

Marshall Tufflex

Cable Management



www.marshall-tufflex.com

Data Compliant Trunking Systems



About Marshall Tufflex

Marshall-Tufflex is the UK's leading manufacturer of cable management products.

We manufacture and supply a broad range of cable management products to ensure that, whatever the design and specification; there will always be the perfect product to suit. We work closely with electrical consultants, contractors and clients in order to provide the best possible technical and sales support.

Marshall-Tufflex products are designed to meet the latest BS EN ISO standards and to accommodate all building designs and construction parameters. Our bespoke solutions can also be designed and pre-fabricated to meet individual requirements and save time on site.

Data trunking systems from Marshall-Tufflex

Because you have to accommodate the increasing performance levels of current and future data networks, you need a cable containment system that measures up to those demands and offers the flexibility for reconfiguration whilst having a large data capacity for the ever increasing demand.

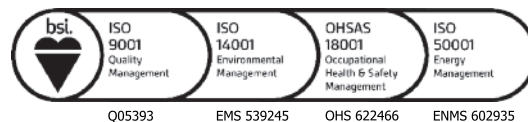
Decisions on the right system for any application are based on many factors. Marshall-Tufflex has a wide selection of data perimeter trunking systems, so whatever your application, we are confident we have a solution for you.

- ⚡ Bend radius controls
- ⚡ Steel screening divider to BS EN 50174-2:2009+A2:2014
- ⚡ 50mm power/data separation to BS EN 50174-2:2009+A2:2014
- ⚡ Full compartment copper spray screening (to assist in meeting EMC Directive) with NO reduction of compartment capacity
- ⚡ Adjustable depth data boxes and frames
- ⚡ Accessories to accommodate LJ6 (6C) and Euromod data modules
- ⚡ Trunking systems (Sterling and Sterling XL) that can be extended to accommodate any number of data cables

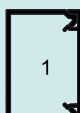
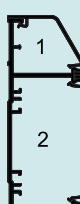
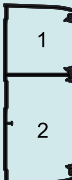


Standards

Marshall-Tufflex is committed to excellence and is recognised by the BSI as a firm of Assessed Capability for Quality Management Systems to BS EN ISO 9001:2008, Environmental Management Systems to BS EN ISO 14001:2004, Energy Management Systems to BS EN ISO 50001:2011 and Occupational Health and Safety Systems to BS OHSAS 18001:2007.



Data Trunking from Marshall-Tufflex

System		Dimensions		Cable Capacity based on typical values for Ø6.5mm, Ø7.0mm and Ø8.4mm data cables*											
1 compartment trunking	MINI PVC-U		MMT4: 38 x 25mm		Comp 1										
				MMT4	Ø6.5mm Ø7.0mm Ø8.4mm	10 8 6									
	MAXI PVC-U		MTRS50: 50 x 50mm	MTRS50	Ø6.5mm Ø7.0mm Ø8.4mm	28 23 16	With dividers Comp 1 Comp 2 Comp 3								
					MTRS75: 75 x 75mm	MTRS75	Ø6.5mm Ø7.0mm Ø8.4mm	66 55 38	31 26 18	31 26 18	- - -				
							MTRS100: 100 x 100mm	MTRS100	Ø6.5mm Ø7.0mm Ø8.4mm	122 102 71	33 28 19	20 17 12	57 48 33		
			COMPACT 1 & 2 PVC-U		Compact 1: 130 x 50mm	Compact 1			Ø6.5mm Ø7.0mm Ø8.4mm	18 15 10	Comp 1		Comp 2 NO BOX WITH BOX		
									Compact 2: 130 x 50mm	Compact 2	Ø6.5mm Ø7.0mm Ø8.4mm	21 18 12	53 44 31	21 17 12	
							Compact 3: 181 x 50mm	Compact 3			Ø6.5mm Ø7.0mm Ø8.4mm	53 44 31	21 18 12	52 43 30	20 17 12
TWIN165 PVC-U		160 x 65mm			Twin165	Ø6.5mm Ø7.0mm Ø8.4mm			46 38 27	Comp 1		Comp 2 NO BOX WITH BOX			
						210 x 57mm			Twin Plus	Ø6.5mm Ø7.0mm Ø8.4mm	66 56 39	34 28 20	66 56 39	34 28 20	

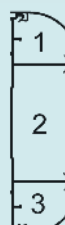
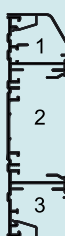
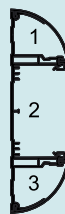
*All calculations allow for a 45% space factor

