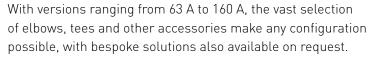








The flexibility of the Zucchini MS range during planning and installation makes it ideal for frequently changing requirements in small to medium sized commercial and industrial premises.



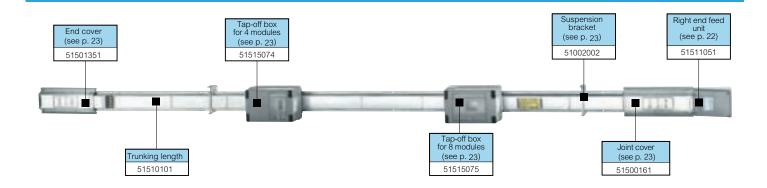
In addition to the wide range of accessories, a choice of tap-off boxes from 16 to 63 A accommodate protection devices up to 16 DIN modules.





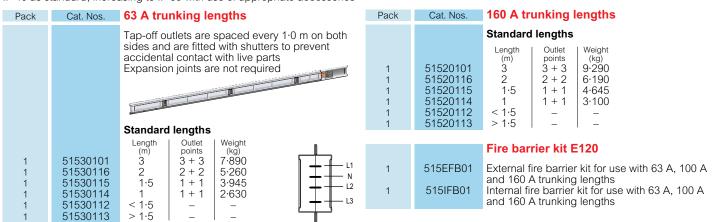
To find out more call our technical support team on +44 (0) 370 608 9020

MS double sided busbar low and medium power 63/100/160 A



Dimensions and technical information **p.24** Technical data **p.27**

Conforms to BS EN 61439-6. Casing manufactured from Senzimir quality galvanised steel suitable for use as a protective earth IP 40 as standard, increasing to IP 55 with use of appropriate accessories



100 A trunking lengths

			_	_
		Standard	lengths	
1 1	51510101 51510116 51510115	Length (m) 3 2	Outlet points 3 + 3 2 + 2 1 + 1	Weight (kg) 7·890 5·260 3·945
1	51510113	1	1 + 1	2.630
1	51510112 51510113	< 1·5 > 1·5	- -	_ _



trunking components









Dimensions and technical information p. 24-25

Conforms to BS EN 61439-6. Casing manufactured from Senzimir quality galvanised steel suitable for use as a protective earth IP 40 as standard, increasing to IP 55 with use of appropriate accessories

Pack	Cat. Nos.	Trunking	g compo	nents			
		For chang horizontal	For changing the route of trunking, either horizontally or vertically				
		Horizonta	l elbows	– right hand			
		Right and position of		s differ because of the			
		Rating	Weight	DIOCKS			
1	51530351	(A) 63	(kg) 1·6				
1	51500361 51520351	100 160	1·6 2·6				
		Horizonta	ıl elbows	– left hand			
		Rating (A)	Weight (kg)				
1	51530361	63	1.6				
1	51500362 51520361	100 160	1·6 2·6				
		Vertical e	lbows – r	right hand			
		Rating (A)	Weight (kg)				
1	51530451 51500461	63 100	1·6 1·7				
1	51520451	160	2.7				
		Vertical e	lbows – I	eft hand			
		Rating (A)	Weight (kg)				
1	51530461 51500462	63 100	1·6 1·6				
1	51520461	160	2.6				
		Right han	d tees –	male			
		Rating (A)	Weight (kg)				
1	51530551 51500561	63 100	2·29 2·29				
1	51520551	160	3.79				
		Right han	id tees –	female			
		Rating (A)	Weight (kg)				
1	51530571 51500563	63 100	2·29 2·29				
1	51520571	160	3.79				

Pack	Cat. Nos.	Trunking components (continued)					
		Left hand tee – female					
1 1 1	51530561 51500562 51520561	Rating (kg) 63 2·29 100 2·29 160 3·79					
		Left hand tee – male					
1 1 1	51530581 51500564 51520581	Rating (A) (kg) 63 2·29 100 2·29 160 3·79					
		Crossovers					
1 1 1	51530651 51500661 51520651	Rating (kg) (A) (kg) 63 2·29 100 2·29 160 3·79					
		Flexible elbow					
1	51511261	For horizontal and vertical changes of direction up to 90° Not available for 160 A rating Rating Weight (kg) 63-100 2:29					
1	51511261	160 3.79					
		Food units					

