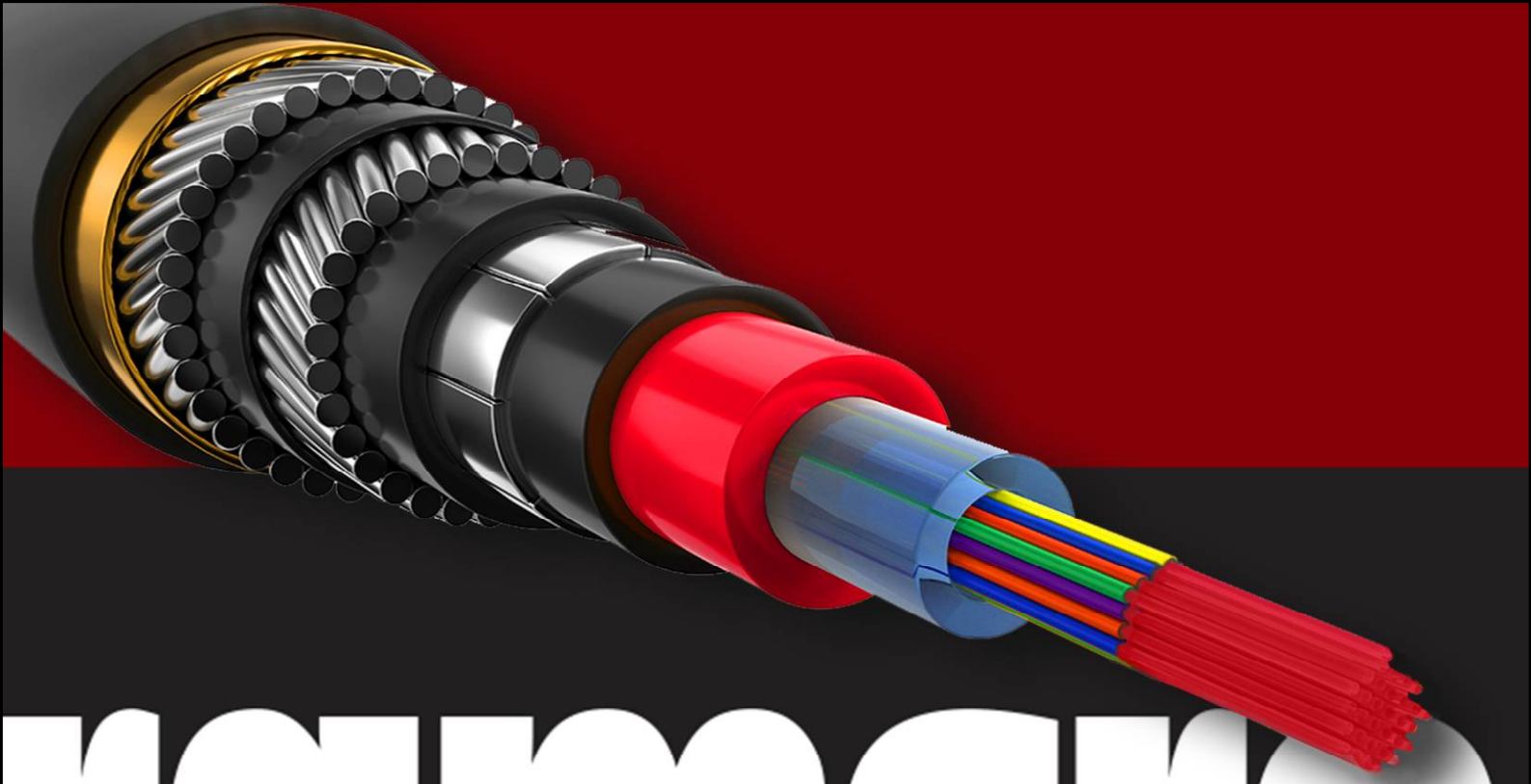


ramcro

special cables

FIRE CABLES

www.ramcro.it

ramcro
special cables

FIRE RESISTANT CABLE

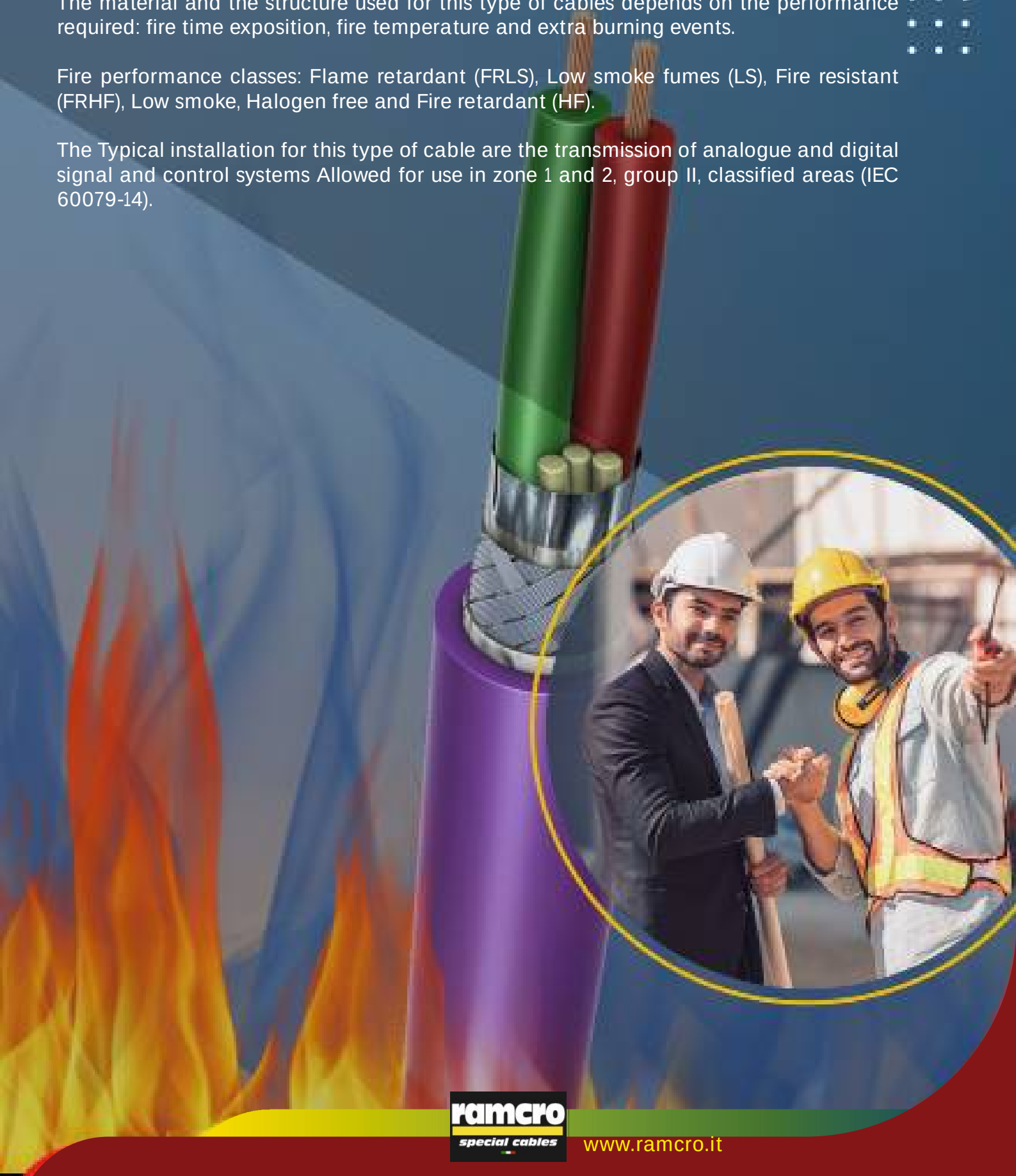
Used for fire resistant and circuit integrity, essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damage by acid-forming gases.

All RAMCRO fire resistant cables are with sub-brand RAMFIRECRO-F3, are manufactured in according to the major international standard: instead of; BS 6387 C-W-Z - BS 7629 - IEC 60331-21 - EN 50200 - BS 8434-2 etc.

The material and the structure used for this type of cables depends on the performance required: fire time exposition, fire temperature and extra burning events.

Fire performance classes: Flame retardant (FRLS), Low smoke fumes (LS), Fire resistant (FRHF), Low smoke, Halogen free and Fire retardant (HF).

The Typical installation for this type of cable are the transmission of analogue and digital signal and control systems Allowed for use in zone 1 and 2, group II, classified areas (IEC 60079-14).



www.ramcro.it

ramcro
special cables

ABOUT COMPANY

Ramcro was founded in 1979, as a family Company producing Special Cables. Family Croci owns 100% of Ramcro S.p.a.. In over 42 years Ramcro successfully expanded its presence in different countries and in a few different but important segments: Oil & Gas, Fire, Railway Signal & Control, BMS, and Optical Cables.

Ramcro production capacity is 4.000 Km/Month and 50.000 Km/Year. Production dpt is 18.000 sqm, of which 3.000 sqm on stock, allowing outstanding very high flexibility in delivery, with also 1.300 sqm of offices and 750 sqm for Laboratory.

Ramcro Laboratory provides any certificates of tests run following major international specifications and it is ready to be certified ISO 17025. It is also recognized by the international body as a “Third part Laboratory”. Ramcro solves any kind of technical issue in the area of the cable, assuring the Client’s satisfaction thanks to high quality and personalized solutions, improving the Client’s efficiency and optimizing its processes. Ramcro offers extremely flexible solutions and a complete range of services, even tailor-made, based on outstanding worldwide experience

FIRE ALARM CABLE

FIRE RESISTANT CABLE

FIRE-RESISTANT
DATA LAN CABLE

FIBER OPTICAL
FIRE-RESISTANT CABLE

www.ramcro.it

ramcro
special cables

FIRE ALARM CABLE

FIRE RESISTANT CABLE

FIRE-RESISTANT DATA LAN CABLE

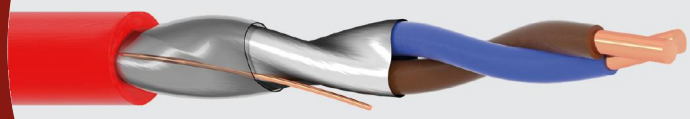
FIBER OPTICAL FIRE-RESISTANT CABLE

Fire Planet

TYPE: SOLID

BS 6387:2013 Cat. C-W-Z

RAMFIRECRO-F3
FIRE PLANET
BS 6387:2013



CONSTRUCTION

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath.

Conductor:
Plain annealed copper wire, Solid
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard & Fire Performance Test

- BS 6387:2013 Cat. C-W-Z
- IEC 60754-1:2014
- EN 61034-2:2005
- EN 50200:2015 (Class PH120)
- EN 50200:2015 Annex E (30 mins)
- EN 60754-2:2014

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568a/02

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Fire Planet

LPCB 568a/02

TYPE: SOLID

BS 6387:2013 Cat. C-W-Z

CABLE PRINTING

RAMFIRECRO-F3 - FIRE PLANET – LSZH – LPCB 568a/02 –EN 60754-1:2014 – BS 6387:2013 (CWZ) – EN 50200:2015 PH120 - EN 50200:2015 ANNEX E - EN 61034-2:2005 – 300/500V – CONDxAREA + E BATCH N. + MADE IN ITALY

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0211HFESL-F3(IE)	2x1.00	6.1	54
SAR0311HFESP-F3(IE)	3x1.00	6.3	71
SAR0411HFESQ-F3(IE)	4x1.00	6.9	91
SAR0511HFESD-F3(IE)	5x1.00	7.8	113
SAR0711HFESD-F3(IE)	7x1.00	8.4	147
SAR1211HFESD-F3(IE)	12x1.00	11	238
SAR1911HFESD-F3(IE)	19x1.00	12.8	357
SAR0214HFESL-F3(IE)	2x1.50*	6.6*	67
SAR0314HFESP-F3(IE)	3x1.50*	6.8*	88
SAR0414HFESQ-F3(IE)	4x1.50*	7.4*	111
SAR0514HFESD-F3(IE)	5x1.50	8.3	138
SAR0714HFESD-F3(IE)	7x1.50	9	181
SAR1214HFESD-F3(IE)	12x1.50	11.8	296
SAR1914HFESD-F3(IE)	19x1.50	14.2	461
SAR0218HFESL-F3(IE)	2x2.50*	7.4*	89
SAR0318HFESP-F3(IE)	3x2.50*	7.7*	123
SAR0418HFESQ-F3(IE)	4x2.50*	8.4*	157
SAR0518HFESD-F3(IE)	5x2.50	9.2	191
SAR0718HFESD-F3(IE)	7x2.50	10.1	254
SAR1218HFESD-F3(IE)	12x2.50	13.2	418
SAR1918HFESD-F3(IE)	19x2.50	16	654

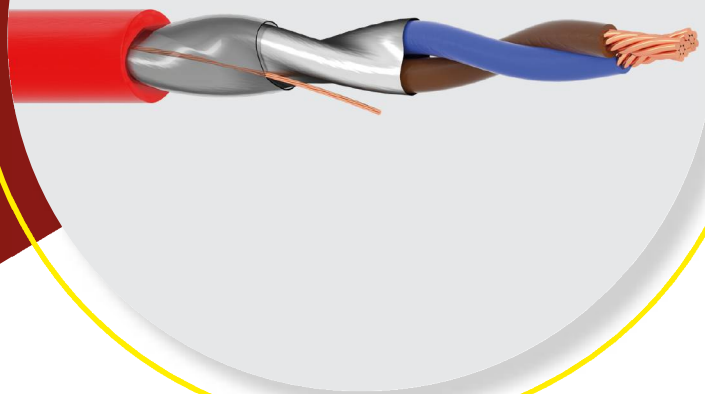
*Cables certified by LPCB BRE GLOBAL
*if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR___HCESL-F3(IE)

Fire Planet

TYPE: STRANDED

BS 6387:2013 Cat. C-W-Z

RAMFIRECRO-F3
FIRE PLANET
BS 6387:2013



CONSTRUCTION

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath.

Conductor:
Plain annealed copper wire, 7 strand
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard & Fire Performance Test

- BS 6387:2013 Cat. C-W-Z
- IEC 60754-1:2014
- EN 61034-2:2005
- EN 50200:2015 (Class PH120)
- EN 50200:2015 Annex E (30 mins)
- EN 60754-2:2014

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568a/02

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Fire Planet

LPCB 568a/02

TYPE: STRANDED

BS 6387:2013 Cat. C-W-Z

CABLE PRINTING

RAMFIRECRO-F3 - FIRE PLANET – LSZH – LPCB 568a/02 –EN 60754-1:2014 – BS 6387:2013 (CWZ) – EN 50200:2015 PH120 - EN 50200:2015 ANNEX E - EN 61034-2:2005 – 300/500V – CONDxAR-EA + E BATCH N. + MADE IN ITALY

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0210HFESL-F3(IE)	2x1.00	6.5	59
SAS0310HFESP-F3(IE)	3x1.00	6.6	76
SAS0410HFESQ-F3(IE)	4x1.00	7.2	95
SAS0510HFESD-F3(IE)	5x1.00	8.1	118
SAS0710HFESD-F3(IE)	7x1.00	8.8	154
SAS1210HFESD-F3(IE)	12x1.00	11.5	248
SAS0215HFESL-F3(IE)	2x1.50*	7.0*	72
SAS0315HFESP-F3(IE)	3x1.50*	7.2*	95
SAS0415HFESQ-F3(IE)	4x1.50*	8.1*	123
SAS0515HFESD-F3(IE)	5x1.50	8.8	148
SAS0715HFESD-F3(IE)	7x1.50	9.6	196
SAS1215HFESD-F3(IE)	12x1.50	12.6	319
SAS1915HFESD-F3(IE)	19x1.50	15.2	498
SAS0225HFESL-F3(IE)	2x2.50*	8.1*	101
SAS0325HFESP-F3(IE)	3x2.50*	8.3*	135
SAS0425HFESQ-F3(IE)	4x2.50*	9.1*	170
SAS0525HFESD-F3(IE)	5x2.50	9.9	207
SAS0725HFESD-F3(IE)	7x2.50	10.8	277
SAS1225HFESD-F3(IE)	12x2.50	14.7	470
SAS1925HFESD-F3(IE)	19x2.50	17.2	713
SAS0240HFESL-F3(IE)	2x4.00*	10.0*	151
SAS0340HFESP-F3(IE)	3x4.00*	10.2*	205
SAS0440HFESQ-F3(IE)	4x4.00*	11.0*	252

* Cables certified by LPCB BRE GLOBAL
* If the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS___HCESL-F3(IE)

Standard Fire Sun

TYPE: SOLID

BS 7629-1:2015

CONSTRUCTION

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Construction:
Plain annealed copper wire, solid
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over tinned copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- BS 7629-1:2015 (Standard 60)
- BS 6387:2013 (CWZ)
- EN 50200:2015 (Class PH30/PH120)
- EN 50200: 2015 Annex E (30 mins)
- BS 5839-1:2013 (Clause 26.2d Standard)
- EN 60754-2:2014

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568c/02

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Standard Fire Sun

LPCB 568c/02

TYPE: SOLID

BS 7629-1:2015

CABLE PRINTING

RAMCRO ITALY - RAMFIRECRO-F3 STANDARD FIRE SUN - FIRE RESISTANT ELECTRIC CABLE - LSZH - 300/500V - BS 7629-1:2015 STANDARD 60 - BS 6387:2013 CWZ - CONDxAREA + E - (Year of manufacture) H - LPCB 568c/02 - MADE IN ITALY + batch n° + METER MARKING

