

General Notes for Mechanical MR Documents – LV Equipment

1. The Vendor shall complete, stamp, and submit the motor data sheet and the VFD data sheet (where applicable) for each motor in accordance with the following documents:

- Data Sheet for LV and MV Motors (Doc. No.: 28C3-D-4IN-DSH-090-0220-00-EL-0038, Rev.04)

- Data Sheet for LV VFDs (Doc. No.: 28C3-D-4IN-DSH-090-0350-00-EL-0040, Rev.03)

2. For LV/MV motors, following voltage & frequency variations is acceptable:

- LV motors ($\leq 250\text{kW}$): 400V/230V AC $\pm 10\%$, 50HZ $\pm 5\%$

- MV motors ($> 250\text{kW}$): 6.6KV AC $\pm 10\%$, 50HZ $\pm 5\%$

3. For the power supply of the package distribution panel installed in the field, the Purchaser's scope shall be limited to the provision of one incoming power feeder cable (3Ph+N+E or 1Ph+N+E, as required by the package). The Vendor shall be responsible for the design, supply, installation, and termination of all internal skid power cabling, wiring, and all required junction boxes necessary to distribute the incoming power to the package equipment.

4. If AC UPS power supply is required, the Supplier shall provide a separate list of all equipment requiring a 230 V AC UPS supply, including the loads associated with the local electrical and control panels, as part of the technical proposal. One dedicated AC UPS outgoing feeder from the Client's UPS system located in the electrical substation will be provided by the Client for supplying the package. (Note: The AC UPS system is within the Client's scope of work.) Furthermore, if any voltage level other than 230/400 V AC be required, the Supplier shall be responsible for the design, supply, and integration of the necessary voltage converter.

5. According to the project requirements, it is necessary that both the VFD and the soft starter utilize the PROFINET communication protocol.

6. All Motors and VFDs and other electrical equipment shall be sized at site condition. (Temperature & Altitude).

7. The motor terminal boxes shall be suitable for the final cable sizes to be determined during the detailed design phase. Where the required cable size exceeds the standard cable gland entry capacity of the motor terminal box, the Supplier shall be responsible for the design, supply, and installation of a suitable intermediate junction box, complete with all necessary cable glands, terminals, and accessories.

8. The supply of the VFD (if required), the associated VFD panel (if required), soft starter (if required), and all required Local Control Boxes (LCBs) shall be within the Supplier's scope of supply.

9. The Bidder shall clearly identify in its Technical Proposal whether a motor starting device, i.e., a VFD or Soft Starter, is required for the subject equipment, stating the design basis and control philosophy for the selected starting method. Considering the distance between the Purchaser's electrical substation and the subject equipment, as well as the presence of any auxiliary electrical loads within the package, the requirement for the electrical panel, control panel, VFD, and LCB shall fall within the Supplier's scope of work. However, regarding the optimal installation location of the said panel, the Bidder shall fully review the matter and clearly state its position on whether the panel is to be installed in the Purchaser's electrical substation or locally on the skid.

10. The VFD manufacturer is responsible for the evaluation, selection, design, sizing, and supply of all required filtering equipment on both the line side and motor side of the VFD. The filtering equipment shall be selected and designed to ensure reliable, stable, and compliant operation of the system in accordance with the specified operating conditions and technical requirements. In this regard, please provide your recommendation. If installation of the VFD panel in the Purchaser's electrical substation, at the distance stated above, is proposed, the Vendor shall declare and confirm the adequacy of this arrangement with respect to motor cable length, protection requirements, and necessary auxiliary equipment — including but not limited to sine filters, dU/dt filters, output filters, cable type, and motor–VFD compatibility. If local installation of the VFD panel near the equipment is proposed, the panel enclosure specifications, degree of protection (IP rating), ventilation/cooling requirements, and environmental conditions of the installation location shall be fully declared.

11. If the VFD is installed inside the electrical substation, the Supplier shall provide the heat dissipation and dimension data for each VFD panel to enable the design and verification of the substation HVAC system.

12. The following Attached documents Shall be completed and filled as much as possible:

- Electrical load / Motor List (Main & Auxiliaries loads)

13. For the technical requirements of the LCB and Package Unit, please refer to the following documents.

- Data Sheet for Local Control Box (LCB) (Doc. No.: 28C3-D-4IN-DSH-090-0400-00-EL-0048, Rev.03)

- Technical Specification for Package Unit (Doc. No.: 28C3-D-4IN-SPC-090-0000-00-EL-0014, Rev.03)