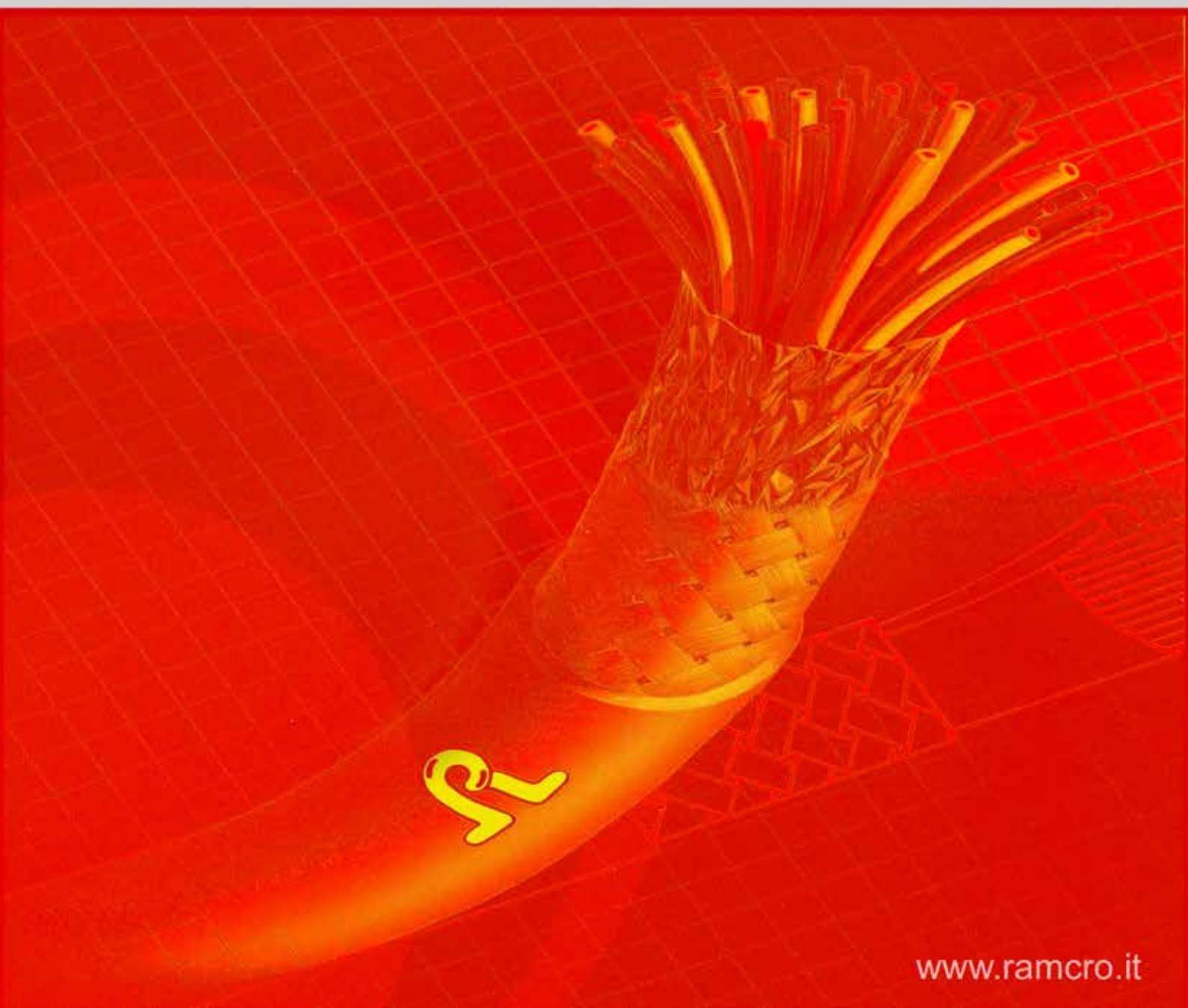




fire catalogue



ISO 9001:2008 CERTIFICATE


Certificate of Quality System Registration
RAMCRO S.P.A. Via Marzorati, 15 - 20014 Nerviano, Milan, Italy
has complied with the requirements of the following:
ISO 9001:2008
and is authorised to use the LPCB mark on stationery and publications related to the following products and/or services
Design, manufacture and supply of electric cables including cables used for installations that require safety in the event of fire and the supply of fibre optic cables.
 T A Hunter for and on behalf of LPCB
Certificate No: 568 Issue Number: 10 Date of Issue: 02 April 2011 Date of Expiry: 01 April 2014
 
breglobal LPCB is part of BRE Global Limited, Watford, WD25 9XX T: +44 (0)1923 664100 F: +44 (0)1923 664910 W: www.redbooklive.com This certificate remains the property of BRE Global Ltd and is issued subject to terms and conditions. It is maintained and held in force through at least annual review and verification. To check the validity of this certificate, please visit www.redbooklive.com or contact us.
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HISTORY

Ramcro was founded on 1979 as a company specialised in the field of special electrical cables. Both productions and sales were initially oriented only towards the market of shielded cables for safety devices, achieving in about six years, a major role in the sector.

We have therefore acquired great experience which has allowed us to enter other more demanding and competitive markets, such as informatics and electronics sector, the coaxial cable sector, for aerial lead and radiofrequency, up to special cables for the most specific needs, and in particular:
FIRE RESISTANT CABLES.

Ramfirecro-F3 - BS 6387 C-W-Z	2
Ramfirecro-F3 - BS 7629 - EN 50200 PH30	6
Ramfirecro-F3 - BS 7629- EN 50200 PH30 - SWA	10
Ramfirecro-F3 - BS 7629 - EN 50200 PH120	12
Ramfirecro-F3 - Brandmeldekabel E30 / E60 / E90 - DIN 4102	14
Ramfirecro-F3 - RFC F3 - NBN 713-020 Add.3	18
Ramfirecro-FTG10(O)M1 CEI 20-45, CEI 20-22 III c	20
Ramfirecro-F3 - FG4OHM1 - CEI 20-105	21
Ramfirecro-F3 - ГОСТ Р МЭК 60331-21	22
Ramfirecro-F3 - IEC 60331-21	28
Fiber Optic Fire Resistant	32
Ramfirecro-Fire-Coax EN 50200 - PH120	34
Ramfirecro-F3 CEI EN50200 - PH 15-30-60-90	35
Ramfirecro-F3 CEI EN50200 - PH 120	36
Ramfirecro-Fire Alarm - IEC 60332 - CEI 20-37	37
Ramfirecro-Fire Alarm - J-YY / J-Y(St)Y - IEC 60332 - CEI 20-37	38
Ramfirecro-Fire Alarm - J-HH / J-H(St)H - IEC 60332 - CEI 20-37	39
Ramfirecro-Accessories	40

Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

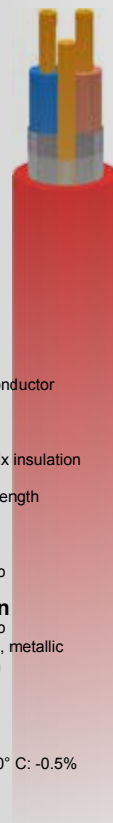
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	1/1.00 mm (0.75 sqmm)	24.50
	1/1.13 mm (1.00 sqmm)	18.10
	1/1.40 mm (1.50 sqmm)	12.10
	1/1.80 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to BS6387 Cat. C	
	3 hours at 950° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class 1), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
LSZH Sheath type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



Standards References

- BS 6387
Cat. C-W-Z
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0210HFESL-F3(IE)	2	0.75	7.5
SAR0310HFESX-F3(IE)	3	0.75	7.9
SAR0410HFESQ-F3(IE)	4	0.75	8.9
SAR0510HFESD-F3(IE)	5	0.75	9.5
SAR0710HFESD-F3(IE)	7	0.75	10.5
SAR1210HFESD-F3(IE)	12	0.75	13.6
SAR1910HFESD-F3(IE)	19	0.75	15.6
SAR0211HFESL-F3(IE)	2	1.00	7.8*
SAR0311HFESX-F3(IE)	3	1.00	8.6*
SAR0411HFESQ-F3(IE)	4	1.00	9.2*
SAR0511HFESD-F3(IE)	5	1.00	10.0
SAR0711HFESD-F3(IE)	7	1.00	10.9
SAR1211HFESD-F3(IE)	12	1.00	14.2
SAR1911HFESD-F3(IE)	19	1.00	16.4
SAR0214HFESL-F3(IE)	2	1.50	8.7*
SAR0314HFESX-F3(IE)	3	1.50	9.1*
SAR0414HFESQ-F3(IE)	4	1.50	9.8*
SAR0514HFESD-F3(IE)	5	1.50	10.8
SAR0714HFESD-F3(IE)	7	1.50	12.1
SAR1214HFESD-F3(IE)	12	1.50	15.3
SAR1914HFESD-F3(IE)	19	1.50	17.6

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0218HFESL-F3(IE)	2	2.50	9.9*
SAR0318HFESX-F3(IE)	3	2.50	10.6*
SAR0418HFESQ-F3(IE)	4	2.50	11.5*
SAR0518HFESD-F3(IE)	5	2.50	12.8
SAR0718HFESD-F3(IE)	7	2.50	13.9
SAR1218HFESD-F3(IE)	12	2.50	17.8
SAR1918HFESD-F3(IE)	19	2.50	20.8
SAR0285HFESL-F3(IE)	2	4.00	12.0*
SAR0385HFESX-F3(IE)	3	4.00	13.1*
SAR0485HFESQ-F3(IE)	4	4.00	14.2*
SAR0585HFESD-F3(IE)	5	4.00	15.5



568a/01



Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

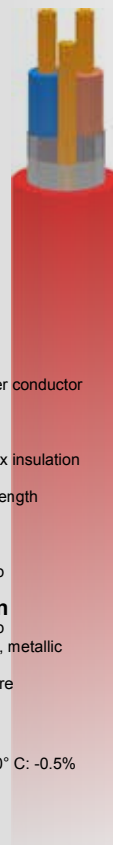
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	7/0.36 mm (0.75 sqmm)	24.50
	7/0.42 mm (1.00 sqmm)	18.10
	7/0.52 mm (1.50 sqmm)	12.10
	7/0.67 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to BS6387 Cat. C 3 hours at 950° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Stranded (Class2), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Stranded Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



FIRE PLANET
BS6387

3

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0275HFESL-F3(IE)	2	0.75	7.5
SAS0375HFESX-F3(IE)	3	0.75	7.9
SAS0475HFESQ-F3(IE)	4	0.75	8.9
SAS0575HFESD-F3(IE)	5	0.75	9.5
SAS0775HFESD-F3(IE)	7	0.75	10.5
SAS1275HFESD-F3(IE)	12	0.75	13.6
SAS1975HFESD-F3(IE)	19	0.50	15.6
SAS0210HFESL-F3(IE)	2	1.00	7.8*
SAS0310HFESX-F3(IE)	3	1.00	8.6*
SAS0410HFESQ-F3(IE)	4	1.00	9.2*
SAS0510HFESD-F3(IE)	5	1.00	10.0
SAS0710HFESD-F3(IE)	7	1.00	10.9
SAS1210HFESD-F3(IE)	12	1.00	14.2
SAS1910HFESD-F3(IE)	19	1.00	16.4
SAS0215HFESL-F3(IE)	2	1.50	8.7*
SAS0315HFESX-F3(IE)	3	1.50	9.1*
SAS0415HFESQ-F3(IE)	4	1.50	9.8*
SAS0515HFESD-F3(IE)	5	1.50	10.8
SAS0715HFESD-F3(IE)	7	1.50	12.1
SAS1215HFESD-F3(IE)	12	1.50	15.3
SAS1915HFESD-F3(IE)	19	1.50	17.6

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0225HFESL-F3(IE)	2	2.50	9.9*
SAS0325HFESX-F3(IE)	3	2.50	10.6*
SAS0425HFESQ-F3(IE)	4	2.50	11.5*
SAS0525HFESD-F3(IE)	5	2.50	12.8
SAS0725HFESD-F3(IE)	7	2.50	13.9
SAS1225HFESD-F3(IE)	12	2.50	17.8
SAS1925HFESD-F3(IE)	19	2.50	20.8
SAS0240HFESL-F3(IE)	2	4.00	12.0*
SAS0340HFESX-F3(IE)	2	4.00	13.1*
SAS0440HFESQ-F3(IE)	4	4.00	14.2*
SAS0540HFESD-F3(IE)	5	4.00	15.5



568a/01

Standards References

- BS 6387
Cat. C-W-Z
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Standards References

- BS 6387
- Cat. C-W-Z
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

Loss Prevention Certification Board	
 LPCB	
This is to certify	
RAMCRO S.p.A Via Tanaro, 19, 20010 Villastanza, Di Parabiago, Milan, Italy	
is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix.	
Ramfirecro-F3 (refer to attached appendix for details)	
which has complied with the requirements of the following:	
BS 6387: 1994 – Performance requirements for cables required to maintain circuit integrity under fire conditions.	
and achieved:	
<0.5% HCl when tested in accordance with BS EN50267-2-1: 1999 – Method of test for Gases evolved during combustion of electric cables	
Certificate No. 568a	Issue No. 05
Date of Issue 07 December 2006	
This certificate is valid until withdrawn by LPCB. To check the validity and the authenticity of this certificate please visit our website www.RedBookLive.com or contact us.	
Signed on behalf of the LPCB	
	
Name: E MATTIE-SULEIMAN	
LPCB is part of BRE Certification Ltd., Garston, Watford WD25 9XX, Tel +44 (0)1923 864100 Fax +44 (0)1923 864603 www.RedBookLive.com This certificate remains the property of BRE Certification Ltd and is issued subject to terms and conditions and is maintained and held in force through regular surveillance activities.	
BF657 Revision 0, 03 January 2006	Page 1 of 3
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568a/01

Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

Loss Prevention Certification Board			
			
APPENDIX TO CERTIFICATE NO. 568a			
RAMCRO S.p.A			
Products	LPCB Ref. No.		
Ramfirecro-F3	568a/01		
Nominal csa of conductors (mm ²)	Core construction	BS 6387	BS EN 50267-2-1 (outer covering)
1.0 ⁽¹⁾	2, 3 & 4	C, W, Z	<0.5%HCl
1.5 ⁽¹⁾	2, 3 & 4	C, W, Z	<0.5%HCl
2.5 ⁽¹⁾	2, 3 & 4	C, W, Z	<0.5%HCl
4.0 ⁽²⁾	2, 3 & 4	C, W, Z	<0.5%HCl
Uo/U 300/500 V			
Note 1: Solid and Stranded conductors.			
Note 2: Stranded conductor only.			
For details of Cross-Listed products and alternative branding please see page 3.			
This certificate is valid until withdrawn by LPCB. To check the validity and the authenticity of this certificate please visit our website www.RedBookLive.com or contact us.			
Signed on behalf of the LPCB			
		Page 2 of 3	
Name: E MATTIE-SULEIMAN		Date of Issue 07 December 2006	
		Issue No. 05	
LPCB is part of BRE Certification Ltd., Garston, Watford WD25 9XX. Tel +44 (0)1923 664100 Fax +44 (0)1923 664603 www.RedBookLive.com This certificate remains the property of BRE Certification Ltd and is issued subject to terms and conditions and is maintained and held in force through regular surveillance activities.			