DIMENSIONAL DATA

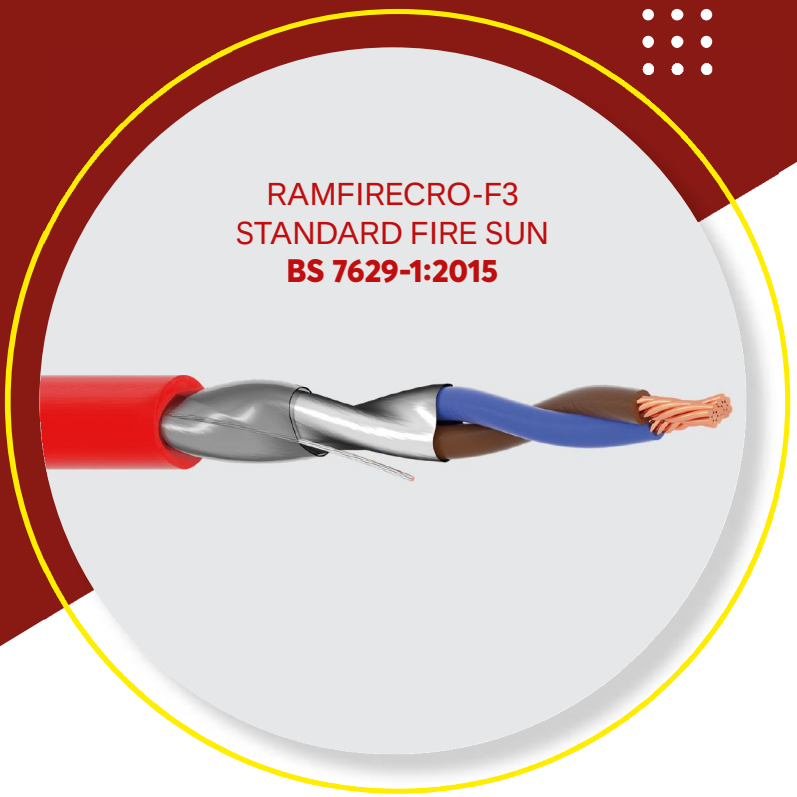
RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0211HFESL-F3PH120	2x1.00*	6.4*	66
SAR0311HFESP-F3PH120	3x1.00	6.5	83
SAR0411HFESQ-F3PH120	4x1.00	7.1	101
SAR0511HFESD-F3PH120	5x1.00	7.8	120
SAR0711HFESD-F3PH120	7x1.00	8.4	155
SAR1211HFESD-F3PH120	12x1.00	11.2	251
SAR1911HFESD-F3PH120	19x1.00	13	370
SAR0214HFESL-F3PH120	2x1.50*	7.3*	88
SAR0314HFESP-F3PH120	3x1.50*	7.4*	111
SAR0414HFESQ-F3PH120	4x1.50*	8.1*	137
SAR0514HFESD-F3PH120	5x1.50	8.8	162
SAR0714HFESD-F3PH120	7x1.50	9.6	211
SAR1214HFESD-F3PH120	12x1.50	12.9	342
SAR1914HFESD-F3PH120	19x1.50	15.1	510
SAR0218HFESL-F3PH120	2x2.50*	8.6*	129
SAR0318HFESP-F3PH120	3x2.50*	8.7*	166
SAR0418HFESQ-F3PH120	4x2.50*	9.6*	205
SAR0518HFESD-F3PH120	5x2.50	10.7	251
SAR0718HFESD-F3PH120	7x2.50	11.7	326
SAR1218HFESD-F3PH120	12x2.50	15.4	523
SAR1918HFESD-F3PH120	19x2.50	18.1	787

*Cables certified by LPCB BRE GLOBAL
*If the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR___HCESL-F3PH120

Standard Fire Sun

TYPE: STRANDED

BS 7629-1:2015



CONSTRUCTION

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Construction:
Plain annealed copper wire, 7 Stands
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over tinned copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- BS 7629-1:2015 (Standard 60)
- BS 6387:2013 (CWZ)
- EN 50200:2015 (Class PH30/PH120)
- EN 50200: 2015 Annex E (30 mins)
- BS 5839-1:2013 (Clause 26.2d Standard)
- EN 60754-2:2014

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568c/02

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Standard Fire Sun

LPCB 568c/02

TYPE: STRANDED

BS 7629-1:2015

CABLE PRINTING

RAMCRO ITALY - RAMFIRECRO-F3 STANDARD FIRE SUN - FIRE RESISTANT ELECTRIC CABLE - LSZH - 300/500V - BS 7629-1:2015 STANDARD 60 - BS 6387:2013 CWZ - CONDxAREA + E - Year of manufacture H - LPCB 568c/02 - MADE IN ITALY + batch n° + METER MARKING

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0210HFESL-F3PH120	2x1.00*	6.4*	66
SAS0310HFESP-F3PH120	3x1.00	6.5	83
SAS0410HFESQ-F3PH120	4x1.00	7.1	101
SAS0510HFESD-F3PH120	5x1.00	7.8	120
SAS0710HFESD-F3PH120	7x1.00	8.4	155
SAS1210HFESD-F3PH120	12x1.00	11.2	251
SAS1910HFESD-F3PH120	19x1.00	13	370
SAS0215HFESL-F3PH120	2x1.50*	7.3*	88
SAS0315HFESP-F3PH120	3x1.50*	7.4*	111
SAS0415HFESQ-F3PH120	4x1.50*	8.1*	137
SAS0515HFESD-F3PH120	5x1.50	8.8	162
SAS0715HFESD-F3PH120	7x1.50	9.6	211
SAS1215HFESD-F3PH120	12x1.50	12.9	342
SAS1915HFESD-F3PH120	19x1.50	15.1	510
SAS0225HFESL-F3PH120	2x2.50*	8.6*	129
SAS0325HFESP-F3PH120	3x2.50*	8.7*	166
SAS0425HFESQ-F3PH120	4x2.50*	9.6*	205
SAS0525HFESD-F3PH120	5x2.50	10.7	251
SAS0725HFESD-F3PH120	7x2.50	11.7	326
SAS1225HFESD-F3PH120	12x2.50	15.4	523
SAS1925HFESD-F3PH120	19x2.50	18.1	787
SAS0240HFESL-F3PH120	2x4.00*	10.6*	190
SAS0340HFESP-F3PH120	3x4.00*	11.0*	250
SAS0440HFESQ-F3PH120	4x4.00*	12.0*	306
SAS0540HFESD-F3PH120	5x4.00	13.1	364

*Cables certified by LPCB BRE GLOBAL

*if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS___HCESL-F3PH120

Enhanced Fire Star

TYPE: SOLID

BS 7629-1:2015 - EN 50200:2015
PH 120 – BS 8434-2:2003

CONSTRUCTION

Multi-Core, Solid CU, Mica+XLPE/Silicon Rubber -Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, solid
Insulation:
MICA+XLPE & Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over tinned copper CC core (same size of conductors)
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- BS 7629-1:2015 Enhanced 120
- EN 50200:2015 (Class PH120)
- BS 8434-2:2003+A2:2009 (120 mins)
- BS 5839-1:2013 (Clause 26.2e Enhanced)
- BS 6387:2013 Category CWZ
- EN 60332-3-24:2009

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568j/01

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Enhanced Fire Star

LPCB 568j/01

TYPE: SOLID

BS 7629-1:2015 - EN 50200:2015
PH 120 – BS 8434-2:2003

CABLE PRINTING

RAMCRO ITALY - RAMFIRECRO–F3 FIRE STAR - FIRE RESISTANT ELECTRIC CABLE – LSZH - 300/500V - BS 7629-1:2015 ENHANCED 120 - BS 6387:2013 CWZ - EN 60332-3-24:2009 - CONDxAREA + E - Year of Manufacturing H - LPCB 568j/01 - MADE IN ITALY - BATCH N°

DIMENSIONAL DATA

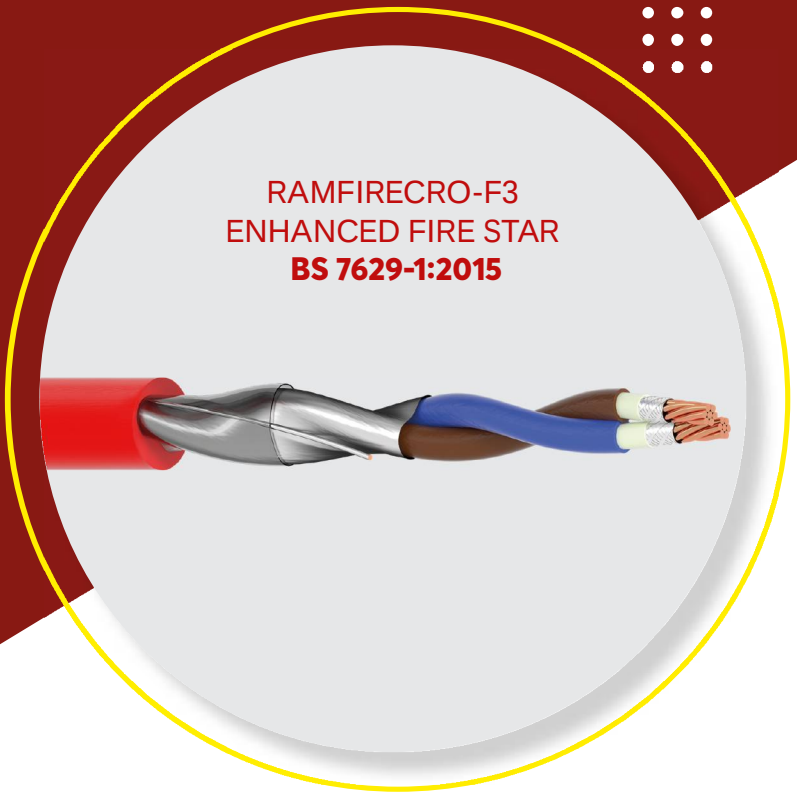
RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0211HFEOL-F3EN120	2x1.00	9.8	121
SAR0311HFEOP-F3EN120	3x1.00	10.4	152
SAR0411HFEOQ-F3EN120	4x1.00	11.7	194
SAR0511HFEOD-F3EN120	5x1.00	12.8	231
SAR0711HFEOD-F3EN120	7x1.00	14.2	304
SAR1211HFEOD-F3EN120	12x1.00	18.9	491
SAR1911HFEOD-F3EN120	19x1.00	22.6	743
SAR0214HFEOL-F3EN120	2x1.50*	10.3*	139
SAR0314HFEOP-F3EN120	3x1.50*	10.9*	178
SAR0414HFEOQ-F3EN120	4x1.50*	12.2*	226
SAR0514HFEOD-F3EN120	5x1.50	13.4	269
SAR0714HFEOD-F3EN120	7x1.50	14.8	355
SAR1214HFEOD-F3EN120	12x1.50	19.9	574
SAR1914HFEOD-F3EN120	19x1.50	23.7	871
SAR0218HFEOL-F3EN120	2x2.50*	11.3*	184
SAR0318HFEOP-F3EN120	3x2.50*	12.0*	236
SAR0418HFEOQ-F3EN120	4x2.50*	13.4*	298
SAR0518HFEOD-F3EN120	5x2.50	14.6	354
SAR0718HFEOD-F3EN120	7x2.50	16.2	467
SAR1218HFEOD-F3EN120	12x2.50	21.9	767
SAR1918HFEOD-F3EN120	19x2.50	26.1	1159

*Cables certified by LPCB BRE GLOBAL
*If the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR___HCEOL-F3EN120

Enhanced Fire Star

TYPE: STRANDED

BS 7629-1:2015 - EN 50200:2015
PH 120 – BS 8434-2:2003



CONSTRUCTION

Multi-Core, Stranded CU, Mica+XLPE/Silicon Rubber -Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, 7 Stands
Insulation:
MICA+XLPE & Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over tinned copper CC core (same size of conductors)
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- BS 7629-1:2015 Enhanced 120
- EN 50200:2015 (Class PH120)
- BS 8434-2:2003+A2:2009 (120 mins)
- BS 5839-1:2013 (Clause 26.2e Enhanced)
- BS 6387:2013 Category CWZ
- EN 60332-3-24:2009

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568j/01

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Enhanced Fire Star

LPCB 568j/01

TYPE: STRANDED

BS 7629-1:2015 - EN 50200:2015
PH 120 – BS 8434-2:2003

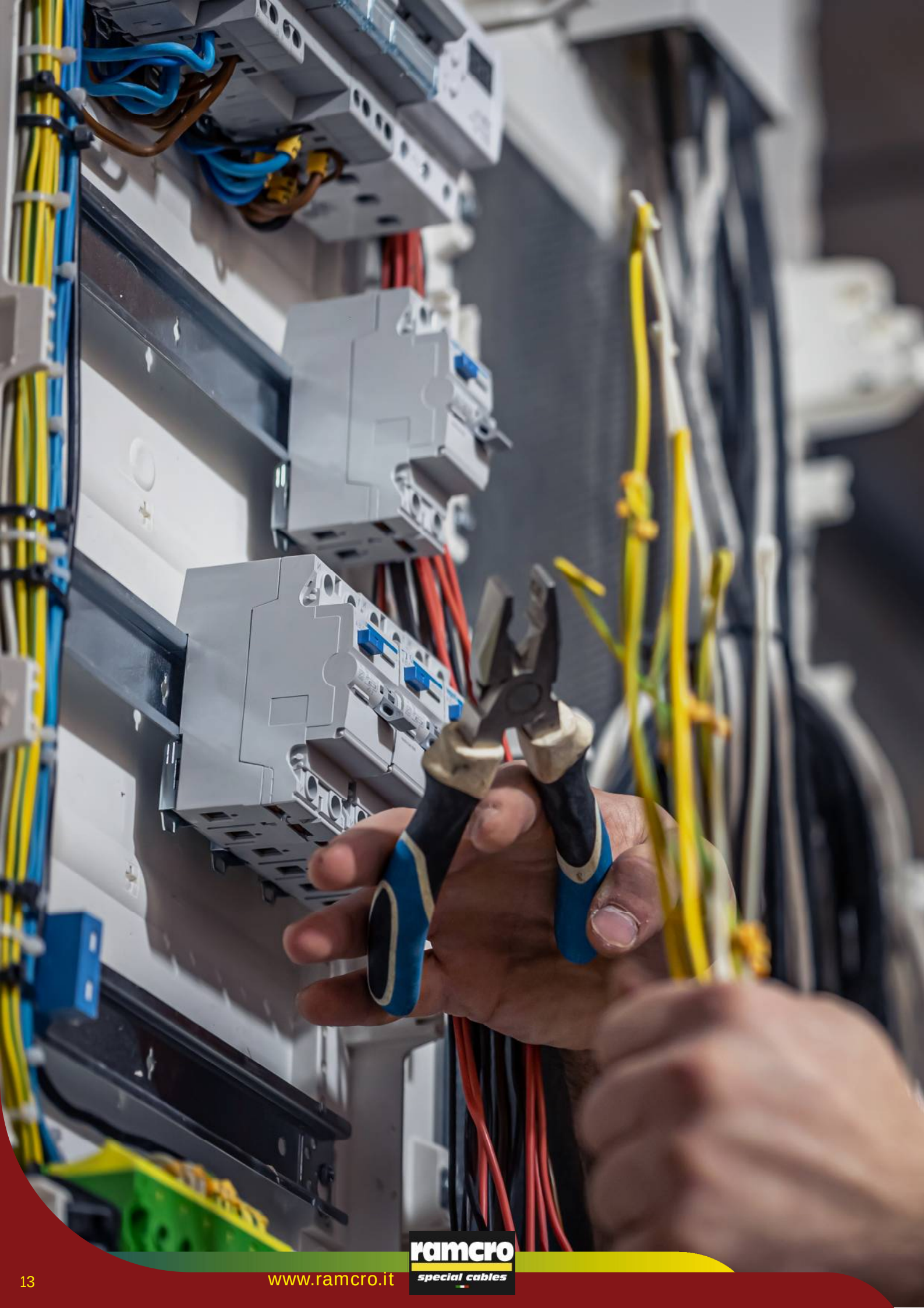
CABLE PRINTING

RAMCRO ITALY - RAMFIRECRO–F3 FIRE STAR - FIRE RESISTANT ELECTRIC CABLE – LSZH - 300/500V - BS 7629-1:2015 ENHANCED 120 - BS 6387:2013 CWZ - EN 60332-3-24:2009 - CONDxAREA + E - Year of Manufacturing H - LPCB 568j/01 - MADE IN ITALY - BATCH N°

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0210HFEOL-F3EN120	2x1.00	10.1	124
SAS0310HFEOP-F3EN120	3x1.00	10.7	158
SAS0410HFEOQ-F3EN120	4x1.00	12	200
SAS0510HFEOD-F3EN120	5x1.00	13.2	237
SAS0710HFEOD-F3EN120	7x1.00	14.6	313
SAS1210HFEOD-F3EN120	12x1.00	19.5	507
SAS1910HFEOD-F3EN120	19x1.00	23.3	768
SAS0215HFEOL-F3EN120	2x1.50*	10.6*	145
SAS0315HFEOP-F3EN120	3x1.50*	11.3*	185
SAS0415HFEOQ-F3EN120	4x1.50*	12.6*	236
SAS0515HFEOD-F3EN120	5x1.50	13.9	280
SAS0715HFEOD-F3EN120	7x1.50	15.4	370
SAS1215HFEOD-F3EN120	12x1.50	20.6	599
SAS1915HFEOD-F3EN120	19x1.50	24.6	910
SAS0225HFEOL-F3EN120	2x2.50*	11.7*	191
SAS0325HFEOP-F3EN120	3x2.50*	12.5*	246
SAS0425HFEOQ-F3EN120	4x2.50*	13.9*	311
SAS0525HFEOD-F3EN120	5x2.50	15.3	369
SAS0725HFEOD-F3EN120	7x2.50	16.9	487
SAS1225HFEOD-F3EN120	12x2.50	22.8	800
SAS1925HFEOD-F3EN120	19x2.50	27.2	1210
SAS0240HFEOL-F3EN120	2x4.00*	13.0*	258
SAS0340HFEOP-F3EN120	3x4.00*	13.8*	331
SAS0440HFEOQ-F3EN120	4x4.00*	15.4*	418
SAS0540HFEOD-3EN120	5x4.00	16.9	496

*Cables certified by LPCB BRE GLOBAL
*If the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR__HCEOL-F3EN120



Fire Safe

TYPE: SOLID

IEC 60331-21:1999

CONSTRUCTION

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, solid
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- IEC 60331-21:1999
- EN 60754-1:2014
- EN 61034-2:2005

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568d/01

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Fire Safe

LPCB 568d/01

TYPE: SOLID

IEC 60331-21:1999

CABLE PRINTING

RAMFIRECRO-F3 FIRE SAFE RS485 - FIRE RESISTANT CONDxAREA mmq +E - LSZH - LPCB 568d/01 - IEC 60331-21:1999 1 1/2 H 750 - EN 60754-1:2014 - EN 61034-2: 2005 - 300/500 V - batch n° - meter marking - MADE IN ITALY

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0211HFEEL-F3	2x1.00*	6.8*	62
SAR0311HFEEP-F3	3x1.00*	7.2*	80
SAR0411HFEEQ-F3	4x1.00*	7.9*	100
SAR0511HFEED-F3	5x1.00	9	128
SAR0711HFEED-F3	7x1.00	9.8	165
SAR1211HFEED-F3	12x1.00	12.7	264
SAR1911HFEED-F3	19x1.00	15.2	407
SAR0214HFEEL-F3	2x1.50*	7.3*	73
SAR0314HFEEP-F3	3x1.50*	7.7*	97
SAR0414HFEEQ-F3	4x1.50*	8.4*	122
SAR0514HFEED-F3	5x1.50	9.6	156
SAR0714HFEED-F3	7x1.50	10.4	203
SAR1214HFEED-F3	12x1.50	13.6	329
SAR1914HFEED-F3	19x1.50	16.3	508
SAR0218HFEEL-F3	2x2.50*	8.1*	98
SAR0318HFEEP-F3	3x2.50*	8.6*	131
SAR0418HFEEQ-F3	4x2.50*	9.8*	177
SAR0518HFEED-F3	5x2.50	10.7	213
SAR0718HFEED-F3	7x2.50	11.6	282
SAR1218HFEED-F3	12x2.50	15.7	476
SAR1918HFEED-F3	19x2.50	18.7	734

