

WT International Inc. 8F.-2, No.95, Minquan Rd., Xindian, New Taipei 231, Taiwan TEL / +886-2-22185278







KEMA Quality







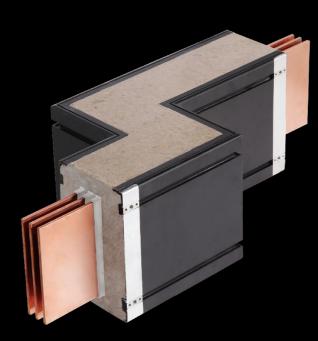




WinBus Busduct System

World View
Top Quality
Innovation





About WTI

WTI, a Taiwanese company with major shareholders from EHV cable suppliers -- Walsin, Tai-I and veteran executives in power industry to provide the most advanced 161/345KV cable product and system service to Taiwan power sector since 2003.

After 7 years of experience in the electrical power industry, WTI is noted for its diligent and quality service and its brand reputation is recognized by the customers in the market.

Due to the high market demand and customers need, WTI started to put up a huge investment in green energy industry and cast resin busduct in collaboration with our global partners. Starting from year 2010, WTI's two different business units with their respective products serves a wider customer network and requirement.

Cable System Business:

With our plenty collected experience in 161/345KV substation and transmission projects, WTI would provide the most friendly and reliable smart power grid solution in PD & DTS continuous monitoring systems.

Busduct Business:

2008

Based on collected strong knowledge and more than 30 years' most reputed insulation know-how, our WinBus had been certified by KEMA with excellent performance. We are pleased to provide the electrical industry a best energy saving and green power trunk through our own technology and testing facilities.

2009

- 2009.09 Technology collaboration with Guascor Solar, the largest Spanish solar power plant developer.
- · 2009.11 Taichung Turnkey solar power plant project MOU with YFGE and Guascor Solar.
- · 2008.08 JV with Chung-Hsin Electric and acquire 345/161KV cable system turnkey project of TPC Houli substation.

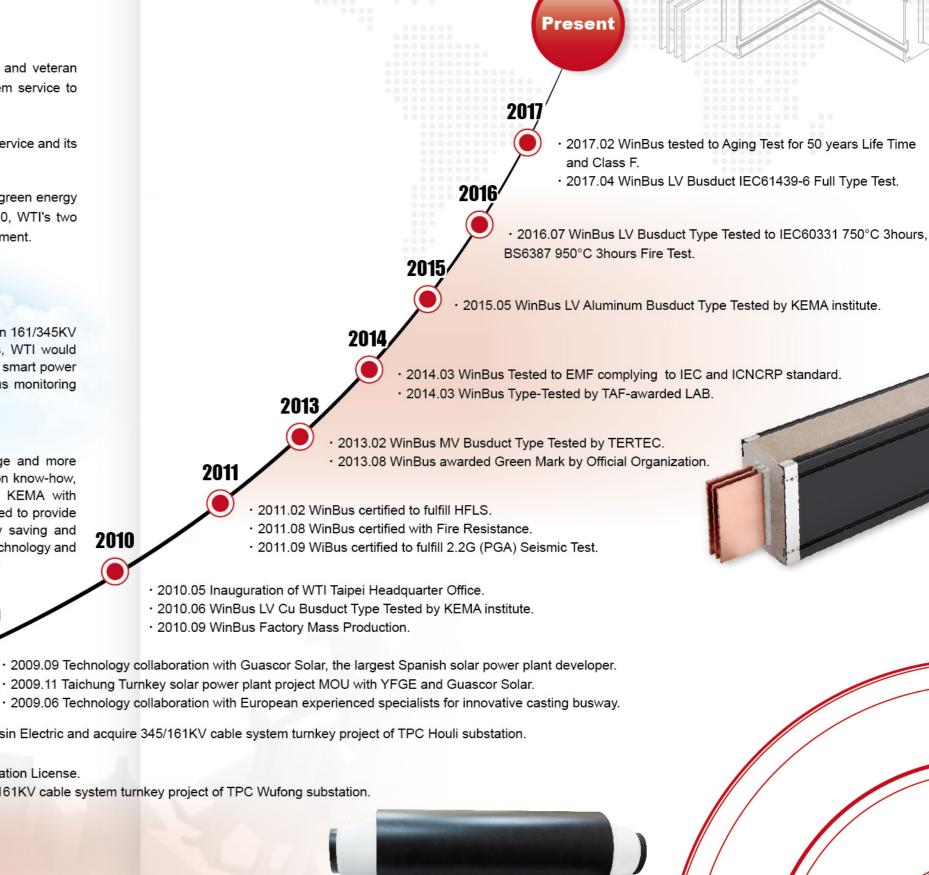
2010

- 2007.02 Award A Class Electrical Equipment Installation License.
- · 2007.05 JV with Shih-Lin Electric and acquire 345/161KV cable system turnkey project of TPC Wufong substation.
- · 2006.06 Acquire 161KV cable accessories order on TPC 9601 scheme.
- · 2004.11 WTI founded by Walsin Cable, Tai-I Cable and Tony Chen.

