Time - Current Heating (Thermal Limit)Curve | By Vendor | Attached |
| 96 | Motor Thermal Capacity Data | By Vendor | Attached |
| 97 | Installation, Operation & MaintenanceInstruction | By Vendor | Attached |
| 98 | Spare Parts List for Two Years Operation | By Vendor | Please refer to relevant document |
| 99 | Commissioning Spare Part List | By Vendor | N/A |
| 100 | Dimensional Outline Drawing | By Vendor | As per attached DWG |
| 101 | Certified Type Test Report & WrittenStatement | By Vendor | After Manufacturing test report would be provided.  |
| 102 | Certified Conformity for EX Type Motors | By Vendor | Attached  |
| 103 | Deviation List (if Any) | By Vendor |  |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 104 | Test & Inspection | Factory Routine Test Report Shall beSubmitted | After Manufacturing test report would be provided |

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: The following values are default unless otherwise specified during finalization of motors:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Standard Output Power Rating | Cable Size | Gland Size |
| 1 | 5.5kW | 3x6 | M25 |
| 2 | 7.5kW | 3x6 | M25 |
| 3 | 15kW | 3x16 | M32 |
| 4 | 18.5kW | 3x16 | M32 |
| 5 | 30kW | 3x50 | M40 |
| 6 | 37kW | 3x50 | M40 |
| 7 | 45kW |  | M50 |
| 8 | 55kW | 3x95 | M50 |

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| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 1 | Driven Machine | Electrical Motor | Electrical Motor |
| 2 | Drive Machine Tag No. | - | AEM-2102 |
| 3 | Manufacturer | By Vendor | VEM |
| 4 | Manufacturer's Number / Type | By Vendor | K8KR 132 M4 |
| 5 | Manufacturing Standard | IEC 60034 & IPS-M-EL-131(2) | IEC 60034 |
| 6 | Location | [X] Outdoor (Under Shelter)[ ] Indoor | Outdoor |
| 7 | Area Classification | EExd IIB T3 | EExd IIC T3 |
| 8 | Ambient Temperature | 5 to +55°C | 5 to +55°C |
| 9 | Relative Humidity | 100 % |  |
| 10 | Dust | [X] Yes [ ] No | Yes  |
| 11 | Corrosion | [X] Yes[ ] No | Yes  |
| 12 | Elevation | 12.5m Above Sea Level | 12.5m Above Sea Level |
| 13 | Quantity | Acc. To Load List(BK-GCS-PEDCO-120-EL-LI-0001) | 6 |
| 14 | Tag Number | Acc. To Load List(BK-GCS-PEDCO-120-EL-LI-0001) | AEM-2102-1~6 |
| 15 | Motor Type | Asynchronous, Squirrel Cage | Asynchronous, Squirrel Cage |
| 16 | Mounting | [ ] Horizontal [ ] Vertical | Vertical, IMV3 |
| 17 | Rotor Construction | [ ] Brazed Copper Bars[ ] Aluminum Die Cast | Die Cast Aluminum |
| 18 | Frame Material | Steel Sheet or Cast Iron | Cast Iron |
| 19 | Rotor Cage Material | By Vendor | Die Cast Aluminum |
| 20 | Cooling Method | IC411 According to IPS-M-EL-131(2) | IC 411 |
| 21 | Ingress Protection Degree for Motor | IP 54 | IP55 |
| 22 | Ingress Protection Degree for TerminalBox | IP 55 | IP55 |
| 23 | Explosion Protection of Motor | N/A for Safe AreaZone 2, IIB, T3 | EExd IIC T3 |
| 24 | Explosion Protection of Terminal Box | N/A for Safe AreaZone 2, IIB, T3 | EExd IIC T3 |
| 25 | Ex. Certificate Authority/Certificate No. | By Vendor | CESI15ATEX017X |
| 26 | Driven Machine Shaft Power Requirement(Pmp) | As Per Related Mechanical Data sheet(to be Specified by Vendor) | 3.58 Kw |
| 27 | De-Rating Factor due to AmbientTemperature (Kt) | Vendor Shall Advise | 0.86 |
