MARSHALL-TUFFLEX
PVC-U Conduit

INSTALLATION GUIDE

UK OWNED
UK MANUFACTURER

Product Standards: BS EN 61386-1, BS EN 61386-21 (Rigid Insulating Conduit)

Quality Assurance: manufactured to BS EN ISO 9001

Classification: documents upon request, please contact Technical Sales on +44 (0)1424 856688 or email technical@marshall-tufflex.com

Operating Temperature: -5ºC to 60ºC

IP Rating: IP30

Transportation: Goods shall be transported in the horizontal plain to ensure no damage is incurred

Storage: Product shall be stored out of direct sunlight.

IET Wiring Regulations: Conduit wiring systems shall be installed in accordance with the IET Wiring Regulations (BS 7671) by a skilled or instructed person.

Accessories: Marshall-Tufflex offer the tools you need to simplify and improve installation. See the website for more information:

Bending Springs

Solvent Adhesive

Scan the QR code for further details or to download a datasheet for our Solvent Adhesive

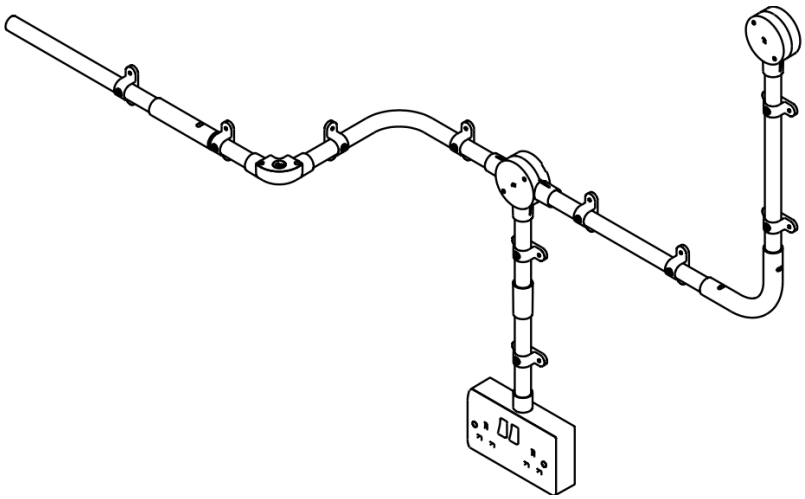
Pipe Cutters

Nylon Draw Tape

Installation:

Wiring Systems in escape routes: Marshall-Tufflex recommends the use of Firefly clips to aid compliance of regulation 521.11.202 to support wiring systems such they will not be liable to premature collapse in the event of a fire.

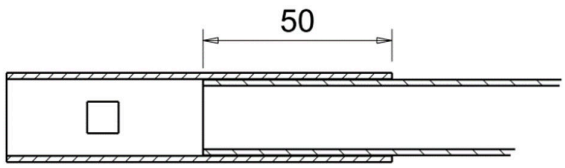
Planning: Establish layout, paying attention to; direction changes, feed positions and component spacing.



Expansion:

PVC-U expands and contracts at a uniform rate of approximately 5.25mm in a 3m length for a temperature change of 25ºC.

When mounted on the surface expansion should be considered to ensure no gaps or bowing become evident during varying temperatures. The MEC2 and MEC3 expansion couplers as shown right should be fixed at the short end and the larger end allowed to be a sliding fit over the connecting length of conduit. As a guide insert in approximately only 50mm.

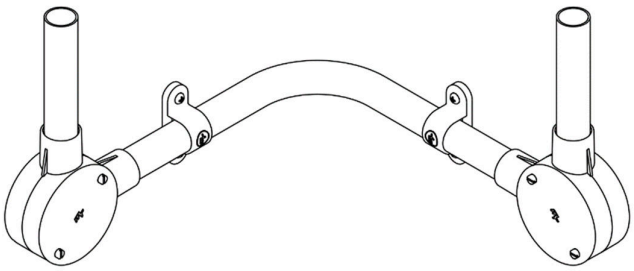


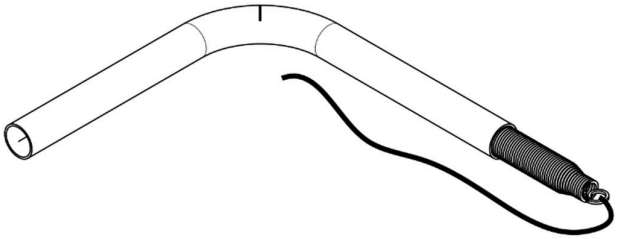
Bending (90º):

Important:
***Note 1**: Ensure you are using MT supplied springs and the correct sizes. Using incorrect springs will results in unwanted damage to the conduit profile.

Note 2: Do NOT bend the conduit without a spring or use a damaged spring.

Note 3: Minimum internal bend radius should not be less than 2.5 x pipe outside diameter.





