TECHNICAL DATA SHEET

Flexible non-metallic conduit systems

Cable carrying capacity (wire fill)

40% of the cross sectional area (CSA) - UK Wiring regulations BS7671 recommend that the total cross sectional area of the sum of individual cables shall not exceed 40% of the cross sectional area of the conduit based on 'using 3 or more cables'.

These instructions enable you to select the correct nominal diameter of non-metallic conduit, depending on the number and overall diameter of the cables to protect.

Instructions to define the nominal diameter of a non-metallic conduit:

- **Step 1:** Establish the number and size of each wire to be run in the conduit
- **Step 2:** Look on the Cross Sectional Area (CSA) chart (table 1), look up the CSA taken up by each of the wires from Step 1
- **Step 3:** Add all the CSA values together (Total CSA)
- **Step 4:** Look on the conduit fill value chart (table 2) and choose a conduit with a 40% fill value higher than the total CSA from Step 3

Example - What size of conduit to use?

- **Step 1:** 4 x 2.5mm cables, 2 x 10mm cables, and 3 x 25mm cables
- **Step 2:**
  - The CSA of Four 2.5mm cables is 19.64 (4 x 4.91)
  - The CSA of Two 10mm cables is 157.08 (2 x 78.54)
  - The CSA of Three 25mm cables is 1472.61 (3 x 490.87)
- **Step 3:** Total of these groups is 19.64 + 402.12 + 1472.61 = 1649.33
- **Step 4:** Using Table 2, we chose the size of non-metallic conduit with 40% fill value higher than 1649.33: 106mm

NOTE: The information given above relates to PA - Standard weight conduit and Adaptalok fittings. It is given in good faith and should be used only as a guide in conjunction with the relevant wiring regulations.

Table 1 - Cross Sectional Area (CSA) chart

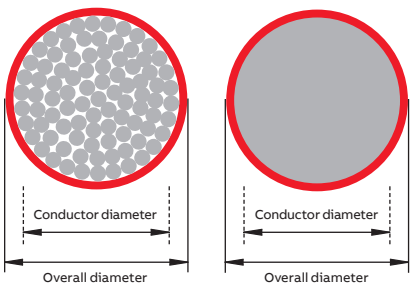
Cross sectional area (CSA) [mm²]	Overall Diameter [mm]	CSA [mm²]
	1	0.79
	1.5	1.77
	2.5	4.91
	4	12.57
	6	28.27
	10	78.54
	16	201.06
	25	490.87
	35	962.11
	50	1963.50

Table 2 - Wire fill of non-metallic conduit

Nominal diameter (mm)	100% fill value	40% fill value
10	33.2	13
13	72.4	29
16	109.4	44
18	158.4	63
21	213.8	86
28	369.8	148
34	602.6	241
42	973.1	390
54	1698.2	680
80	3520	1410
106	6500	2600

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Flexible metallic conduit systems

Cable carrying capacity (wire fill)

40% of the cross sectional area (CSA) - UK Wiring regulations BS7671 recommend that the total cross sectional area of the sum of individual cables shall not exceed 40% of the cross sectional area of the conduit based on 'using 3 or more cables'.

These instructions enable you to select the correct nominal diameter of metallic conduit, depending on the number and overall diameter of the cables to protect.

Instructions to define the nominal diameter of a metallic conduit:

- **Step 1:** Establish the number and size of each wire to be run in the conduit
- **Step 2:** Look on the Cross Sectional Area (CSA) chart (table 1), look up the CSA taken up by each of the wires from Step 1
- **Step 3:** Add all the CSA values together (Total CSA)
- **Step 4:** Look on the conduit fill value chart (table 2) and choose a conduit with a 40% fill value higher than the total CSA from Step 3

Example - What size of conduit to use?

- **Step 1:** 4 x 2.5mm cables, 3 x 10mm cables, and 6 x 6mm cables
- **Step 2:**
  - The CSA of Four 2.5mm cables is 19.64 (4 x 4.91)
  - The CSA of Three 10mm cables is 235.62 (3 x 78.54)
  - The CSA of Six 6mm cables is 169.62 (6 x 28.27)
- **Step 3:** Total of these groups is 19.64 + 235.62 + 169.62 = 424.88
- **Step 4:** Using Table 2, we chose the size of metallic conduit with 40% fill value higher than 424.88: 50mm

NOTE: The information given above relates to SPL liquidtight conduit in combination with M-Type fittings.It is given in good faith and should be used only as a guide in conjunction with the relevant wiring regulations.

Table 1 - Cross Sectional Area (CSA) chart

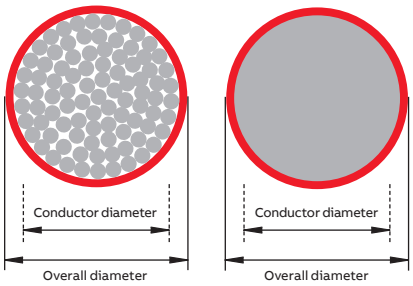
Cross sectional area (CSA) [mm²]	Overall Diameter [mm]	CSA [mm²]
	1	0.79
	1.5	1.77
	2.5	4.91
	4	12.57
	6	28.27
	10	78.54
	16	201.06
	25	490.87
	35	962.11
	50	1963.50

Table 2 - Wire fill of metallic conduit

Nominal diameter (mm)	100% fill value	40% fill value
12	25.5	10.2
16	83.3	33.3
20	160.6	64.2
25	243.3	97.3
32	452.4	181
40	855.3	342.1
50	1164.2	465.7
63	1963.5	785.4
75	3473.3	1389.3

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