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568a/01

FIRE PLANET
BS6387

5

Standards References

- BS 6387
- Cat. C-W-Z
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



www.ramcro.it

Ramfirecro-F3 - BS 7629 - EN 50200 PH30

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

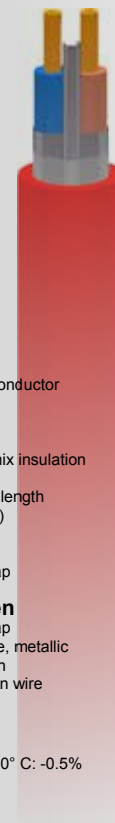
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	1/1.00 mm (0.75 sqmm)	24.50
	1/1.13 mm (1.00 sqmm)	18.10
	1/1.40 mm (1.50 sqmm)	12.10
	1/1.80 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to BS6387 Cat. C	
	3 hours at 950° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class 1), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Tinned Copper drain wire
- **Outer Sheath:**
LSZH Sheath type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



Standards References

- BS 7629
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0210HFESL-F3En30	2	0.75	7.5
SAR0310HFESX-F3En30	3	0.75	7.9
SAR0410HFESQ-F3En30	4	0.75	8.9
SAR0510HFESD-F3En30	5	0.75	9.5
SAR0710HFESD-F3En30	7	0.75	10.5
SAR1210HFESD-F3En30	12	0.75	13.6
SAR1910HFESD-F3En30	19	0.50	15.6
SAR0211HFESL-F3En30	2	1.00	7.8*
SAR0311HFESX-F3En30	3	1.00	8.6*
SAR0411HFESQ-F3En30	4	1.00	9.2*
SAR0511HFESD-F3En30	5	1.00	10.0
SAR0711HFESD-F3En30	7	1.00	10.9
SAR1211HFESD-F3En30	12	1.00	14.2
SAR1911HFESD-F3En30	19	1.00	16.4
SAR0214HFESL-F3En30	2	1.50	8.7*
SAR0314HFESX-F3En30	3	1.50	9.1*
SAR0414HFESQ-F3En30	4	1.50	9.8*
SAR0514HFESD-F3En30	5	1.50	10.8
SAR0714HFESD-F3En30	7	1.50	12.1
SAR1214HFESD-F3En30	12	1.50	15.3
SAR1914HFESD-F3En30	19	1.50	17.6

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0218HFESL-F3En30	2	2.50	9.9*
SAR0318HFESX-F3En30	3	2.50	10.6*
SAR0418HFESQ-F3En30	4	2.50	11.5*
SAR0518HFESD-F3En30	5	2.50	12.8
SAR0718HFESD-F3En30	7	2.50	13.9
SAR1218HFESD-F3En30	12	2.50	17.8
SAR1918HFESD-F3En30	19	2.50	20.8
SAR0285HFESL-F3En30	2	4.00	12.0*
SAR0385HFESX-F3En30	3	4.00	13.1*
SAR0485HFESQ-F3En30	4	4.00	14.2*
SAR0585HFESD-F3En30	5	4.00	15.5



568c/01



Ramfirecro-F3 - BS 7629 - EN 50200 PH30

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	7/0.36 mm (0.75 sqmm)	24.50
	7/0.42 mm (1.00 sqmm)	18.10
	7/0.52 mm (1.50 sqmm)	12.10
	7/0.67 mm (2.50 sqmm)	7.41
Minimum insulation resistance:	7/0.85 mm (4.00 sqmm)	4.61
	Individual conductors	
	>200 MOhm x km at +20°C	
	Minimum bending radius:	8 x Overall diameter
	Fire Rating:	to BS6387 Cat. C 3 hours at 950° C
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Stranded (Class2), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Stranded Tinned Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered

RAMCRO
FIRE
RESISTANT
BS7629

7

Ramcro Part No	No. of Conductors	Cond. mm²	Nom. O/D mm
Collective screened			
SAS0275HFESL-F3En30	2	0.75	7.5
SAS0375HFESX-F3En30	3	0.75	7.9
SAS0475HFESQ-F3En30	4	0.75	8.9
SAS0575HFESD-F3En30	5	0.75	9.5
SAS0775HFESD-F3En30	7	0.75	10.5
SAS1275HFESD-F3En30	12	0.75	13.6
SAS1975HFESD-F3En30	19	0.50	15.6
SAS0210HFESL-F3En30	2	1.00	7.8*
SAS0310HFESX-F3En30	3	1.00	8.6*
SAS0410HFESQ-F3En30	4	1.00	9.2*
SAS0510HFESD-F3En30	5	1.00	10.0
SAS0710HFESD-F3En30	7	1.00	10.9
SAS1210HFESD-F3En30	12	1.00	14.2
SAS1910HFESD-F3En30	19	1.00	16.4
SAS0215HFESL-F3En30	2	1.50	8.7*
SAS0315HFESX-F3En30	3	1.50	9.1*
SAS0415HFESQ-F3En30	4	1.50	9.8*
SAS0515HFESD-F3En30	5	1.50	10.8
SAS0715HFESD-F3En30	7	1.50	12.1
SAS1215HFESD-F3En30	12	1.50	15.3
SAS1915HFESD-F3En30	19	1.50	17.6

Ramcro Part No	No. of Conductors	Cond. mm²	Nom. O/D mm
Collective screened			
SAS0225HFESL-F3En30	2	2.50	9.9*
SAS0325HFESX-F3En30	3	2.50	10.6*
SAS0425HFESQ-F3En30	4	2.50	11.5*
SAS0525HFESD-F3En30	5	2.50	12.8
SAS0725HFESD-F3En30	7	2.50	13.9
SAS1225HFESD-F3En30	12	2.50	17.8
SAS1925HFESD-F3En30	19	2.50	20.8
SAS0240HFESL-F3En30	2	4.00	12.0*
SAS0340HFESX-F3En30	3	4.00	13.1*
SAS0440HFESQ-F3En30	4	4.00	14.2*
SAS0540HFESD-F3En30	5	4.00	15.5



568c/01

Standards References

- PAS 5308
Part 2 Type 2
- BS EN 60228
- BS 6234
- BS 50363
- IEC 60332-1
- IEC 60332-3-24



BS 7629

Fire UN

8

Standards References

- BS 7629
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



www.ramcro.it

Ramfirecro-F3 - BS 7629 - EN 50200 PH30

Silicon Rubber insulated, Halogen Free Fire Resistant

Loss Prevention Certification Board



This is to certify

RAMCRO S.p.A
Via Tanaro, 19, 20010 Villastanza, Di Parabiago, Milan, Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix.

Ramfirecro-F3 Standard
(refer to attached appendix for details)

which has complied with the requirements of the following:

BS 7629-1: 1997 (Incorporating Amendments Nos. 1 & 2), - 300/500 V fire resistant electric cables having low emission of smoke and corrosive gases when affected by fire - Multicore cables.

Standard fire resistant cables as described in Clause 26.2 of BS 5839-1: 2002 - Fire detection and alarm systems for buildings. Code of practice for system design, installation, commissioning and maintenance.

and achieved:

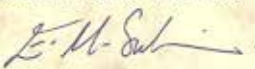
Class PH30 when tested in accordance with BS EN 50200: 2000 - Method of test for resistance to fire of unprotected small cables for use in emergency circuits.

Certificate No. 568c Issue No. 02

Date of Issue 07 December 2006

This certificate is valid until withdrawn by LPCB.
To check the validity and the authenticity of this certificate please visit our website www.RedBookLive.com or contact us.

Signed on behalf of the LPCB



Name: E MATTIE-SULEIMAN

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Fax +44 (0)1923 664603 www.RedBookLive.com
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BF617 Revision 6, 03 January 2006 Page 1 of 2 BRE Certification Ltd, 2006

on Board

LPCB Ref. No.

568c/01

BS 8434-1 BS 5839-1
Clause 26.2

conductor (mm ²)	(excluding drain wire & earth)	(Incorporating Amendments Nos. 1 & 2)			
1.0 ⁽¹⁾	2, 3 & 4	Complies ⁽¹⁾	Class PH30	30min ⁽⁴⁾	Standard ⁽⁵⁾
1.5 ⁽¹⁾	2, 3 & 4	Complies ⁽¹⁾	Class PH30	30min ⁽⁴⁾	Standard ⁽⁵⁾
2.5 ⁽¹⁾	2, 3 & 4	Complies ⁽¹⁾	Class PH30	30min ⁽⁴⁾	Standard ⁽⁵⁾
4.0 ⁽²⁾	2, 3 & 4	Complies ⁽¹⁾	Class PH30	30min ⁽⁴⁾	Standard ⁽⁵⁾

Uo/U 300/500V

Note 1: Solid and Stranded conductors.

Note 2: Stranded conductor only.

Note 3: In meeting the requirements of BS 7629-1: 1997 (Incorporating Amendments Nos. 1 & 2), the Ramfirecro-F3 Standard cables listed meet the requirements of smoke density of BS EN 50267-2: 2000 and achieved less than 0.5% HCl on the (insulation, binder tape & outer covering) when tested in accordance with BS EN 50267-2-1: 1999.

Note 4: The duration of 30min when tested in accordance with BS 8434-1: 2003 is achieved by 15min for the fire and impact phase and an additional 15min for the fire, impact and water phase as described in Clause 26.2 d) of BS 5839-1: 2002.

Note 5: The Ramfirecro-F3 Standard cables listed conform to BS 7629-1: 1997 (Incorporating Amendments Nos. 1 & 2), meet Class PH30 when tested in accordance with BS EN 50200: 2000 and meet a duration of 30min when tested in accordance with BS 8434-1: 2003 and hence meet the requirements for a standard fire resistant cable as described in Clause 26.2 of BS 5839-1: 2002.

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Date of Issue 07 December 2006

Issue No. 02

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568c/01

Ramfirecro-F3 - BS 7629 - EN 50200 PH30

Silicon Rubber insulated, Halogen Free Fire Resistant

BS 7629

Loss Prevention Certification Board

LPCB

This is to certify

RAMCRO S.p.A
Via Tanaro, 19, 20010 Villastanza, Di Parabio, Milan, Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix.

Ramfirecro-F3 Standard
(refer to attached appendix for details)

which has complied with the requirements of the following:

BS 7629: Part 1: 1997 - 300/500 V fire resistant electric cables having low emission of smoke and corrosive gases when affected by fire - Multicore cables.
N.B. This certificate is to a withdrawn version of the above standard. Cables conforming to this version of the standard may not be suitable for use within the jurisdiction of the European Union (EU). This certificate, to the withdrawn version of the standard, is maintained because cables meeting the withdrawn version of the standard are still requested by some regulators outside of the EU. (See appendix for further details).

Standard fire resistant cables as described in Clause 26.2 of BS 5839-1: 2002 - Fire detection and alarm systems for buildings. Code of practice for system design, installation, commissioning and maintenance.

and achieved:

Class PH30 when tested in accordance with BS EN 50200: 2000 - Method of test for resistance to fire of unprotected small cables for use in emergency circuits.

Certificate No. 568b Issue No. 03

Date of Issue 07 December 2006

This certificate is valid until withdrawn by LPCB.
To check the validity and the authority of this certificate please visit our website www.RedBookLive.com or contact us.

Signed on behalf of the LPCB

Name: E MATTIE-SULEIMAN

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BP667 Revision 0, 03 January 2006 Page 1 of 2 BRE Certification Ltd, 2006

Loss Prevention Certification Board

LPCB Ref. No.

568b/01

BS 8434-1 BS 5839-1
Clause 26.2



568c/01

1.0 ⁽¹⁾	2, 3 & 4	Complies ⁽²⁾	Class PH30	30min ⁽³⁾	Standard ⁽⁴⁾
1.5 ⁽¹⁾	2, 3 & 4	Complies ⁽²⁾	Class PH30	30min ⁽³⁾	Standard ⁽⁴⁾
2.5 ⁽¹⁾	2, 3 & 4	Complies ⁽²⁾	Class PH30	30min ⁽³⁾	Standard ⁽⁴⁾
4.0 ⁽²⁾	2, 3 & 4	Complies ⁽²⁾	Class PH30	30min ⁽³⁾	Standard ⁽⁴⁾

Uo/U 300/500V

Note 1: Solid and Stranded conductors.
Note 2: Stranded conductor only.
Note 3: In meeting the requirements of BS 7629-1: 1997, the Ramfirecro-F3 Standard cables listed met the requirements of smoke density of BS 7629-1: 1997 and achieved less than 0.5%HC on the (insulation, binder tape & outer covering) when tested in accordance with BS 5425-1: 1990.
Note 4: The duration of 30min when tested in accordance with BS 8434-1: 2003 is achieved by 15min for the fire and impact phase and an additional 15min for the fire, impact and water phase as described in Clause 26.2 d) of BS 5839-1: 2002.
Note 5: The Ramfirecro-F3 Standard cables listed conform to BS 7629-1: 1997, met Class PH30 when tested in accordance with BS EN 50200: 2000 and met a duration of 30min when tested in accordance with BS 8434-1: 2003 and hence met the requirements for a standard fire resistant cable as described in Clause 26.2 of BS 5839-1: 2002.
Note 6: BS 7629-1: 1997 was amended in 2004 to implement the changes to the identification of cores by colours. In accordance with the CENELEC Harmonisation Document HD 308 S2, the un-amended version of the standard was withdrawn on 31st March 2006. However, cables with the old identification colours, meeting the withdrawn version of the standard, are still requested by some regulators outside of the EU. Certification to the un-amended version of the standard has therefore been maintained, for the time being, to satisfy the requirements of these regulators.
Certificate 568c covers cables certified in accordance with BS 7629-1: 1997 (incorporating Amendments Nos. 1 & 2)

This certificate is valid until withdrawn by LPCB.
To check the validity and the authority of this certificate please visit our website www.RedBookLive.com or contact us.

Signed on behalf of the LPCB

Name: E MATTIE-SULEIMAN

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BP667 Revision 0, 03 January 2006 Page 2 of 2 BRE Certification Ltd, 2006

Standards References

- BS 7629
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Standards References

- BS 7629
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Ramfirecro-F3 - BS 7629 - EN 50200 PH30

SWA - Steel Wire Armour

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	1/1.00 mm (0.75 sqmm)	24.50
	1/1.13 mm (1.00 sqmm)	18.10
	1/1.40 mm (1.50 sqmm)	12.10
	1/1.80 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to BS6387 Cat. C 3 hours at 950° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- Conductors:

Solid (Class 1), Copper conductor to BS EN 60228

- Insulation:

Special Silicon Rubber mix insulation

- 100 mm maximum pair length (min. 10 twists per metre)

- Binder Tape:

Polyester tape 50% overlap

- Collective Screen

Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Tinned Copper drain wire

- Inner Sheath:

LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%

- Armouring:

Galvanized Steel Wires

- Outer Sheath:

LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%

- Color:

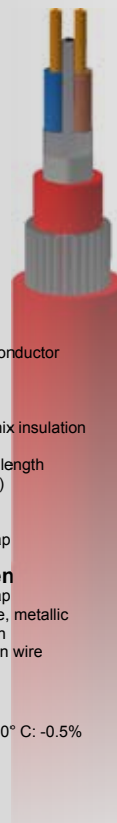
Red or White

- Core identification

following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0210AFESL-F3En30	2	0.75	7.5
SAR0310AFESX-F3En30	3	0.75	7.9
SAR0410AFESQ-F3En30	4	0.75	8.9
SAR0510AFESD-F3En30	5	0.75	9.5
SAR0710AFESD-F3En30	7	0.75	10.5
SAR1210AFESD-F3En30	12	0.75	13.6
SAR1910AFESD-F3En30	19	0.75	15.6
SAR0211AFESL-F3En30	2	1.00	12.2*
SAR0311AFESX-F3En30	3	1.00	12.6*
SAR0411AFESQ-F3En30	4	1.00	13.4*
SAR0511AFESD-F3En30	5	1.00	14.4
SAR0711AFESD-F3En30	7	1.00	15.5
SAR1211AFESD-F3En30	12	1.00	19.8
SAR1911AFESD-F3En30	19	1.00	21.9
SAR0214AFESL-F3En30	2	1.50	13.1*
SAR0314AFESX-F3En30	3	1.50	13.5*
SAR0414AFESQ-F3En30	4	1.50	14.3*
SAR0514AFESD-F3En30	5	1.50	15.4
SAR0714AFESD-F3En30	7	1.50	16.2
SAR1214AFESD-F3En30	12	1.50	20.7
SAR1914AFESD-F3En30	19	1.50	24.4

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0218AFESL-F3En30	2	2.50	14.3*
SAR0318AFESX-F3En30	3	2.50	14.8*
SAR0418AFESQ-F3En30	4	2.50	16.0*
SAR0518AFESD-F3En30	5	2.50	17.0
SAR0718AFESD-F3En30	7	2.50	19.0
SAR1218AFESD-F3En30	12	2.50	24.6
SAR1918AFESD-F3En30	19	2.50	27.8
SAR0285AFESL-F3En30	2	4.00	16.5*
SAR0385AFESX-F3En30	3	4.00	17.6*
SAR0485AFESQ-F3En30	4	4.00	19.4*
SAR0585AFESD-F3En30	5	4.00	20.4



