



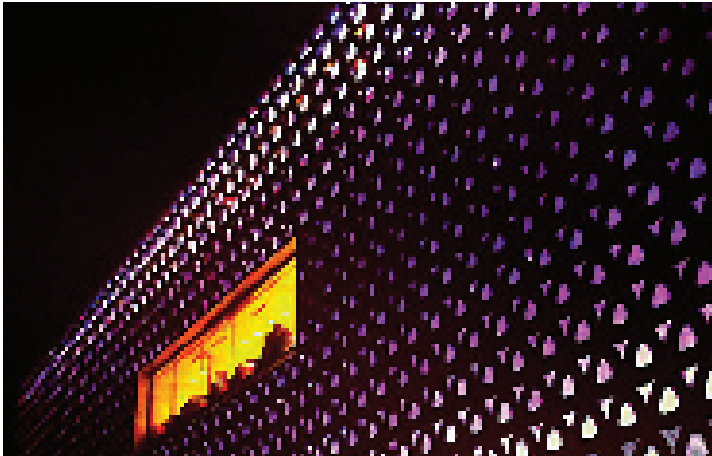
**Fire Resistant**



Our cables at:



**BAHREIN F1 CIRCUIT**



**ABC LEBANON**



**QATAR RAS PLANT**



**DUBAI MARINA**

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## Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

### Applications

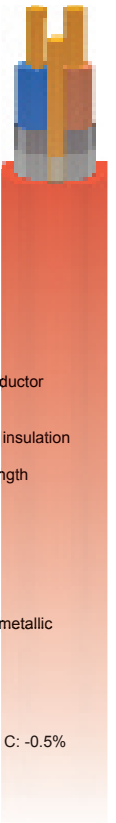
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 1	26.8
	1.00 sqmm - Cl. 1	18.6
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	Cat. "C"	
	3h @ 950°C - only fire	
	Cat. "W"	
	15' @ 650°C - fire + water	
	Cat. "Z"	
	30' @ 950°C - fire + mechanical shock	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

- **Conductors:**  
Solid (Class1), Copper conductor
- **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 Solided 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

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

if the cables are white the RAMCRO part N° will change in:  
SAR\_\_\_HCES-F3(IE)



# Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

## Applications

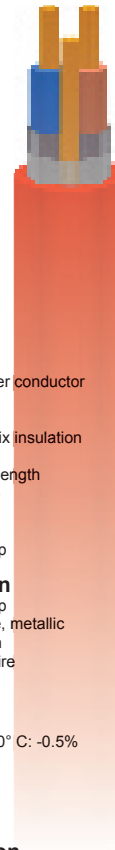
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

## Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 2	26.8
	1.00 sqmm - Cl. 2	18.6
	1.50 sqmm - Cl. 2	12.5
	2.50 sqmm - Cl. 2	7.7
4.00 sqmm - Cl. 2	4.6	
<b>Minimum insulation resistance:</b>	Individual conductors	>20 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	Cat. "C"	
	3h @ 950°C - only fire	
	Cat. "W"	
	15' @ 650°C - fire + water	
	Cat. "Z"	
30' @ 950°C - fire + mechanical shock		
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

## Construction

- **Conductors:**  
Stranded (Class2), Copper conductor
- **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

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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

## Standards References

- BS 6387  
Cat. C-W-Z
- BS EN 50267-2-1



568a/01

if the cables are white the RAMCRO part N° will change in:  
SAR\_\_\_\_HCES-F3(IE)

\* Cables certified by LPCB BRE GLOBAL

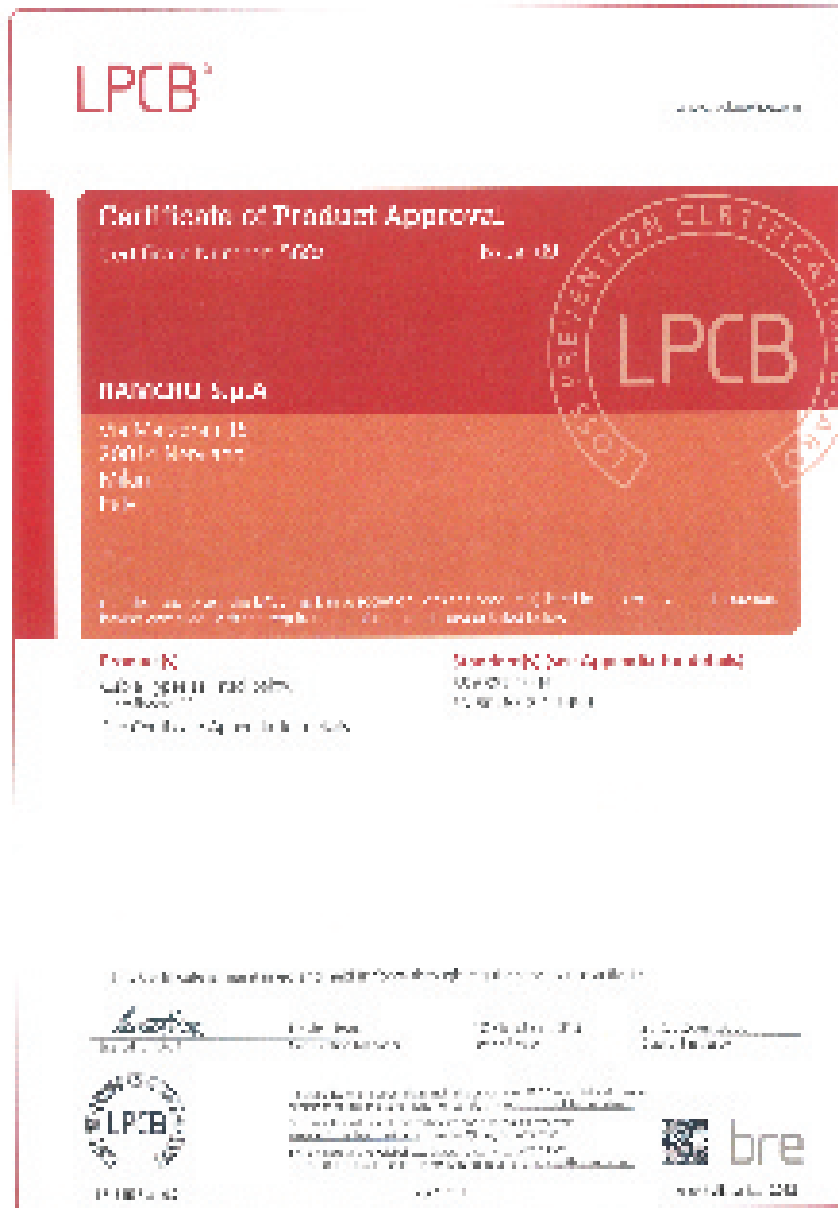


## Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

### Standards References

- BS 6387
- Cat. C-W-Z
- BS EN 50267-2-1



# Ramfirecro-F3 - BS 6387 C-W-Z

Silicon Rubber insulated, Halogen Free Fire Resistant

FIRE PLANET  
BS6387

**LPCB®**

Appendix to Certificate No. 568a  
TANCO S.p.A. Issue: 09

Product name	Reference	Standard	BS EN 50267-2-1
RAMFIRECRO-F3	568a	EN 50267-2-1	EN 50267-2-1
RAMFIRECRO-F3	568a	EN 50267-2-1	EN 50267-2-1
RAMFIRECRO-F3	568a	EN 50267-2-1	EN 50267-2-1
RAMFIRECRO-F3	568a	EN 50267-2-1	EN 50267-2-1

**Notes**  
1. The product is certified for use in accordance with the following standards:  
EN 50267-2-1

RAMCO S.p.A. - Via S. Maria Maddalena, 10 - 20139 Milano - Italy  
Tel. +39 02 83401 - Fax +39 02 83401111  
www.ramcro.it

**LPCB**  
Loss Prevention Certification Board

**bre**  
British Register of Approved Manufacturers

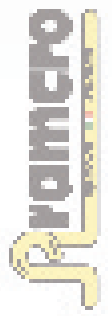
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### Standards References

- BS 6387
- Cat. C-W-Z
- BS EN 50267-2-1

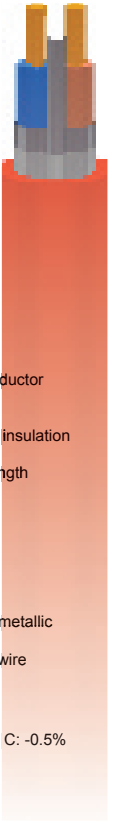


568a/01



## 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

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 1	26.8
	1.00 sqmm - Cl. 1	18.6
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	Cat. "C" - From BS 6387	
	3h @ 950°C - only fire	
	Cat. "W" - From BS 6387	
	15' @ 650°C - fire + water	
	Cat. "Z" - From BS 6387	
	30' @ 950°C - fire + mechanical shock	
	Cat. PH30 - From EN 50200	
	30' @ 830°C - fire + mechanical shock	
	Cat. PH30 - From EN 50200 ANNEX E	
	15' @ 830°C - fire + mechanical shock	
<b>Operating Temperature:</b>	+ 15' of fire + mechanical shock and WATER + 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