2006

2004.11 Acquire 161KV cable accessories order on TPC 6th transmission and substation scheme.

2007



Product Feature



IP68 Waterproof Busduct System

WinBus provides whole system, including, joint, IP68 protection against water, dust or any other foreign matters. It enables Busduct can not only be installed outdoor directly without any weather shield or canopy but also can be installed and well operated under water.

Complying IEC60529 standard, WinBus has been certified IP68 by KEMA, ASTA and IP67 by TERTEC (TAF awarded LAB)

WinBus IP68 feature guarantees never accidents and maintenance free by unique casting insulation technology.





Fire Resistant Busduct System

WinBus natural rock insulation enclosing conductors provides Fire-Resistance, Self-extinguish, resistance to flame propagation. Besides complying IEC61439-6, WinBus Busduct system has also been type tested to BS6387 950°C 3hours, IEC60331 750°C 3hours and CNS14286 840°C 30min(Equivalent to JIS C 8364 & JIS A 1304).



Seismic Protection



WinBus Busduct system has been type tested to 2.2g PGA (Peak Ground Acceleration), equivalent to 9.0 Richter (magnitude), by 3rd independent testing authority.

Complying IEC62262 standard, WinBus has been certified IK10 mechanical impact by KEMA. Natural Rock Insulation enclosing conductors constructs WinBus Busduct system structure. It enables WinBus Busduct system confront earthquake or high impact with power energization.



Green Product Certificate



WinBus not only provides emergency power during fire conditions but also fulfills HFLS (Halogen Free and Low Smoke) tested by independent testing authority. This feature guarantees no poisonous gas or no fatal smoke from burned Busduct system.

Aluminum Housing on WinBus also radiates and dissipates heat very fast to effectively decrease conductor temperature and thus reduce resistance and power loss. Combining these technology contributes WinBus Busduct system awarded Green Mark, Environmentally preferable Product, by Official Organization.





EMF Compliance

Besides 100% Earthing purpose, aluminum housing also encapsulates EMF inside Busduct itself. WinBus Busduct system has been type tested to fulfill IEC60439-2 and ICNIRP EMF by independent TAF & CE-awarded Institute.





Maintenance Free

By On-Site Casting technology, WinBus Busduct system is unique and renowned to the maintenance Free, no requirement for future examination or repair. Thus, it also saves lots of maintenance fee for end user.



Chemical Resistance

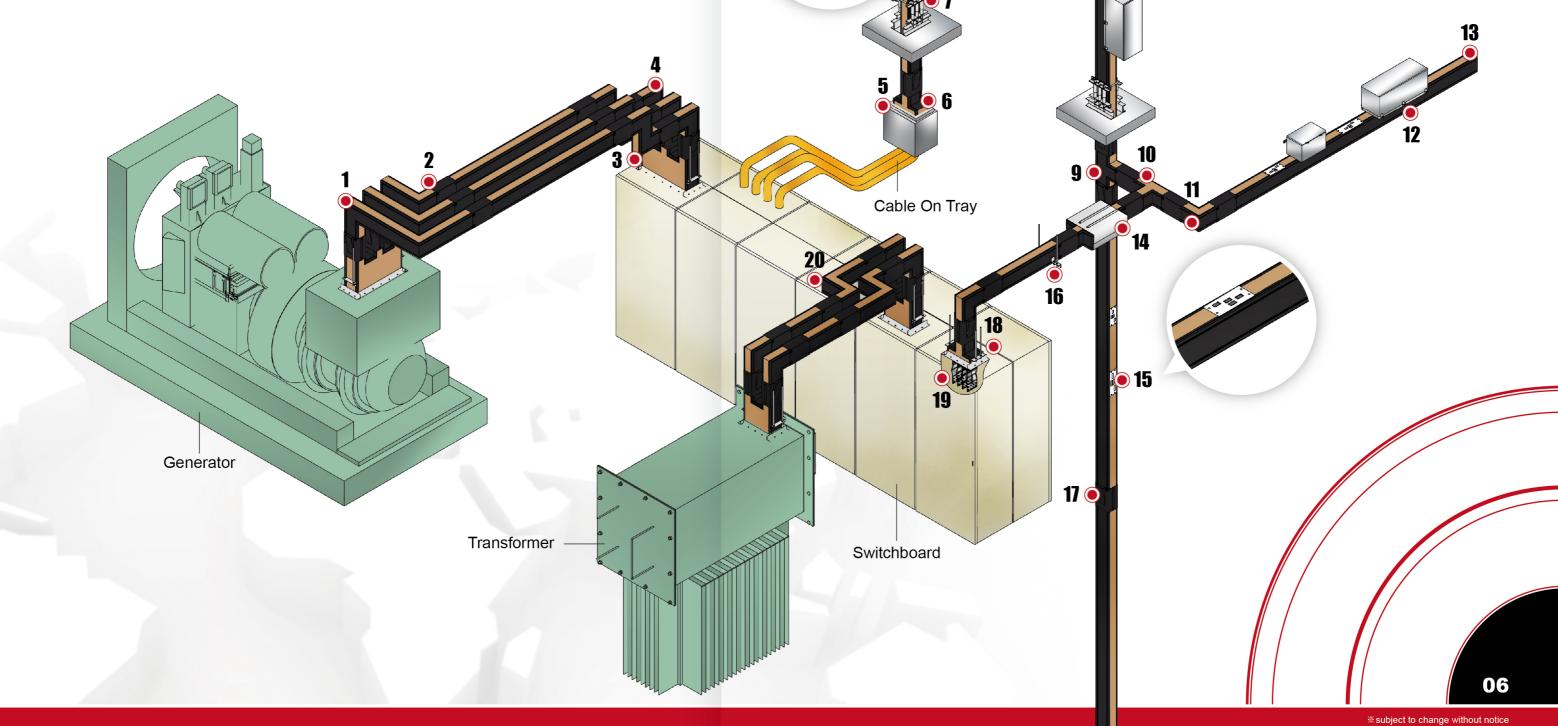
WinBus Insulation Material (WIM) has been carried out tests at supplier's laboratories to prove good results to acids or corrosive materials, such as Hydrochloric acid (10%), Liquid combustibles(petrol, oil,....), Ammonium hydroxide (10%), etc.

