



Fire Cables

brillan
- by Ramco

Product Catalog 2025

Brillan Cables Industries

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.

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Introduction

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 (FR), 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).





brillcan
— by Ramrco

Fire Cables



Fire Planet

TYPE: SOLID
BS 6387:2013 Cat. C-W-Z

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

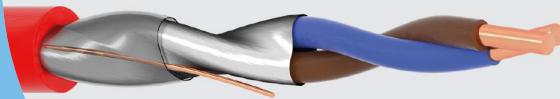
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
FIRE PLANET
BS 6387:2013



Identification Of Cores

2 Core: ● ●

3 Core: ● ● ●

4 Core: ● ● ● ●

up/from 5 cores: Black Numbered

Standard References

- 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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Planet

TYPE: SOLID
BS 6387:2013 Cat. C-W-Z

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm ²]	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: SOLID
BS 6387:2013 Cat. C-W-Z

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

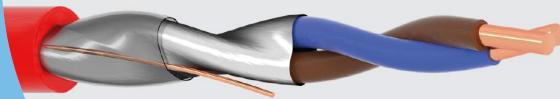
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
FIRE PLANET
BS 6387:2013



Identification Of Cores

2 Core: ● ●

3 Core: ● ● ●

4 Core: ● ● ● ●

up/from 5 cores: Black Numbered

Standard References

- 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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Planet

TYPE: SOLID
BS 6387:2013 Cat. C-W-Z

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm ²]	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: SAR_ _ _ 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

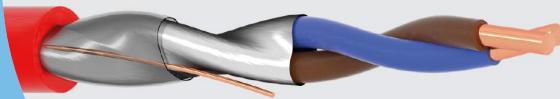
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
Standard Fire Sun
BS 7629-1:2015



Identification Of Cores

2 Core: • ●

3 Core: • ● ●

4 Core: • ● ● ●

up/from 5 cores: Black Numbered

Standard References

- BS 7629-1:2015 (Standard 60)
- BS 6387:2013 (CWZ)
- EN 50200:2015 (Class PH30/PHI20)
- EN 50200: 2015 Annex E (30 mins)
- BS 5839-1:2013 (Clause 26.2d Standard)
- EN 60754-2:2014

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Standard Fire Sun

TYPE: SOLID
BS 7629-1:2015

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SARO211HFESL-F3PHI2O	2x1.00*	6.4*	66
SARO311HFESP-F3PHI2O	3x1.00	6.5	83
SARO411HFESQ-F3PHI2O	4x1.00	7.1	101
SARO511HFESD-F3PHI2O	5x1.00	7.8	120
SARO071HFESD-F3PHI2O	7x1.00	8.4	155
SARI211HFESD-F3PHI2O	12x1.00	11.2	251
SARI911HFESD-F3PHI2O	19x1.00	13	370
SARO214HFESL-F3PHI2O	2x1.50*	7.3*	88
SARO314HFESP-F3PHI2O	3x1.50*	7.4*	111
SARO414HFESQ-F3PHI2O	4x1.50*	8.1*	137
SARO514HFESD-F3PHI2O	5x1.50	8.8	162
SARO0714HFESD-F3PHI2O	7x1.50	9.6	211
SARI214HFESD-F3PHI2O	12x1.50	12.9	342
SARI914HFESD-F3PHI2O	19x1.50	15.1	510
SARO218HFESL-F3PHI2O	2x2.50*	8.6*	129
SARO318HFESP-F3PHI2O	3x2.50*	8.7*	166
SARO418HFESQ-F3PHI2O	4x2.50*	9.6*	205
SARO518HFESD-F3PHI2O	5x2.50	10.7	251
SARO0718HFESD-F3PHI2O	7x2.50	11.7	326
SARI218HFESD-F3PHI2O	12x2.50	15.4	523
SARI918HFESD-F3PHI2O	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-F3PHI2O

Standard Fire Sun

TYPE: SOLID
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

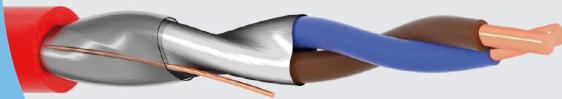
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
Standard Fire Sun
BS 7629-1:2015



Identification Of Cores

2 Core: • •

3 Core: • • •

4 Core: • • • •

up/from 5 cores: Black Numbered

Standard References

- 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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Standard Fire Sun

TYPE: SOLID
BS 7629-1:2015

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SASO210HFESL-F3PHI2O	2x1.00*	6.4*	66
SASO310HFESP-F3PHI2O	3x1.00	6.5	83
SASO0410HFESQ-F3PHI2O	4x1.00	7.1	101
SASO0510HFESD-F3PHI2O	5x1.00	7.8	120
SASO0710HFESD-F3PHI2O	7x1.00	8.4	155
SASI210HFESD-F3PHI2O	12x1.00	11.2	251
SASI910HFESD-F3PHI2O	19x1.00	13	370
SASO215HFESL-F3PHI2O	2x1.50*	7.3*	88
SASO315HFESP-F3PHI2O	3x1.50*	7.4*	111
SASO0415HFESQ-F3PHI2O	4x1.50*	8.1*	137
SASO0515HFESD-F3PHI2O	5x1.50	8.8	162
SASO0715HFESD-F3PHI2O	7x1.50	9.6	211
SASI215HFESD-F3PHI2O	12x1.50	12.9	342
SASI915HFESD-F3PHI2O	19x1.50	15.1	510
SASO0225HFESL-F3PHI2O	2x2.50*	8.6*	129
SASO0325HFESP-F3PHI2O	3x2.50*	8.7*	166
SASO0425HFESQ-F3PHI2O	4x2.50*	9.6*	205
SASO0525HFESD-F3PHI2O	5x2.50	10.7	251
SASO0725HFESD-F3PHI2O	7x2.50	11.7	326
SASI225HFESD-F3PHI2O	12x2.50	15.4	523
SASI925HFESD-F3PHI2O	19x2.50	18.1	787
SASO0240HFESL-F3PHI2O	2x4.00*	10.6*	190
SASO0340HFESP-F3PHI2O	3x4.00*	11.0*	250
SASO0440HFESQ-F3PHI2O	4x4.00*	12.0*	306
SASO0540HFESD-F3PHI2O	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-F3PHI2O

Enhanced Fire Star

TYPE: SOLID

BS 7629-1:2015 – EN 50200:2015

PH I20 – 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)

