



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

053 - 073 - 9184

TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV
CAPACITOR BANK

| پروژه | بسته کاری | صادر کننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه |
|-------|-----------|------------|---------|------|----------|-------|------|
| BK | GCS | PEDCO | 120 | EL | TB | 0003 | D04 |

شماره صفحه: 1 از 27

طرح نگهداشت و افزایش تولید 27 مخزن

TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

نگهداشت و افزایش تولید میدان نفتی بینک

| D04 | Jan. 2025 | IFI | M.Fahimi | M.Fakharian | S.Faramarzpour | |
|------|-----------|-------------------------|--------------|-------------|----------------|-----------------|
| D03 | Oct. 2024 | IFI | H.Shakiba | M.Fakharian | M.Sadeghian | |
| D02 | Jul. 2024 | IFI | H.Shakiba | M.Fakharian | M.Sadeghian | |
| D01 | Feb. 2024 | IFI | H.Shakiba | M.Fakharian | S.Faramarzpour | |
| D00 | Nov. 2023 | IFI | H.Shakiba | M.Fakharian | S.Faramarzpour | |
| Rev. | Date | Purpose of Issue/Status | Prepared by: | Checked by: | Approved by: | Client Approval |

Class:3

Client Doc. Number: F0Z-709332

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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| BK | GCS | PEDCO | 120 | EL | TB | 0003 | D04 |

REVISION RECORD SHEET

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| 3 | X | X | | | X |
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| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه: 3 از 27

TBE for 11 KV Switchgear

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|--|---|---|-------------------|--------|--------------------|--------|--------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 1. Environmental Data (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001) | | | | | | | | | | |
| 1.1 | Name of Project / Plant | Binak Oilfield in Bushehr Province | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.2 | Ambient Temperature (Min/Max) | Min ~ Max: +5 ~ +52°C | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.3 | Max.Design Temperature: | 52 °c | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.4 | Max. Sun Temperature: | + 85 °c | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.5 | Max.Relative Humidity: | 100% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.6 | Mean Sea Level | 12.5 m Above Sea Level | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.7 | Seismic Factor | 0.3g | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.8 | Max. Wind Velocity (Max) | 120 km/hr | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2. Switchgear | | | | | | | | | | |
| 2.1 | Manufacturer | By Vendor | Pars Tableau/DNF4 | A | Runin Sanat Gostar | A | Taban tablou | A | Ista Noavaran Inroo | A |
| 2.2 | Standard(s) | IPS-M-EL-144(4), IPS-E-EL-100(1), BK-GNRAL-PEDCO-000-EL-SP-0002 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.3 | Quantity | 8 Feeders of Outgoing, Type C2 & C3 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.4 | Service | Expansion of Existing MV Switchgear from Both Side | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.5 | Tag Number | GCS-11-SWG-001A/B | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.6 | Applicable SLD | BK-GCS-PEDCO-120-EL-SL-0001 BK-GCS-PEDCO-120-EL-SL-0003 BK-GCS-PEDCO-120-EL-DG-0001 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.7 | Location | Indoor | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.8 | Type and Construction | Metal Clad, Withdrawable | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.9 | Rated Voltage & Variation | 11 kV ± 10 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.10 | Rated Frequency & Variation | 50 Hz ± 5 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.11 | No. of Phases | 3 PH | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.12 | Rated Insulation Levels between earth & phase • One Minute Power Frequency | 28 KV 2 KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|--|---|------------------------------|---|--|---|-----------|---|-----------|---|
| | Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 75 KV | | | | | | | | |
| 2.13 | Rated Normal Current of Busbars | 1600 A | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.14 | Rated Short Time Current of Busbar | 25 kA; 1 sec | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.15 | Rated Peak Withstand Current | 63 kA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.16 | Busbars: • Material • Main Horizontal Bus Cross Section Area • Main Vertical Bus Cross Sectional Area • Earth Bus Cross Sectional Area • Busbars Color & Joints | Copper (Flame Retardant Non-Hygroscopic) Vendor to Advise Vendor to Advise Vendor to Advise Silver Plated | Confirmed | A | Confirmed After Contract After Contract After Contract Confirmed | A | Confirmed | A | Confirmed | A |
| 2.17 | Maximum Tolerable Temperature Rise | Acc. to IEC62271 IPS-M-EL-144(4) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.18 | Rated Voltage for Control and Protection Circuits | 110 V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.19 | Rated Voltage for Space Heaters and Panel Lighting | 400 / 230 VAC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.20 | Enclosure | Withdrawable Metal Clad, Compartmented | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.21 | Degree of Protection by Enclosure | External: IP 42, Internal: IP 20, Internal partitions between functional units and shutters for bus bar & cable side: IP 4X | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.22 | Installation | Floor Self-Standing, Side by Side | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.23 | Rear / Front Access | Rear and Front Access | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.24 | Top / Bottom Cable Entry | Cables: Bottom Entry | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.25 | Sheet Steel Thickness, Fram & Walls | Minimum 2.5 mm | Minimum 2. mm | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.26 | Paint | Electrostatic Powder | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.27 | Color finish | RAL 7032 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.28 | Routine Tests | Required (Withstand tests and reports as per IEC 62271-200 or IEC 298, IEC 60694, IPS-M-EL-144 (4) and Specification) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.29 | Type Tests | Test certificates of the SWGR type as per IEC62271-200 or IEC 298, IEC60694, and IPS-M-EL-144 (4) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.30 | Overall Dimensions (HxWxD) [mm] | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | Confirmed | A |
| 2.31 | Total Weight [kg] | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | Confirmed | A |
| 2.32 | Overall Dimensions of 1 Cubicle (HxWxD) | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | Confirmed | A |