- **Conductors:**  
Solid (Class1), Copper conductor
- **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 7629-1
- BS EN 50200 PH30
- BS 8434-1
- BS 5839-1
- BS EN 50268-2
- BS EN 50267-2-1

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	0.75	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

if the cables are white the RAMCRO part N° will change in:  
SAR\_\_\_HCEs-F3EN30





# Ramfirecro-F3 - BS 7629 - EN 50200 PH30

## Silicon Rubber insulated, Halogen Free Fire Resistant

### Applications

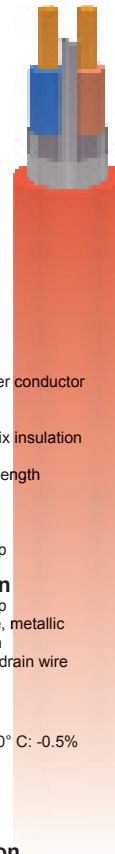
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 2	26.8
	1.00 sqmm - Cl. 2	18.6
	1.50 sqmm - Cl. 2	12.5
	2.50 sqmm - Cl. 2	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors >20 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	Cat. "C" - From BS 6387 3h @ 950°C - only fire Cat. "W" - From BS 6387 15' @ 650°C - fire + water Cat. "Z" - From BS 6387 30' @ 950°C - fire + mechanical shock Cat. PH30 - From EN 50200 30' @ 830°C - fire + mechanical shock Cat. PH30 - From EN 50200 ANNEX E 15' @ 830°C - fire + mechanical shock + 15' of fire + mechanical shock and WATER	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

- **Conductors:**  
Stranded (Class2), Copper conductor
- **Insulation:**  
Special Silicon Rubber mix insulation  
- 100 mm maximum pair length  
(min. 10 twists per metre)
- **Binder Tape:**  
Polyster tape 50% overlap
- **Collective Screen**  
Polyster 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



FIRE RESISTANT  
 BS7629

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Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
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	0.75	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 Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
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

### Standards References

- BS 7629-1
- BS EN 50200 PH30
- BS 8434-1
- BS 5839-1
- BS EN 50268-2
- BS EN 50267-2-1



568c/01

if the cables are white the RAMCRO part N° will change in:  
SAR\_ \_ \_ \_ HCES-F3EN30

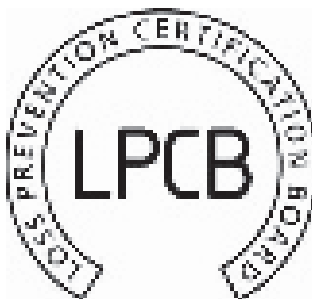
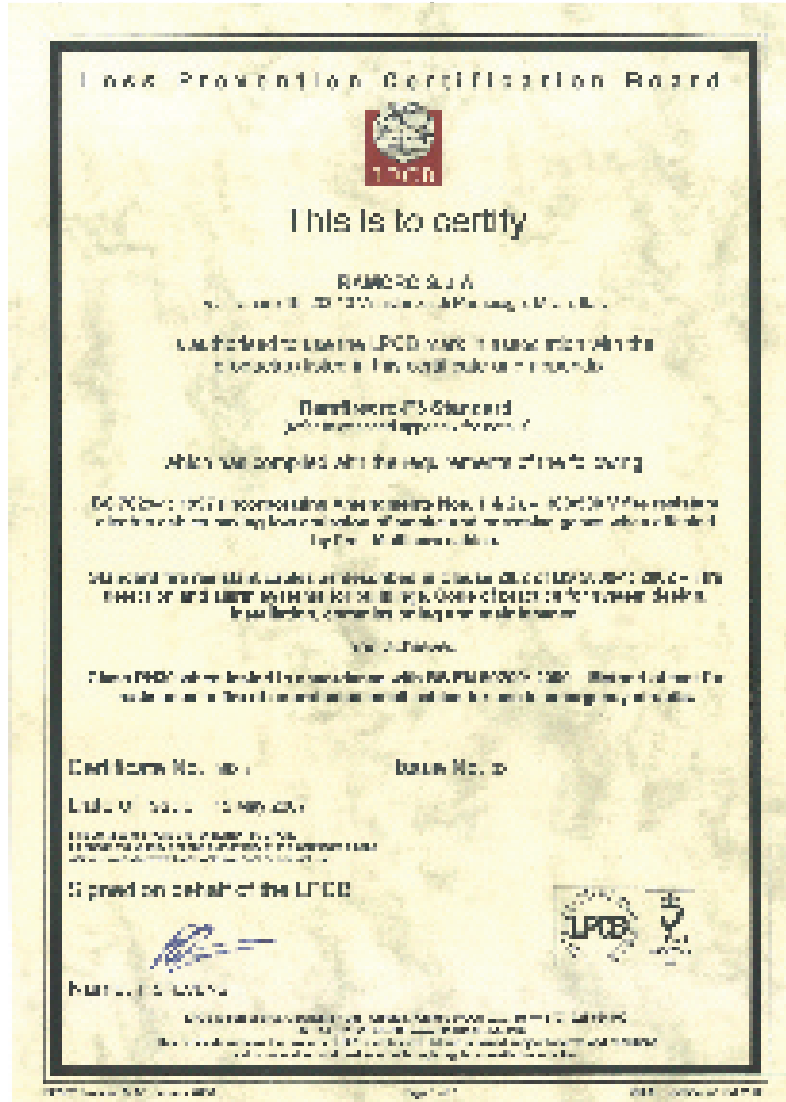


\* Cables certified by LPCB BRE GLOBAL

## Ramfirecro-F3 - BS 7629 - EN 50200 PH30 Silicon Rubber insulated, Halogen Free Fire Resistant

### Standards References

- BS 7629-1
- BS EN 50200 PH30
- BS 8434-1
- BS 5839-1
- BS EN 50268-2
- BS EN 50267-2-1



568c/01

Standard	Test Method	BS 7629-1	EN 50200	EN 50268-2	EN 50267-2-1
BS 7629-1	BS 7629-1	Pass	Pass	Pass	Pass
EN 50200	EN 50200	Pass	Pass	Pass	Pass
EN 50268-2	EN 50268-2	Pass	Pass	Pass	Pass
EN 50267-2-1	EN 50267-2-1	Pass	Pass	Pass	Pass

