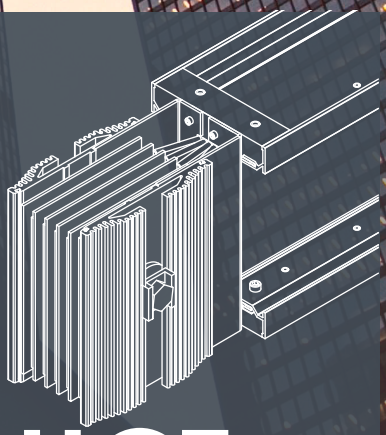
www.wilmarbusways.com

WILMAR



WILMAR BUSDUCT SYSTEM

ENERGIZING THE FUTURE

PRODUCT CATALOGUE

WILMAR BUSDUCT

PAGE OF CONTENTS

ABOUT US

WILMAR INTERNATIONAL LLC

Wilmar International LLC, has been incorporated in USA by a consortium of Highly Qualified, Skilled professionals who bring in Tremendous Experience in Electrical, Electronics and Lighting Designs to offer Energy Efficient & Application Specific Solutions based on Technological Evolution for Power Distribution, Lighting, Controls and Automation needs of Infrastructure, Industrial, Commercial and Residential Building Segments in line with International Standards. M/s Wilmar thro' its associate companies has also established Technology Centers for research & development of new products and adaptation of latest technology to bring benefit to customers.

OUR VALUES

PEOPLE » **INNOVATION** » **COMMITMENT TO EXCEL** » **PERFORMANCE** » **INTEGRITY**

Acquisitions & Technical Collaborations with companies from various geographies have helped Wilmar International LLC to provide state of the art technology & products to its customers from different geographies while increasing its resources for development of products and customers. This GLOCALIZATION approach aimed at serving local customers promptly with quality products of global repute at affordable prices by manufacturing them locally, has resulted in an initiative to set up State of the Art Manufacturing Facility spread over an area of 55000 Sq. Meters for Switchboards and Sandwich Busways thro' an associate company - M/s Federal Electricals in Abu Dhabi under FEDERAL Brand.

"Our commitment to add value in projects undertaken by our esteemed clients has made us a partner of choice and we endeavor to excel in our services to customers for achieving their satisfaction and continued patronage."

This ISO & OHSAS certified State of the Art Switchgear & Busway Production Facility built & set up on the LEAN, Six Sigma principals ensures reduced production time and helps in improvement of delivery lead times of Finished Products in compliance with Design Specifications and Quality Standards followed internationally. Quality Assurance being Top Priority of our Organization, strict quality control measures and processes are followed at our factory starting from raw material procurement to delivery of final products in line with customer's needs.

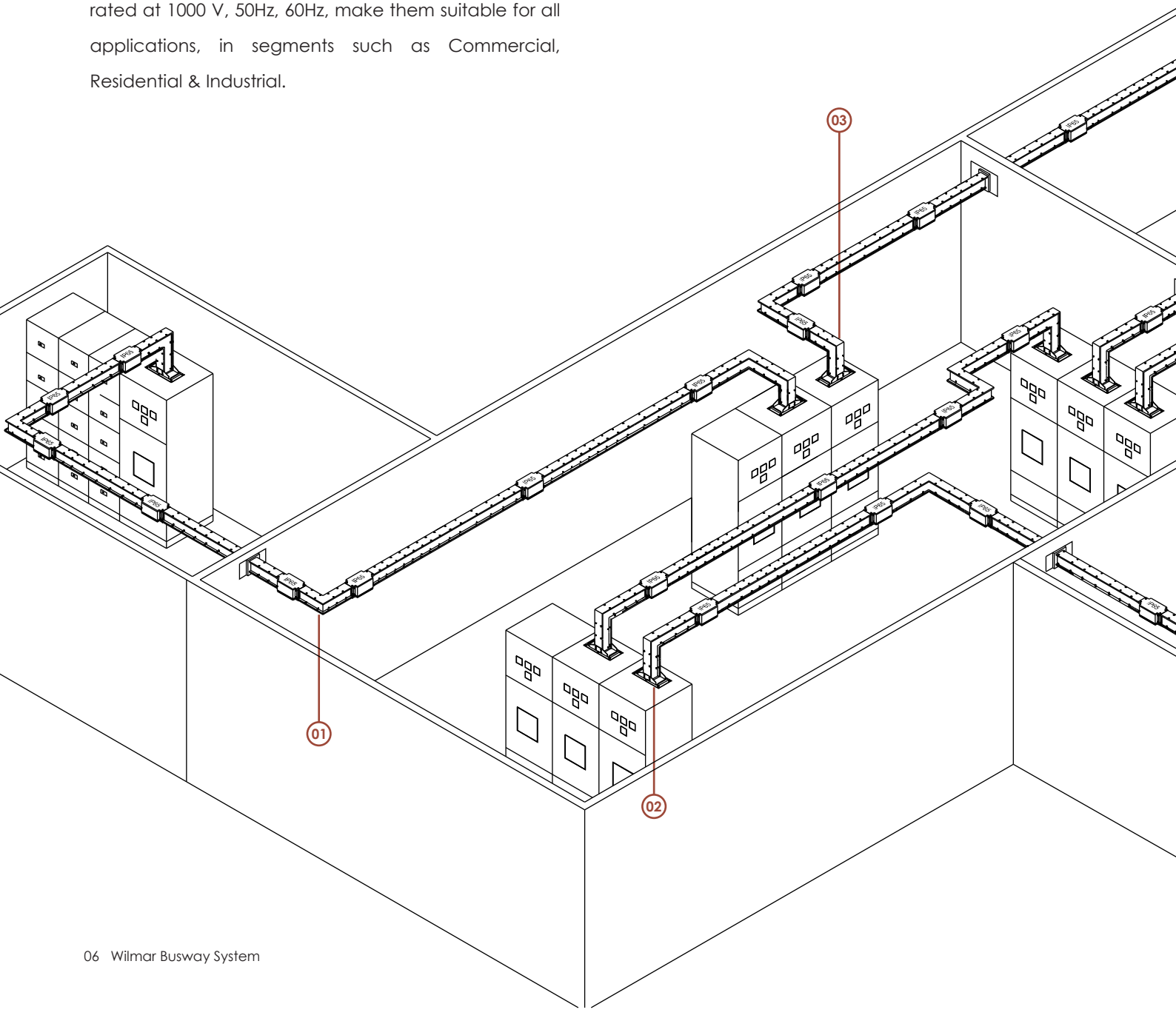
Wilmar Busways have been Type Tested and Approved by various Authorities such as ASTA and UL confirming compliance to applicable standards such as IEC 61439-1 & 6. Wilmar Busways have been designed to meet stringent operational conditions more efficiently and safely. This has been possible because of continuous research and development activities at our technology center-which is equipped with high end testing, measuring and monitoring equipment to carry out checks and tests on products during its developmental stages enabling us to derive optimum design criteria for final product, keeping in view requirements of our end users.

POWER DISTRIBUTION & LAYOUT SOLUTIONS

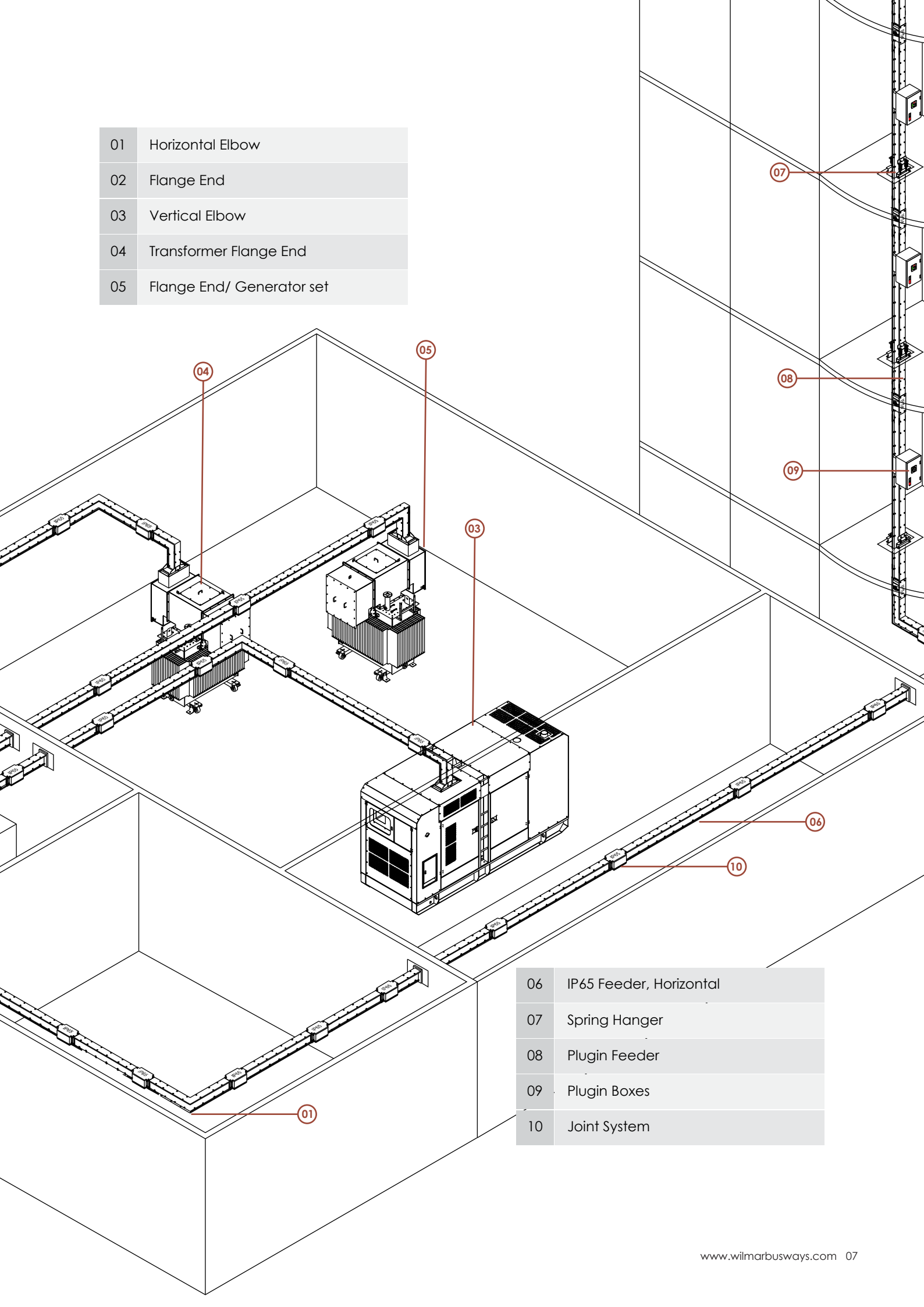
Use of Wilmar sandwich busway system benefits distribution scheme by some of its unique features, viz. Higher Efficiency, Low Losses, Ease of Operation and Installation. This safe and robust system contributes greatly in making overall distribution scheme more reliable and efficient.

Aluminum Enclosed Sandwich Busway Product line (630Amp to 6300Amp) with Copper Conductor and 250Amp to 4000Amp with Aluminum conductor in 3Ph3W, 3Ph4W, 3Ph5W System in IP54 to IP65 version rated at 1000 V, 50Hz, 60Hz, make them suitable for all applications, in segments such as Commercial, Residential & Industrial.

Study has confirmed higher life span offered by Wilmar Busways is possible due to its unique construction allowing better surface area for faster dissipation of heat, improved joint design, a unique assembly pattern and quality of insulation. Corrosion Resistant Housing and duly tested Insulation for its di-electric strength, Enhanced thermal management technique that provides a relatively better thermal index, And resistance to fire play a major role in ensuring extended service life of entire system even in stringent atmospheric conditions.



01	Horizontal Elbow
02	Flange End
03	Vertical Elbow
04	Transformer Flange End
05	Flange End/ Generator set



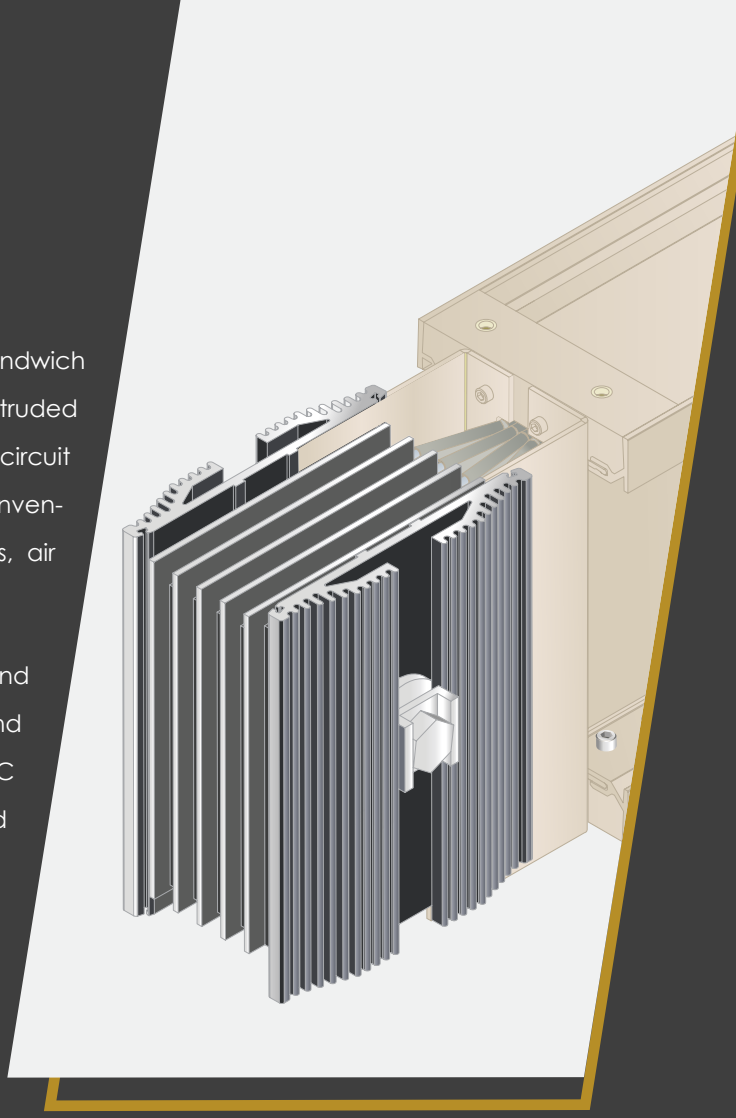
06	IP65 Feeder, Horizontal
07	Spring Hanger
08	Plugin Feeder
09	Plugin Boxes
10	Joint System

Besides this, extensive testing carried out as per IEC 61439 part 1 & 6 (at ASTA/Intertek and UL) to validate design and verify performance of system, makes us a preferred choice of customers & consultants eyeing for satisfactory performance of busway system required for their prestigious projects. We also welcome visit of customers to our factory, to witness manufacturing and testing of busways ordered by them, Which has not only helped in to with their confidence on existing projects but has also made in a preferred supplier for all their future needs.