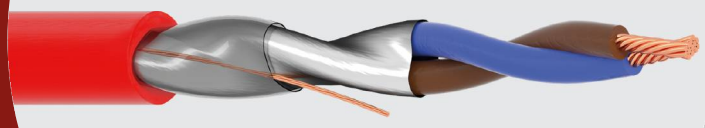
* Cables certified by LPCB BRE GLOBAL
* If the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS____HCESL-F3

Fire Safe

TYPE: STRANDED

IEC 60331-21:1999

RAMFIRECRO-F3 -
FIRE SAFE
IEC 60331-21:1999



CONSTRUCTION

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Formation:
Plain annealed copper wire, 7 Stands
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- IEC 60331-21:1999
- EN 60754-1:2014
- EN 61034-2:2005

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568d/01

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Fire Safe

LPCB 568d/01

TYPE: STRANDED

IEC 60331-21:1999

CABLE PRINTING

RAMFIRECRO-F3 FIRE SAFE RS485 - FIRE RESISTANT CONDxAREA mmq +E - LSZH - LPCB 568d/01 - IEC 60331-21:1999 1 1/2 H 750 - EN 60754-1:2014 - EN 61034-2: 2005 - 300/500 V - batch n° - meter marking - MADE IN ITALY

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0210HFEEL-F3	2x1.00*	7.1*	64
SAS0310HFEEP-F3	3x1.00*	7.5*	83
SAS0410HFEEQ-F3	4x1.00*	8.2*	104
SAS0510HFEED-F3	5x1.00	9.4	133
SAS0710HFEED-F3	7x1.00	10.2	172
SAS1210HFEED-F3	12x1.00	13.3	276
SAS1910HFEED-F3	19x1.00	15.9	424
SAS0215HFEEL-F3	2x1.50*	7.6*	77
SAS0315HFEEP-F3	3x1.50*	8.1*	102
SAS0415HFEEQ-F3	4x1.50*	9.3*	137
SAS0515HFEED-F3	5x1.50	10.1	165
SAS0715HFEED-F3	7x1.50	11	215
SAS1215HFEED-F3	12x1.50	14.8	362
SAS1915HFEED-F3	19x1.50	17.2	537
SAS0225HFEEL-F3	2x2.50*	8.3*	103
SAS0325HFEEP-F3	3x2.50*	9.4*	147
SAS0425HFEEQ-F3	4x2.50*	10.3*	186
SAS0525HFEED-F3	5x2.50	11.3	224
SAS0725HFEED-F3	7x2.50	12.3	297
SAS1225HFEED-F3	12x2.50	16.6	502
SAS1925HFEED-F3	19x2.50	19.8	773

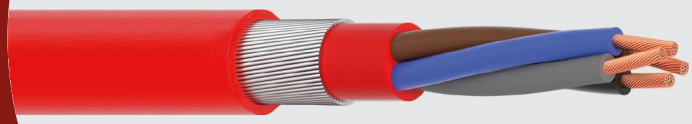
*Cables certified by LPCB BRE GLOBAL
*If the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR___HCEEL-F3

Fire Ground

TYPE: MULTI STRAND

BS 6387:2013 Cat. C-W-Z

RAMFIRECRO-F3
FIRE GROUND
BS 6387:2013



CONSTRUCTION

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Steel Wire Armour, LSZH-Sheath.

Conductor:
Plain annealed copper wire, Multistrand
Insulation:
Special mix silicon rubber
Inner Sheath:
Thermoplastic Low Smoke, Halogen Free
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Armour:
Galvanized steel wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red

IDENTIFICATION OF CORE

2 Core ● ● or Black Numbered
up/from 3 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
5000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
600/1000 V

Reference Standard

- BS 6387:2013 Cat. C-W-Z
- EN 60754-1:2014
- EN 61034-2:2005+A1:2013
- EN 60754-2:2014
- EN 60332-3-24:2009
- EN 60332-1-2:2004

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

LPCB
568e/01

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Power Cable

Fire Ground

TYPE: MULTI STRAND

LPCB 568e/01

BS 6387:2013 Cat. C-W-Z

CABLE PRINTING

RAMFIRECRO –F3 - FIRE GROUND – LSZH – LPCB 568e/01 - BS 6387:2013 CWZ - IEC 60332-3-24:2009 - IEC 60332-1-2:2004 - 0,6/1 kV - CONDxAREA mmq - CU/Sil/LSZH/ SWA/LSZH - ARMOURED - MADE IN ITALY + BATCH N.

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0215AFESH-F3(FG)	2x1.50	14.2*	373
SSS0315AFESP-F3(FG)	3x1.50	14.3*	395
SSS0415AFESQ-F3(FG)	4x1.50	15.1*	440
SSS0515AFESD-F3(FG)	5x1.50	16.6*	563
SSS0225AFESH-F3(FG)	2x2.50	16.2*	530
SSS0375AFESP-F3(FG)	3x2.50	16.4*	566
SSS0475AFESQ-F3(FG)	4x2.50	17.3*	635
SSS0575AFESD-F3(FG)	5x2.50	18.3*	709
SSS0240AFESL-F3(FG)	2x4.00	17.1*	592
SSS0340AFESP-F3(FG)	3x4.00	17.3*	640
SSS0440AFESQ-F3(FG)	4x4.00	18.3*	725
SSS0540AFESD-F3(FG)	5x4.00	19.4*	815
SSS0260AFESL-F3(FG)	2x6.00	18.6*	716
SSS0360AFESP-F3(FG)	3x6.00	18.8*	786
SSS0460AFESQ-F3(FG)	4x6.00	20.0**	902
SSS0560AFESD-F3(FG)	5x6.00	22.0**	1132
SSS0211AFESL-F3(FG)	2x10.00	20.6**	910
SSS0311AFESP-F3(FG)	3x10.00	20.9**	1021
SSS0411AFESQ-F3(FG)	4x10.00	23.1**	1303
SSS0511AFESD-F3(FG)	5x10.00	24.6**	1492
SSS0216AFESL-F3(FG)	2x16.00	24.1**	1306
SSS0316AFESP-F3(FG)	3x16.00	24.4**	1479
SSS0416AFESQ-F3(FG)	4x16.00	26.2**	1737
SSS0516AFESD-F3(FG)	5x16.00	28.3**	2022
SSS0227AFESL-F3(FG)	2x25.00	26.1**	1627
SSS0327AFESP-F3(FG)	3x25.00	26.5**	1888
SSS0427AFESQ-F3(FG)	4x25.00	28.8**	2266
SSS0527AFESD-F3(FG)	5x25.00	31.2**	2663

* Cables certified by LPCB BRE GLOBAL

** The Ramfirecro-F3 FIRE GROUND range with diameters greater than 20mm were tested in accordance with clause 17.4.2 annex L BS 7846:2015

*** If the cables are with a WHITE outer sheat the RAMCRO CODE will change in : SSS____ACESL-F3(FG)

Fire Moon Enhanced

TYPE: SOLID

EN 50200:2015 Class PH 120

CONSTRUCTION

Multi-Core, Solid or Stranded CU, Silicon Rubber -Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, Solid or stranded
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over Tinned copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core
3 Core
4 Core
up/from 5 cores: Black Numbered

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
5000 V
Test Voltage Core-Screen:
5000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
600/1000 V

Reference Standard

- EN 50200:2015 (Class PH120)
- IEC 60754-1:2014
- EN 61034-2:2005+A1:2013

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Low Smoke Halogen free

Fire Moon Enhanced

TYPE: SOLID

EN 50200:2015 Class PH 120

CABLE PRINTING

RAMFIRECRO – F3 ENHANCED – FIRE MOON – LSZH - LPCB 568f/01 - EN 50200:2015 PH120 0.6/1 kV - CONDxAREA mmq + E - Year of manufacture - BATCH N. + MADE IN ITALY + METER MARKING.

DIMENSIONAL DATA- SOLID VERSION (BARE COPPER CL.1)

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0211IF-WFA10210	2x1.00*	8.0*	81
SAR0311IF-WFA10210	3x1.00	8.5	101
SAR0411IF-WFA10210	4x1.00	9.2	124
SAR0214IF-WFA10215	2x1.50*	8.7*	97
SAR0214IF-WFA10215	3x1.50	9.2	124
SAR0214IF-WFA10215	4x1.50	10	153
SAR0218IF-WFA10225	2x2.50*	9.7*	126
SAR0218IF-WFA10225	3x2.50	10.2	166
SAR0218IF-WFA10225	4x2.50	11.1	207

DIMENSIONAL DATA- STRANDED VERSION (BARE COPPER CL.2)

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210IF-WFA10210	2x1.00*	8.3*	84	18.8
SAS0310IF-WFA10210	3x1.00	8.8	106	18.8
SAS0410IF-WFA10210	4x1.00	9.5	129	18.8
SAS0215IF-WFA10215	2x1.50*	9.0*	102	12.6
SAS0215IF-WFA10215	3x1.50	9.5	130	12.6
SAS0215IF-WFA10215	4x1.50	10.4	161	12.6
SAS0225IF-WFA10225	2x2.50*	10.1*	133	7.7
SAS0225IF-WFA10225	3x2.50	10.7	174	7.7
SAS0225IF-WFA10225	4x2.50	11.7	218	7.7

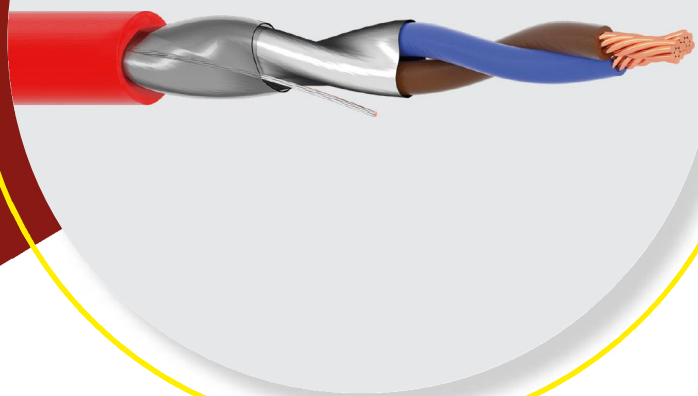
*if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS_____IC-WFA_____

Fire Comet

TYPE: STRANDED

EN 50200:2015 Class PH 30

RAMFIRECRO-F3
FIRE COMET
EN 50200:2015 PH 30



CONSTRUCTION

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, stranded
Insulation:
Special mix silicon rubber
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over Tinned copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or White

IDENTIFICATION OF CORE

2 Core

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
100/100 V

Reference Standard

- EN 50200:2015 (Class PH30)
- IEC 60754-1:2014
- EN 61034-2:2005+A1:2013

Temperature Range

During Operation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS

8 x cable diameter

Low Smoke Halogen free

Fire Comet

TYPE: STRANDED

EN 50200:2015 Class PH 30

CABLE PRINTING

RAMFIRECRO-F3 - FIRE COMET LSZH - EN 50200:2015 PH30 - IEC 61034-2:2005 - EN 60754-1:2014 - CONDxAREA sqmm + BATCH + METER MARKING + MADE IN ITALY

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0210HFESL-F3FG4	2x1.00*	7.6*	67
SAS0215HFESL-F3FG4	2x1.50*	8.6*	88
SAS0225HFESL-F3FG4	2x2.50*	10.1*	129

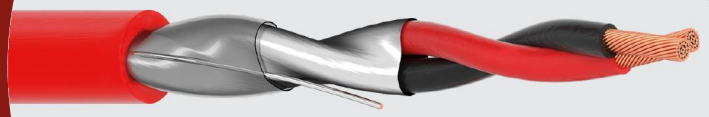
*if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR_____HCESL-F3FG4

Fire Comet

TYPE: STRANDED

CEI 20-105; V2 - FG29OHM16 PH120

RAMFIRECRO-F3
EUROSAFE
CEI 20-105; V2 - FG29OHM16



CONSTRUCTION

Multi-Conductor, Ceramizing Silicone G29, Shielded, LSZH-Sheath M16

Conductor:
Annealed red copper, Cl.5
Insulation:
Ceramizing Silicone - G29
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over Tinned copper drain wire
Outer Sheath:
Compound LSZH - M16
Sheath Colour:
Red or Purple

IDENTIFICATION OF CORE

2 Core ● ●
4 Core ● ● ○ ●

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 100 pF/km
Inductance:
< 1 mH/km
Operating Voltage:
100/100 V

Reference Standard

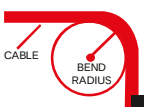
- CEI 20-105;V2
- UNI 9795
- EN 50200 PH 120
- CEI EN 60332-3-25

Temperature Range

During Operation:
-30° C up to +180°C
Fixed Installation:
-30° C up to +75°C
During Installation:
-5° C up to +50°C

Fire Resistant

Min. Bending Radius



8 x cable diameter

Italian Market

Fire Comet

CEI 20-105; V2 - FG29OHM16

TYPE: STRANDED

PH120

CABLE PRINTING

RAMCRO RAMFIRECRO-F3 FIRE COMET CEI 20-105 FG29OHM16 2x1.00 mmq EN 50200 PH120 CPR Cca s1b, d1, a1 - 100/100V Uo=400 V BATCH + MM/YY

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0250HFYSH-F3FG29	2 x 0.50 mm_2	5,6	46
SAS0275HFYSH-F3FG29	2 x 0.75 mm_2	6,3	57
SAS0210HFYSH-F3FG29	2 x 1.00 mm_2	6,6	63
SAS0215HFYSH-F3FG29	2 x 1.50 mm_2	7,6	82
SAS0225HFYSH-F3FG29	2 x 2.50 mm_2	9,2	122
SAS0240HFYSH-F3FG29	2 x 4.00 mm_2	10,5	163
SAS0260HFYSH-F3FG29	2 x 6.00 mm_2	11,6	213
SAS0450HFYSX-F3FG29	4 x 0.50 mm_2	6,2	66
SAS0475HFYSX-F3FG29	4 x 0.75 mm_2	7,0	85
SAS0410HFYSX-F3FG29	4 x 1.00 mm_2	7,2	96
SAS0415HXYSX-F3FG29	4 x 1.50 mm_2	8,7	134
SAS0425HXYSX-F3FG29	4 x 2.50 mm2	10,5	209

EVAC CABLES for voice evacuation systems

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0250HXYSH-F3FG29	2 x 0.50 mm_2	5,6	46
SAS0275HXYSH-F3FG29	2 x 0.75 mm_2	6,3	57
SAS0210HXYSH-F3FG29	2 x 1.00 mm_2	6,6	63
SAS0215HXYSH-F3FG29	2 x 1.50 mm_2	7,6	82
SAS0225HXYSH-F3FG29	2 x 2.50 mm_2	9,2	122
SAS0240HXYSH-F3FG29	2 x 4.00 mm_2	10,5	163
SAS0260HXYSH-F3FG29	2 x 6.00 mm_2	11,6	213
SAS0450HXYSX-F3FG29	4 x 0.50 mm_2	6,2	66
SAS0475HXYSX-F3FG29	4 x 0.75 mm_2	7,0	85
SAS0410HXYSX-F3FG29	4 x 1.00 mm_2	7,2	96
SAS0415HXYSX-F3FG29	4 x 1.50 mm_2	8,7	134
SAS0425HXYSX-F3FG29	4 x 2.50 mm_2	10,5	209

Fire Comet

TYPE: STRANDED

CEI 20-105; V2 - FG29OM16 PH120

RAMFIRECRO-F3
EUROSAFE
CEI 20-105 FG29OM16

CONSTRUCTION

Multi-Conductor, Ceramizing Silicone G29 LSZH-Sheath M16

Conductor:
Annealed red copper, Cl.5
Insulation:
Ceramizing Silicone - G29
Outer Sheath:
Compound LSZH - M16
Sheath Colour:
Red or Purple

IDENTIFICATION OF CORE

2 Core
4 Core

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 100 pF/km
Inductance:
< 1 mH/km
Operating Voltage:
100/100 V

Reference Standard

- CEI 20-105;V2
- UNI 9795
- EN 50200:2015 PH120
- CEI EN 60332-3-25

Temperature Range

During Operation:
-30°C up to +180°C
Fixed Installation:
-30°C up to +75°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS

8 x cable diameter

Italian Market

Fire Comet

CEI 20-105; V2 - FG29OM16

TYPE: STRANDED

PH120

CABLE PRINTING

RAMCRO RAMFIRECRO-F3 FIRE COMET CEI 20-105 FG29OM16 CONDxAREA mmq
EN 50200:2015 PH120 CPR Cca s1b, d1, a1 - 100/100 V Uo=400 V BATCH + MM/YY

EVAC CABLES for voice evacuation systems-Red Colour

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0250HFYSH-F3FG29	2 x 0.50 mm_2	5,5	50
SSS0275HFYSH-F3FG29	2 x 0.75 mm_2	6,2	64
SSS0210HFYSH-F3FG29	2 x 1.00 mm_2	6,4	72
SSS0215HFYSH-F3FG29	2 x 1.50 mm_2	7,5	99
SSS0225HFYSH-F3FG29	2 x 2.50 mm_2	9,0	150
SSS0240HFYSH-F3FG29	2 x 4.00 mm_2	10,4	201
SSS0260HFYSH-F3FG29	2 x 6.00 mm_2	11,6	266
SSS0450HFYSX-F3FG29	4 x 0.50 mm_2	6,1	68
SSS0475HFYSX-F3FG29	4 x 0.75 mm_2	6,9	89
SSS0410HFYSX-F3FG29	4 x 1.00 mm_2	7,1	102
SSS0415HFYSX-F3FG29	4 x 1.50 mm_2	8,3	140
SSS0425HFYSX-F3FG29	4 x 2.50 mm_2	10,4	230

EVAC CABLES for voice evacuation systems- Purple colour

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0250HXYSH-F3FG29	2 x 0.50 mm_2	5,5	50
SSS0275HXYSH-F3FG29	2 x 0.75 mm_2	6,2	64
SSS0210HXYSH-F3FG29	2 x 1.00 mm_2	6,4	72
SSS0215HXYSH-F3FG29	2 x 1.50 mm_2	7,5	99
SSS0225HXYSH-F3FG29	2 x 2.50 mm_2	9,0	150
SSS0240HXYSH-F3FG29	2 x 4.00 mm_2	10,4	201
SSS0260HXYSH-F3FG29	2 x 6.00 mm_2	11,6	266
SSS0450HXYSX-F3FG29	4 x 0.50 mm_2	6,1	68
SSS0475HXYSX-F3FG29	4 x 0.75 mm_2	6,9	89
SSS0410HXYSX-F3FG29	4 x 1.00 mm_2	7,1	102
SSS0415HXYSX-F3FG29	4 x 1.50 mm_2	8,3	140
SSS0425HXYSX-F3FG29	4 x 2.50 mm_2	10,4	230

Fire Comet

TYPE: STRANDED

CEI 20-105;V2 - FTE29OHM16 PH120

CONSTRUCTION

Multi-Conductor, Multiwire CU, Mica+XLPE insulation, Shielded, LSZH-Sheath

Conductor:
Annealed red copper, Cl.5
Insulation:
Mica + XLPE Tape
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over Tinned copper drain wire
Outer Sheath:
Compound LSZH
Sheath Colour:
Red or Purple

