**SECTION 26XXYY - ELECTRIC VEHICLE SUPPLY EQUIPMENT – LEVEL 3 24kW DC FAST CHARGER**

1. **PART 1 - GENERAL** 
   1. **SCOPE**

The requirements of the Contract, Division 26, applies to work in this section for a 24 kW DC Fast Charger electric vehicle solution, as Specified and as shown on the contract drawings which shall be furnished and installed by the Contractor.

* 1. **SUBMITTALS**

**For review:**

1.2.1. The following information shall be submitted to the Engineer:

1. Product data sheets
2. Installation manuals

**For construction:**

1.2.2. The following information shall be submitted for record purposes:

1. Final as-built overview drawings
2. Wiring diagrams
3. General layout floor plans
4. Installation information including equipment anchorage provisions. The installer/site designer/contractor shall provide final, as- built drawings, recording the general location of the supplied equipment, Installation layout. Operation and Maintenance manuals shall be supplied by the manufacturer.

**1.3. RELATED STANDARDS:**

The Level 3 DC Charger electric vehicle supply equipment shall be designed, manufactured and tested in accordance with the latest version of the following standards (unless otherwise noted):

* EMC: EN 61000-6-4 Class A emission; EN 61000-6-3 Class B emission; EN 61000-6-2 immunity.
* LVD: IEC 61851-23, IEC 61851-1, IEC 62196, IEC 60950, EN 61010, EN 60335
* UL 2202
* CSA STD C22.2 No. 107.1
* FCC Part 15 Class A
* Energy Star
* Plug and Charge/ISO15118-2 **[enabled or have plans to implement in the near future, eg.: next 12 months]**
  1. **QUALITY ASSURANCE**

**A.** The manufacturer shall have been manufacturing DC Fast chargers or similar transportation electrification equipment for a minimum of ten years.

**B.** The manufacturer shall have its operations certified under ISO 9001.

**1.5. DELIVERY, STORAGE AND HANDLING**

If DC Fast charger is being stored prior to installation, the unit shall be stored to maintain the equipment in a clean and dry condition as required by the manufacturer’s instructions, in accordance with manufacturer’s instructions (1). Copy of these instructions shall be included with the equipment at time of shipment.

1. **PART 2 – PRODUCTS**

**2.1.** **MANUFACTURERS**

1. The manufacturer shall have been manufacturing 350kW DC Fast chargers or similar transportation electrification equipment for a minimum of **[three]** years.
2. Manufacturers listed above shall meet these specifications in their entirety. Products in compliance with the specification and manufactured by others not named shall be considered only if pre-approved by the Engineer **[X]** days prior to bid date

**2.2. PERFORMANCE REQUIREMENTS**

* The charger supports the following charging modes:
  + CCS1 (Combined Charging System) protocol, 60 A DC, 150 – 920 VDC
  + CHAdeMO 60 A DC, 150 – 500 VDC
* The device has at least 23ft/7m meters charging cable length for easy charging.
* The charger can be customized by placing self-adhesive or printed logos on the enclosure of the charger ir by customizing user interface
* The charger is not heavier than 70 kg
* The charger must be suitable for public use.
* Charger up-time shall be greater than **[94%]**

1. **Input values**

* **[The input connection is 3-phase, 480Y/277 VAC: L1, L2, L3, N, GND] / [The input connection is 1-phase, 208-240 VAC: L1, L2, L3, N, GND]**
* **[Input voltage is 480/277 VAC +/- 10% (60Hz)] / [Input voltage is**
* **[3-phase Input current and power - 32 A / 26.6 kVA at 480V] / [1-phase input current and power – 100 / 20.8-24kVA at 208-240V]**
* The average efficiency 94% at nominal output power

1. **DC Output values**

* The charging station must provide 22,5 kW output power continuously, 24kW peak
* The charger has up to two DC outputs from one enclosure (CCS1 or CCS1+Chademo)
* The output voltage is meeting the demand of 150-920 V DC CCS and 150-500 V DC CHAdeMO according to the demand coming from the battery management system of the vehicle to be charged.
* Output current is up to 60 A.

