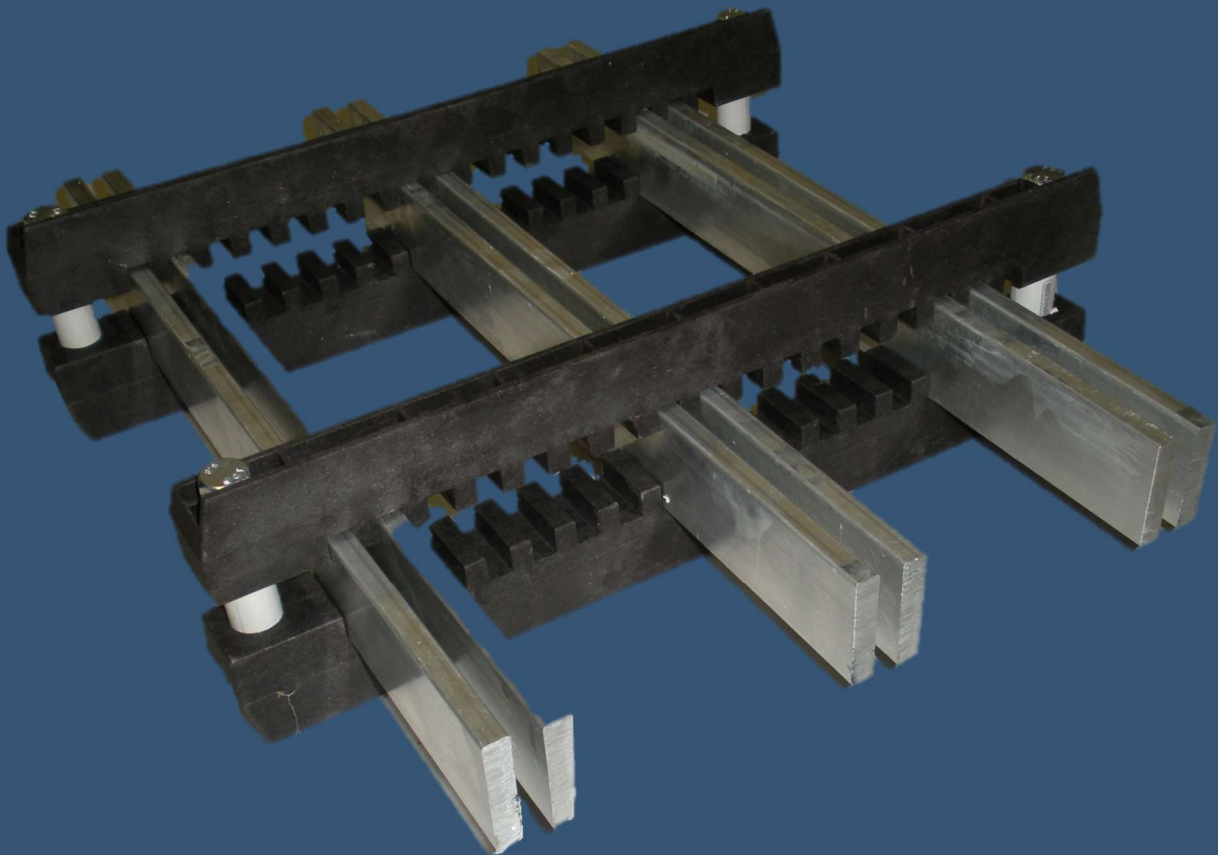




Busbar Supports Type UBS10

Low Voltage Switchboard Equipment



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Since product improvement is a continuing policy, we reserve the right to change specifications without notice.

Descriptive

Use

These Busbar Supports are designed for 10mm wide bars with square or radius edges. Any number of bars can be arranged in parallel for each phase. The supports can be stacked for double layers of bars.

Technical

Material Details

The UBS10 supports are injection moulded from PA66 (Nylon type 6.6) with 50% glass fibre reinforcement. This is a compound specially selected to provide the highest flame retardancy (including glow-wire test at 960°C) with maximum mechanical strength. Colour is black.

Property		Standard	Unit	Value	
				DAM*	Cond**
Physical Properties					
Density		ISO 1183	Kg/m ³	1610	
Mechanical Properties					
Tensile Modulus	1mm/min	ISO 527-2/1A	MPa	17300	
Stress at Break	5mm/min	ISO 527-2/1A	MPa	210	
Strain at Break	5mm/min	ISO 527-2/1A	%	2.5	
Flexural Modulus	2mm/min	ISO 178	MPa	16200	
Flexural Strength	+23°C	ISO 179/1 eU	KJ/	85	
Charpy Notched Impact Strength	+23°C	ISO 179/1 eA	KJ/m ²	14	
Thermal Properties					
Melting Temperature	10°C/min	ISO 11357-1-3	°C	260	
Heat Deflection Temperature	1.8MPa	ISO 75/2 A f	°C	250	
Flammability Properties					
Flammability	0.8mm	UL 94	Class	V0	
Glow Wire Flammability Index	1mm / 2mm	IEC 60695-2-1/2	°C/mm	960 / 960	
Glow Wire Ignition Temperature	1mm / 2mm	IEC 60695-2-1/3	°C/mm	750/775	
Electrical Properties					
Volume resistivity	500V	IEC 60093	ohm · m	1 E+13	1 E+11
Surface resistivity	500V	IEC 60093	Ohm	1 E+12	1 E+10
Comparative Tracking Index	Sol.A	IEC 60112	V	500	

* DAM = Dry As Moulded state | ** Cond = Conditional state similar to ISO 1110 | *** Melt Temp [°C] / Mold Temp [°C] / Cavity press (MPa)

Technical

Current Ratings (Short-Circuit)

The duration of the fault, limited by the protective device (approximately 6 cycles) is too short to allow the heat to dissipate from the bars, and will therefore be absorbed by the bars.