Ramfirecro-F3 - BS 7629 - EN 50200 PH30

SWA - Steel Wire Armour

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	7/0.36 mm (0.75 sqmm)	24.50
	7/0.42 mm (1.00 sqmm)	18.10
	7/0.52 mm (1.50 sqmm)	12.10
	7/0.67 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to BS6387 Cat. C 3 hours at 950 °C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Stranded (Class2), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Stranded Tinned Copper drain wire
- **Inner Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Armouring:**
Galvanized Steel Wires
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered

Ramcro Part No	No. of Conductors	Cond. mm²	Nom. O/D mm
Collective screened			
SAS0275AFESL-F3En30	2	0.75	7.5
SAS0375AFESX-F3En30	3	0.75	7.9
SAS0475AFESQ-F3En30	4	0.75	8.9
SAS0575AFESD-F3En30	5	0.75	9.5
SAS0775AFESD-F3En30	7	0.75	10.5
SAS1275AFESD-F3En30	12	0.75	13.6
SAS1975AFESD-F3En30	19	0.50	15.6
SAS0210AFESL-F3En30	2	1.00	12.2*
SAS0310AFESX-F3En30	3	1.00	12.6*
SAS0410AFESQ-F3En30	4	1.00	13.4*
SAS0510AFESD-F3En30	5	1.00	14.4
SAS0710AFESD-F3En30	7	1.00	15.5
SAS1210AFESD-F3En30	12	1.00	19.8
SAS1910AFESD-F3En30	19	1.00	21.9
SAS0215AFESL-F3En30	2	1.50	13.1*
SAS0315AFESX-F3En30	3	1.50	13.5*
SAS0415AFESQ-F3En30	4	1.50	14.3*
SAS0515AFESD-F3En30	5	1.50	15.4
SAS0715AFESD-F3En30	7	1.50	16.2
SAS1215AFESD-F3En30	12	1.50	20.7
SAS1915AFESD-F3En30	19	1.50	24.4

Ramcro Part No	No. of Conductors	Cond. mm²	Nom. O/D mm
Collective screened			
SAS0225AFESL-F3En30	2	2.50	14.3*
SAS0325AFESX-F3En30	3	2.50	14.8*
SAS0425AFESQ-F3En30	4	2.50	16.0*
SAS0525AFESD-F3En30	5	2.50	17.0
SAS0725AFESD-F3En30	7	2.50	19.0
SAS1225AFESD-F3En30	12	2.50	24.6
SAS1925AFESD-F3En30	19	2.50	27.8
SAS0240AFESL-F3En30	2	4.00	16.5*
SAS0340AFESX-F3En30	3	4.00	17.6*
SAS0440AFESQ-F3En30	4	4.00	19.4*
SAS0540AFESD-F3En30	5	4.00	20.4

Standards References

- BS 7629
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Standards References

- BS 7629
- BS 8434-2
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Ramfirecro-F3 - BS 7629 - BS 8434-2 EN 50200 PH120

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

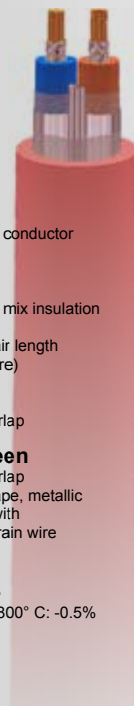
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	1/1.00 mm (0.75 sqmm)	24.50
	1/1.13 mm (1.00 sqmm)	18.10
	1/1.40 mm (1.50 sqmm)	12.10
	1/1.80 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	- to BS8434-2 120 min at 930° C - to BS6387 Cat. C 3 hours at 950° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class1), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Tinned Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0210HFESL-F3En120	2	0.75	7.7
SAR0310HFESX-F3En120	3	0.75	8.1
SAR0410HFESQ-F3En120	4	0.75	9.1
SAR0510HFESD-F3En120	5	0.75	9.7
SAR0710HFESD-F3En120	7	0.75	10.7
SAR1210HFESD-F3En120	12	0.75	13.8
SAR1910HFESD-F3En120	19	0.75	15.8
SAR0211HFESL-F3En120	2	1.00	8.0
SAR0311HFESX-F3En120	3	1.00	8.8
SAR0411HFESQ-F3En120	4	1.00	9.4
SAR0511HFESD-F3En120	5	1.00	10.2
SAR0711HFESD-F3En120	7	1.00	11.1
SAR1211HFESD-F3En120	12	1.00	14.4
SAR1911HFESD-F3En120	19	1.00	16.6
SAR0214HFESX-F3En120	2	1.50	8.9
SAR0314HFESX-F3En120	3	1.50	9.3
SAR0414HFESQ-F3En120	4	1.50	10.0
SAR0514HFESD-F3En120	5	1.50	11.0
SAR0714HFESD-F3En120	7	1.50	12.3
SAR1214HFESD-F3En120	12	1.50	15.5
SAR1914HFESD-F3En120	19	1.50	17.8

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0218HFESX-F3En120	2	2.50	10.1
SAR0318HFESX-F3En120	3	2.50	10.8
SAR0418HFESQ-F3En120	4	2.50	11.7
SAR0518HFESD-F3En120	5	2.50	13.0
SAR0718HFESD-F3En120	7	2.50	14.1
SAR1218HFESD-F3En120	12	2.50	18.0
SAR1918HFESD-F3En120	19	2.50	21.0
SAR0285HFESL-F3En120	2	4.00	12.2
SAR0385HFESX-F3En120	3	4.00	13.3
SAR0485HFESQ-F3En120	4	4.00	14.4
SAR0585HFESD-F3En120	5	4.00	15.7

Ramfirecro-F3 - BS 7629 - BS 8434-2 EN 50200 PH120

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

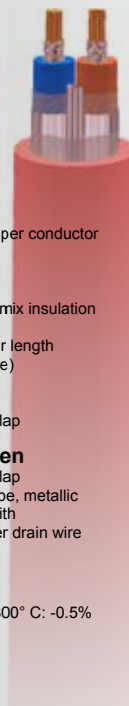
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	7/0.36 mm (0.75 sqmm)	24.50
	7/0.42 mm (1.00 sqmm)	18.10
	7/0.52 mm (1.50 sqmm)	12.10
	7/0.67 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	- to BS8434-2 120 min at 930° C - to BS6387 Cat. C 3 hours at 950° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Stranded (Class2), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Stranded Tinned Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or White
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



FI RE STAR

BS7629 - BS8434

13

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0275HFESL-F3En120	2	0.75	7.8
SAS0375HFESX-F3En120	3	0.75	8.3
SAS0475HFESQ-F3En120	4	0.75	9.3
SAS0575HFESD-F3En120	5	0.75	10.0
SAS0775HFESD-F3En120	7	0.75	11.1
SAS1275HFESD-F3En120	12	0.75	14.2
SAS1975HFESD-F3En120	19	0.75	16.4
SAS0210HFESL-F3En120	2	1.00	8.1
SAS0310HFESX-F3En120	3	1.00	9.0
SAS0410HFESQ-F3En120	4	1.00	9.7
SAS0510HFESD-F3En120	5	1.00	10.5
SAS0710HFESD-F3En120	7	1.00	11.4
SAS1210HFESD-F3En120	12	1.00	14.8
SAS1910HFESD-F3En120	19	1.00	17.2
SAS0215HFESL-F3En120	2	1.50	9.1
SAS0315HFESX-F3En120	3	1.50	9.5
SAS0415HFESQ-F3En120	4	1.50	10.2
SAS0515HFESD-F3En120	5	1.50	11.4
SAS0715HFESD-F3En120	7	1.50	12.7
SAS1215HFESD-F3En120	12	1.50	15.9
SAS1915HFESD-F3En120	19	1.50	18.4

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0225HFESL-F3En210	2	2.50	10.3
SAS0325HFESX-F3En120	3	2.50	11.1
SAS0425HFESQ-F3En120	4	2.50	11.9
SAS0525HFESD-F3En120	5	2.50	13.4
SAS0725HFESD-F3En120	7	2.50	14.5
SAS1225HFESD-F3En120	12	2.50	18.9
SAS1925HFESD-F3En120	19	2.50	21.6
SAS0240HFESL-F3En120	2	4.00	12.5
SAS0340HFESX-F3En120	3	4.00	13.5
SAS0440HFESQ-F3En120	4	4.00	14.7
SAS0540HFESD-F3En120	5	4.00	16.1

Standards References

- BS 7629
- BS 8434-2
- BS EN 50200
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- IEC 60331-21
- IEC 60332-3



Ramfirecro-F3 - Brandmeldkabel

DIN 4102

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

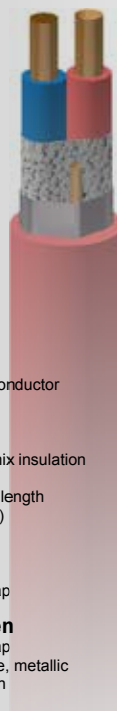
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	Class 1 0.50 sqmm	36.00
	Class 1 1.00 sqmm	18.10
	Class 1 1.50 sqmm	12.10
	Class 1 2.50 sqmm	7.41
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to DIN 4102 E30 - E90	
	30 minutes in burning Chamber	
	60 minutes in burning Chamber	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	225 V for section 0.8 mm	
	0.6/1 kV for other sections	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class 1), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Fibber Glass Tape + Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or Orange
- **Core identification**
following standard
DIN 1815



Standards References

- DIN VDE 0207 P.23 HL1
- DIN VDE 0207 P.24 HL4
- DIN VDE 0472 P.814
- IEC 60331-21
- IEC 60332-1

Ramcro Part No Collective screened	No. of Pairs	Cond. mm²	Nom. O/D mm
SAR0208HFEEU-F3	1	0.50	5.7
SAM0308HFEE1-F3	2	0.50	7.6
SAM0408HFEE2-F3	4	0.50	9.7
SSR0211HFEEU-F3	1	1.00	6.6
SSR0311HFEE1-F3	2	1.00	6.9
SSR0411HFEE2-F3	4	1.00	7.5
SSR0214HFEEU-F3	1	1.50	7.2
SSR0314HFEE1-F3	2	1.50	7.6
SSR0414HFEE2-F3	4	1.50	8.7

Ramcro Part No Collective screened	No. of Pairs	Cond. mm²	Nom. O/D mm
SSR0218HFEEU-F3	1	2.50	8.8
SSR0318HFEG1-F3	2	2.50	9.3
SSR0418HFEE2-F3	4	2.50	10.5
SSR0285HFEEU-F3	1	2.50	10.8
SSR0385HFEG1-F3	2	2.50	11.5
SSR0485HFEE2-F3	4	2.50	12.0



Ramfirecro-F3 - Brandmeldkabel

DIN 4102

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	Class 1 0.75 sqmm	36.00
	Class 1 1.00 sqmm	18.10
	Class 1 1.50 sqmm	12.10
	Class 1 2.50 sqmm	7.41
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to DIN 4102 E30 - E90 90 minutes in burning Chamber	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	225 V for section 0.8 mm 0.6/1 kV for other sections	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class1), Copper conductor to BS EN 60228
- **Insulation:**
MICA Tape +
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Fibber Glass Tape +
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or Orange
- **Core identification**
following standard
DIN 1815



E90
DIN4102

15

Ramcro Part No Collective screened	No. of Pairs	Cond. mm²	Nom. O/D mm
SAR0208HFEEU-F3E90	1	0.50	7.5
SAM0308HFEE1-F3E90	2	0.50	7.9
SAM0408HFEE2-F3E90	4	0.50	8.9
SSR0211HFEEU-F3E90	1	1.00	6.8
SSR0311HFEE1-F3E90	2	1.00	7.2
SSR0411HFEE2-F3E90	4	1.00	7.8
SSR0214HFEEU-F3E90	1	1.50	7.5
SSR0314HFEE1-F3E90	2	1.50	7.9
SSR0414HFEE2-F3E90	4	1.50	9.0

Ramcro Part No Collective screened	No. of Pairs	Cond. mm²	Nom. O/D mm
SSR0218HFEEU-F3E90	1	2.50	9.1
SSR0318HFEEG1-F3E90	2	2.50	9.7
SSR0418HFEE2-F3E90	4	2.50	10.9
SSR0285HFEEU-F3E90	1	2.50	11.2
SSR0385HFEEG1-F3E90	2	2.50	11.9
SSR0485HFEE2-F3E90	4	2.50	12.5

Standards References

- DIN VDE 0207 P.23 HL1
- DIN VDE 0207 P.24 HL4
- DIN VDE 0472 P.814
- IEC 60331-21
- IEC 60332-1



Standards References

- DIN VDE 0207 P.23 HL1
- DIN VDE 0207 P.24 HL4
- DIN VDE 0472 P.814
- IEC 60331-21
- IEC 60332-1



Ramfirecro-F3 - Brandmeldkabel

DIN 4102

Silicon Rubber insulated, Halogen Free Fire Resistant

VDE Prüf- und Zertifizierungsinstitut

GUTACHTEN MIT FERTIGUNGSÜBERWACHUNG
CERTIFICATE OF CONFORMITY WITH FACTORY SURVEILLANCE

RAMCRO S.p.A.
Via Marzorati 15
20014 NERVIANO MI
ITALY

Ist berechtigt, für ihr Produkt /
is authorized to use for their product

Halogenfreies Installationskabel mit verbessertem Verhalten im
Brandfall für Fernmelde- und Informationsverarbeitungsanlagen
Halogen-free wiring cable with improved characteristics in the
case of fire for telecommunication and data processing systems

die hier abgebildeten markenrechtlich geschützten Zeichen
für die ab Blatt 2 aufgeführten Typen zu benutzen /
the legally protected Marks as shown below for the types referred to on page 2 ff

Geprüft und zertifiziert nach /
Tested and certified according to

DIN VDE 0815:1988-08
DIN VDE 0815A1:1988-05
(in Anlehnung an/with reference to)

Befristet zum / valid until: 2014-12-31
Aktuelle Zeichen: 5006557-5350-0021 / 148655
Ausweis-Nr.: 40023849 Blatt 1
Certificate No. Page
Dieses Blatt gilt nur in Verbindung mit
Zertifikat Nr. 40023849
Offenbach, 2008-03-28
(letzte Änderung/updated 2011-10-11)
<http://www.vde.com/certificate>

VDE

**Zertifizierungsinstitut
Fertigungsüberwachung**

Ausweis-Nr. / Blatt /
Certificate No. / page
40023849 / 2

Aus / Name and registered seat of the Certificate holder
B, 20010 VILLASTANZA DI PARABAGGIO MI, ITALY

letzte Änderung / updated / Datum / Date
/ FG41 / LR 2008-01-24 2008-02-28

mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 40023849
in conjunction with page 1 of the Certificate of Conformity with factory

kabel mit verbessertem Verhalten im
Brandfall für Fernmelde- und Informationsverarbeitungsanlagen
with improved characteristics in the
case of fire for telecommunication and data processing systems

I FE 180 ID3

225 V (Spitzenwert/peak value)

wie JE-HS3H...B3 FE
nach DIN VDE 0815:1988-08
jedoch Mantelfarbe rot

wie JE-HS3H...B3 FE
according to DIN VDE 0815:1988-08
however colour of sheath red

nach/acc. to DIN EN 50267-2-2:2001

nach DIN VDE 0472 Teil 804:1989-11, Polart C
according to DIN VDE 0472 Part 804:1989-11, Category C

nach DIN VDE 0472 Teil 814:1991-01 für 180 Minuten
according to DIN VDE 0472 Part 814:1991-01 for 180 minutes

nach/acc. to DIN EN 61034-2:2005-03

Verwendungsbereich
Guide to use

Verwendung wie/like JE-HS3H...B3 FE

Präsenzzeichen
Trademark

Ramfirecro-F3

Fortsetzung siehe Blatt 3 /
continued on page 3

VDE Testing and Certification Institute * Institut VDE d'Essais et de Certification

Hauptstandort 20, 53509 Offenbach

Phone +49 61 50 02 00 0
Telefax +49 61 50 02 00 00

**VDE Prüf- und Z
Gutachten mit Fert**

Name und Sitz des Genehmigungs-Instituts
RAMCRO S.p.A., Via Tanaro 19,

Aktuelle Zeichen / File ref.
5006557-5350-0021 / 98692 F

Dieses Blatt gilt nur in Verbindung mit
This supplement is only valid in con
surveillance No. 40023849

