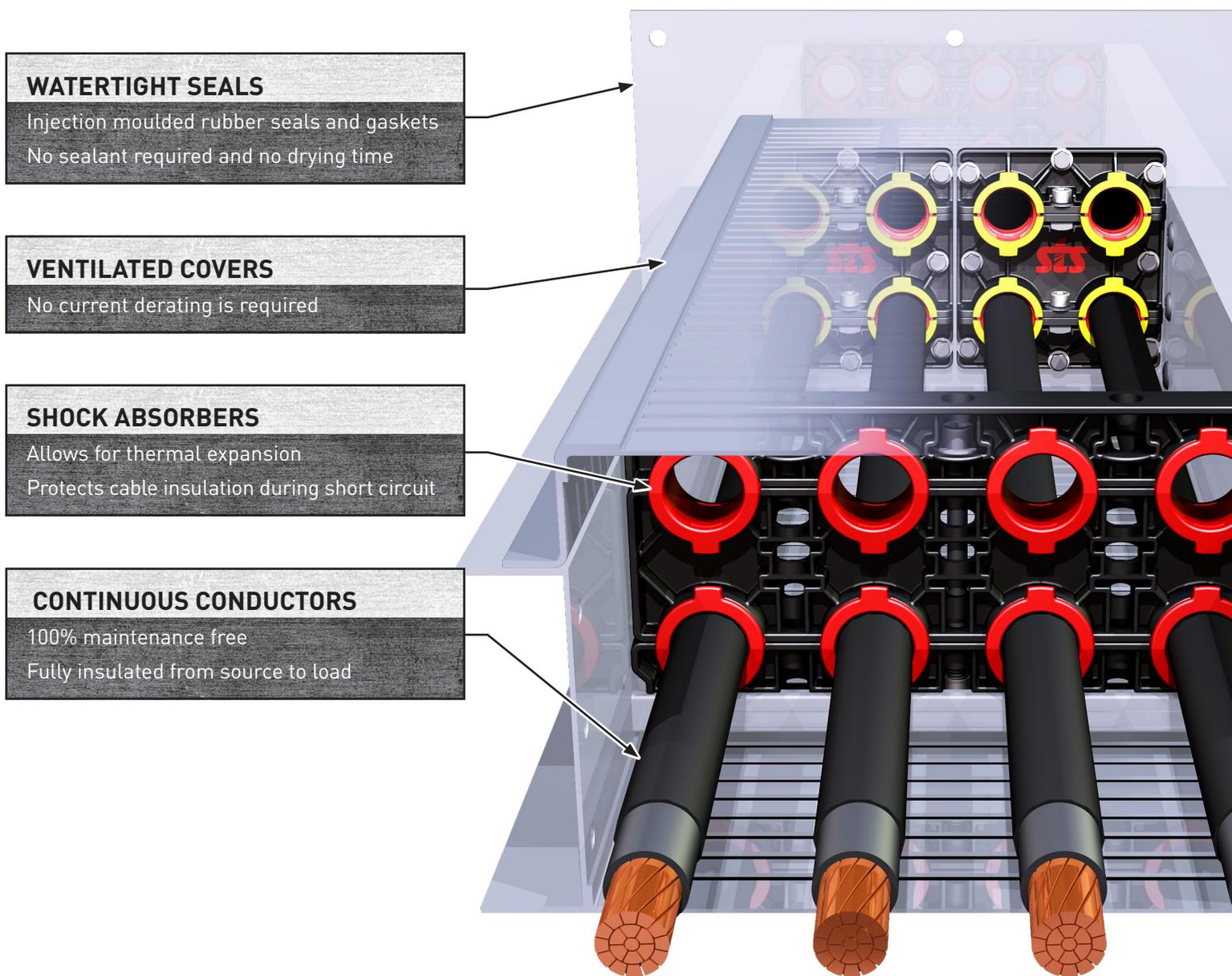


SUPERIOR BUS DATASHEET



Superior Bus is a custom-engineered cable bus power distribution system using multiple parallel conductors braced in a rigid enclosure. Each conductor is insulated and fully continuous from source to load. Standard Superior Bus systems can carry 400 - 32,000A with voltages from 208V to 218kV. Custom systems can be designed for specific customer requirements. It is fully certified and easy to install.



WATERTIGHT SEALS

Injection moulded rubber seals and gaskets
No sealant required and no drying time

VENTILATED COVERS

No current derating is required

SHOCK ABSORBERS

Allows for thermal expansion
Protects cable insulation during short circuit

CONTINUOUS CONDUCTORS

100% maintenance free
Fully insulated from source to load

SUPERIORBUS

BUS DUCT vs. SUPERIOR BUS A COMPARISON



Bus duct and cable bus are both power distribution systems. That, however, is where the similarities end. This data sheet classifies the differences between bus duct and Superior Bus with regards to financial/time cost, system adaptability, and system performance.

