Bus Duct

AL-AHLEIA SWITCHGEAR CO.
K.S.C.C.
Kuwait
Driven by a vision to pioneer, ASC has risen from its humble beginning more than 25 years ago of a sole factory for LV boards, to an organisation boasting of 11 factories managing LV & HV Switchgear, Transformers and Package Sub-stations, establishing itself as the largest power equipment manufacturer in the region.

ASC takes pride for being the leading local manufacturer of HV products, transformers and package S/S. Over time, ASC products have attained a reputation for quality, reliability as well as sustainability which gained recognition in the industrial sector in the Middle East.

All products have been developed inside the walls of the factory and will continue to improve, because progress stops once the spirit of pioneering is lost.
INTRODUCTION

Al-Ahleia Bus ducts are non-segregated phase bus duct designed and manufactured for connection between transformer and switchgear and between two switchgears. The bus duct is available for voltages ranging from 400 volts through 12kV, with ampere ratings up to 6300 amps. Non-segregated phase bus has all phase conductors in a common enclosure with an air space between phases. There are no metallic barriers between phase conductors of adjacent phases. The Bus duct enclosure are sheet steel fabricated, air insulated type and fully engineered to suit Customer’s requirements. All necessary equipment connection flanges, wall entrance seals, transformer and/or equipment adaptor box, elbows, offsets, wall supports, floor supports, flexible connectors - is included to make a complete installation. The bus duct is designed and manufactured in accordance with IEC 60439-2, IEC 62271-200.

ENCLOSURE DESIGN

Enclosures are fabricated from 2mm zinc coated steel as standard for current ratings up to 3200 amperes. Above this current rating only aluminium enclosures are supplied. Stainless steel enclosure is available upon request. Weather proof enclosures with neoprene gasket for covers are provided for outdoor applications. The outdoor horizontal portions of bus duct are provided with canopy for rain protection. The removable covers are secured with bolts for ease of access when making joints and subsequent periodic inspections. Enclosures are painted with polyester powder coat paint system resulting in a very durable finish with uniform thickness and gloss. This type of finish minimizes the risk of problems in harsh environments. The standard color is light grey RAL 7032. Special paint colors are available upon request.

BUSBARS

The busbars are made of high density, high conductivity copper and are insulated as per customer specifications along their length. Busbars and all joint surfaces are Tin plated as standard. Silver plating on joint surfaces is available upon request. Bus joints are made by solidly bolting busbars together with copper fish-plates on each side. After bolting, each standard joint is covered by a preformed, flame retardant insulating boot, providing full insulation for bus conductors. These boots are easily removable for inspection of the joints. Busbars are securely supported on Insulators so as to withstand the rated short time current.

EARTH BUS

Copper earth bus, rated for specified short time current, is provided throughout the length of bus duct. Facility to connect the earth bus to substation earth is given at both the ends.

ACCESSORIES

Adaptor box – Switchgear end

Switchgear termination adaptor box connect non-segregated phase bus duct to medium voltage switchgear, medium voltage motor control centers, and low voltage switchgear or motor control centers. It includes a matching flange and required number of flexible copper braids for connections to Switchgear terminals. Each adaptor box is designed to co-ordinate with opening, drilling and bus extension detail supplied on the switchgear equipment.

Adaptor box – Transformer end

Transformer termination adaptor box are designed to match the transformer throat. It includes a matching flange and required number of flexible copper braids for connections to transformer bushing terminal pads.

Elbow

Elbows are used to turn the bus run by 90°.

Tee

A tee is used for three directional connections.

Offset

An offset is used to avoid obstacles.

Phase Cross-Over Chamber

Phase cross-over chamber are provided where required within the bus duct system to align the phase sequence of terminal equipment at two ends.
Space Heater (Optional)

Space heaters are provided at both Switchgear and Transformer ends for use with customer supplied power supply to prevent the formation of internal condensation. A Thermostat is also provided for setting the temperature of the space heater.

Wall Flange with Wall Entrance seal

Wall flanges are provided when a bus duct passes through a wall or floor. Wall entrance seal consisting of Fire proof barrier with fire stop seal are provided to prevent air or vapor from passing from one room to another or from outdoors to indoors. Fire proof barrier are also provided as per customer specification in the bus duct to prevent air or vapor from passing through the bus duct.

BUS DUCT SUPPORTS

Type A – Single Column Support

Standard single column supports from 1 m up to 3 m high are available. Other non-standard support lengths can be designed to meet the need of a particular application.

Type B – Double Column Support

Standard double column supports from 2 m up to 5 m high are available. Other non-standard support lengths can be designed to meet the need of a particular application.

Type C – Hanger Support

Hanger supports are available for indoor support applications or to support bus from existing outdoor framed structures.

Type D – Knee Brace Support

This type of support can be used where the bus duct runs along or near a wall and where space below the bus duct run is restricted.

TECHNICAL DATA

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<tr>
<th>Type</th>
<th>ABD 1 Description</th>
<th>ABD 12 Description</th>
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<tr>
<td>Current Rating</td>
<td>Up to 6300A</td>
<td>Up to 1000V</td>
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<tr>
<td>Applicable Standard</td>
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<td>IEC 60439-2 and IEC 62271-200</td>
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<td>Degree of Protection</td>
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<td>Accessories</td>
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Phase Cross-Over

Type A

Type B

Type C

Type D
### Data Tables

#### Up to 1000V

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<tr>
<th>Current Rating (Amp)</th>
<th>Fig</th>
<th>Conductors</th>
<th>Enclosure Material</th>
<th>Enclosure Dimension (mm)</th>
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#### Up to 12kV

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<td>4000</td>
<td>3200</td>
<td>B (4 nos.) 100 x 10</td>
<td>Steel</td>
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**Fig: A**
(Typical Cross Sect. View of Bus duct up to 1000V)

**Fig: B**
(Typical Cross Sect. View of Bus duct up to 12kV)

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**Elbows, Tees and Transition Connection**

- Horizontal Elbow
- Tee
- Straight Section
- Double Horizontal Elbow

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**Figures:**
- Horizontal Elbow At Wall Entrance
- Vertical Elbow At Wall Entrance
TEMPERATURE RISE TEST
Our Mission is Customer Satisfaction

AL-AHLEIA SWITCHGEAR CO.
P.O.Box: 25876, Safat 13119 Kuwait
Tel: (965) 1 822600 - Fax: (965) 2 4761963
www.ahleiasg.com - email: ahleia@ahleiasg.com

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GPS Location
29° 13’ 59.40” N - 48° 00’ 59.76” E