Constructed with 3 mm thick aluminum extruded housing "Wilmar Busways" offer enough strength required for withstanding electrodynamic forces expected during abnormal events like short circuit. Structure of enclosure, special arrangements of tools and jigsallow maximum flexibility during handling and installation of units.

View above, Wilmar busway system is an ideal choice for various applications; our team will be pleased to undertake application studies for your requirements and assist in freezing scope of supply and related engineering works. From initial stage of projects, our team of experienced engineers will be available to support you for Design, Selection of Bus Trunking Components, Site Measurement and Drawing preparation activities, Inspection, Supervision Services during installation and thermo graphic surveys post installation - which we believe ensures satisfactory execution of the project and performance of the system over extended period of time.

TECHNICAL FEATURES OF SANDWICH BUSWAY SYSTEM



Compact & Safer Design

The construction of Sandwich Busway System is based on sandwich type arrangement of insulated conductors in aluminum extruded enclosure making it a compact design, offer higher short circuit withstand capacities and are being preferred in place of conventional means of electrical power distribution viz-a-viz cables, air insulated busducts.

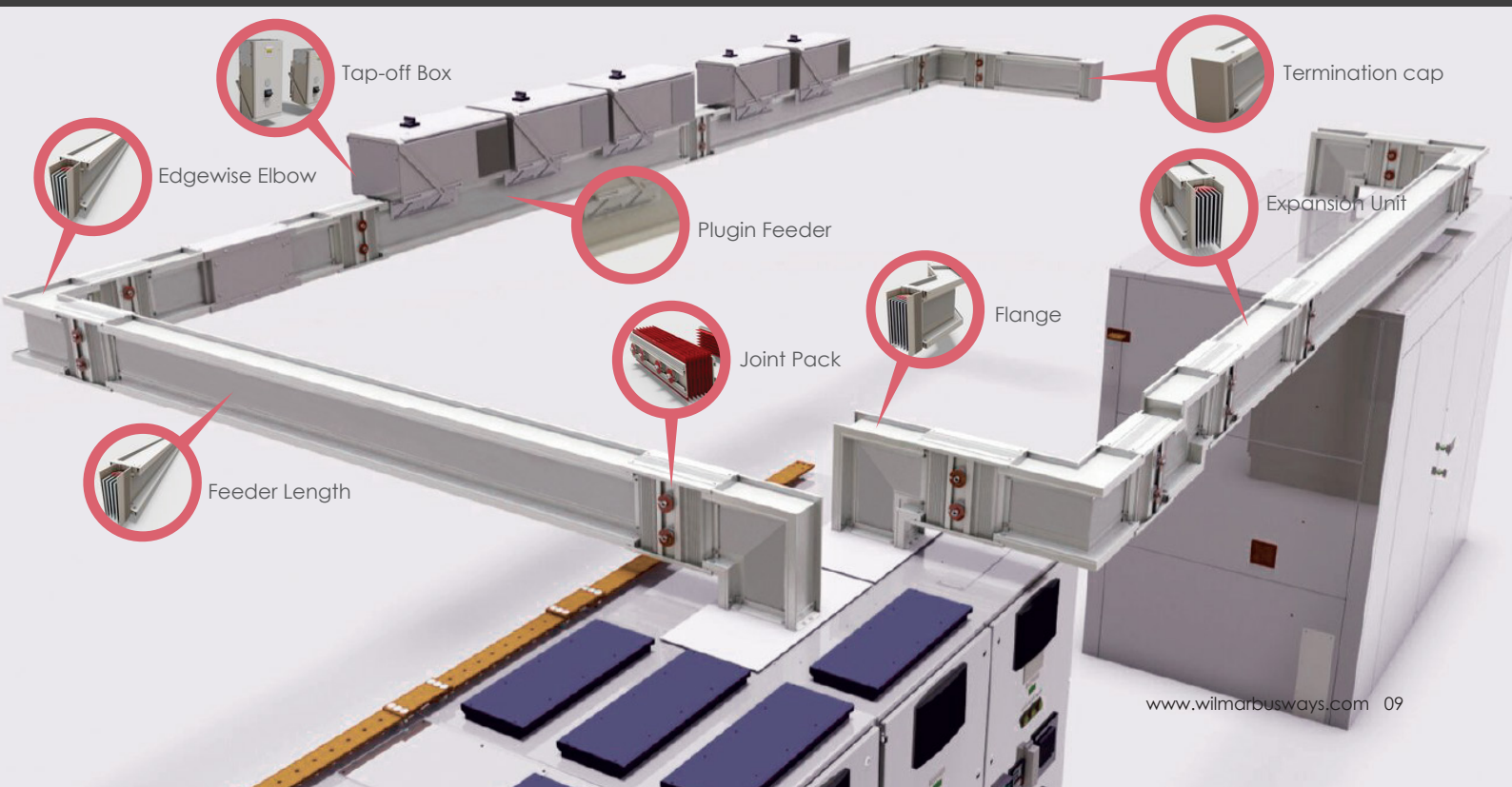
Use of superior insulation, specially designed components and assembly, offer resistance to fire in building penetrations and resistance to flame propagation in compliance with IEC Standards making these systems more safer, durable and reliable.

Installation & Maintenance Free Operation

Sandwich Busway Systems are easier to handle during installation. They offer flexibility in routing and are easier to relocate if the need arises.

New Plug in Boxes can be easily plugged in, decreasing cost of modification – which in case of conventional distribution methods would require additional expense of sub distribution board in addition to extra time.

Quicker installation, efficient operations with maintenance free joints reduce installation and operational costs of these systems making them a preferred choice.



Technical Features

The perfect design for high current busbar systems in the "compact structure" where tin plated and class F/B epoxy insulated conductors are tightly placed ino the extruded aluminum housing.

High short circuit with stand capacity

A well engineered design that helps efficient dissipation of heat and uniform distribution of mechanical stress helps Wilmar Busway System achieve an excellent short circuit withstand capacity.

Better Heat Transfer

Compact structure & additional fins at joints help easy trasfer of heat. Since there is no empty space filled with air, heat is transfered to the environment by the housing that works like a heat shink.

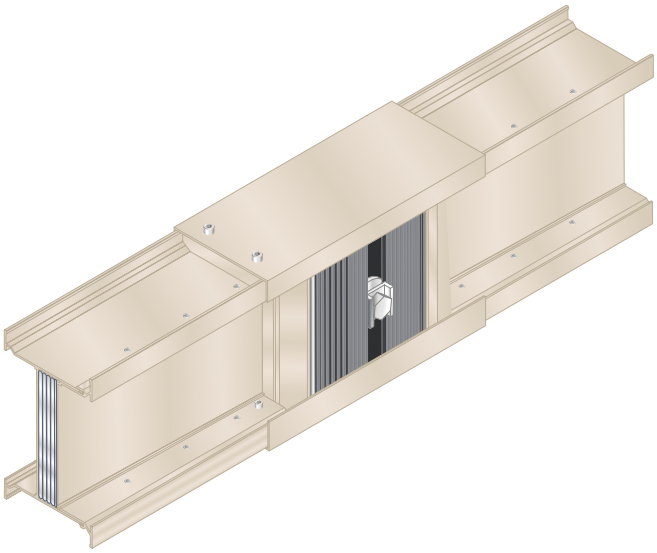
Fire Resistance & Flame Resistance

There is no risk of chimney effect in Wilmar compact structure. Hence internal fire barriers are not needed. Wilmar Busway System has been tested for 240 min during fire condition.

PRODUCT FEATURE-
SAFETY, RELIABILITY & EFFICIENCY

Unique Structure

Specially developed enclosure design, involving 3 mm thick aluminum alloy extrusion profiles offers excellent strength to withstand electrodynamic forces that arise during short circuits and can act as an integral ground. Larger surface area offered vide this design ensures faster transfer of heat resulting in lower temperature rise and thereof increase in life of insulation, which in turn extends service life of entire system. In addition to this, housing design and its assembling method retains conductor at their assigned position, which is vital for ensuring safe connection of units during installation.



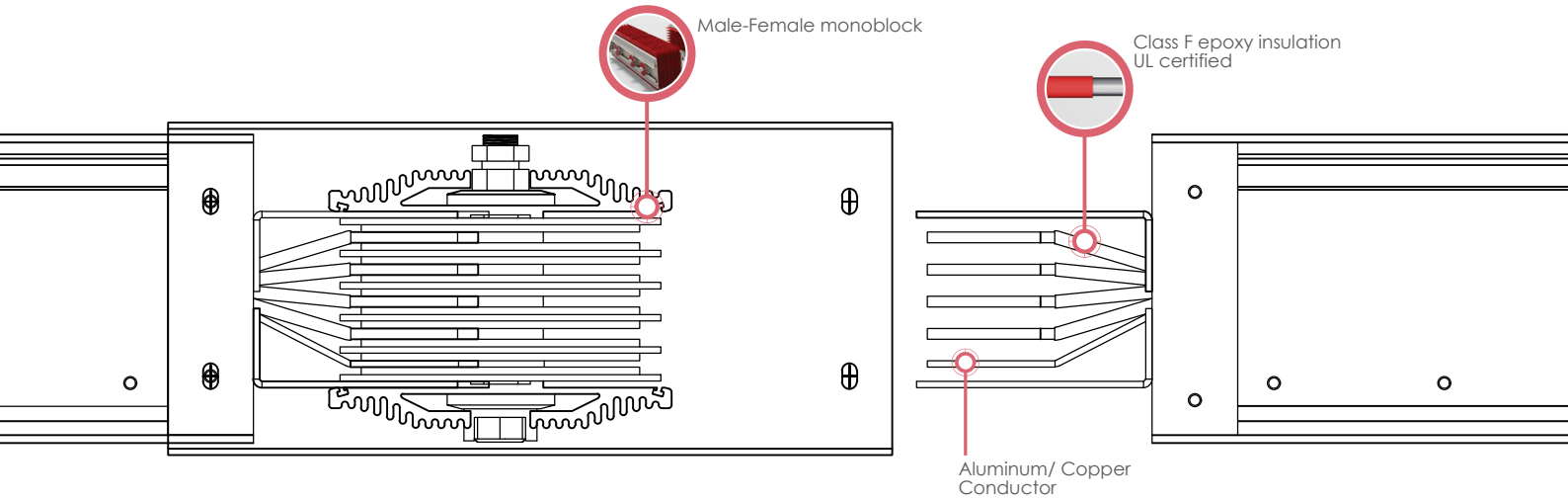
Automated Pretreatment and Electrostatic Powder Coating ensures that these enclosures offer resistance to corrosion and chemicals, which are likely to prevail in stringent operational conditions. This has been verified and certified by special tests conducted at internationally accredited laboratories.Enclosure designs for Indoor and Outdoor Application based on protection against ingress of dust, water are also offered as standard.

Our Application Engineering Team can offer services which include site survey, study of application, project modelling to propose suitable solution and product specification in line with requirements of application. This way of engagement with customers has made us their preferred choice.

MONO BLOCK JOINT SYSTEM/ JOINT PACK

Joints facilitate physical and electrical connection between busway units to complete point-to-point distribution system. They also play an important role in ensuring satisfactory performance of the system. Under normal current carrying conditions, heat is generated at conductor contact area due to their contact resistance. Effective management of this heat, either by reducing or transferring it to external environment is essential for safe operation and extended life of entire system.

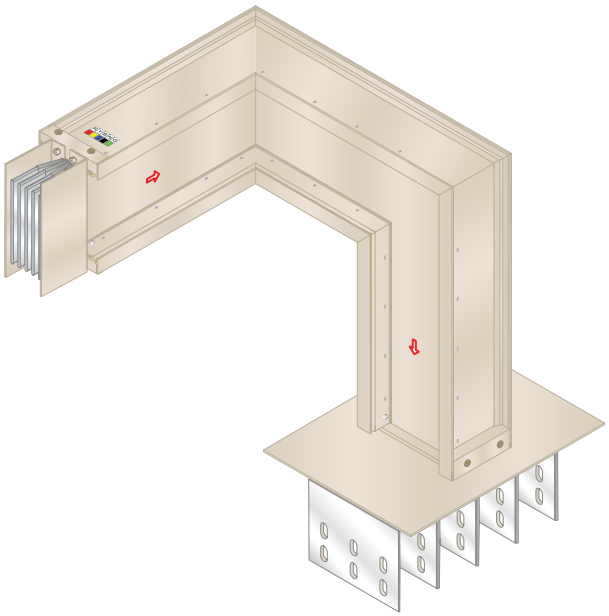
Joint Packs(Bridge type jointing system) are used to connect all components in a busway system together from feeder lengths to feeders and feeder lengths to elbows etc.



Unique two piece IP65
aluminum trunking case

TESTED
FROM UL, ASIA, UK & Germany

Assembly Design



True Sandwich Design achieved with the help of precise extruded housing and perfectly insulated conductors, eliminate pathways for propagation of Flame, Gas, Smoke referred to as "Chimney Effect", thus making Sandwich Busways Safer.

Assembly of precisely extruded housing components is done in such a way that desired Ingress Protection is well maintained.

Conductors

Wilmar busway systems, demonstrate their excellence in performance also due to careful selection of conductors, some of them are imported from Malaysia, Canada, USA and Europe.

Copper and Aluminum Conductors with Tin plating are available as standard, Silver Plated conductors can be offered upon request.