Signature on behalf of the LPCB

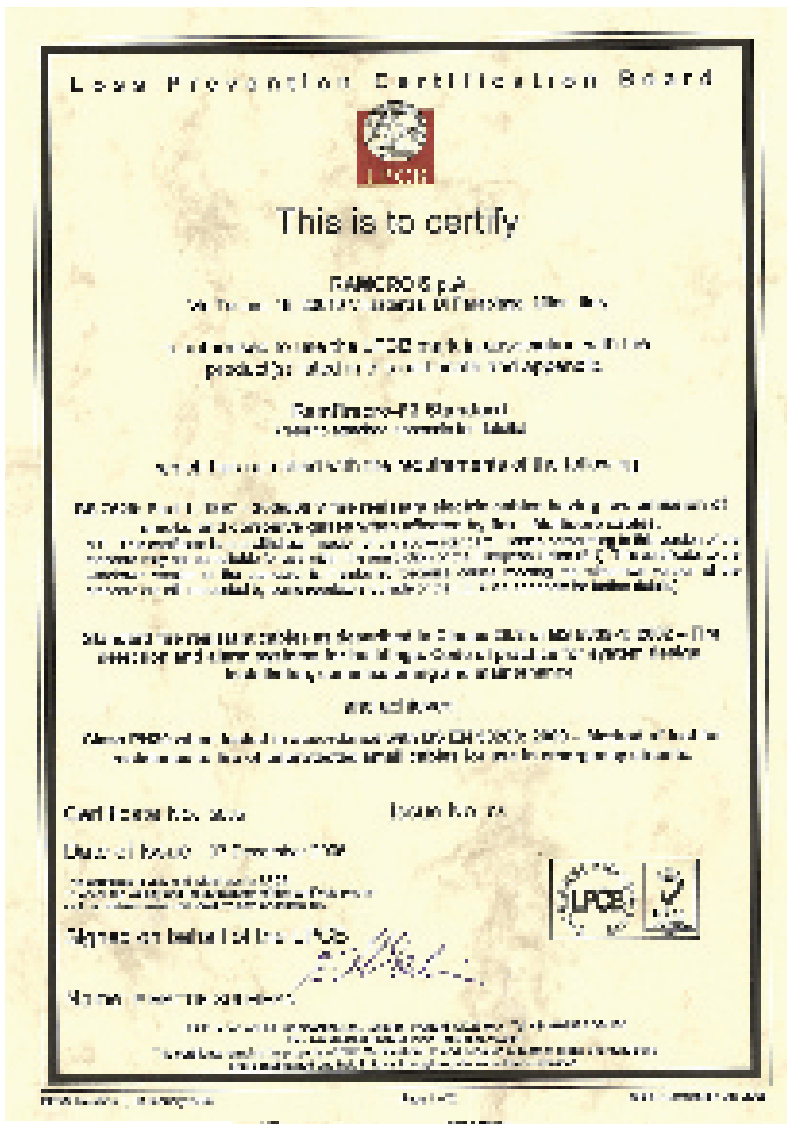
Page 2 of 2

Date of Issue: 15/10/2010

Issue No: 01

**Ramfirecro-F3 - BS 7629 - EN 50200 PH30**  
 Silicon Rubber insulated, Halogen Free Fire Resistant

**FIRESUN**  
**BS7629**

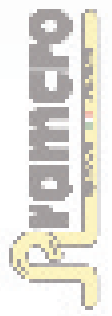


Test	Result	Test Method	Standard	Pass/Fail	Remarks
20	Pass	EN 50200	Class 1000	Pass	
21	Pass	EN 50200	Class 1000	Pass	
22	Pass	EN 50200	Class 1000	Pass	
23	Pass	EN 50200	Class 1000	Pass	
24	Pass	EN 50200	Class 1000	Pass	
25	Pass	EN 50200	Class 1000	Pass	
26	Pass	EN 50200	Class 1000	Pass	
27	Pass	EN 50200	Class 1000	Pass	
28	Pass	EN 50200	Class 1000	Pass	
29	Pass	EN 50200	Class 1000	Pass	
30	Pass	EN 50200	Class 1000	Pass	
31	Pass	EN 50200	Class 1000	Pass	
32	Pass	EN 50200	Class 1000	Pass	
33	Pass	EN 50200	Class 1000	Pass	
34	Pass	EN 50200	Class 1000	Pass	
35	Pass	EN 50200	Class 1000	Pass	
36	Pass	EN 50200	Class 1000	Pass	
37	Pass	EN 50200	Class 1000	Pass	
38	Pass	EN 50200	Class 1000	Pass	
39	Pass	EN 50200	Class 1000	Pass	
40	Pass	EN 50200	Class 1000	Pass	
41	Pass	EN 50200	Class 1000	Pass	
42	Pass	EN 50200	Class 1000	Pass	
43	Pass	EN 50200	Class 1000	Pass	
44	Pass	EN 50200	Class 1000	Pass	
45	Pass	EN 50200	Class 1000	Pass	
46	Pass	EN 50200	Class 1000	Pass	
47	Pass	EN 50200	Class 1000	Pass	
48	Pass	EN 50200	Class 1000	Pass	
49	Pass	EN 50200	Class 1000	Pass	
50	Pass	EN 50200	Class 1000	Pass	



**Standards References**

- BS 7629-1
- BS EN 50200 PH30
- BS 8434-1
- BS 5839-1
- BS EN 50268-2
- BS EN 50267-2-1



## Ramfirecro-F3 - BS 7629 - EN 50200 PH30

### SWA - Steel Wire Armour

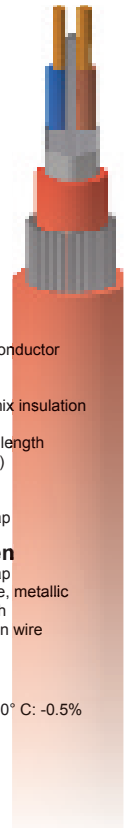
Silicon Rubber insulated, Halogen Free Fire Resistant

#### 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.

#### Construction

- **Conductors:**  
Solid (Class1), Copper conductor
- **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



#### Technical Data

Maximum conductor d.c. resistance:	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 1	26.8
	1.00 sqmm - Cl. 1	18.6
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to BS6387 Cat. C 3 hours at 950° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

#### 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
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

if the cables are white the RAMCRO part N° will change in:  
SAR\_\_\_\_HCES-F3EN30



# Ramfirecro-F3 - BS 7629 - EN 50200 PH30

## SWA - Steel Wire Armour

Silicon Rubber insulated, Halogen Free Fire Resistant

### Applications

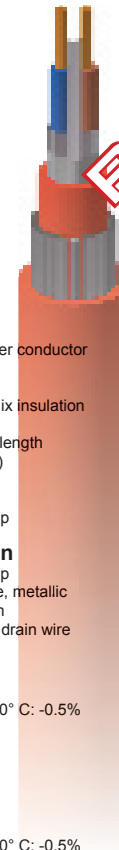
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 2	26.8
	1.00 sqmm - Cl. 2	18.6
	1.50 sqmm - Cl. 2	12.5
	2.50 sqmm - Cl. 2	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to BS6387 Cat. C 3 hours at 950° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

- **Conductors:**  
Stranded (Class2), Copper conductor
- **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



**PLUG**  
**FIRES**  
**BS7629**

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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

if the cables are white the RAMCRO part N° will change in:  
SAR\_ \_ \_ \_ HCES-F3EN30



## **Ramfirecro-F3 - BS 7629 - BS 8434-2 EN 50200 PH120** Silicon Rubber insulated, Halogen Free Fire Resistant

### **Applications**

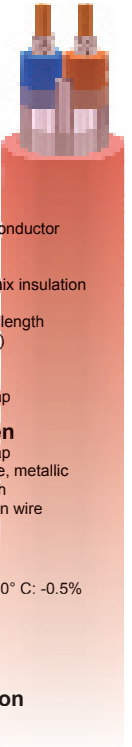
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### **Technical Data**

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 1	26.8
	1.00 sqmm - Cl. 1	18.6
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	- to BS8434-2 120 min at 930° C - to BS6387 Cat. C 3 hours at 950° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### **Construction**

- **Conductors:**  
Solid (Class1), Copper conductor
- **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



### **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

Ramcro Part No Collective screened	No. of Conductors	Cond. mm <sup>2</sup>	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. mm <sup>2</sup>	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

if the cables are white the RAMCRO part N° will change in:  
SAR\_\_\_\_HCES-F3EN120



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

## Silicon Rubber insulated, Halogen Free Fire Resistant

### Applications

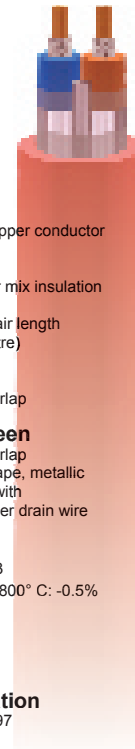
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 2	26.8
	1.00 sqmm - Cl. 2	18.6
	1.50 sqmm - Cl. 2	12.5
	2.50 sqmm - Cl. 2	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	- to BS8434-2 120 min at 930° C - to BS6387 Cat. C 3 hours at 950° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

- **Conductors:**  
Stranded (Class2), Copper conductor
- **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



FIRE STAR

BS7629 - BS8434

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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

if the cables are white the RAMCRO part N° will change in:  
SAR\_ \_ \_ \_ HCES-F3EN120



## 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

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.50 sqmm - Cl. 1	36.0
	1.00 sqmm - Cl. 1	18.6
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to DIN 4102 E30 - E90 30 minutes in burning Chamber 60 minutes in burning Chamber	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	225 V for section 0.8 mm 0.6/1 kV for other sections	
<b>Test Voltage:</b>	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:

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. mm <sup>2</sup>	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. mm <sup>2</sup>	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	4.00	10.8
SSR0385HFEG1-F3	2	4.00	11.5
SSR0485HFEE2-F3	4	4.00	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

<b>Maximum conductor d.c. resistance:</b>	Section 0.50 sqmm - Cl. 2 1.00 sqmm - Cl. 2 1.50 sqmm - Cl. 2 2.50 sqmm - Cl. 2 4.00 sqmm - Cl. 2	Ohm/km at +20°C 36.0 18.6 12.5 7.7 4.6
<b>Minimum insulation resistance:</b>	Individual conductors >200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to DIN 4102 E30 - E90 90 minutes in burning Chamber	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	225 V for section 0.8 mm 0.6/1 kV for other sections	
<b>Test Voltage:</b>	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. mm <sup>2</sup>	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. mm <sup>2</sup>	Nom. O/D mm
SSR0218HFEEU-F3E90	1	2.50	9.1
SSR0318HFEG1-F3E90	2	2.50	9.7
SSR0418HFEE2-F3E90	4	2.50	10.9
SSR0285HFEEU-F3E90	1	4.00	11.2
SSR0385HFEG1-F3E90	2	4.00	11.9
SSR0485HFEE2-F3E90	4	4.00	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



# 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.

REG.-Nr. 8259 oder/oder VDE-REG.-Nr. 8259

Geprüft und zertifiziert nach /  
 Tested and certified according to

DIN VDE 0815:1985-03  
 DIN VDE 0815A1:1988-05  
 (in Anlehnung an/with reference to)



Befristet zum / valid until: 2014-12-31      Aktenzeichen: 5006557-5350-0021 / 148655  
 File ref.:

VDE Prüf- und Zertifizierungsinstitut GmbH      Ausweis-Nr. 40023849      Blatt 1  
 VDE Testing and Certification Institute      Certificate No.      Page  
 Zert.      Weitere Bedingungen siehe Rückseite und Folienblätter /  
 further conditions see reverse and following pages

Offenbach, 2008-03-28  
 (letzte Änderung/updated: 2011-10-11)  
<http://www.vde.com/certificate>