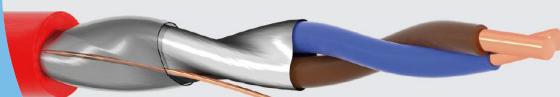
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

**RAMFIRECRO-F3
Enhanced Fire Star
BS 7629-1:2015**



Identification Of Cores

2 Core:

3 Core:

4 Core:

up/from 5 cores: Black Numbered

Standard References

- BS 7629-1:2015 Enhanced I20
- EN 50200:2015 (Class PHI20)
- BS 8434-2:2003+A2:2009 (I20 mins)
- BS 5839-1:2013 (Clause 26.2e Enhanced)
- BS 6387:2013 Category CWZ
- EN 60332-3-24:2009

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

Cable Printing

RAMCRO ITALY - RAMFIRECRO-F3 FIRE STAR - FIRE RESISTANT ELECTRIC CABLE - LSZH - 300/500V - BS 7629-1:2015 ENHANCED I20 - BS 6387:2013 CWZ - EN 60332-3-24:2009 - CONDxAREA + E - Year of Manufacturing H - LPCB 568j/01 - MADE IN ITALY - BATCH N°



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Enhanced Fire Star

TYPE: SOLID

BS 7629-1:2015 – EN 50200:2015

PH 120 – BS 8434-2:2003

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAR0211HFEOL-F3EN120	2x1.00	9.8	121
SAR0311HFEOP-F3EN120	3x1.00	10.4	152
SAR0411HFEQ-F3EN120	4x1.00	11.7	194
SAR0511HFEOD-F3EN120	5x1.00	12.8	231
SAR0071HFEOD-F3EN120	7x1.00	14.2	304
SARI21HFEOD-F3EN120	12x1.00	18.9	491
SARI91HFEOD-F3EN120	19x1.00	22.6	743
SARO214HFEOL-F3EN120	2x1.50*	10.3*	139
SARO314HFEOP-F3EN120	3x1.50*	10.9*	178
SARO0414HFEQ-F3EN120	4x1.50*	12.2*	226
SARO0514HFEOD-F3EN120	5x1.50	13.4	269
SARO0714HFEOD-F3EN120	7x1.50	14.8	355
SARI214HFEOD-F3EN120	12x1.50	19.9	574
SARI914HFEOD-F3EN120	19x1.50	23.7	871
SARO218HFEOL-F3EN120	2x2.50*	11.3*	184
SARO318HFEOP-F3EN120	3x2.50*	12.0*	236
SARO0418HFEQ-F3EN120	4x2.50*	13.4*	298
SARO0518HFEOD-F3EN120	5x2.50	14.6	354
SARO0718HFEOD-F3EN120	7x2.50	16.2	467
SARI218HFEOD-F3EN120	12x2.50	21.9	767
SARI918HFEOD-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: SOLID

BS 7629-1:2015 – EN 50200:2015

PH I20 – 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

**RAMFIRECRO-F3
Enhanced Fire Star
BS 7629-1:2015**



Identification Of Cores

2 Core:

3 Core:

4 Core:

up/from 5 cores: Black Numbered

Standard References

- BS 7629-1:2015 Enhanced I20
- EN 50200:2015 (Class PHI20)
- BS 8434-2:2003+A2:2009 (I20 mins)
- BS 5839-1:2013 (Clause 26.2e Enhanced)
- BS 6387:2013 Category CWZ
- EN 60332-3-24:2009

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

Cable Printing

RAMCRO ITALY - RAMFIRECRO-F3 FIRE STAR - FIRE RESISTANT ELECTRIC CABLE - LSZH - 300/500V - BS 7629-1:2015 ENHANCED I20 - BS 6387:2013 CWZ - EN 60332-3-24:2009 - CONDxAREA + E - Year of Manufacturing H - LPCB 568j/01 - MADE IN ITALY - BATCH N°



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Enhanced Fire Star

TYPE: SOLID

BS 7629-1:2015 – EN 50200:2015

PH 120 – BS 8434-2:2003

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SASO210HFEOL-F3ENI20	2x1.00	10.1	124
SASO310HFEOP-F3ENI20	3x1.00	10.7	158
SASO410HFEQ-F3ENI20	4x1.00	12	200
SASO0510HFEOD-F3ENI20	5x1.00	13.2	237
SASO0710HFEOD-F3ENI20	7x1.00	14.6	313
SASI210HFEOD-F3ENI20	12x1.00	19.5	507
SASI910HFEOD-F3ENI20	19x1.00	23.3	768
SASO215HFEOL-F3ENI20	2x1.50*	10.6*	145
SASO315HFEOP-F3ENI20	3x1.50*	11.3*	185
SASO415HFEQ-F3ENI20	4x1.50*	12.6*	236
SASO0515HFEOD-F3ENI20	5x1.50	13.9	280
SASO0715HFEOD-F3ENI20	7x1.50	15.4	370
SASI215HFEOD-F3ENI20	12x1.50	20.6	599
SASI915HFEOD-F3ENI20	19x1.50	24.6	910
SASO0225HFEOL-F3ENI20	2x2.50*	11.7*	191
SASO0325HFEOP-F3ENI20	3x2.50*	12.5*	246
SASO0425HFEQ-F3ENI20	4x2.50*	13.9*	311
SASO0525HFEOD-F3ENI20	5x2.50	15.3	369
SASO0725HFEOD-F3ENI20	7x2.50	16.9	487
SASI225HFEOD-F3ENI20	12x2.50	22.8	800
SASI925HFEOD-F3ENI20	19x2.50	27.2	1210
SASO0240HFEOL-F3ENI20	2x4.00*	13.0*	258
SASO0340HFEOP-F3ENI20	3x4.00*	13.8*	331
SASO0440HFEQ-F3ENI20	4x4.00*	15.4*	418
SASO0540HFEOD-F3ENI20	5x4.00	16.9	496