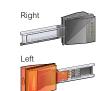
Feed units

End feed units IP 55

IP 55 protection as standard. Supplied with cable clamp and terminals for 35 mm (MS 63/100) and 70 mm (MS 160) cables Switched-end feed units are also available with in-line bus switches on request

	Rating (A)	Weight (kg)
51511051	Right 63-100	1.732
51511052	Left 63-100 Right	1.874
51521051	160 Left	2.218
51521052	160	2.360
	Centre fe	ed units

51511151 51521151



IP 55

Weight (kg)
3.5
5.0



tap-offs and accessories





51515052



51515058



51500161



51500160





51515051



Dimensions and technical information p. 25-26

Tap-off boxes can be used to connect and energise one and three phase loads up to 63 A. Tap-offs can be inserted and removed when the busbar is energised and when the fixture is under load, up to a capacity 32 A. Compliant with IEC 60695-2-10 with V1 self-extinguishing degree (UL 94) Standard IP 55 degree of protection

Pack	Cat. Nos.	Tap-off boxes IP 55
		Energy withstand 400·10³ A²S Totally insulated tap-off box Max. cable size 25 mm²
		Max. power losses 10 W
		Empty tap-off box with DIN (4 mod.)
1	51515071	Rating Weight (kg) 32 0.68
		Tap-off box for (4 mod.) DIN
1	51515072	Rating Weight (A) (kg) 32 0.73
		Max. power losses 16 W
		Empty tap-off box (8 mod)
1	51515073	Rating Weight (A) (kg) 32 0.93
		Tap-off box (4 mod)
		DIN (long version) Rating Weight
1	51515074	(A) (kg) 32 0.96
		Tap-off box (8 mod) DIN (long version)
		Rating Weight
1	51515075	(A) (kg) 32 0.99

Pack	Cat. Nos.	Tap-off boxes with isolating device on				
		the cover				
		Tap-off box with CH10 fuseholder (10·3 x 38)				
1	51515051	10·3 x 38 fuses not included Rating Weight (kg) (kg) 0·908				
		Tap-off box with CH14 fuseholder (14 x 51)				
1	51515052	14 x 51 fuses not included Rating Weight (kg) 50 0.908				
		63 A tap-off boxes				
1	51515057	Energy withstand 400·10³ A²S Max power losses 20W Tap-off box with transparent cover Weight 1·1 kg Tap-off box with transparent cover and hinged door (up to 4 mod.)				
1	51515056 51515067	Weight 1·2 kg Tap-off box with hinged door (up to 7 mod.) Weight 1·1 kg				
'	01010001	Tap-off box with hinged door				
1	51515058	(up to 16 mod.) Energy withstand 400·10³ A²S Max power losses 20W Weight 2·5 kg				

		Accessories	
		End cover IP 55	
1	51501351	End covers are fitted to the last length in each run to maintain IP 55 protection Weight 0.57 kg	
		Joint cover IP 55	
1	51500161	One for each joint Weight 0.788 kg	
		Tap-off outlet cover IP 55	
1	51500160	6 per 3 m straight length Weight 0.061 kg	
		Suspension bracket	
1	51002002	Universal fixing brackets enab trunking to be either suspended or wall mounted 1 per 2 m Weight 0·1 kg	ole 10
	1	1 51500161 1 51500160	End cover IP 55 End covers are fitted to the last length in each run to maintain IP 55 protection Weight 0.57 kg Joint cover IP 55 One for each joint Weight 0.788 kg Tap-off outlet cover IP 55 6 per 3 m straight length Weight 0.061 kg Suspension bracket Universal fixing brackets enable trunking to be either suspended or wall mounted 1 per 2 m



technical information

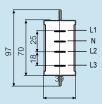
■ General features

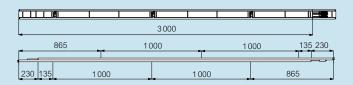
MS is fully compliant with IEC 61439-6 (BS EN 61439-6) Specifically, the rated current of the Zucchini busbar trunking system is always referred to the average ambient temperature of $40^{\circ}\mathrm{C}$ (NB: the standard requires $35^{\circ}\mathrm{C}$), thus offering the market suitably oversized products