These conductors in round edge comply to JIS, ASTM Standards. Copper Conductors with 99.9% Purity and 100% Conductivity, Aluminum Conductors with 99.6% Purity and 61% Conductivity are available in standard offerings.

Our QA and Test Labs, are equipped with facilities to check copper purity, resistance and other chemical, mechanical properties of conductor material essential for achieving best performance of our system.

Horizontal Distribution

While designing an electrical distribution system with Wilmar a few approximate details will be necessary

- Location, number, type and approximate ratings of loads,
- Transformer rates and short circuit capacities
- Utilization factor = a
- System coordination with other distribution system (heat, water, etc)
- Determining the route of Wilmar on layout
- If necessary, coordination if Wilmar busbar with Wilmar KO-II runs,
- Deciding on suitable hanger types.

Utilization Factor (a)

Utilization factor (a) depends on the type and number of loads.

It is usually around 0.7 or lower. The utilization factor of a line that supplies electricity to motors and lighting systems is usually lower than 0.6.

It is as low as 0.30 in weld shops of car factories, a can be 1 in lines where only one big load is supplied.

Voltage Drop

For practical voltage drop calculation, necessary values, formula and easy calculation methods are given on the technical characteristics table.

Rated Current

The current is calculated using the following equation:

$$I = \frac{TCL \times 1000}{\sqrt{3}.U.PF}$$

I = Load Current (A)

TCL = Total Connected Load (KW)

U = Supply Voltage (V)

PF = Power Factor

- Busbar Current rating is chosen as equal to or higher than the calculated I current.
- After the voltage drop calculation if the chosen current rating is not convenient, a higher rating is chosen.

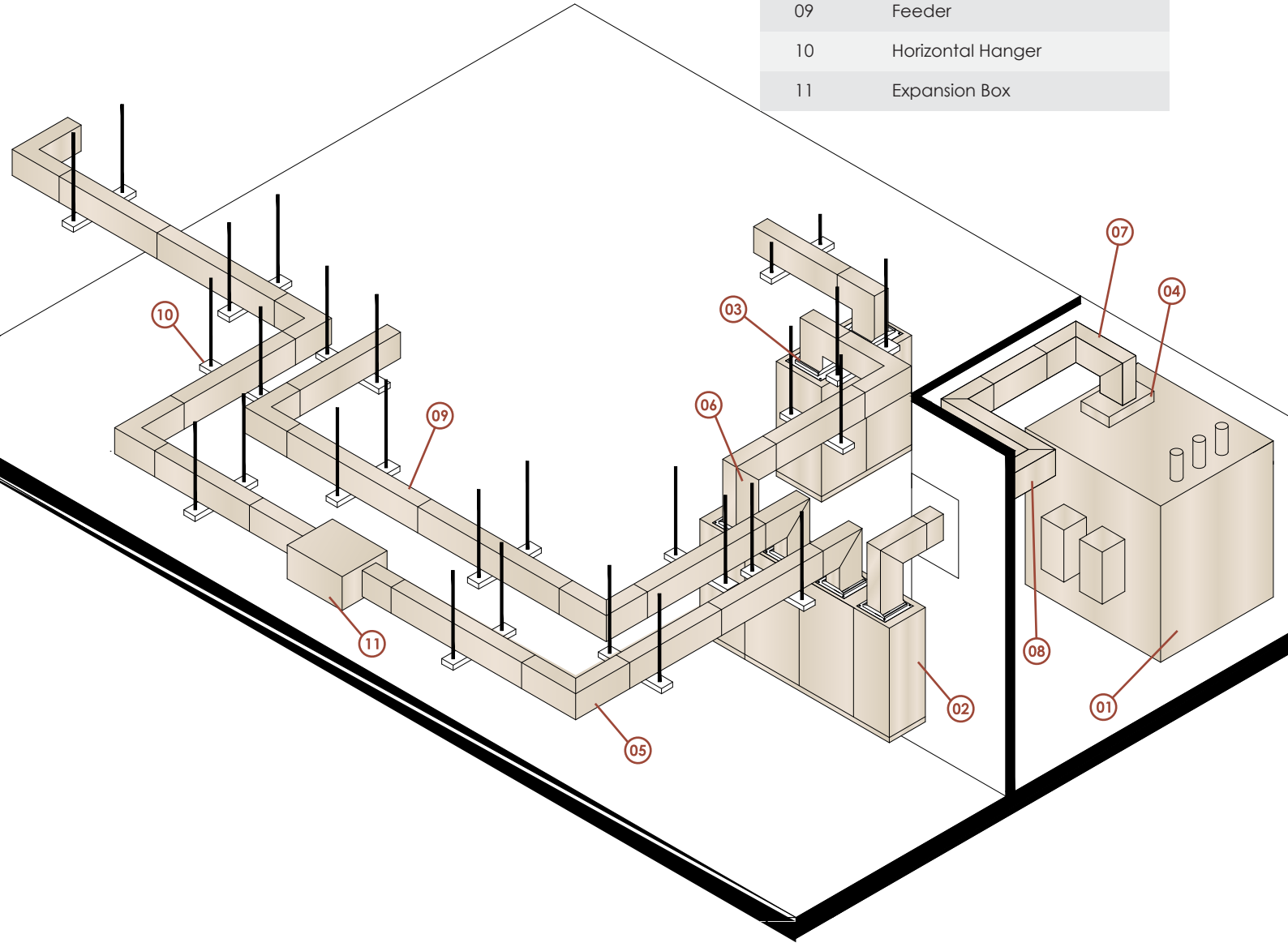
Short-Circuit

Tested Short-circuit capacities are given on technical characteristics table

Busbar installation Plan

Our distributor's project & design departments will help you for preparing the installation plans on request

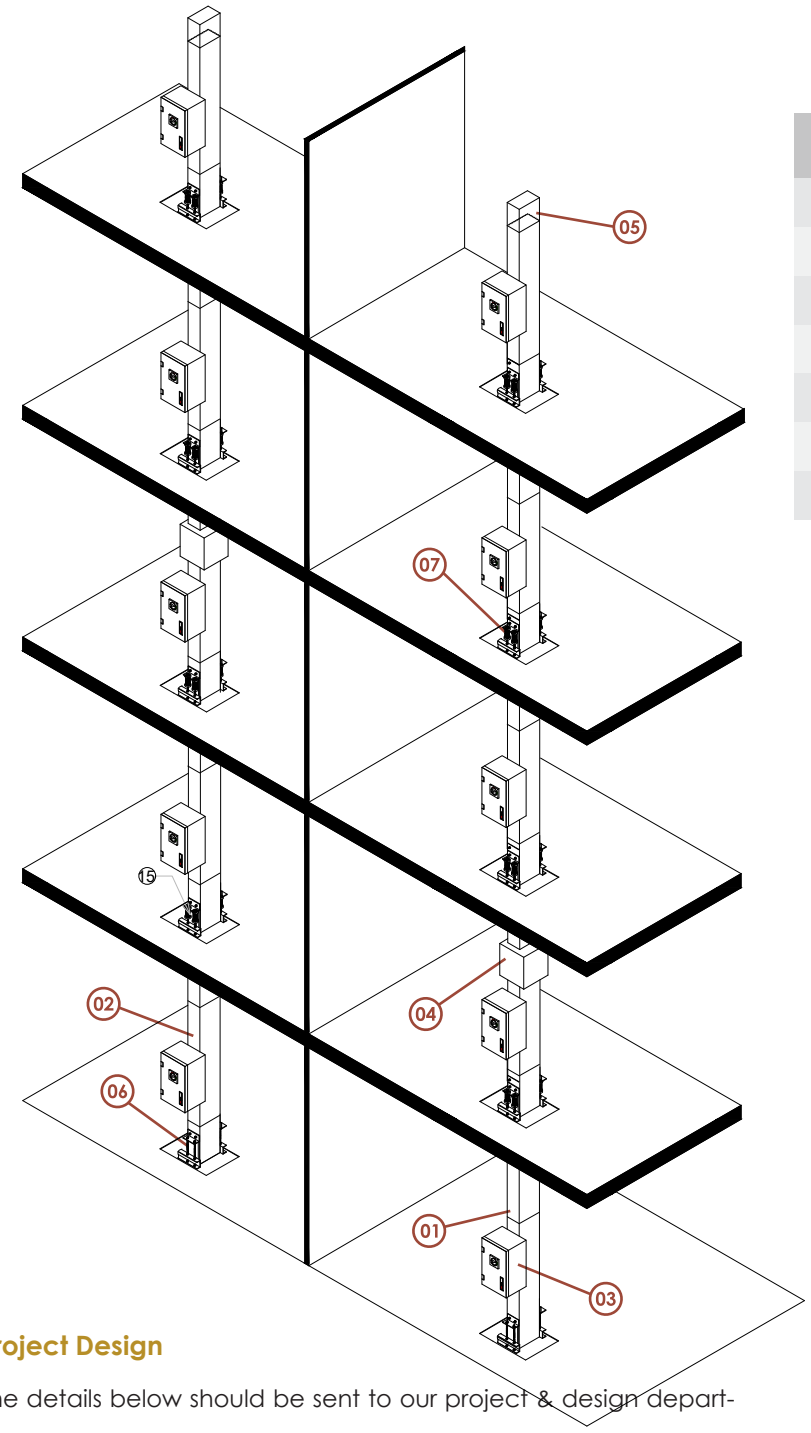
Item	Components
01	Transformer
02	LV Panel
03	Flange End
04	Flange End Box
05	Horizontal Elbow
06	Vertical Elbow
07	Combination Elbow
08	Offset Elbow
09	Feeder
10	Horizontal Hanger
11	Expansion Box



Vertical Distribution

As each building's structure is different than the other for vertical applications of Wilmar special projects has to be designed.

The details on this page briefly explain the necessary information for drawing a vertical application project.



Item	Components
01	Feeder
02	Plug in Feeder
03	Plug in Box
04	Expansion Box
05	End Cover
06	Vertical Fix Hanger
07	Vertical Spring Hanger

Project Design

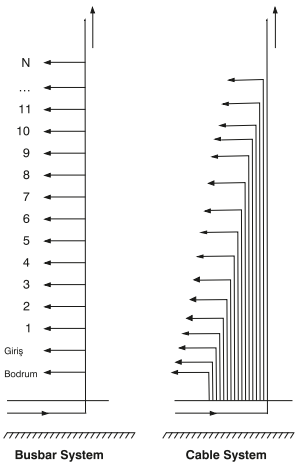
The details below should be sent to our project & design department

Location and dimensions of the floor penetration where busbar will be installed

Number height and ceiling thickness of storeys

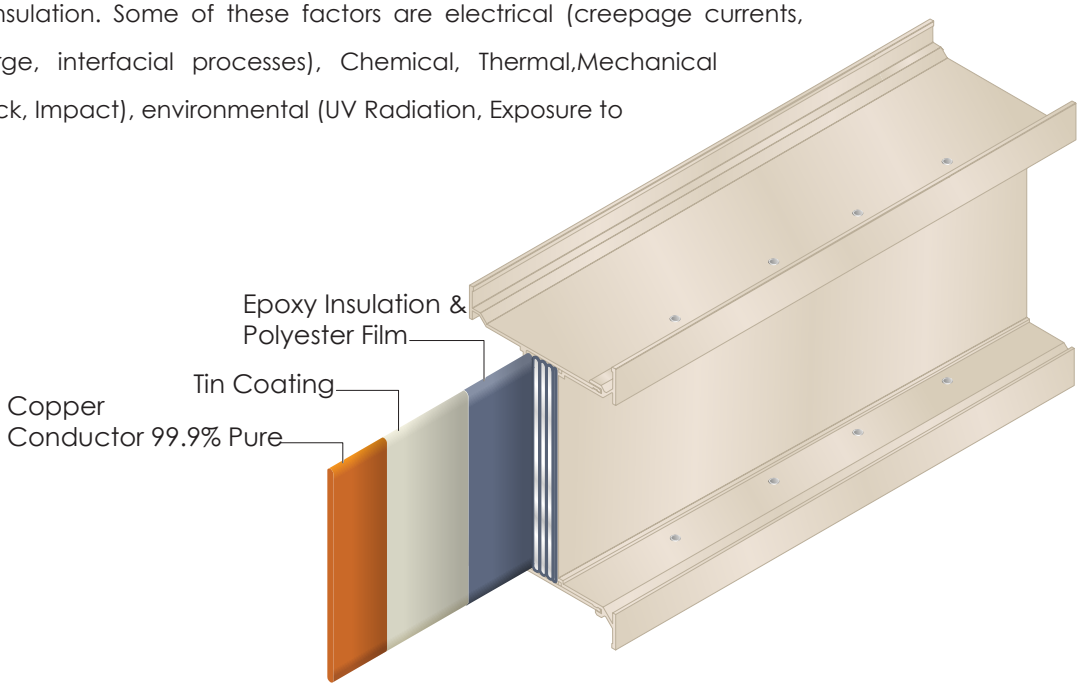
Connected load for each storey

Supply type of the vertical line (busbar or cable)



Superior & Reliable Insulation

Durable class F & B Epoxy Insulation having longer service life, has been used for Conductors of "Wilmar Sandwich Busway Systems". Benefits of Epoxy, such as Resistance to Water, Moisture, Chemicals, and Mechanical Impact besides dielectric strength, flame retardant properties make them preferred choice as insulation materials. While selecting insulation material, we have also given consideration to factors playing vital role in ageing of insulation. Some of these factors are electrical (creepage currents, partial discharge, interfacial processes), Chemical, Thermal,Mechanical (Vibration, Shock, Impact), environmental (UV Radiation, Exposure to Salt Fog).



Selection of insulation material has been done carefully by conducting special tests, which included verification of their electrical, mechanical properties, dielectric, impact strength in conditions exposed to heat, cold, humidity, and vibrations to name a few. As insulation plays a vital role in overall performance and service life expectancy of busway system, our above approach reflects our efforts to provide our customers, a product offering excellent performance in harsh conditions for extended service life.

Application specific testing and verification of insulated conductors, involving RTI (Relative Thermal Index), Flammability Rating, maximum and minimum thickness of insulation and its performance under mechanical impacts, have also been done to demonstrate value for customer's money.

Class "B" (130 Deg C) Epoxy insulation is offered as a standard. To meet requirements of higher insulation temperatures (Relative Thermal Index), Class "F" (155 Deg C) Grade insulation, is also available upon request.