**VDE**

**Prüfungsinstitut  
 Fertigungsüberwachung**

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

bers / Name and registered seat of the Certificate holder  
 il 15, 20014 NERVIANO MI, ITALIEN

5 / FG41 / LR      letzte Änderung / updated Datum / Date  
 2011-10-11      2008-03-28

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

**skabel mit verbessertem Verhalten im  
 und Informationsverarbeitungsanlagen  
 with improved characteristics in the  
 unication and data processing systems**

d FE 180 E30

225 V (Spitzenwert/peak value)

wie JE-H(SI)H...Bd FE  
 nach DIN VDE 0815:1988-05  
 Isoliermischung E8 nach DIN EN 50363-5  
 Mantelmischung 70 °C nach DIN EN 50290-2-27  
 jedoch Mantelfarbe rot

use as JE-H(SI)H...Bd FE  
 according to DIN VDE 0815:1988-05  
 insulation compound E8 acc. to DIN EN 50363-5  
 sheath compound 70 °C acc. to DIN EN 50290-2-27  
 however colour of sheath red

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

Halogenfrei Halogen free	
Brannverhalten Fire performance	nach DIN VDE 0472 Teil 804:1989-11, Prüflart C according to DIN VDE 0472 Part 804:1989-11, Category C
Isolationserhalt Resistance to fire	nach DIN VDE 0472 Teil 814:1991-01 für 180 Minuten according to DIN VDE 0472 Part 814:1991-01 for 180 minutes
Rauchdichte Smoke density	nach/acc. to DIN EN 61034-2:2006-03
Verwendungsbereich Guide to use	Verwendung wie/use as JE-H(SI)H...Bd FE
Firmenzeichen Trademark	Ramfirecro-F3
Fortsetzung siehe Blatt 3 / continued on page 3	

#### VDE Prüf- und Zertifizierungs Gutachten mit Fertigung

Name und Sitz des Genehmigungs-Inhalt  
 RAMCRO S.p.A., Via Marzorati

Aktenzeichen / File ref.  
 5006557-5350-0021 / 148655

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

Dieser Zeichengenehmigungs-Ausweis bildet eine Grundlage für die EG-Konformitätserklärung und CE-Kennzeichnung durch den Hersteller oder dessen Bevollmächtigten und beschließt die Konformität mit den grundlegenden Schutzanforderungen der EG-Niederspannungsrichtlinie 2006/95/EG mit ihren Änderungen.  
 This Marks Approval is a basis for the EC Declaration of Conformity and the CE Marking by the manufacturer or his agent and proves the conformity with the essential safety requirements of the EC Low-Voltage Directive 2006/95/EC including amendments.

VDE Prüf- und Zertifizierungsinstitut GmbH  
 VDE Testing and Certification Institute  
 Fachgebiet FG41  
 Section FG41

#### 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

SIL / LSSH  
DIN4102

**FIRES**  
The Experts on Fire Safety  
Via Tevere 19, 20118 Villastanza di Pavia, Italy  
Tel. +39 0382 54000 Fax +39 0382 540011 e-mail: info@fires.it web: www.fires.it

**PRODUCT CLASSIFICATION FIRES CR-06804 SAP**

**Product:** Cable system with NEEDAX accessories  
**Spawner:** RAMCRO s.r.l., Via Tevere 19, 20118 Villastanza di Pavia, Italy  
**Manufacturer:** RAMCRO s.r.l., Via Tevere 19, 20118 Villastanza di Pavia, Italy

It has been classified:

TYPE	RAMCRO CODE	CLASSIFICATION	
		Trey	Ceiling
E30CR3MVE 2x1,5	SAR0214HFEMX-F3 SENDA F0V	E 90	E 90
E30CR3M 2x1,5	SAR0214HFEMX-F3 SENDA F0V	E 90	E 90
E30CR3 2x1,5	SAR0214HFEMX-F3 SENDA F0V	E 80	E 90
E30CR3VE 2x1,5	SAR0214HFEMX-F3	E 90	E 80
E30CR3VE 2x1,5	SAR0214HFEMX-F3	E 90	E 90

TYPE	RAMCRO CODE	CLASSIFICATION	
		Trey	Ceiling
E30CR3SCH 1x2x0,80	SAR0208HFEMX-F3 SENDA F0V	E 90	-
E30CR3VESCH 1x2x0,80	SAR0208HFEMX-F3	E 90	E 80
E30CR3VESCH 1x2x0,80	SAR0208HFEMX-F3	E 60	E 60
E30CR3VESCH 1x2x0,80	SAR0208HFEMX-F3	E 90	E 60

Product was tested according to DIN 4102 (2:1995-07)

The course of the test is described in detail in the test report No.:  
**FIRES FR 03004 C (E)**

**Comments:**

- Classification is valid as of 30.05.2004
- The field of application of the classification is specified on the report
- Any modifications to the contents of this document may only be by PDF

Test number: E-03134-0404

*Shiva Co.*  
Reference: 30.05.2004  
Prepared by: Aleksandar Jarač

**FIRES**  
The Experts on Fire Safety

**ZAG** LABORATORY

Via Tevere 19, 20118 Villastanza di Pavia, Italy  
Tel. +39 0382 54000 Fax +39 0382 540011 e-mail: info@fires.it web: www.fires.it

**Product Information / Fire Laboratory**  
Reference: 30.05.2004  
Prepared by: Aleksandar Jarač

**Classification of cables**

On 9<sup>th</sup> 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 1. 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 tested with bending radius of 30 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. Sheathed cables were tested.

Classification of tested cables:

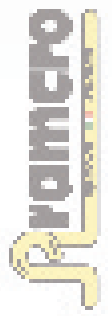
cable	classification	
	tray	ceiling
E30 CR3 MVE 2 x 1,5	E 90	E 90
E30 CR3 M 2 x 1,5	E 90	E 90
E30 CR3 VE 2 x 1,5	E 80	E 90
E30 CR3 SCH 1 x 2 x 0,8	E 90	E 90
E30 CR3 SCH 1 x 2 x 0,8	E 90	E 90

Sincerely,  
Milan Hladobrev  
head of the laboratory

Dr. Niko Kacar

### 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 - RFC F3 / RF90 - NBN 713-020 Add.3

## F1 / F2 / SD / ST / SA - NBN C 30-004

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

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.63 sqmm - Cl. 1	27.1
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
<b>Minimum insulation resistance:</b>	Individual conductors >200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	110 V for section 0.9 mm 300 / 500 V for other sections	
<b>Test Voltage:</b>	1000 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)
- **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
- **Fire Tests:**  
F1 - Flame Retardancy on single Cable  
F2 - Flame Retardancy on bunched Cable
- **Material Characteristics:**  
SD - Smoke Density  
ST - Smoke Toxicity  
SA - Smoke Acidity (HCL)



### Standards

#### References

- NBN 713-020 Add. 3
- NBN C 30-004: 2004
- IEC 60331-21
- IEC 60332-1

Ramcro Part No Collective screened	No. of Pairs	Cond. mm <sup>2</sup>	Nom. O/D mm
SSR0214HUEL(BE)	2 C	1.50	8,0
SSR0414HUEL(BE)	4 C	1.50	9,2
SSR0514HUEL(BE)	5 C	1.50	10,2
SSR0714HUEL(BE)	7 C	1.50	11,2
SSR1214HUEL(BE)	12 C	1.50	14,6
SSR1914HUEL(BE)	19 C	1.50	17,4

Ramcro Part No Collective screened	No. of CORES	Cond. mm <sup>2</sup>	Nom. O/D mm
SAM0109HUEE-F3	1 Pr	0.63	6,2
SAM0209HUEE-F3	2 Pr	0.63	8,7
SAM0309HUEE-F3	3 Pr	0.63	9,4
SAM0509HUEE-F3	5 Pr	0.63	11,6
SAM0709HUEE-F3	7 Pr	0.63	13,0
SAM1009HUEE-F3	10 Pr	0.63	16,6
SAM1509HUEE-F3	15 Pr	0.63	19,4

Ramcro Part No Collective screened	No. of Pairs	Cond. mm <sup>2</sup>	Nom. O/D mm
SSR0218HUEL(BE)	2 C	2.50	8,8
SSR0418HUEL(BE)	4 C	2.50	10,1
SSR0518HUEL(BE)	5 C	2.50	11,3
SSR0718HUEL(BE)	7 C	2.50	12,4
SSR1218HUEL(BE)	12 C	2.50	16,3
SSR1918HUEL(BE)	19 C	2.50	19,4



# Ramfirecro-F3 - RFC F3 / RF90 - SD - SA - F1 - F2

## NBN 713-020 Add.3

Silicon Rubber insulated, Halogen Free Fire Resistant

R
F
C
F
3  
NBN713-020



### LABORATOIRE D'ESSAIS AU FEU



Université de Liège - Département d'Ingénierie  
 Laboratoire d'Essais au Feu  
 Avenue de la Sarttille, 1  
 4000 Sarttille  
 Belgique

Téléphone: +32 (0)43 30 10 00  
 Fax: +32 (0)43 30 10 01  
 Page 11/13

Horaires de travail: Lundi - Vendredi  
 8h00 - 16h00

Page 11/13 - 2014

#### PARAMÈTRES DE PROPOSITION

<b>Titulaire de la proposition :</b>	Ramcro s.p.a. Via M. de Maesseneke 19 2000 Antwerpen, Belgique
<b>Propriétaire de la proposition :</b>	Ramcro s.p.a. Via M. de Maesseneke 19 2000 Antwerpen, Belgique
<b>Adresse de l'installation proposée :</b>	2000 Antwerpen, Belgique Type d'installation: M. de Maesseneke 19
<b>Produit proposé :</b>	Ramfirecro-F3, RFC F3, RF90, SD, SA, F1, F2 Type de produit: Câbles, fils, tubes Normes de référence: IEC 60331-1, IEC 60332-1, IEC 60332-2, IEC 60333-1, IEC 60333-2

Dans les tests de résistance au feu, les câbles ont été soumis à une température de 900°C pendant 90 minutes. Les câbles ont été soumis à une température de 900°C pendant 90 minutes. Les câbles ont été soumis à une température de 900°C pendant 90 minutes.