IDENTIFICATION OF CORE

2 Core ● ●
4 Core ● ● ○ ●

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 1000 MOhm*Km
Test Voltage Core-Core:
2000 V
Mutual Capacitance:
< 70 pF/km
Inductance:
< 1 mH/km
Operating Voltage:
100/100 V

Reference Standard

- CEI 20-105;V2
- UNI 9795
- CEI 20-36 PH 120
- EN 50200 PH 120
- CEI EN 60332-3-25

Temperature Range

During Operation:
-30°C up to +180°C
Fixed Installation:
-30°C up to +75°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Italian Market

Fire Comet

CEI 20-105;V2 - FTE29OHM16

TYPE: STRANDED

PH120

CABLE PRINTING

RAMCRO RAMFIRECRO-F3 FIRE GLASS CEI 20-105 FTE29OHM16 CONDxAREA mmq
EN 50200:2015 PH120 CPR Cca s1b, d1, a1 - 100/100 V Uo=400 V + BATCH + MM/YY

EVAC CABLE for voice evacuation systems- Red Colour

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0250HFYOH-F3FTE29	2x0.50 mm_2	7,0	61
SAS0275HFYOH-F3FTE29	2x0.75 mm_2	7,5	69
SAS0210HFYOH-F3FTE29	2x1.00 mm_2	7,8	76
SAS0215HFYOH-F3FTE29	2x1.50 mm_2	8,6	95
SAS0225HFYOH-F3FTE29	2x2.50 mm_2	9,6	126
SAS0240HFYOH-F3FTE29	2x4.00 mm_2	11,1	170
SAS0260HFYOH-F3FTE29	2x6.00 mm_2	12,6	230
SAS0450HFYOX-F3FTE29	4x0.50 mm_2	7,8	89
SAS0475HFYOX-F3FTE29	4x0.75 mm_2	8,4	105
SAS0410HFYOX-F3FTE29	4x1.00 mm_2	8,8	122
SAS0415HFYOX-F3FTE29	4x1.50 mm_2	9,6	148
SAS0425HFYOX-F3FTE29	4x2.50 mm_2	11,0	213

EVAC CABLE for voice evacuation systems- Purple Colour

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0250HXYOH-F3FTE29	2x0.50 mm_2	7,0	61
SAS0275HXYOH-F3FTE29	2x0.75 mm_2	7,5	69
SAS0210HXYOH-F3FTE29	2x1.00 mm_2	7,8	76
SAS0215HXYOH-F3FTE29	2x1.50 mm_2	8,6	95
SAS0225HXYOH-F3FTE29	2x2.50 mm_2	9,6	126
SAS0240HXYOH-F3FTE29	2x2.50 mm_2	11,1	170
SAS0260HXYOH-F3FTE29	2x2.50 mm_2	12,6	230
SAS0450HXYOX-F3FTE29	4x0.50 mm_2	7,8	89
SAS0475HXYOX-F3FTE29	4x0.75 mm_2	8,4	105
SAS0410HXYOX-F3FTE29	4x1.00 mm_2	8,8	122
SAS0415HXYOX-F3FTE29	4x1.50 mm_2	9,6	148
SAS0425HXYOX-F3FTE29	4x2.50 mm_2	11,0	213

Fire Comet

TYPE: STRANDED

CEI 20-105- FTE29OM16 PH120

RAMFIRECRO-F3
FIRE GLASS
CEI 20-105:V2 FTE29OM16

CONSTRUCTION

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, Multistrand
Insulation:
Mica Tape + Cross Liked Polyetilene - XLPE
Wrapping:
at least 1 layer of plastic tape 0,023 mm

Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red or Violet

IDENTIFICATION OF CORE

2 Core
4 Core

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
100/100 V

Reference Standard

- CEI 20-105
- UNI 9795
- CEI 20-36 PH 120
- EN 50200 PH 120
- CEI EN 60332-3-25
-

Temperature Range

During Operation:
-30°C up to +180°C
Fixed Installation:
-30°C up to +75°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS

8 x cable diameter

Italian Market

Fire Comet

CEI 20-105; V2 - FTE29OM16

TYPE: STRANDED

PH120

CABLE PRINTING

RAMFIRECRO–F3 FIRE COMET CEI 20-105 FTE4OHM1 PH120 mmq UNI 9795 CEI 20-36/4-0 PH120 CEI EN 60332-3-25 - 100/100 V - Uo=400 V + BATCH + MM/YY

EVAC CABLE for voice evacuation systems- Red Colour

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0250HFYOH-F3FTE29	2x0.50 mm_2	6,9	59
SSS0275HFYOH-F3FTE29	2x0.75 mm_2	7,4	67
SSS0210HFYOH-F3FTE29	2x1.00 mm_2	7,7	74
SSS0215HFYOH-F3FTE29	2x1.50 mm_2	8,5	93
SSS0225HFYOH-F3FTE29	2x2.50 mm_2	9,5	124
SSS0240HFYOH-F3FTE29	2x4.00 mm_2	11,0	168
SSS0260HFYOH-F3FTE29	2x6.00 mm_2	12,5	228
SSS0450HFYOX-F3FTE29	4x0.50 mm_2	7,7	87
SSS0475HFYOX-F3FTE29	4x0.75 mm_2	8,3	103
SSS0410HFYOX-F3FTE29	4x1.00 mm_2	8,7	120
SSS0415HFYOX-F3FTE29	4x1.50 mm_2	9,5	146
SSS0425HFYOX-F3FTE29	4x2.50 mm_2	10,9	211

EVAC CABLE for voice evacuation systems- Purple Colour

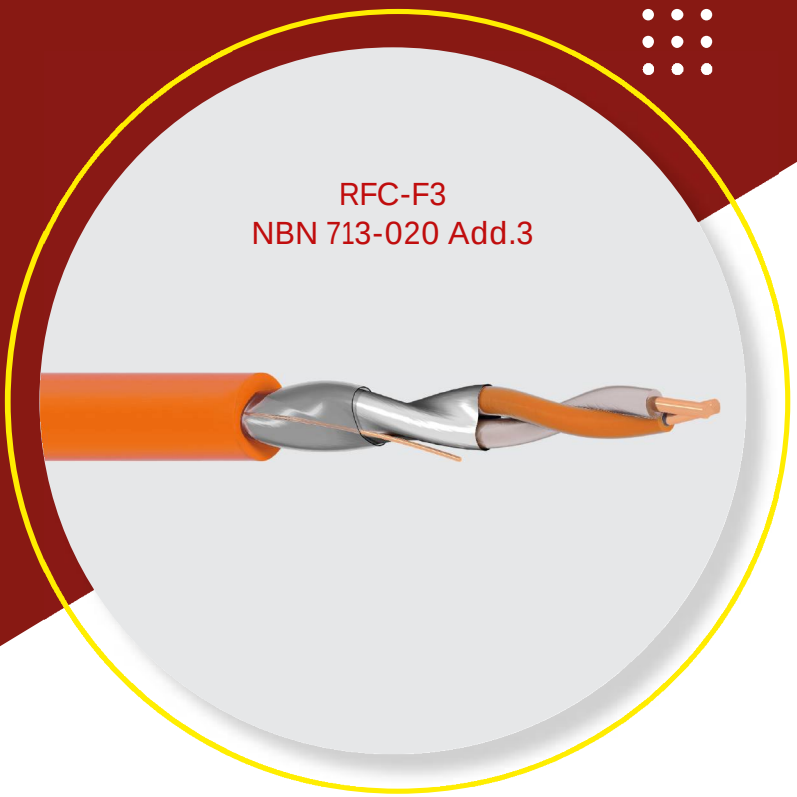
RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0250HXYOH-F3FTE29	2x0.50 mm_2	6,9	59
SSS0275HXYOH-F3FTE29	2x0.75 mm_2	7,4	67
SSS0210HXYOH-F3FTE29	2x1.00 mm_2	7,7	74
SSS0215HXYOH-F3FTE29	2x1.50 mm_2	8,5	93
SSS0225HXYOH-F3FTE29	2x2.50 mm_2	9,5	124
SSS0240HXYOH-F3FTE29	2x2.50 mm_2	11,0	168
SSS0260HXYOH-F3FTE29	2x2.50 mm_2	12,5	228
SSS0450HXYOX-F3FTE29	4x0.50 mm_2	7,7	87
SSS0475HXYOX-F3FTE29	4x0.75 mm_2	8,3	103
SSS0410HXYOX-F3FTE29	4x1.00 mm_2	8,7	120
SSS0415HXYOX-F3FTE29	4x1.50 mm_2	9,5	146
SS0425HXYOX-F3FTE29	4x2.50 mm_2	10,9	211

FIRE RESISTANT CABLE

RFC - F3/RF90 - sd - sa - f1 - f2

TYPE: SOLID

NBN 713-020 Add.3



CONSTRUCTION

Multi-Pairs, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Special Mix Silicon Rubber
Collective Screen:
Aluminium / PETP tape over copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Orange

IDENTIFICATION OF CORE

1 Pair:
2 Pair:
3 Pair:

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
100/100 V

Reference Standard

- NBN 713-020 Add.3
- EN 50200:2015
- NBN C 30-004 F2 FR2
- IEC 60332-21
- IEC 60332-1

On Request

- Armor in Double Steel Tape (STA)
- Armor in Steel Wire Armour (SWA)
- Conductor Multistrand, Class 5

Temperature Range

Fixed Installation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS

8 x cable diameter

Belgian Market

Low Smoke Halogen free

RFC - F3/RF90 - sd - sa - f1 - f2

TYPE: SOLID

NBN 713-020 Add.3

CABLE PRINTING

RFC-F3 RF90 IEC 60331-21 / NBN 713-020 Add.3 / NBN C30-004 LSZH SA-ST-SD F1-F2 1X2X0.90 mm + E SAM0109HUEL-F3(BE) - <batch> - MADE IN ITALY - Meter Marking

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAM0109HUEL-F3(BE)	1x2x0.90	5.9	44
SAM0209HUEL-F3(BE)	2x2x0.90	8.9	83
SAM0309HUEL-F3(BE)	3x2x0.90	9.5	109
SAM0509HUEL-F3(BE)	5x2x0.90	11.6	146
SAM0709HUEL-F3(BE)	7x2x0.90	13.0	174
SAM1009HUEL-F3(BE)	10x2x0.90	16.6	215
SAM1509HUEL-F3(BE)	15x2x0.90	19.4	283

RFC - F3/RF90 - sd - sa - f1 - f2

TYPE: SOLID

NBN 713-020 Add.3

CONSTRUCTION

Multi-Core, Solid CU, Silicon Rubber-Insulation, LSZH-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Special Mix Silicon Rubber
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Orange

IDENTIFICATION OF CORE

In acc. to HD 308

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- NBN 713-020 Add.3
- EN 50200:2015
- NBN C 30-004 F2 FR2
- IEC 60332-21
- IEC 60332-1

On Request

- Armor in Double Steel Tape (STA)
- Armor in Steel Wire Armour (SWA)
- Conductor Multistrand, Class 5

Temperature Range

Fixed Installation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS

8 x cable diameter

Belgian Market

Low Smoke Halogen free

RFC - F3/RF90 - sd - sa - f1 - f2

TYPE: SOLID

NBN 713-020 Add.3

CABLE PRINTING

RFC-F3 RF90 IEC 60331-21 / NBN 713-020 Add.3 / NBN C30-004 LSZH SA-ST-SD F1-F2 2X1.50 mm2 SSR0214HUELL-F3(BE) - <batch> - MADE IN ITALY - Meter Marking

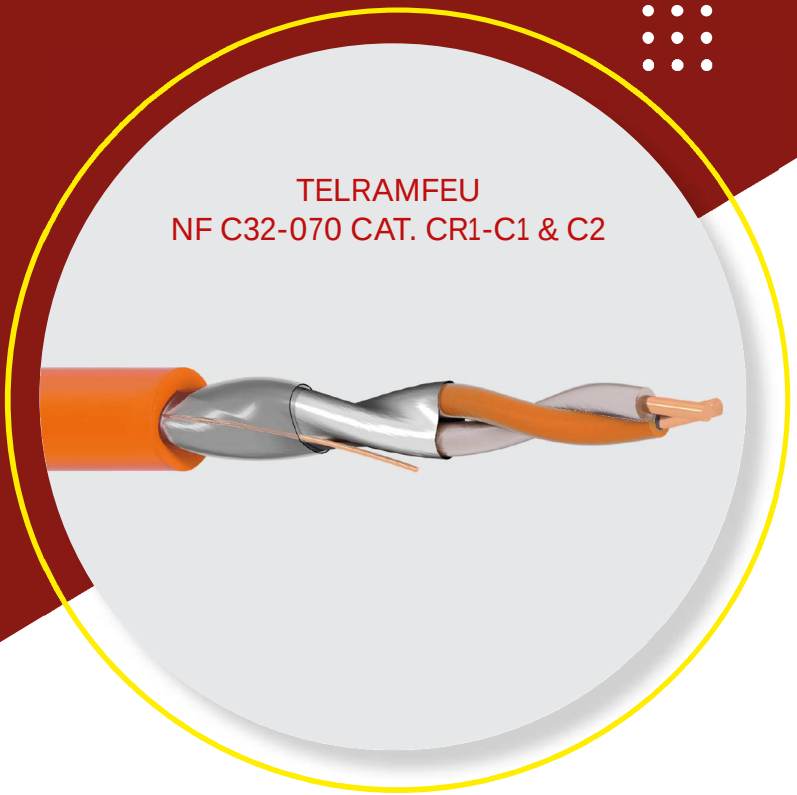
DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSR0214HUEL-F3(BE)	2x1.50	8.0	88
SSR0414HUEL-F3(BE)	4x1.50	9.2	115
SSR0514HUEL-F3(BE)	5x1.50	10.2	139
SSR0714HUEL-F3(BE)	7x1.50	11.2	183
SSR1214HUEL-F3(BE)	12x1.50	14.6	99
SSR1914HUEL-F3(BE)	19x1.50	17.4	133
SSR0218HUEL-F3(BE)	2x2.50	8.8	174
SSR0418HUEL-F3(BE)	4x2.50	10.1	211
SSR0518HUEL-F3(BE)	5x2.50	11.3	148
SSR0718HUEL-F3(BE)	7x2.50	12.4	201
SSR1218HUEL-F3(BE)	12x2.50	16.3	263
SSR1918HUEL-F3(BE)	19x2.50	19.4	320

Telramfeu

TYPE: SOLID

NF C32-070 CAT. CR1-C1 & C2



CONSTRUCTION

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Special Mix Silicon Rubber
Collective Screen:
Aluminium / PETP tape over copper drain wire
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Orange

IDENTIFICATION OF CORE

1 Pair:
2 Pair:
3 Pair:

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
170/300 V

Reference Standard

- NF C32-070 CAT. CR1-C1 & C2
- EN 50200
- NF C32-310

On Request

- Armor in Double Steel Tape (STA)
- Armor in Steel Wire Armour (SWA)
- Conductor Multistrand, Class 5

Temperature Range

Fixed Installation:
-30°C up to +180°C
During Installation:
-5°C up to +50°C

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS

8 x cable diameter

French Market

Low Smoke Halogen free

Telramfeu

TYPE: SOLID

NF C32-070 CAT. CR1-C1 & C2

CABLE PRINTING

RAMFIRECRO-F3 TELRAMFEU ARMOURED - 1X2X0.9 mm - 170/300 V - repond aux exigences du CR1/C1 - Batch - Meter Marking

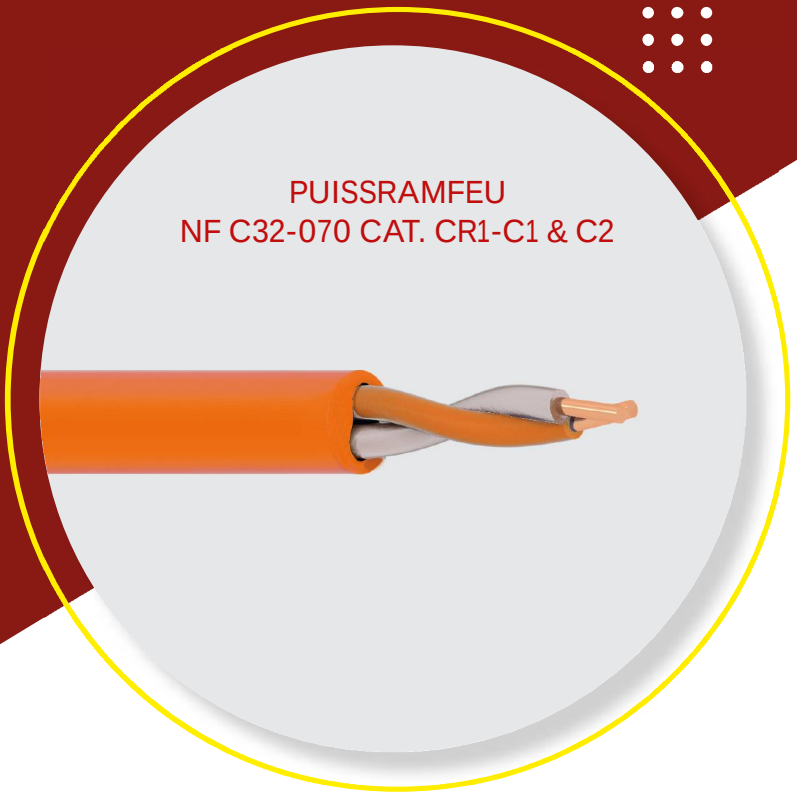
DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAM0109HUESX-F3TEL	1x2x0.90	5.7	44
SAM0209HUESX-F3TEL	2x2x0.90	8.7	83
SAM0309HUESX-F3TEL	3x2x0.90	9.3	109
SAM0409HUESX-F3TEL	4x2x0.90	10.6	146
SAM0509HUESX-F3TEL	5x2x0.90	11.6	174
SAM0609HUESX-F3TEL	6x2x0.90	13	215
SAM0809HUESX-F3TEL	8x2x0.90	14.7	283
SAM1009HUESX-F3TEL	10x2x0.90	17	345
SAM1209HUESX-F3TEL	12x2x0.90	17.5	395

Puissramfeu

TYPE: SOLID

NF C32-070 CAT. CR1-C1 & C2



CONSTRUCTION

Multi-Core, Solid CU, Silicon Rubber-Insulation, LSZH-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Special Mix Silicon Rubber
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Orange

IDENTIFICATION OF CORE

In acc. to HD 308

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300/500 V

Reference Standard

- NF C32-070 CAT. CR1-C1 & C2
- EN 50200
- NF C32-310

On Request

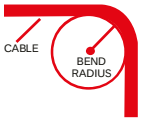
- Armor in Double Steel Tape (STA)
- Armor in Steel Wire Armour (SWA)
- Conductor Multistrand, Class 5

Temperature Range

Fixed Installation:
-30° C up to +180°C
During Installation:
-5° C up to +50°C

Fire Resistant

Min. Bending Radius



8 x cable diameter

French Market

Low Smoke Halogen free

Puissramfeu

TYPE: SOLID

NF C32-070 CAT. CR1-C1 & C2

CABLE PRINTING

Ramfirecro-F3 PUISSRAMFEU - 2x1,5 mm2 - 300/500 V - repond aux exigences du CR1/C1 - Batch - Meter Marking