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|------------------------------|---|--|------------------------------|---|----------------|---|-------------------|---|------------------------|---|
| 2.33 | Dynamic Load of One Cubicle [kg] | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | Confirmed | A |
| 3. MV Circuit Breaker | | | | | | | | | | |
| 3.1 | Manufacturer | Vendor to Advise | Hyundai/South Korea | A | Pars Switch | A | Pars Switch / ABB | A | Pars Switch | A |
| 3.2 | Standard | IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.3 | Type | Vacuum | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.4 | Fixed/ Withdrawable | Withdrawable | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.5 | Rated Voltage | 12 kV ± 10 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.6 | Rated Frequency | 50 Hz ± 5 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.7 | No. Of Phases and Poles | 3-Phase | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.8 | Rated Insulation Levels between earth and phase • One Minute Power Frequency Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 28 KV 2 KV 75 KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.9 | Rated Normal Current | 630 A | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.10 | Rated Short Time Current | 25 kA; 1 sec | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.11 | Rated Peak Withstand Current | 62.5 kA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.12 | Rated Short Circuit Breaking Current | Vendor to Advise | According to Catalogue | A | Confirmed | A | Confirmed | A | According to Catalogue | A |
| 3.13 | Rated Short Circuit Making Current | Vendor to Advise | According to Catalogue | A | Confirmed | A | Confirmed | A | According to Catalogue | A |
| 3.14 | Maximum Tolerable Temperature Rise | Acc. to IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.15 | Design Temperature Rise | Acc. to IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.16 | Operating Mechanism | Motor & Hand operated Spring Charged Stored Energy Mechanism | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.17 | Release type | Shunt Trip | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.18 | Rated Operating Sequence | O-0.3S-CO-3MIN-CO | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.19 | Rated Voltage of Auxiliary Equipment | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.20 | Rated Operating Voltage of Releases | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.21 | Rated Operating Voltage of Charging Motors | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.22 | Voltage Tolerances for Auxiliary Apparatus: • Trip Circuit | 70%-110% 85%-110% | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |



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|-----------------------------------|---|---|----------------|-----|-----------|---|-----------|---|-----------|---|
| | <ul style="list-style-type: none"> Close Circuit Motor Running Motor at the Instant of Start | 85%-110% 70%-110% | | | | | | | | |
| 3.23 | Power consumption of Auxiliary Apparatus: [W] <ul style="list-style-type: none"> Trip Circuit Closed Circuit Charging motor Under voltage release Multifunction relay Transducers | 110V DC Vendor to Advise | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.24 | 1 C.B. Open/Close Auxiliary Contacts: <ul style="list-style-type: none"> No. Of Make Contacts No. Of Break Contacts Rated Voltage Rated Current at 110V DC Breaking Current at 110V DC | 6 6 110V DC VTA VTA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.25 | Truck Position Auxiliary Contacts: <ul style="list-style-type: none"> No of Make Contacts No of Break Contacts Rated Voltage Rated Current at 110V DC Breaking Current at 110V DC | 1NO + 1NC 1NO + 1NC 110V DC VTA VTA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.26 | Routine Tests | IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.27 | Type Tests | IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4. MV Voltage Transformers | | | | | | | | | | |
| 4.1 | Manufacturers Name | Vendor to Advise | Pars Shar/Iran | A | Pars Shar | A | Confirmed | A | MAG | A |
| 4.2 | Standard | IEC60044-2 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.3 | Type | Epoxy Cast Resin | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.4 | Fixed/Withdrawable | Withdrawable | Tilting | N.A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.5 | Highest System Voltage | 12 kV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.6 | Rated Frequency | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.7 | No. of Phase | Single Phase | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.8 | Rated Primary Voltage [kV] | 11/√3 kV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.9 | Rated Secondary Voltage [V] | 110/√3 V | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.10 | Rated Insulation Levels between earth and phase <ul style="list-style-type: none"> One Minute Power Frequency Withstand Voltage (RMS) One Minute Power Frequency | 28 kV / √3 2 kV / √3 75 kV / √3 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|--|-----------------------------|------------------------|---|---|---|-----------|---|-----------------|---|
| | Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | | | | | | | | | |
| 4.11 | System Earthing | TNS | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.12 | Rated Voltage Factor | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 4.13 | Rated Burden | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 4.14 | Accuracy Class: • for Protection (with separate Winding) • for Measuring (with separate Winding) | CL. 3P 1.0 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.15 | Insulation Class & Temperature Rise | Class E, Temp. Rise Class Y | Confirmed | A | Insulation (Class A)/ Temperature Rise (N.A) | A | Confirmed | A | Confirmed | A |

5. MV Current Transformers

| | | | | | | | | | | |
|------|---|--|------------------------|---|----------------|---|-----------|---|-----------------|---|
| 5.1 | Manufacturer's Name | Vendor to Advise | Pars Shar/Iran | A | Pars Shar | A | Confirmed | A | MAG | A |
| 5.2 | Standard | IEC60044-1 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.3 | Type | Dry Type | Confirmed | A | Resin Type | A | Confirmed | A | Confirmed | A |
| 5.4 | Highest System Voltage | 11 kV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.5 | Rated Frequency | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.6 | Rated Secondary Current: | 1 A / 5 A According to SLD | Confirmed | A | Confirmed | A | Confirmed | A | Base On SLD | A |
| 5.7 | Rated Continuous Thermal Current | 1.2 x Rated primary current | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.8 | Rated Short Time, Current: | 25 kA, 1 Sec | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.9 | Rated Dynamic Current: | 63 kA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.10 | Rated Burden | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | Base On SLD | A |
| 5.11 | Rated Transformation Ratio and No. of Cores | According to Single Line Diagram | Confirmed | A | Confirmed | A | Confirmed | A | At Detail Stage | A |
| 5.12 | Accuracy Class: • Measuring • Protection | Class 1: Class 1FS5 Class X: where required Class 5P20 protections | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.13 | Routine Tests | IEC60044-1 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.14 | Type Tests | IEC60044-1 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.15 | Rated Insulation Levels between earth and phase • One Minute Power Frequency Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 28 kV / $\sqrt{3}$ 2 kV / $\sqrt{3}$ 75 kV / $\sqrt{3}$ | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |

6. Earth Switch



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| | | | | | | | |
|-------|-----------|-----------|--------|------|----------|-------|------|
| پروژه | بسته کاری | صادرکننده | تهیهات | رشته | نوع مدرک | سریال | نسخه |
| BK | GCS | PEDCO | 120 | EL | TB | 0003 | D04 |

| | | | | | | | | | | |
|------|--|---|-------------------|---|----------------|---|-----------|---|-----------|---|
| 6.1 | Manufacturer's Name | Vendor to Advise | Pars tableau/iran | A | Runin Sanat | A | Confirmed | A | Yaradan | A |
| 6.2 | Manufacturer's Type Designation | Vendor to Advise | Manual | A | After Contract | A | Confirmed | A | Yaradan | A |
| 6.3 | Standard | IEC62271-102 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.4 | Type | Make Proof | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.5 | Number of Phase | 3 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.6 | Frequency | 50 Hz | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.7 | Rated Voltage | 11 kV | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.8 | Rated Lighting Impulse Withstand Voltage | 75 kV | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.9 | Rated 1 Minute Power Frequency Voltage | 28 kV | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.10 | Rated Short Time (1s) Current | 25 kA | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.11 | Rated Peak Withstand Current | 62.5 kA | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.12 | Rated Short Circuit Making Current | 62.5 kA | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.13 | Actuation Mechanism | Pre-tension Spring | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.14 | No. of Auxiliary Contacts (Min.) | 2NO + 2NC | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.15 | Aux. Contacts Rated Voltage | 110V DC | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.16 | Aux. Contacts Rated Current | 1A | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.17 | Interlocks | According (but not limited) to Appendix B of IPS-M-EL-144 (4) specifically: To prevent closure of Earth Switch when CB is not in Test or withdraw position To prevent Insertion of CB when Earth Switch is connected. To prevent connection of Earth Switch when upstream Switch is not open i.e. electromagnetic coil (only for incoming) | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.18 | Routine Tests | IEC62271-102 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.19 | Type Tests (Certificates) | IEC62271-102 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |

7. Motor Feeder Protection Relay

| | | | | | | | | | | |
|-----|---------------------------------|---|------------------|---|---------------------------|---|-----------|---|-----------|---|
| 7.1 | Manufacturer's Name | Vendor to Advise | Schneider/France | A | Schneider | A | Confirmed | A | SIEMENS | A |
| 7.2 | Manufacturer's Type Designation | Vendor to Advise | P3M32 & P3U20 | A | ACC to Technical Proposal | A | Confirmed | A | REYROLLE | A |
| 7.3 | Type | Digital Multi-Function Relay + Display with adjustment Menu | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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| | | | | | | | | | | |
|------|--|--|------------------------|---|----------------|---|-----------|---|-----------------|---|
| 7.4 | Installation | Flush Mounted | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.5 | Included Protection (ANSI Codes) | 50, 51, 46, 51LR, 49, 66, 50G, 51G, 26, 87M, 86 (Separate Relay) | Confirmed | A | Confirmed | A | Confirmed | A | Base On SLD | A |
| 7.6 | Rated Current [A] | 5 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.7 | Rated Frequency [Hz] | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.8 | Burden [VA] | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 7.9 | Overload Capability of Current Path | 100xIn < 1 Sec. | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.10 | Rated Voltage Auxiliary Voltage [V] | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.11 | Auxiliary Voltage Permissible Range [V] | Min. ± 15% of Un | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.12 | Power Consumption [W] | Vendor to Advise | Confirmed | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 7.13 | Trip Relay Contacts | 2NO + 2NC at least | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.14 | Alarm Relay Contacts | 2NO + 2NC at least | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.15 | Auxiliary Contacts Ratings • Contacts Voltage Rating [V] • Contacts Rated Continuous Current | 110V DC Vendor to Advise | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.16 | Ingress Protection | IP42 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.17 | Routine Tests | IEC 255 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.18 | Type Tests (Certificates) | IEC 255 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |

8. Transformer Feeder Protection Relay

| | | | | | | | | | | |
|------|-------------------------------------|---|------------------------|---|---------------------------|---|-----------|---|-----------------|---|
| 8.1 | Manufacturer's Name | Vendor to Advise | Schneider/France | A | Schneider | A | Confirmed | A | SIEMENS | A |
| 8.2 | Manufacturer's Type Designation | Vendor to Advise | P3U20 | A | ACC to Technical Proposal | A | Confirmed | A | REYROLLE | A |
| 8.3 | Type | Digital Multi-Function Relay + Display with adjustment Menu | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.4 | Installation | Flush Mounted | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.5 | Included Protection (ANSI Codes) | 50, 51, 51N, 50G (Separate Relay) | Confirmed | A | Confirmed | A | Confirmed | A | Base On SLD | A |
| 8.6 | Rated Current [A] | 5 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.7 | Rated Frequency [Hz] | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.8 | Burden [VA] | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 8.9 | Overload Capability of Current Path | 100xIn < 1 Sec. | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.10 | Rated Voltage Auxiliary Voltage [V] | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|---------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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| | | | | | | | | | | |
|----------------------|--|-----------------------------|-----------|---|----------------|---|-----------|---|-----------------|---|
| 8.11 | Auxiliary Voltage Permissible Range [V] | Min. ± 15% of Un | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.12 | Power Consumption [W] | Vendor to Advise | Confirmed | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 8.13 | Trip Relay Contacts | 2NO + 2NC at least | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.14 | Alarm Relay Contacts | 2NO + 2NC at least | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.15 | Auxiliary Contacts Ratings • Contacts Voltage Rating [V] • Contacts Rated Continuous Current | 110V DC Vendor to Advise | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.16 | Ingress Protection | IP42 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.17 | Routine Tests | IEC 255 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.18 | Type Tests (Certificates) | IEC 255 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 9. Spare Part | | | | | | | | | | |
| 9.1 | Commissioning Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 9.2 | Two-year Operation Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |

STATUS LEGENDS:

