Consultant specification: Powerduct Track

1. Manufacturer

1.1 General

1.1.1 All low voltage busbar trunking systems (busways) shall be Powerduct Series manufactured by Power Plug Busduct for IPD.

2. Product

2.1 General

2.1.1 The busbar trunking system (800A), Including feeder and plug-in boxes, shall be of low impedance and Track construction, with flexible plug-in point installation.

2.1.2 All busbar trunking and accessories (straight lengths, flanged ends, elbows, joint stack, plug-in boxes, etc.) shall comply with AS/NZS 61439.6: 2012 and be from the same manufacturer.

2.1.3 Rated operating voltage of the busbar trunking system shall be ≤1000V.

2.1.4 Busbar trunking system should be 3-Phase, 4 or 5 wire with continual integral (housing) or internal earthing busbar. External bolt-on earthing busbars shall not be accepted.

2.1.5 The neutral busbar shall have an equal cross-sectional area as the phase conductors.

2.1.6 For indoor applications, the busbar trunking system must have a minimum ingress protection rating of IP40 for Plug-in units and IP20 for busbar trunking system, when completely installed.

2.1.7 The busbar, of full range and current rating, should pass full type tests specified in AS/NZS 61439.6: 2012. The certificate of compliance shall be issued by an internationally recognised, independent testing authority (e.g. KEMA, DEKRA, ASTA etc.)

2.1.8 The complete busbar trunking system shall have a nominal insulation voltage of 1000V.

2.1.9 The Rated short-time withstand current (I_{cw}) is 30kA and Rated peak short-circuit current (I_{pk}) 65kA.

2.2 Housing

2.2.1 The busbar trunking housing shall be constructed from 2mm total extruded aluminium with anodised finish.

2.2.2 The busbar trunking housing shall be manufactured by the busbar trunking manufacturer. Any modifications to the busbar trunking housing by others will void the manufacturer's warranty, without written consent from the manufacturer.

2.3 Busbars

2.3.1 Busbars shall be Electrolytic copper with conductivity in excess of 97% IACS.

2.3.2 All contact surfaces of the busbars shall be fully electroplated with nickel tin or silver to ensure a firm connection is made at joints and plug-in points.

2.3.3 All insulation processes of the busbar shall be completed by the manufacturer and not by others.

2.3.4 The overall temperature rise at any point of the busbar shall not exceed 40K above ambient temperature when at full load.

2.4 Busbar Joints

2.4.1 The busbar trunking joints shall be of bridge / mono-block design to allow for electrical isolation of busbar trunking system without needing to remove adjacent sections of busbar trunking lengths.

2.4.2 The busbar trunking joints shall be of independent connectors for each conductor all coaligned with a single bolt designed for secure fixation of incoming and outgoing busbar feeders.

2.4.3 Belleville spring washers shall be used to ensure the original contact pressure is maintained across the joint and provide a secure and reliable connection.

2.4.4 Removal top and bottom covers shall be provided to maintain the ingress protection of the busbar trunking system and allow for visual inspection of joint during routine maintenance.

2.5 Tap-off units

2.5.1 The tap-off units shall be of plug-in type rated to distribute currents up to 125A.

2.5.2 All individual tap-off unit shall include provisions up to three 3-phase or 1-phase connections with each provision employing Miniacture Circuit Breakers (MCBs) from current ratings of 10A to 63A.

2.5.3 The tap-off units may be optionally available to support remote branch-level energy monitoring support with Data Center Infrastructure Management (DCIM).

2.5.4 The tap-off units shall be designed with Self-locking mechanism for fast and reliable installation to main track busbars.

2.5.5 The tap-off units shall be able to securely and safely installed on energized track busbars to support with expansion or modification. Appropriate Occupational Health & Safety (O&H) guidelines to be followed at site at all times.

2.5.6 The outgoing connector options shall include:

- Panel mounted straight or angled IEC 309 receptacles or
- Drop cords / flying leads terminated with the required connector

2.6 Supports

2.6.1 Hanger support spacings shall be noted on layout drawings and shall not exceed the manufacturer's recommendations to minimize vibrations and prevent movement of the busbar trunking system when energized.

2.6.2 All hanger support accessories including drop rods, screw nuts etc.. shall be installed according to manufacturer's recommendations.