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSR0214HUYSL-F3PUISS	2x1.50	6.6	88
SSR0314HUYSX-F3PUISS	3x1.50	7.4	115
SSR0414HUYSX-F3PUISS	4x1.50	8.3	139
SSR0514HUYSX-F3PUISS	5x1.50	9.1	183
SSR0218HUYSL-F3PUISS	2x2.50	8.4	99
SSR0318HUYSX-F3PUISS	3x2.50	8.9	133
SSR0418HUYSX-F3PUISS	4x2.50	10	174
SSR0518HUYSX-F3PUISS	5x2.50	10.9	211
SSS0240HUYSL-F3PUISS	2x4.00	10	148
SSS0340HUYSL-F3PUISS	3x4.00	10.6	201
SSS0440HUYSL-F3PUISS	4x4.00	11.9	263
SSS0540HUYSL-F3PUISS	5x4.00	13	320
SSS0260HUYSL-F3PUISS	2x6.00	11.4	201
SSS0360HUYSL-F3PUISS	3x6.00	12.3	285
SSS0460HUYSL-F3PUISS	4x6.00	13.6	365
SSS0560HUYSL-F3PUISS	5x6.00	15.1	455

Lancro Fire Resistant

TYPE: SOLID

EIA/TIA 568A, ISO/IEC 11801

CONSTRUCTION

Multi-Core, Solid CU, PO + Fire Resistant Tape-Insulation, Collective Screen, LSZH-Sheath

Conductor:
Plain annealed copper wire, solid
Insulation:
- PO + Fire Resistant Tape
Wrapping:
Fiber Glass Tape + at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape + Tinned Copper Braid
Outer Sheath:
Thermoplastic Low Smoke, Halogen Free
Sheath Colour:
Red

IDENTIFICATION OF CORE

1 Pair:
2 Pair:
3 Pair:
4 Pair:

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 200 MOhm*Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300 V

Reference Standard

- IEC 60331-21:1999
- IEC 60332-1-2:2004
- IEC 61034-2:2005
- EN 60754-1:2014

Temperature Range

During Operation:
-30° C up to +180°C
During Installation:
-5° C up to +50°C

LPCB
568g/01

Fire Resistant

Min. Bending Radius

CABLE
BEND RADIUS
8 x cable diameter

Data LAN

Lancro Fire Resistant

LPCB 568g/01

TYPE: SOLID

EIA/TIA 568A, ISO/IEC 11801

CABLE PRINTING

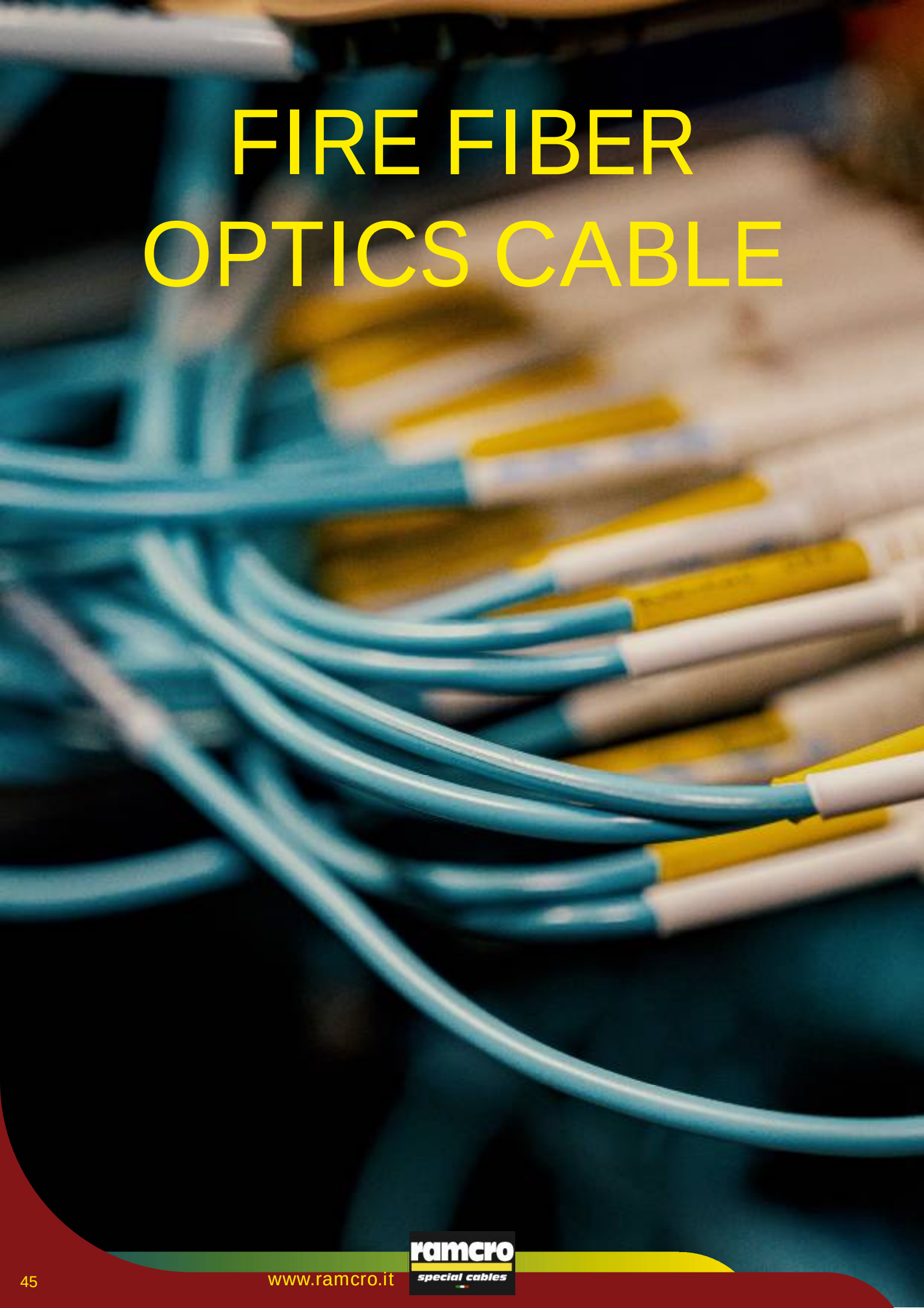
RAMFIRECRO-F3 IEC 60331 LANCRO FIRE RESISTANT IEC 60331-21:1999 - FIRE RESISTANT Data Cable Cat. 6 - CONDxAREA 4x2x23AWG + E - LPCB 568g/01 – LSZH 90 min. 750 - IEC 60331-21:1999 – IEC 60332-1-2:2004 – EN 61034-2:2005 – EN 60754-1:2014 - 300 V - BATCH N° + METER MARKING

DIMENSIONAL DATA

RAMCRO CODE		FORMATION [n° x mm2]		OUTER DIAMETER [mm]	WEIGHT [kg/km]	
SAM0406HFEDX-F3CAT.6		4x2x23AWG*		8,0*	85	
Frequency (MHz)	Max. Insetion Loss (dB/100 m)	Min. NEXT (dB)	Min. PSNEXT (dB)	Min. ACR (dB)	Min. PSACR (dB)	Min. ACFR (ELFEXT) (dB)
1	2.8	75.3	72.3	93	67	68
4	3.8	66.3	63.3	82	67	56
10	6	60.4	57.3	73	67	48
20	8.5	55.8	52.8	67	67	42
30	10.5	53.1	50.1	63	67	38.4
100	19.9	45.3	42.3	53	62.5	28
150	24.9	42.7	39.7	50	59.8	24.5
200	29.1	40.8	37.8	47	58	22
250	33	39.3	36.3	45	56.5	20

* Cables certified by LPCB BRE GLOBAL

FIRE FIBER OPTICS CABLE

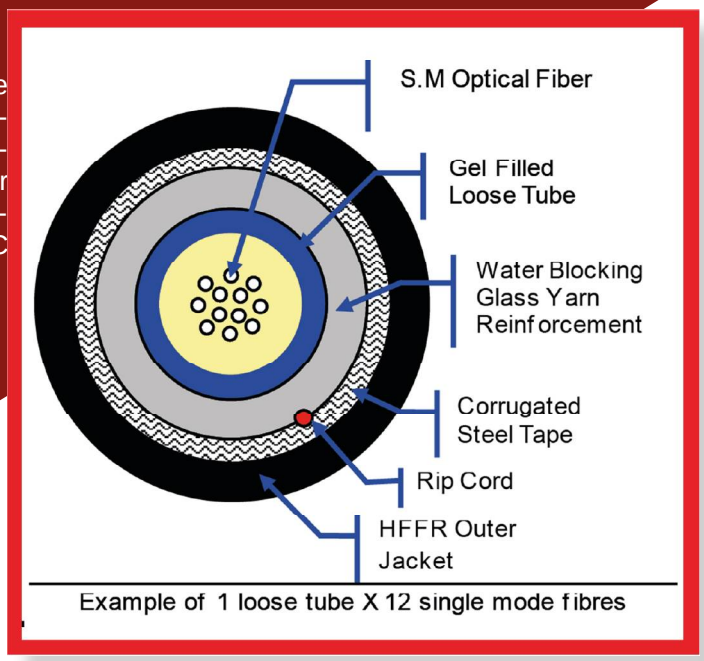


Fiber Optic
Loose Tube

SINGLE MODE 9/125 µm

DESCRIPTION

These Fiber Optic cables can incorporate up to 24 single-mode fibres. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial, or latched installations. Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively



Example of 1 loose tube X 12 single mode fibres

REFERENCE STANDARD

- IEC 60331-25:1999
- IEC 60332-1-2:2004
- EN 61034-2:2005
- EN 60754-1:2014

CONSTRUCTION

Fibers:
Up to Twenty-four single mode fibers, meeting or exceeding the ITU-T G.652/G.651 and/or IEC 60793 specifications color coded for easy identification

Tubes:
PBT tube.

Filling:
The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

Tubes Filles:
Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

Sheath:
A UV-resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armoring.

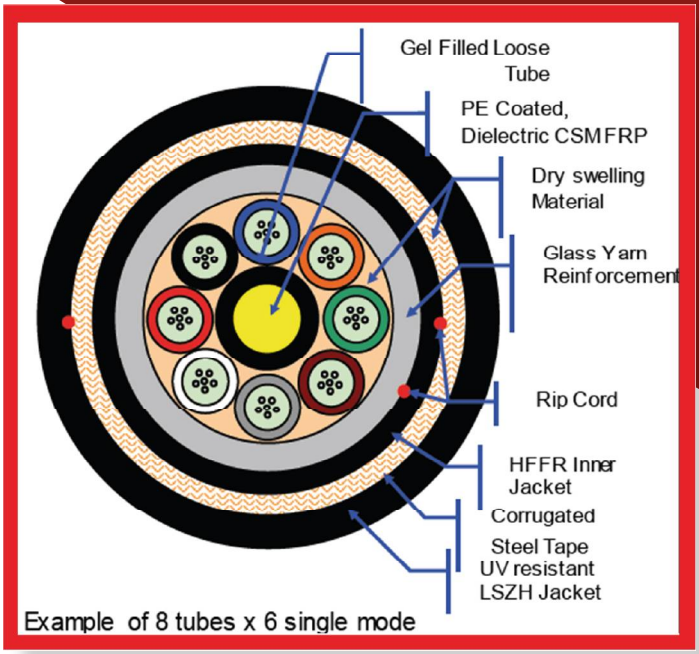
Ripcords:
laid under the steel tape to facilitate the jacket removal.

IDENTIFICATION OF FIBERS

FIBER COLOR	FIBER NUMBER
Blue	1
Orange	2
Green	3
Brown	4
Slate	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

Fiber Optic
Multi Tube

SINGLE MODE 9/125 µm



DESCRIPTION

These Fiber Optic cables can incorporate up to 24 single mode fibers. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial or latched installations. Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.

REFERENCE STANDARD

- IEC 60331-25:1999
- IEC 60332-1-2:2004
- EN 61034-2:2005
- EN 60754-1:2014

CONSTRUCTION

Fibers:
Up to 432 optical single mode fibers color coded for easy identification

Tubes:
PBT tube he tubes are SZ stranded around a dielectric central member

Filling:
The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

Tubes Filles:
Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

Sheath:
UV resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armoring.
.

Ripcords:
laid under the steel tape to facilitate the jacket removal.

IDENTIFICATION OF FIBERS

FIBER COLOR	FIBER NUMBER
Blue	1
Orange	2
Green	3
Brown	4
Slate	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

LPCB

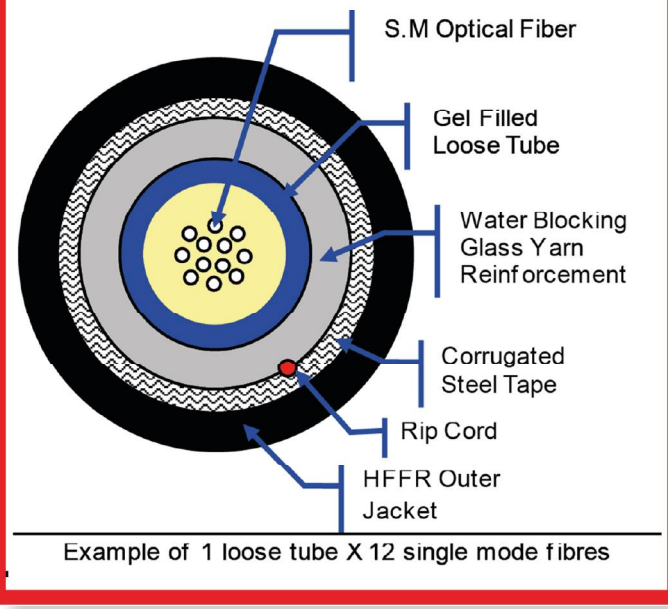
Applicable for 6 FO SM/MM unarmoured

Fiber Optic
Loose Tube

MULTI MODE OM3 50/125 µm - 50/125 µm - 62.5/125 µm

DESCRIPTION

These Fiber Optic cables can incorporate up to 24 single-mode fibres. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial, or latched installations. Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.



Example of 1 loose tube X 12 single mode fibres

REFERENCE STANDARD

- IEC 60331-25:1999
- IEC 60332-1-2:2004
- EN 61034-2:2005
- EN 60754-1:2014

CONSTRUCTION

Fibers:
Up to Twenty-four single mode fibers, meeting or exceeding the ITU-T G.652/G.651 and/or IEC 60793 specifications color coded for easy identification

Tubes:
PBT tube.

Filling:
The tube is filled with water blocking, thixotropic gel to prevent the ingress of water

Tubes Filles:
Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

Sheath:
A UV-resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armoring.

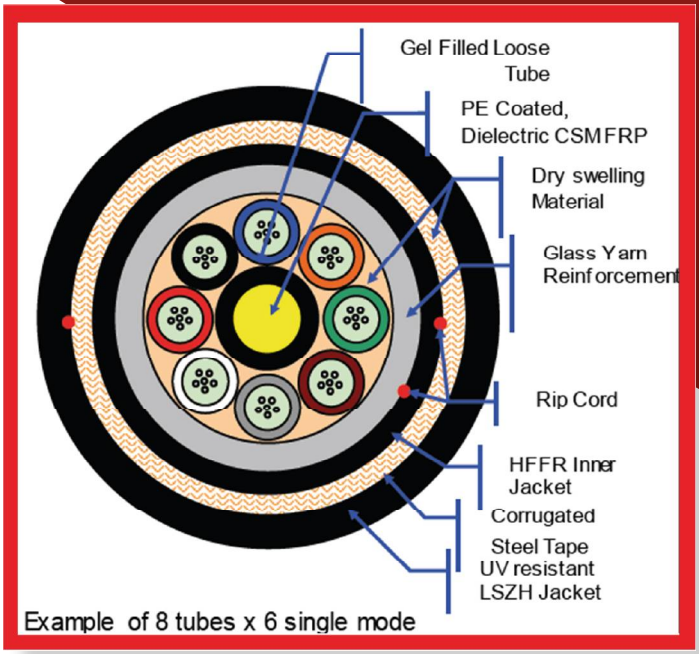
Ripcords:
laid under the steel tape to facilitate the jacket removal.

IDENTIFICATION OF FIBERS

FIBER COLOR	FIBER NUMBER
Blue	1
Orange	2
Green	3
Brown	4
Slate	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

Fiber Optic
Multi Tube

MULTI MODE OM3 50/125 µm - 50/125 µm - 62.5/125 µm



DESCRIPTION

These Fiber Optic cables can incorporate up to 24 single mode fibers. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial or latched installations. Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.

REFERENCE STANDARD

- IEC 60331-25:1999
- IEC 60332-1-2:2004
- EN 61034-2:2005
- EN 60754-1:2014

CONSTRUCTION

Fibers:
Up to 432 optical single mode fibers color coded for easy identification

Tubes:
PBT tube he tubes are SZ stranded around a dielectric central member

Filling:
The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

Tubes Filles:
Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

Sheath:
UV resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armoring.
.

Ripcords:
laid under the steel tape to facilitate the jacket removal.

IDENTIFICATION OF FIBERS

FIBER COLOR	FIBER NUMBER
Blue	1
Orange	2
Green	3
Brown	4
Slate	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

LPCB

Applicable for 6 FO SM/MM unarmoured

Fiber Optic - CR1-C1
XP C 93-539
Loose Tube

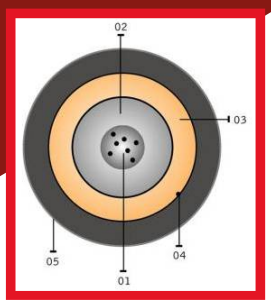
APPLICATIONS

- Indoor installation
- For fixed installation in ducts, tubes and trenches
- Fire resistant
- Flame and Fire retardant
- Halogen Free
- Low smoke emission – UV stabilized

REFERENCE STANDARD

IEC 60793 IEC 60794-1-2

Flame spread:	IEC 60332-1-2 / NF C 32-070 C2
Smoke toxicity:	IEC 60754-1 / EN 50267-2-1



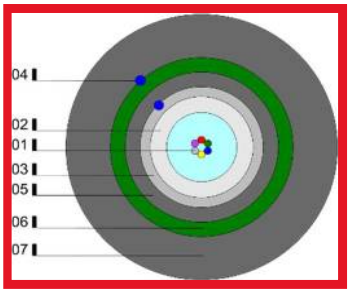
CONSTRUCTION

1 - Fibers:
Up to Twenty-four single mode fibers, meeting or exceeding the ITU-T G.652/G.651 and/or IEC 60793 specifications
Color coded following TIA/EIA 598 for easy identification
2 - Tube:
PBT tube filled with water blocking, thixotropic gel to prevent the ingress of water
3 - Tubes Filles:
Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration, with overall Fiber Glass Tape.
4 - Ripcord:
laid under the jacket for easy removal.
5 - Sheath:
A UV-resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the Fiber Glass Tape.