	Bend Radius Control	Internal Bend	External Bend	Flat Tee	Flat Angle	Slow Bend	For PVC-U ranges only Steel Insert Copper Spray	
	See Technical Information page or contact the Technical Team on 01424 856688						X	X
		Moulded	Moulded	Moulded	Moulded	Special#		
	25mm & 50mm						X	X (Dividing fillet can be copper sprayed)
		Moulded	Moulded	Fabricated	Moulded	Special#		
		Fabricated	Fabricated	Fabricated	Moulded	Special#		
		Fabricated	Fabricated	Fabricated	Fabricated	Special#		
	50mm						✓	Please contact the Technical Team on 01424 856688 for options regarding special screening requirements
		Moulded	Moulded	Fabricated	Fabricated	Special#		
		Moulded	Moulded	Fabricated	Fabricated	Special#		
	50mm						✓	✓
		Moulded	Moulded	Fabricated	Fabricated	Special#		
	25mm & 50mm						✓	✓
		Moulded	Moulded	Fabricated	Fabricated	Special#		
	25mm & 50mm						✓	✓
		Moulded	Moulded	Fabricated	Moulded	Special#		

#These products are made to special order and may be subject to minimum order quantities and longer lead times.

Data Trunking from Marshall-Tufflex

3+ compartment trunking

System	Dimensions	Cable Capacity based on typical values for Ø6.5mm, Ø7.0mm and Ø8.4mm data cables*								
STERLING PROFILE 1, 2 & 3 PVC-U 	 167 x 50mm		Comp 1	Comp 2 NO BOX WITH BOX		Comp 3				
		Profile 1	Ø6.5mm	18	54	19	18			
			Ø7.0mm	15	45	16	15			
			Ø8.4mm	10	31	11	10			
		Profile 2	Ø6.5mm	18	54	19	22			
			Ø7.0mm	15	45	16	18			
			Ø8.4mm	10	31	11	13			
		Profile 3	Ø6.5mm	22	54	19	22			
			Ø7.0mm	18	45	16	18			
			Ø8.4mm	13	31	11	13			
		STERLING CURVE PROFILE PVC-U 	 167 x 50mm		Comp 1	Comp 2 NO BOX WITH BOX		Comp 3		
				Profile 1	Ø6.5mm	16	54	19	16	
Ø7.0mm	14				45	16	14			
Ø8.4mm	10				31	11	10			
Profile 1	Ø6.5mm			16	54	19	22			
	Ø7.0mm			14	45	16	18			
	Ø8.4mm			10	31	11	13			
STERLING PROFILE 3001, 3002 & 3003 ALUMINIUM 	 167 x 50mm				Comp 1	Comp 2 NO BOX WITH BOX		Comp 3		
				3001	Ø6.5mm	15	53	21	16	
					Ø7.0mm	12	44	18	14	
					Ø8.4mm	9	31	12	9	
				3002	Ø6.5mm	15	53	21	20	
		Ø7.0mm	12		44	18	16			
		Ø8.4mm	9		31	12	11			
		3003	Ø6.5mm	18	53	21	20			
			Ø7.0mm	15	44	18	16			
			Ø8.4mm	11	31	12	11			
		ODYSSEY PVC-U 	 180 x 57mm		Comp 1	Comp 2 NO BOX WITH BOX		Comp 3		
				Odyssey	Ø6.5mm	18	56	17	18	
Ø7.0mm	15				47	14	15			
Ø8.4mm	10				33	10	10			

*All calculations allow for a 45% space factor

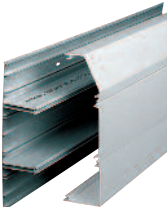
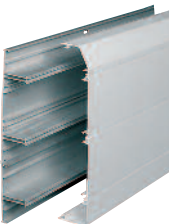
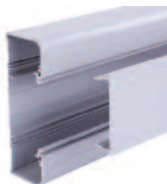
	Bend Radius Control	Internal Bend	External Bend	Flat Tee	Flat Angle	Slow Bend	For PVC-U ranges only Steel Insert Copper Spray	
	25mm & 50mm						✓	✓
		Moulded	Moulded	Moulded	Moulded	Special [#]		
		Moulded	Moulded	Fabricated	Fabricated	Special [#]		
		Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	25mm & 50mm						✓	✓
		Moulded	Moulded	Moulded	Moulded	N/A [†]		
		Moulded	Moulded	Moulded	Moulded	N/A [†]		
	25mm & 50mm						N/A	N/A
		Moulded	Moulded	Fabricated	Fabricated	Special [#]		
		Moulded	Moulded	Fabricated	Fabricated	Special [#]		
		Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	25mm, 50mm & 65mm						✓	✓
		Moulded	Moulded	Moulded	Moulded	N/A [†]		

[#] These products are made to special order and may be subject to minimum order quantities and longer lead times.

[†] Slow bends are not required as built-in cable guides within fittings are standard.