■ Trunking lengths

The components and the features of the MS trunking lengths are :

- a casing made of Senzimir quality galvanised steel, with a sheetmetal thickness that allows its use as the protective earth (PE) and ensures the electrical continuity during mounting with no added accessories
- section bar dimensions: 39 x 97 mm
- number of conductors: 4 with the same section 3P + N available for capacities 63 A, 100 A and 160 A
- separation between the conductors using plastic insulating devices, reinforced with 20% of glass fibres, which ensure a V1 selfextinguishing degree (according to UL94) and are in compliance with the glow-wire test according to IEC 60695-2-10
- tap-off outlets with a constant centre distance of 1 m on both sides of the busbar (3 + 3 outlets every 3 m), set up for connection to tap-off boxes
- an electric joint block, with silver-plated copper contacts for automatically connecting live parts and the PE (protective earth) Quick connection between straight lengths. One operation provides an electrical and mechanical connection, whilst at the same time, IP 40 protection is guaranteed. The upgrade to IP 55 is easily achieved by adding joint covers and outlet covers. Flame retardant in compliance with the IEC 60332-3 standard
- trunking lengths with fire barrier (internal + external) are used when fire-resistant walls need to be passed through. The lengths fitted with a fire barrier have been lab-tested (in accordance with DIN 4102-9 and EN 1366-3) in order to confirm that, if correctly installed, they will maintain the essential fire-resistant features of the wall
- trunking lengths with thrust unit are provided with a device which blocks the conductors from slipping when supporting the weight of the riser (when installed vertically). This type of length is required for 10 m riser intervals

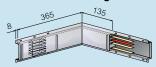




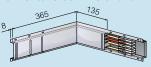
■ Trunking components

IP 55 (according to BS EN 60529)

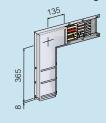
Horizontal elbow - right hand



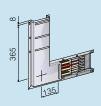
Horizontal elbow - left hand



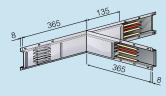
Vertical elbow - right hand



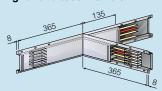
Vertical elbow - left hand



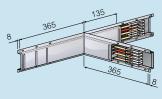
Right hand tees - male



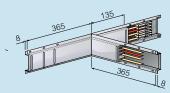
Right hand tees - female



Left hand tees - female



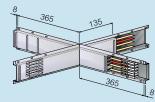
Left hand tees - male



Flexible elbow



Crossovers



All dimensions (mm) are nominal

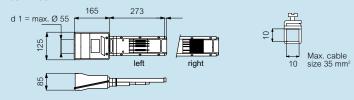
■ End feed units

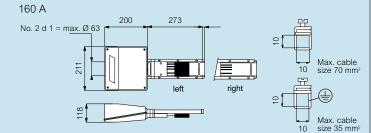
Installation is carried out with a quick junction connection

The feed units have terminals for the connection of copper cables for sections of up to 35 mm² for the 63/100 A feed unit and 70 mm² for the 160 A feed unit

The entrance point of the cables is positioned at the end of the feed unit

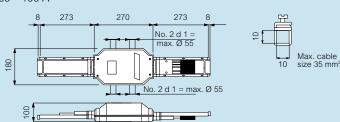
63 - 100 A

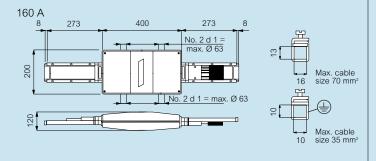




■ Centre feed units

63 - 100 A





Tap-off boxes

Used to connect and energise single phase and three phase loads up to 63 A. Features include:

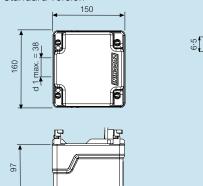
- the PE contact (protective earth) is the first to make an electrical connection when inserting the box into the outlet and it is the last to disconnect when removing
- compliance with all insulating plastic components according to the glow-wire test (IEC 60695-2-10) with V1 self-extinguishing degree (UL94)
- standard IP 55 degree of protection without using additional accessories
- · can be inserted and removed when the busbar is energised and when the fixture is under load, up to a capacity of 32 A

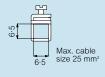
These boxes are available in a wide range of versions:

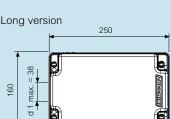
- 63 A empty boxes (only with a terminal board for connecting cables), with an internal DIN rail and transparent door
- 16 A available with a set of three cylindrical fuse carriers (10·3 x 38 mm)
- 16/32 A available with a set of three cylindrical fuse carriers DIAZED (D01: 16 A; D02: 32 A);
 50 A available with cylindrical fuse carriers (14 x 51 mm)
 63 A available with 4-7-16 DIN mod.
 16 to 63 A available with a disconnection device integral with the

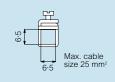
- cover

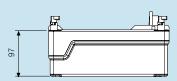
Standard version

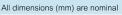






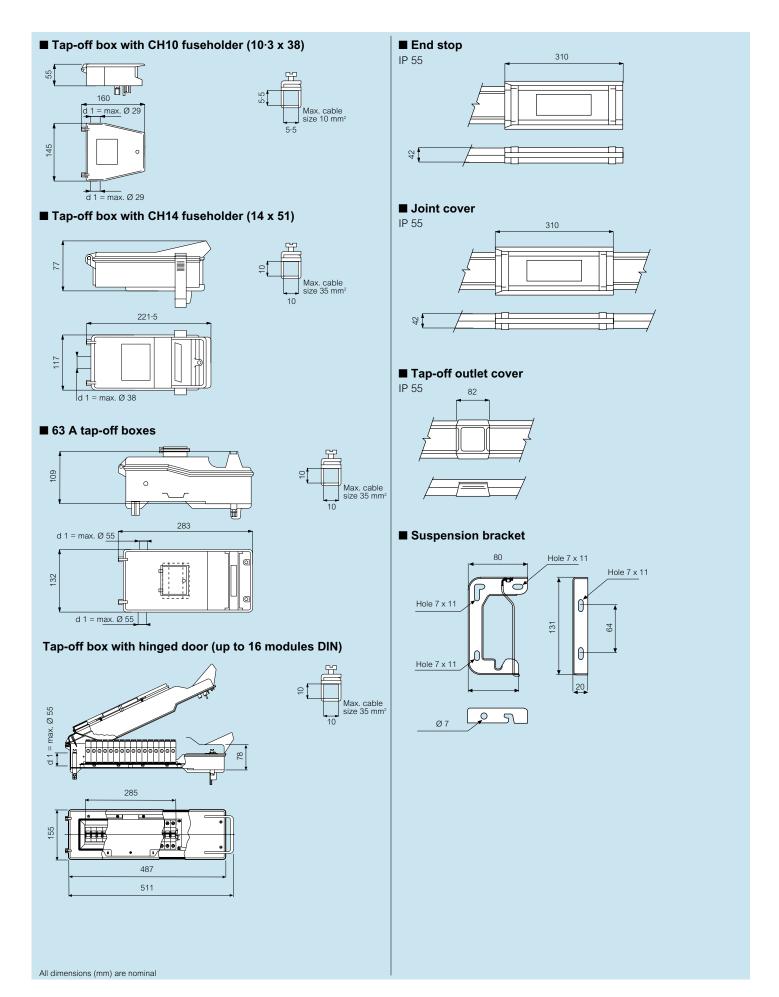








technical information



technical data

Complies to : IEC 61439-6 (BS EN 61439-6)