APPLICATIONS

- Outdoor or indoor/outdoor installation
- For installation in ducts, tubes, trenches, or directly buried
- Fire resistant
- Flame and Fire retardant
- Halogen Free
- Low smoke emission – UV stabilized
- Rodent resistant – Corrugated steel tape armor

Smoke opacity:	IEC 61034-2 / EN 50268-2
Spread of fire:	IEC 60332-3-24 / NF C 32-070 C1
Fire resistance:	IEC 60331-25 / NF C 32-070 CR1
	EN 50200 / XP C 93-539

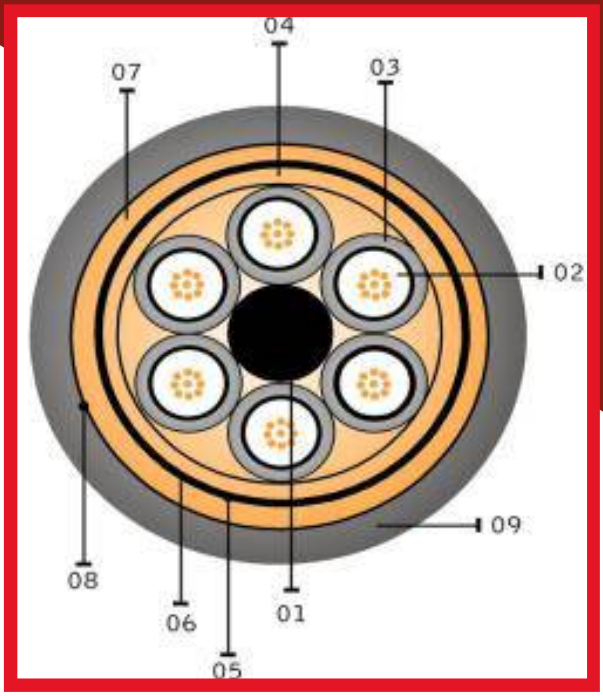


CONSTRUCTION

1 - Fibers:
Up to Twenty-four single mode fibers, meeting or exceeding the ITU-T G.652/G.651 and/or IEC 60793 specifications
Color coded following TIA/EIA 598 for easy identification
2 - Tube:
PBT tube filled with water blocking, thixotropic gel to prevent the ingress of water
3 - Tubes Filles:
Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration, with overall Fiber Glass Tape.
4 - Ripcords:
laid under the steel tape to facilitate the jacket removal.
5 - Inner Sheath:
LSZH inner jacket is extruded over the yarn.
6 - Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.
7 - Sheath:
A UV-resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armoring.

Code	Type of Fiber	N. Fibres	Fibres per tube	Active Tubes	Tube Diameter mm	Outer Diam. mm
FO4x9_125SMSTZA-F3XPC	UnArmoured	4	4	1	2,7	8,9
FO6x9_125SMSTZA-F3XPC	UnArmoured	6	6	1	2,7	8,9
FO12x9_125SMSTZA-F3XPC	UnArmoured	12	12	1	2,7	8,9
FO24x9_125SMSTZA-F3XPC	UnArmoured	24	24	1	2,7	8,9
FO4x9_125SMSTCSTZA-F3XPC	Armoured	4	4	1	2,7	10,0
FO6x9_125SMSTCSTZA-F3XPC	Armoured	6	6	1	2,7	10,0
FO12x9_125SMSTCSTZA-F3XPC	Armoured	12	12	1	2,7	10,0
FO24x9_125SMSTCSTZA-F3XPC	Armoured	24	6	1	2,7	10,0

Fiber Optic - CR1-C1
XP C 93-539
Multi Tube



DESCRIPTION

- Outdoor installation
- For installation in conduits, cable trays, ducted or directly buried
- Rodent resistant – Reinforced corrugated steel tape armor
- Sealing – Water-repellent barrier construction – Dry conductor
- Flame and Fire retardant
- Halogen Free
- Low smoke emission – UV stabilized

REFERENCE STANDARD

Flame spread:	IEC 60332-1-2 / NF C 32-070 C2
Smoke opacity:	IEC 61034-2 / EN 50268-2
Smoke toxicity:	IEC 60754-1 / EN 50267-2-1
Spread of fire:	IEC 60332-3-24 NF C 32-070 C1
Fire resistance:	IEC 60331-25 NF C 32-070 CR1

CONSTRUCTION

1 - Dielectric central member
2 - Fibers:
Up to 48 optical ITU-T G.652/G.651 and/or IEC 60793 fibers, Color coded following TIA/EIA 598 for easy identification
3 - Tubes:
PBT tube he tubes filled with water blocking, thixotropic gel to prevent the ingress of water.
4 - Tubes Filles:
Dry, water swelling glass yarn is laid over the tubes to serve as peripheral strength members and to block the cable from water penetration, with overall Fiber Glass Tape.
5 - Ripcord:
laid under the jacket for easy removal.
6 - Inner Sheath:
LSZH inner jacket is extruded over the yarn.
7 - Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.
8 - Ripcords:
laid under the steel tape to facilitate the jacket removal.
9 - Sheath:
A UV-resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armoring.

Code	Type of Fiber	N. Fibres	Fibres per tube	Active Tubes	Tube Diameter mm	Outer Diam. mm
FO6x9_125SMMTCSTZA-F3XPC FO6x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	6	6	1/8	2	16,5
FO12x9_125SMMTCSTZA-F3XPC FO12x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	12	6	2/8	2	16,5
FO24x9_125SMMTCSTZA-F3XPC FO24x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	24	6	4/8	2	16,5
FO36x9_125SMMTCSTZA-F3XPC FO36x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	36	6	6/8	2	16,5
FO48x9_125SMMTCSTZA-F3XPC FO48x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	48	6	8/8	2	16,5
FO72x9_125SMMTCSTZA-F3XPC FO72x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	72	12	6/8	2	16,5
FO96x9_125SMMTCSTZA-F3XPC FO96x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	96	12	8/8	2	16,5
FO144x9_125SMMTCSTZA-F3XPC FO144x50_125MMMTCSTZA-F3XPC	Single Mode Multi Mode	144	24	6/8	2	16,5

FIRE ALARM CABLE

fplr - fire alarm cable

TYPE: SOLID
E475091

UL 1424

CONSTRUCTION

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Hi-Performance PVC-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Hi Temperature Polyvinylchloride - PVC HT 105°C
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Outer Sheath:
High-Performance Polyvinyl chloride - Hi-PVC
Sheath Colour:
Red

IDENTIFICATION OF CORE

2 Core: ● ●

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 25 MOhm/Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300 V

Reference Standard

- UL 1424 (FPRL Type)
- NEC Article 760
- NEC Article 725
- UL 1666
- ASTM D 1329
- NF C 32-020
- IRAM IAP
- EN 50266-2
- IEC 60332-1
- IEC 60332-3

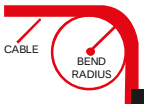
Temperature Range

During Operation:
-30°C up to +105°C
During Installation:
-5°C up to +50°C

E475091

Fire Resistant

Min. Bending Radius



8 x cable diameter

Low Smoke Halogen free

fplr - fire alarm cable

E475091

TYPE: SOLID

UL 1424

CABLE PRINTING

RAMCRO S.p.A. – (UL) Listed E475091 Type FPLR - 2 C 18AWG - Shielded - 105°C + BATCH + METER MARKING

SCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0204HFOCH-UL-FA	2x20AWG	3.9	20
SAR0203HFOCH-UL-FA	2x18AWG	4.3	27
SAR0202HFOCH-UL-FA	2x16AWG	4.9	38
SAR0201HFOCH-UL-FA	2x14AWG	6.2	70
SAR0251HFOCH-UL-FA	2x12AWG	7.2	90

UNSCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSR0204HFOCH-UL-FA	2x20AWG	3.8	22
SSR0203HFOCH-UL-FA	2x18AWG	4.2	29
SSR0202HFOCH-UL-FA	2x16AWG	4.8	35
SSR0201HFOCH-UL-FA	2x14AWG	6.1	75
SSR0251HFOCH-UL-FA	2x12AWG	7.1	92

fplr - fire alarm cable

TYPE: SOLID
E475091

UL 1424

CONSTRUCTION

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Hi-Performance PVC-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Hi Temperature Polyvinylchloride - PVC HT 105°C
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Inner Sheath:
High Performance Polyvinyl chloride - Hi-PVC
Armour:
Galvanized steel wire armour - SWA

Outer Sheath:
High-Performance Polyvinyl chloride - Hi-PVC
Sheath Colour:
Red

IDENTIFICATION OF CORE

2 Core: ● ●

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 25 MOhm/Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300 V

Reference Standard

- UL 1424 (FPRL Type)
- NEC Article 760
- NEC Article 725
- UL 1666
- ASTM D 1329
- NF C 32-020
- IRAM IAP
- EN 50266-2
- IEC 60332-1
- IEC 60332-3

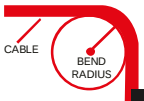
Temperature Range

During Operation:
-30°C up to +105°C
During Installation:
-5°C up to +50°C

E475091

Fire Resistant

Min. Bending Radius



8 x cable diameter

Low Smoke Halogen free

fplr - fire alarm cable

E475091

TYPE: SOLID

UL 1424

CABLE PRINTING

RAMCRO S.p.A. – (UL) Listed E475091 Type FPLR - 2 C 18AWG - Shielded - 105°C + BATCH + METER MARKING

SCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0204AFOCH-UL-FA	2x20AWG	7.9	30	34
SAR0203AFOCH-UL-FA	2x18AWG	8.4	41	21.4
SAR0202AFOCH-UL-FA	2x16AWG	8.7	57	13.5
SAR0201AFOCH-UL-FA	2x14AWG	10.3	105	8.5
SAR0251AFOCH-UL-FA	2x12AWG	11.1	135	5.3

UNSCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SSR0204AFOCH-UL-FA	2x20AWG	8.1	33	34
SSR0203AFOCH-UL-FA	2x18AWG	8.5	44	21.4
SSR0202AFOCH-UL-FA	2x16AWG	8.8	52	13.5
SSR0201AFOCH-UL-FA	2x14AWG	10.4	113	8.5
SSR0251AFOCH-UL-FA	2x12AWG	11.2	138	5.3

fplr-plenum - fire alarm

TYPE: SOLID
E475091

UL 1424

CONSTRUCTION

Multi-Core, PLENUM PVC, unscreened or with collective screen, PLENUM PVC-Sheath

Conductor:
Plain annealed copper wire, Solid
Insulation:
Plenum Polyvinylchloride - PVC
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
0,026 mm Aluminium / PETP tape over copper drain wire
Outer Sheath:
Plenum Polyvinylchloride - PVC
Sheath Colour:
Red

IDENTIFICATION OF CORE

2 Core: ● ●

ELECTRICAL DATA

Insulation Resistance @ 20°C:
> 25 MOhm/Km
Test Voltage Core-Core:
2000 V
Test Voltage Core-Screen:
2000 V
Mutual Capacitance:
< 150 nF/km
Inductance:
< 1 mH/km
Operating Voltage:
300 V

Reference Standard

- UL 1424 (FPRL Type)
- NEC Article 760
- NEC Article 725
- UL 1666- PLENUM
- ASTM D 1329
- NF C 32-020
- IRAM IAP
- EN 50266-2
- IEC 60332-1
- IEC 60332-3

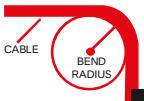
Temperature Range

During Operation:
-30°C up to +75°C
During Installation:
-5°C up to +50°C

E475091

Fire Resistant

Min. Bending Radius



8 x cable diameter

Low Smoke Halogen free

fplr-plenum - fire alarm

E475091

TYPE: SOLID

UL 1424

CABLE PRINTING

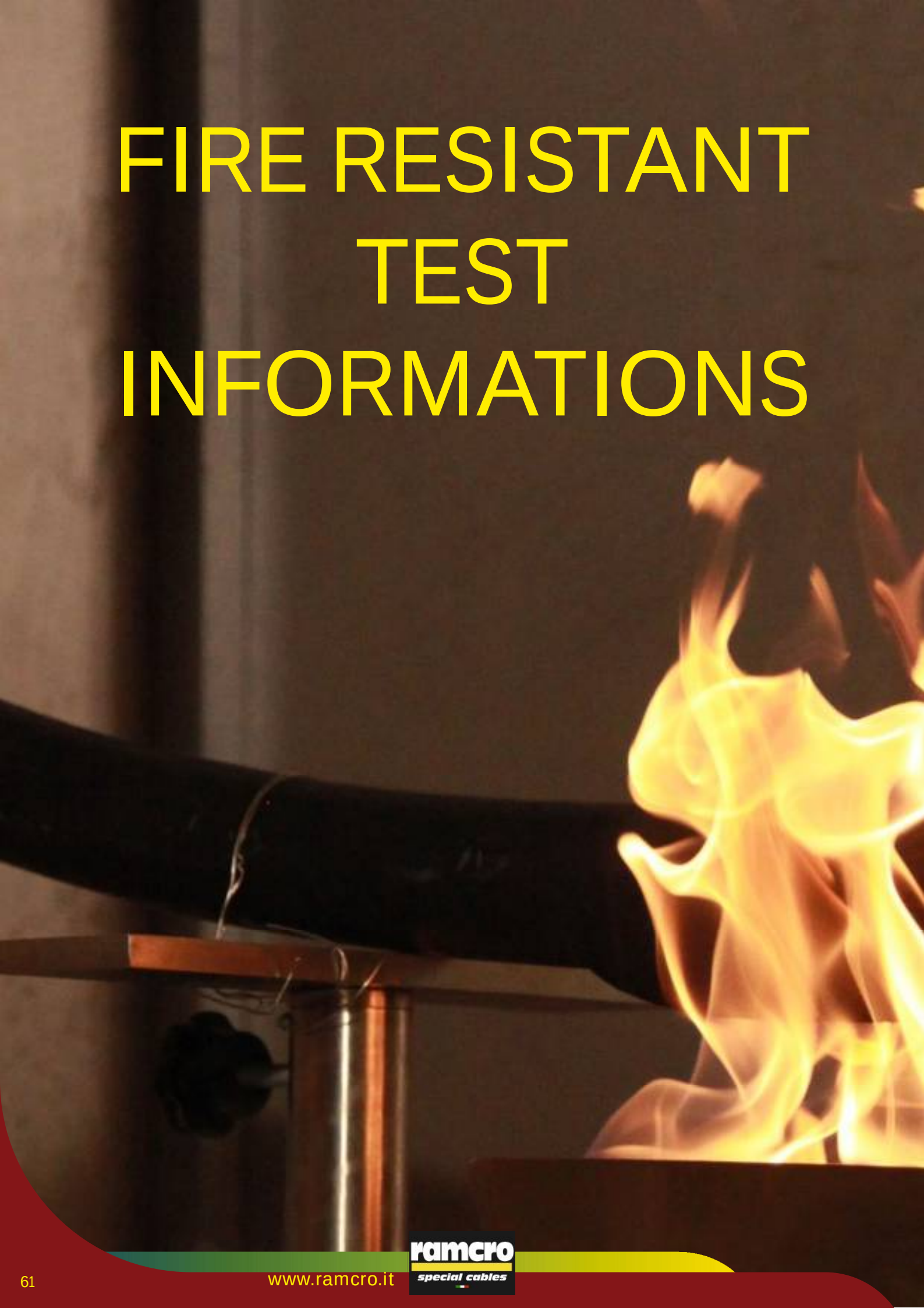
RAMCRO S.p.A. – (UL) Listed E475091 Type FPLR - 2 C 18AWG - Shielded - 75°C + BATCH + METER MARKING

SCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR022HFOCH-UL-LP	2x22AWG	3.3	19
SAR0422HFOCX-UL-LP	4x22AWG	3.6	27
SAR0622HFOCX-UL-LP	6x22AWG	4.3	37
SAR0204HFOCH-UL-LP	2x20AWG	4.5	30
SAR0404HFOCX-UL-LP	4x20AWG	5.1	48
SAR0604HFOCX-UL-LP	6x20AWG	6	68
SAR0203HFOCH-UL-LP	2x18AWG	5	38
SAR0403HFOCX-UL-LP	4x18AWG	5.6	64
SAR0603HFOCX-UL-LP	6x18AWG	6.7	91
SAR0202HFOCH-UL-LP	2x16AWG	5.3	45
SAR0402HFOCX-UL-LP	4x16AWG	5.9	76
SAR0602HFOCX-UL-LP	6x16AWG	7.1	109
SAR0201HFOCH-UL-LP	2x14AWG	6.6	77

UNSCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm2]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSR022HFOCH-UL-LP	2x22AWG	3.2	14
SSR0422HFOCX-UL-LP	4x22AWG	3.5	22
SSR0622HFOCX-UL-LP	6x22AWG	4.2	32
SSR0204HFOCH-UL-LP	2x20AWG	4.4	25
SSR0404HFOCX-UL-LP	4x20AWG	5	43
SSR0604HFOCX-UL-LP	6x20AWG	5.9	62
SSR0203HFOCH-UL-LP	2x18AWG	4.9	33
SSR0403HFOCX-UL-LP	4x18AWG	5.5	58
SSR0603HFOCX-UL-LP	6x18AWG	6.6	85
SSR0202HFOCH-UL-LP	2x16AWG	5.2	39
SSR0402HFOCX-UL-LP	4x16AWG	5.8	71
SSR0602HFOCX-UL-LP	6x16AWG	7	103
SSR0201HFOCH-UL-LP	2x14AWG	6.5	71
SSR0401HFOCH-UL-LP	4x14AWG	7.3	126



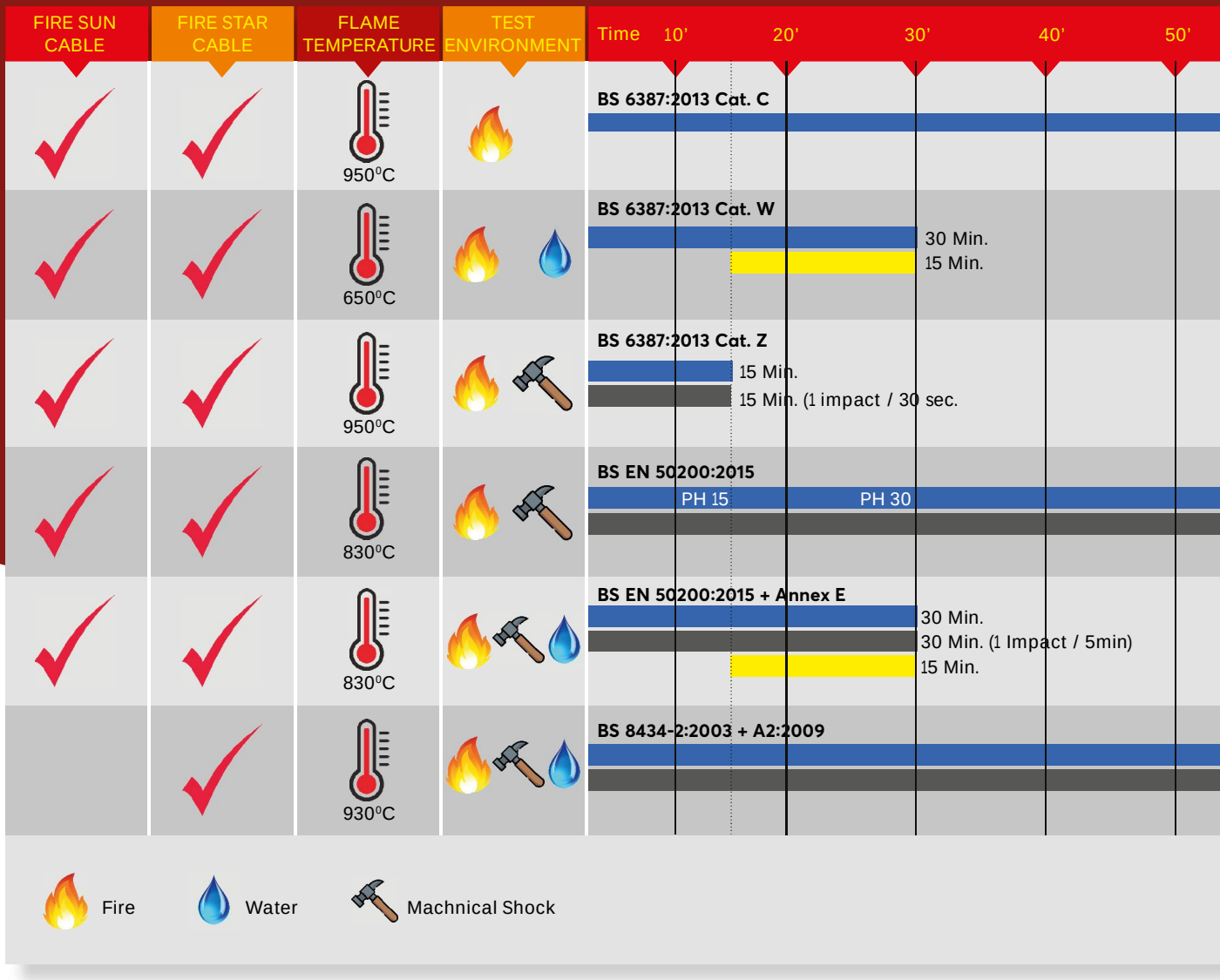
FIRE RESISTANT TEST INFORMATIONS

CABLE FEATURES:

In case of fire risk or to maintain circuits integrity, the Ramcro Fire special cables prevent smoke risks and other collateral problems to sensitive equipments, avoiding damage from gases. Ramcro Fire cables are produced according with all major international standards.