Dieser Zeichengenehmigungs-Akt
CE-Kennzeichnung durch den Pla
und das gezeichnete Normen im Sinne der EG-Niederspannungsrichtlinie 2006/95/EG.
This Marks Approval is the basis for the CE Declaration of Conformity and the CE Marking by the
manufacturer or his agent and shows the conformity with the said standards as defined by the EC
Low-Voltage Directive 2006/95/EC

VDE Prüf- und Zertifizierungsinstitut
VDE Testing and Certification Institute
Fachgebiet FG41
Sektion FG41

VDE Testing and Certification Institute * Institut VDE d'Essais et de Certification

Hauptstandort 20, 53509 Offenbach

Phone +49 61 50 02 00 0
Telefax +49 61 50 02 00 00

Ramfirecro-F3 - Brandmeldkabel

DIN 4102

Silicon Rubber insulated, Halogen Free Fire Resistant

SIL / LSZH
DIN4102

17



FIRES
The Experts on Fire Safety
Celakovice/ov 282, 050 35 Bratislava
tel. 002 / 77 02296, fax 002 / 780 1412, e-mail: info@fires.sk, www: www.fires.sk

PRODUCT CLASSIFICATION FIRES CR-068/04 SAP

Product: Cable system with NIEDAX accessories
Sponsor: RAMCRO s.r.l., Via Tanaro 19, 20010 Villastanza di Parabiago, Italy
Manufacturer: RAMCRO s.r.l., Via Tanaro 19, 20010 Villastanza di Parabiago, Italy

It has been classified:

TYPE	RAMCRO CODE	CLASSIFICATION	
		Tray	Ceiling
E90CR3MVE 2x1.5	SAR0214HFMX-F3 SENZA FDV	E 90	E 90
E90CR3M 2x1.5	SAR0214HFMX-F3 SENZA FDV	E 90	E 90
E30CR3 2x1.5	SSR0214HUESX-F3 SENZA FDV	E 60	E 90
E30CR3VE 2x1.5	SSR0214HUESX-F3	E 90	E 90
E30GOSVE 2x1.5	SSR0214HUESX-F3	E 90	E 90

TYPE	RAMCRO CODE	CLASSIFICATION	
		Tray	Ceiling
E90CR3SCH 1x2x0.80	SAR0208HFMX-F3 SENZA FDV	E 90	-
E90CR3VESCH 1x2x0.80	SAR0208HFMX-F3	E 90	E 90
E30CR3VESCH 1x2x0.80	SAR0208HFMX-F3	E 60	E 60
E30GOSVESCH 1x2x0.80	SAR0208HFMX-F3	E 90	E 60

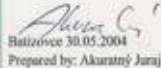
Product was tested according to DIN 4102 12: 1998-11

The course of the test is described in detail in the test report No.:
FIRES FR 030/04 C (E)

Caution:

- Classification is valid to 30.3.2009
- The field of application of the classification is specified on the reverse
- Any modifications to the contents of this document may only be per se

Test number: K-40759-04/048



Bratislava 30.05.2004
Prepared by: Akuratný Juraj





ZAG
Ljubljana

Op. M.: SSORNI
Ljubljana, 10th of April 2004

Ramcro s.r.l.
Via Tanaro, 19
20010 Villastanza di Parabiago (MI)
Italy

Subject: Classification of cables

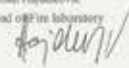
On 10th of April 2004 at Fire Laboratory ZAG Ljubljana ten different cables of manufacturer Ramcro s.r.l. were tested according to DIN 4102 Part 12. Conditions in the furnace were according to DIN 4102 Part 2. Two parallel tests for each type of cable and each laying method were done. Cables were laid on tray and fixed to the ceiling. Cables on the tray were bent with bending radius of 10 times the radius of cable. Cables on the ceiling were straight. Cables were connected to 110 V AC according to DIN 4102 Part 12. For cables on the ceiling modified connection was used. Shielded cables were earthed.

Classification of tested cables:

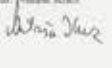
cable				classification	
				tray	ceiling
E90	CR3	MI	2 x 1.5	E 90	E 90
E30	GOSI	VE	2 x 1.5	E 30	E 30
E30	GOSI	VE	2 x 1.5	E 60	E 60
E90	CR3	SCH	1 x 2 x 0.8	E 90	E 90
E30	CR3	SCH	1 x 2 x 0.8	E 30	E 30

Sincerely,

Milan Hajdukovic
head of fire laboratory



dr. Nataša Knez



Standards References

- DIN VDE 0207 P.23 HL1
- DIN VDE 0207 P.24 HL4
- DIN VDE 0472 P.814
- IEC 60331-21
- IEC 60332-1

ramcro
SPECIAL CABLES

Ramfirecro-F3 - RFC F3

NBN 713-020 Add.3

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size 1/0.90 mm (0.63 sqmm) 1/1.13 mm (1.00 sqmm) 1/1.40 mm (1.50 sqmm) 1/1.80 mm (2.50 sqmm)	Ohm/km at +20°C 24.50 18.10 12.10 7.41
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	225 V for section 0.8 mm 0.6/1 kV for other sections	
Test Voltage:	1000 V ac	

Construction

- **Conductors:**
Solid (Class 1), Copper conductor to BS EN 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- 100 mm maximum pair length (min. 10 twists per metre)
- **Binder Tape:**
Fibber Glass Tape + Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Orange



Standards References

- NBN 713-020 Add. 3
- IEC 60331-21
- IEC 60332-1

Ramcro Part No Collective screened	No. of CORES	Cond. mm²	Nom. O/D mm
SAM0109HUEE-F3	1 Pr	0.63	5.8
SAM0209HUEE-F3	2 Pr	0.63	7.6
SAM0209HUEE-F3	3 Pr	0.63	8.1
SAM0409HUEE-F3	4 Pr	0.63	10.5
SAR0211HUEE-F3	2 C	1.00	6.6
SAR0311HUEE-F3	3 C	1.00	6.9
SAR0411HUEE-F3	4 C	1.50	7.5
SAR0511HUEE-F3	5 C	1.50	8.6

Ramcro Part No Collective screened	No. of Pairs	Cond. mm²	Nom. O/D mm
SAR0214HUEE-F3	2 C	1.50	7.2
SAR0314HUEE-F3	3 C	1.50	7.6
SAR0414HUEE-F3	4 C	1.50	8.7
SAR0514HUEE-F3	5 C	1.50	9.4
SAR0218HUEE-F3	2 C	2.50	8.8
SAR0318HUEE-F3	3 C	2.50	10.8
SAR0418HUEE-F3	4 C	2.50	11.5
SAR0518HUEE-F3	5 C	2.50	12.0



UNIVERSITE DE LIEGE
DEPARTEMENT DE MECANIQUE DES MATERIAUX ET
STRUCTURES
**LABORATOIRE D'ESSAIS
AU FEU**

Quai Banning, 6
B - 4000 LIEGE
Belgique

Tél. : 32 - (0)4 - 366.91.38.
Fax : 32 - (0)4 - 366.91.37.

Liège, le 30 mai 2002

Nombre de pages : 10
Nombre de graphiques : 7
Annexes photographiques : 8

N/réf. : JS / EW

PROCES-VERBAL DE L'ESSAI EF/GF/965

Demandé par : RAMCRO
Via Tanaro, 19
I - 20010 VILLASTANZA DI PARABIAGO - MI
ITALIE

Pour le compte de : RAMCRO
Via Tanaro, 19
I - 20010 VILLASTANZA DI PARABIAGO - MI
ITALIE

Nature de l'élément d'épreuve : Câbles électriques spéciaux

Essai demandé : Essai d'orientation concernant la résistance au feu de l'élément d'épreuve.

Dans les locaux du laboratoire et sous son contrôle la société susmentionnée a placé le 17 mai 2002 dans le dispositif d'essai décrit dans l'addendum N° 3 (édition mars 1994) de la norme N.B.N 713.020 (édition 1968), 5 types de câbles électriques spéciaux.

Ce procès-verbal ne peut être utilisé à des fins publicitaires que tel quel et dans son intégralité. Les textes, destinés à la publicité et dans lesquels il est fait mention dans ce procès-verbal, doivent être soumis préalablement à notre approbation. Toute modification ou surcharge du présent procès-verbal est strictement interdite.

**Standards
References**

- NBN 713-020
Add. 3
- IEC 60331-21
- IEC 60332-1



Ramfirecro-F3 - FTG10(O)M1

CEI 20-45, CEI 20-22 III c

MICA Tape + G10 insulation, Halogen Free Fire Resistant

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size 30/0.25 mm (1.50 sqmm) 50/0.25 mm (2.50 sqmm) 54/0.25 mm (4.00 sqmm) 78/0.30 mm (6.00 sqmm)	Ohm/km at +20°C 13.30 7.98 4.95 3.30
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	600 /1000 V	
Test Voltage:	4000 V ac	

Construction

- **Conductors:**
Solid (Class1), Copper conductor to BS EN 60228
- **Insulation:**
MICA Tape
Special Rubber mix G10 Type
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Blue or Red



Standards References

- CEI 20-35
- CEI 20-38
- CEI 20-37
- CEI 20-36
- CEI 20-22 III
- CEI 20-45
- IEC 60331.21
- IEC 60332-3



Ramcro Part No Collective screened	No. of CORES	Cond. mm²	Nom. O/D mm
FTG0215IDRQL	2 C	1.50	5.8
FTG0315IDRQF	3 C	1.50	7.6
FTG0415IDRQG	4 C	1.50	8.1
FTG0515IDRQD	5 C	1.50	
FTG0715IDRQD	7 C	1.50	
FTG1215IDRQD	12 C	1.50	
FTG2415IDRQD	24 C	1.50	
FTG0225IDRQL	2 C	2.50	10.5
FTG0325IDRQF	3 C	2.50	
FTG0425IDRQG	4 C	2.50	6.6
FTG0525IDRQD	5 C	2.50	6.9
FTG0725IDRQD	7 C	2.50	
FTG1225IDRQD	12 C	2.50	7.5
FTG2425IDRQD	24 C	2.50	8.6

Ramcro Part No Collective screened	No. of Pairs	Cond. mm²	Nom. O/D mm
FTG0240IDRQL	2 C	4.00	11.8
FTG0340IDRQF	3 C	4.00	12.6
FTG0440IDRQG	4 C	4.00	14.1
FTG0540IDRQD	5 C	4.00	15.3
-	-	-	-
-	-	-	-
-	-	-	-
FTG0260IDRQL	2 C	6.00	12.9
FTG0360IDRQF	3 C	6.00	13.8
FTG0460IDRQG	4 C	6.00	15.4
FTG0560IDRQD	5 C	6.00	16.7
-	-	-	-
-	-	-	-
-	-	-	-

Ramfirecro-F3 - FG4OHM1 - CEI 20-105

CEI EN 50200 PH 30 / 90 - IEC 60331

For UNI 9795 systems

Silicon Rubber insulated, Halogen Free Fire Resistant

Applicazioni

These cables are used for special multi-core circuit integrity fire resistant, and mainly to preserve people from smoke and harmful gases in case of fire, in addition to ensuring the operation of sensitive equipment that could be damaged by the formation of acid gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	16/0.20 mm (0.50 sqmm)	36.00
	24/0.20 mm (0.75 sqmm)	24.50
	32/0.20 mm (1.00 sqmm)	18.10
	30/0.25 mm (1.50 sqmm)	12.10
	50/0.25 mm (2.50 sqmm)	7.41
	72/0.25 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Fire Rating:	IEC 60331-21 90 min. at 750° C EN50200 PH30 90 min. at 840° C	
Voltage Rating:	following the standard 100 /1000 V following the construction 300 / 500 V	
Gases evolved during combustion	HCl < 0.5 % - Smoke density: >75%	
Test Voltage:	4000 V ac	

Standards References

- CEI 20-105
- UNI 9795
- EN 50200
- CEI 2036/4-0 (PH30)
- CEI UNEL 35012
- IEC 60331-21: 1999
- BS EN 50267-2-1: 1999
- BS EN 61034-2: 2005
- IEC 60332-1
- IEC 60332-3
- BS 7629-1: 2008
- IEC 60332-3

Construction

- **Conductors:**
Stranded (Class5), Copper conductor to IEC 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- **Color Code:**
Black and Red
- **Twisting:**
10 / 15 per mt
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Copper drain wire
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red



Construction

- **Conductors:**
Stranded (Class5), Copper conductor to IEC 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- **Color Code:**
Black and Red
- **Twisting:**
10 / 15 per mt
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red



Printing:

RAMFIRECRO-F3 - Fire Comet - CEI 20-105 - G4OHM1 - UNI 9795 - CEI 20-36/4-0 (PH30/90) 100/100 V - (year of production)

Ramcro Part No	No. of CORES	Cond. mm²	Nom. O/D mm
Collective screened			
SAS0250HFEEH-F3FG4	2 C	0.50	6.1
SAS0275HFEEH-F3FG4	2 C	0.75	6.5
SAS0210HFEEH-F3FG4	2 C	1.00	7.1
SAS0215HFEEH-F3FG4	2 C	1.50	8.0
SAS0225HFEEH-F3FG4	2 C	2.50	9.2
SAS0240HFEEH-F3FG4	2 C	4.00	10.8

Ramcro Part No	No. of Pairs	Cond. mm²	Nom. O/D mm
Without Screen			
SSS0250HFEEH-F3FG4	2 C	0.50	5.8
SSS0275HFEEH-F3FG4	2 C	0.75	6.3
SSS0210HFEEH-F3FG4	2 C	1.00	7.0
SSS0215HFEEH-F3FG4	2 C	1.50	7.5
SSS0225HFEEH-F3FG4	2 C	2.50	8.7
SSS0240HFEEH-F3FG4	2 C	4.00	10.7

FG4OHM1
CEI20-105

Standards References

- IEC 60331-21
- BS EN 50267-2-1
- BS EN 61034-2
- BS 7629-1



Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

- Solid and Stranded Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant Cable

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:
Solid

Conductor size	Ohm/km at +20°C
1/0.80 mm (0.50 sqmm)	36.00 +/- 5%
1/1.00 mm (0.75 sqmm)	24.50 +/- 5%
1/1.13 mm (1.00 sqmm)	18.10 +/- 5%
1/1.40 mm (1.50 sqmm)	12.10 +/- 5%
1/1.80 mm (2.50 sqmm)	7.41 +/- 5%

Stranded

Conductor size	Ohm/km at +20°C
7/0.30 mm (0.50 sqmm)	36.00 +/- 5%
7/0.36 mm (0.75 sqmm)	24.50 +/- 5%
7/0.42 mm (1.00 sqmm)	18.10 +/- 5%
7/0.52 mm (1.50 sqmm)	12.10 +/- 5%
7/0.67 mm (2.50 sqmm)	7.41 +/- 5%

Minimum insulation resistance:

Individual conductors
>200 MOhm x km at +20°C

Minimum bending radius:

8 x Overall diameter

Fire Rating:

to IEC 60331-21
180 minutes at 750 ° C

Operating Temperature:

+ 180°C

Installation Temperature:

- 5° C to + 50 ° C

Voltage Rating:

300/500 V

Test Voltage:

2000 V ac

Construction

- Conductors:

Solid (Class 1) copper conductor to IEC 60228

- Insulation:

Silicon Rubber Mix type EI2

- Collective Screen

Polyster tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with bare Copper drain wire

- Outer Sheath:

LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%

- Color:
Red

- Conductor Color Code:

Following BS 7629-1: 2008
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



Ramcro Part No Solid Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SAR0205HFEEL-F3 Hr(A)-FRHF	2C	0.22	4.2
SAR0305HFEEQ-F3 Hr(A)-FRHF	3C	0.22	4.4
SAR0405HFEEX-F3 Hr(A)-FRHF	4C	0.22	4.8
SAR0206HFEEL-F3 Hr(A)-FRHF	2C	0.34	4.4
SAR0306HFEEQ-F3 Hr(A)-FRHF	3C	0.34	4.7
SAR0406HFEEX-F3 Hr(A)-FRHF	4C	0.34	5.1
SAR0208HFEEL-F3 Hr(A)-FRHF	2C	0.50	5.7
SAR0308HFEEQ-F3 Hr(A)-FRHF	3C	0.50	6.0
SAR0408HFEEX-F3 Hr(A)-FRHF	4C	0.50	6.5
SAR0210HFEEL-F3 Hr(A)-FRHF	2C	0.75	5.9
SAR0310HFEEQ-F3 Hr(A)-FRHF	3C	0.75	6.2
SAR0410HFEEX-F3 Hr(A)-FRHF	4C	0.75	6.8
SAR0211HFEEL-F3 Hr(A)-FRHF	2C	1.00	6.6
SAR0311HFEEQ-F3 Hr(A)-FRHF	3C	1.00	7.0
SAR0411HFEEX-F3 Hr(A)-FRHF	4C	1.00	7.6
SAR0214HFEEL-F3 Hr(A)-FRHF	2C	1.50	7.1
SAR0314HFEEQ-F3 Hr(A)-FRHF	3C	1.50	7.5
SAR0414HFEEX-F3 Hr(A)-FRHF	4C	1.50	8.2
SAR0218HFEEL-F3 Hr(A)-FRHF	2C	2.50	8.2
SAR0318HFEEQ-F3 Hr(A)-FRHF	3C	2.50	8.7
SAR0418HFEEX-F3 Hr(A)-FRHF	4C	2.50	9.5