System Overview

1	Combination Elbow
2	Horizontal Joint
3	Flatwise Offset Elbow
4	Flatwise Elbow
5	Flange End Box
6	Outdoor Flange End
7	Vertical Spring Hanger
8	Plug-In Hole
9	Flatwise Tee Elbow
10	Edgewise Tee Elbow

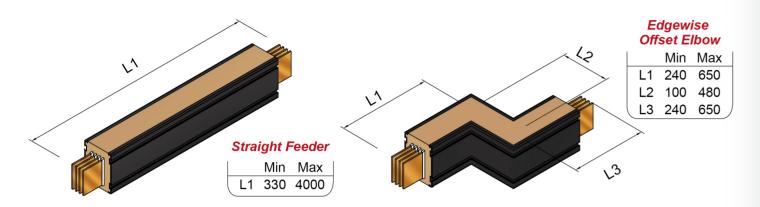
05

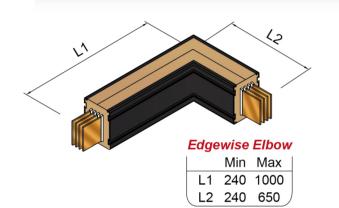
11	Edgewise Elbow
12	Tap Off Unit
13	End Cap
14	Expansion Unit
15	Plug-In Hole
16	Horizontal Hanger
17	Vertical Joint
18	Flange End
19	Flexible Link
20	Edgewise Offset Elbow