Product range under sub-brand RAMFIRECRO-F3 Manufactured according to:

- International Electro-tecmcal Commission IEC 60331-21
- British Standard BS 6387 Cat. C-W-Z
- British Standard BS 7629
- European Norms EN 50200



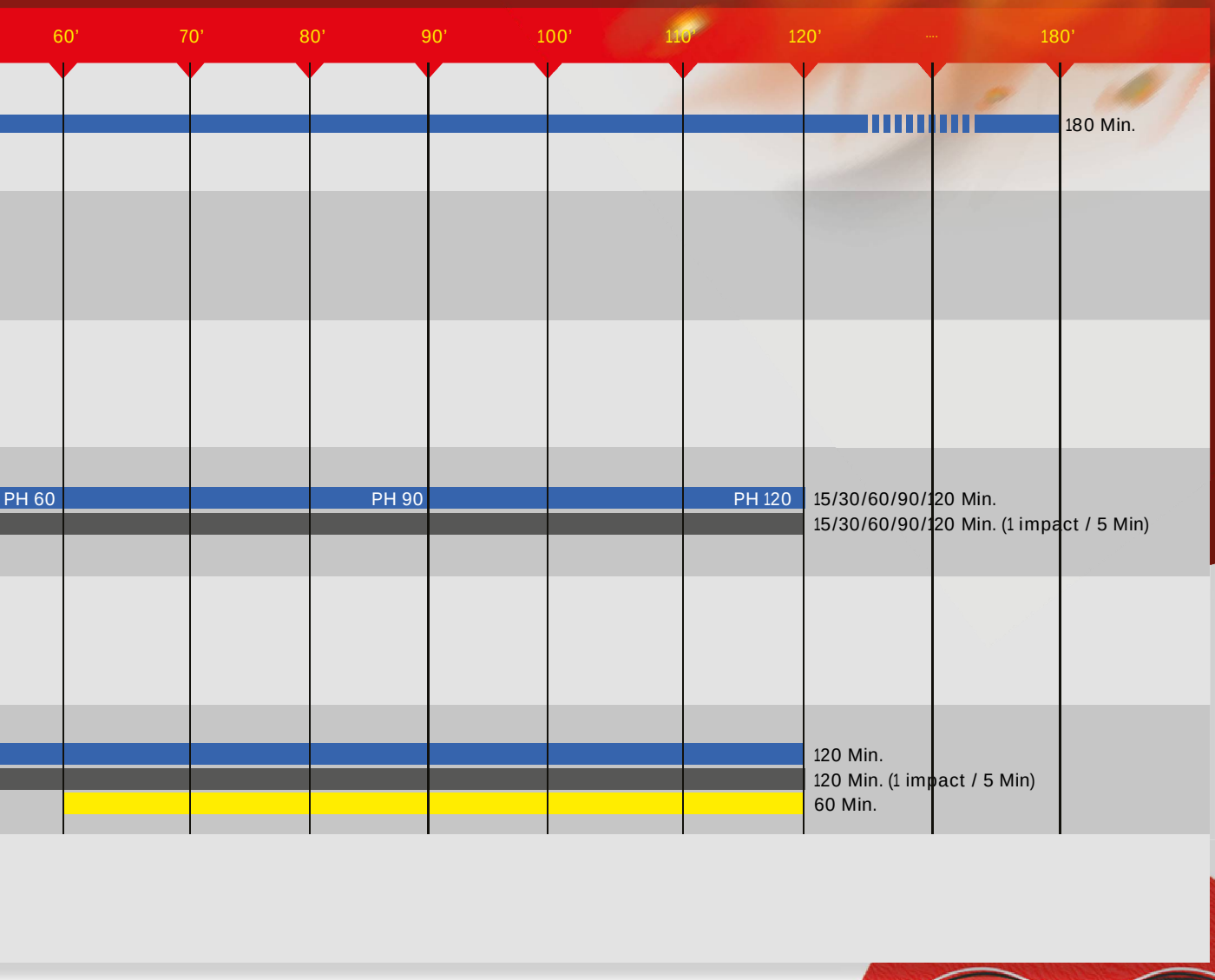
“

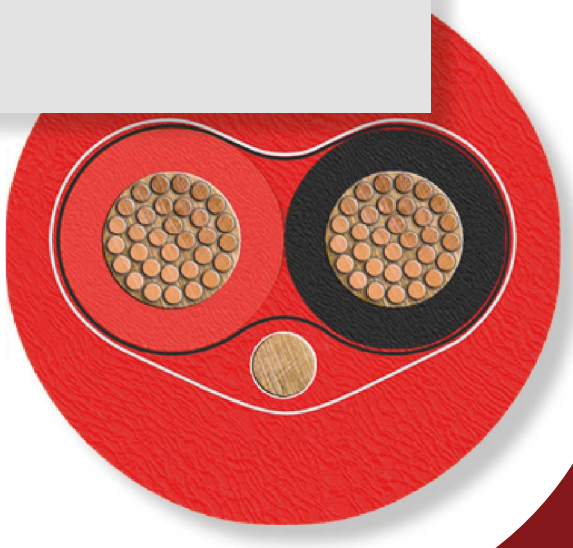
RAMCRO IN THE VERY HEART OF GREAT JOBS.

”

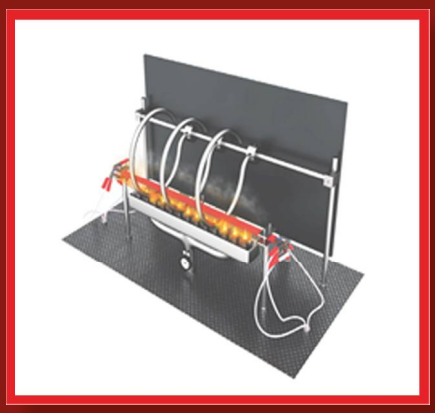
Fire Performance Classification:

- Basic Type: 1EC 60331-21
- Standard Type: BS 6387 Cat. C-W-Z and BS 7629
- Enhanced Type: EN 50200 PHI20 - BS 8434-2





fire resistant
test informations

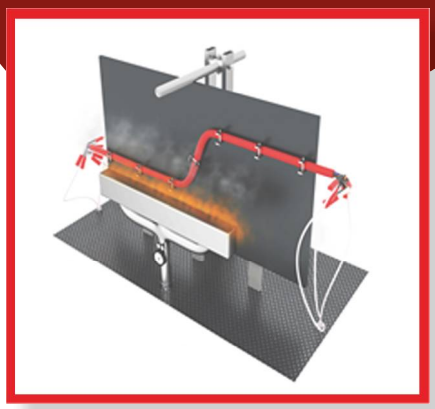


FIRE RESISTANCE (Cat. C)

The cable is exposed to fire at the 950°C for 180 minutes

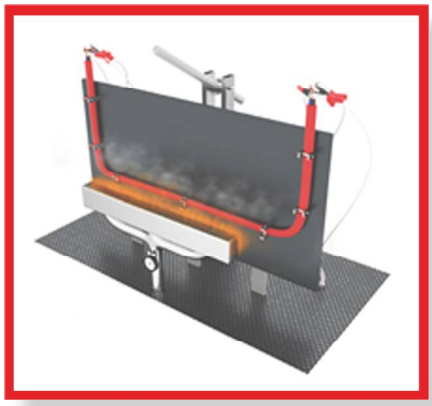
FIRE AND WATER RESISTANCE (Cat. W)

The cable is exposed for 15 minutes to flame at 650°C and for additional 15 minutes to fire and water spray



FIRE RESISTANCE WITH MECHANICAL SHOCKS (Cat. Z)

The cable is mounted on a vertical panel and shocked with a steel bar for 15 minutes while submitted to the action of a flame.



FIRE RESISTANCE (EN 50200 PH 15-30-60-90-120)

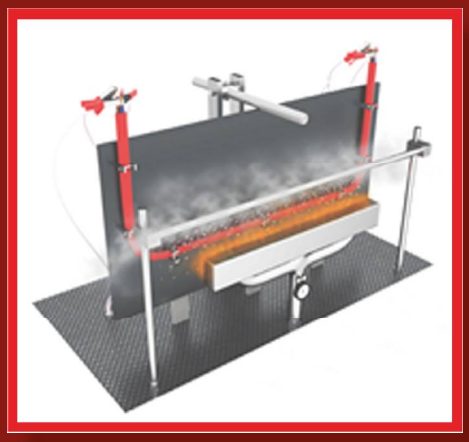
This test is carried out to verify the circuit integrity of cables exposed to fire at 830°C and mechanical shocks.

UNSCREENED CABLE

CLASSIFICATION	
EN 50200 PH 15	Flame exposure for 15 min
EN 50200 PH 30	Flame exposure for 30 min
EN 50200 PH 60	Flame exposure for 60 min
EN 50200 PH 90	Flame exposure for 90 min
EN 50200 PH 120	Flame exposure for 120 min

fire resistant
test informations

FIRE RESISTANCE
BS EN 50200 annex E

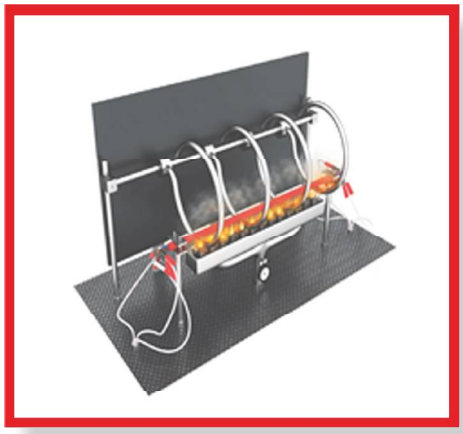


This test is carried out to verify circuit integrity during a fire, The cable is exposed to a flame at 830°C and mechanical shocks for 15 minutes and additional 15 minutes to flame, mechanical shocks, and water spray.

FIRE RESISTANCE
(BS 8434-2)

This test is carried out to verify circuit integrity during a fire. The cable is exposed to a flame at 930°C and mechanical shocks for 60 minutes and additional 60 minutes to flame, mechanical shocks, and water spray.

FIRE RESISTANCE
(IEC 60331-21, CEI 20-36)



This test is carried out to verify circuit integrity even during a fire. A sample of cable is held on a flame at about 750°C for a period of minimum 90 min, under rated voltage.

fire retardant
test informations

FLAME PROPAGATION TEST (IEC 60332-1)
ON A SINGLE CABLE

A 60 cm long sample of cable is vertically fixed with two clamps inside a small cabin, open on the front. The cable is subjected to the action of a flame produced by a calibrated Bunsen burner.

The application time of the flame is according to the cable diameter (60-480 seconds).

At the end of the test the burnt portion of cable must not be 50 mm close to the higher clamp

FIRE PROPAGATION TEST (IEC 60332-3)
ON BUNCHED CABLES

Samples of cables 3,5 m long in quantities required by standard are installed on a ladder inside a metallic cabinet.

They are subjected to the action of a flame at 750°C for a specific time (20 or 40 minutes).

Cables must not burn for more than 2,5 m.

"Ramcro S.p.A Lab have all the above test facilities"

certificates

Certificates of Products Approval

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Certificate of Product Approval

Certificate Number: 568a Issue: 18

RAMCRO S.p.A.

Via Marzorati 15
20014 Nerviano
Milan
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)

Cable Types as listed below:
Ramfirecro-F3 FIRE PLANET

Standards (see Appendix for details)

BS 6387:2013 (CWZ)
EN 60754-1:2014
EN 61034-2:2005+A2:2020
EN 50200:2015 (Class PH120)
EN 50200:2015 Annex E (30 minutes)
EN 60754-2:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Obada Piracha — Certification Manager — 9 November 2023 — 27 October 2003

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Certificate of Product Approval

Certificate Number: 568c Issue: 14

RAMCRO S.p.A.

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20014 Nerviano MI
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)

Cable Types as listed below:
Ramfirecro-F3 Standard FIRE SUN

Standard(s) (see Appendix for details)

BS 7629-1:2015 (Standard 60)
BS 6387:2013 (Category CWZ)
EN 50200:2015 (Class PH120)
EN 50200:2015 Annex E (30 mins)
BS 5839-1:2013 (Clause 26.2d Standard)
EN 60754-2:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Obada Piracha — Certification Manager - Cables — 5 April 2022 — 1 June 2006

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Certificate of Product Approval

Certificate Number: 568e Issue: 06

RAMCRO S.p.A.

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15 - 20014 Nerviano
Nerviano
Milan
20014
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)

Cable Types as listed below:
Ramfirecro-F3 FIRE GROUND

Standard(s) (see Appendix for details)

BS 6387:2013 (CWZ)
EN 60754-1:2014
EN 61034-2:2005+A1:2013
EN 60754-2:2014
EN 60332-3-24:2009
EN 60332-1-2:2004

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Karen Coull — Certification Scheme Manager — 11 September 2018 — 27 May 2016

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Certificate of Product Approval

Certificate Number: 568d Issue: 06

RAMCRO S.p.A

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20014 Nerviano MI
ITALY

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)	Standard(s) (see Appendix for details)
Cable Types as listed below: Ramfirecro-F3 FIRE SAFE See Certificate Appendix for details	IEC 60331-21:1999 EN 50267-2-1:1999 EN 61034-2:2005

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for BRE Global Ltd.	Karen Coull Certification Scheme Manager	20 September 2017 Date of Issue	01 August 2009 Date of First Issue

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Certificate of Product Approval

Certificate Number: 568g Issue: 01

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20014 Nerviano
Milan
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)	Standard(s) (see Appendix for details)
Cable Types as listed below: RAMFIRECRO-F3 Data Cable Category 6 See Certificate Appendix for details	IEC 60331-21:1999 IEC 60332-1-2:2004 EN 61034-2:2005 EN 60754-1:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for LPCB	Tony Baker Certification Scheme Manager	26 July 2017 Date of Issue	26 July 2017 Date of First Issue

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Certificate of Product Approval

Certificate Number: 568h Issue: 01

RAMCRO S.p.A.

Via Marzorati 15
20014 Nerviano
Milan
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)	Standard(s) (see Appendix for details)
Cable Types as listed below: 6 FO Single Mode 6 FO Multi Mode See Certificate Appendix for details	IEC 60331-25:1999 IEC 60332-1-2:2004 EN 61034-2:2005 EN 60754-1:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for LPCB	Tony Baker Certification Scheme Manager	26 July 2017 Date of Issue	26 July 2017 Date of First Issue

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Certificate of Product Approval 568h

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Certificate of Product Approval

Certificate Number: 568j Issue: 06

RAMCRO S.p.A.

Via Marzorati 15
20014 Nerviano
Milan
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

Product(s)

Cable Types as listed below:
Ramfirecro-F3 FIRE STAR

Standard(s) (see Appendix for details)

BS 7629-1:2015 Enhanced 120
EN 50200:2015 (Class PH120)
BS 8434-2:2003+A2:2009 (120 mins)
BS 5839-1:2013 (Clause 26.2e Enhanced)
BS 6387:2013 Category CWZ
EN 60332-3-24:2009

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Signed for BRE Global Ltd.	Obada Piracha Certification Scheme Manager	15 October 2021 Date of Issue	12 April 2018 Date of First Issue

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Certificate of Product Approval 568j

CERTIFICATE OF COMPLIANCE

Certificate Number 20150827-E475091
Report Reference E475091-20150827
Issue Date 2015-AUGUST-27

Issued to: RAMCRO SPA
VIA MARZORATI 15
20014 NERVIANO MILANO ITALY

This is to certify that representative samples of POWER-LIMITED FIRE ALARM CABLE
Power-Limited Fire-Alarm Circuit Cable, Type FPLR

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1424 STANDARD FOR CABLES FOR POWER-LIMITED FIRE-ALARM CIRCUITS

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program
UL LLC

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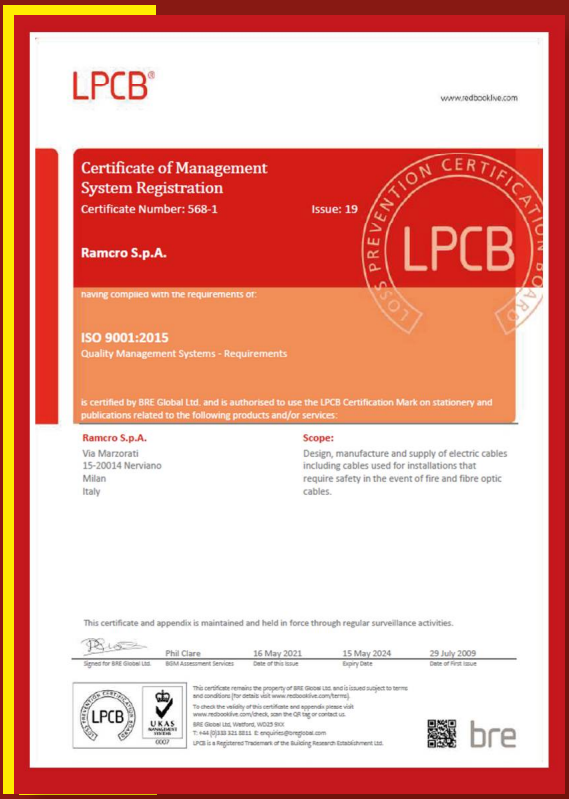
Page 1 of 1

FPLR UL

iso certificates



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Certificate of Management System Registration

Certificate Number: 568-1 Issue: 19

Ramcro S.p.A.

having complied with the requirements of:

ISO 9001:2015

Quality Management Systems - Requirements

is certified by BRE Global Ltd. and is authorised to use the LPCB Certification Mark on stationery and publications related to the following products and/or services:

Ramcro S.p.A.
Via Marzorati
15-20014 Nerviano
Milan
Italy

Scope:
Design, manufacture and supply of electric cables including cables used for installations that require safety in the event of fire and fibre optic cables.