*Cables certified by LPCB BRE GLOBAL

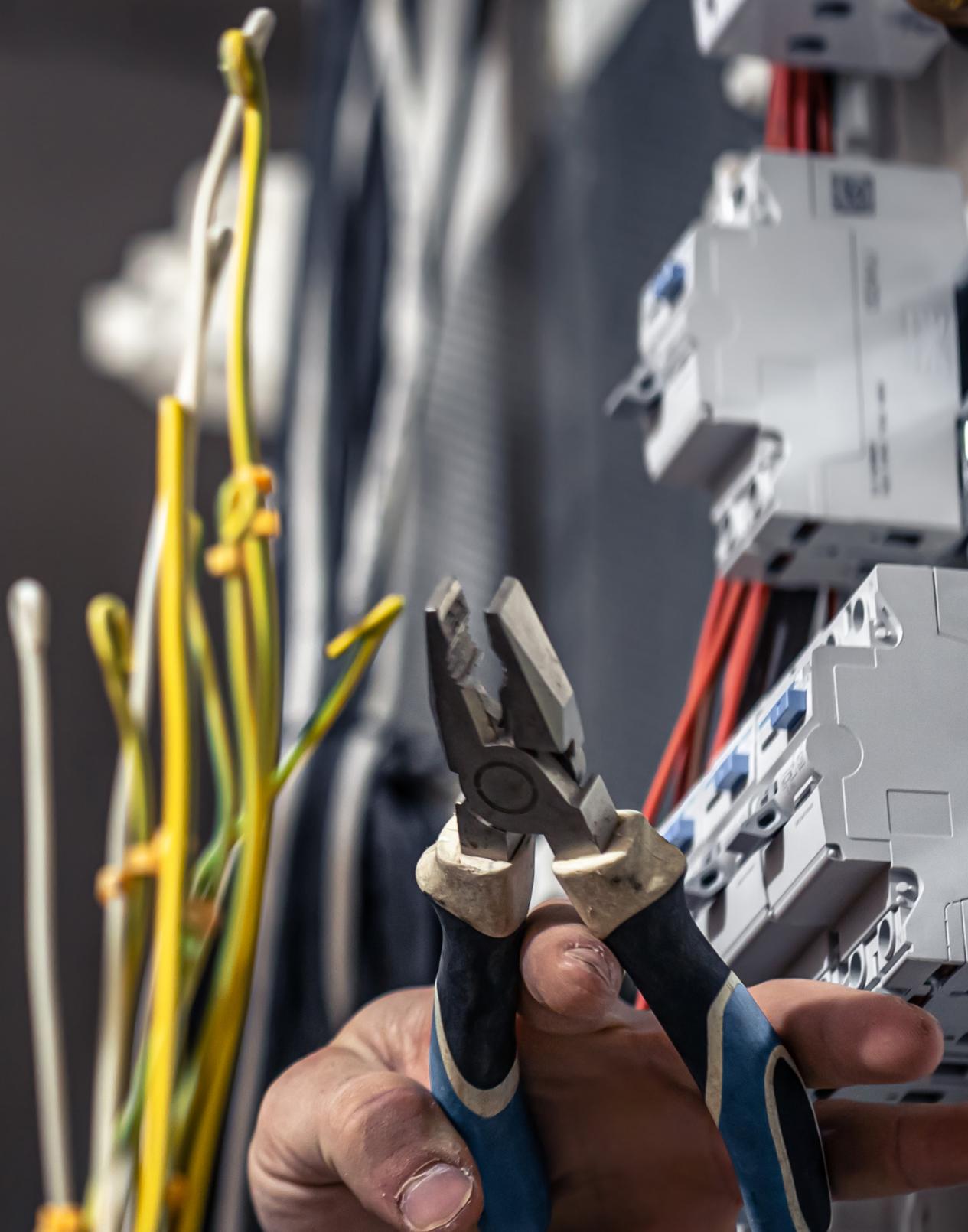
*If the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR__HCEOL-F3ENI20



Brillan Cables Industries

USA : 325 North St.Paul Street Suite
3100, Dallas, TX 75201

+1 (302) 485 0249



brillan
— by Ramrco

Fire Safe

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

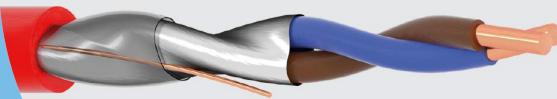
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
Fire Safe
IEC 60331-21:1999



Identification Of Cores

2 Core: • •

3 Core: • • •

4 Core: • • • •

up/from 5 cores: Black Numbered

Standard References

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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

Cable Printing

RAMFIRECRO-F3 FIRE SAFE RS485 - FIRE RESISTANT CONDxAREA
mmq +E - LSZH - LPCB 568d/01 - IEC 60331-21:1999 11/2 H 750
- EN 60754-1:2014 - EN 61034-2: 2005 - 300/500 V - batch n°
- meter marking - MADE IN ITALY



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Safe

TYPE: SOLID
IEC 60331-21:1999

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SARO211HFEEL-F3	2x1.00*	6.8*	62
SARO311HFEFP-F3	3x1.00*	7.2*	80
SARO411HFEQ-F3	4x1.00*	7.9*	100
SARO511HFEED-F3	5x1.00	9	128
SARO071HFEED-F3	7x1.00	9.8	165
SARI211HFEED-F3	12x1.00	12.7	264
SARI911HFEED-F3	19x1.00	15.2	407
SARO214HFEEL-F3	2x1.50*	7.3*	73
SARO314HFEFP-F3	3x1.50*	7.7*	97
SARO0414HFEQ-F3	4x1.50*	8.4*	122
SARO0514HFEED-F3	5x1.50	9.6	156
SARO0714HFEED-F3	7x1.50	10.4	203
SARI214HFEED-F3	12x1.50	13.6	329
SARI914HFEED-F3	19x1.50	16.3	508
SARO218HFEEL-F3	2x2.50*	8.1*	98
SARO318HFEFP-F3	3x2.50*	8.6*	131
SARO0418HFEQ-F3	4x2.50*	9.8*	177
SARO0518HFEED-F3	5x2.50	10.7	213
SARO0718HFEED-F3	7x2.50	11.6	282
SARI218HFEED-F3	12x2.50	15.7	476
SARI918HFEED-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

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

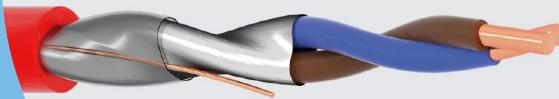
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
Fire Safe
IEC 60331-21:1999



Identification Of Cores

2 Core: • •

3 Core: • • •

4 Core: • • • •

up/from 5 cores: Black Numbered

Standard References

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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

