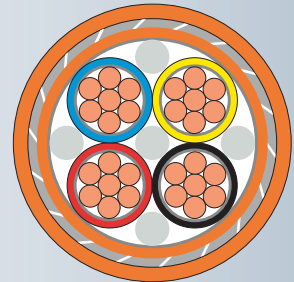


## FR-MI 110 / Multicore / Steel Wire Armour (SWA)

BETAflam® Fire Resistant Safety Cables 0.6/1 kV, acc. to BS 6387 C.W.Z., LSOH



### Advantages

- High safety standard: BS 6387 C.W.Z, fully tested by LPCB
- Halogen and silicone free
- Operating temperature up to + 110 °C
- In compliance with RoHS directive
- Robust cable with increased resistance to mechanical impact

### Application

Armoured Power Cable 0.6 / 1 kV with improved fire performance and circuit integrity. Suitable for fixed installation in areas with increased demand to mechanical stress. Typical applications: Fire Alarm circuits, Fire Detection circuits, Emergency signal / Control circuits, Fire fighting systems (water pumps), Smoke Exhaust Systems etc. Especially recommended in areas where human and animal live as well as valuable property are exposed to risk in case of fire.

### Construction

- **Conductor:** Bare annealed copper, acc. IEC 60228 class 2
- **Flame barrier:** MICA tape
- **Insulation:** BETAflam® mineral copolymer, cross-linked
- **Inner covering:** Glass fiber tape
- **Inner sheath:** BETAflam® mineral copolymer
- **Armouring:** Steel wire armour (SWA)
- **Core identification:** See technical information (other colours on request)
- **Sheath:** BETAflam® mineral copolymer, Orange (other colours on request)

### Technical specification

- **Rated voltage:**  $U_0/U$  0.6 / 1 kV
- **Test voltage:** 4 kV / 50 Hz
- **Temperature range:**
  - Operation temperature from -30 °C to + 110 °C
  - Laying temperature from -5 °C to + 70 °C
  - Short circuit temperature + 280 °C (temperature peak ≤ 5 s)

### Bending radius:

During laying > 15 × outer Ø

Fixed installed > 9 × outer Ø

- **Laying conditions:** For fixed indoor installation in trays, ladders, ducts or concretes. Direct laying in earth or water only in water-proof dry tubes/ducts.

Outdoor use if protected from direct sunlight only. Special designs with additional UV or anti termite-resistance are available on request.

### Material properties

- **Halogen free:** IEC 60754-1; BS EN 50267-2-1; VDE 0482-267-2-1
- **No corrosive gases:** IEC 60754-2; BS EN 50267-2-2; VDE 0482-267-2-2
- **No toxic gases:** NES 02-713; NF C20-454; BS EN 50267-2-1
- **Low smoke density:** IEC 61034-1 & -2; BS EN 61034-2; VDE 0482-1034-1 & -2

### Fire performance

- **Flame retardant:** IEC 60332-1; BS EN 60332-1; VDE 0482-332-1
- **No flame propagation:** IEC 60332-3-24; EN 60332-3-24; VDE 0482-266-1 & -2-4
- **Circuit integrity:**
  - BS 6387 C.W.Z. / Ø ≤ 20 mm
  - IEC 60331-21; VDE 0472-814