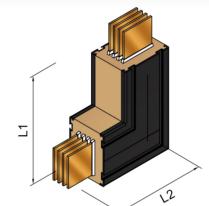


Floor Slab

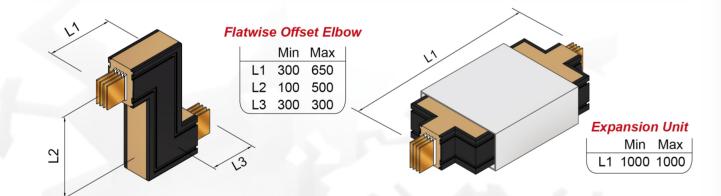
Busduct Assemblies

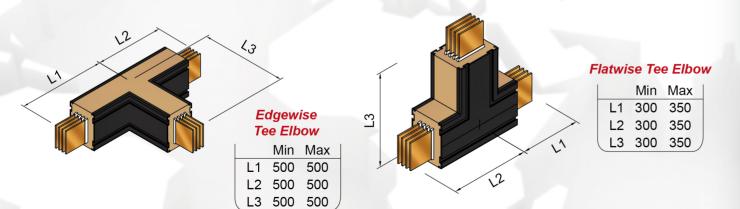


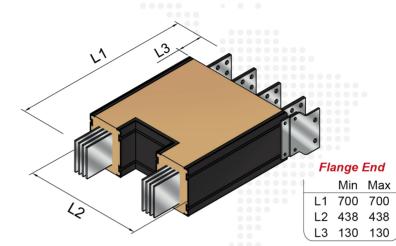


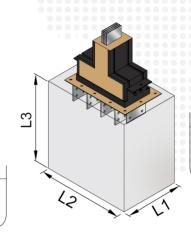


Flat	vise I	Elbow
	Min	Max
L1	300	1000
L2	300	500









Flange End Box

0 0	Min	Max
L1	300	600
L2	600	600
L3	500	710

Min Max

1000 1000 1000A 1000 1000 1250A 1000 1000

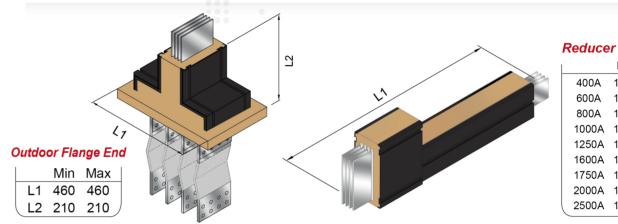
400A 1000 1000 1000 1000

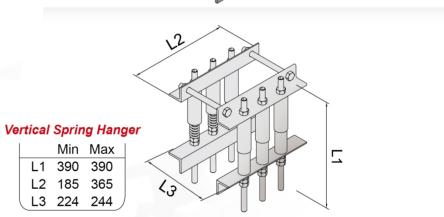
1600A 1000 1000

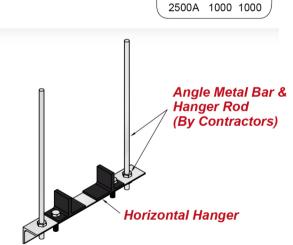
1750A 1000 1000

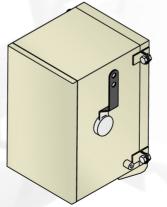
2000A 1000 1000

800A



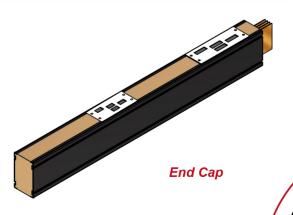






Tap Off Unit

I	Rating	W	В	Н
	100AF/125AF	250	300	400
	225AF/250AF	250	300	500
	400AF	250	300	600
	600AF/630AF	350	300	800
	800AF	350	300	800
	1000AF	TBD	TBD	TBD
	1200/1600AF	TBD	TBD	TBD



Catalogue Numbering System

W LC 400 - 3P - ST

WTI

Busbar material:

LC=Low Voltage Copper Busduct LA=Low Voltage Aluminum Busduct MC=12KV Medium Voltage Busduct HC=24KV Medium Voltage Busduct

Ampere Rating:

400=Single Duct 400A 630=Single Duct 630A 800=Single Duct 800A 1000=Single Duct 1000A 1250=Single Duct 1250A 1500=Single Duct 1500A 1600=Single Duct 1600A 1750=Single Duct 1750A 2000=Single Duct 2000A 2250=Single Duct 2250A 2500=Single Duct 2500A 2750=Single Duct 2750A 3000=Double Duct 3000A 3200=Double Duct 3200A 3500=Double Duct 3500A 4000=Double Duct 4000A 4500=Double Duct 4500A 5000=Double Duct 5000A 5500=Double Duct 5500A 6000=Triple Duct 6000A 6750=Triple Duct 6750A

Configuration:

3P=3 Phase, 3 Wire c/w 100% external earth 3PG=3 Phase, 3 Wire c/w 50% integral earth bar 3PGF=3 Phase, 3 Wire c/w 100% integral earth bar 4P=3 Phase, 4 Wire c/w 100% external earth 4PG=3 Phase, 4 Wire c/w 50% integral earth bar 4PGF=3 Phase, 4 Wire c/w 100% integral earth bar

ST=Straight Feeder PL=Plug-In Feeder BH=Edgewise Elbow BV=Flatwise Elbow ZH=Edgewise Offset Elbow ZV=Flatwise Offset Elbow FE=Flange End FL=Outdoor Flange End TH= Edgewise Tee Elbow TV=Flatwise Tee Elbow EX=Expansion Unit TF=Reducer JT=Joint SH=Vertical Spring Hanger NPL=End Cap FEB=Flange End Box PC = Phase Transposition