Insulation Process

Our plant is equipped with state of the art coating machines for applying insulation on conductors. Selection of insulation coating machine has been done based on coating process - which vary based on Pretreatment for Conductor, Type of Insulation Material, and Application Process& Sequence.

These machines not only ensure production of insulated conductors with best quality and durability, but also can handle increasing demand by producing them quickly in shortest possible time. This makes us feel proud, about our capacity to cater to larger scale projects with guaranteed quality of products.

Automated Electrostatic Coating

Automated Electrostatic coating uses special spray guns to ensure uniform thickness of insulation with a great reliability to perform.

It also prevents entry of moisture, chemicals during coating operations and provides optimum strength to insulation achieved by coating.

Properties of Epoxy, resulting in smoother finish after undergoing this process help in achieving closer conductor spacing, which is essential for better performance of Busways having sandwich type assembly.

Fluidized Bed Installation

In this type of system,Epoxy Powder from Fluidized Bed Container, floats due to forced air passing through' porous plate fitted at the bottom of the container.

As it resembles to boiling liquid this process is called as a "Fluidized Bed" Process. Preheated Copper Bars (Conductors) are then lowered into the container, wherein Epoxy Particles contact the heated bars and melt, to form uniform film over the conductor surface being dipped.

This Automated Process has a provision to control dipping time based on type of conductor, type of epoxy powder in accordance with thickness of insulation to be achieved. These bars then undergo curing process for final finish.

As per requirement of Application, we can produce insulated conductors by using above processes and select epoxy powders, insulation materials to achieve appropriate insulation thickness, our application engineering team can provide further assistance in selection of appropriate insulation class considering application of system and requirements of customers.

Above methods of insulation have also been applauded for elimination of air gaps, voids and improper thickness.

Insulated Conductors produced by above systems then undergo Quality and Performance Check. Our Quality Control Department, inspects and tests quality of each bar by conducting special tests which also includes high voltage tests.

TECHNICAL DATA

CURRENT RATINGS								
Ratings (In)	**800**	**1000**	**1000**	**1250**	**1400**	**1400**	**1600**	**1600**
Product Code	**IE08C03A**	**IE10C03A**	**ID10C03A**	**IE12C03A**	**IE14C03A**	**IES14C03A**	**IE16C03A**	**ID16C03A**
Rated Operational Voltage(Ue)	1000V, AC							
Rated Insulation Voltage(Ui)	1000V, AC							
Rated Impulse Voltage(Uimp)	8KV							
Rated Frequency(fn)	50 / 60 Hz							
Rated Short Circuit withstand Current								
1 Second - Icw(kA)	36	50	50	50	50	65	65	65
Peak Value - Ipk(kA)	75.6	105	105	105	105	136.5	136.5	136.5
DIMENSIONS								
Bus Bar Dimension(mm)	50x5	60x5	75x5	75x5	100x5	100x6	100x6	140x5
Cross Section Area(mm^2)	250	300	375	375	500	600	600	700
Enclosure Dimensions width x height (mm)								
3PHASE, 4WIRE + 50% G	145x110	145x120	145x135	145x135	145x160	145x160	145x160	145x200
No. of Stack	Single							
IP Rating	IP54/ IP65/ IP67							
APPROXIMATE WEIGHT OF BUSWAY (kg/m)								
3Phase, 4Wire + 50% Internal Ground(N R Y B G)	16.5	18.7	22.0	22.0	27.5	30.8	30.8	36.2
ELECTRICAL PARAMETERS @ 50 HZ								
Resistance (mΩ/m)								
Resistance (R)	0.0700	0.0569	0.0455	0.0440	0.0339	0.0350	0.0440	0.0246
Reactance (mΩ/m)								
Reactance (x)	0.0243	0.0224	0.0178	0.0181	0.0263	0.0191	0.0125	0.0108
Impedence (mΩ/m)								
Impedance (Z)	0.0741	0.0612	0.0489	0.0476	0.0429	0.0399	0.0132	0.0269
Voltage drop/m @ Full load (v/m/A)								
Voltage Drop @ 0.80 P.F.(ΔV) at Full Load	0.098	0.102	0.082	0.100	0.104	0.096	0.031	0.072
Voltage Drop @ 0.85 P.F.(ΔV) at Full Load	0.100	0.104	0.083	0.102	0.103	0.097	0.029	0.074
Voltage Drop @ 0.90 P.F.(ΔV) at Full Load	0.102	0.106	0.084	0.103	0.102	0.097	0.026	0.074
Voltage Drop @ 1.00 P.F.(ΔV) at Full Load	0.097	0.099	0.079	0.095	0.082	0.085	0.012	0.068
ELECTRICAL PARAMETERS @ 60 HZ								
Resistance (mΩ/m)								
Resistance (R)	0.0700	0.0569	0.0455	0.0440	0.0339	0.0350	0.0440	0.0246
Reactance (mΩ/m)								
Reactance (X)	0.0243	0.0224	0.0178	0.0181	0.0263	0.0191	0.0125	0.0108
Impedence (mΩ/m)								
Impedance (Z)	0.0741	0.0612	0.0489	0.0476	0.0429	0.0399	0.0132	0.0269
Voltage drop/m @ Full load (v/m/A)								
Voltage Drop @ 0.80 P.F.(ΔV) at Full Load	0.098	0.102	0.082	0.100	0.104	0.096	0.031	0.072
Voltage Drop @ 0.85 P.F.(ΔV) at Full Load	0.100	0.104	0.083	0.102	0.103	0.097	0.029	0.074
Voltage Drop @ 0.90 P.F.(ΔV) at Full Load	0.102	0.106	0.084	0.103	0.102	0.097	0.026	0.074
Voltage Drop @ 1.00 P.F.(ΔV) at Full Load	0.097	0.099	0.079	0.095	0.082	0.085	0.012	0.068

TECHNICAL DATA

CURRENT RATINGS								
Ratings (In)	**1600**	**2000**	**2000**	**2250**	**2500**	**2500**	**2500**	**2500**
Product Code	**IIS16C03A**	**IE20C03A**	**ID20C03A**	**IES22C03A**	**IE25C03A**	**ID25C03A**	**IIS25C03A**	**IED25C03A**
Rated Operational Voltage(Ue)	1000V, AC							
Rated Insulation Voltage(Ui)	1000V, AC							
Rated Impulse Voltage(Uimp)	8KV							
Rated Frequency(fn)	50 / 60 Hz							
Rated Short Circuit withstand Current								
1 Second - Icw(kA)	65	65	65	80	80	100	100	80
Peak Value - Ipk(kA)	136.5	136.5	136.5	168	168	210	210	210
DIMENSIONS								
Bus Bar Dimension(mm)	140x6	140x6	160x6	175x6	175x6	200x6	230x6	75x5x2
Cross Section Area(mm^2)	840	840	960	1050	1050	1200	1380	750
Enclosure Dimensions width x height (mm)								
3PHASE, 4WIRE + 50% G	145x200	145x200	145x220	145x235	145x235	145x260	145x290	145x296
No. of Stack	Single							Double
IP Rating	IP54/ IP65/ IP67							
APPROXIMATE WEIGHT OF BUSWAY (kg/m)								
3Phase, 4Wire + 50% Internal Ground(N R Y B G)	41.0	41.0	46.4	50.2	50.2	56.5	64.0	44.0
ELECTRICAL PARAMETERS @ 50 HZ								
Resistance (mΩ/m)								
Resistance (R)	0.0213	0.0217	0.0183	0.0154	0.0159	0.0147	0.0125	0.0034
Reactance (mΩ/m)								
Reactance (x)	0.0122	0.0123	0.0109	0.0102	0.0096	0.0102	0.0073	0.0095
Impedence (mΩ/m)								
Impedance (Z)	0.0246	0.0250	0.0212	0.0185	0.0185	0.0179	0.0145	0.0101
Voltage drop/m @ Full load (v/m/A)								
Voltage Drop @ 0.80 P.F.(ΔV) at Full Load	0.068	0.086	0.073	0.072	0.080	0.077	0.062	0.036
Voltage Drop @ 0.85 P.F.(ΔV) at Full Load	0.068	0.086	0.074	0.072	0.080	0.077	0.063	0.034
Voltage Drop @ 0.90 P.F.(ΔV) at Full Load	0.068	0.086	0.074	0.071	0.080	0.077	0.062	0.031
Voltage Drop @ 1.00 P.F.(ΔV) at Full Load	0.059	0.075	0.063	0.060	0.069	0.064	0.054	0.015
ELECTRICAL PARAMETERS @ 60 HZ								
Resistance (mΩ/m)								
Resistance (R)	0.0213	0.0217	0.0183	0.0154	0.0159	0.0147	0.0125	0.0034
Reactance (mΩ/m)								
Reactance (X)	0.0122	0.0123	0.0109	0.0102	0.0096	0.0102	0.0073	0.0092
Impedence (mΩ/m)								
Impedance (Z)	0.0246	0.0250	0.0212	0.0185	0.0185	0.0179	0.0145	0.0101
Voltage drop/m @ Full load (v/m/A)								
Voltage Drop @ 0.80 P.F.(ΔV) at Full Load	0.068	0.086	0.073	0.072	0.080	0.077	0.062	0.036
Voltage Drop @ 0.85 P.F.(ΔV) at Full Load	0.068	0.086	0.074	0.072	0.080	0.077	0.063	0.034
Voltage Drop @ 0.90 P.F.(ΔV) at Full Load	0.068	0.086	0.074	0.071	0.080	0.077	0.062	0.031
Voltage Drop @ 1.00 P.F.(ΔV) at Full Load	0.059	0.075	0.063	0.060	0.069	0.064	0.054	0.015

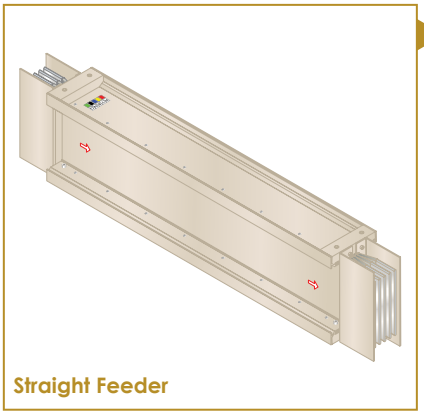
TECHNICAL DATA

CURRENT RATINGS					
Ratings (In)	**3200**	**4000**	**4000**	**5000**	**5000**
Product Code	**ID32C03A**	**IE40C03A**	**ID40C03A**	**IE50C03A**	**ID50C03A**
Rated Operational Voltage(Ue)			1000V, AC		
Rated Insulation Voltage(Ui)			1000V, AC		
Rated Impulse Voltage(Uimp)			8KV		
Rated Frequency(fn)			50 / 60 Hz		
Rated Short Circuit withstand Current					
1 Second - Icw(kA)	100	100	100	100	100
Peak Value - Ipk(kA)	210	210	210	210	210
DIMENSIONS					
Bus Bar Dimension(mm)	140x5x2	140x6x2	175x6x2	175x6x2	230x6x2
Cross Section Area(mm^2)	1400	1680	2100	2100	2760
Enclosure Dimensions width x height (mm)					
3PHASE, 4WIRE + 50% G	145x426	145x426	145x496	145x496	145x606
No. of Stack			Double		
IP Rating			IP54/ IP65/ IP67		
APPROXIMATE WEIGHT OF BUSWAY (kg/m)					
3Phase, 4Wire + 50% Internal Ground(N R Y B G)	72.0	82.0	99.5	99.5	127.5
ELECTRICAL PARAMETERS @ 50 HZ					
Resistance (mΩ/m)					
Resistance (R)	0.0123	0.0039	0.0023	0.0023	0.0053
Reactance (mΩ/m)					
Reactance (x)	0.0100	0.0033	0.0068	0.0068	0.0079
Impedence (mΩ/m)					
Impedance (Z)	0.0159	0.0051	0.0072	0.0072	0.0067
Voltage drop/m @ Full load (v/m/A)					
Voltage Drop @ 0.80 P.F.(ΔV) at Full Load	0.088	0.035	0.041	0.051	0.078
Voltage Drop @ 0.85 P.F.(ΔV) at Full Load	0.087	0.034	0.038	0.048	0.075
Voltage Drop @ 0.90 P.F.(ΔV) at Full Load	0.086	0.034	0.035	0.044	0.071
Voltage Drop @ 1.00 P.F.(ΔV) at Full Load	0.068	0.026	0.016	0.020	0.046
ELECTRICAL PARAMETERS @ 60 HZ					
Resistance (mΩ/m)					
Resistance (R)	0.0123	0.0039	0.0023	0.0023	0.0053
Reactance (mΩ/m)					
Reactance (X)	0.0100	0.0033	0.0068	0.0068	0.0079
Impedence (mΩ/m)					
Impedance (Z)	0.0159	0.0051	0.0072	0.0072	0.0067
Voltage drop/m @ Full load (v/m/A)					
Voltage Drop @ 0.80 P.F.(ΔV) at Full Load	0.088	0.035	0.041	0.051	0.078
Voltage Drop @ 0.85 P.F.(ΔV) at Full Load	0.087	0.034	0.038	0.048	0.075
Voltage Drop @ 0.90 P.F.(ΔV) at Full Load	0.086	0.034	0.035	0.044	0.071
Voltage Drop @ 1.00 P.F.(ΔV) at Full Load	0.068	0.026	0.016	0.020	0.046

ACCESSORIES & PHYSICAL DATA

a) Straight Feeder

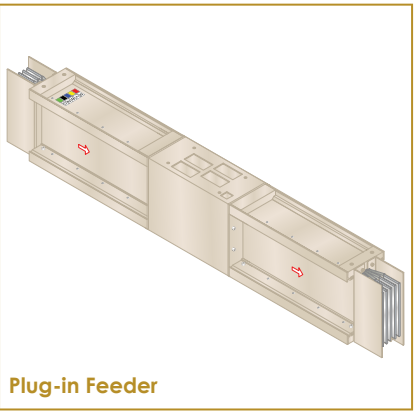
Feeder can be installed either horizontally or vertically; the standard length is 3000mm. The Minimum length is 500mm. A Technical Guide, Paper-detailing basis on which minimum dimension and maximum dimension details of products have been derived is available for reference and further our application engineering team will be pleased to assist you in selecting appropriate minimum and maximum dimensions of feeder unit.