| 28 | De-Rating Factor Due to Altitude (Ka) | 1 | 1 |
| 29 | Design margin (Km) | Acc. to IPS Standard (Note 1) | API661  |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 30 | Motor Shaft Power Requirement @ Sitecondition (=Km X Pmp) | By Vendor | 4 |
| 31 | Standard Rated Motor Output=Km X Pmp/ (Ka Kt) | By Vendor | 6.45 |
| 32 | Frame Size | By Vendor | 132M |
| 33 | Frame Earth Boss | External | External |
| 34 | Rated Voltage | 400 V ±10% | 400 V ±10% |
| 35 | Rated Frequency | 50 Hz ±5% | 50 Hz ±5% |
| 36 | Protection Devices | Switch-Fuse | Switch-Fuse |
| 37 | Neutral Earthing System | TNS | TNS |
| 38 | Voltage During Motor Start | 80% Un | 80% Un |
| 39 | Synchronous Speed | By Vendor | 1500 |
| 40 | Full Load Speed [RPM] | By Vendor | 1440 |
| 41 | Over Speed Capability | By Vendor | 120 % |
| 42 | Number of Poles | By Vendor | 4 |
| 43 | Starting Method | Direct on Line | DOL |
| 44 | Direction of Rotation (Viewed from coupling end) | Shall be Proposed by MFR Based on Driven Load Rotation of Direction | [ ] CW[ ] CCW[ ] Unidirectional[X] Bidirectional |
| 45 | Stator Winding Connection | Delta | Delta |
| 46 | Location of Terminal Box (Viewed from DE) | [ ] Right [ ] Left | Top  |
| 47 | Insulation Class | Class F | F |
| 48 | Class of Temperature Rise | Class B | B |
| 49 | Max. Permissible Starting Time [s] | By Vendor |  |
| 50 | Accelerating TimeDOL starting, at 100% Un [s] | By Vendor | 2.18 |
| 51 | Accelerating TimeDOL starting, at 80% Un [s] | By Vendor | 3.66 |
| 52 | Starting Torque at 100% Un [N.m] | By Vendor | 154.18 |
| 53 | Starting Torque at 80% Un [N.m] | By Vendor | 98.67 |
| 54 | Maximum Torque [N.m] | By Vendor | 174 |
| 55 | Pull-Up Torque | By Vendor | 144.23 |
| 56 | Locked Rotor Torque | By Vendor | 154 |
| 57 | Rated Torque [N.m] | By Vendor | 49.73 |
| 58 | Rated Current [A] | By Vendor | 16.5 |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 59 | Max Starting Current | By Vendor | ≤700 In |
| 60 | No Load Current [A] | By Vendor | 6.3 |
| 61 | Locked Rotor Current [A] | <7In | 6.6 |
| 62 | Locked Rotor Power Factor [A] | By Vendor | 0.44 |
| 63 | Torque-Speed Class | Shall be Selected Based on DrivenLoad Torque Requirement | [ ] A [ ] B[ ] C [ ] D |
| 64 | Duty Cycle | S1 | S1 |
| 65 | Current at ½ Rated Load | By Vendor | 10.27 |
| 66 | Current at ¾ Rated load | By Vendor | 13.25 |
| 67 | Current at Rated Load | By Vendor | 16.5 |
| 68 | Starting Power Factor | By Vendor | 0.44 |
| 69 | Power Factor at ½ Rated Load | By Vendor | 0.62 |
| 70 | Power Factor at ¾ Rated load | By Vendor | 0.71 |
| 71 | Power Factor at Rated Load | By Vendor | 0.76 |
| 72 | Efficiency at ½ Rated Load | By Vendor | 85 |
| 73 | Efficiency at ¾ Rated Load | By Vendor | 86.3 |
| 74 | Efficiency at Rated Load | By Vendor | 86 |
| 75 | No Load Losses | By Vendor | 0.52 |
| 76 | Stall Time (Hot/Cold) (Sec) | By Vendor | 7/11 |
| 77 | Transient Reactance (X'd) | By Vendor | - |
| 78 | Sub - Transient Reactance (X"d) | By Vendor | - |
| 79 | Acceleration Time At 80% Un (Sec) | By Vendor | 3.66 |
| 80 | Bearing (DE) |
| Type (Detail Description by Vendor) | Anti Friction (Ball Bearing) | 6208-2Z C3 |