Ramcro Part No Stranded Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SAS0222HFEEL-F3 Hr(A)-FRHF	2C	0.22	4.2
SAS0222HFEEQ-F3 Hr(A)-FRHF	3C	0.22	4.4
SAS0422HFEEX-F3 Hr(A)-FRHF	4C	0.22	4.8
SAS0234HFEEL-F3 Hr(A)-FRHF	2C	0.34	4.4
SAS0334HFEEQ-F3 Hr(A)-FRHF	3C	0.34	4.7
SAS0434HFEEX-F3 Hr(A)-FRHF	4C	0.34	5.1
SAS0250HFEEL-F3 Hr(A)-FRHF	2C	0.50	5.7
SAS0350HFEEQ-F3 Hr(A)-FRHF	3C	0.50	6.0
SAS0450HFEEX-F3 Hr(A)-FRHF	4C	0.50	6.5
SAS0275HFEEL-F3 Hr(A)-FRHF	2C	0.75	5.9
SAS0375HFEEQ-F3 Hr(A)-FRHF	3C	0.75	6.2
SAS0475HFEEX-F3 Hr(A)-FRHF	4C	0.75	6.8
SAS0210HFEEL-F3 Hr(A)-FRHF	2C	1.00	6.6
SAS0310HFEEQ-F3 Hr(A)-FRHF	3C	1.00	7.0
SAS0410HFEEX-F3 Hr(A)-FRHF	4C	1.00	7.6
SAS0215HFEEL-F3 Hr(A)-FRHF	2C	1.50	7.1
SAS0315HFEEQ-F3 Hr(A)-FRHF	3C	1.50	7.5
SAS0415HFEEX-F3 Hr(A)-FRHF	4C	1.50	8.2
SAS0225HFEEL-F3 Hr(A)-FRHF	2C	2.50	8.2
SAS0325HFEEQ-F3 Hr(A)-FRHF	3C	2.50	8.7
SAS0425HFEEX-F3 Hr(A)-FRHF	4C	2.50	9.5

Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

- Solid and Stranded Conductors

Silicon Rubber insulated, Low Smoke PVC Fire Resistant Cable

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance: Solid	Conductor size	Ohm/km at +20°C
	1/0.80 mm (0.50 sqmm)	36.00 +/- 5%
	1/1.00 mm (0.75 sqmm)	24.50 +/- 5%
	1/1.13 mm (1.00 sqmm)	18.10 +/- 5%
	1/1.40 mm (1.50 sqmm)	12.10 +/- 5%

1/1.80 mm (2.50 sqmm)	7.41 +/- 5%
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Stranded	Conductor size	Ohm/km at +20°C
	7/0.30 mm (0.50 sqmm)	36.00 +/- 5%
	7/0.36 mm (0.75 sqmm)	24.50 +/- 5%
	7/0.42 mm (1.00 sqmm)	18.10 +/- 5%
	7/0.52 mm (1.50 sqmm)	12.10 +/- 5%
	7/0.67 mm (2.50 sqmm)	7.41 +/- 5%

Minimum insulation resistance:	Individual conductors
	>200 MOhm x km at +20°C

Minimum bending radius:	8 x Overall diameter
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Fire Rating:	to IEC 60331-21
	180 minutes at 750° C

Operating Temperature:	+ 180°C
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Installation Temperature:	- 5° C to + 50 ° C
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Voltage Rating:	300/500 V
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Test Voltage:	2000 V ac
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Construction

- **Conductors:**
7 Strand (Class 2) copper conductor to IEC 60228

- **Insulation:**
Silicon Rubber Mix type EI2

- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with bare Copper drain wire

- **Outer Sheath:**
PVC Low Smoke
Low gases emission

- **Color:**
Red

- **Conductor Color Code:**
Following BS 7629-1: 2008
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered

Ramcro Part No Solid Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SAR0205HFAEL-F3 Hr(A)-FRLS	2C	0.22	4.2
SAR0305HFAEQ-F3 Hr(A)-FRLS	3C	0.22	4.4
SAR0405HFAEX-F3 Hr(A)-FRLS	4C	0.22	4.8
SAR0206HFAEL-F3 Hr(A)-FRLS	2C	0.34	4.4
SAR0306HFAEQ-F3 Hr(A)-FRLS	3C	0.34	4.7
SAR0406HFAEX-F3 Hr(A)-FRLS	4C	0.34	5.1
SAR0208HFAEL-F3 Hr(A)-FRLS	2C	0.50	5.7
SAR0308HFAEQ-F3 Hr(A)-FRLS	3C	0.50	6.0
SAR0408HFAEX-F3 Hr(A)-FRLS	4C	0.50	6.5
SAR0210HFAEL-F3 Hr(A)-FRLS	2C	0.75	5.9
SAR0310HFAEQ-F3 Hr(A)-FRLS	3C	0.75	6.2
SAR0410HFAEX-F3 Hr(A)-FRLS	4C	0.75	6.8
SAR0211HFAEL-F3 Hr(A)-FRLS	2C	1.00	6.6
SAR0311HFAEQ-F3 Hr(A)-FRLS	3C	1.00	7.0
SAR0411HFAEX-F3 Hr(A)-FRLS	4C	1.00	7.6
SAR0214HFAEL-F3 Hr(A)-FRLS	2C	1.50	7.1
SAR0314HFAEQ-F3 Hr(A)-FRLS	3C	1.50	7.5
SAR0414HFAEX-F3 Hr(A)-FRLS	4C	1.50	8.2
SAR0218HFAEL-F3 Hr(A)-FRLS	2C	2.50	8.2
SAR0318HFAEQ-F3 Hr(A)-FRLS	3C	2.50	8.7
SAR0418HFAEX-F3 Hr(A)-FRLS	4C	2.50	9.5

Ramcro Part No Stranded Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SAS0222HFAEL-F3 Hr(A)-FRLS	2C	0.22	4.2
SAS0222HFAEQ-F3 Hr(A)-FRLS	3C	0.22	4.4
SAS0422HFAEX-F3 Hr(A)-FRLS	4C	0.22	4.8
SAS0234HFAEL-F3 Hr(A)-FRLS	2C	0.34	4.4
SAS0334HFAEQ-F3 Hr(A)-FRLS	3C	0.34	4.7
SAS0434HFAEX-F3 Hr(A)-FRLS	4C	0.34	5.1
SAS0250HFAEL-F3 Hr(A)-FRLS	2C	0.50	5.7
SAS0350HFAEQ-F3 Hr(A)-FRLS	3C	0.50	6.0
SAS0450HFAEX-F3 Hr(A)-FRLS	4C	0.50	6.5
SAS0275HFAEL-F3 Hr(A)-FRLS	2C	0.75	5.9
SAS0375HFAEQ-F3 Hr(A)-FRLS	3C	0.75	6.2
SAS0475HFAEX-F3 Hr(A)-FRLS	4C	0.75	6.8
SAS0210HFAEL-F3 Hr(A)-FRLS	2C	1.00	6.6
SAS0310HFAEQ-F3 Hr(A)-FRLS	3C	1.00	7.0
SAS0410HFAEX-F3 Hr(A)-FRLS	4C	1.00	7.6
SAS0215HFAEL-F3 Hr(A)-FRLS	2C	1.50	7.1
SAS0315HFAEQ-F3 Hr(A)-FRLS	3C	1.50	7.5
SAS0415HFAEX-F3 Hr(A)-FRLS	4C	1.50	8.2
SAS0225HFAEL-F3 Hr(A)-FRLS	2C	2.50	8.2
SAS0325HFAEQ-F3 Hr(A)-FRLS	3C	2.50	8.7
SAS0425HFAEX-F3 Hr(A)-FRLS	4C	2.50	9.5

SAFE
IEC60331

SCREENED

23

Standards References

- IEC 60331-21
- BS EN 50267-2-1
- BS EN 61034-2
- BS 7629-1



Standards References

- IEC 60331-21
- BS EN 50267-2-1
- BS EN 61034-2
- BS 7629-1



Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

- Solid and Stranded Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant Cable

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:
Solid

Conductor size	Ohm/km at +20°C
1/0.80 mm (0.50 sqmm)	36.00 +/- 5%
1/1.00 mm (0.75 sqmm)	24.50 +/- 5%
1/1.13 mm (1.00 sqmm)	18.10 +/- 5%
1/1.40 mm (1.50 sqmm)	12.10 +/- 5%
1/1.80 mm (2.50 sqmm)	7.41 +/- 5%

Stranded

Conductor size	Ohm/km at +20°C
7/0.30 mm (0.50 sqmm)	36.00 +/- 5%
7/0.36 mm (0.75 sqmm)	24.50 +/- 5%
7/0.42 mm (1.00 sqmm)	18.10 +/- 5%
7/0.52 mm (1.50 sqmm)	12.10 +/- 5%
7/0.67 mm (2.50 sqmm)	7.41 +/- 5%

Minimum insulation resistance:

Individual conductors
>200 MOhm x km at +20°C

Minimum bending radius:

8 x Overall diameter

Fire Rating:

to IEC 60331-21
180 minutes at 750° C

Operating Temperature:

+ 180°C

Installation Temperature:

- 5° C to + 50° C

Voltage Rating:

300/500 V

Test Voltage:

2000 V ac

Construction

- Conductors:

Solid (Class 1) copper conductor to IEC 60228

- Insulation:

Silicon Rubber Mix type EI2

- Outer Sheath:

LSZH Sheath type LTS3

Max HCL emission @ 800° C: -0.5%

- Color:

Red

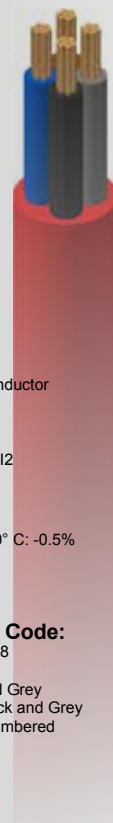
- Conductor Color Code:

Following BS 7629-1: 2008

2 cores: Brown, Blue

3 cores: Brown, Black and Grey

4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



Ramcro Part No Solid Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SSR0205HFEEL-F3 Hr(A)-FRHF	2C	0.22	4.0
SSR0305HFEEQ-F3 Hr(A)-FRHF	3C	0.22	4.2
SSR0405HFEEEX-F3 Hr(A)-FRHF	4C	0.22	4.6
SSR0206HFEEL-F3 Hr(A)-FRHF	2C	0.34	4.2
SSR0306HFEEQ-F3 Hr(A)-FRHF	3C	0.34	4.5
SRS0406HFEEEX-F3 Hr(A)-FRHF	4C	0.34	4.9
SSR0208HFEEL-F3 Hr(A)-FRHF	2C	0.50	5.5
SSR0308HFEEQ-F3 Hr(A)-FRHF	3C	0.50	5.8
SSR0408HFEEEX-F3 Hr(A)-FRHF	4C	0.50	6.3
SSR0210HFEEL-F3 Hr(A)-FRHF	2C	0.75	5.7
SSR0310HFEEQ-F3 Hr(A)-FRHF	3C	0.75	6.0
SSR0410HFEEEX-F3 Hr(A)-FRHF	4C	0.75	6.6
SSR0211HFEEL-F3 Hr(A)-FRHF	2C	1.00	6.4
SSR0311HFEEQ-F3 Hr(A)-FRHF	3C	1.00	6.8
SSR0411HFEEEX-F3 Hr(A)-FRHF	4C	1.00	7.4
SSR0214HFEEL-F3 Hr(A)-FRHF	2C	1.50	6.9
SSR0314HFEEQ-F3 Hr(A)-FRHF	3C	1.50	7.3
SSR0414HFEEEX-F3 Hr(A)-FRHF	4C	1.50	8.0
SSR0218HFEEL-F3 Hr(A)-FRHF	2C	2.50	8.0
SSR0318HFEEQ-F3 Hr(A)-FRHF	3C	2.50	8.5
SSR0418HFEEEX-F3 Hr(A)-FRHF	4C	2.50	9.3

Ramcro Part No Stranded Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SSS0222HFEEL-F3 Hr(A)-FRHF	2C	0.22	4.1
SSS0222HFEEQ-F3 Hr(A)-FRHF	3C	0.22	4.4
SSS0422HFEEEX-F3 Hr(A)-FRHF	4C	0.22	4.8
SSS0234HFEEL-F3 Hr(A)-FRHF	2C	0.34	4.4
SSS0334HFEEQ-F3 Hr(A)-FRHF	3C	0.34	4.7
SSS0434HFEEEX-F3 Hr(A)-FRHF	4C	0.34	5.2
SSS0250HFEEL-F3 Hr(A)-FRHF	2C	0.50	5.5
SSS0350HFEEQ-F3 Hr(A)-FRHF	3C	0.50	5.8
SSS0450HFEEEX-F3 Hr(A)-FRHF	4C	0.50	6.4
SSS0275HFEEL-F3 Hr(A)-FRHF	2C	0.75	5.9
SSS0375HFEEQ-F3 Hr(A)-FRHF	3C	0.75	6.2
SSS0475HFEEEX-F3 Hr(A)-FRHF	4C	0.75	6.8
SSS0210HFEEL-F3 Hr(A)-FRHF	2C	1.00	6.5
SSS0310HFEEQ-F3 Hr(A)-FRHF	3C	1.00	6.9
SSS0410HFEEEX-F3 Hr(A)-FRHF	4C	1.00	7.5
SSS0215HFEEL-F3 Hr(A)-FRHF	2C	1.50	7.2
SSS0315HFEEQ-F3 Hr(A)-FRHF	3C	1.50	7.6
SSS0415HFEEEX-F3 Hr(A)-FRHF	4C	1.50	8.4
SSS0225HFEEL-F3 Hr(A)-FRHF	2C	2.50	8.5
SSS0325HFEEQ-F3 Hr(A)-FRHF	3C	2.50	9.0
SSS0425HFEEEX-F3 Hr(A)-FRHF	4C	2.50	9.9

Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

- Solid and Stranded Conductors

Silicon Rubber insulated, Low Smoke PVC Fire Resistant Cable

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:

Solid

Conductor size	Ohm/km at +20°C
1/0.80 mm (0.50 sqmm)	36.00 +/- 5%
1/1.00 mm (0.75 sqmm)	24.50 +/- 5%
1/1.13 mm (1.00 sqmm)	18.10 +/- 5%
1/1.40 mm (1.50 sqmm)	12.10 +/- 5%
1/1.80 mm (2.50 sqmm)	7.41 +/- 5%

Stranded

Conductor size	Ohm/km at +20°C
7/0.30 mm (0.50 sqmm)	36.00 +/- 5%
7/0.36 mm (0.75 sqmm)	24.50 +/- 5%
7/0.42 mm (1.00 sqmm)	18.10 +/- 5%
7/0.52 mm (1.50 sqmm)	12.10 +/- 5%
7/0.67 mm (2.50 sqmm)	7.41 +/- 5%

Minimum insulation resistance:

Individual conductors
>200 MOhm x km at +20°C

Minimum bending radius:

8 x Overall diameter

Fire Rating:

to IEC 60331-21
180 minutes at 750° C

Operating Temperature:

+ 180°C

Installation Temperature:

- 5° C to + 50 ° C

Voltage Rating:

300/500 V

Test Voltage:

2000 V ac

Construction

- Conductors:

7 Strand (Class 2) copper conductor
to IEC 60228

- Insulation:

Silicon Rubber Mix type EI2

- Outer Sheath:

PVC Low Smoke
Low gases emission

- Color:

Red

- Conductor Color Code:

Following BS 7629-1: 2008

2 cores: Brown, Blue

3 cores: Brown, Black and Grey

4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered

SAFE
FIRE
IEC 60331

UNSCREENED

25

Ramcro Part No Solid Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SSR0205HFAEL-F3 Hr(A)-FRLS	2C	0.22	4.0
SSR0305HFAEQ-F3 Hr(A)-FRLS	3C	0.22	4.2
SSR0405HFAEX-F3 Hr(A)-FRLS	4C	0.22	4.6
SSR0206HFAEL-F3 Hr(A)-FRLS	2C	0.34	4.2
SSR0306HFAEQ-F3 Hr(A)-FRLS	3C	0.34	4.5
SSR0406HFAEX-F3 Hr(A)-FRLS	4C	0.34	4.9
SSR0208HFAEL-F3 Hr(A)-FRLS	2C	0.50	5.5
SSR0308HFAEQ-F3 Hr(A)-FRLS	3C	0.50	5.8
SSR0408HFAEX-F3 Hr(A)-FRLS	4C	0.50	6.3
SSR0210HFAEL-F3 Hr(A)-FRLS	2C	0.75	5.7
SSR0310HFAEQ-F3 Hr(A)-FRLS	3C	0.75	6.0
SSR0410HFAEX-F3 Hr(A)-FRLS	4C	0.75	6.6
SSR0211HFAEL-F3 Hr(A)-FRLS	2C	1.00	6.4
SSR0311HFAEQ-F3 Hr(A)-FRLS	3C	1.00	6.8
SSR0411HFAEX-F3 Hr(A)-FRLS	4C	1.00	7.4
SSR0214HFAEL-F3 Hr(A)-FRLS	2C	1.50	6.9
SSR0314HFAEQ-F3 Hr(A)-FRLS	3C	1.50	7.3
SSR0414HFAEX-F3 Hr(A)-FRLS	4C	1.50	8.0
SSR0218HFAEL-F3 Hr(A)-FRLS	2C	2.50	8.0
SSR0318HFAEQ-F3 Hr(A)-FRLS	3C	2.50	8.5
SSR0418HFAEX-F3 Hr(A)-FRLS	4C	2.50	9.3

Ramcro Part No Stranded Conductors	No. of Cores	Cond. mm ²	Nom. O/D mm
SSS0222HFAEL-F3 Hr(A)-FRLS	2C	0.22	4.1
SSS0222HFAEQ-F3 Hr(A)-FRLS	3C	0.22	4.4
SSS0422HFAEX-F3 Hr(A)-FRLS	4C	0.22	4.8
SSS0234HFAEL-F3 Hr(A)-FRLS	2C	0.34	4.4
SSS0334HFAEQ-F3 Hr(A)-FRLS	3C	0.34	4.7
SSS0434HFAEX-F3 Hr(A)-FRLS	4C	0.34	5.2
SSS0250HFAEL-F3 Hr(A)-FRLS	2C	0.50	5.5
SSS0350HFAEQ-F3 Hr(A)-FRLS	3C	0.50	5.8
SSS0450HFAEX-F3 Hr(A)-FRLS	4C	0.50	6.4
SSS0275HFAEL-F3 Hr(A)-FRLS	2C	0.75	5.9
SSS0375HFAEQ-F3 Hr(A)-FRLS	3C	0.75	6.2
SSS0475HFAEX-F3 Hr(A)-FRLS	4C	0.75	6.8
SSS0210HFAEL-F3 Hr(A)-FRLS	2C	1.00	6.5
SSS0310HFAEQ-F3 Hr(A)-FRLS	3C	1.00	6.9
SSS0410HFAEX-F3 Hr(A)-FRLS	4C	1.00	7.5
SSS0215HFAEL-F3 Hr(A)-FRLS	2C	1.50	7.2
SSS0315HFAEQ-F3 Hr(A)-FRLS	3C	1.50	7.6
SSS0415HFAEX-F3 Hr(A)-FRLS	4C	1.50	8.4
SSS0225HFAEL-F3 Hr(A)-FRLS	2C	2.50	8.5
SSS0325HFAEQ-F3 Hr(A)-FRLS	3C	2.50	9.0
SSS0425HFAEX-F3 Hr(A)-FRLS	4C	2.50	9.9

Standards References

- IEC 60331-21
- BS EN 50267-2-1
- BS EN 61034-2
- BS 7629-1



Standards References

- IEC 60331-21
- BS EN 50267-2-1
- BS EN 61034-2
- BS 7629-1



Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

- Solid and Stranded Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant Cable

РОССИЙСКАЯ ФЕДЕРАЦИЯ
СЕРТИФИКАТ СООТВЕТСТВИЯ
(обязательная сертификация)

№ С-П.ПБ03.В.00162 ТР 0075812

ЗАЯВИТЕЛЬ: фирма "RAMCRO S.p.A. Адрес: Via Marzotati, 15, IT-20014 Nerviano (MI) Italy. Телефон +39 0331-406555, факс +39 0331-406559.

ИЗГОТОВИТЕЛЬ: фирма "RAMCRO S.p.A. Адрес: Via Marzotati, 15, IT-20014 Nerviano (MI) Italy. Телефон +39 0331-406555, факс +39 0331-406559.

ОРГАН ПО СЕРТИФИКАЦИИ: Национальный сертификационный орган электрооборудования - ОАО "ВНИИС" (ИСО ГОСТ Р): 121557, Москва, Электронский пер. 8/10, тел.: + (499) 251-5438, факс: + (499) 253-77-13, ОГРН: 1047703024698. Аттестат рег. № ТРЧБ-РУ.11603 выдан 28.12.2010г. МЧС России.

ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ: Кабели для систем пожарной сигнализации, систем оповещения и передачи данных, не распространяющие горение при испытании в пучке по критерию X, имеющие тип RAMFIRECRO-F3 (сертификат см. приложения №№ 0074813 - 0074816). Серийный выпуск.

СООТВЕТСТВУЕТ ТРЕБОВАНИЮ ТЕХНИЧЕСКОГО РЕГЛАМЕНТА (ТЕХНИЧЕСКИХ РЕГЛАМЕНТОВ): Технический регламент о требованиях пожарной безопасности (Федеральный закон от 22.07.2008 N 123-ФЗ) (см. приложение № 0074817, № 0074818)

ПРОВЕДЕННЫЕ ИССЛЕДОВАНИЯ: Испытания ИДЭ ВНИИС (ТРЧБ-РУ.ИИ42) № 237/1 от 05.09.2011; испытания ИИПБ «Пожаробезопасность» АНО «Электроникс» (С-П.П.ИИ.044) №№ М00051-ТР, М00052-ТР от 10.06.2009, №№ М00916-ТР, М00918-ТР от 16.04.2010, № 158-ТР от 22.04.2010

ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ: акт анализа состояния производства ИСО ГОСТ Р (ТРЧБ-РУ.ПБ03) ПБ-2/177 от 06.09.2011

СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с 27.09.2011 по 26.09.2016

Руководитель (полномочия руководителя) органа по сертификации: В.Я. Тимко

Эксперт (эксперты): А.А. Белоусов

РАСШИРЕНИЕ

СЕРТИФИКАТА № С-П.ПБ03.В.00162

ТР 0075817

на, примененных на электрооборудование химического назначения

ого	Подтвержденные требования национальных стандартов или специ
ла	примен
и	22

ГОСТ Р 53313-2009	«Кабельные изделия. Требования пожарной безопасности. Методы испытаний, утверждены Приказом Федерального агентства по техническому регулированию и метрологии от 18.02.2009г. № 74-ст, а также № 1, утвержденного Приказом от Федерального агентства по техническому регулированию и метрологии от 26.08.2010г. № 57-ст	предела огнестойкости кабелей в условиях воздействия пламени (ИО) универсальный показатель токсичности (ПТПМ) индикатор дымообразования при горении в тисине кабельного изделия (ПД) индикатор коррозионной деятельности продуктов разложения изделия при горении и тлении полимерных материалов кабельного изделия (ИКА)
ГОСТ Р МЭК 60331-21-2003	«Испытания электрических и механических кабелей в условиях воздействия пламени. Спецификация работоспособности. Часть 23. Проверка испытаний и требования к ним. Кабели предназначены для передачи данных, утверждены Постановлением Государства России от 19.03.2003г. № 84-ст	предела огнестойкости кабелей в условиях воздействия пламени (ИО)

Руководитель (полномочия руководителя) органа по сертификации: В.Я. Тимко

Эксперт (эксперты): А.А. Белоусов

РАСШИРЕНИЕ

СЕРТИФИКАТА № С-П.ПБ03.В.00162

ТР 0075819

на, примененных на электрооборудование химического назначения

ого	Подтвержденные требования национальных стандартов или специ
ла	примен
и	22

показатели дымообразования при горении и тлении кабельного изделия (ПД)

Руководитель (полномочия руководителя) органа по сертификации: В.Я. Тимко

Эксперт (эксперты): А.А. Белоусов

ГОСТ Р МЭК 60754-2-99	«Испытания материалов конструкции кабелей при горении. Определение степени устойчивости к воздействию газов измерением pH и устойчивости проводимости, утверждены Постановлением Государства России от 03.11.1999г. № 392-ст	кабелей при горении. Определение количества выделяемых газов токсичных веществ, утверждены Постановлением Государства России от 03.11.1999г. № 391-ст
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Руководитель (полномочия руководителя) органа по сертификации: В.Я. Тимко

Эксперт (эксперты): А.А. Белоусов

- Solid and Stranded Conductors

Silicon Rubber insulated, Low Smoke PVC Fire Resistant Cable

UNSCREENED
IEC60331

[illegible]

**ФЕДЕРАЦИЯ
УТВЕРЖДЕНИЯ**

(регистрация)

ИЗ _____ ТР _____
(участники конкурса)

ПТ - 2004 Милано-Милан, ITALY, Италия.

15. ПТ - 2004 Новичино-Милан, ITALY, Италия.

КРИТИКАЦИОН: 1999г., Москва, ул. Губкина д.3,
тел. 787644081, Аукцион рег.-МРОБ №1954 создан
и

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РАСЧЕТ

ГВИА № С-П.П.54.В.00015

ТР 0161990

(УЧЕТНЫЙ номер ГВИА)

из, произведенных на добровольной
базисного расчета

Итого всего:	Подтвержденные требования национального стандарта или аналога
№1 Участник Модель №2	№1
Участник Технология	№2
№3	№3
№4	№4
№5	№5
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№98	№98
№99	№99
№100	№100

Котомков И.А.

Синдиг Г.Н.

Standards

References

- IEC 60331-21
- BS EN 50267-2-1
- BS EN 61034-2
- BS 7629-1

27

www.ramcro.it

Ramfirecro-F3 - IEC 60331-21

Solid Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

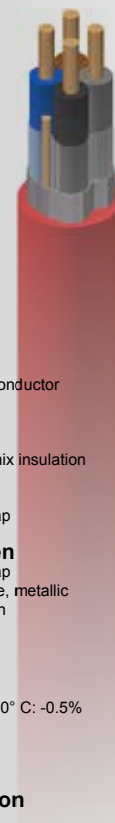
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	1/1.00 mm (0.75 sqmm)	24.50
	1/1.13 mm (1.00 sqmm)	18.10
	1/1.40 mm (1.50 sqmm)	12.10
	1/1.80 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to IEC 60331-21	
	90 minutes at 750° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class 1), Copper conductor to BS 6360
- **Insulation:**
Special Silicon Rubber mix insulation
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered



Standards References

- IEC 60331-21
- IEC 60332-3
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- BS 7629

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAR0210HFEEL-F3	2	0.75	6.4
SAR0310HFEEX-F3	3	0.75	6.8
SAR0410HFEEQ-F3	4	0.75	7.4
SAR0510HFEED-F3	5	0.75	8.9
SAR0710HFEED-F3	7	0.75	9.6
SAR1210HFEED-F3	12	0.75	12.4
SAR1910HFEED-F3	19	0.75	14.8
SAR0211HFEEL-F3	2	1.00	7.1*
SAR0311HFEEX-F3	3	1.00	8.0*
SAR0411HFEEQ-F3	4	1.00	8.9*
SAR0511HFEED-F3	5	1.00	9.8
SAR0711HFEED-F3	7	1.00	10.7
SAR1211HFEED-F3	12	1.00	13.8
SAR1911HFEED-F3	19	1.00	16.5
SAR0214HFEEL-F3	2	1.50	7.6*
SAR0314HFEEX-F3	3	1.50	8.5*
SAR0414HFEEQ-F3	4	1.50	9.5*
SAR0514HFEED-F3	5	1.50	10.5
SAR0714HFEED-F3	7	1.50	11.4
SAR1214HFEED-F3	12	1.50	14.9
SAR1914HFEED-F3	19	1.50	17.8

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0225HFEEL-F3	2	2.50	8.8*
SAS0325HFEEX-F3	3	2.50	9.4*
SAS0425HFEEQ-F3	4	2.50	10.4*
SAS0525HFEED-F3	5	2.50	11.6
SAS0725HFEED-F3	7	2.50	12.6
SAS1225HFEED-F3	12	2.50	16.9
SAS1925HFEED-F3	19	2.50	20.2
SAS0240HFEEL-F3	2	4.00	10.8
SAS0340HFEEX-F3	3	4.00	11.4
SAS0440HFEEQ-F3	4	4.00	12.5
SAS0540HFEED-F3	5	4.00	13.7



568d/01

Ramfirecro-F3 - IEC 60331-21

Solid Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant

Applications

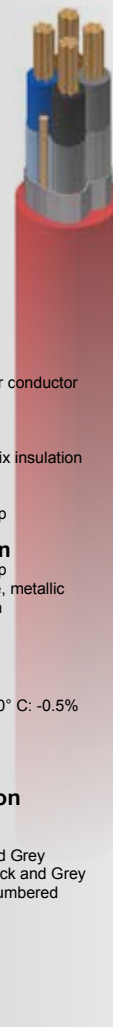
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size 1/1.00 mm (0.75 sqmm) 1/1.13 mm (1.00 sqmm) 1/1.40 mm (1.50 sqmm) 1/1.80 mm (2.50 sqmm) 7/0.85 mm (4.00 sqmm)	Ohm/km at +20°C 24.50 18.10 12.10 7.41 4.61
Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Fire Rating:	to IEC 60331-21 90 minutes at 750° C	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Voltage Rating:	300/500 V	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
7 strand (Class2), Copper conductor to BS 6360
- **Insulation:**
Special Silicon Rubber mix insulation
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
LSZH Sheat type LTS3
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red
- **Core identification**
following BS 7629: 1997
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up from 5 cores: Black Numbered



IEC 60331-21
FIRE SAFETY

29

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0275HFEEL-F3	2	0.75	6.7
SAS0375HFEEX-F3	3	0.75	7.1
SAS0475HFEEQ-F3	4	0.75	7.7
SAS0575HFEED-F3	5	0.75	9.2
SAS0775HFEED-F3	7	0.75	10.0
SAS1275HFEED-F3	12	0.75	12.9
SAS1975HFEED-F3	19	0.50	15.4
SAS0210HFEEL-F3	2	0.75	7.3*
SAS0310HFEEX-F3	3	0.75	7.7*
SAS0410HFEEQ-F3	4	0.75	8.4*
SAS0510HFEED-F3	5	0.75	10.0
SAS0710HFEED-F3	7	0.75	10.9
SAS1210HFEED-F3	12	0.75	14.1
SAS1910HFEED-F3	19	1.00	16.9
SAS0215HFEEL-F3	2	1.00	8.0*
SAS0315HFEEX-F3	3	1.00	8.9*
SAS0415HFEEQ-F3	4	1.00	9.9*
SAS0515HFEED-F3	5	1.00	11.0
SAS0715HFEED-F3	7	1.00	12.0
SAS1215HFEED-F3	12	1.00	15.6
SAS1915HFEED-F3	19	1.50	18.7

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0218HFEEL-F3	2	2.50	9.2*
SAS0318HFEEX-F3	3	2.50	10.0*
SAS0418HFEEQ-F3	4	2.50	11.1*
SAS0518HFEED-F3	5	2.50	12.1
SAS0718HFEED-F3	7	2.50	13.2
SAS1218HFEED-F3	12	2.50	17.8
SAS1918HFEED-F3	19	2.50	21.2
SAS0285HFEEL-F3	2	4.00	11.0
SAS0385HFEEX-F3	3	4.00	11.6
SAS0485HFEEQ-F3	4	4.00	12.5
SAS0585HFEED-F3	5	4.00	13.7