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### LABORATOIRE D'ESSAIS AU FEU

Essai	Norme	Résultat	Classe
Essai de résistance au feu	IEC 60331-1	Passé	F3
Essai de résistance au feu	IEC 60332-1	Passé	F3
Essai de résistance au feu	IEC 60332-2	Passé	F3
Essai de résistance au feu	IEC 60333-1	Passé	F3
Essai de résistance au feu	IEC 60333-2	Passé	F3

Essai	Norme	Résultat	Classe
Essai de résistance au feu	IEC 60331-1	Passé	F3
Essai de résistance au feu	IEC 60332-1	Passé	F3
Essai de résistance au feu	IEC 60332-2	Passé	F3
Essai de résistance au feu	IEC 60333-1	Passé	F3
Essai de résistance au feu	IEC 60333-2	Passé	F3

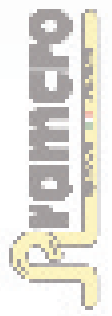
Ing. P. De Maesseneke  
 Directeur du Laboratoire

Dr. G. De Maesseneke  
 Directeur du Laboratoire

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#### Standards References

- NBN 713-020 Add. 3
- NBN C 30-004: 2004
- 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

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.61
<b>Minimum insulation resistance:</b>	6.00 sqmm - Cl. 2	3.08
	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
	Operating Temperature:	+ 180°C
<b>Installation Temperature:</b>		- 5° C to + 50 ° C
	<b>Voltage Rating:</b>	600 /1000 V
<b>Test Voltage:</b>		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. mm <sup>2</sup>	Nom. O/D mm
FTG0215IDRQL	2 C	1.50	5.8
FTG0315IDRQF	3 C	1.50	7.6
FTG0415IDRQGG	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	
FTG0425IDRQGG	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. mm <sup>2</sup>	Nom. O/D mm
FTG0240IDRQL	2 C	4.00	11.8
FTG0340IDRQF	3 C	4.00	12.6
FTG0440IDRQGG	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
FTG0460IDRQGG	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

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.50 sqmm - Cl. 5	40.0
	0.75 sqmm - Cl. 5	26.8
	1.00 sqmm - Cl. 5	18.6
	1.50 sqmm - Cl. 5	12.5
	2.50 sqmm - Cl. 5	7.7
	4.00 sqmm - Cl. 5	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	
	>200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Fire Rating:</b>	IEC 60331-21	90 min. at 750° C
	EN50200 PH30	90 min. at 840° C
<b>Voltage Rating:</b>	following the standard 100 /1000 V	
	following the construction 300 / 500 V	
<b>Gases evolved during combustion</b>	HCl < 0.5 % - Smoke density: >75%	
<b>Test Voltage:</b>	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

FG4OHM1  
CEI20-105

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if the cables are violet the RAMCRO part N° will change in:  
SAR\_ \_ \_ \_HXES-F3EN30

#### 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 or Violet



#### 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 or Violet



Printing:

RAMFIRECRO-F3 - Fire Comet - CEI 20-105 - FG4OHM1 - UNI 9795 - CEI 20-36/4-0 (PH30/90) CEI EN 60332-3-25 100/100 V Uo=400 V + (year of production)

Ramcro Part No Collective screened	No. of CORES	Cond. mm²	Nom. O/D mm
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 Without Screen	No. of Pairs	Cond. mm²	Nom. O/D mm
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



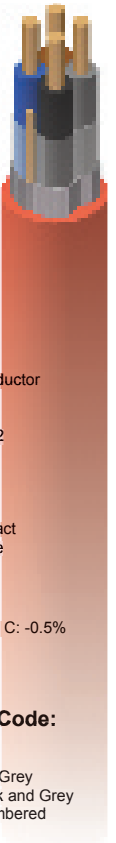
## Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

### - 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

<b>Maximum conductor d.c. resistance:</b> <b>Solid</b>	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%
<b>Stranded</b>	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%
<b>Minimum insulation resistance:</b>	Individual conductors	
	>200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to IEC 60331-21 180 minutes at 750° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

#### Construction

- **Conductors:**  
Solid (Class 1) copper conductor
- **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:**  
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

#### Standards References

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



Ramcro Part No Solid Conductors	No. of Cores	Cond. mm <sup>2</sup>	Nom. O/D mm
SAR0205HFEEL-F3 hr(A)-FRHF	2C	0.22	4.2
SAR0305HFEEQ-F3 hr(A)-FRHF	3C	0.22	4.4
SAR0405HFEEEX-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
SAR0406HFEEEX-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
SAR0408HFEEEX-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
SAR0410HFEEEX-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
SAR0411HFEEEX-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
SAR0414HFEEEX-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
SAR0418HFEEEX-F3 hr(A)-FRHF	4C	2.50	9.5

Ramcro Part No Stranded Conductors	No. of Cores	Cond. mm <sup>2</sup>	Nom. O/D mm
SAS0222HFEEL-F3 hr(A)-FRHF	2C	0.22	4.2
SAS0222HFEEQ-F3 hr(A)-FRHF	3C	0.22	4.4
SAS0422HFEEEX-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
SAS0434HFEEEX-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
SAS0450HFEEEX-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
SAS0475HFEEEX-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
SAS0410HFEEEX-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
SAS0415HFEEEX-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
SAS0425HFEEEX-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

<b>Maximum conductor d.c. resistance:</b> <b>Solid</b>	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%
<b>Stranded</b>	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%
<b>Minimum insulation resistance:</b>	Individual conductors	
	>200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to IEC 60331-21 180 minutes at 750° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

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

- **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

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Ramcro Part No Solid Conductors	No. of Cores	Cond. mm <sup>2</sup>	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 <sup>2</sup>	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

### Standards References

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



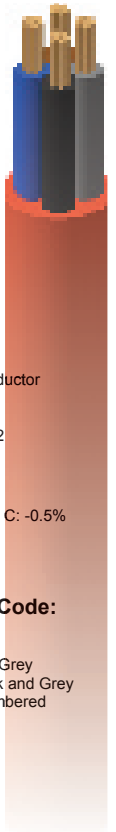
## Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

### - 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

<b>Maximum conductor d.c. resistance:</b> <b>Solid</b>	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%
<b>Stranded</b>	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%
<b>Minimum insulation resistance:</b>	Individual conductors	
	>200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to IEC 60331-21 180 minutes at 750° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

#### Construction

- **Conductors:**  
Solid (Class 1) copper conductor
- **Insulation:**  
Silicon Rubber Mix type EI2
- **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

#### Standards References

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

Ramcro Part No Solid Conductors	No. of Cores	Cond. mm <sup>2</sup>	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 <sup>2</sup>	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

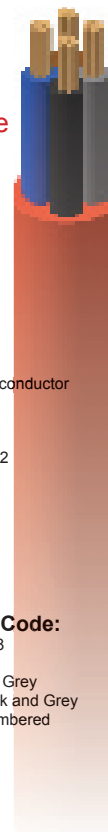
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b> <b>Solid</b>	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%
<b>Stranded</b>	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%
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
	<b>Minimum bending radius:</b>	8 x Overall diameter
<b>Fire Rating:</b>	to IEC 60331-21 180 minutes at 750° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

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



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

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

### 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**  
(обязательный сертификат)

№ С-П.ПБ03.В.00162 ТР

**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), 123557, Москва, Электривский пр. д. 10, 104470 (499) 235-3434, факс (499) 233-7743, ОГРН: 1047703024638. Аттестат рег. № ТРПБ.RU.11693 выдан 12.04.2012, МЧС России.

**ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ:** [redacted] в пучке

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

**ПРОВЕДЕНЫ:** испытания в ВНИИС (ТРПБ.RU.ИИ42) № 237/11 от 06.09.2011 г. в соответствии с требованиями ИИЦБ «Пожнотест» АНО от 10.06.2009, №№ М00916-ТР, М00918-ТР от 16.04.2010, № 158-ТР от 22.04.2010 акт анализа состояния производства ИСО ГОСТ Р (ТРПБ.RU.ПБ03)-ТВ-2/177 от 06.09.2011

**ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ:** [redacted]

**СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с** 27.09.2011 **по** 26.09.2016

**Эксперт (эксперты):** В.Я. Тимко, А.А. Белоусов

**СЕРТИФИКАТ СООТВЕТСТВИЯ**

№ С-П.ПБ03.В.00162 ТР

**ПОДТВЕРЖДАЕМЫЕ ТРЕБОВАНИЯ НАЦИОНАЛЬНОГО СТАНДАРТА ДЛЯ СВОЕЙ ЦЕЛИ:**

Кабельные изделия	предел огнестойкости кабеля в условиях воздействия изменений (ПО) = индексовый показатель токсичности (ПТМ) = показатель дымообразования при горении и тлении кабельного изделия (ПД)
Испытания электрических изделий	показатель коррозионной активности продуктов дымозадымления при горении и тлении полимерных материалов кабельного изделия (ИКА) = предел огнестойкости кабеля в условиях воздействия изменений (ПО)

**Эксперт (эксперты):** В.Я. Тимко, А.А. Белоусов

**СЕРТИФИКАТ СООТВЕТСТВИЯ**

№ С-П.ПБ03.В.00162 ТР 0074818

**ПОДТВЕРЖДАЕМЫЕ ТРЕБОВАНИЯ НАЦИОНАЛЬНОГО СТАНДАРТА ДЛЯ СВОЕЙ ЦЕЛИ:**

**ГОСТ Р МЭК 60751-2-99**

**Испытания материалов конструкции кабелей при горении. Определение способности выдерживать в условиях умеренной и умеренно высокой температуры, утверждение проводимости. Утверждение** Постановлением Госстандарта России от 03.11.1999г. № 391-ст

**Эксперт (эксперты):** В.Я. Тимко, А.А. Белоусов

**Standards References**

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

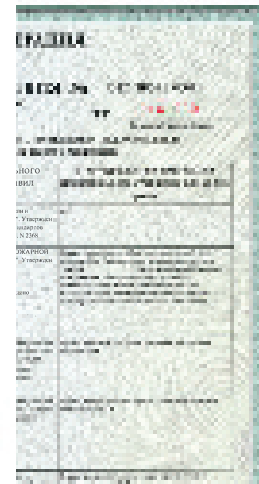


# Ramfirecro-F3 - ГОСТ Р МЭК 60331-21

## - Solid and Stranded Conductors

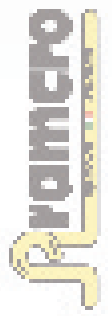
Silicon Rubber insulated, Low Smoke PVC Fire Resistant Cable

UNSCREENED  
IEC60331



### Standards References

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



**Ramfirecro-F3 - IEC 60331-21****Solid Conductors****Silicon Rubber insulated, Halogen Free Fire Resistant****Applications**

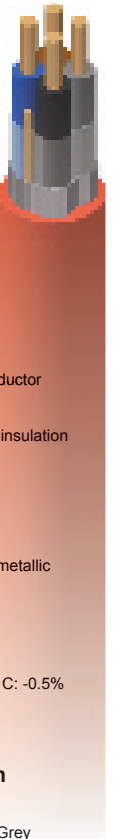
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

**Technical Data**

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 1	26.8
	1.00 sqmm - Cl. 1	18.6
	1.50 sqmm - Cl. 1	12.5
	2.50 sqmm - Cl. 1	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to IEC 60331-21 90 minutes at 750° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

**Construction**

- **Conductors:**  
Solid (Class1), Copper conductor
- **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
- BS EN 50267-2-1
- BS EN 61034-2

Ramcro Part No Collective screened	No. of Conductors	Cond. mm <sup>2</sup>	Nom. O/D mm
SAR0210HFEEL-F3	2	0.75	6.4
SAR0310HFEEEX-F3	3	0.75	6.8
SAR0410HFEEQ-F3	4	0.75	7.4
SAR0510HFEEED-F3	5	0.75	8.9
SAR0710HFEEED-F3	7	0.75	9.6
SAR1210HFEEED-F3	12	0.75	12.4
SAR1910HFEEED-F3	19	0.75	14.8
SAR0211HFEEL-F3	2	1.00	7.1*
SAR0311HFEEEX-F3	3	1.00	8.0*
SAR0411HFEEQ-F3	4	1.00	8.9*
SAR0511HFEEED-F3	5	1.00	9.8
SAR0711HFEEED-F3	7	1.00	10.7
SAR1211HFEEED-F3	12	1.00	13.8
SAR1911HFEEED-F3	19	1.00	16.5
SAR0214HFEEL-F3	2	1.50	7.6*
SAR0314HFEEEX-F3	3	1.50	8.5*
SAR0414HFEEQ-F3	4	1.50	9.5*
SAR0514HFEEED-F3	5	1.50	10.5
SAR0714HFEEED-F3	7	1.50	11.4
SAR1214HFEEED-F3	12	1.50	14.9
SAR1914HFEEED-F3	19	1.50	17.8

Ramcro Part No Collective screened	No. of Conductors	Cond. mm <sup>2</sup>	Nom. O/D mm
SAS0225HFEEL-F3	2	2.50	8.8*
SAS0325HFEEEX-F3	3	2.50	9.4*
SAS0425HFEEQ-F3	4	2.50	10.4*
SAS0525HFEEED-F3	5	2.50	11.6
SAS0725HFEEED-F3	7	2.50	12.6
SAS1225HFEEED-F3	12	2.50	16.9
SAS1925HFEEED-F3	19	2.50	20.2
SAS0240HFEEL-F3	2	4.00	10.8
SAS0340HFEEEX-F3	3	4.00	11.4
SAS0440HFEEQ-F3	4	4.00	12.5
SAS0540HFEEED-F3	5	4.00	13.7



568d/01



# Ramfirecro-F3 - IEC 60331-21

## Solid Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant

### Applications

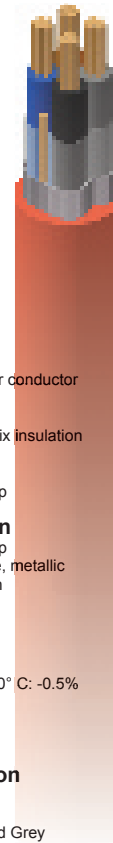
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 2	26.8
	1.00 sqmm - Cl. 2	18.6
	1.50 sqmm - Cl. 2	12.5
	2.50 sqmm - Cl. 2	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors >200 MOhm x km at +20°C	
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Fire Rating:</b>	to IEC 60331-21 90 minutes at 750° C	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Voltage Rating:</b>	300/500 V	
<b>Test Voltage:</b>	2000 V ac	

### Construction

- **Conductors:**  
7 strand (Class2), Copper conductor
- **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



FIRE SAFE  
IEC60331

29

Ramcro Part No Collective screened	No. of Conductors	Cond. mm²	Nom. O/D mm
SAS0275HFEEL-F3	2	0.75	6.7
SAS0375HFEEEX-F3	3	0.75	7.1
SAS0475HFEEQ-F3	4	0.75	7.7
SAS0575HFEEED-F3	5	0.75	9.2
SAS0775HFEEED-F3	7	0.75	10.0
SAS1275HFEEED-F3	12	0.75	12.9
SAS1975HFEEED-F3	19	0.50	15.4
SAS0210HFEEL-F3	2	0.75	7.3*
SAS0310HFEEEX-F3	3	0.75	7.7*
SAS0410HFEEQ-F3	4	0.75	8.4*
SAS0510HFEEED-F3	5	0.75	10.0
SAS0710HFEEED-F3	7	0.75	10.9
SAS1210HFEEED-F3	12	0.75	14.1
SAS1910HFEEED-F3	19	1.00	16.9
SAS0215HFEEL-F3	2	1.00	8.0*
SAS0315HFEEEX-F3	3	1.00	8.9*
SAS0415HFEEQ-F3	4	1.00	9.9*
SAS0515HFEEED-F3	5	1.00	11.0
SAS0715HFEEED-F3	7	1.00	12.0
SAS1215HFEEED-F3	12	1.00	15.6
SAS1915HFEEED-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*
SAS0318HFEEEX-F3	3	2.50	10.0*
SAS0418HFEEQ-F3	4	2.50	11.1*
SAS0518HFEEED-F3	5	2.50	12.1
SAS0718HFEEED-F3	7	2.50	13.2
SAS1218HFEEED-F3	12	2.50	17.8
SAS1918HFEEED-F3	19	2.50	21.2
SAS0285HFEEL-F3	2	4.00	11.0
SAS0385HFEEEX-F3	3	4.00	11.6
SAS0485HFEEQ-F3	4	4.00	12.5
SAS0585HFEEED-F3	5	4.00	13.7