A=Acceptable

N=Not Acceptable

N/A=Not Applicable

INA=Information Not Available

C=Clarification is Required

CA= Conditionally Acceptable

M = Requirement is Mandatory



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|--|---|---|-------------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 1. Environmental Data (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001) | | | | | | | | | | |
| 1.1 | Name of Project / Plant | Binak Oilfield in Bushehr Province | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.2 | Ambient Temperature (Min/Max) | Min ~ Max: +5 ~ +52°C | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.3 | Max.Design Temperature: | 52 °c | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.4 | Max. Sun Temperature: | + 85 °c | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.5 | Max.Relative Humidity: | 100% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.6 | Mean Sea Level | 12.5 m Above Sea Level | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.7 | Seismic Factor | 0.3g | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.8 | Max. Wind Velocity (Max) | 120 km/hr | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2. Switchgear | | | | | | | | | | |
| 2.1 | Manufacturer | By Vendor | Pars tableau/DNF4 | A | Runin Sanat Gostar | A | Confirmed | A | Ista Noavaran Inroo | A |
| 2.2 | Standard(s) | IPS-M-EL-144(4), IPS-E-EL-100(1), BK-GNRAL-PEDCO-000-EL-SP-0002 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.3 | Quantity | 1 Feeder of Outgoing, Type C3 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.4 | Service | ACC to General Arrangement | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.5 | Tag Number | GCS-3.3-SWG-001 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.6 | Applicable SLD | BK-GCS-PEDCO-120-EL-SL-0001 BK-GCS-PEDCO-120-EL-SL-0003 BK-GCS-PEDCO-120-EL-DG-0001 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.7 | Location | Indoor | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.8 | Type and Construction | Metal Clad, Withdrawable | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.9 | Rated Voltage & Variation | 11 kV ± 10 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.10 | Rated Frequency & Variation | 50 Hz ± 5 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.11 | No. of Phases | 3 PH | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.12 | Rated Insulation Levels between earth and phase • One Minute Power Frequency | 10 KV 2 KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|------|--|---|--------------|--------|--|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| | Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 40 KV | | | | | | | | |
| 2.13 | Rated Normal Current of Busbars | 630 A | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.14 | Rated Short Time Current of Busbar | 25 kA; 1 sec | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.15 | Rated Peak Withstand Current | 63 kA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.16 | Busbars: • Material • Main Horizontal Bus Cross Section Area • Main Vertical Bus Cross Sectional Area • Earth Bus Cross Sectional Area • Busbars Color & Joints | Copper (Flame Retardant Non-Hygroscopic) Vendor to Advise Vendor to Advise Vendor to Advise Silver Plated | Confirmed | A | Confirmed After Contract After Contract After Contract Confirmed | A | Confirmed | A | Confirmed | A |
| 2.17 | Maximum Tolerable Temperature Rise | Acc. to IEC62271 IPS-M-EL-144(4) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.18 | Rated Voltage for Control and Protection Circuits | 110 V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.19 | Rated Voltage for Space Heaters and Panel Lighting | 400 / 230 VAC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.20 | Enclosure | Withdrawable Metal Clad, Compartmented | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.21 | Degree of Protection by Enclosure | External: IP 42, Internal: IP 20, Internal partitions between functional units and shutters for bus bar & cable side: IP 4X | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.22 | Installation | Floor Self-Standing, Side by Side | Confirmed | A | Floor Self-Standing, ACC to General Arrangement | A | Confirmed | A | Confirmed | A |
| 2.23 | Rear / Front Access | Rear and Front Access | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.24 | Top / Bottom Cable Entry | Cables: Bottom Entry | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.25 | Sheet Steel Thickness, Frame & Walls | Minimum 2.5 mm | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.26 | Paint | Electrostatic Powder | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.27 | Color Finish | RAL 7032 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.28 | Routine Tests | Required (Withstand tests and reports as per IEC 62271-200 or IEC 298, IEC 60694, IPS-M-EL-144 (4) and Specification) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|------------------------------|---|---|------------------------------|--------|--------------------|--------|-------------|--------|---------------------------|--------|
| Item | Description | | | | | | | | | |
| 2.29 | Type Tests | Test certificates of the SWGR type as per IEC62271-200 or IEC 298, IEC60694, and IPS-M-EL-144 (4) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.30 | Overall Dimensions (HxWxD) [mm] | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | Refer To Appendix L | A |
| 2.31 | Total Weight [kg] | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 2.32 | Overall Dimensions of 1 Cubicle (HxWxD) | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | Refer To Appendix L | A |
| 2.33 | Dynamic Load of One Cubicle [kg] | Vendor to Advise | According to Technical Offer | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 3. MV Circuit Breaker | | | | | | | | | | |
| 3.1 | Manufacturer | Vendor to Advise | Hyundai/South Korea | A | Pars Switch | A | Confirmed | A | Pars Switch | A |
| 3.2 | Standard | IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.3 | Type | Vacuum | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.4 | Fixed/ Withdrawable | Withdrawable | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.5 | Rated Voltage | 3.3 kV ± 10 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.6 | Rated Frequency | 50 Hz ± 5 % | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.7 | No. Of Phases and Poles | 3-Phase | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.8 | Rated Insulation Levels between earth and phase • One Minute Power Frequency Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 10 KV 2 KV 40 KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.9 | Rated Normal Current | 630 A | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.10 | Rated Short Time Current | 25 kA; 1 sec | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.11 | Rated Peak Withstand Current | 62.5 kA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.12 | Rated Short Circuit Breaking Current | Vendor to Advise | According to Catalogue | A | Confirmed | A | Confirmed | A | Please Refer To Catalogue | A |
| 3.13 | Rated Short Circuit Making Current | Vendor to Advise | According to Catalogue | A | Confirmed | A | Confirmed | A | Please Refer To Catalogue | A |



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|------|-------|----------|------|---------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|------|--|--|--------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 3.14 | Maximum Tolerable Temperature Rise | Acc. to IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.15 | Design Temperature Rise | Acc. to IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.16 | Operating Mechanism | Motor & Hand operated Spring Charged Stored Energy Mechanism | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.17 | Release Type | Shunt Trip | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.18 | Rated Operating Sequence | O-0.3S-CO-3MIN-CO | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.19 | Rated Voltage of Auxiliary Equipment | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.20 | Rated Operating Voltage of Releases | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.21 | Rated Operating Voltage of Charging Motors | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.22 | Voltage Tolerances for Auxiliary Apparatus: • Trip Circuit • Close Circuit • Motor Running • Motor at the Instant of Start | 70%-110% 85%-110% 85%-110% 70%-110% | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 3.23 | Power consumption of Auxiliary Apparatus: [W] • Trip Circuit • Closed Circuit • Charging motor • Under voltage release • Multifunction relay • Transducers | 110V DC Vendor to Advise | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.24 | 1 C.B. Open/Close Auxiliary Contacts: • No. Of Make Contacts • No. Of Break Contacts • Rated Voltage • Rated Current at 110V DC • Breaking Current at 110V DC | 6 6 110V DC VTA VTA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.25 | Truck Position Auxiliary Contacts: • No of Make Contacts • No of Break Contacts • Rated Voltage • Rated Current at 110V DC • Breaking Current at 110V DC | 1NO + 1NC 1NO + 1NC 110V DC VTA VTA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.26 | Routine Tests | IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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شماره پیمان:

