

**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