Technical Data-Low voltage

Series WLC Copper Busduct - IEC.61439-6 60Hz 1000V

	3 - 5 cond	6 - 10 cond	9 -15 cond	In	In	lcc	Icc	Z	R	X	Total weigh
Туре	WxH	WxH	WxH	norm	60Hz	1sec	ak				
	(mm)	(mm)	(mm)	A	(A)	(kA)	<u>kA</u>	uΩ	цΩ	uΩ	(kg/m)
Single D	uct										
WLC400	118 x 80			400	450	16	32	256.5	223.5	129.5	20.7
WLC630	118 x 100			630	635	35	74	140.9	111.7	85.9	27.2
WLC800	118 x 100			800	816	35	74	105.5	83.8	64.2	28.4
WLC1000	138 x 120			1000	1120	50	105	73.5	55.8	48.2	35.8
WLC1250	138 x 140			1250	1270	50	105	56.8	41.9	38.9	42.8
WLC1500	138 x 180			1500	1500	65	143	44.6	30.4	33.9	50.3
WLC1600	138 x 180			1600	1660	65	143	39.7	27.9	29.1	57.1
WLC1750	138 x 180			1750	1770	65	143	35.6	22.3	27.8	68.8
WLC2000	138 x 220			2000	2050	85	187	32.0	21.0	25.4	71.1
WLC2250	138 x 220			2250	2261	85	187	27.5	17.3	22.9	78.3
WLC2500	138 x 260			2500	2620	85	187	23.1	14.9	18.7	91.3
WLC2750	138 x 260			2750	2770	85	187	22.0	13.4	17.5	103.2
Double [Ouct										
WLC3000		438 x 180		3000	3000	105	231	22.2	15.2	16.8	100.6
WLC3200		438 x 180		3200	3250	105	231	20.6	14.0	15.8	114.2
WLC3500		438 x 180		3500	3500	105	231	18.5	11.2	14.7	137.6
WLC4000		438 x 220		4000	4000	105	231	15.6	10.0	12.6	142.2
WLC4500		438 x 220		4500	4500	105	231	14.7	8.7	11.9	156.6
WLC5000		438 x 260		5000	5000	120	264	12.0	7.5	10.0	182.6
WLC5500		438 x 260		5500	5500	120	264	11.7	6.7	9.6	206.4
Triple D	uct										
WLC6000			738 x 220	6000	6000	125	275	10.5	7.0	8.3	213.3
WLC6750			738 x 220	6750	6750	125	275	9.5	5.7	7.6	234.9
WLC7500			738 x 260	7500	7500	125	275	7.7	4.9	6.2	273.9

Technical Data-Low voltage

Series WLA Aluminum Busduct - IEC.61439-6 60Hz 1000V

	3 - 5 cond	6 - 10 cond	9 -15 cond	In	ln	lcc	Icc	Z	R	Х	Total weight
Туре	WxH	WxH	WxH	norm	60Hz	1sec	lpeak				
	(mm)	(mm)	(mm)	(A)	(A)	(kA)	(kA)	uΩ	uΩ	uΩ	(kg/m)
Single D	uct										
WLA400	98 x 80			400	450	16	32	232.0	215.5	85.9	16.2
WLA630	98 x 100			630	635	16	32	125.5	107.8	64.2	20.4
WLA800	98 x 120			800	816	35	74	86.5	71.8	48.2	24.7
WLA1000	98 x 140			1000	1120	35	74	66.5	53.9	38.9	28.9
WLA1350	98 x 180			1350	1350	40	84	49.4	35.9	33.9	37.4
WLA1500	98 x 210			1500	1520	53	111.3	40.9	28.7	29.1	43.7
WLA1600	98 x 220			1600	1660	53	111.3	37.0	26.9	25.4	45.9
WLA1750	98 x 240			1750	1750	53	111.3	34.0	23.9	24.1	50.1
WLA2000	98 x 260			2000	2050	67	143	31.4	21.6	22.9	54.3
WLA2250	98 x 260			2250	2261	67	143	25.9	17.9	18.7	54.9
WLA2500	98 x 335			2500	2500	80	176	21.4	15.6	14.6	70.2
Double [Ouct										
WLA3000		358 x 210		3000	3000	90	198	22.1	14.3	16.8	87.4
WLA3200		358 x 220		3200	3250	100	220	20.8	13.4	15.8	91.8
WLA4000		358 x 260		4000	4000	120	264	16.6	10.7	12.6	108.6
WLA5000		358 x 335		5000	5000	130	286	12.7	7.8	10.0	140.4
Triple D	uct										
WLA6000			618 x 260	6000	6000	130	286	11.0	7.1	8.3	162.9

Technical Data-Low Voltage

Descriptions	Specifications/Standards	Descriptions	Specifications / Standards				
Manufacturer	WTI Co.	Country Of Manufacture	Taiwan				
Brand	WTI WinBus	Model	WLC / WLA				
Туре	Cast Resin	Compliance Standards	IEC 61439-1 & 60439-2 / 61439-6				
Type Test Authority	KEMA/ASTA	Rated Current	400A - 7500A				
Rated Operating Voltage	1000V	Frequency	50 / 60Hz				
Type Of Grounding	Housing Ground	Grounding Capacity	Minimum 100% Capacity				
Degree Of Protection	IP68	Ambient temperature	-45°C~65°C avg. 35°C				
Standard Busduct Length	4000mm / 3300mm (Maximum)	Insulation Resistance	$3G\Omega$ or $3000M\Omega$ at DC $500V$				
Conductor Material	Copper (Purity:≥99.98%, Conductivity:≥100% IACS) Aluminum (Conductivity : ≥ 61%IACS)	Weight Of Busduct	To Be Determined By Each Busduct Rating				
Power Frequency Voltage Withstand	AC 5kV / 1Min	Impulse Withstand Voltage	12KV				
Cross-Section Of Phase Conductor	To Be Determined By Each Busduct Rating	Cross-section Of Neutral Conductor	To Be Determined By Each Busduct Rating				
Busduct Housing : Materials Finishes Paint Housing Thickness	Extruded Aluminum Alloy Powder Coated Black 3mm	Mounting Method : • Vertical Installation • Horizontal Installation	Vertical Spring Hanger & Vertical Hanger Hanger Bracket				
Tap-Off Units: Brand Of MCCB MCCB Rating Number Of Pole Breaking Capacity Shunt Trip Housing Thickness Degree Of Protection	Schneider MCCB, Shih-Lin MCCB or Equal 100AF-1600AF 3 / 4 30kA-70kA Yes 1.5mm IP55 / IP65	Busduct Joint Section: Type / Method Of Joint Type Of Joint Bolt Insulation Thermal Class (IEC 85)	Natural Mineral Casting Insulation Type With Aluminium-Alloy Profile At Both Side Of Busduct Joint Section High Tensile Bolt Class F 155°C Winbus 170°C Class H 180°C				
System Configuration	3P3W(Without Neutral Bar) 3P3W c/w 50% integral Earth Bar 3P3W c/w 100% integral Earth Bar 3P4W(With Neutral Bar) 3P4W c/w 50% integral Earth Bar 3P4W c/w 100% integral Earth Bar	Temperature Rise On External Insulated Conductor Internal Insulated Conductor External Housing Surface Max. Allowable Ambient Temperature	Based on IEC 61439-1 & IEC 60439-2 Not Exceed 70°C above Ambient Temperature Not Exceed 105°C above Ambient Temperature Not Exceed 55°C above Ambient Temperature Not Exceed 40°C				