### Standards References

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



\* Cables certified by LPCB BRE GLOBAL

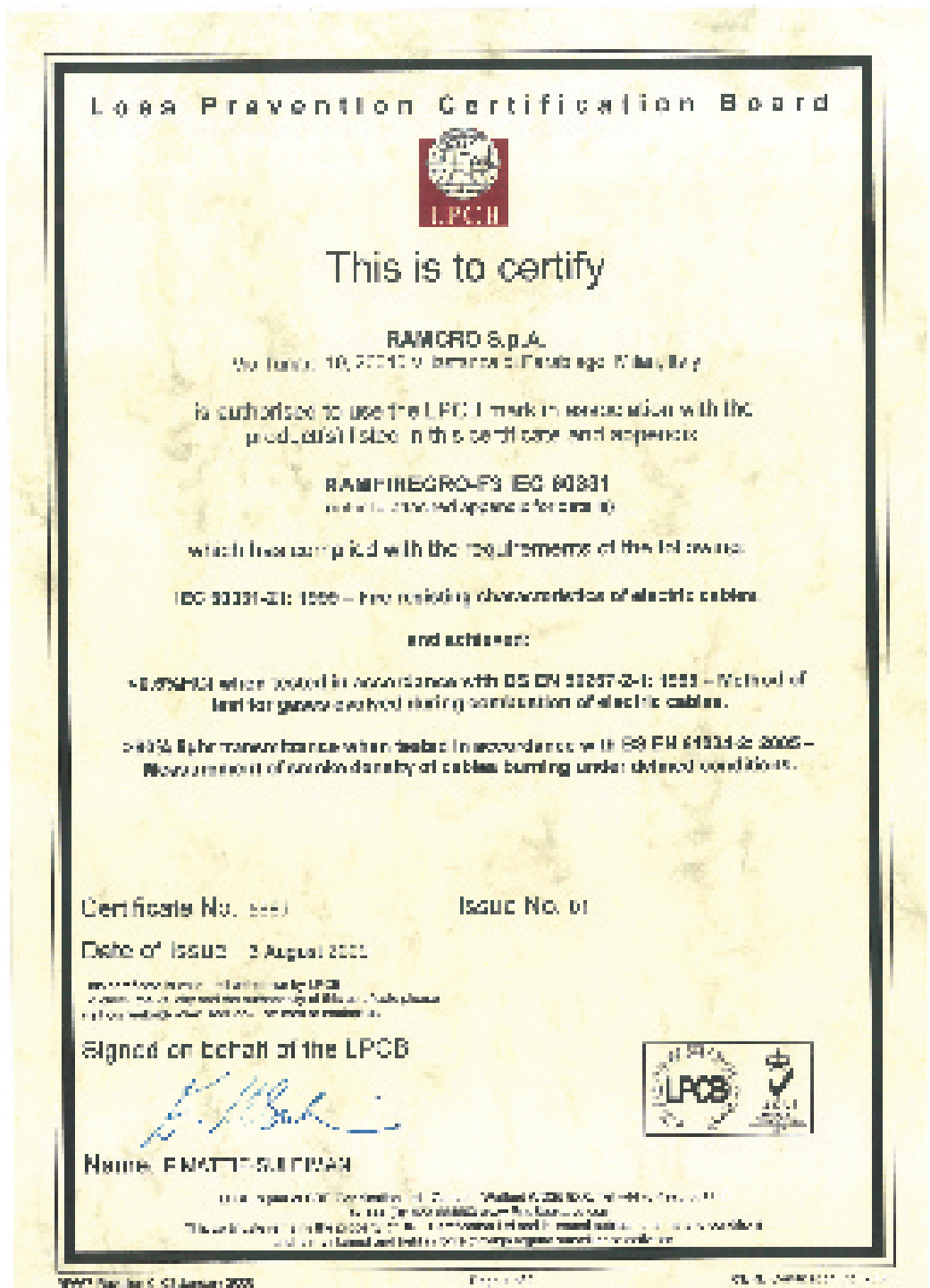
**Ramfirecro-F3 - IEC 60331-21**

**Solid Conductors**

Silicon Rubber insulated, Halogen Free Fire Resistant

**Standards References**

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






# Ramfirecro-F3 - IEC 60331-21

## Solid Conductors

Silicon Rubber insulated, Halogen Free Fire Resistant

SIL / LSZH  
IEC60331

**Loss Prevention Certification Board**



**APPENDIX TO CERTIFICATE NO. 568d**


**RAMCRO B.p.A.**

Products	LPCB Ref. No.			
RAMCRO CROCO IEC 60331	568d/01			
Manufacturer of conductor (name)	Conductor Construction (including date of approval)	IEC 60331-21	BS EN 50267-2-1	BS EN 61034-2
IEC 5	5.0.0.0	Class 4	4.00-01	4.00
IEC 6	2.0.0.0	Class 4	4.00-01	4.00
IEC 7	2.0.0.0	Class 4	4.00-01	4.00

See 1. 568d/01

See 1. 568d/01

**Signed on behalf of the LPCB**



**Name: D. RA. HEBBOLDMAN**

Page 2 of 2  
Date of Issue: 4 August 2009  
Issue No. 01

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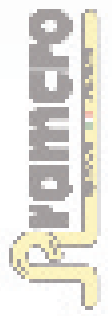
010017 Number 1, 20 January 2009      F4643-03      F4643-03      Number 1, 20 January 2009

**Standards References**

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



568d/01



# Fiber Optic Fire Resistant Single Mode 9/125 μm

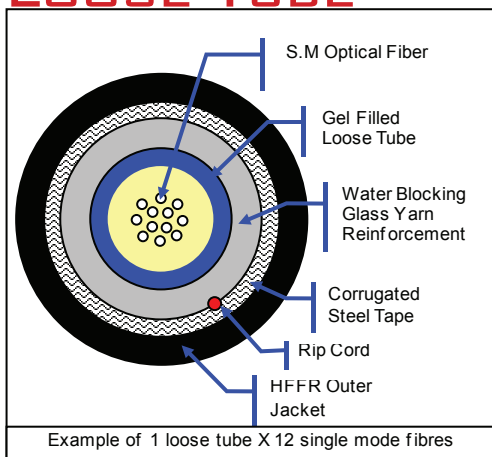
LSZH Armored Cables to IEC 60331-25 & IEC 60332-3 From 1 fibre up to 432 fibres

## 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



Example of 1 loose tube X 12 single mode fibres

## 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.

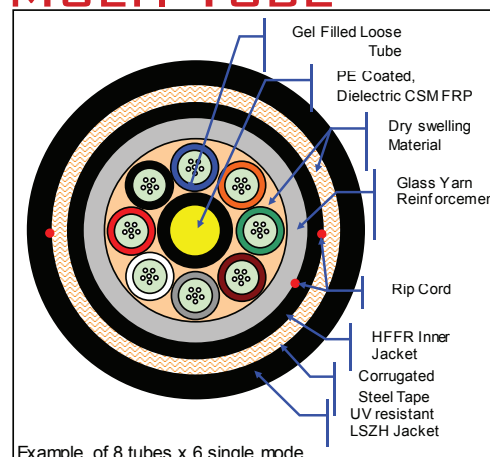
**Armouring:**  
A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

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

**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



Example of 8 tubes x 6 single mode

## 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 armoring.

**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

## Standards References

- IEC 60331-21
- IEC 60332-3



# 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

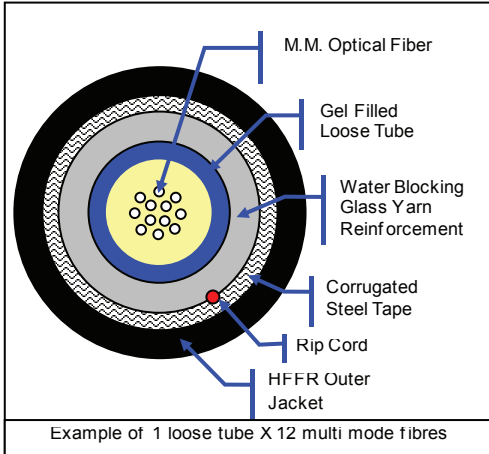
### Applications

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.

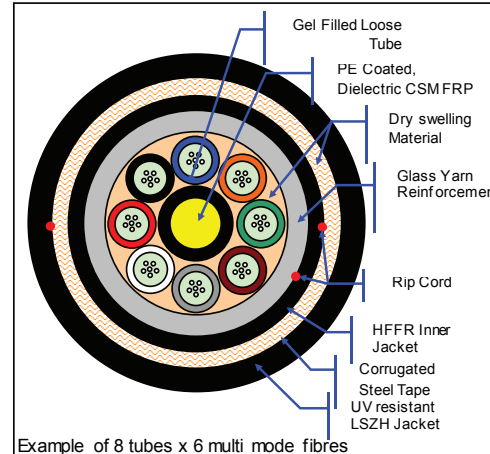
Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.

FIBER FIRE MULTIMODE

### 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 Filled:**  
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 armouring.

**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 Filled:**  
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 armouring.

**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

### Standards References

- IEC 60331-21
- IEC 60332-3



# EN 50200 PH120

## Ramfirecro-Fire-Coax

### EN 50200 - PH120

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

#### Applications

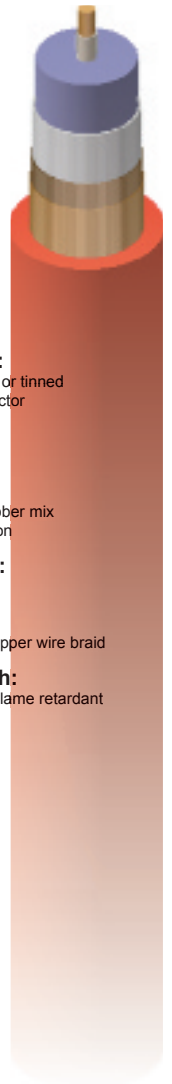
These special coaxial cables are used in video surveillance of sites at high risk of fire, where is vital the video control during accident.

