

**CONTRACT RW####/20**

**DESIGN, VERIFICATION, TESTING, REFURBISHMENT, INSTALLATION, COMMISSIONING OF THE ELECTRICAL INSTALLATION FOR THE GENERATOR SUPPLY OF FLOCCULATOR VALVES C1 AND C2 AT ZUIKERBOSCH PUMPING STATION**

**ELECTRICAL RETURNABLE SCHEDULES**

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# DETAILS OF ELECTRICAL DESIGNER

| Name of Design Specialist’s Company |  |
| --- | --- |
| Name of Electrical Design Engineer |  |
| CV of Electrical Design Engineer submitted | YES/NO |

# DUAL CHANGEOVER PANEL

| **Description** | **Detail** |
| --- | --- |
| Manufactured By |  |
| Place of Manufacture |  |
| Type |  |
| Model Number |  |
| Manufacturer’s Data Sheet Number |  |
| Dimensions (L X B X H in mm) |  |
| Preliminary General Arrangement Supplied? |  |
|  **Construction Details** |  |
|  Material Specification |  |
|  Material Thickness (mm) |  |
|  Panel Construction (Modular/Formed and Welded) |  |
|  Door Thickness (mm) |  |
|  Chassis Plate Thickness (mm) |  |
|  Panel painting specification details |  |
|  Paint Finish |  |
|  Paint Thickness (μm) |  |
|  |  |
|  |  |
|  **Current Ratings** |  |
|  Rated Operational Current In |  |
|  Complete Busbar System Derating Factor |  |
|  Short Circuit Rating Icw |  |
|  Rated Peak Withstand Ipk |  |
|  Internal arc tested | YES / NO? |
|  Internal Arc Withstand Current (kA) |  |
|  Internal Arc Withstand Duration (secs) |  |
|  Value of neutral bar current for short- circuit test (A) |  |
|  |  |
|  **Voltage Ratings & Insulation System Requirements** |  |
|  Rated Operating Voltage Ue |  |
|  Rated Insulation Voltage Ui |  |
|  Impulse Withstand Level (kV) |  |
|  Power Frequency Withstand Level (kV) |  |
|  Control voltage Uc |  |
|  Creepage Distances (Main and Distribution Busbars) |  |
|  |  |
|  **Busbar System** |  |
|  Rated Diversity Factor |  |
|  Main Busbar Configuration |  |
|  Busbar Material Specification |  |
|  Maximum Busbar Electrical Resistivity (µΩ/cm/cm2) |  |
|  Busbar Maximum Current Density (A/mm2) |  |
|  Busbar Cross Section |  |
|  Busbar Support Specification (Describe) |  |
|  Busbar Jointing Specification |  |
|  Neutral Busbar Cross Section |  |
|  Neutral Busbar Rating (A) |  |
|  Protective Earth Bar Cross Section |  |
|  |  |
|  **Assembly Temperature Rise Specification** |  |
|  Assembly Temperature Rise Limit (˚C) |  |
|  Busbar Support Design Temperature Rise (˚C) |  |
|  Busbar Design Maximum Temperature Rise (˚C) |  |
|  |  |
|  **Assembly Installation** |  |
|  Place of Installation (Indoor/Closed Room) |  |
|  Form of Separation Classification |  |
|  Assembly IP rating |  |
|  Type of access: |  |
|  Type of entry: |  |
|  Type of mounting: |  |
|  Choice of protective measures against direct contact |  |
|  Choice of protective measures against indirect contact |  |
|  Accessibility for servicing by authorized personnel |  |
|  Accessibility for inspection and similar operations |  |
|  Accessibility for maintenance |  |
|  Degree of protection after removal of a removable or withdrawable part |  |
|  |  |
|  **Design Type Testing Certification** |  |
|  Temperature Rise Limits | YES / NO? |
|  Dielectric Properties | YES / NO? |
|  Short-Circuit Withstand | YES / NO? |
|  Protective Circuit Effectiveness | YES / NO? |
|  Clearances And Creepage Distances | YES / NO? |
|  Mechanical Operation | YES / NO? |
|  Degree Of Protection | YES / NO? |
|  Electromagnetic Compatibility (EMC) | YES / NO? |
|  |  |
|  **Environmental Specification** |  |
| Ambient Temperature (maximum) (˚C) |  |
| Ambient Temperature (minimum) (˚C) |  |
| Humidity (%) |  |
| Temperature at Maximum Humidity (˚C) |  |
| Altitude (maMSL) |  |
| Rapid temperature variations (˚C) |  |
| Dust Pollution level |  |
| Corrosive Particle Pollution level |  |
| Exposure to magnetic fields |  |
| Direct radiation from the sun/furnaces |  |
| Attacks by fungi |  |
| Attacks by Small creatures |  |
| Fire/Explosive environment |  |
| EMC environmental requirements |  |
| Exposure to Vibration/Shocks |  |
|  |  |
|  **Earthing and Surge Protection** |  |
|  Earthing System |  |
|  Surge Protection Device (Type/Class) |  |
|  |  |
|  **Incoming and Outgoing Circuits** |  |
|  Incomer Circuit Breaker Current Rating |  |
|  Incoming Circuit Busbar Cross Section |  |
|  Incoming Circuit Busbar Rating (A) |  |
|  Incomer Breaker Type |  |
|  Incomer Breaker Make |  |
|  Incomer Breaker Model |  |
|  Incomer Ordering Code |  |
|  Incomer Breaker Datasheet Included? |  |
|  |  |
|  **Changover Contactors** |  |
|  Contactor Make |  |
|  Contactor Type |  |
|  Type 2 Co-ordination with Circuit Breaker? |  |
|  |  |
|  **Other** |  |
|  Earth Leakage Protection Make |  |
|  Earth Leakage Protection Type |  |
|  Indication Lamps Make |  |
|  Indication Lamps Type |  |
|  Push-Buttons Make |  |
|  Push-Buttons Type |  |
|  Terminals Make |  |
|  Terminals Type |  |
|  Timer Make |  |
|  Timer Type |  |
|  Selector Switches Make |  |
|  Selector Switches Type |  |
|  Wire Numbering System Make |  |
|  Wire Numbering System Type |  |
|  Component Identification Label Make |  |
|  Component Identification Label Type |  |
|  Panel Door Handle Make |  |
|  Panel Door Handle Type |  |
|  |  |

# GENERATOR SHELTER LIGHTING AND SMALL POWER

| **Description** | **Details** |
| --- | --- |
| Light Fitting Make |  |
| Light Fitting Type |  |
| Light Fitting IP Rating |  |
| Luminaire Type |  |
| Light Fitting Rating (W) |  |
| Light Switch Make |  |
| Light Switch IP Rating |  |
| Socket Outlet Make |  |
| Socket Outlet Type |  |
| Socket Outlet IP Rating |  |

Name of Contractor: ……………………………………………………………..

Signed for and on behalf of the Contractor …………………………………………………

Date: ………………………………………..2020