053 - 073 - 9184

TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تهیهات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 15 از 27

TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|-----------------------------------|---|---------------------------------------|------------------------|--------|---|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 3.27 | Type Tests | IEC62271-100 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4. MV Voltage Transformers | | | | | | | | | | |
| 4.1 | Manufacturers Name | Vendor to Advise | Pars Shar/Iran | A | Pars Shar | A | Confirmed | A | MAG | A |
| 4.2 | Standard | IEC60044-2 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.3 | Type | Epoxy Cast Resin | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.4 | Fixed Withdrawable | Withdrawable | Tilting | N.A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.5 | Highest System Voltage | 3.6 kV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.6 | Rated Frequency | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.7 | No. of Phase | Single Phase | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.8 | Rated Primary Voltage [kV] | 3.3/√3 kV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.9 | Rated Secondary Voltage [V] | 110/√3 V | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.10 | Rated Insulation Levels between earth and phase • One Minute Power Frequency Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 10 kV / √3 2 kV / √3 40 kV / √3 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.11 | System Earthing | TNS | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.12 | Rated Voltage Factor | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 4.13 | Rated Burden | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 4.14 | Accuracy Class: • for Protection (with separate Winding) • for Measuring (with separate Winding) | CL. 3P 1.0 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.15 | Insulation Class & Temperature Rise | Class E, Temp. Rise Class Y | Confirmed | A | Insulation (Class A)/ Temperature Rise (N.A) | A | Confirmed | A | Confirmed | A |
| 5. MV Current Transformers | | | | | | | | | | |
| 5.1 | Manufacturer's Name | Vendor to Advise | Pars Shar/Iran | A | Pars Shar | A | Confirmed | A | MAG | A |
| 5.2 | Standard | IEC60044-1 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تجهیزات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|---------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 16 از 27

TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|------------------------|---|--|------------------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 5.3 | Type | Dry Type | Confirmed | A | Resin Type | A | Confirmed | A | Confirmed | A |
| 5.4 | Highest System Voltage | 3.6 kV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.5 | Rated Frequency | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.6 | Rated Secondary Current | 1 A / 5 A According to SLD | Confirmed | A | Confirmed | A | Confirmed | A | Based On SLD | A |
| 5.7 | Rated Continuous Thermal Current | 1.2 x Rated primary current | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.8 | Rated Short Time, Current | 25 kA, 1 Sec | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.9 | Rated Dynamic Current | 63 kA | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.10 | Rated Burden | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 5.11 | Rated Transformation Ratio and No. of Cores | According to Single Line Diagram | Confirmed | A | Confirmed | A | Confirmed | A | Based On SLD | A |
| 5.12 | Accuracy Class: • Measuring • Protection | Class 1: Class 1FS5 Class X: where required Class 5P20 protections | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.13 | Routine Tests | IEC60044-1 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.14 | Type Tests | IEC60044-1 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.15 | Rated Insulation Levels between earth and phase • One Minute Power Frequency Withstand Voltage (RMS) • One Minute Power Frequency Withstand Voltage of Aux. Circuit (RMS) • Impulse Withstand Voltage (Peak) | 10 kV / $\sqrt{3}$ 2 kV / $\sqrt{3}$ 40 kV / $\sqrt{3}$ | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 6. Earth Switch | | | | | | | | | | |
| 6.1 | Manufacturer's Name | Vendor to Advise | Pars tableau/Iran | A | Runin Sanat Gostar | A | Confirmed | A | Yaradan | A |
| 6.2 | Manufacturer's Type Designation | Vendor to Advise | Manual | A | After Contract | A | Confirmed | A | Yaradan | A |
| 6.3 | Standard | IEC62271-102 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.4 | Type | Make Proof | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.5 | Number of Phase | 3 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.6 | Frequency | 50 Hz | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|---------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 17 از 27

TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|---|--|---|------------------|--------|---------------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 6.7 | Rated Voltage | 11 kV | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.8 | Rated Lighting Impulse Withstand Voltage | 75 kV | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.9 | Rated 1 Minute Power Frequency Voltage | 28 kV | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.10 | Rated Short Time (1s) Current | 25 kA | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.11 | Rated Peak Withstand Current | 62.5 kA | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.12 | Rated Short Circuit Making Current | 62.5 kA | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.13 | Actuation Mechanism | Pre-tension Spring | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.14 | No. of Auxiliary Contacts (Min.) | 2NO + 2NC | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.15 | Aux. Contacts Rated Voltage | 110V DC | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.16 | Aux. Contacts Rated Current | 1A | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.17 | Interlocks | According (but not limited) to Appendix B of IPS-M-EL-144 (4) specifically: To prevent closure of Earth Switch when CB is not in Test or withdraw position To prevent Insertion of CB when Earth Switch is connected. To prevent connection of Earth Switch when upstream Switch is not open i.e. electromagnetic coil (only for incoming) | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.18 | Routine Tests | IEC62271-102 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 6.19 | Type Tests (Certificates) | IEC62271-102 | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 7. Motor Feeder Protection Relay | | | | | | | | | | |
| 7.1 | Manufacturer's Name | Vendor to Advise | Schneider/France | A | Schneider | A | Confirmed | A | SIEMENS | A |
| 7.2 | Manufacturer's Type Designation | Vendor to Advise | P3U20 | A | ACC to Technical Proposal | A | Confirmed | A | Reyrolle | A |
| 7.3 | Type | Digital Multi-Function Relay + Display with adjustment Menu | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.4 | Installation | Flush Mounted | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.5 | Included Protection (ANSI Codes) | 50, 51, 46, 50G, 51G, 86 (Separate Relay) | Confirmed | A | Confirmed | A | Confirmed | A | Based On SLD | A |