Data Trunking from Marshall-Tufflex

3+ compartment trunking

System	Dimensions	Cable Capacity based on typical values for Ø6.5mm, Ø7.0mm and Ø8.4mm data cables*								
STERLING XL PVC-U & ALUMINIUM 	 220 x 65mm		Comp 1		Comp 2 NO BOX WITH BOX		Comp 3			
		XL201	Ø6.5mm	39	67	35	39			
			Ø7.0mm	33	56	29	33			
			Ø8.4mm	23	39	20	23			
		XL202	Ø6.5mm	39	67	35	49			
			Ø7.0mm	33	56	29	41			
			Ø8.4mm	23	39	20	29			
		XL203	Ø6.5mm	49	67	35	49			
			Ø7.0mm	41	56	29	41			
			Ø8.4mm	29	39	20	29			
STERLING PROFILE 4-13 PVC-U 	 Profile 4 & 5: 218 x 50mm Profile 6: 269 x 50mm Profile 11, 12 & 13: 255 x 50mm		Comp 1 NO BOX WITH BOX		Comp 2 NO BOX WITH BOX		Comp 3 NO BOX WITH BOX	Comp 4		
		Profile 4	Ø6.5mm	18	-	54	19	52	17	-
			Ø7.0mm	15	-	45	16	43	14	-
			Ø8.4mm	10	-	31	11	30	10	-
		Profile 5	Ø6.5mm	22	-	54	19	52	17	-
			Ø7.0mm	18	-	45	16	43	14	-
			Ø8.4mm	13	-	31	11	30	10	-
		Profile 6	Ø6.5mm	52	17	54	19	52	17	-
			Ø7.0mm	43	14	45	16	43	14	-
			Ø8.4mm	30	10	31	11	30	10	-
		Profile 11	Ø6.5mm	18	-	54	19	50	15	18
			Ø7.0mm	15	-	45	16	42	13	15
			Ø8.4mm	10	-	31	11	29	9	10
		Profile 12	Ø6.5mm	18	-	54	19	50	15	20
			Ø7.0mm	15	-	45	16	42	13	17
			Ø8.4mm	10	-	31	11	29	9	12
		Profile 13	Ø6.5mm	20	-	54	19	50	15	20
			Ø7.0mm	17	-	45	16	42	13	17
			Ø8.4mm	12	-	31	11	29	9	12
ELEGANCE 170 ALUMINIUM 	 170 x 55		Comp 1		Comp 2 NO BOX WITH BOX		Comp 3			
		Elegance 170	Ø6.5mm	25	63	24	25			
			Ø7.0mm	21	53	20	21			
			Ø8.4mm	14	37	14	14			

*All calculations allow for a 45% space factor

Bend Radius Control	Internal Bend	External Bend	Flat Tee	Flat Angle	Slow Bend	For PVC-U ranges only Steel Insert Copper Spray	
25mm & 50mm						✓	Please contact the Technical Team on 01424 856688 for options regarding special screening requirements
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
25mm & 50mm						✓	Please contact the Technical Team on 01424 856688 for options regarding special screening requirements
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
	Moulded	Moulded	Fabricated	Fabricated	Special [#]		
25mm & 50mm						N/A	N/A
	Fabricated	Fabricated	Fabricated	Fabricated	Fabricated		

[#] These products are made to special order and may be subject to minimum order quantities and longer lead times.

[†] Slow bends are not required as built-in cable guides within fittings are standard.

Technical Information

Power and data segregation

It is important when installing power and data cables in the same installation that the installation complies with the relevant standard. If any conflicts in separation distances arise then the greater separation distance must always apply.

To comply with the correct separation distance between power and data cables please refer to BS EN 50174-2:2009+A2:2014 section 6.

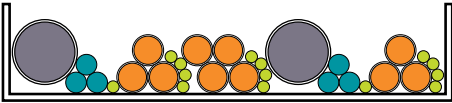
There are a number of factors that will affect the separation distance of power and data cables these are listed below:

- Total number of power circuits
- The total load on the power circuit
- The type of data cable being installed
- The installation method of the power and data cables

Every installation is different so it is important to refer to the installation standard for each installation to ensure compliance.

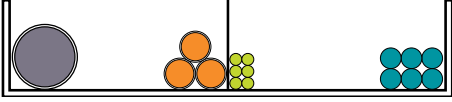
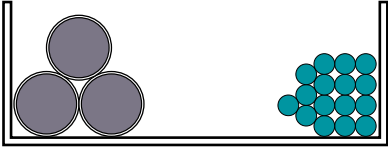
Understanding segregation methods

Incorrect Installation



All cables installed in same compartment with no separation.