Technical Data-Medium Voltage

Series WMC 12KV - IEC.62271-200 50/60Hz

	3 cond		ln	Icc	lcc	R20	R100	Х	Total weight	
Туре	V	V x H		norm	1sec	Ipeak				
	(1	mm)		(A)	(kA)	(kA)	uΩ	uΩ	uΩ	(kg/m)
Single D	ouct									
WMC1000	400 x 274			1000	50	105	49.1	71.7	110.6	79.0
WMC1250	400 x 294			1250	50	105	36.8	53.8	94.6	89.0
WMC1500	400 x 334			1500	65	143	26.8	39.1	77.6	100.5
WMC1600	400 x 334			1600	65	143	24.6	35.8	73.2	109.5
WMC1750	400 x 334			1750	65	143	19.7	28.7	72.2	119.8
WMC2000	400 x 374			2000	85	187	18.4	26.9	59.7	129.8
WMC2250	400 x 290			2250	85	187	14.7	21.5	58.9	143.1
WMC2500	400 x 414			2500	85	187	13.1	19.1	53.9	147.8
WMC3000	400 x 424			3000	105	231	11.8	17.2	49.4	158.2
WMC3200	400 x 424			3200	105	231	9.8	14.3	51.3	168.5
WMC4000	400 x 434			4000	105	231	6.6	9.6	51.6	178.8
WMC5000	400 x 434			5000	120	264	5.5	8.0	49.9	223.5







Technical Data-Medium Voltage

Series WHC 24KV - IEC.62271-200 50/60Hz

	0.000.000						000000000000000000000000000000000000000				
		3 cond		In	Icc	Icc	R20	R100	X	Total weight	
Туре		WxH		norm	1sec	Ipeak					
		(mm)		(A)	(kA)	(kA)	uΩ	uΩ	uΩ	(kg/m)	
Single [Ouct										
WHC1000	650 x 314			1000	50	105	60.5	79.6	171.1	119.7	
WHC1250	650 x 354			1250	50	105	48.7	64.0	143.4	152.4	
WHC1500	650 x 394			1500	65	143	36.8	48.4	123.6	185.9	
WHC1600	650 x 394			1600	65	143	30.8	40.5	118.1	185.9	
WHC1750	650 x 394			1750	65	143	30.8	40.5	116.8	188.3	
WHC2000	650 x 434			2000	85	187	23.2	30.5	100.6	219.4	
WHC2250	650 x 434			2250	85	187	20.7	27.2	99.5	222.6	
WHC2500	650 x 464			2500	85	187	18.6	24.5	92.7	248.4	
WHC3000	650 x 464			3000	105	231	18.4	24.2	86.5	261.0	
WHC3200	650 x 464			3200	105	231	15.4	20.2	87.0	261.0	
WHC4000	650 x 464			4000	105	231	11.6	15.3	90.1	267.8	
WHC5000	650 x 464			5000	120	264	9.3	12.3	87.8	287.1	