Cable Printing

RAMFIRECRO-F3 FIRE SAFE RS485 - FIRE RESISTANT CONDxAREA
mmq +E - LSZH - LPCB 568d/01 - IEC 60331-21:1999 11/2 H 750
- EN 60754-1:2014 - EN 61034-2: 2005 - 300/500 V - batch n°
- meter marking - MADE IN ITALY



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Safe

TYPE: STRANDED
IEC 60331-21:1999

Dimensional Data

RAMCRO CODE	FORMATION [nº x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SASO210HFEEL-F3	2x1.00*	7.1*	64
SASO310HFEEP-F3	3x1.00*	7.5*	83
SASO410HFEEQ-F3	4x1.00*	8.2*	104
SASO510HFEED-F3	5x1.00	9.4	133
SASO0710HFEED-F3	7x1.00	10.2	172
SAS1210HFEED-F3	12x1.00	13.3	276
SAS1910HFEED-F3	19x1.00	15.9	424
SASO215HFEEL-F3	2x1.50*	7.6*	77
SASO315HFEEP-F3	3x1.50*	8.1*	102
SASO0415HFEEQ-F3	4x1.50*	9.3*	137
SASO0515HFEED-F3	5x1.50	10.1	165
SASO0715HFEED-F3	7x1.50	11	215
SAS1215HFEED-F3	12x1.50	14.8	362
SAS1915HFEED-F3	19x1.50	17.2	537
SASO0225HFEEL-F3	2x2.50*	8.3*	103
SASO0325HFEEP-F3	3x2.50*	9.4*	147
SASO0425HFEEQ-F3	4x2.50*	10.3*	186
SASO0525HFEED-F3	5x2.50	11.3	224
SASO0725HFEED-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

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

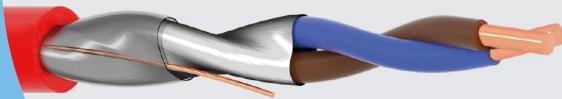
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red

RAMFIRECRO-F3
Fire Ground
BS 6387:2013 Cat. C-W-Z



Identification Of Cores

2 Core: ● ●

or Black Numbered

up/from 3 cores: Black Numbered

Standard References

- 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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·km

Test Voltage Core-Core:

5000 V

Mutual Capacitance:

< 150 nF/km

Inductance:

< 1 mH/km

Operating Voltage:

600/1000 V

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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.



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Ground

TYPE: MULTI STRAND
BS 6387:2013 Cat. C-W-Z

Dimensional Data

RAMCRO CODE	FORMATION [n° x mm ²]	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
SSS0216AFESL-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 sheath 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

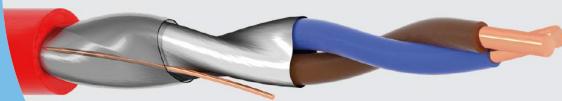
Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

Sheath Colour:

Red or White

RAMFIRECRO-F3
Fire Ground
EN 50200:2015 Class PH 120



Identification Of Cores

2 Core: • •

3 Core: • • •

4 Core: • • • •

up/from 5 cores: Black Numbered

Standard References

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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·km

Test Voltage Core-Core:

5000 V

Mutual Capacitance:

< 150 nF/km

Inductance:

< 1 mH/km

Operating Voltage:

600/1000 V

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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.



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Moon Enhanced

TYPE: SOLID
EN 50200:2015 Class PH 120

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

RAMCRO CODE	FORMATION [n° x mm ²]	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- SOLID VERSION (BARE COPPER CL.2)

RAMCRO CODE	FORMATION [n° x mm ²]	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

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

RAMFIRECRO-F3
Fire Comet
EN 50200:2015 Class PH 30



Identification Of Cores

2 Core: • ●

Standard References

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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Temperature Range

During Operation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Comet

TYPE: STRANDED
EN 50200:2015 Class PH 30

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm ²]	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

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

RAMFIRECRO-F3
Fire Comet
CEI 20-105; V2 - FG29OHM16 PH120



Identification Of Cores

2 Core: ● ●

4 Core: ● ● ○ ○

Standard References

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

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

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

Cable Printing

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Comet

TYPE: STRANDED

CEI 20-105; V2 - FG29OHM16 PH120

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm ²]	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	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 mm ²	10,5	209

EVAC CABLES for voice evacuation systems

RAMCRO CODE	FORMATION [n° x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0250HXHSH-F3FG29	2 x 0.50 mm ²	5,6	46
SAS0275HXHSH-F3FG29	2 x 0.75 mm ²	6,3	57
SAS0210HXHSH-F3FG29	2 x 1.00 mm ²	6,6	63
SAS0215HXHSH-F3FG29	2 x 1.50 mm ²	7,6	82
SAS0225HXHSH-F3FG29	2 x 2.50 mm ²	9,2	122
SAS0240HXHSH-F3FG29	2 x 4.00 mm ²	10,5	163
SAS0260HXHSH-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	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

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

RAMFIRECRO-F3
Fire Comet
CEI 20-105; V2 - FG29OM16 PH120



Identification Of Cores

2 Core: ● ●
4 Core: ● ● ○ ●

Standard References

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

Electrical Data

Insulation Resistance @ 20°C:
> 200 MΩ·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

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

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Comet

TYPE: STRANDED

CEI 20-105; V2 - FG29OM16 PH120

EVAC CABLES for voice evacuation systems-Red Colour

RAMCRO CODE	FORMATION [n° x mm ²]	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	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 mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0250HXHSH-F3FG29	2 x 0.50 mm ²	5,5	50
SSS0275HXHSH-F3FG29	2 x 0.75 mm ²	6,2	64
SSS0210HXHSH-F3FG29	2 x 1.00 mm ²	6,4	72
SSS0215HXHSH-F3FG29	2 x 1.50 mm ²	7,5	99
SSS0225HXHSH-F3FG29	2 x 2.50 mm ²	9	150
SSS0240HXHSH-F3FG29	2 x 4.00 mm ²	10,4	201
SSS0260HXHSH-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 - FG29OHM16 PH120

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

RAMFIRECRO-F3
Fire Comet
CEI 20-105; V2 - FG29OHM16 PH120



Identification Of Cores

2 Core: ● ●

4 Core: ● ● ○ ○

Standard References

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

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

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

Cable Printing

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Comet

TYPE: STRANDED
CEI 20-105; V2 - FG29OHM16 PH120

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm ²]	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	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 mm ²	10,5	209