Correct Installation

Cables separated by means of physical barrier in accordance with BS EN 50174-2:2009+A2:2014 section 6

Cables separated by minimum distance in accordance with BS EN 50174-2:2009+A2:2014 section 6

Key

 Main Power
 Fire Alarms
 ICT (Infrastructure Cabling Technology)
 Sensitive Circuits

Types of data cable – different categories of cable

Data cables are classified in a number of different categories such as Cat 5e and Cat 6 etc. Generally speaking the higher the category number the higher the performance specification. Data cable is backwards compatible so a Cat 6 installation will always perform to a higher specification than a Cat 5 installation. The basic principle of data cable is very similar across all the different categories and is based on 4 pair twisted cable which is shielded to protect from external EMI and alien or cross talk interference from adjacent cables.

45% Cable capacity

It is important to follow the Wiring Regulations when installing cables in trunking. By following the Wiring Regulations you minimise the potential of heat rise and cable damage and maintain data throughput when installing new circuits. For further information on trunking cable capacity and grouping factors please refer to the latest BS7671 Wiring Regulations.

Data cable comparison table

Data Cable Type	Frequency	Speed	Notes
Cat 5e	Up to 100MHz	Up to 1000MBps	Cat 5e has its limitations and will not be able to support emerging 10GBase-T Ethernet
Cat 6	Up to 250MHz	Up to 10GBps	Cat 6 will run at a much higher performance than Cat 5e supporting more than double the speed and frequency, running to a much tighter specification.
Cat 6a	Up to 500MHz	Up to 10GBps	Cat 6a is designed to support 10GBase-T over a maximum distance of 100 metres.
Cat 7	Up to 600MHz	Up to 10GBps	Cat 7 and Cat 7a data cables are shielded including both the individual cables and the overall cables being screened.
Cat 7a	Up to 1000MHz	Up to 10GBps	

Installation guidance

Laying vs pulling

It is important to consider the installation method prior to installing data cables. Incorrect method or poor installation techniques can alter the cable characteristics and degrade the overall specification of the data cable. When pulling cables into trunking systems it is important to note the manufactures maximum pulling force as this can reduce the minimum bend radii of the data cable. Laying data cables into a trunking system ensures that minimum bend radius can be achieved and that the data cables installed complies with the required specifications for the installation.

Types of screening available

Materials of screening

The shielding of data cables is important as this stops the signal generated within the data cable radiating and interfering with signals in nearby cables and circuitry. The shielding also protects the signal from surrounding cables and other external influences. The two main types of shielding material are metallic foil and metallic braid. A number of factors should be considered before selecting the type of shielding for an installation.

- The flexibility of the data cable
- The mechanical strength
- The required shield effectiveness
- Ease of stripping and terminating

Once the correct type of shielding has been selected it is important that the shielding is bonded correctly for it to be effective in protecting against signal interference.

Data cable types

Advantages/disadvantages

Advantages:

- Screened cables offer better protection against electromagnetic interference compared to un-screened data cables.
- Screened and unscreened cables work fine at 1Gigabit Ethernet data rates but screened data cables will outperform at data rates such as 10Gigabit due to their ability to support higher frequency transmissions.

Disadvantages:

- Unscreened data cables require a physical barrier and or separation distance between power cables must be increased.

Data aperture sizes – LJ6C and Euro modules

LJ6C data modules are suitable for use in trunking systems, floor boxes or any systems that has an industry standard LJ6C aperture. The aperture size for the LJ6C module is 22mm x 37mm but may differ slightly between manufacturers. The Euro data modules have a slightly larger aperture at 25mm x 50mm. Coordinating accessory plates can accommodate one or multiple Euro data modules.

PVC-U vs Aluminium trunking

Advantages/disadvantages

PVC-U trunking systems are low cost, light weight and can be easily fabricated whilst on site, however PVC-U is a non-conductive material so offers no protection against EMI. When using a PVC-U trunking for data installation it is important to segregate and screen the data cables from power and control cables.

This can be easily overcome by either using our range of conductive copper sprayed multi compartment trunking systems or by using the steel screening divider. Steel screening dividing strips can be easily retro fitted to an existing PVC-U trunking installation.

Aluminium trunking systems are lightweight and easy to handle and have high impact and mechanical strength compared to a PVC-U trunking systems installation. Aluminium trunking systems offer great protection against EMI especially at higher frequencies.

Both material options aid and support compliant installations.

Marshall-Tufflex Ltd
Churchfields Industrial Estate
Hastings
East Sussex
TN38 9PU
United Kingdom

T +44 (0)1424 856600

F +44 (0)1424 856611

E sales@marshall-tufflex.com

Technical Hotline: +44 (0)1424 856688

www.marshall-tufflex.com

**Republic of Ireland &
Northern Ireland distributor**

Core Electrical Ltd
17b Goldenbridge Industrial Estate,
Tyrconnell Road, Inchicore,
Dublin

T +353 (0)1453 7033

F +353 (0)1453 8911



In pursuance of our policy of continued improvement
Marshall-Tufflex reserves the right to change the design
or specification of its products without notification.

EL232/16031