This certificate and appendix is maintained and held in force through regular surveillance activities.

Signed for BRE Global Ltd.	Phil Clare BSM Assessment Services	16 May 2021 Date of this issue	15 May 2024 Expiry Date	29 July 2009 Date of First Issue

LPCB UKAS MANAGEMENT SYSTEMS 0007

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ISO 9001:2015

RINA

CISQ is a member of IQNet

CERTIFICATO N. EMS-5716/AN
CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE AMBIENTALE DI
IT IS HEREBY CERTIFIED THAT THE ENVIRONMENTAL MANAGEMENT SYSTEM OF

RAMCRO S.P.A.

VIA MARZORATI, 15 20014 Nerviano (MI) ITALIA

NELLE SEGUENTI UNITÀ OPERATIVE / IN THE FOLLOWING OPERATIONAL UNITS

VIA MARZORATI, 15 20014 Nerviano (MI) ITALIA

Per informazioni sulla validità del certificato, visitare il sito www.rina.org
For information concerning validity of the certificate, you can visit the site www.rina.org

È CONFORME ALLA NORMA / IS IN COMPLIANCE WITH THE STANDARD

ISO 14001:2015

IAF:19

PER I SEGUENTI CAMPI DI ATTIVITÀ / FOR THE FOLLOWING FIELD(S) OF ACTIVITIES

PROGETTAZIONE E PRODUZIONE DI CAVI ELETTRICI CON CONDUTTORI METALLICI PER TUTTE LE APPLICAZIONI RIVESTITI TRAMITE ESTRUDIONE DI MATERIE TERMOPLASTICHE. COMMERCIALIZZAZIONE DI CAVI IN FIBRA OTTICA.

DESIGN AND MANUFACTURE OF ELECTRIC CABLES WITH METAL CONDUCTORS FOR ALL APPLICATIONS SHEATHED BY EXTRUDED THERMOPLASTIC MATERIALS. TRADE OF FIBRE OPTIC CABLES.

L'uso e la validità del presente certificato sono soggetti al rispetto del documento RINA Regolamento per la Certificazione di Sistemi di Gestione Ambientale
The use and the validity of this certificate are subject to compliance with the RINA document Rules for the Certification of Environmental Management Systems
La validità del presente certificato è subordinata a sorveglianza periodica annuale / semestrale ed al riesame completo del sistema di gestione con periodicità triennale
The validity of this certificate is dependent on an annual / six monthly audit and on a complete review, every three years, of the management system

Prima emissione First issue	23.12.2014	Data decisione di rinnovo Renewal decision date	22.12.2020
Data scadenza Expiry Date	22.12.2023	Data revisione Revision date	22.12.2020

Davide Torti
Turin Management System Certification, Head

RINA Services S.p.A.
Via Corsica 12 - 16128 Genova Italy

IAF ANAB CISQ

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale
CISQ is the Italian Federation of management system Certification Bodies

ISO 14001:2015

RINA

CISQ is a member of IQNet

CERTIFICATO N. OHS-2224
CERTIFICATE No.

Si certifica che il Sistema di Gestione della Sicurezza e della Salute sul luogo di lavoro di
It is hereby certified that the Occupational Health and Safety Management System of

RAMCRO S.P.A.

VIA MARZORATI, 15 20014 Nerviano (MI) ITALIA

nelle seguenti unità operative / in the following operational units

VIA MARZORATI, 15 20014 Nerviano (MI) ITALIA

Per informazioni sulla validità del certificato, visitare il sito www.rina.org
For information concerning validity of the certificate, you can visit the site www.rina.org

è conforme alla norma / is in compliance with the standard

ISO 45001:2018

per le seguenti attività / for the following activities

IAF:19

PROGETTAZIONE, PRODUZIONE DI CAVI ELETTRICI CON CONDUTTORI METALLICI PER TUTTE LE APPLICAZIONI RIVESTITI TRAMITE ESTRUSIONE DI MATERIE TERMOPLASTICHE. COMMERCIALIZZAZIONE DI CAVI IN FIBRA OTTICA.

DESIGN AND MANUFACTURE OF ELECTRIC CABLES WITH METAL CONDUCTORS FOR ALL APPLICATIONS SHEATHED BY EXTRUDED THERMOPLASTIC MATERIALS. TRADE OF FIBRE OPTIC CABLES.

La validità del presente certificato è subordinata a sorveglianza periodica annuale / semestrale ed al riesame completo del sistema di gestione con periodicità triennale
The validity of this certificate is dependent on an annual / six monthly audit and on a complete review, every three years, of the management system
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The use and validity of this certificate are subject to compliance with the RINA document Rules for the Certification of Occupational Health and Safety Management Systems

Prima emissione First issue	23.12.2014	Data decisione di rinnovo Renewal decision date	22.12.2020
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Davide Torti
Turin Management System Certification, Head

RINA Services S.p.A.
Via Corsica 12 - 16128 Genova Italy

ANAB CISQ

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale
CISQ is the Italian Federation of management system Certification Bodies

ISO 45001:2018

HANDLING, STORAGE AND LAYING OF CABLES

Great care is taken in the manufacturing of cables to ensure quality at every stage.

- Handling is the next important factor to ensure that by poor workmanship and mishandling the quality does not deteriorate.
- Of course laying is generally carried out by unskilled or semi-skilled men, strict supervision should be maintained so that this material, which can be very easily damaged, is handled with great care.
- If great care during installation is observed in the handling of cables on site the life of the cables is extended.

A. CABLE INSPECTION

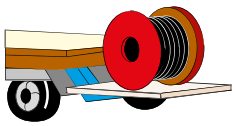
1. Inspect every cable reel for damage before accepting the shipment. Be particularly alert for cable damage if:
2. A reel is lying flat on its side
3. Several reels are stacked one over the other
4. Other freight is stacked on a reel
5. Cable drums are without planks or broken
6. Nails have been driven into reel flanges to secure shipping blocks
7. A reel flange is damaged
8. A cable covering is removed, stained or damaged
9. A cable end seal is removed or damaged. A reel has been dropped (hidden damage likely)

B. CABLE HANDLING & STORAGE

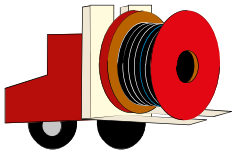
Damage to cables can occur due to the incorrect handling to which the drums and cables may be subjected; causing break-down of the drum flanges and in exceptional cases, movement of the drum barrel takes place. Once this breakdown of the drum occurs, the cable is immediately exposed to damage. Cables damaged during handling & storage can cause service failures when the subject cable is put to use.

Thus the following is a list of Do's and Don'ts that should be followed while handling and storing the cables before it is put to use.

DO's

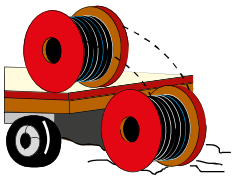


When off loading reels from a truck, lower reels carefully using a hydraulic gate, hoist or forklift truck.

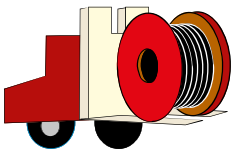


If a fork lift is used, approach the reel from the flange side. Position the forks such that the reel is lifted by both reel flanges. Also Consid-eration should be given to, Traffic patterns during off-loading & dam-age dur-ing the time in storage.

DON'ts

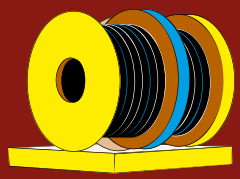


Never drop reels. If reels must be rolled, roll in opposite direction of the cable wraps to keep cable from loos-ening on the reel.

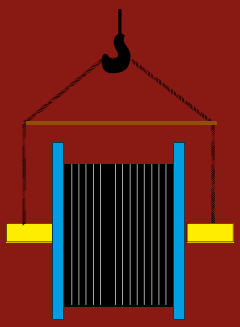


Do not allow the lift forks to contact the ca - ble. Care must be taken by the fork lift op erator not to make sudden turns or stops.

DO's

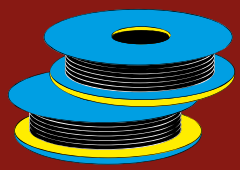


Cable reels should be stored on hard sur faces resting on the flanges edge (flanges vertical). Align reels flange to flange and, if possible, arrange so that first in is first out.

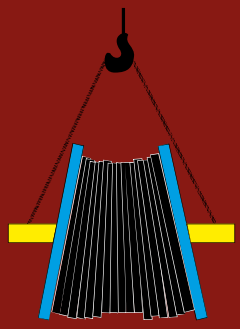


When using a hoist, install a mandrel through the reel arbor holes and attach a sling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the reel flanges.

DON'ts



Multiple reels stacked on top of each other ("Pancake" storage) is not recommended for cable drums. The weight of the stack can total thousands of Kgs. creating an enormous load on the bottom reel. Also, damage to the reel and/or cable will likely occur when the reel is flipped for transit. A concentration of stress on the reel flange may cause it to break and subsequently damage the cable.



This may lead to the bending of the reel flanges and mashing the cable.

C. RECOMMENDED MINIMUM BENDING RADIUS FOR LV CABLES

Single Core: 15xD
Multicore : 12 x D
Where D= Diameter of cable in mm

D. INSTALLATION & LAYING

Mechanical stresses during installation are generally more severe than those encountered while in service. Thus careshould be taken as regards to the following while installation and laying of cables.

1. Care shall be taken during laying to avoid sharp bending, and twisting.
2. Cable shall be unwound from the drum by lifting the drum on the center.
3. Shaft supported both ends with suitable jacks / stands.
4. Under no circumstances the cable winding shall be lifted off a coil or drum lying flat at the flanges. This would cause serious twist and damages.
5. Suitable protection shall be provided to the cables against mechanical damages, it includes covers, pipes etc.

E. PRE- INSTALLATION

To ensure safety during cable installation, following shall be checked prior to installation.
1. The cable selected is proper for designed application.
2. The cable has not been damaged in transit or storage.

Review all applicable state and national codes to verify that the cable chosen is appropriate for the job. Also consult your local electricity authority. Next, you must identify any existing cable damage and prevent any further damaged from occurring. This is done through proper cable inspection, handling and storage.

F. RECOMMENDED SAFE PULLING FORCE WHENPULLED WITH PULLING EYE:

a) For Aluminum Conductors : 30 N/mm2
b) For Copper Conductor :50 N/mm2

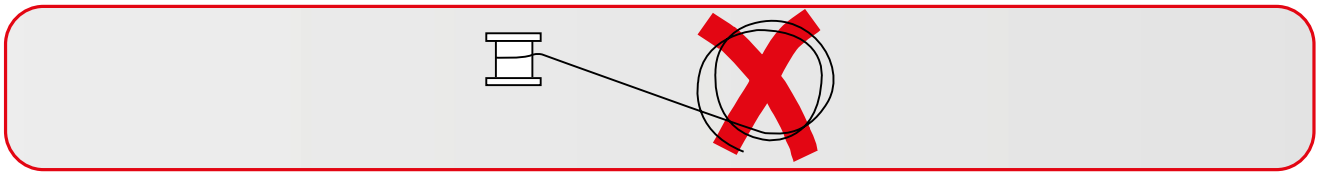
G. RECOMMENDED SAFE PULLING FORCE WITH STOCKINGS:

a) For Unarmoured Cable : P=5 D2
Where P= Pulling Force
b) For Armoured Cable : P=9 D2
Where D= Diameter of cable inmm

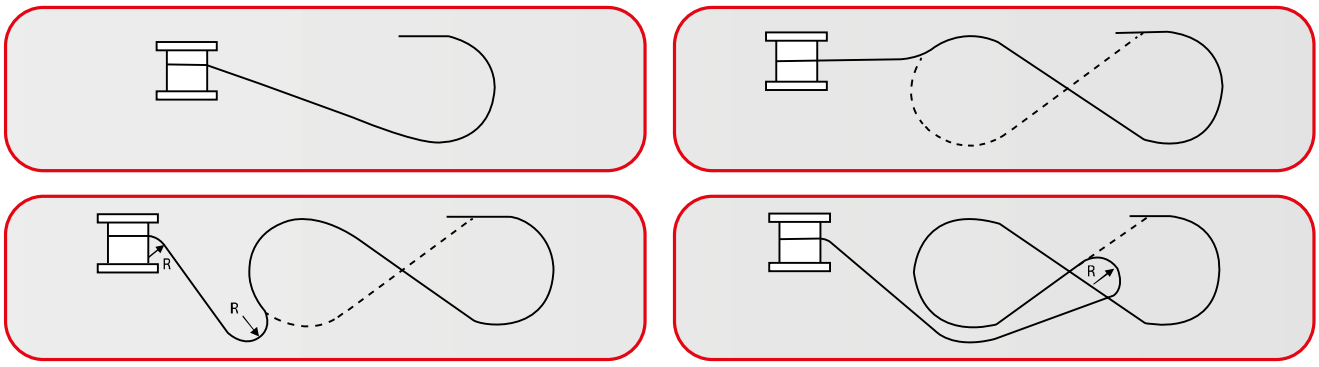
SPECIAL PRECAUTIONS FOR HANDLING / INSTALLATION OFLOW SMOKE SHEATHED CABLES

- Cables like LSF sheath needs to be handled with care during installation. While special additives are used in formulation of LSF compound to give the typical flame retardant characteristics of Zero Halogen Polymers some mechanical properties deteriorate. The following basic precautions are necessary.
- Cables should not be exposed to sunlight for consider able period before installation i.e. the temp of cables sheath should be below 45°C.
- Preferably installation is done during morning hours when the ambient temperature is low.
- Wire/ropes should not be used directly on the cable sheath for pulling.
- When pulled on cable trays/or any uneven surface, special attentions is needed to welding or unusually rough terrains.
- Rollers and bends should not have any sharpness which may damage sheath.

DO NOT ATTEMPT “COILING” OF CABLE ON THE GROUND



ON THE GROUND CABLE CAN BE FLAKED IN A FIGURE OF EIGHT FORMATION



Note: R Minimum Permissible bending radius of cable.

QD 06/01

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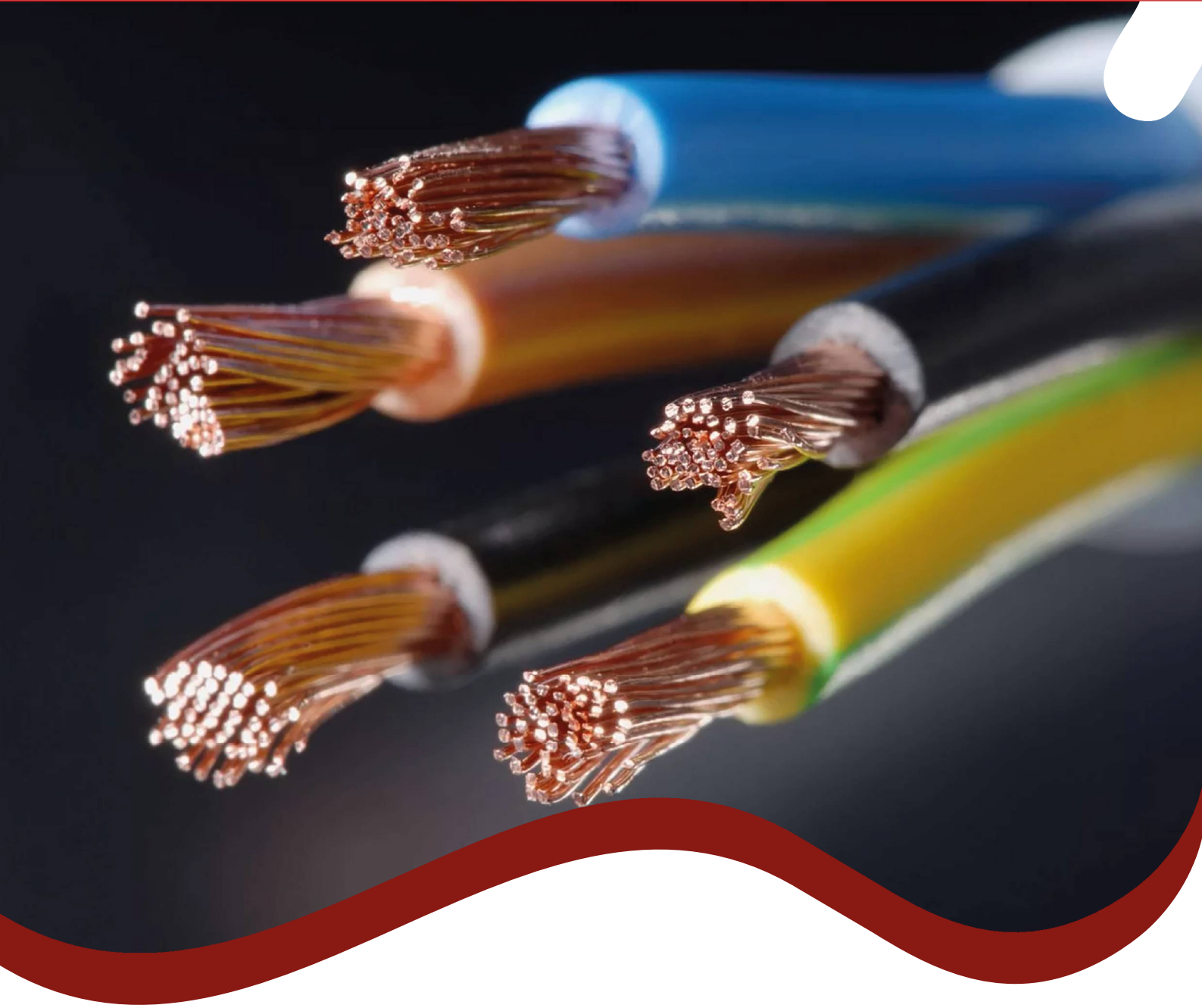

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special cables

RAMCRO S.p.A.
via Marzorati, 15 - Nerviano
20014 - Milano - Italy

Get In Touch
Tel. +39 0331 406 511
Fax +39 0331 406 559
Email: ramcro@ramcro.it
Website: www.ramcro.com

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