Straight Feeder

Ampere	Standard (L)	Minimum (L)
800A	3000	500
1000A	3000	500
1250A	3000	500
1400A	3000	500
1600A	3000	500
2000A	3000	500
2250A	3000	500
2500A	3000	500
3200A	3000	500
4000A	3000	500
5000A	3000	500

b) Plug-in Feeder



Plug-in Feeder

Ampere	Standard (L)	Minimum (L)
800A	3000	1000
1000A	3000	1000
1250A	3000	1000
1400A	3000	1000
1600A	3000	1000
2000A	3000	1000
2250A	3000	1000
2500A	3000	1000
3200A	3000	1000
4000A	3000	1000
5000A	3000	1000

Provision for accommodating future loads of expansion within the capacity installed and to allow flexibility to accommodate new load distribution points without the need of changing already installed busway, we can provide specially designed plug-in length with a possibility of having plug in points on its both sides. A maximum of 5 outlets can be fixed on both side of standard 3mtr length. Each plug-in outlet shall have, plug-in cover to ensure protection against contact with live conductors.

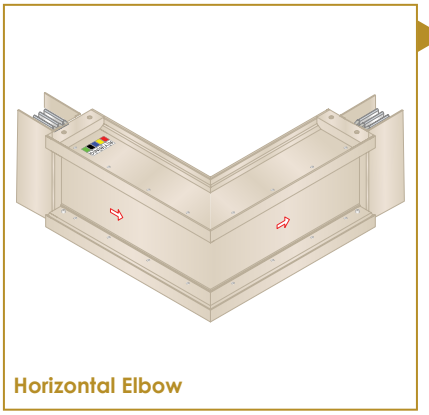
Standard length of Plug-in Feeder is 3000mm. The minimum length is 1500mm

C) Plug-in Feeder

Wilmar busway elbows provide a simple, convenient method of changing direction (right, left, up and down) of a busway run.

i) Horizontal Elbow

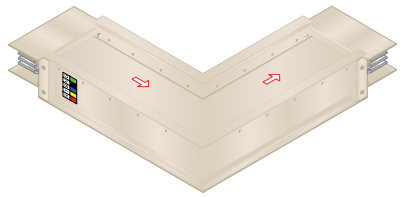
Horizontal elbows are used for right or left directional changes of busway run, when the busway system is installed edge wise in the horizontal run.



Horizontal Elbow

Ampere	L1	L2
800A	300	300
1000A	300	300
1250A	300	300
1400A	300	300
1600A	300	300
2000A	300	300
2250A	300	300
2500A	300	300
3200A	300	300
4000A	300	300
5000A	300	300

Ampere	L1	L2
800A	350	350
1000A	350	350
1250A	350	350
1400A	350	350
1600A	350	350
2000A	400	400
2250A	400	400
2500A	400	400
3200A	450	450
4000A	450	450
5000A	500	500



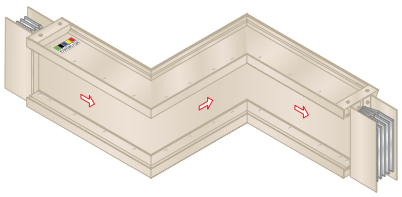
Vertical Elbow

ii) Vertical Elbow

Vertical elbows are used create up and down directional changes of busway run.

iii) Offset Elbow

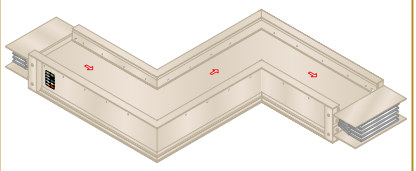
Offsetss can be urilized to solve difficult contour problems and save space. A single offset can bypass an obstruction. Offsets are available in horizontal & vertical orientation.



Offset Elbow-Horizontal

Ampere	L1	L2	L3
800A	300	250	300
1000A	300	250	300
1250A	300	250	300
1400A	300	250	300
1600A	300	250	300
2000A	300	250	300
2250A	300	250	300
2500A	300	250	300
3200A	300	300	300
4000A	300	300	300
5000A	300	300	300

Ampere	L1	L2	L3
800A	350	300	350
1000A	350	300	350
1250A	350	300	350
1400A	350	300	350
1600A	400	300	400
2000A	400	350	400
2250A	400	350	400
2500A	400	350	400
3200A	450	400	450
4000A	450	400	450
5000A	500	450	500



Offset Elbow-Vertical

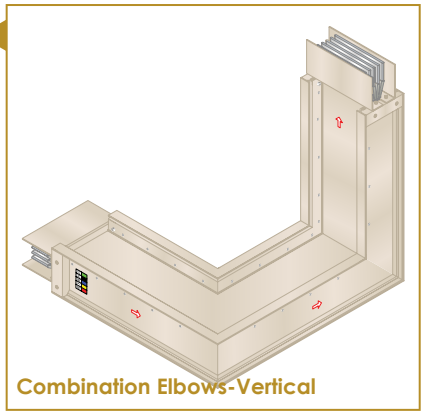
iv) Combination Elbows

Combinations are used to create horizontal & vertical direction in one unit, horizontal to vertical and vertical to horizontal

Combination Elbows-Horizontal

Ampere	L1	L2	L3
800A	350	300	350
1000A	350	300	350
1250A	350	300	350
1400A	350	300	350
1600A	400	300	400
2000A	400	350	400
2250A	400	350	400
2500A	400	350	400
3200A	450	400	450
4000A	450	400	450
5000A	500	450	500

Ampere	L1	L2	L3
800A	350	300	350
1000A	350	300	350
1250A	350	300	350
1400A	350	300	350
1600A	400	300	400
2000A	400	350	400
2250A	400	350	400
2500A	400	350	400
3200A	400	350	450
4000A	400	350	450
5000A	450	400	500

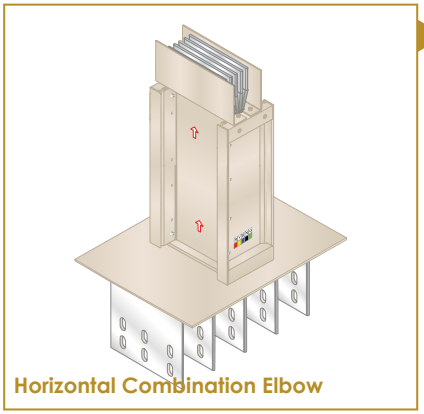


Combination Elbows-Vertical

d) Flanges

Flange ends used to connection to LV panels, switchboards, transformers & other electrical distribution equipment.

Flange ends are available with elbows as required.

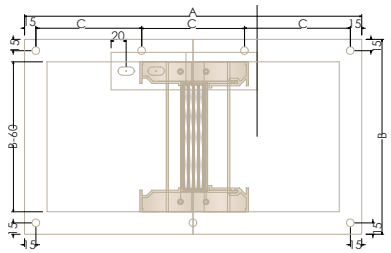


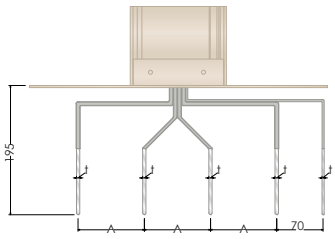
Horizontal Combination Elbow

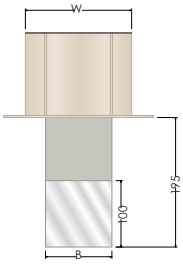
Ampere	Standard (L)	Minimum (L)
800A	500	300
1000A	500	300
1250A	500	300
1400A	500	300
1600A	500	300
2000A	500	300
2250A	500	300
2500A	500	300
3200A	500	300
4000A	500	300
5000A	500	300

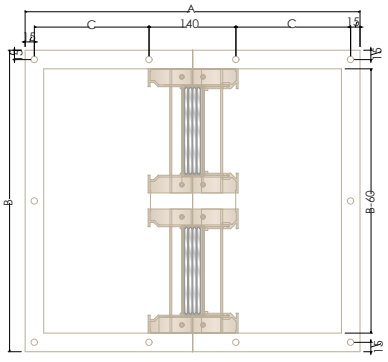
i) Flange End Dimension & Termination Details

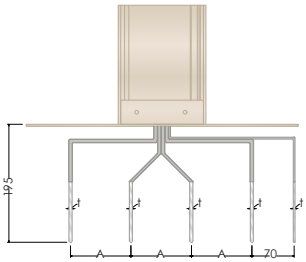
Rating	Conductor Size		No.of Stack	Enclosure Dimension		Flange Dimension			Termination Details		
	T	D		H	W	A	B	C	A	B	C
800	5	50	1	110	145	450	170	140	100	50	-
1000	5	60	1	120	145	450	180	140	100	60	-
1000/1250	5	75	1	135	145	450	195	140	100	75	-
1400	5	100	1	160	145	450	220	140	100	100	50
1400/1600	6	100	1	160	145	450	220	140	100	100	50
1600	5	140	1	200	145	450	260	140	100	140	50
1600/2000	6	140	1	200	145	450	260	140	100	140	50
2000	6	160	1	220	145	450	280	140	100	160	50
2250/2500	6	175	1	235	145	450	295	140	100	175	60
2500	6	200	1	260	145	450	320	140	100	200	50
2500	6	230	1	290	145	450	350	140	100	230	50
2500	5	75	2	296	145	450	361	140	100	75	-
3200	5	140	2	426	145	540	491	185	130	140	50
4000	6	140	2	426	145	540	491	185	130	140	50
4000	6	175	2	496	145	540	561	185	130	175	60
5000	6	230	2	606	145	540	671	185	130	230	50

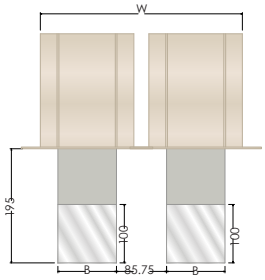


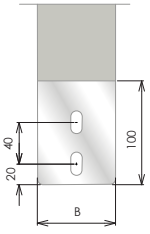


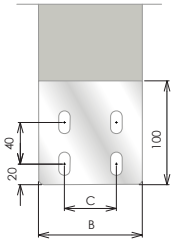


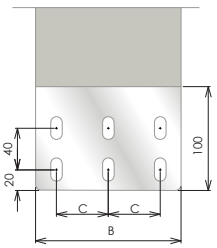


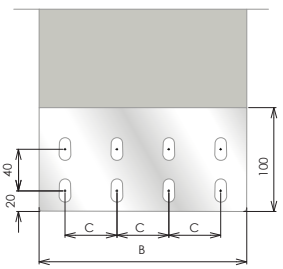






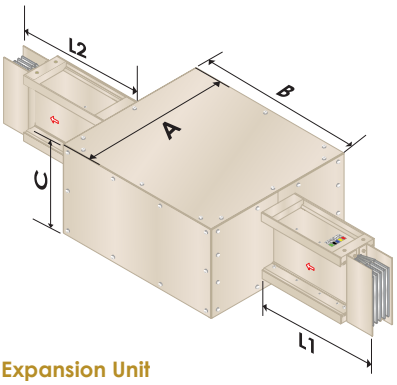






e) Expansion Unit

Considering effects of thermal expansion, use of expansion unit is recommended is busway systems. They become essential especially when busway system cross building expansion joint. Long straight runs where both ends are connected in fixed position also require expansion joints. Flexible conductors inside the expansion joint allow/ accommodate movement caused due to expansion and contraction of busway system.

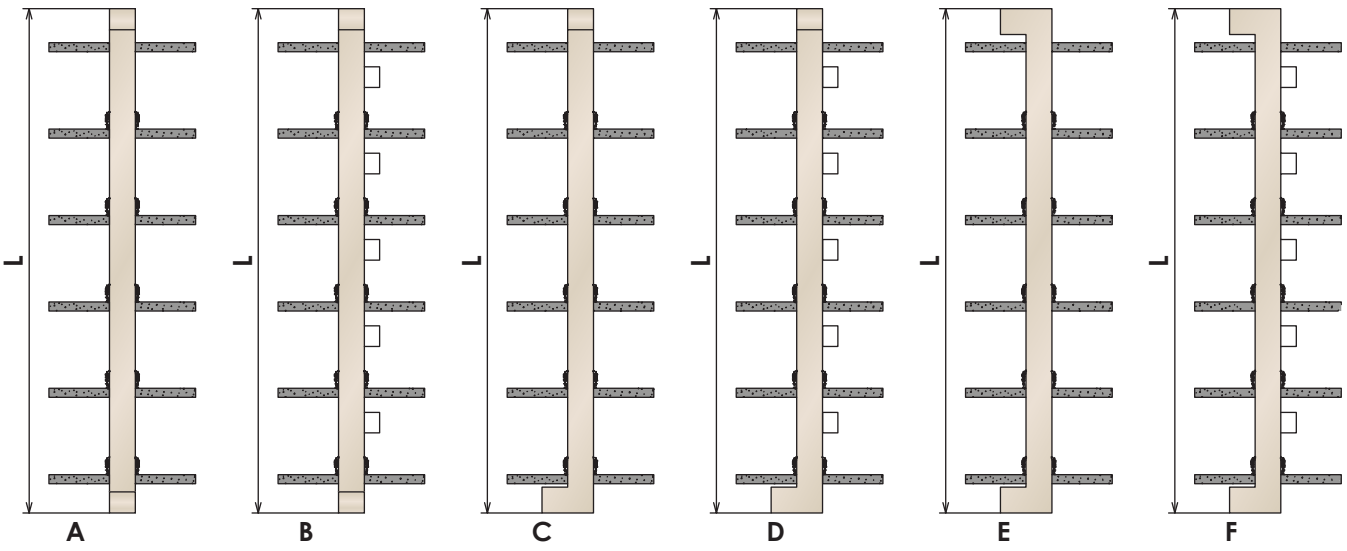


Expansion Unit

Ampere	Supply L1	Load L2	A	B	C
800	300	300	450	500	170
1000	300	300	450	500	180
1000/1250	300	300	450	500	195
1400	300	300	450	500	220
1400/1600	300	300	450	500	220
1600	300	300	450	500	260
1600/2000	300	300	450	500	260
2000	300	300	450	500	280
2250/2500	300	300	450	500	295
2500	300	300	450	500	320
2500	300	300	450	500	350
2500	300	300	450	500	361
3200	300	300	540	500	491
4000	300	300	540	500	491
5000	300	300	540	500	561

Expansion Unit Installation

Supporting Condition	Branching	Fig. No.	Length(L in mtrs) which needs expansion joint
Both ends free	Not branched	A	≤120
	Branched at each storey	B	≤90
One ends free	Not branched	C	≤90
	Branched at each storey	D	≤60
Both ends fixed	Not branched	E	≤60
	Branched at each storey	F	≤40



f) Plug-in/ Tap-off Unit

LV Bus plug/plug-in box is used to tap electrical power directly to the load from the busway system to offer safety & protection. Bus plugs are supplied with MCCB or Fuse

Plug-in box /Tap off unit enclosure is made from G.I with side hinged door.