568d/01

Standards References

- IEC 60331-21
- IEC 60332-3
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- BS 7629



Standards References

- IEC 60331-21
- IEC 60332-3
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- BS 7629

Ramfirecro-F3 - IEC 60331-21

Solid Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant

Loss Prevention Certification Board  This is to certify RAMCRO S.p.A. Via Tanaro 19, 20010 Villastanza di Parabiago, Milan, Italy is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix. RAMFIRECRO-F3 IEC 60331 (refer to attached appendix for details) which has complied with the requirements of the following: IEC 60331-21: 1999 – Fire resisting characteristics of electric cables. and achieved: <0.5% HCl when tested in accordance with BS EN 50267-2-1: 1999 – Method of test for gases evolved during combustion of electric cables. >60% light transmittance when tested in accordance with BS EN 61034-2: 2005 – Measurement of smoke density of cables burning under defined conditions.	
Certificate No. 568d Date of Issue 6 August 2009 This certificate is valid until withdrawn by LPCB. To check the validity and the authenticity of this certificate please visit our website www.RedBookLive.com or contact us. Signed on behalf of the LPCB  Name: E MATTIE-SULEIMAN LPCB is part of BRE Certification Ltd., Garston, Watford WD25 9XX. Tel +44 (0)1923 664100 Fax +44 (0)1923 664603 www.RedBookLive.com This certificate remains the property of BRE Certification Ltd and is issued subject to terms and conditions and is maintained and held in force through regular surveillance activities.	Issue No. 01 

BF667 Revision 0, 03 January 2006 Page 1 of 2 ©BRE Certification Ltd, 2006



568d/01

Ramfirecro-F3 - IEC 60331-21

Solid Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant

SIL / LSZH
IEC60331

31

Loss Prevention Certification Board				
				
APPENDIX TO CERTIFICATE NO. 568d				
RAMCRO S.p.A.				
Products		LPCB Ref. No.		
RAMFIRECRO-F3 IEC 60331		568d/01		
Nominal csa of conductor (mm ²)	Core construction (excluding drain wire & earth)	IEC 60331-21	BS EN 50267-2-1	BS EN 61034-2
1.0 ⁽¹⁾	2, 3 & 4	Complies	<0.5% HCl	>60%
1.5 ⁽¹⁾	2, 3 & 4	Complies	<0.5% HCl	>60%
2.5 ⁽¹⁾	2, 3 & 4	Complies	<0.5% HCl	>60%
Uo/U 300/500V				
Note 1: Solid and Stranded conductors.				
This certificate is valid until withdrawn by LPCB. To check the validity and the authenticity of this certificate please visit our website www.RedBookLive.com or contact us.				
Signed on behalf of the LPCB		Page 2 of 2		
		Date of Issue 4 August 2009		
Name: E MATTIE-SULEIMAN		Issue No. 01		
LPCB is part of BRE Certification Ltd., Garston, Watford WD25 9XX. Tel +44 (0)1923 664100 Fax +44 (0)1923 664503 www.RedBookLive.com This certificate remains the property of BRE Certification Ltd and is issued subject to terms and conditions and is maintained and held in force through regular surveillance activities.				

BF657 Revision 0, 03 January 2006

Page 2 of 2

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Standards References

- IEC 60331-21
- IEC 60332-3
- BS EN 50267-2-1
- BS 6234
- BS 6360
- BS 7655 1.1
- BS 7655 6.1
- BS 7629



www.ramcro.it

Standards References

- IEC 60331-21
- IEC 60332-3



Fiber Optic Fire Resistant Single Mode 9/125 μm

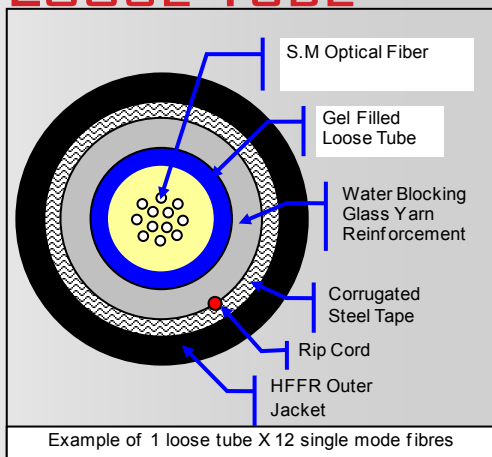
LSZH Armored Cables to IEC 60331-25 & IEC 60332-3 From 1 fibre up to 432 fibres

Applications

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.

LOOSE TUBE



Construction

Fibres:
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 Fills:
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.

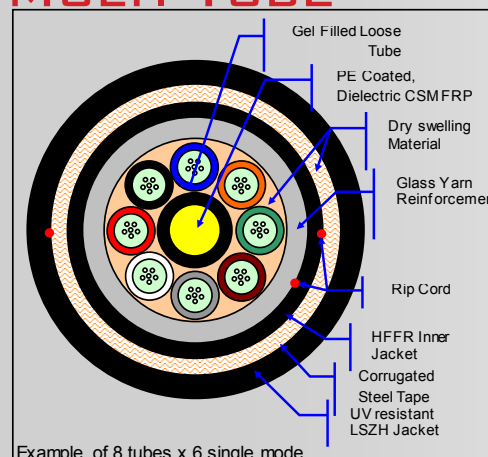
Armouring:
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

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

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

Fiber	Color
1	Blue
2	Orange
3	Green
4	Brown
5	Grey
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Pink
12	Turquoise

MULTI TUBE



Construction

Fibres:
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 Fills:
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 armor.

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

Fiber/Tubes	Color
1	Blue
2	Orange
3	Green
4	Brown
5	Grey
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Pink
12	Turquoise

Fiber Optic Fire Resistant

Multi Mode OM3 50/125 μm - 50/125 μm - 62.5/125 μm

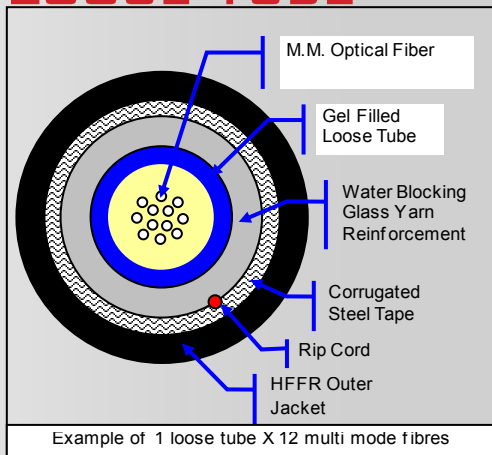
LSZH Armored Cables to IEC 60331-25 & IEC 60332-3 From 1 fibre up to 432 fibres

Applications

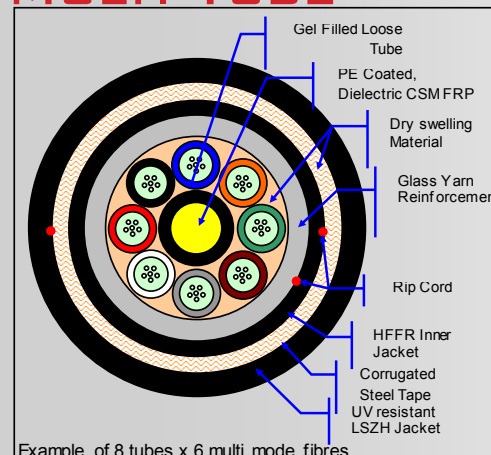
These Fiber Optic cables can incorporate up to 24 single mode fibers. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial or latched installations.

Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.

LOOSE TUBE



MULTI TUBE



Construction

Fibres:

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 Fills:

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 armor.

Ripcords:

laid under the steel tape to facilitate the jacket removal.

Construction

Fibres:

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 Fills:

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 armor.

Ripcords:

laid under the steel tape to facilitate the jacket removal.

Fiber Color

1	Blue
2	Orange
3	Green
4	Brown
5	Grey
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Pink
12	Turquoise

Fiber/Tubes

1	Blue
2	Orange
3	Green
4	Brown
5	Grey
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Pink
12	Turquoise

FIBER FIRE
MULTIMODE

Standards References

- IEC 60331-21
- IEC 60332-3



Ramfirecro-Fire-Coax

EN 50200 - PH120

HDPE + Silicon Insulation, Fiber Glass Tape, Copper Braid, LSZH jacket

Applications

These special coaxial cables are used in video surveillance of sites at high risk of fire, where is vital the video control during accident.

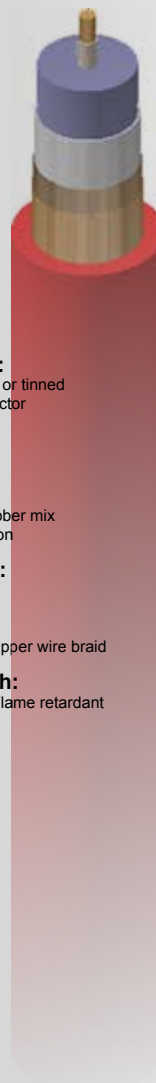
Technical Data

Minimum insulation resistance:	Individual conductors >200 MOhm x km at +20°C
Minimum bending radius:	10 x Overall diameter
Fire Rating:	to EN 50200 PH120 120 minutes at 850° C
Operating Temperature:	+ 180°C
Installation Temperature:	- 5° C to + 50 ° C
Voltage Rating:	600 / 1000 V
Test Voltage:	4000 V ac

Construction

- **Conductors:**
Plain annealed red or tinned copper wire Conductor
- **Insulation:**
High Density PE
Primary Insulation

Special Silicon Rubber mix
Secondary insulation
- **Binder Tape:**
Fiber Glass tape
- **Braid:**
Two layers plain copper wire braid
- **Outer Sheath:**
Zero Halogen C1 Flame retardant
- **Color:**
Red or White



Standards References

- NF M 87-202
- UTE C 32-014
- NF C 32-020
- IEC 60331-21
- IEC 60332-1
- IEC 60332-3-24

Ramcro Part No	Cond.	Diaelectric Diam.	Braid	Braid Coverage	Jacket	Jacket Diam.	Impedance Ohm
RG58 C/U FR120	16x0.20 Tin. Cu	3.30 mm	2x TinCu	>=90%	LSZH	7.3 mm	50
RG59 B/U FR 120	0.65 Cu	4.4 mm	2x Cu	>=90%	LSZH	9.0 mm	75
RG11 A/U FR 120	7x0.40 Tin Cu	7.6 mm	2x Cu	>=90%	LSZH	12.6 mm	75
RG213 /U FR 120	7x0.75 Cu	7.6 mm	2x Cu	>=90%	LSZH	12.6 mm	50



Ramfirecro-F3 - CEI EN 50200^{PH 15 / 30 / 60 / 90}

for systems according to UNI 9795

Silicon Rubber insulated, Halogen Free Fire Resistant Cables

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:	Conductor size	Ohm/km at +20°C
	1/0.80 mm (0.50 sqmm)	36.00
	1/1.00 mm (0.75 sqmm)	24.50
	1/1.13 mm (1.00 sqmm)	18.10
	1/1.40 mm (1.50 sqmm)	12.10
	1/1.80 mm (2.50 sqmm)	7.41
	7/0.85 mm (4.00 sqmm)	4.61
Minimum insulation resistance:	Individual conductors	
	>200 MOhm x km at +20°C	
Minimum bending radius:	8 x Overall diameter	
Operating Temperature:	+ 180°C	
Installation Temperature:	- 5° C to + 50 ° C	
Fire Rating:	IEC 60331-21	90 min. at 750° C
	EN50200 PH90	90 min. at 840° C
Voltage Rating:	300 / 500 V	
Gases evolved during combustion	HCl < 0.5 % - Smoke density: >75%	
Test Voltage:	2000 V ac	

Construction

- **Conductors:**
Solid (Class1), Copper conductor to IEC 60228
- **Insulation:**
Special Silicon Rubber mix insulation
- **Color Code:**
following BS 7629-1: 2008
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Copper drain wire
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red

RAMCRO
FIRE
EN50200

35

Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm	Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
SAR0208HFEEL-F3PH...	2	0.50	5.3	SAR0214HFEEL-F3PH...	2	1.50	7.6
SAR0308HFEEX-F3PH...	3	0.50	5.5	SAR0314HFEEX-F3PH...	3	1.50	8.5
SAR0408HFEEQ-F3PH...	4	0.50	6.0	SAR0414HFEEQ-F3PH...	4	1.50	9.5
SAR0508HFEED-F3PH...	5	0.50	6.9	SAR0514HFEED-F3PH...	5	1.50	10.5
SAR0708HFEED-F3PH...	7	0.50	7.4	SAR0714HFEED-F3PH...	7	1.50	11.4
SAR1208HFEED-F3PH...	12	0.50	9.5	SAR1214HFEED-F3PH...	12	1.50	14.9
SAR1908HFEED-F3PH...	19	0.50	11.0	SAR1914HFEED-F3PH...	19	1.50	17.8
SAR0210HFEEL-F3PH...	2	0.75	6.4	SAR0218HFEEL-F3PH...	2	2.50	8.8
SAR0310HFEEX-F3PH...	3	0.75	6.8	SAR0318HFEEX-F3PH...	3	2.50	9.4
SAR0410HFEEQ-F3PH...	4	0.75	7.4	SAR0418HFEEQ-F3PH...	4	2.50	10.4
SAR0510HFEED-F3PH...	5	0.75	8.9	SAR0518HFEED-F3PH...	5	2.50	11.6
SAR0710HFEED-F3PH...	7	0.75	9.6	SAR0718HFEED-F3PH...	7	2.50	12.6
SAR1210HFEED-F3PH...	12	0.75	12.4	SAR1218HFEED-F3PH...	12	2.50	16.9
SAR1910HFEED-F3PH...	19	0.75	14.8	SAR1918HFEED-F3PH...	19	2.50	20.2
SAR0211HFEEL-F3PH...	2	1.00	7.1	SAR0285HFEEL-F3PH...	2	4.00	10.8
SAR0311HFEEX-F3PH...	3	1.00	8.0	SAR0385HFEEX-F3PH...	3	4.00	11.4
SAR0411HFEEQ-F3PH...	4	1.00	8.9	SAR0485HFEEQ-F3PH...	4	4.00	12.5
SAR0511HFEED-F3PH...	5	1.00	9.8	SAR0585HFEED-F3PH...	5	4.00	13.7
SAR0711HFEED-F3PH...	7	1.00	10.7				
SAR1211HFEED-F3PH...	12	1.00	13.8				
SAR1911HFEED-F3PH...	19	1.00	16.5				

Standards References

- EN 50200
- UNI 9795
- IEC 60331-21
- BS EN 50267
- BS EN 61034
- IEC 60332-3
- BS 7629-1

ramcro
SPECIAL CABLES

Ramfirecro-F3 - CEI EN 50200

PH120

Silicon Rubber insulated, Halogen Free Fire Resistant Cables

Applications

These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Technical Data

Maximum conductor d.c. resistance:

Conductor size	Ohm/km at +20°C
1/0.80 mm (0.50 sqmm)	36.00
1/1.00 mm (0.75 sqmm)	24.50
1/1.13 mm (1.00 sqmm)	18.10
1/1.40 mm (1.50 sqmm)	12.10
1/1.80 mm (2.50 sqmm)	7.41
7/0.85 mm (4.00 sqmm)	4.61

Minimum insulation resistance:

Individual conductors
>200 MOhm x km at +20°C

Minimum bending radius:

8 x Overall diameter

Operating Temperature:

+ 180°C

Installation Temperature:

- 5° C to + 50 ° C

Fire Rating:

IEC 60331-21 90 min. at 750° C
EN50200 PH120 120 min. at 840° C

Voltage Rating:

300 / 500 V

Gases evolved during combustion

HCl < 0.5 % - Smoke density: >75%

Test Voltage:

2000 V ac

Construction

- Conductors:

Solid (Class1), Copper conductor to IEC 60228

- Insulation:

Special Silicon Rubber mix insulation

- Color Code:

following BS 7629-1: 2008
2 cores: Brown, Blue
3 cores: Brown, Black and Grey
4 cores: Blue, Brown, Black and Grey
up/from 5 cores: Black Numbered

- Binder Tape:

Polyster tape 50% overlap

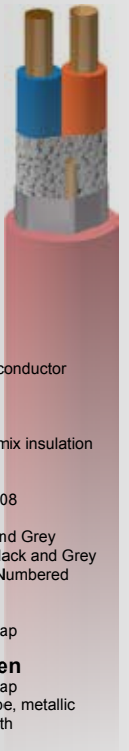
- Collective Screen

Polyster tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Copper drain wire

- Outer Sheath:

LSZH
Max HCL emission @ 800° C: -0.5%

- Color:
Red



Standards References

- EN 50200
- UNI 9795
- IEC 60331-21
- BS EN 50267
- BS EN 61034
- IEC 60332-3
- BS 7629-1

Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
SAR0208HFEEL-F3PH...	2	0.50	5.6
SAR0308HFEEX-F3PH...	3	0.50	5.8
SAR0408HFEEQ-F3PH...	4	0.50	6.3
SAR0708HFEED-F3PH...	7	0.50	7.7
SAR1208HFEED-F3PH...	12	0.50	9.8
SAR0210HFEEL-F3PH...	2	0.75	6.7
SAR0310HFEEX-F3PH...	3	0.75	7.1
SAR0410HFEEQ-F3PH...	4	0.75	7.7
SAR0710HFEED-F3PH...	7	0.75	9.9
SAR1210HFEED-F3PH...	12	0.75	12.7
SAR0211HFEEL-F3PH...	2	1.00	7.4
SAR0311HFEEX-F3PH...	3	1.00	8.3
SAR0411HFEEQ-F3PH...	4	1.00	9.2
SAR0711HFEED-F3PH...	7	1.00	11.0
SAR1211HFEED-F3PH...	12	1.00	14.1

Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
SAR0214HFEEL-F3PH...	2	1.50	7.9
SAR0314HFEEX-F3PH...	3	1.50	8.8
SAR0414HFEEQ-F3PH...	4	1.50	9.8
SAR0714HFEED-F3PH...	7	1.50	11.7
SAR1214HFEED-F3PH...	12	1.50	15.2
SAR0218HFEEL-F3PH...	2	2.50	9.1
SAR0318HFEEX-F3PH...	3	2.50	9.7
SAR0418HFEEQ-F3PH...	4	2.50	10.7
SAR0718HFEED-F3PH...	7	2.50	12.9
SAR1218HFEED-F3PH...	12	2.50	17.2
SAR0285HFEEL-F3PH...	2	4.00	11.1
SAR0385HFEEX-F3PH...	3	4.00	11.7
SAR0485HFEEQ-F3PH...	4	4.00	12.8



Ramfirecro-FireAlarm for Security and Alarm Systems - IEC 60332 - CEI 20-37 PVC insulated, PVC jacket

Applications

These cables are used for control and telephone installations, with improved characteristics of flame retardant in the case of fire are, for measurement and control technology.

Systems:

- Security Systems
- Intercom/PA Systems
- Sound/Audio Systems
- Power-Limited Controls
- Single Line Telephone
- Station Wire (5582UG)

Construction

- **Conductors:**
Solid (Class1), Copper conductor to IEC 60228

- **Insulation:**
PVC Flame retardant

- **Binder Tape:**
Polyester tape 50% overlap

- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Tinned Copper drain wire

- **Outer Sheath:**
PVC Flame retardant

- **Color:**
Red



Construction

- **Conductors:**
Flexible (Class5), Copper conductor to IEC 60228

- **Insulation:**
PVC Flame retardant

- **Binder Tape:**
Polyester tape 50% overlap

- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with
Solid Tinned Copper drain wire

- **Outer Sheath:**
PVC Flame retardant

- **Color:**
Red



Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
SAR0208HFAAH	2C	0.50	5.1
SAR0308HFAAG	3C	0.50	5.4
SAR0408HFAAI	4C	0.50	6.1
SAR0209HFAAH	2C	0.75	5.4
SAR0309HFAAG	3C	0.75	5.8
SAR0409HFAAI	4C	0.75	6.5
SAR0211HFAAH	2C	1.00	6.2
SAR0311HFAAG	3C	1.00	6.4
SAR0411HFAAI	4C	1.00	6.9
SAR0214HFAAH	2C	1.50	6.4
SAR0314HFAAG	3C	1.50	7.4
SAR0414HFAAI	4C	1.50	7.6
SAR0218HFAAH	2C	2.50	8.4
SAR0318HFAAG	3C	2.50	8.8
SAR0418HFAAI	4C	2.50	9.6

Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
SAS0208HFAAH	2C	0.50	5.2
SAS0308HFAAG	3C	0.50	5.5
SAS0408HFAAI	4C	0.50	6.2
SAS0209HFAAH	2C	0.75	5.5
SAS0309HFAAG	3C	0.75	5.9
SAS0409HFAAI	4C	0.75	6.6
SAS0211HFAAH	2C	1.00	6.3
SAS0311HFAAG	3C	1.00	6.5
SAS0411HFAAI	4C	1.00	7.0
SAS0214HFAAH	2C	1.50	6.5
SAS0314HFAAG	3C	1.50	7.5
SAS0414HFAAI	4C	1.50	7.7
SAS0218HFAAH	2C	2.50	8.5
SAS0318HFAAG	3C	2.50	8.9
SAS0418HFAAI	4C	2.50	9.7

FIRE ALARM
IEC 60332

37

Standards References

- DIN VDE 0482 p 266-2
- BS 4066 p 3
- EN 50266-2
- IEC 60332-3
- DIN VDE 0472 p 804 C



Ramfirecro-Alarm - J-YY / J-Y(St)Y

- IEC 60332 - CEI 20-37

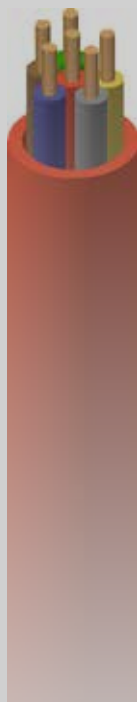
PVC insulated, PVC jacket

Applications

These cables are used for control and telephone installations, with improved characteristics of flame retardant in the case of fire are, for measurement and control technology

Construction

- **Conductors:**
Solid (Class1), Copper conductor to IEC 60228
- **Insulation:**
PVC
- **Color Code:**
following DIN VDE 0518
- **Outer Sheath:**
PVC
- **Color:**
Red or Grey



Construction

- **Conductors:**
Solid (Class1), Copper conductor to IEC 60228
- **Insulation:**
PVC
- **Color Code:**
following DIN VDE 0518
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
PVC
- **Color:**
Red or Grey



Standards References

- DIN VDE 0482 p 266-2
- BS 4066 p 3
- EN 50266-2
- IEC 60332-3
- DIN VDE 0472 p 804 C



Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
J-YY 1P08	1P	0.50	4.4
J-YY 1P08	2P	0.50	6.0
J-YY 3P08	3P	0.50	7.2
J-YY 4P08	4P	0.50	7.7
J-YY 5P08	5P	0.50	8.8
J-YY 6P08	6P	0.50	9.4
J-YY 1P10	1P	0.75	4.8
J-YY 2P10	2P	0.75	6.8
J-YY 3P10	3P	0.75	7.9
J-YY 4P10	4P	0.75	8.8
J-YY 5P10	5P	0.75	9.6
J-YY 6P10	6P	0.75	10.8
J-YY 1P11	1P	1.00	5.4
J-YY 2P11	2P	1.00	7.4
J-YY 3P11	3P	1.00	9.0
J-YY 4P11	4P	1.00	9.6
J-YY 5P11	5P	1.00	10.9
J-YY 6P11	6P	1.00	11.7
J-YY 1P14	1P	1.50	6.4
J-YY 2P14	2P	1.50	9.0
J-YY 3P14	3P	1.50	10.8
J-YY 4P14	4P	1.50	11.5
J-YY 5P14	5P	1.50	13.0
J-YY 6P14	6P	1.50	14.0
J-YY 1P18	1P	2.50	7.6
J-YY 2P18	2P	2.50	11.1
J-YY 3P18	3P	2.50	13.3
J-YY 4P18	4P	2.50	14.2
J-YY 5P18	5P	2.50	15.5
J-YY 6P18	6P	2.50	16.8

Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
J-Y(St)Y 1P08	1P	0.50	4.5
J-Y(St)Y 1P08	2P	0.50	6.1
J-Y(St)Y 3P08	3P	0.50	7.3
J-Y(St)Y 4P08	4P	0.50	7.8
J-Y(St)Y 5P08	5P	0.50	8.9
J-Y(St)Y 6P08	6P	0.50	9.5
J-Y(St)Y 1P10	1P	0.75	4.9
J-Y(St)Y 2P10	2P	0.75	6.9
J-Y(St)Y 3P10	3P	0.75	8.0
J-Y(St)Y 4P10	4P	0.75	8.9
J-Y(St)Y 5P10	5P	0.75	9.7
J-Y(St)Y 6P10	6P	0.75	10.9
J-Y(St)Y 1P11	1P	1.00	5.5
J-Y(St)Y 2P11	2P	1.00	7.5
J-Y(St)Y 3P11	3P	1.00	9.1
J-Y(St)Y 4P11	4P	1.00	9.7
J-Y(St)Y 5P11	5P	1.00	11.0
J-Y(St)Y 6P11	6P	1.00	11.8
J-Y(St)Y 1P14	1P	1.50	6.5
J-Y(St)Y 2P14	2P	1.50	9.1
J-Y(St)Y 3P14	3P	1.50	10.9
J-Y(St)Y 4P14	4P	1.50	11.6
J-Y(St)Y 5P14	5P	1.50	13.1
J-Y(St)Y 6P14	6P	1.50	14.1
J-Y(St)Y 1P18	1P	2.50	7.7
J-Y(St)Y 2P18	2P	2.50	11.2
J-Y(St)Y 3P18	3P	2.50	13.4
J-Y(St)Y 4P18	4P	2.50	14.3
J-Y(St)Y 5P18	5P	2.50	15.6
J-Y(St)Y 6P18	6P	2.50	16.9

Ramfirecro-Alarm - J-HH / J-H(St)H

- IEC 60332 - CEI 20-37

Halogen Free insulated, Aluminium Screen, Halogen Free jacket

Applications

These cables are used for control and telephone installations, with improved characteristics of flame retardant in the case of fire are, for measurement and control technology

Construction

- **Conductors:**
Solid (Class1), Copper conductor to IEC 60228
- **Insulation:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color Code:**
following DIN VDE 0518
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or Grey



Construction

- **Conductors:**
Solid (Class1), Copper conductor to IEC 60228
- **Insulation:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color Code:**
following DIN VDE 0518
- **Binder Tape:**
Polyester tape 50% overlap
- **Collective Screen**
Polyester tape 50% overlap
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire
- **Outer Sheath:**
LSZH
Max HCL emission @ 800° C: -0.5%
- **Color:**
Red or Grey



Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
J-HH 1P08	1P	0.50	4.4
J-HH 2P08	2P	0.50	6.0
J-HH 3P08	3P	0.50	7.2
J-HH 4P08	4P	0.50	7.7
J-HH 5P08	5P	0.50	8.8
J-HH 6P08	6P	0.50	9.4
J-HH 1P10	1P	0.75	4.8
J-HH 2P10	2P	0.75	6.8
J-HH 3P10	3P	0.75	7.9
J-HH 4P10	4P	0.75	8.8
J-HH 5P10	5P	0.75	9.6
J-HH 6P10	6P	0.75	10.8
J-HH 1P11	1P	1.00	5.4
J-HH 2P11	2P	1.00	7.4
J-HH 3P11	3P	1.00	9.0
J-HH 4P11	4P	1.00	9.6
J-HH 5P11	5P	1.00	10.9
J-HH 6P11	6P	1.00	11.7
J-HH 1P14	1P	1.50	6.4
J-HH 2P14	2P	1.50	9.0
J-HH 3P14	3P	1.50	10.8
J-HH 4P14	4P	1.50	11.5
J-HH 5P14	5P	1.50	13.0
J-HH 6P14	6P	1.50	14.0
J-HH 1P18	1P	2.50	7.6
J-HH 2P18	2P	2.50	11.1
J-HH 3P18	3P	2.50	13.3
J-HH 4P18	4P	2.50	14.2
J-HH 5P18	5P	2.50	15.5
J-HH 6P18	6P	2.50	16.8

Ramcro Part No	No. of Cores	Cond. mm ²	Nom. O/D mm
J-H(St)H 1P08	1P	0.50	4.5
J-H(St)H 1P08	2P	0.50	6.1
J-H(St)H 3P08	3P	0.50	7.3
J-H(St)H 4P08	4P	0.50	7.8
J-H(St)H 5P08	5P	0.50	8.9
J-H(St)H 6P08	6P	0.50	9.5
J-H(St)H 1P10	1P	0.75	4.9
J-H(St)H 2P10	2P	0.75	6.9
J-H(St)H 3P10	3P	0.75	8.0
J-H(St)H 4P10	4P	0.75	8.9
J-H(St)H 5P10	5P	0.75	9.7
J-H(St)H 6P10	6P	0.75	10.9
J-H(St)H 1P11	1P	1.00	5.5
J-H(St)H 2P11	2P	1.00	7.5
J-H(St)H 3P11	3P	1.00	9.1
J-H(St)H 4P11	4P	1.00	9.7
J-H(St)H 5P11	5P	1.00	11.0
J-H(St)H 6P11	6P	1.00	11.8
J-H(St)H 1P14	1P	1.50	6.5
J-H(St)H 2P14	2P	1.50	9.1
J-H(St)H 3P14	3P	1.50	10.9
J-H(St)H 4P14	4P	1.50	11.6
J-H(St)H 5P14	5P	1.50	13.1
J-H(St)H 6P14	6P	1.50	14.1
J-H(St)H 1P18	1P	2.50	7.7
J-H(St)H 2P18	2P	2.50	11.2
J-H(St)H 3P18	3P	2.50	13.4
J-H(St)H 4P18	4P	2.50	14.3
J-H(St)H 5P18	5P	2.50	15.6
J-H(St)H 6P18	6P	2.50	16.9

FIRE ALARM
IEC 60332

Standards References

- DIN VDE 0482 p 266-2
- BS 4066 p 3
- EN 50266-2
- IEC 60332-3
- DIN VDE 0472 p 804 C



Fire cable clips

Copper, Metal clips with LSZH Coating

Applications

Fire cable clips are used to fasten soft skin fire performance cables.

Clip Size:
Minimum 6 times Cable diameter
Color: Red

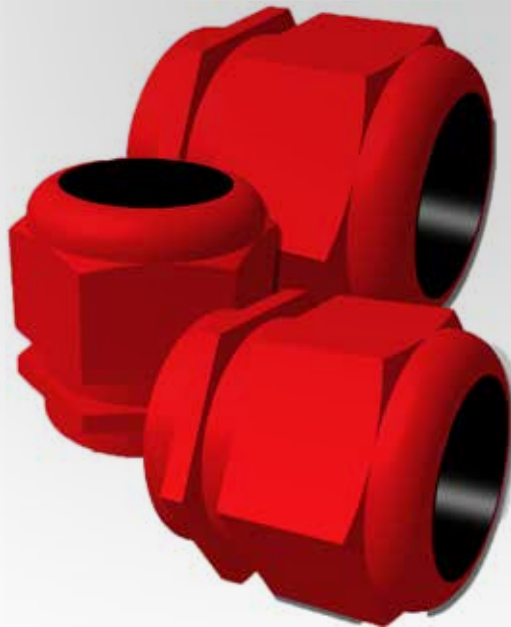
Ramcro Code:
FCC-MeClip



Cable is easy to handle and easy to install without special tools. Cable can be fixed direct to a surface using LSZH coated copper P clips, available together with cables. Plastic clips must not be used. Cable can also be installed in cable tray or in conduits, or direct buried in plaster. Suitable for outdoor installation too, in appropriate protected environments.

Fire cable glands

LSZH glands for fire resistant cables



Applications

For standard installation, general purpose LSZH glands can be used. In fire proof area suitable proof glands can be used with armoured and unarmoured cables.

Gland Size: 10 mm
Color: Red

Ramcro Code:
FCG-EPN250



www.rancro.it



R A M C R O S . p . A .
v i a M a r z o r a t i 15
N e r v i a n o
20014 Milano Italy
tel. +39 0331 406 511
fax +39 0331 406 559