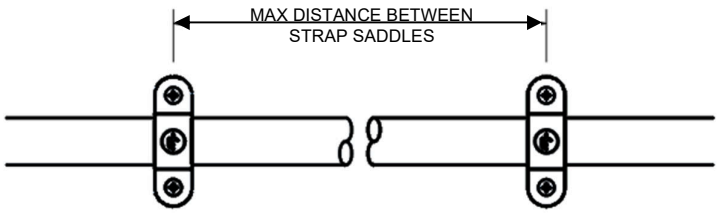
1. Determine required length and add additional 200mm.
2. Cut profile using MTC45 for a precise and clean cut. Note: Deburr ends when not using a cutter.
3. Determine location of bend along the profile and mark.
4. Insert bending spring* to required position.
   TIP: It is recommended that you add a length of cord or single core cable to the hook end to help with removing the spring from the conduit length.
5. Warm conduit using a clean rag on the section to be bent. This is to build up some heat and prevent stressing the material and make it easier to bend.
6. Hold your hands approx. 900mm apart hold the ends of the conduit and bend to just over 90º. Let the conduit relax and bend once more.
7. Remove the spring and leave for a couple of minutes.

Strap Saddle Spacing:

MT conduit can be fixed using saddles or clips. The distance between fixings should not exceed those shown in the table below:

Nominal Conduit Size (mm)	Maximum distance between supports (m)	
	Horizontal	Vertical
Greater than 16 but not exceeding 25	1.5	1.75
Greater than 25 but not exceeding 40	1.75	2.0
Greater than 40	2.0	2.0

Note:
1. Supports should be positioned within 300mm of bends or fittings.
2. Minimum internal bend radius should not be less than 2.5 x pipe outside diameter.



The fixings used to mount the strap saddles to the substrate should be sufficient for the task and advice should be sought from the manufacturer.

UK CA CE **Marshall-Tufflex Ltd,** 55-65 Castleham Road,
St Leonards on Sea, TN38 9NU
Republic of Ireland Importer, Core Distribution Ireland, 17b Goldenbridge Industrial Estate,
Tyrconnell Road, Inchicore, Dublin 8, D08 WD50, Ireland

Technical Hotline: +44 (0) 1424 856688
sales@marshall-tufflex.com
www.marshall-tufflex.com

Solvent Adhesive

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Cable Capacities of Conduit:

To aid in compliance of the 18th Edition IET Wiring Regulations Chapter 52: Selection and erection of wiring systems, regulation 522.8 Other Mechanical stresses the following guidance is given:

The number of cables drawing into a conduit system shall be such that no damage is caused to the sheath or insulation of the cables and their terminations. To help with this regulation the following tables and factors are given to determine the maximum number of cables that can be installed using a 'cable factor'.

This is in two sections:

1. **Short Runs -** Single core thermoplastic (PVC) insulated cables in straight runs of conduit not exceeding 3m in length. (Table A1 and A2 below)

   For each cable that is intended to be used find the relevant cable factor from table A1, add the factors together and compare the total with the factors in table A2.

   The minimum conduit size is that having a factor equal to or greater than the total sum of the cable factors.

Table A1

Type of Conductor	Conductor cross-sectional area (mm²)	Cable Factor
Solid	1	22
	1.5	27
	2.5	39
Stranded	1.5	31
	2.5	43
	4	58
	6	88
	10	146
	16	202
	25	385

Table A2

Conduit Diameter (mm)	Conduit Factor
20	460
25	800
32	1400
38	1900
50	3500

2. **Long runs with bends -** Single core thermoplastic (PVC) insulated cables in straight runs of conduit exceeding 3m in length, or of any length incorporating bends or sets. (Table 3 and 4)

   For each cable that intended to be used find the relevant cable factor from table B1, add the factors together and compare the total with the factors in table B2. Taking in to account the length of run and number of bends and sets in a run.

   The minimum conduit size is that having a factor equal to or greater than the total sum of the cable factors.

Table B1

Type of Conductor	Conductor cross-sectional area (mm²)	Cable Factor
Solid or Stranded	1	16
	1.5	22
	2.5	30
	4	43
	6	58
	10	105
	16	145
	25	217

Table B2

Length of run (m)	Straight			One Bend			Two Bends			Three Bends			Four Bends		
	20	25	32	20	25	32	20	25	32	20	25	32	20	25	32
1	Covered in Tables 'A1' and 'A2'			303	543	947	286	514	900	256	463	818	213	388	692
1.5				294	528	923	270	487	857	233	422	750	182	333	600
2				286	514	900	256	463	818	213	388	692	159	292	529
2.5				278	500	878	244	442	783	196	358	643	141	260	474
3				270	487	857	233	422	750	182	333	600			
3.5	290	521	911	263	475	837	222	404	720	169	311	563			
4	286	514	900	256	463	818	213	388	692	159	292	529			
4.5	282	507	889	250	452	800	204	373	667	149	275	500			
5	278	500	878	244	442	783	196	358	643	141	260	474			
6	270	487	857	233	422	750	182	333	600						
7	263	475	837	222	404	720	169	311	563						
8	256	463	818	213	388	692	159	292	529						
9	250	452	800	204	373	667	149	275	500						
10	244	442	783	196	358	643	141	260	474						

For 38mm diameter use 1.4 x (32mm factor)
For 50mm diameter use 2.6 x (32mm factor)