For cable entry, provision of gland plates are provided on both sides (top & bottom) as per requirement.

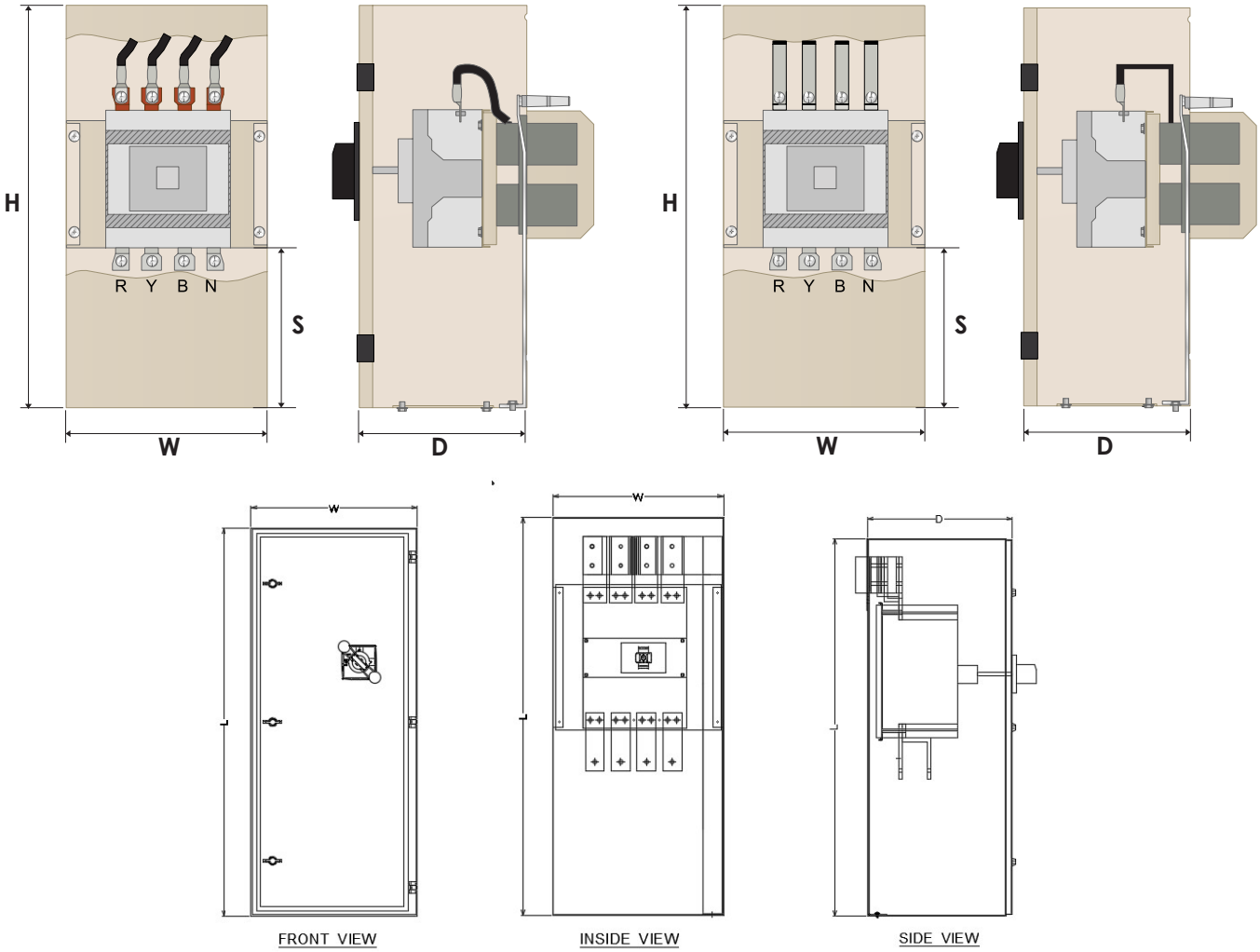
Rating	Width	Height	Depth	Clearance
40-200A	260	500	300	220
225-250A	260	500	300	200
320-400A	300	700	325	325
500-630A	300	800	325	415
800-1000A	425	1000	400	440
1250A	450	1000	400	490

Unique fail-safe plug-in contacts

The plug-in box is equipped with a positioning device that prevents incorrect phase installations.

Plug-in contacts are silver plated to improve the electrical conductivity.

Thermal Cycling Test as per IEC 61439 has been conducted on PIBs to ensure their design and performance meets to specifications / requirements of critical applications including those where frequent insertion and removal



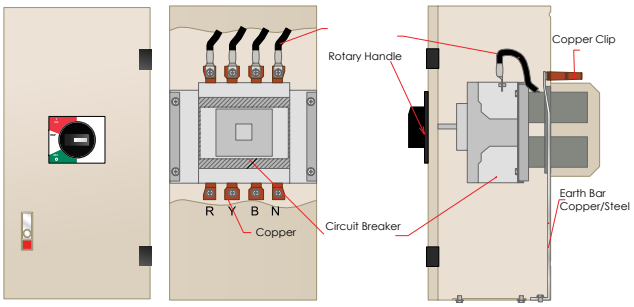
Wilmar Busway offers a range of tap off units to fit all ranges for multiple applications. All Plug-in & Tap-off Units are suitable for MCCB.

The Plug-in & Tap-off unit has an extended earth contact bracket, which ensures the earth ground is always Connect first,and disconnect last from the busway system during installation to ensure continuity of earth connection for improved safety

It incorporates an external operating handle with ON, OFF, TRIP indication for MCCB, operating handle mounted

on door. Padlocking feature to prevent opening of plug-in/tap-off unit door, when protective device is in "ON" condition.

The plug-in/tap-off unit is secured to the busway housing using high tensile strength, lockable hardware, with an extended shutter actuator and mechanical clamping mechanism. This ensure the unit is properly sealed during installation and cannot be fitted incorrectly.



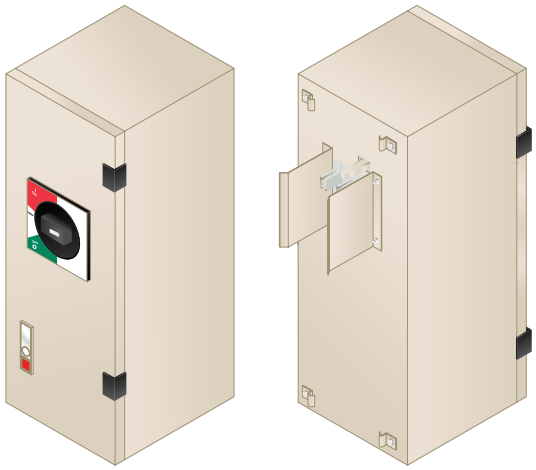
The unit is also supplied with all connections and accessories to ensure the connection to the outgoing cable termination are correctly and safely achieved.

The unit has clamps with interlocking facility to prevent the unit being removed from the busway when MCCB is in "ON" condition.

Plug in Contacts are Maintenance Free, these silver-plated plug in contacts have been specially designed to maintain proper contact pressure with less resistance throughout the life of busways.

Base insulator, facilitating mounting of Plug in contacts on the rear side of plug in box and termination of cables from Protective Device, has slot and rib structure in "C" Shape to offer mechanical and electrical protection to plug in contacts during installation and service. It also acts as a guide for proper insertion and removal of plug in box, while in use with plug in feeders.

Adequate Enclosure Design, with Extended Ground and Neutral Conductors are offered as standard. Our Design also takes care of space required for cable entry from top or bottom and its termination. During engineering stage client can specify such requirement



Plug in Box has been Successfully Type Tested for Ingress Protection, Short Circuit Withstand, Mechanical Operations, and Thermal Cycling as per Latest IEC 61439 Standards.

Mechanical Interlock to prevent removal of Plug in Box from energized feeder, while the Protective Device is "ON", can be provided as an option. Please contact our Sales and Application Engineering Team member for further details.

Advanced Series Plug in Boxes are available with surge protection modules and Communication based energy meters, multifunction meters. Our Application Engineering team can provide further details on selection of such PIBs.

Universal Design PIBs offered by us are, suitable for any Brand of Circuit Breakers, Switch Fuse Units and Ratings of Busways as specified by Customers at the time of ordering.

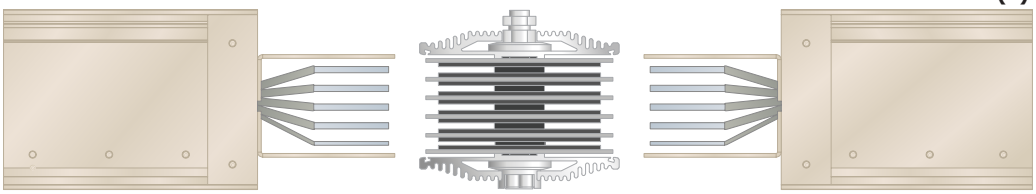
Plug in Boxes are interchangeable between various Ratings of Busway having similar configuration.

Cable Entry System

The standard plug-in/tap off unit usually has bottom/top and side removable gland plates for cable access, but other variations are available as necessary, including cable spreader boxes.

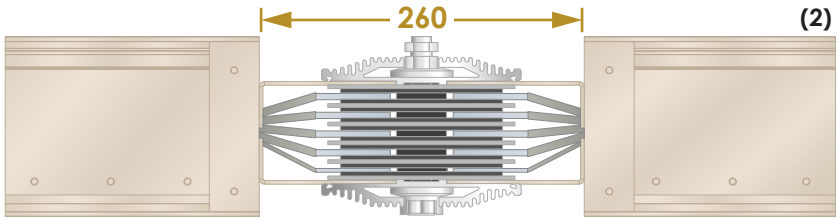
h) Joint Packs

(1)



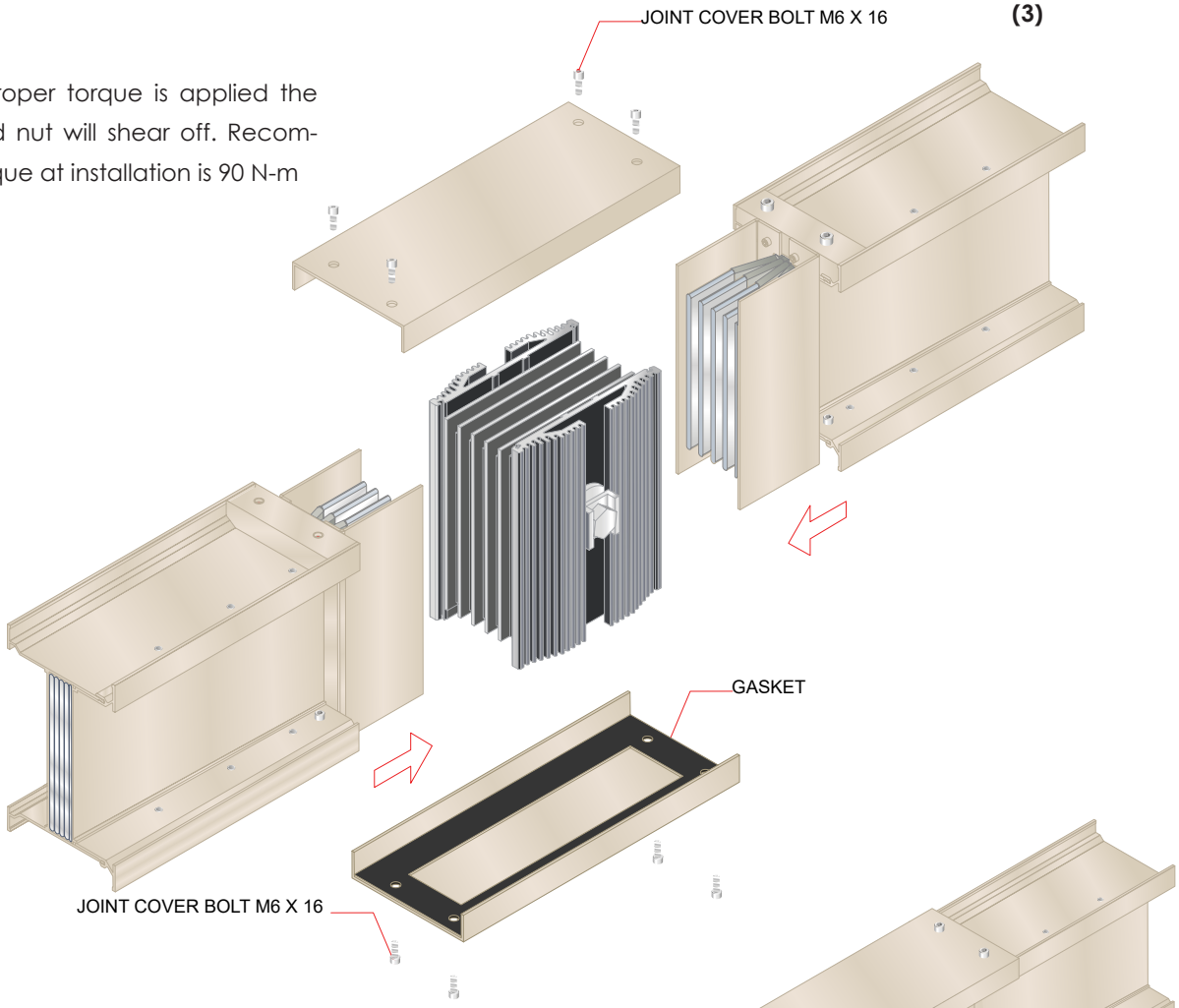
Wilmar Busway units supplied with a joint pack and IP joint covers, The Joint pack feature double headed break-off nut.