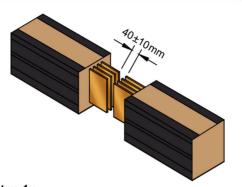


Technical Data-Copper

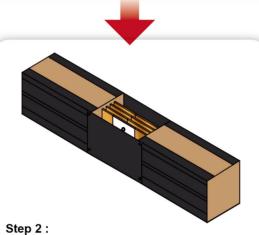
Descriptions	Specifications/Standards	Descriptions	Specifications / Standards
Manufacturer	WTI Co.	Country Of Manufacture	Taiwan
Brand	WTI WinBus	Model	WMC / WHC
Туре	Cast Resin	Compliance Standards	IEC 62271-1 & 62271-200
Type Test Authority	TERTEC	Rated Current	1000A-6750A
Rated Operating Voltage	12KV / 24KV	Frequency	50 / 60Hz
Type Of Grounding	Housing Ground	Grounding Capacity	Minimum 100% IACS
Degree Of Protection	IP68		
Standard Busduct Length	4000mm (Maximum)	Insulation Resistance	$3G\Omega$ or $2000M\Omega$ at DC $1000V$
Conductor Material	Copper (Purity:≥99.98%, Conductivity:≥100% IACS) Aluminum (Conductivity: ≥ 61%IACS)		To Be Determined By Each Busduct Rating
Power Frequency Voltage Withstand	AC 28KV / 1Min AC 50KV / 1Min	Short-Circuit Rating	To Be Determined By Each Busduct Rating
Cross-Section Of Phase Conductor	To Be Determined By Each Busduct Rating	Cross-section Of Neutral Conductor	To Be Determined By Each Busduct Rating
Busduct Housing : • Materials • Paint • Housing Thickness	Extruded Aluminum Alloy silver color 5mm	Mounting Method : Vertical Installation Horizontal Installation	Vertical Spring Hanger & Vertical Hanger Hanger Bracket
		Busduct Joint Section: Type / Method Of Joint Type Of Joint Bolt	Natural Mineral Casting Insulation Type With Aluminium-Alloy Profile enclosing Busduct Joint Section High Tensile Bolt
System Configuration	3P3W (Without Neutral Bar) 3P3W c/w 50% integral Earth Bar 3P3W c/w 100% integral Earth Bar 3P4W (With Neutral Bar) 3P4W c/w 50% integral Earth Bar	Temperature Rise On External insulated Conductor Internal Insulated Conductor External Housing Surface Max. Allowable Ambient Temperature	Based On IEC 62271-1 & IEC 62271-200 Not Exceed 65°C above Ambient Temperature Not Exceed 90°C above Ambient Temperature Not Exceed 40°C above Ambient Temperature Not Exceed 40°C

Installation instruction

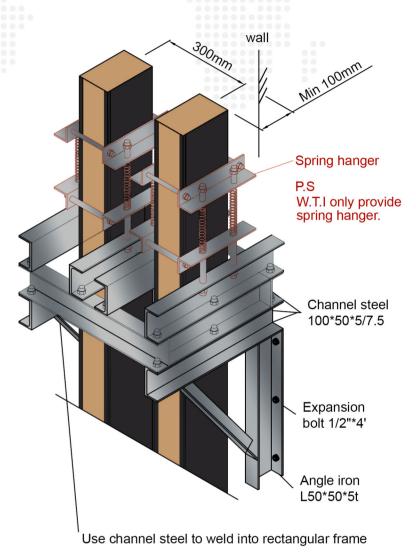
Flatwise Joint Installation pictures:

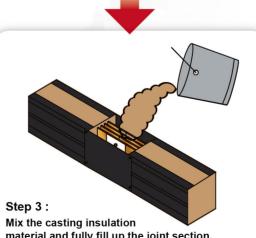


Step 1: Locate the busduct feeders to be connected at job site. As-built drawing is referred at all time.



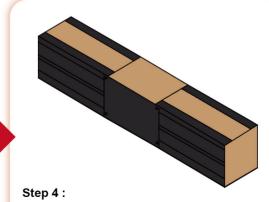
Connect both ends of busduct feeder by means of the joint stack and joint bolt. Afterwards, install the joint junction box to the connected busduct





material and fully fill up the joint section.

Connection resistance test, insulation resistance test and phase sequence test are recommended before pouring the casting insulation into the joint section.