Suitable for the following climates : Constant humid climate (IEC 60068 2 - 11) Cyclical humid climate (IEC 60068 2 - 30)

Short circuit protection for Zucchini product ranges (In≤100 A)
Zucchini busbar systems with a nominal current less or equal to 100
A (LB PLUS / MS 63 and 100 A) are correctly protected against short circuit effects through an MCB (Miniature Circuit Breaker) with a nominal current less or equal to the one of the busbar
This protection is assured up to MCB short circuit withstand

The busbar trunking systems LB PLUS / MS $63\ \rm and\ 100\ A$ are flame retardant in compliance with IEC 60332-3

Rating (A)		63	100	160
Live conductors	No.	4	4	4
Casing overal dimension	A x B (mm)	39 x 97	39 x 97	39 x 97
Rated current	In (A)	63	100	160
Cross-section of conductors (3P + N)	S (mm²)	26	26	39
Cross-section of protective conductor eq.	Cu Spe (mm²)	21	21	21
Operational voltage	Ue (V)	400	400	400
Insulation voltage	Ui (V)	750	750	750
Rated frequency	f (Hz)	50/60	50/60	50/60
Rated short-time current (0·1 s)	Icw (kA)rms	3⋅5	5	5.5
Peak current	lpk (kA)	5.25	10	10
Maximum thermal limit	I ² † (A ² s x 106)	1.225	2.500	3.025
Phase resistance	R ₂₀ (mΩ/m)	1.250	0.837	0.478
Phase reactance (50Hz)	X (mΩ/m)	0.366	0.247	0.247
Phase impedance	Z (mΩ/m)	1.302	0.873	0.538
Resistance of the protective bar	Rpe (mΩ/m)	0.857	0.857	0.857
Reactance of the protective bar (50Hz)	XPE (mΩ/m)	0.102	0.102	0.102
Resistance of the fault loop	R _o (mΩ/m)	2.11	1.69	1.34
Reactance of the fault loop (50Hz)	X ₀ (mΩ/m)	0.468	0.349	0.349
Impedance of the fault loop	Z _o (mΩ/m)	2·16	1.73	1.38
	$\Delta V (V/m/A)10^{-3} \cos \varphi = 0.70$	1.102	0.806	0.547
$\Delta V_{1F} = \frac{1}{2} (2 R_{20} \cos \varphi + 2 X \operatorname{sen} \varphi)$	$\Delta V (V/m/A)10^{-3} \cos \varphi = 0.75$	1.148	0.842	0.546
2	$\Delta V (V/m/A)10^{-3} \cos \varphi = 0.80$	1.191	0.875	0.579
Voltage drop with distributed load (k)	$\Delta V (V/m/A)10^{-3} \cos \varphi = 0.85$	1.231	0.906	0.591
√2	$\Delta V (V/m/A)10^{-3} \cos \varphi = 0.90$	1.264	0.933	0.600
$\Delta V_{3F} = \sqrt{\frac{3}{2}} \left(R_{20} \cos \varphi + X \operatorname{sen} \varphi \right)$	$\Delta V (V/m/A)10^{-3} \cos \varphi = 0.95$	1.288	0.954	0.602
2	$\Delta V (V/m/A)10^{-3} \cos \varphi = 1.00$	1.251	0.934	0.563
Straight length weight	p (kg/m)	2.0	2.5	2.8
Fire load	(kWh/m)	1.64	1.64	1.64
Protection degree	IP	40/55	40/55	40/55
Losses for the Joule effect at full load	P (W/m)	17-21	32.34	49.93
Min./max. ambient temperature	† (°C)	-5/+50	-5/+50	-5/+50

Temperature rating schedule										
Mean room temperature (°C)	15	20	25	30	35	40	45	50	55	60
K1 factor	1.15	1.12	1.08	1.05	1.025	1	0.975	0.95	0.93	0.89

Multiplier coefficient of nominal rating for room temperature values different from 40°C