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 18 از 27

TBE for 3.3 KV Switchgear (Starter Panel of Fire Water Pump)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|----------------------|--|-----------------------------|------------------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 7.6 | Rated Current [A] | 5 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.7 | Rated Frequency [Hz] | 50 Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.8 | Burden [VA] | Vendor to Advise | According to Catalogue | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 7.9 | Overload Capability of Current Path | 100xIn < 1 Sec. | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.10 | Rated Voltage Auxiliary Voltage [V] | 110V DC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.11 | Auxiliary Voltage Permissible Range [V] | Min. ± 15% of Un | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.12 | Power Consumption [W] | Vendor to Advise | Confirmed | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 7.13 | Trip Relay Contacts | 2NO + 2NC at least | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.14 | Alarm Relay Contacts | 2NO + 2NC at least | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.15 | Auxiliary Contacts Ratings • Contacts Voltage Rating [V] • Contacts Rated Continuous Current | 110V DC Vendor to Advise | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.16 | Ingress Protection | IP42 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.17 | Routine Tests | IEC 255 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.18 | Type Tests (Certificates) | IEC 255 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8. Spare Part | | | | | | | | | | |
| 8.1 | Commissioning Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.2 | Two-year Operation Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |

Status Legends:

- A=Acceptable
- N=Not Acceptable
- N/A=Not Applicable
- INA=Information Not Available
- C=Clarification is Required
- CA= Conditionally Acceptable
- M = Requirement is Mandatory



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 19 از 27

TBE for Remote Control Panel (RCP)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|--|--|---|--------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 1. Environmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001) | | | | | | | | | | |
| 1.1 | Location | Binak Oilfield in Bushehr Province | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.2 | Max. Outdoor Ambient Temperature | 52°C | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.3 | Min. Outdoor Ambient Temperature | +5 °c | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.4 | Direct Sunlight Temperature | 85°C | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.5 | Maximum Relative Outdoor Humidity | 100% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.6 | Altitude | 12.5 m Above Sea Level | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2. General Information | | | | | | | | | | |
| 2.1 | Tag Numbers | RCP-02 (Indoor Safe) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.2 | Quantity | 1 Set | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.3 | Application Standard | IPS-E-EL-100 IPS-M-EL-161 IPS-M-EL-143(3) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.4 | Manufacturer | By Vendor | Confirmed | A | Runin Sanat Gostar | A | Confirmed | A | Confirmed | A |
| 2.5 | Related Document | Wiring Diagram for Remote Control Panel (RCP) "BK-GCS-PEDCO-120-EL-DG-0005" Data Sheets for Remote Control Panel "BK-GCS-PEDCO-120-EL-DT-0015" | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3. Electrical Data | | | | | | | | | | |
| 3.1 | System Voltage/ Frequency | 400V AC / 50Hz | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.2 | Voltage Variation/ Frequency Variation | ±10 / ± 5% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.3 | Insulation Voltage | 0.6/1KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.4 | No. of Phases / Wires | 1Ph+N+PE | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.5 | Control Voltage | 110 VDC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.6 | Space Heater Voltage | 230VAC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 20 از 27

TBE for Remote Control Panel (RCP)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|---------------------------|--|---|--------------|--------|---------------------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 3.7 | Internal/ External Voltage Supply | External | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.8 | Bus-Bars Material | Indoor: Heat Shrink Copper Outdoor: Silver Plated Copper | Confirmed | A | N. A | A | Confirmed | A | Confirmed | A |
| 4. Enclosure Data | | | | | | | | | | |
| 4.1 | Enclosure Type | Wall Mounted, Fixed Type, Front Access | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.2 | Degree of Protection | Indoor: IP 42 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.3 | Cable Entry | Bottom via Gland | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.4 | Material | Painted Sheet Steel | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.5 | Finish Color | RAL 7032 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.6 | Dimensions (HxWxD) | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 4.7 | Sheet Steel Thickness (Body/Frame) | Wall Mounted: 1.5mm/2mm | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.8 | Painting | For Corrosive & Hot Atmosphere | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.9 | Thickness | Min. 60μ | Confirmed | A | 80~120 | C | Confirmed | A | Confirmed | A |
| 4.10 | Type | Epoxy Powder Elector Static | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.11 | Weight | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 5. Selector Switch | | | | | | | | | | |
| 5.1 | Selector Pole | 1 | Confirmed | A | N. A | A | Confirmed | A | Confirmed | A |
| 5.2 | Selector Position | Position "OPEN-OFF-CLOSE" | Confirmed | A | N. A | A | Confirmed | A | Confirmed | A |
| 5.3 | Selector Type | Spring Return to Center | Confirmed | A | N. A | A | Confirmed | A | Confirmed | A |
| 6. Label | | | | | | | | | | |
| 6.1 | Language | English | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 6.2 | Material | Stainless Steel-Screwed/Reverted | Confirmed | A | Laminated Plastic & Sticky Type | N | Confirmed | A | Confirmed | A |
| 6.3 | Main Label (Front / Back) | Engraved / Black Font-White Background | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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|------|-------|----------|------|---------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