A maximum short-time temperature of up to 190°C is taken as a safe temperature for copper.

The temperature rise of the busbars as a result of a short-circuit must be taken into account in the design of the busbar arrangement. In some cases, this may be the determining factor, rather than the continuous current rating.

The chart below shows the minimum cross-sectional areas for copper for various fault ratings. These show temperature rise from 0°C, and a short-circuit occurring at the maximum continuous rating. This is 90°C for aluminium and 105°C for copper. (Some specifications limit the operating temperature of copper to less than 105°C). It can be seen that the final temperature is not the sum of the temperature rise and the operating temperature. This is an exponential factor due to the ever increasing resistance due to temperature.

Temp Rise	Copper	Base Temp	Minimum Cross-Sectional Areas (mm ²) Short-Circuit (kA) 1 Sec			
			40	50	65	80
			0°C	260	335	415
90°C	360	450	585	720		

Values show cross-sectional areas (mm²)

Dielectric Ratings

- Rated Voltage 1000V
- Rated Impulse Voltage : Uimp 12kV
- Clearance Distance 20mm
- Creepage Distance 20mm

- Standard AS/NZS 61439.1:2016
- Pollution degree 3
- Material group II
- Material is 400 > 400 CTI < 600

Technical

Support Spacings (for Copper Bars)

Busbar Size (mm)	Fault Current kA	I _{pk} I _{rms}	105	143	Phase Centres	Arrange
			50	65		
1 – 100 x 10			390		100	In-line
2 – 100 x 10				475	100	Tre-foil

- Test voltage 415V 50Hz
- Duration 1 second
- Tests in accordance with AS/NZS 61439.1:2016 Clause 10.11.5.3.3
- Tests conducted at TUV Rheinland in Melbourne, Australia
- Refer to Temp Rise chart on Page 3 for minimum size bars for a given fault rating

Current Ratings (Continuous)

In addition to the size and material of the busbars, the continuous current (thermal) ratings of busbars are dependent upon a number of factors. These are determined by the switchboard builder, and is therefore not part of the scope of this brochure. These are:

- Ambient temperature
- Limit of final temperature
- Ratio between cross-section area of bars and enclosure or compartment
- Material of the enclosure (e.g. ferrous or non-ferrous)

Weights

Weight Per Pair (kg)
0.78

Installation

The UBS10 supports are held in place by M12 mild steel threaded rods fixed to the supports structure of the switchboard.

Spacers are used (over the M12 rods) between the supports to prevent the supports from bowing when the nuts are tightened. These are made from plain 20mm PVC conduit. Length is 23mm less than the width of the busbar being used (i.e. 50mm busbars – 26.5 spacer).

When the structure is lifted above the support frame (for example – horizontal busbars on the roof of a switchboard) an additional conduit spacer is recommended to be placed at the centre under the bottom support. This should have a 6mm wide slot cut in it to accommodate the web on the support and hold it in place.



Single Arrangement

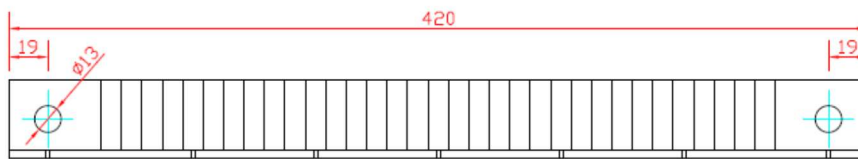


Tre-foil (stacked) Arrangement

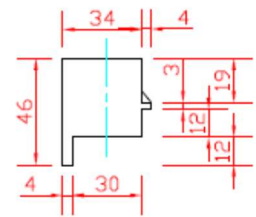
Dimensions

3 Poles for Special Profile Bars

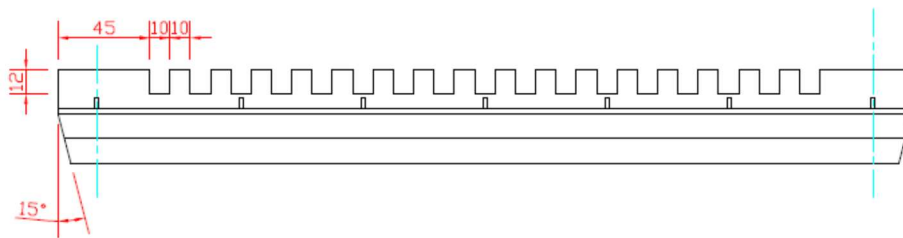
Available to order (min run quantities apply)



Elevation



End Elevation



Plan

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