Cross section mm <sup>2</sup>	Part no. LSA	Number of cores	Conductor stranding n×∅mm	Nominal diameter under SWA mm	Nominal diameter over SWA ∅mm	Nominal thickness sheath mm	Nominal diameter cable ∅mm	Approx. weight kg / km	Current Rating <sup>1</sup>		AC Voltage Drop		Fire Load kWh / m
									1 phase <sup>2</sup> A	3 phase <sup>2</sup> A	1 phase <sup>2</sup> mV / Am	3 phase <sup>2</sup> mV / Am	
2.5	224529	2C+E	7×0.68	11.5	15.3	1.8	18.9	929	36		15.36		0.81
2.5	∅	3C	7×0.68	11.5	15.3	1.8	18.9	929		32		13.30	0.81
2.5	301914	3C+E	7×0.68	12.9	16.7	1.8	20.3	1070		32		13.30	0.96
2.5	301915	4C	7×0.68	12.9	16.7	1.8	20.3	1070		32		13.30	0.96
2.5	∅	4C+E	7×0.68	14.1	17.9	1.8	21.5	1205					1.10
4	224530	2C+E	7×0.85	13.1	16.9	1.8	20.5	1084	49		9.64		0.94
4	303204	3C	7×0.85	13.1	16.9	1.8	20.5	1084		42		8.34	0.94
4	301916	3C+E	7×0.85	14.6	16.6	1.8	20.2	953		42		8.34	1.12
4	224536	4C	7×0.85	14.6	16.6	1.8	20.2	953		42		8.34	1.12
4	∅	4C+E	7×0.85	16.2	18.2	1.8	21.8	1085					1.32
6	224531	2C+E	7×1.04	14.7	16.7	1.8	20.3	956	63		6.60		1.09
6	∅	3C	7×1.04	14.7	16.7	1.8	20.3	956		54		5.63	1.09
6	301917	3C+E	7×1.04	16.3	18.3	1.8	21.9	1106		54		5.63	1.29
6	301918	4C	7×1.04	16.3	18.3	1.8	21.9	1106		54		5.63	1.29
6	∅	4C+E	7×1.04	18.1	20.1	1.8	23.7	1315					1.55
10	301919	2C+E	7×1.32	18.4	20.4	1.8	24.0	1372	86		3.95		1.65
10	303203	3C	7×1.32	18.4	20.4	1.8	24.0	1372		75		3.42	1.65
10	∅	3C+E	7×1.32	20.2	22.2	1.8	25.8	1552		75		3.42	1.79
10	224537	4C	7×1.32	20.2	22.2	1.8	25.8	1552		75		3.42	1.79
10	∅	4C+E	7×1.32	22.1	24.1	1.8	27.7	1817					2.08
16	224532	2C+E	7×1.72	20.4	22.4	1.8	26.0	1673	115		2.56		1.87
16	∅	3C+E	7×1.72	22.3	24.3	1.8	27.9	1907		100		2.21	2.00
16	224538	4C	7×1.72	22.3	24.3	1.8	27.9	1907		100		2.21	2.00
16	∅	4C+E	7×1.72	24.5	26.5	1.8	30.1	2264					2.35
25	224533	2C+E	7×2.15	23.6	25.6	1.8	29.2	2200	149		1.69		2.31
25	303202	3C	7×2.15	26.2	29.0	1.8	32.6	2976		127		1.46	2.72
25	∅	3C+E	7×2.15	26.2	29.0	1.8	32.6	2976		127		1.46	2.72
25	224539	4C	7×2.15	26.2	29.0	1.8	32.6	2976		127		1.46	2.72
25	∅	4C+E	7×2.15	29.0	31.8	1.8	35.4	3405					2.99
35	301920	2C+E	7×2.52	26.1	28.9	1.8	32.5	2931	185		1.26		2.59
35	∅	3C+E	7×2.52	29.1	31.9	1.8	35.5	3588		158		1.10	3.11
35	223874	4C	7×2.52	29.1	31.9	1.8	35.5	3588		158		1.10	3.11
35	∅	4C+E	7×2.52	32.7	35.5	1.8	39.1	4370					3.83
50	223871	2C+E	19×1.79	29.9	32.7	1.8	36.3	3677	225		0.99		3.20
50	∅	3C+E	19×1.79	33.5	36.3	1.8	39.9	4561		198		0.85	3.91
50	223875	4C	19×1.79	33.5	36.3	1.8	39.9	4561		198		0.85	3.91
70	223872	2C+E	19×2.15	34.0	36.8	1.8	40.4	4708	284		0.74		3.90
70	223873	3C	19×2.15	34.0	36.8	1.8	40.4	4708	284		0.74		3.90
70	∅	3C+E	19×2.15	37.9	40.7	2.1	44.9	5863		246		0.64	4.63
70	301921	4C	19×2.15	37.9	40.7	2.1	44.9	5863		246		0.64	4.63
95	224535	2C+E	19×2.52	39.3	42.1	2.1	46.3	6120	352		0.58		5.12
95	301922	3C+E	19×2.52	43.1	45.9	2.1	50.1	7534		298		0.50	6.02
95	223876	4C	19×2.52	43.1	45.9	2.1	50.1	7534		298		0.50	6.02
120	∅	2C+E	37×2.02	40.1	42.9	2.1	47.1	7025	410		0.49		5.43
120	∅	3C+E	37×2.02	48.2	51.0	2.5	56.0	9248		346		0.43	7.04
120	301923	4C	37×2.02	48.2	51.0	2.5	56.0	9248		346		0.43	7.04
150	∅	2C+E	37×2.23	47.6	50.4	2.5	55.4	8739	473		0.44		6.76
150	∅	3C+E	37×2.23	53.1	55.9	2.5	60.9	11035		399		0.38	8.73
150	223877	4C	37×2.23	53.1	55.9	2.5	60.9	11035		399		0.38	8.73

∅ = On request

1 AC circuit, max. conductor temperature 90 °C

2 Open tray, touching

Cross section	Partno.	Number of cores	Conductor stranding	Nominal diameter under SWA	Nominal diameter over SWA	Nominal thickness sheath	Nominal diameter cable	Approx. weight	Current Rating <sup>1</sup>		AC Voltage Drop		Fire Load
									1 phase <sup>2</sup>	3 phase <sup>2</sup>	1 phase <sup>2</sup>	3 phase <sup>2</sup>	
mm <sup>2</sup>	LSA		n × Ø mm	mm	Ø mm	mm	Ø mm	kg / km	A	A	mV / Am	mV / Am	kWh / m
185	Ø	2C+E	37 × 2.49	52.7	55.5	2.5	60.5	10522	542		0.39		8.44
185	Ø	3C+E	37 × 2.49	58.7	61.5	2.9	67.3	13480		456		0.33	10.37
185	223878	4C	37 × 2.49	58.7	61.5	2.9	67.3	13480		456		0.33	10.37
240	Ø	2C+E	61 × 2.23	59.1	61.9	2.9	67.7	13182	641		0.34		10.04
240	Ø	3C+E	61 × 2.23	65.9	68.7	2.9	74.5	16791		538		0.28	12.93
240	223879	4C	61 × 2.23	65.9	68.7	2.9	74.5	16791		538		0.28	12.93
300	Ø	2C+E	61 × 2.52	68.9	71.7	3.3	78.3	17266					13.85
300	Ø	3C+E	61 × 2.52	77.3	80.1	3.7	87.5	22151					17.63
300	223880	4C	61 × 2.52	77.3	80.1	3.7	87.5	22151					17.63
400	Ø	2C+E	61 × 2.85	77.1	79.9	3.3	86.5	21128					16.95
400	Ø	3C+E	61 × 2.85	85.8	88.6	3.7	96.0	26923					21.05
400	223881	4C	61 × 2.85	85.8	88.6	3.7	96.0	26923					21.05

Ø = On request

1 AC circuit, max. conductor temperature 90 °C

2 Open tray, touching