Bus Duct	<i>SUPERIOR</i> BUS
Financial / Time Cost	
Different bus duct system types required for specific application needs, increasing design complexity and costs	Wet-dry rated system can be used indoors or outdoors, in almost all applications
Entire bus duct must be replaced if the system gets wet from sprinklers or rain	Zero replacement costs of water damaged systems during installation and service life as system is impervious to water
Increased copper/aluminum content in bus duct increases cost of the system	Superior Bus uses up to 40% less copper/aluminum due to balancing, which reduces costs
Parts needed to install bus duct need to be individually sourced and made to fit	All-in-one package includes everything needed for installation
High installation costs – heavy lifting equipment usually required	Low installation costs – can be installed with 2 workers
Annual/semi-annual maintenance increases ownership costs	No maintenance requirements decreases ownership costs
System Adaptability	
Complete system makes field adjustments difficult	Easy-to-assemble segments can be modified/adjusted to fit on site
System must be aligned precisely	No need for precise alignment; system allows for some misalignment
System expansion requires complete system replacement or an expensive cooling system expansion	System can be expanded by adding more conductors or using additional cable bus sections
System Performance	
Limited analysis conducted before system is built	FEA analysis, heat rise testing, short circuit testing, fire testing, load testing, and impact testing conducted on Superior Bus
High volt drop and high temperature due to inefficient phase arrangements	Balanced system reduces voltage drop and system runs cooler due to phase arrangement
Bus duct joins via bolted connections, copper welding or clamped joints that may provide inadequate conductor contact area, increase joint resistance and increase the cost of installation	Fully continuous conductors, which eliminates joint resistance, simplifies installation and drastically reduces maintenance and operating costs
System fails if heaters or forced air coolers fail	No heaters or coolers required
Short circuit situations can result from condensation within the bus duct enclosure	System is wet-dry rated and not affected by moisture
Multiple intermediate connections in elbows, fittings and at the end of each bus section – multiple points of potential failure	No intermediate splices or connections

CABLE TRAY vs. SUPERIOR BUS A COMPARISON



Cable tray and cable bus can both be used as power distribution systems. Cable tray is a general purpose support system, which may be adapted to suit power distribution. Superior Bus is purpose-built and optimized for power distribution as detailed below.

Cable Tray	SUPERIORBUS
Financial / Time Cost	
Parts, fittings, and conductors need to be individually purchased and modified to fit	All-in-one package includes everything needed for installation, saving money and time
Derating increases the number of conductors and lugs required, which increases the cost of the system	Superior Bus uses up to 40% fewer copper/aluminum conductors and lugs due to system balancing
Higher operating costs due to high impedance from lack of system balance	Balanced system reduces voltage drop and system runs cooler due to phase arrangement
Lack of balancing can result in overloaded and overheated conductors which degrade the cable jacket, shortens conductor life, and results in increased replacement costs and downtime	Fully balanced system with 99 year design life with 40-50 years of no maintenance, reducing ownership costs
Short circuit events can damage the conductors' insulation, requiring conductor replacement	Cables are fully supported and braced, preventing damage to cables in the event of a short circuit
Cable tray needs to be de-energized and the tray and conductors inspected for damage after short circuit events, creating costly downtime	After a short circuit event, the Superior Bus does not need to be de-energized or inspected
System Performance	
No analysis conducted because cable tray is not an engineered system	FEA analysis, heat rise testing, short circuit testing, fire testing, load testing, and impact testing conducted on Superior Bus
Cables are tied down with zap straps that may break or damage the cable's insulation in a short circuit event	Support blocks hold cables snugly in case of a short circuit; shock absorbers protect cable insulation by absorbing the forces from the cables.
No short circuit rating, meaning cables can whip around inside the tray causing damage to the conductors and tray during a short circuit.	Fully engineered system that has been short circuit tested up to 200 KAIC with no damage to cables or enclosures
Lack of balancing results in large forces interacting between conductors, which can cause cable movement and damage to cable insulation during load fluctuation	Balanced system ensures that electromagnetic forces in the cables are cancelled out by forces from adjacent conductors
Cable tray is not fully enclosed, which allows conductors to be exposed to potential damage and creates a hazard for workers and other personnel	Superior Bus is a fully enclosed system made of aluminum, stainless steel, or polymer to protect cables from environmental or rodent damage and to protect workers and personnel from the dangers of high voltage

Superior Bus System

Parameter	Specification
Power Configuration	3-Phase 3-Wire (Delta), 3-Phase 4-Wire (Wye)
Ampacity	Unlimited ampacities; standard systems range from 400-32,000A All systems are CEC and NEC compliant
Voltage	208V to 1kV
Certification	CSA certified cable bus, UL certified grounding conductor, NOM
Free Air Rating	Yes
Grounding	Per UL/CSA requirements
Short Circuit	Up to 200 KAIC

Enclosure

Parameter	Specification
Material	6063-T6 Aluminum, Stainless Steel
Size (WxH)	Minimum 9" x 4.5", Maximum 48" x 16", and up
Fitting radius	12", 18", 24", 36", and up
Cover types	Ventilated, Solid, Peaked, Louvered

Support Blocks

Parameter	Specification
Material	Glass Fibre Reinforced Polymer, UHMW PE
Spacing	18" (vertical sections), 36" (horizontal sections)

Cables

Parameter	Specification
Material	Copper, Aluminum
Insulation	EPR/XLPE standard; custom variations available
Certification	FT1 or FT4 Fire Rating
Lugs	Two-hole long-barrel compression lugs
Termination	600V terminated with heat shrink; 5kV and up terminated with cold shrink termination kit (available with or without sheds)



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