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TBE for Remote Control Panel (RCP)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|--------------------------|--|---|--------------|--------|---------------------------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 7. Panel Wiring | | | | | | | | | | |
| 7.1 | Manufacturer | By Vendor | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.2 | Type | CU/PVC/PVC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7.3 | Power Wire Color | By Vendor | Confirmed | A | Black | A | Confirmed | A | Confirmed | A |
| 7.4 | Signal Wire Color (Voltage Presence Indicator) | By Vendor | Confirmed | A | Black | A | Confirmed | A | Confirmed | A |
| 8. Panel Terminal | | | | | | | | | | |
| 8.1 | Manufacturer | By Vendor | Confirmed | A | ARRD | A | Confirmed | A | Confirmed | A |
| 8.2 | Model NO. | By Vendor | Confirmed | A | RTP | A | Confirmed | A | Confirmed | A |
| 8.3 | Type | Solderless Clamp Type-Flame Retardant | Confirmed | A | Screw Type was Considered | A | Confirmed | A | Confirmed | A |
| 8.4 | Rated Voltage | According to IEC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.5 | Size | Min. 4sqmm | Confirmed | A | Min 2.5 sqmm | A | Confirmed | A | Confirmed | A |
| 8.6 | Color | Neutral (Blue) / PE (Green/ Yellow) | Confirmed | A | Grey was Considered for all Terminals | A | Confirmed | A | Confirmed | A |
| 9. ACCESSORIES | | | | | | | | | | |
| 9.1 | Door Key | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 9.2 | Gland Plate (Undrilled) | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 9.3 | Gland Plate Type (Normal/Non-Magnetic) | Normal | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 9.4 | Terminal Lugs | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 9.5 | Signal Lamp (110 VDC) | C.B. Closed: Red C.B. Opened: Green C.B Fault: Yellow | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 10. Spare Part | | | | | | | | | | |
| 10.1 | Commissioning Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

053 - 073 - 9184

TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تجهیزات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|---------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 22 از 27

TBE for Remote Control Panel (RCP)

| MR | PMR for Existent MV Switchgear Expansion & RCP (BK-GCS-PEDCO-120-EL-MR-0003) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|------|--|-----------------------|--------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 10.2 | Two-year Operation Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |

Status Legends:

- A=Acceptable
- N=Not Acceptable
- N/A=Not Applicable
- INA=Information Not Available
- C=Clarification is Required
- CA= Conditionally Acceptable
- M = Requirement is Mandatory



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شماره پیمان:

053 - 073 - 9184

TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تهیهات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 23 از 27

TBE for MV Capacitor Bank

| MR | PMR FOR CAPACITOR BANK (BK-GCS-PEDCO-120-EL-MR-0011) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|--|---|--|--------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 1. General Information | | | | | | | | | | |
| 1.1 | Quantity | 1 Set for Each Gas Compressor | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.2 | Tag Numbers | CB01~ CB03 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.3 | Applicable Standards | IEC 60831 IPS-M-EL-181(2) IPS-M-EL-144(4) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 1.4 | Manufacturer's Name | By Vendor | Pars Tableau | A | Runin Sanat Gostar | A | Taban Tablo | A | Ista Noavaran Inroo | A |
| 2. Environmental Conditions (Process Basis Design, BK-GNRAL-PEDCO-000-PR-DB-0001) | | | | | | | | | | |
| 2.1 | Location | Binak Oilfield in Bushehr Province | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.2 | Hazardous Area Classification | Safe | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.3 | Max. Outdoor Ambient Temperature | 52°C | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.4 | Minimum Indoor Ambient Temp. | +5°C | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.5 | Related Document | Specification for Capacitor Bank BK-GNRAL-PEDCO-000-EL-SP-0012 Calculation Note for Capacitor Banks "BK-GCS-PEDCO-120-EL-CN-0011" Data Sheets for Capacitor Bank "BK-GCS-PEDCO-120-EL-DT-0007" Capacitor Banks Single Line Diagram "BK-GCS-PEDCO-120-EL-SL-0007" | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.6 | Maximum Indoor Relative Humidity | 100% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.7 | Altitude (Above Sea Level) | 12.5 m | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.8 | Seismic Factor | Zone 3 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 2.9 | Installation | Indoor | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3. Electrical Data | | | | | | | | | | |
| 3.1 | System Voltage | 11KV AC ±10% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.2 | System Frequency | 50 Hz ±5% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.3 | No. of Phases | 3 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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شماره پیمان:

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TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تهیهات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 24 از 27

TBE for MV Capacitor Bank

| MR | PMR FOR CAPACITOR BANK (BK-GCS-PEDCO-120-EL-MR-0011) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|--------------------------|---|---|--------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 3.4 | Control Voltage | 230 VAC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.5 | Space Heater Voltage | 230 VAC | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.6 | Bus-Bar Rated Current | 630A | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.7 | Short Time Withstand Current | 25 kA, 1 Sec. | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.8 | Bus-Bars Material | Heat Shrink Copper | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 3.9 | Bus-Bars Joints | Silver Plated | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4. Enclosure Data | | | | | | | | | | |
| 4.1 | Enclosure Type | Cabinet Mounted Capacitor | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.2 | Degree of Protection | IP 42 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.3 | Cable Entry | Bottom (by Cable Gland) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.4 | Type & Size of Power Cable | According to "BK-GCS-PEDCO 120-EL-CN-0003" (3C×95mm ¹ CU/XLPE/SWA/PVC) | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.5 | Control Cable | 2×(5C×2.5 mm ¹) for Current & Voltage Sample | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.6 | Material | Painted Sheet Steel | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.7 | Color | RAL 7032 | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.8 | Dimensions (HxWxD) | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 4.9 | Sheet Steel Thickness | 2mm/2.5mm | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 4.10 | Weight | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | At Detail Stage | A |
| 5. Capacitors | | | | | | | | | | |
| 5.1 | Capacitor Manufacturer/Model No. | By Vendor | Confirmed | A | P.K.C | A | Confirmed | A | Confirmed | A |
| 5.2 | Rating of Each Capacitor Bank | 360 KVAR | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.3 | Capacitor Bank Rated Current | By Vendor | Confirmed | A | Confirmed | A | Confirmed | A | Based On SLD | A |
| 5.4 | Capacitor Bank Rated Voltage | 12 KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.5 | Capacitor Bank Connection Type | Star | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تهیهات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 25 از 27