| Manufacturer | By Vendor | SKF Or NSK |
| Minimum Life Without Load | Minimum 40000 Hours | 40000 |
| Minimum Life With Load | Minimum 32000 Hours | 32000 |
| Lubrication | Grease | Grease  |
| Cooling Water/ Oil Capacity | N/A |  |
| Permissible Trust Force [N] | By Vendor |  |
| 81 | Bearing (NDE) |
| Type (Detail Description by Vendor) | Anti friction (ball bearing) | 6208-2Z C3 |
| Manufacturer | By Vendor |  |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
|  | Minimum Life Without Load | Minimum 40000 Hours | 40000 |
| Minimum Life With Load | Minimum 32000 Hours | 32000 |
| Lubrication | Grease | Grease  |
| Cooling Water/ Oil Capacity | N/A |  |
| Permissible Trust Force [N] | By Vendor |  |
|  | Space Heater | Not Required | N/A  |
| Space Heater Voltage [V] | 230VAC, 50Hz, 1Ph | N/A  |
| Space Heater Power [W] | By Vendor | N/A  |
| 82 | Temp. Detector (Winding/Bearing) | By Vendor | N/A |
| 83 | Terminal Boxes | [X] Power Terminal Box[X] Space heater (if required) | Power TB  |
| 84 | Main Power Cable Specification & Size &Orientation | According to(BK-GCS-PEDCO-120-EL-CN-0003) |  |
| 85 | Motor Weight (Net/Shipped) | By Vendor | 87 |
| 86 | Rotor Moment of Inertia | By Vendor | 0.167 |
| 87 | Method of Cable Entry | [X] Cable Gland[ ] Sealing Gasket | Gland  |
| 88 | Cable Gland Hub of Main Terminal Box | By Vendor | 2 x M32 x1.5 |
| 89 | Cable Gland Entry for aux. Terminal Box(if applicable) | 1 X M25 (if Required) | N/A  |
| 90 | Short Circuit Capability of Terminal Box | 30 kA for 0.2 S | 10KA for 1Sec |
| 91 | Sound Level at 1 distance meter FromMotor | Max. 85 dB(A) | Below 85 dB |
| 92 | Finish Color | Manufacturer Standard | 7031 |
| 93 | Load Torque/Slip, Current/Slip Curves | By Vendor | After fan finalization  |
| 94 | Motor Torque/Slip, Current/Slip Curves | By Vendor | Attached |
| 95 | Time - Current Heating (Thermal Limit)Curve | By Vendor | Attached |
| 96 | Motor Thermal Capacity Data | By Vendor | Attached |
| 97 | Installation, Operation & MaintenanceInstruction | By Vendor | Attached |
| 98 | Spare Parts List for Two Years Operation | By Vendor | Please refer to relevant document |
| 99 | Commissioning Spare Part List | By Vendor | N/A |
| 100 | Dimensional Outline Drawing | By Vendor | As per attached DWG |
| 101 | Certified Type Test Report & WrittenStatement | By Vendor | After Manufacturing test report would be provided.  |
| 102 | Certified Conformity for EX Type Motors | By Vendor | Attached  |
| 103 | Deviation List (if Any) | By Vendor |  |
| **Data Sheets for LV Induction Motors** |
| **Item** | **Category** | **Required Specification** | **Vendor Data** |
| 104 | Test & Inspection | Factory Routine Test Report Shall beSubmitted | After Manufacturing test report would be provided |

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: The following values are default unless otherwise specified during finalization of motors:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Standard Output Power Rating | Cable Size | Gland Size |
| 1 | 5.5kW | 3x6 | M25 |
| 2 | 7.5kW | 3x6 | M25 |
| 3 | 15kW | 3x16 | M32 |
| 4 | 18.5kW | 3x16 | M32 |
| 5 | 30kW | 3x50 | M40 |
| 6 | 37kW | 3x50 | M40 |
| 7 | 45kW |  | M50 |
| 8 | 55kW | 3x95 | M50 |