(2)

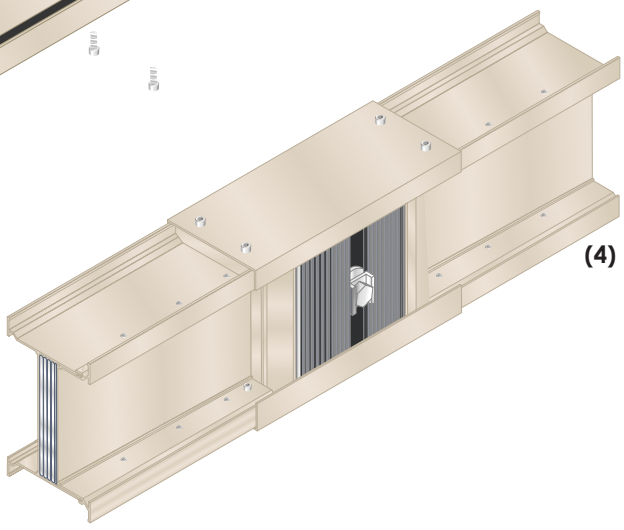


When the proper torque is applied the double head nut will shear off. Recommended torque at installation is 90 N-m

(3)



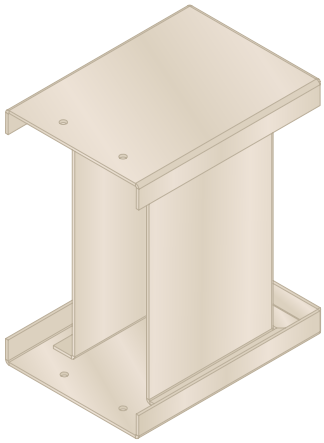
(4)

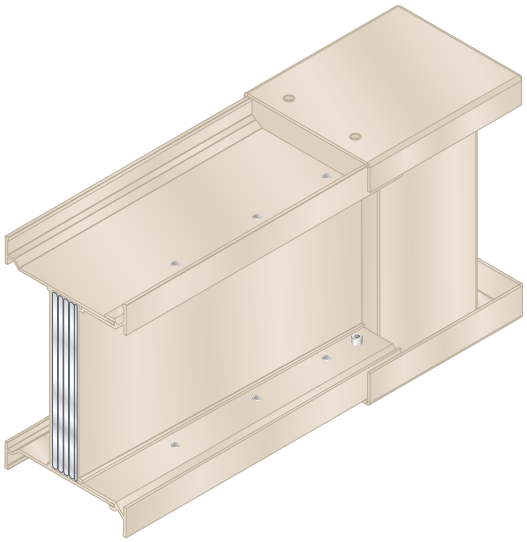


It is possible to remove any joint connection assembly to allow electrical isolation or removal of busway length without disturbing adjacent busway lengths.

g) End Cap

Terminal Cover/Enclosure is used for protecting conductors of an assembly and are normally used at end point of busway section.
It can be removed easily for extension of busway run.





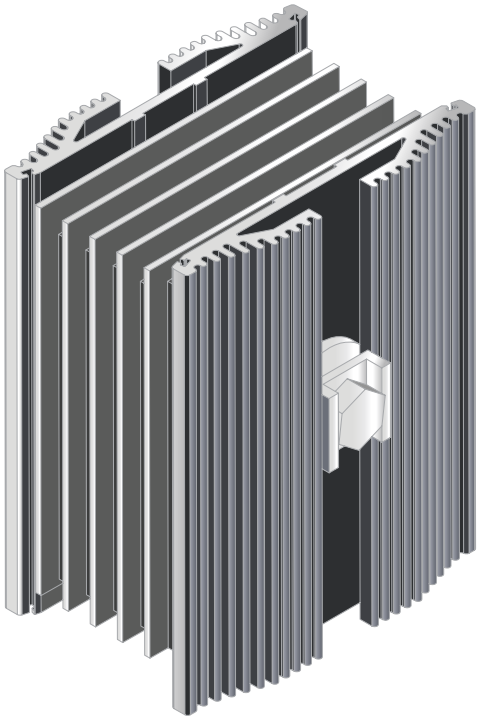
Mono Block Joint System/ Joint Pack

Joint facilitates physical and electrical connection between busway units to complete point-to-point distribution system. They also play an important role in ensuring satisfactory performance of the system. Under normal current carrying conditions, heat is generated at conductor contact area due to their contact resistance. Effective management of this heat, either by reducing or transferring it to external environment is essential for safe operation and extended life of entire system.

Joint Packs(Bridge type jointing system) are used to connect all components in a busway system together from feeder lengths to feeder and feeder lengths to elbows etc.

Wilmar Busway joint pack is a compression joint design, which utilizes specially designed Belleville washers to distribute the pressure evenly over the joint pack.

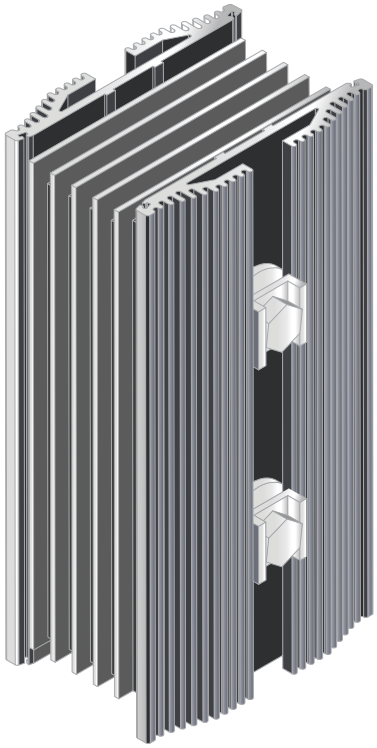
The earth is maintained through the joint by the joint pack end support and by the earth side plate. The joint pack is supplied along with components in specific sizes depending on the rating of busway required.



Designed to proper compression upto 1600A single bolted joint block and 2000A & above rating double bolted joint blocks are used to connect busway components.

During installation, when the joint is torque properly, the first head of the nut will break off and the redindication disk will fall away.

WILMAR BUSBAR TRUNKING SYSTEM



"UL" Certified Material has been used for Joint pack and they have also been type tested at ASTA/UL to verify their performance and withstand capacity in case of temperature rise. To ensure increased level of safety they have also been verified for their performance while offering resistance to fire.

Straight Feeder Lengths & Plug-in/Tap-off Feeder Lengths

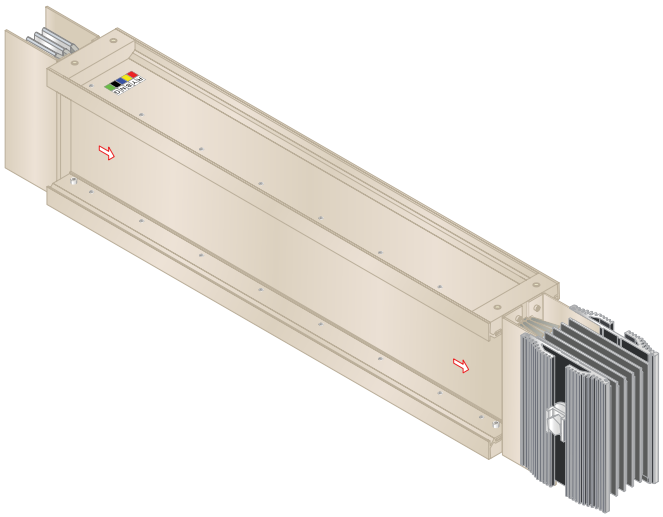
Wilmar Busway offers straight feeder lengths and Plug-in/Tap-off Feeder for suitable for power transmission and distribution installation. Busway feeders are provided with additional covers, these alongside design of enclosure ensure integrity of protection required against ingress.

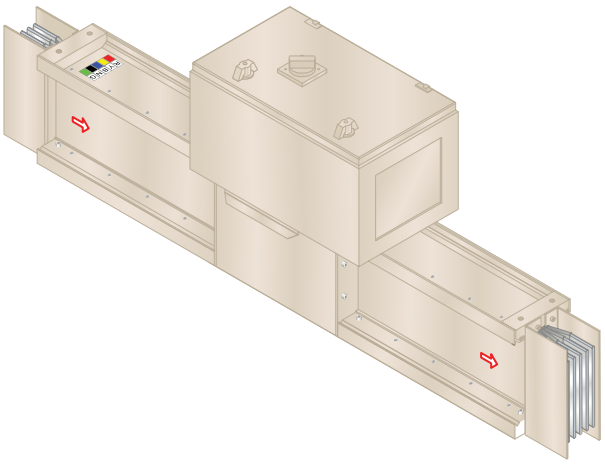
According to application and site conditions, client can choose these feeders IP54, IP55 & IP65 degree of protection.

Plug-in/Tap-off feeder lengths allow plug-in/tap-off units to be plugged into the feeder busway run. the plug-in/tap-off slots cover designed to prevent access to the contacts behind the cover and prevent the entry of dirt, dust or moisture.

Straight lengths can be supplied at any length between

Feeders Minimum - 500 mm and Maximum – 3000 mm& Plug-in Feeders Minimum – 1500 mm and maximum – 3000 mm





BUSWAY INSTALLATION

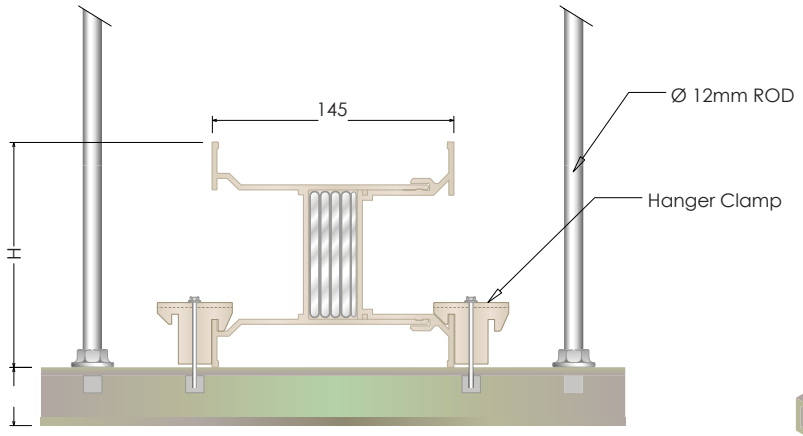
Wilmar Busway can be installed either edge wise or flat wise, our application engineering team will help from concept to commissioning.

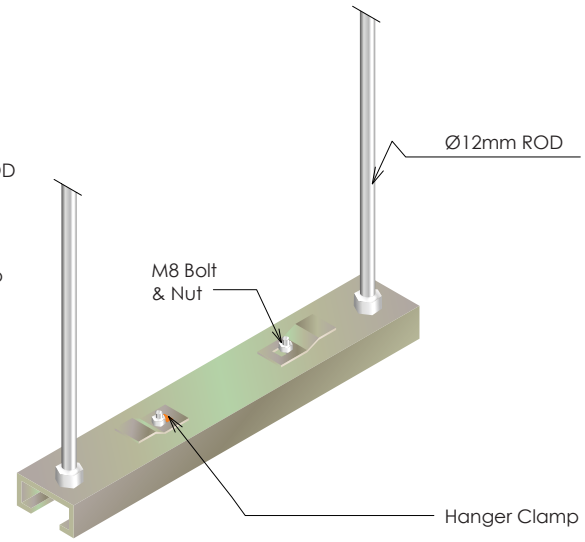
Site survey, layout drawing, 3D drawings, Project management and Thermographic survey.

a) Horizontal Support

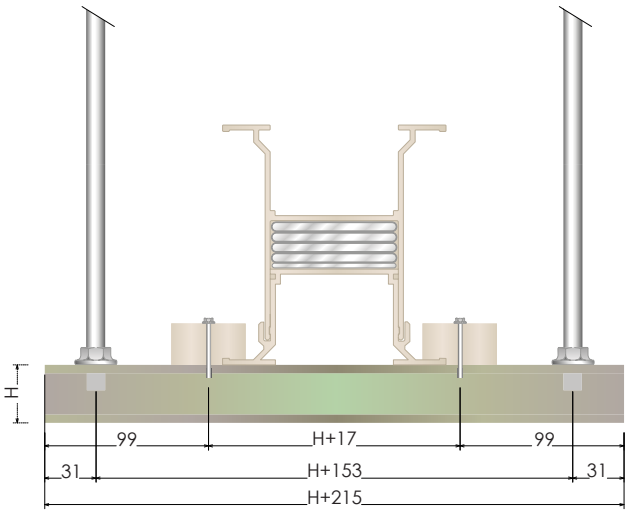
Horizontal supports are used when busway system is installed in horizontally.