TBE for MV Capacitor Bank

| MR | PMR FOR CAPACITOR BANK (BK-GCS-PEDCO-120-EL-MR-0011) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|-----------------------|---|-----------------------|--------------|--------|--------------------|--------|-------------|--------|---------------------------|--------|
| Item | Description | | | | | | | | | |
| 5.6 | Capacitor Bank Rated Capacitance (µF) | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Please Refer To Catalogue | A |
| 5.7 | Capacitance Variation (µF/°C) | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Please Refer To Catalogue | A |
| 5.8 | Capacitor Unit Rated Voltage | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Please Refer To Catalogue | A |
| 5.9 | Capacitor Unit Temp. Category | -5/D | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 5.10 | Capacitor Unit Insulating medium | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 5.11 | Capacitor Unit Electrode Material | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Confirmed | A |
| 5.12 | Capacitor Unit Dielectric Material | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | Please Refer To Catalogue | A |
| 5.13 | Capacitor Unit Case Material | Aluminum | Confirmed | A | Metal Enclosed | A | Confirmed | A | Please Refer To Catalogue | A |
| 5.14 | Capacitor Unit Discharge Resistor (Ω) | By Vendor | Confirmed | A | After Contract | A | Confirmed | A | AS Standard | A |
| 5.15 | Capacitor Unit Discharge time (to 75V) | <10 Minutes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 6. Fuses | | | | | | | | | | |
| 6.1 | Manufacturer / type | By Vendor | Confirmed | A | AEG | A | Confirmed | A | ETI | A |
| 6.2 | Rated Voltage | 11 KV | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 6.3 | Service Voltage | 11 KV±10% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 6.4 | Rated Frequency | 50Hz±5% | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 7. Accessories | | | | | | | | | | |
| 8.1 | Panel Lighting & Space Heater with Thermostat | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.2 | Door Key | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.3 | Gland Plate | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.4 | Terminal Lugs | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.5 | Commissioning Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.6 | Two-year Operation Spare Parts according to attach 22 of MR | Yes | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |
| 8.7 | Routine Test | Witnessed and Report | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |



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شماره پیمان:

053 - 073 - 9184

TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK

| نسخه | سریال | نوع مدرک | رشته | تهیهات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|--------|-----------|-----------|-------|
| D04 | 0003 | TB | EL | 120 | PEDCO | GCS | BK |

شماره صفحه : 26 از 27

TBE for MV Capacitor Bank

| MR | PMR FOR CAPACITOR BANK (BK-GCS-PEDCO-120-EL-MR-0011) | Purchaser Requirement | Pars Tableau | Status | Runin Sanat Gostar | Status | Taban Tablo | Status | Ista Noavaran Inroo | Status |
|------|---|-----------------------|--------------|--------|--------------------|--------|-------------|--------|---------------------|--------|
| Item | Description | | | | | | | | | |
| 8.8 | Type Test Certificate | Certificate | Confirmed | A | Confirmed | A | Confirmed | A | Confirmed | A |

Status Legends:

- A=Acceptable
- N=Not Acceptable
- N/A=Not Applicable
- INA=Information Not Available
- C=Clarification is Required
- CA= Conditionally Acceptable
- M = Requirement is Mandatory

| | | | | | | | | | |
|---|--|------------------|--------------------|----------------|------------|----------------|---------------|---|-----------------------|
|  | نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک | | | | | | |  | |
| | TBE FOR EXISTENT MV SWITCHGEAR EXPANSION, RCP & MV CAPACITOR BANK | | | | | | | | |
| شماره پیمان: 053 - 073 - 9184 | پروژه BK | بسته کاری GCS | صادرکننده PEDCO | تجهیزات 120 | رشته EL | نوع مدرک TB | سریال 0003 | نسخه D04 | شماره صفحه : 27 از 27 |

Conclusion Table:

| Item | Equipment | PARS TABLEAU | RUNIN SANAT GOSTAR | TABAN TABLO | ISTA NOAVARN NIROO |
|------|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 11 KV Switchgear | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable |
| 2 | 3.3 KV Switchgear | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable |
| 3 | RCP Panel | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable |
| 4 | MV Capacitor Bank | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable | Conditionally acceptable |

Conclusion Note:

PARS TABLEAU

- 1- For these brands of breaker, type test for switchgear shall be submitted.
- 2- Vendor will supply MV voltage transformer in Tilting instead of withdrawable.
- 3- According to data sheet, the minimum thickness of sheet steel is 2.5 mm while vendor will supply minimum as 2 mm.

RUNIN SANAT GOSTAR

- 4- While the ingress protection (IP) of MV switchgear, RCP & Capacitor bank in project data sheet is IP42, but this vendor will supply IP41, according to item 5.1.5 of IPS-M-EL-144(4), IP41 is acceptable.
- 5- Adaptor will be supplied in both sides of 11 KV switchgear for connection new panels to existing panels. Therefore, more space is required. However, in "Electrical Equipment Arrangement Layout for Building (BK-GCS-PEDCO-120-EL-PY-0008)", adaptor is considered by contractor & in the case when there is no need after PO, it will be deleted.
- 6- Vendor will consider relay "P3M32" for differential protection "87M". This relay is low impedance.
- 7- According to "Existent MV Switchgear Expansion Single Line Diagram" & "Electrical Typical Schematic Diagrams for MV panel", there is withdrawable PT on 3.3 KV switchgear. Therefore, a bus riser shall be considered while the number of 3.3 KV panel will be 2.
- 8- The maximum design temperature of MV switchgear is 40 °C.
- 9- According to MV switchgear data sheet, insulation class & temperature rise of Voltage Transformer shall be Class "E" & "Y" respectively but vendor will supply class "A" for temp rise only.

TABAN TABLO

- 1- While the ingress protection (IP) of MV switchgear, RCP & Capacitor bank in project data sheet is IP42, but this vendor will supply IP41, according to item 5.1.5 of IPS-M-EL-144(4), IP41 is acceptable.
- 2- Vendor will provide MV circuit breaker in two alternatives "ABB" & "Pars Switch".
- 3- Adaptor will be supplied in both sides of 11 KV switchgear for connection new panels to existing panels. Therefore, more space is required. However, in "Electrical Equipment Arrangement Layout for Building (BK-GCS-PEDCO-120-EL-PY-0008)", adaptor is considered by contractor & therefore there is no concern.
- 4- Vendor will consider relay "EASERGY P3M32" for differential protection "87M". This relay is low impedance.
- 5- According to "Existent MV Switchgear Expansion Single Line Diagram" & "Electrical Typical Schematic Diagrams for MV panel", there is withdrawable PT on 3.3 KV switchgear. Therefore, a bus riser shall be considered while the number of 3.3 KV panel will be 2.