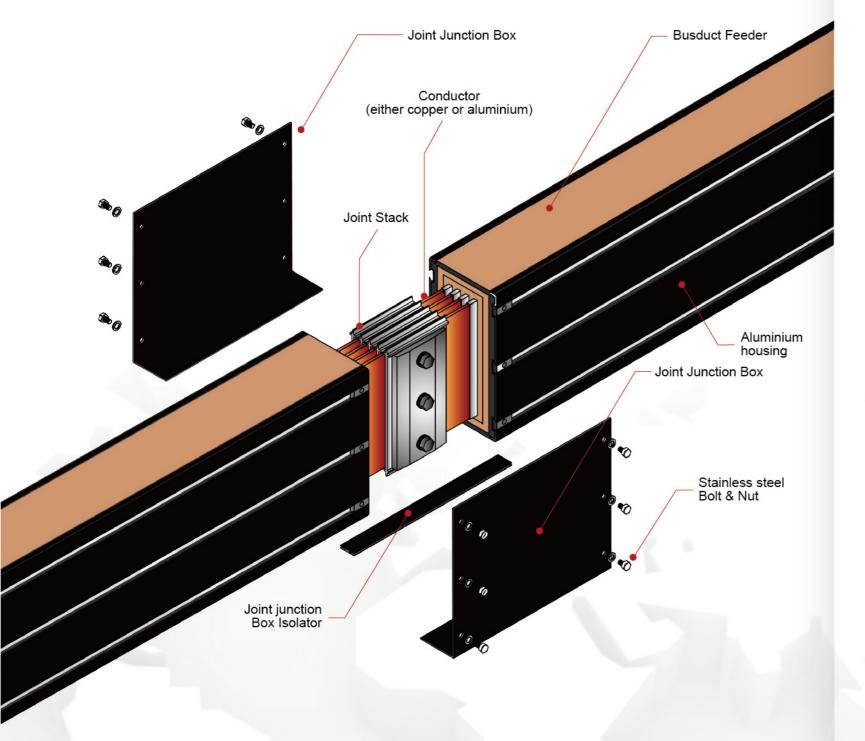


Before the curing process, clear the bubble on the surface of the casting insulation.

Curing process will usually take 4-6 hours.

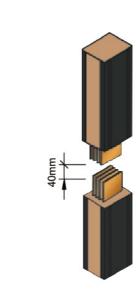
Installation Guideline

Busduct Joint Section



Installation Guideline

Busduct Joint Section (Vertically - Installed)



Step 1:

Locate the busduct feeders to be connected at job site. As-built drawing is referred at all time.

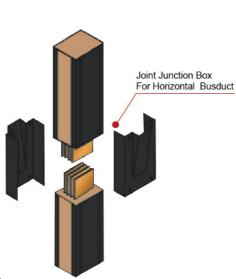
Distance between both busduct feeders is 40mm±10mm.



Step 4:

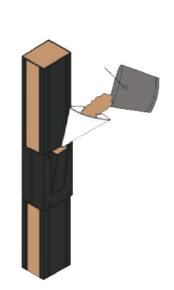
Before the curing process, clear the bubble on the surface of the casting insulation.

Curing process will usually take 4-6 hours.



Step 2:

Connect both ends of busduct feeder by means of the joint stack and joint bolt. Afterwards, install the joint junction box to the connected busduct



Step 3:

Mix the casting insulation material and fully fill up the joint section.

Note: Connection resistance test, insulation resistance test and phase sequence test are recommended before pouring the casting insulation into the joint section.

Project Reference

Data Center

Owner	Project name	Location
1-Net Singapore Pte Ltd	1-Net Data Center	Singapore
Farglory Group	Far-Glory Finance Center	Taiwan
Chung-hua Telecom	Cloud Computing Data Center	Taiwan
Foxconn	Foxconn 4G-Data Center	Taiwan
Asia Pacific Telecom	Asia Pacific TelecomData Center	Taiwan

Factory

Owner	Project name	Location
Panasonic	Panasonic Zhoghe Factory	Taiwan
Pou Chen	PouChen Group Vietnam Factory(NIKE)	Vietnam
Panasonic	Panasonic Vietnam Branch Hanoi Factory	Vietnam
General Shoesnic	General Shoes Factory	Vietnam

Infrastructure

Owner	Project name	Location
Mahasarakam University	Mahasarakam Hospital and Medical School	Thailand
University Matarm	University Mataram	Indonesia
Indonesia Government	Technology Ministry Tower	Indonesia
Civil Aeronautics Administration	Tao-Yuan Airport Terminal 1	Taiwan
Taiwan Railways Administration	Kaohsiung Underground Railway	Taiwan
Indoneisa Government	Mahkamah Agung	Indonesia

Power Plant & Substation

Owner	Project name	Location
Taiwan Power Company	Hydro Power Plant District 1-3	Taiwan
Taiwan Power Company	Sendo EHV substation	Taiwan
Taiwan Power Company	HCPV Solar Power Plant	Taiwan

Commercial Building

Owner	Project name	Location
Jurong Town Corporation	JTC Aviation 2 at Seletar Aerospace Park	Singapore
PT. Puri Matahari	Puri Matahari Tower	Indonesia
Mitsui	Mitsui Outlet Park	Taiwan
Tainan Spinning	Uni-President GroupTainan Dream Mall	Taiwan
Taichung City Government	TaiChung New City Hall	Taiwan
Haiwan International	TaiChung Harbor Hotel	Taiwan
ВІЈВ	Kertajeti Airport	Indonesia

****Consult WTI for other more project reference...**





























Since 2011 IP68

Safe Energization against continuous immersion in water

Type Testing & Certification

REMARK

INSPECTION REPORT

STORY THE PROPERTY OF THE PROPERTY

KEMA Type Test

KEMA Type Test

KEMA short time withstand current



Seismic Protection Certificate
Fire Resistance Test Report



EMF Test Report
50 Years Aging Test Report
Environmental Preferable Product Certificate



ASTA Certificate
ASTA Test Report
BS6387 Certification
IEC60331 Certification
ISO 9001 Certificate