EVAC CABLES for voice evacuation systems

RAMCRO CODE	FORMATION [n° x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAS0250HXHSH-F3FG29	2 x 0.50 mm ²	5,6	46
SAS0275HXHSH-F3FG29	2 x 0.75 mm ²	6,3	57
SAS0210HXHSH-F3FG29	2 x 1.00 mm ²	6,6	63
SAS0215HXHSH-F3FG29	2 x 1.50 mm ²	7,6	82
SAS0225HXHSH-F3FG29	2 x 2.50 mm ²	9,2	122
SAS0240HXHSH-F3FG29	2 x 4.00 mm ²	10,5	163
SAS0260HXHSH-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	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- FTE29OM16 PH120

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

RAMFIRECRO-F3
Fire Comet
CEI 20-105- FTE29OM16 PH120



Identification Of Cores

2 Core: ● ●
4 Core: ● ● ○ ●

Standard References

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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

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

Cable Printing

RAMFIRECRO-F3 FIRE COMET CEI 20-105 FTE4OHM1 PH120 mmq
UNI 9795 CEI 20-36/4-0 PHI20 CEI EN 60332-3-25 - 100/100 V
- Uo=400 V + BATCH + MM/YY



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

Fire Comet

TYPE: STRANDED

CEI 20-105- FTE29OM16 PH120

EVAC CABLE for voice evacuation systems- Red Colour

RAMCRO CODE	FORMATION [n° x mm ²]	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	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 mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SSS0250HXHOH-F3FTE29	2x0.50 mm ²	6,9	59
SSS0275HXHOH-F3FTE29	2x0.75 mm ²	7,4	67
SSS0210HXHOH-F3FTE29	2x1.00 mm ²	7,7	74
SSS0215HXHOH-F3FTE29	2x1.50 mm ²	8,5	93
SSS0225HXHOH-F3FTE29	2x2.50 mm ²	9,5	124
SSS0240HXHOH-F3FTE29	2x2.50 mm ²	11	168
SSS0260HXHOH-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
SSS0425HXYOX-F3FTE29	4x2.50 mm ²	10,9	211



Brillan Cables Industries

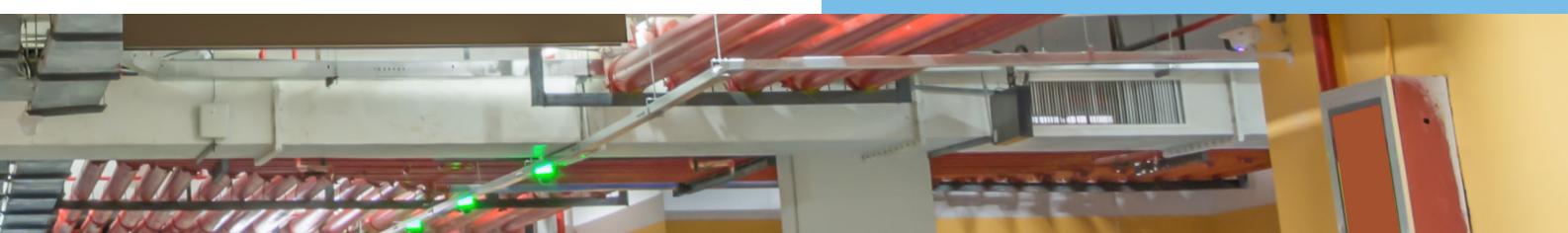
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brillcan
— by Ramrco

**Fire Resistant
Cable**



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

TYPE: SOLID
NBN 713-020 Add.3

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

RFC-F3
NBN 713-020 Add.3



Identification Of Cores

- 1 Pair: ● ○
- 2 Pair: ● ● ○
- 3 Pair: ● ● ● ○

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Standard References

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

Temperature Range

Fixed Installation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

On Request

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

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**



**Belgian
Market**

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

TYPE: SOLID
NBN 713-020 Add.3

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm2]	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

**RFC-F3
NBN 713-020 Add.3**



Identification Of Cores

In acc. to HD 308

Standard References

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

Temperature Range

Fixed Installation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

On Request

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

Cable Printing

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

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·km

Test Voltage Core-Core:

2000 V

Test Voltage Core-Screen:

2000 V

Mutual Capacitance:

< 150 pF/km

Inductance:

< 1 mH/km

Operating Voltage:

300/500 V



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**



**Belgian
Market**

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

TYPE: SOLID
NBN 713-020 Add.3

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [nº 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

TELRAMFEU
NF C32-070 CAT. CR1-C1 & C2



Identification Of Cores

- 1 Pair: ● ○
- 2 Pair: ● ○ ● ○
- 3 Pair: ● ○ ● ○ ● ○

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Standard References

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

Temperature Range

Fixed Installation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

On Request

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

Cable Printing

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



Telramfeu

TYPE: SOLID

NF C32-070 CAT. CRI-C1 & C2

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [nº x mm2]	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
SAMI009HUESX-F3TEL	10x2x0.90	17	345
SAMI209HUESX-F3TEL	12x2x0.90	17.5	395

Puissramfeu

TYPE: SOLID

NBN 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

**PIUSSRAMFEU
NF C32-070 CAT. CR1-C1 & C2**



Identification Of Cores

In acc. to HD 308

Standard References

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

Temperature Range

Fixed Installation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

On Request

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

Cable Printing

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



Puissramfeu

TYPE: SOLID

NBN NF C32-070 CAT. CR1-C1 & C2

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, 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

LANCRO FIRE RESISTANT
EIA/TIA 568A, ISO/IEC 11801



Identification Of Cores

- 1 Pair: ● ○
- 2 Pair: ● ○ ● ○
- 3 Pair: ● ○ ● ○ ● ○

Electrical Data

Insulation Resistance @ 20°C:

> 200 MΩ·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

Standard References

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

Temperature Range

Fixed Installation:

-30°C up to +180°C

During Installation:

-5°C up to +50°C

On Request

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

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



Fire
Resistant



8 x cable
diameter



Data
LAN

Lancro Fire Resistant

TYPE: SOLID
EIA/TIA 568A, ISO/IEC 11801

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm ²]	OUTER DIAMETER [mm]	WEIGHT [kg/km]
SAM0406HFEDX-F3CAT.6	4x2x23AWG'	8,0*	85