1. **Safety**

* DC charger shall have in-built current limiting, ground fault and surge protections to ensure maximum safety of people and vehicles.
* Each charging station must be individually protected via a separate upstream RCD (Residual Current Device) at least of type A with a rated residual operating current not exceeding 30 mA, in compliance with IEC 60364.
* DC charger shall be designed to avoid occurrence of any DC ground fault current larger than 6mA at AC side upstream, so that RCD type B is not required, unless required by local standard.
* Fuses or equivalent circuit breaker rated to respect the charger specifications must be used in compliance with IEC 61851-1
* For safety, DC charger shall include an emergency push button.
* DC charger can be installed on the wall or on the pedestal

1. **User interface and communication**

* The charger must have a full color, daylight readable LCD touch screen with a minimum size of 7” on the charger to show the charging status, which output is activated, etc.
* Authorization must be ensured via RFID card system RFID (ISO 14443 A + B to part 4 and ISO/IEC 15693 Mifare, NFC, Calypso, Ultralight, PayPass, HID), On-screen PIN code authentication
* DC charger has to offer different connectivity options for easy integration in existing infrastructure, it shall be ready for cellular connectivity 3G/4G and shall be provided with 2 RJ45 ports for ethernet connection
* Manufacturer of the charger has to provide web tools and cloud platform to enable and manage authentication, payment, monitoring, remote diagnosis and repair for reliable asset management and payment control and allow the charging station to be managed by 3rd party software management over OCPP 1.6J
* Charger must have local language selection

1. **Environmental factors**

* The device should allow indoor and outdoor use.
* It should be able to be used as a wall type or as a standing type with the help of a pedestal
* Protection class IP 54; mechanical protection IK10 (HMI IK8)
* The operating temperature should be between - 35°C to + 55 °C (derating applies between 45°C and 55 °C)
* The device must have EMC class B certificate for use in areas with high human density.
* The noise level during operation can not be higher than 55 dB A @25°C

1. **Connectivity**

* Cellular connection 3G/4G or 10/100 Base-T Ethernet connection must be provided in the device for all necessary data to be received, error diagnosis payment platforms, etc.
* Software update of the device should be possible remotely by using the appropriate connection type.
* OCPP 1.6J agnostic to any OCPP 1.6J platform, OCPP 2.0 ready for future upgrade via software update over the air without any hardware modifications

1. **Monitoring and control software**

* Software for monitoring must be available. In addition to monitoring, control and billing features should be available when requested.
* Web tool that enables remote diagnostics and troubleshooting, and allows for advanced remote repair activities, which can in many cases prevent a site delegation, thereby reducing time to repair and minimizing operational costs, must be available
* Data files from web tools should be exportable

1. **PART 3 – EXECUTION**
   1. **INSTALLATION**
   * All installation work shall be performed by a qualified person who is familiar with the installation, construction and operation of the equipment and the hazards involved.
   * Installation of the 24kW DC Charger shall follow the procedure in the published literature.
   * The Contractor shall install all equipment per the manufacturer’s recommendations and contract drawings.
   * All necessary hardware to secure the assembly in place shall be provided by the Contractor.
2. **WARRANTY AND SERVICE**
   * + - * Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for two (2) years from date of installation or 30 months from the date of delivery. Equipment manufacturer shall provide extended warranty and Service Level Agreement options.
         * Changes or modifications to this product not authorized by the manufacturer shall void the warranty. The contractor shall contact the manufacturer in order to avoid non-compliant modifications.
         * DC Fast Charger supplier shall offer a managed service offering or ticketing system if required by end user.
         * 24/7 Level 1 technical support line via a 1-800 number shall be provided at no cost.
         * On-site or remote startup assistance by the supplier shall be offered as part of the package.