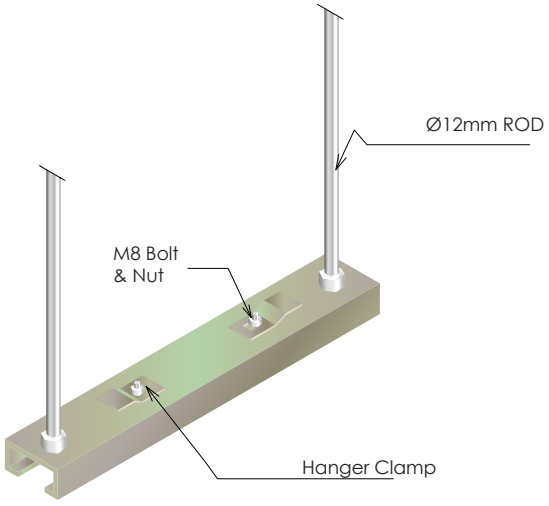
b) Edge Wise Installation

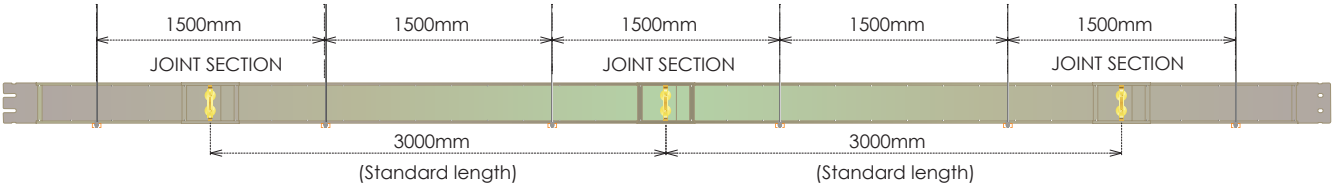




c) Edge Wise Installation







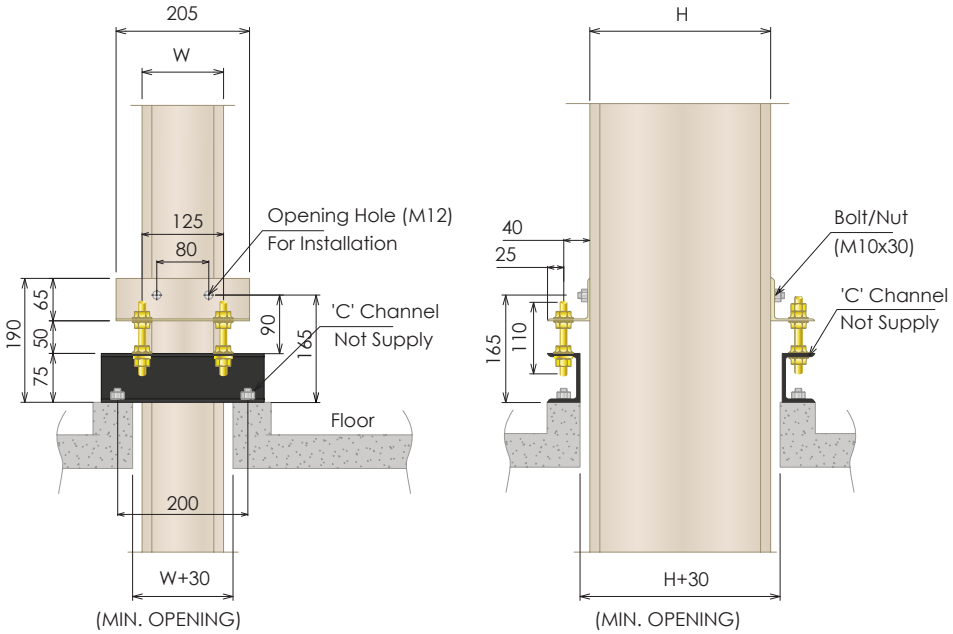
d) Vertical Installation

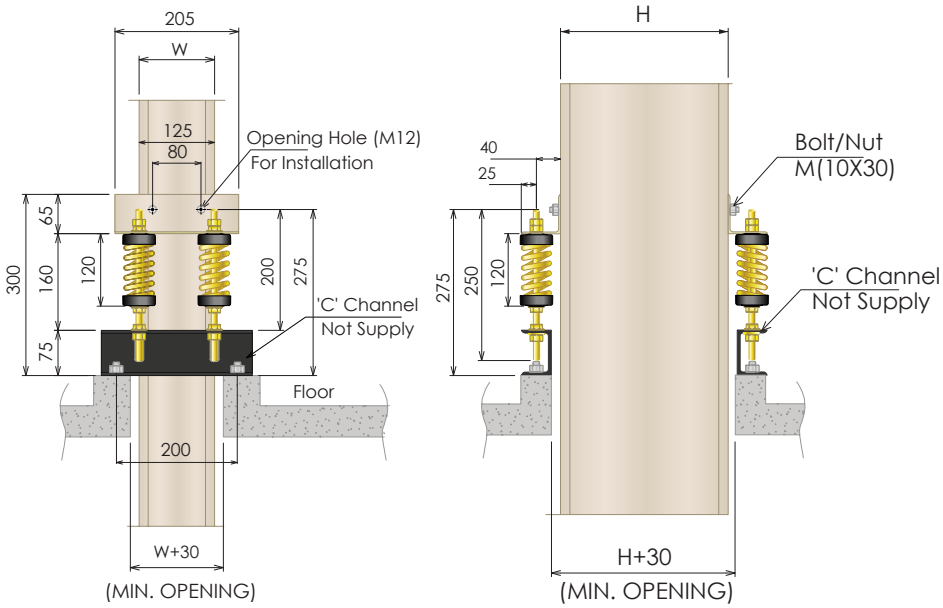
Wilmar Busway System offers a complete solution including specially designed and tested hangers to support Vertical run of the busway. Vertical supports must be used to provide secure mounting of the busway run in vertical.

Design and Selection of these supports is done considering load/weight of busway feeders/plug in feeders used in vertical run, their distribution of load/weight at each floor.

Vertical fix hanger must be installed at starting Point of vertical busway & on first floor of riser.

The maximum distance between vertical spring hangers should not exceed 4 meters. Intermediate spring hangers.





- Wilmar offering complete co-ordination of busway project requirement
- Site Survey & busway routing design
- Layout & Isometric drawings
- Voltage Drop Calculation of Busway System
- Product Training & Handling, Storage, Installation Procedure
- Installation Support &Supervision
- Testing & commissioning
- Thermographic survey

REFERENCE STANDARDS & CERTIFICATES

Reference Standards

Wilmar Busway System offers a complete solution including specially designed and tested hangers complies to standards listed below:

IEC60947.2-1997

IEC60439.1-2004

IEC60439.2-2000

IEC60529

IEC61439-1

IEC61439-6

IEEE 693-2005

ISO-9001

ISO-14001

ISO-18001

These type tests have been condcuted at internationally acceptable and approved laboratories and certificates in this regard have been issed from auithorities such as ASTA/Intertek.

**All Certificates are available on request

Intertek

Certificate No. 22430

ASTA Certificate of Verification Tests

Laboratory Ref. No: 820837-2/10

APPARATUS: 2500A, TPN+50% internal earth, 1000V/1000V/8kV (U_d/U/U_{imp}), 50/60Hz single stack busbar trunking system, with Class F epoxy coated, tin plated copper busbars in an aluminium enclosure comprising of two flanged ends, two straight lengths and three joint sections.

DESIGNATION: Wilmar LV Busway

MANUFACTURER: FEDERAL TRANSFORMERS CO. L.L.C. Branch-1, ICAD II, Abu Dhabi, U.A.E.

TESTED BY: Electrical Research & Development Association ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, Gujarat, INDIA

Central Testing Laboratories, Delma Complex number 641, Delma street Number 13, P.O. Box 853, Abu Dhabi, UAE

Renewable Energy & Electromechanical Laboratories Section, Dubai Central Laboratory, P.O. Box 67, Al Karama, Dubai , UAE

FEDERAL TRANSFORMERS CO. L.L.C. Branch-1, P.O. Box: 9769, Plot No. 17 AR 17, 18 AR 17, 19 AR 17, ICAD II, Abu Dhabi, U.A.E.

DATES OF TESTS: 27th October 2018 to 28th May 2019.

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 61439-6: Edition 1.0 2012-05

Verifications with reference to the tests listed in Annex D of IEC 61439-6: Edition 1.0 2012-05 and Annex BB.

1:	Strength of materials and parts	9:	Dielectric properties
2:	Degree of protection	10:	Temperature-rise limits
3:	Clearances	11:	Short-circuit withstand strength
4.	Creepage distances	12:	Electromagnetic compatibility
5:	Protection against electric shock	13:	Mechanical operation

6/7/8: no verification by testing required

For ratings assigned by the manufacturer and verified by test see ratings pages A and B

The results are shown in the record of Proving Tests attached hereto. The values obtained and the general performance is considered to comply with the above Standard(s) and to justify the ratings assigned by the manufacturer as stated on the ratings page(s).

This certificate applies only to the apparatus tested. Responsibility for conformity of any apparatus having the same or other designations rests with the Manufacturer.

This certificate comprises this front sheet, 2 ratings pages plus 73 other pages including 17 drawings as detailed on page 1 and 2.

Only integral reproductions of this whole certificate or reproductions of this page accompanied by any ratings pages are permitted.
Issued by Intertek, Centre Court, Meridian Business Park, Leicester LE19 1WD, United Kingdom. Contact: asta@intertek.com Tel: +44 (0)116 296 2900

UKAS PRODUCT CERTIFICATION 010

Rajani Menon — ASTA Observer

Certification Manager

7th September 2019 — Date

Intertek

Certificate No. 22450

ASTA Certificate of Verification Tests

Laboratory Ref. No: 820837-2/11

APPARATUS: 1600A, TPN+50% internal earth, 1000V/1000V/8kV (U_d/U/U_{imp}), 50/60Hz single stack busbar trunking system, with Class F epoxy coated, tin plated copper busbars in an aluminium enclosure comprising of two flanged ends, two straight lengths and three joint sections.

DESIGNATION: Wilmar LV Busway

MANUFACTURER: FEDERAL TRANSFORMERS CO. L.L.C. Branch-1, P.O. Box: 9769, Plot No. 17 AR 17, 18 AR 17, 19 AR 17, ICAD II, Abu Dhabi, U.A.E.

TESTED BY: Electrical Research & Development Association ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, Gujarat, INDIA

Central Testing Laboratories, Delma Complex number 641, Delma street Number 13, P.O. Box 853, Abu Dhabi, UAE

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FEDERAL TRANSFORMERS CO. L.L.C. Branch-1, P.O. Box: 9769, Plot No. 17 AR 17, 18 AR 17, 19 AR 17, ICAD II, Abu Dhabi, U.A.E.

DATES OF TESTS: 18th July 2018 to 28th May 2019

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

IEC 61439-6: Edition 1.0 2012-05

Verifications with reference to the tests listed in Annex D of IEC 61439-6: Edition 1.0 2012-05 and Annex BB.

1:	Strength of materials and parts	9:	Dielectric properties
2:	Degree of protection	10:	Temperature-rise limits
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Only integral reproductions of this whole certificate or reproductions of this page accompanied by any ratings pages are permitted.
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UKAS PRODUCT CERTIFICATION 010

Rajani Menon — ASTA Observer

Certification Manager

27th September 2019 — Date

SITE INSTALLATION INSPECTION CHECK LIST

Project Name		**Date of Inspection**	
Project No		**Consultant**	
Contractor		**Installation By**	
Busbar Riser Details			

SL.No	Check List	N/A	Yes	No	Remarks
1	Each Busbar unit has been Meggered / IR Test before Installation ?				
2	Each Busbar unit has been Meggered / IR After Installation with other unit ?				
3	All unit wise megger / IR test reports handed over to Wilmar / Conusltant Engineer ?				
4	Joint pack fully tightened & the double headed bolt / Nut sheared off after full tight ?				
5	Ensure joint Torque @ 90 Nm on Joint pack				
6	Are the earth plates overlapping the joint pack ?				
7	Are the plug-in / Tap off box clamps fixed properly as recommended / as per the Installation Manual?				
8	Are all Joint covers has been fixed properly tightened ?				
9	Are all busbar units generally clean and tidy and free from any dust, liquid, etc. ?				
10	Are the Horizontal supports for the busbar installed as recommended by manufacturer ?				
11	Are the vertical spring hangers are been installed as per the installation manual & as remmended?				
12	Are there any supports installed on the joints ?				
13	Are any joints installed along the slab ?				
14	Ensure the complete installation is Clean and free from Debris,Dust, Liquid Etc.. Final Megger / IR test to be done From Flange End (Panel Flange) to End Cap IR Test				
15	(Before connecting flange end to panel terminals & Before Cable Termination of Plug-in/Tap-off)				
16	Ensure Tap Off Boxes are in OFF position before doing Megger / IR Test				
17	Insulation Resistance Test to be conducted @ 1000V DC (Test Instrument must be Calibrated)				

Inspected By			**Site Engineer**		**Company**
Date		**Signature**	**Date**		**Signature**

NOTE

FINAL INSULATION TEST REPORT
(BEFORE ENERGIZATION)

Project Name		**Date**	
Busway Rating		**Min.M-OHM**	
Total Length of Run			

Phase	Insulation Resistance (M-OHM)
R-E	
Y-E	
B-E	
N-E	
R-Y	
R-B	
Y-B	
R-N	
Y-N	
B-N	

Tested By		**Witnessed By**	
Date		**Date**	

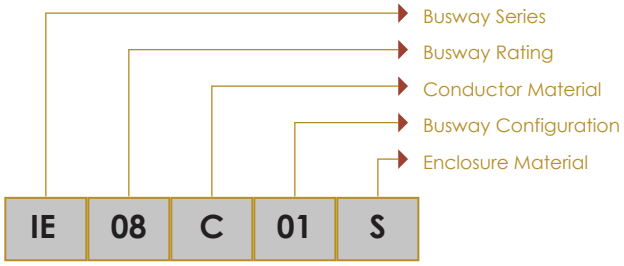
INSULATION RESISTANCE TEST SHEET

Project				**Sheet**	**of**
Busway Ref		**Location**		**Rev**	
Busway Rating		**Feeding**			

Description/ Unit Np.	**Insulation Resistance @ 1000V DC, in mega Ohms (Duration: 1 minute)**										**Remarks**
	N-E	**R-E**	**Y-E**	**B-E**	**R-N**	**Y-N**	**B-N**	**R-Y**	**Y-B**	**B-R**	

Test Instruments (Serial No's)							
Tested By		**Company**		**Signature**		**Date**	
Witnessed By		**Company**		**Signature**		**Date**	

WILMAR BUSWAY ORDERING DETAILS



1) BUSWAY SERIES

Sl.No	Series
1	IE
2	ID
3	IES
4	IIS
5	IED

2) RATED CURRENT

Sl.No	Rating	Code
1	800A	08
2	1000A	10
3	1250A	12
4	1400A	14
5	1600A	16
6	2000A	20
7	2250A	22
8	2500A	25
9	3200A	32
10	4000A	40
11	5000A	50

3) Conductor Material

Sl.No	Rating	Code
1	Copper	C
2	Aluminum	A

4) Configuration

Sl.No	Rating	Code
1	3PH.3Wire	01
2	3PH.4Wire	02
3	3PH.4Wire+G	03
4	3PH.5Wire	04
5	3PH.5Wire+G	05

5) Enclosure Material

Sl.No	Rating	Code
1	Steel	S
2	Aluminum	A

www.wilmarbusways.com

WILMAR

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Abu Dhabi, United Arab Emirates.
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FED/WB/1020/INTL/VER-00