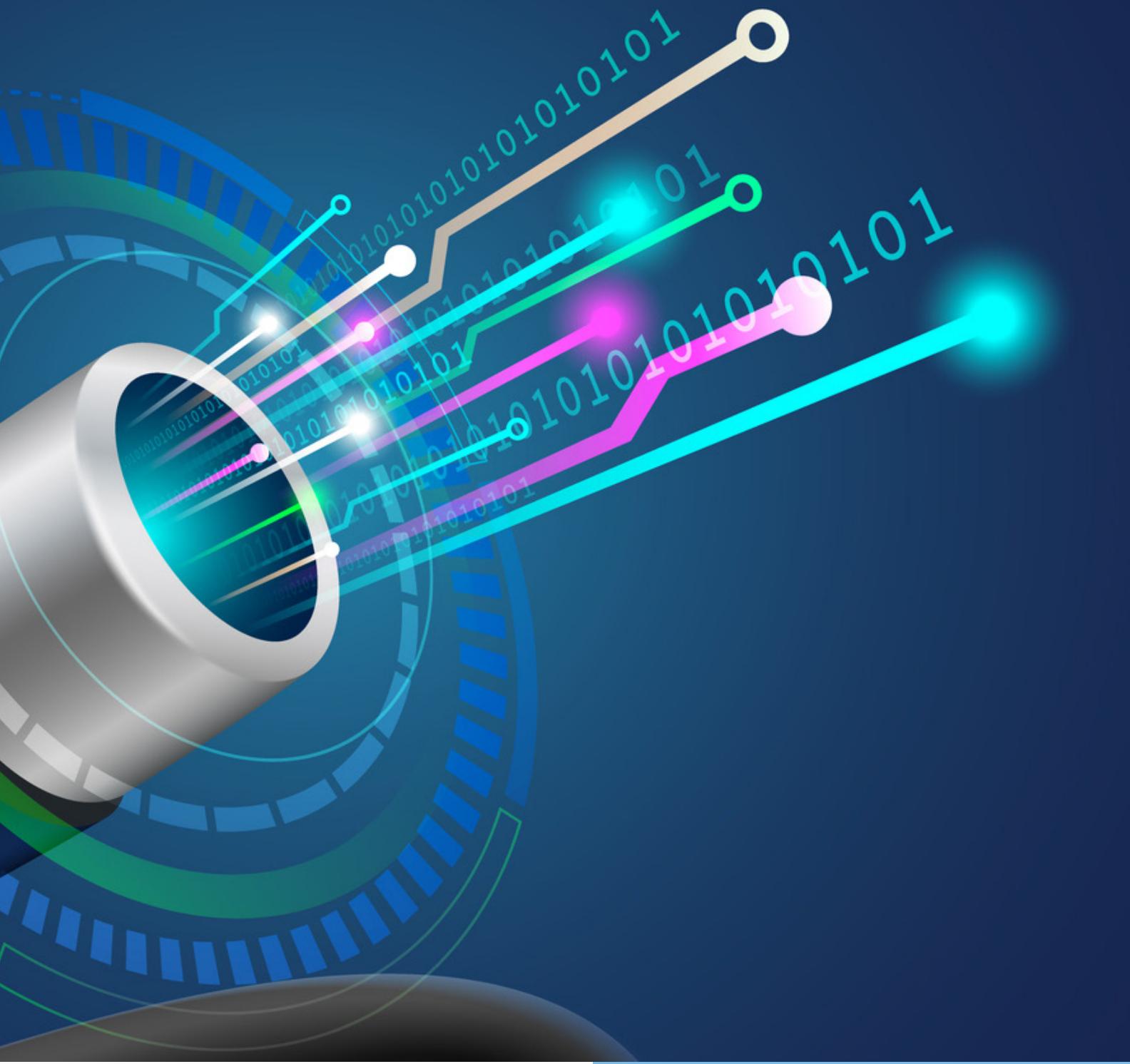
Frequency (MHz)	Max. Insertion Loss (dB/100 m)	Min. NEXT (dB)	Min. PSNEXT (dB)	Min. ACR (dB)	Min. PSACR (dB)	Min. ACFR (ELFEXT) (dB)
1	2.8	75.3	72.3	93	67	68
4	3.8	66.3	63.3	82	67	56
10	6	60.4	57.3	73	67	48
20	8.5	55.8	52.8	67	67	42
30	10.5	53.1	50.1	63	67	38.4
100	19.9	45.3	42.3	53	62.5	28
150	24.9	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



Brillan Cables Industries

USA : 325 North St.Paul Street Suite
3100, Dallas, TX 75201

+1 (302) 485 0249



brillan
- by Ramrco

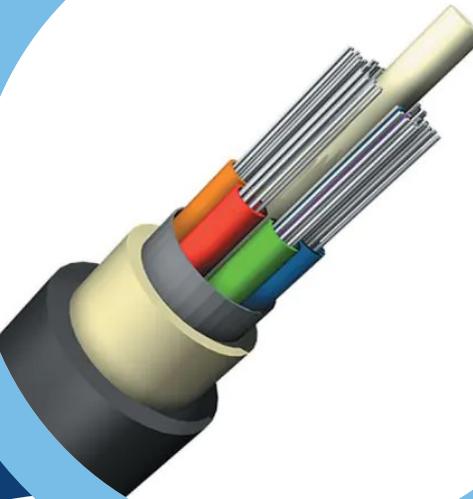
Fire Fiber
Optics

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



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

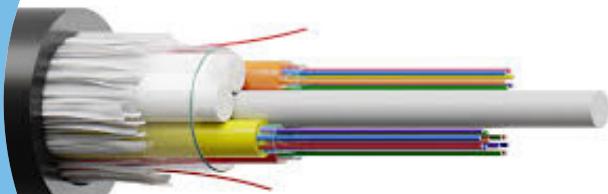
Fiber Color	Fiber Number
Blue	1
Orange	2
Green	3
Brown	4
State	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

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:

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
State	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

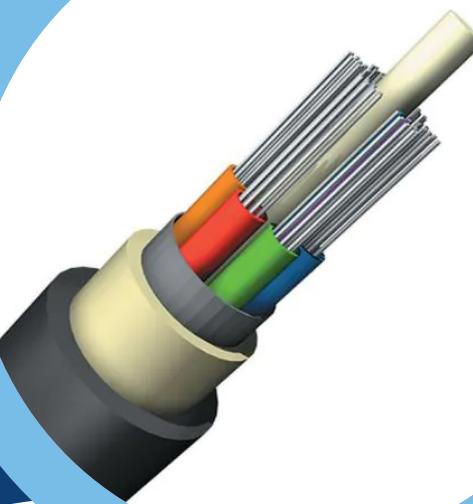
Fiber Optic

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.



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
State	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

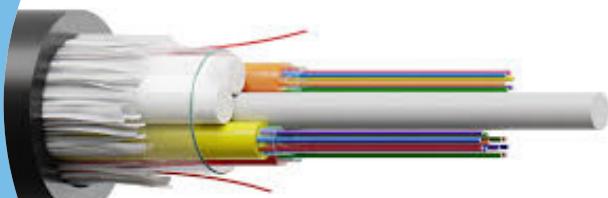
Fiber Optic

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:

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
State	5
White	6
Red	7
Black	8
Yellow	9
Violet	10
Rose	11
Aqua	12

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 Rippords: laid under the steel tape to facilitate the jacket removal.
- 9 Sheath: 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 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	6	6	1/8	2	16.5
FO12x9 125SMMTCSTZA-F3XPC FO12x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	12	6	2/8	2	16.5
FO24x9 125SMMTCSTZA-F3XPC FO24x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	24	6	4/8	2	16.5
FO36x9 125SMMTCSTZA-F3XPC FO36x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	36	6	6/8	2	16.5
FO48x9 125SMMTCSTZA-F3XPC FO48x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	48	6	8/8	2	16.5
FO72x9 125SMMTCSTZA-F3XPC FO72x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	72	12	6/8	2	16.5
FO96x9 125SMMTCSTZA-F3XPC FO96x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	96	12	8/8	2	16.5
FO144x9 125SMMTCSTZA-F3XPC FO144x50 125MMMTCSSTZA-F3XPC	Single Mode Multi Mode	144	24	6/8	2	16.5



brillcan
- by Ramrco

Fire Alarm
Cable

fplr – fire alarm cable

TYPE: SOLID
E475091

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

Fire Alarm
FPLR – UL 1424



Identification Of Cores

2 Core: ● ●

Standard References

- UL 1424 (FPLR 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

Fixed Installation:

-30°C up to +105°C

During Installation:

-5°C up to +50°C

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

Cable Printing

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

SCREENED CABLE

TYPE: SOLID
E475091

DIMENSIONAL DATA

RAMCRO CODE	FORMATION [n° x mm ²]	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
SAR025IHFOCH-UL-FA	2x12AWG	7.2	90

UNSCREENED CABLE

RAMCRO CODE	FORMATION [n° x mm ²]	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
SSR025IHFOCH-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

Fire Alarm
FPLR – UL 1424



Identification Of Cores

2 Core: ● ●

Standard References

- UL 1424 (FPLR 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

Fixed Installation:

-30°C up to +105°C

During Installation:

-5°C up to +50°C

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

Cable Printing

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



**Fire
Resistant**



**8 x cable
diameter**



**Low Smoke
Halogen free**

SCREENED CABLE

TYPE: SOLID
E475091
UL 1424

SCREENED CABLE

RAMCRO CODE	FORMATION [nº x mm ²]	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 [nº x mm ²]	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
SSR0401HFOCX-UL-LP	4x14AWG	7.3	126



Brillan Cables Industries

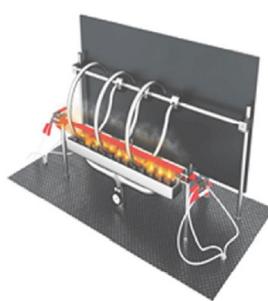
USA : 325 North St.Paul Street Suite
3100, Dallas, TX 75201

+1 (302) 485 0249



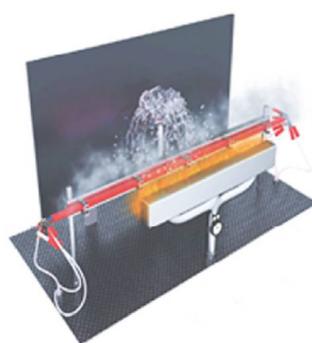
FIRE RESISTANT TEST INFORMATIONS

Fire Resistant Test Informations



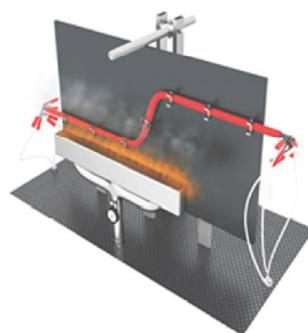
Fire Resistance (Cat. C)

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



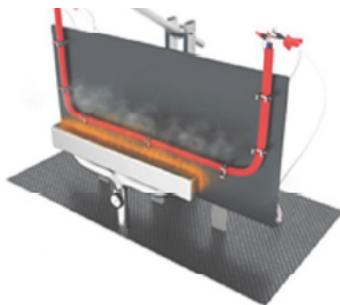
Fire And Water Resistance (Cat. W)

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.

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 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 Resistant 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.



Certificates of Products Approval

Certificate of Product Approval 568a

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Certificate of Product Approval

Certificate Number: 568a

Issue: 18

RAMCRO S.p.A.

Via Mazzorati 15
20014 Nerviano
Milan
Italy

is authorized 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:
Ramfrecro-F3 FIRE PLANET

Standard(s) (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



Certificate of Product Approval 568c

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Certificate of Product Approval

Certificate Number: 568c

Issue: 14

RAMCRO S.p.A.

Via Mazzorati 15
20014 Nerviano MI
Italy

is authorized 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:
Ramfrecro-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 (UBUS 20-20 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.

Obdoba Piracha	Obdoba Piracha	9 November 2023	27 October 2023	Date of Issue	Date of First Issue
Signed for BRE Global Ltd.	Signed for BRE Global Ltd.				

BRE1345 Rev 2.1

BRE1345 Rev 2.1

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

Obdoba Piracha	Obdoba Piracha	5 April 2002	1 June 2006	Date of Issue	Date of First Issue
Signed for BRE Global Ltd.	Signed for BRE Global Ltd.				

BRE1345 Rev 2.1

BRE1345 Rev 2.1

Certificate of Product Approval 568e

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Certificate of Product Approval

Certificate Number: 568e

Issue: 06

RAMCRO S.p.A.

Via Mazzorati
15 - 20014 Nerviano
Nerviano
Milan
20014
Italy

is authorized 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:
Ramfrecro-F3 FIRE GROUND

Standard(s) (see Appendix for details)
BS 6387:2013 (CWZ)
EN 60754-1:2014
EN 61034-2-1:2013+A1:2013
EN 60754-2:2014
EN 60332-3-2:2009
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	Karen Coull	11 September 2018	27 May 2016	Date of Issue	Date of First Issue
Signed for BRE Global Ltd.	Signed for BRE Global Ltd.				

BRE1345 Rev 2.1

BRE1345 Rev 2.1

Certificate of Product Approval 568d

LPCB®

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Certificate of Product Approval

Certificate Number: 568d

Issue: 06

RAMCRO S.p.A.

Via Mazzorati 15
20014 Nerviano MI
ITALY

is authorized 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:
Ramfrecro-F3 FIRE SAFE
See Certificate Appendix for details

Standard(s) (see Appendix for details)
IEC 60331-21:1999
EN 50267-2-1:1999
EN 61034-2:2004



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

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

BRE1345 Rev 1.0

BRE1345 Rev 1.0

BRE1345 Rev 1.0

Certificate of Product Approval 568g

LPCB®

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Certificate of Product Approval
Certificate Number: 568g 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: Ramcro-F3 FIRE STAR	IEC 60331-12:1999 IEC 60331-12:2004 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.

[Signature] Tony Baker
Signed for LPCB
Certification Scheme Manager Date of Issue: 26 July 2017
Date of First Issue: 26 July 2017




101345 Rev. 0.5

LPCB®

www.redbooklive.com

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	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.

[Signature] Tony Baker
Signed for LPCB
Certification Scheme Manager Date of Issue: 26 July 2017
Date of First Issue: 26 July 2017




101345 Rev. 0.3

Certificate of Product Approval 568j

LPCB®

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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)	Standard(s) (see Appendix for details)
Cable Types as listed below: Ramcro-F3 FIRE STAR	BS 7629-1:2015 Enhanced 120 EN 50200:2015 (Class PH120) BS 5832-2:2013 (Class 0 to 2009 (120 mins)) BS 5832-2013 (Class 0 to 2009 (120 mins)) BS 6287:2013 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.

[Signature] Chada Piracha
Signed for BRE Global Ltd.
Certification Scheme Manager Date of Issue: 15 October 2021
Date of First Issue: 12 April 2018




101345 Rev. 2.1

FPLR UL

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.

Standards 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.

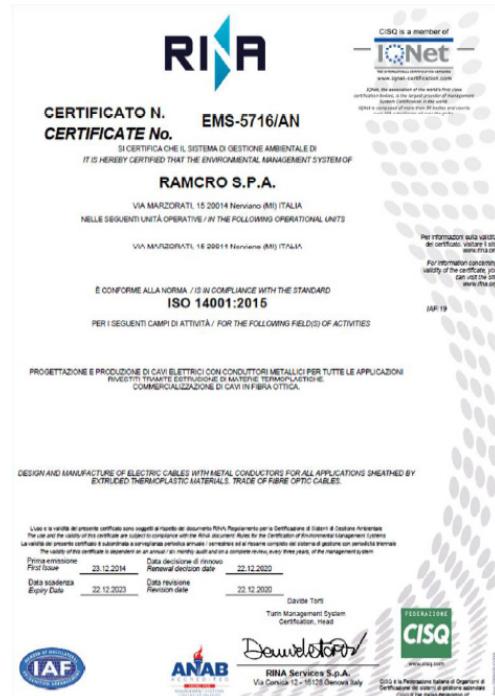


ISO Certificates

ISO 9001:2015



ISO 14001:2015



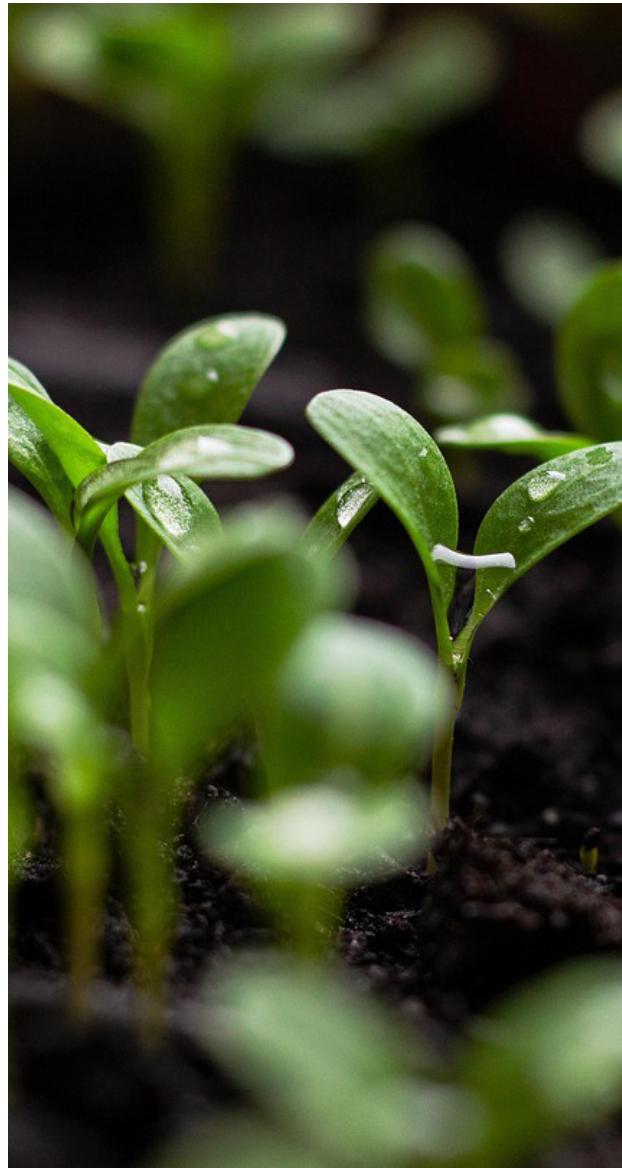
ISO 45001:2018



NOTES



by Ramco



Ramcro S.p.A. has always been committed to the research and supply of products and services with the least possible environmental impact throughout their life cycle and carefully evaluates all aspects of the production chain, from design to production and up to disposal methods.

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- by Ramco

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