#### Technical Data

<b>Minimum insulation resistance:</b>	Individual conductors >200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	10 x Overall diameter
<b>Fire Rating:</b>	to EN 50200 PH120 120 minutes at 850° C
<b>Operating Temperature:</b>	+ 180°C
<b>Installation Temperature:</b>	- 5° C to + 50 ° C
<b>Voltage Rating:</b>	600 / 1000 V
<b>Test Voltage:</b>	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<sup>PH 15 / 30 / 60 / 90</sup>

## for systems according to UNI 9795

Silicon Rubber insulated, Halogen Free Fire Resistant Cables

### Applications

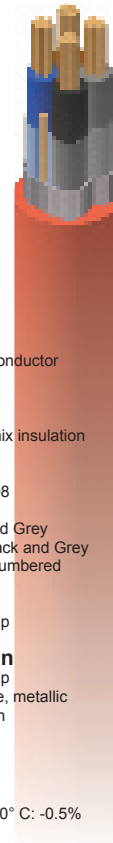
These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

### Technical Data

<b>Maximum conductor d.c. resistance:</b>	Section	Ohm/km at +20°C
	0.75 sqmm - Cl. 2	26.8
	1.00 sqmm - Cl. 2	18.6
	1.50 sqmm - Cl. 2	12.5
	2.50 sqmm - Cl. 2	7.7
	4.00 sqmm - Cl. 2	4.6
<b>Minimum insulation resistance:</b>	Individual conductors	>200 MOhm x km at +20°C
<b>Minimum bending radius:</b>	8 x Overall diameter	
<b>Operating Temperature:</b>	+ 180°C	
<b>Installation Temperature:</b>	- 5° C to + 50 ° C	
<b>Fire Rating:</b>	IEC 60331-21	90 min. at 750° C
	EN50200 PH90	90 min. at 840° C
<b>Voltage Rating:</b>	300 / 500 V	
<b>Gases evolved during combustion:</b>	HCl < 0.5 % - Smoke density: >75%	
<b>Test Voltage:</b>	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



FIREMOON  
EN50200

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Ramcro Part No	No. of Cores	Cond. mm <sup>2</sup>	Nom. O/D mm
SAR0208HFEEL-F3PH...	2	0.50	5.3
SAR0308HFEEEX-F3PH...	3	0.50	5.5
SAR0408HFEEQ-F3PH...	4	0.50	6.0
SAR0508HFEED-F3PH...	5	0.50	6.9
SAR0708HFEED-F3PH...	7	0.50	7.4
SAR1208HFEED-F3PH...	12	0.50	9.5
SAR1908HFEED-F3PH...	19	0.50	11.0
SAR0210HFEEL-F3PH...	2	0.75	6.4
SAR0310HFEEEX-F3PH...	3	0.75	6.8
SAR0410HFEEQ-F3PH...	4	0.75	7.4
SAR0510HFEED-F3PH...	5	0.75	8.9
SAR0710HFEED-F3PH...	7	0.75	9.6
SAR1210HFEED-F3PH...	12	0.75	12.4
SAR1910HFEED-F3PH...	19	0.75	14.8
SAR0211HFEEL-F3PH...	2	1.00	7.1
SAR0311HFEEEX-F3PH...	3	1.00	8.0
SAR0411HFEEQ-F3PH...	4	1.00	8.9
SAR0511HFEED-F3PH...	5	1.00	9.8
SAR0711HFEED-F3PH...	7	1.00	10.7
SAR1211HFEED-F3PH...	12	1.00	13.8
SAR1911HFEED-F3PH...	19	1.00	16.5

Ramcro Part No	No. of Cores	Cond. mm <sup>2</sup>	Nom. O/D mm
SAR0214HFEEL-F3PH...	2	1.50	7.6
SAR0314HFEEEX-F3PH...	3	1.50	8.5
SAR0414HFEEQ-F3PH...	4	1.50	9.5
SAR0514HFEED-F3PH...	5	1.50	10.5
SAR0714HFEED-F3PH...	7	1.50	11.4
SAR1214HFEED-F3PH...	12	1.50	14.9
SAR1914HFEED-F3PH...	19	1.50	17.8
SAR0218HFEEL-F3PH...	2	2.50	8.8
SAR0318HFEEEX-F3PH...	3	2.50	9.4
SAR0418HFEEQ-F3PH...	4	2.50	10.4
SAR0518HFEED-F3PH...	5	2.50	11.6
SAR0718HFEED-F3PH...	7	2.50	12.6
SAR1218HFEED-F3PH...	12	2.50	16.9
SAR1918HFEED-F3PH...	19	2.50	20.2
SAR0285HFEEL-F3PH...	2	4.00	10.8
SAR0385HFEEEX-F3PH...	3	4.00	11.4
SAR0485HFEEQ-F3PH...	4	4.00	12.5
SAR0585HFEED-F3PH...	5	4.00	13.7

### Standards References

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



## 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:**

Section	Ohm/km at +20°C
0.50 sqmm - Cl. 1	36.0
0.75 sqmm - Cl. 1	26.8
1.00 sqmm - Cl. 1	18.6
1.50 sqmm - Cl. 1	12.5
2.50 sqmm - Cl. 1	7.7
4.00 sqmm - Cl. 2	4.6

**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**

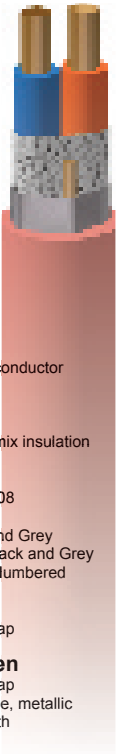
Polyster tape 50% overlap  
Aluminium/Polyester tape, metallic side down, in contact with Solid Copper drain wire

**- 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 <sup>2</sup>	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
SAR0708HFEEED-F3PH...	7	0.50	7.7
SAR1208HFEEED-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
SAR0710HFEEED-F3PH...	7	0.75	9.9
SAR1210HFEEED-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
SAR0711HFEEED-F3PH...	7	1.00	11.0
SAR1211HFEEED-F3PH...	12	1.00	14.1

Ramcro Part No	No. of Cores	Cond. mm <sup>2</sup>	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
SAR0714HFEEED-F3PH...	7	1.50	11.7
SAR1214HFEEED-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
SAR0718HFEEED-F3PH...	7	2.50	12.9
SAR1218HFEEED-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 <sup>2</sup>	Nom. O/D mm
SAR0208HFAAH	2C	0.50	5.1
SAR0308HFAAG	3C	0.50	5.4
SAR0408HFAAI	4C	0.50	6.1
SAR0210HFAAH	2C	0.75	5.4
SAR0310HFAAG	3C	0.75	5.8
SAR0410HFAAI	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 <sup>2</sup>	Nom. O/D mm
SAS0250HFAAH	2C	0.50	5.2
SAS0350HFAAG	3C	0.50	5.5
SAS0450HFAAI	4C	0.50	6.2
SAS0275HFAAH	2C	0.75	5.5
SAS0375HFAAG	3C	0.75	5.9
SAS0475HFAAI	4C	0.75	6.6
SAS0210HFAAH	2C	1.00	6.3
SAS0310HFAAG	3C	1.00	6.5
SAS0410HFAAI	4C	1.00	7.0
SAS0215HFAAH	2C	1.50	6.5
SAS0315HFAAG	3C	1.50	7.5
SAS0415HFAAI	4C	1.50	7.7
SAS0225HFAAH	2C	2.50	8.5
SAS0325HFAAG	3C	2.50	8.9
SAS0425HFAAI	4C	2.50	9.7

FIRE ALARM  
IEC60332

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## **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

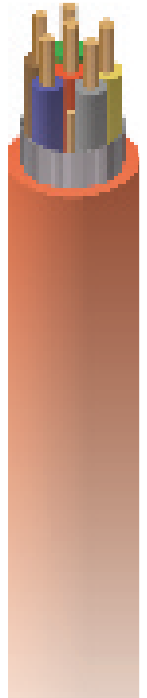
#### Construction

- **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 <sup>2</sup>	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 <sup>2</sup>	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



FIRE ALARM  
IEC60332

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Ramcro Part No	No. of Cores	Cond. mm <sup>2</sup>	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 <sup>2</sup>	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

## 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: RedRamcro 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: RedRamcro Code:  
FCG-EPN250

COUNTRY	PROJECT	CONTRACTOR	TYPE OF CABLE
BAHRAIN	ADDAX INVESTMENT BANK	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	AL JAZIRA GROUP	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	BAHRAIN AIROPORT SERVICES	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	BAHRAIN RADIO & TELEVISION	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	BAHRAIN SPECIALIST HOSPITAL	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	BAISAN INSTITUTE OF HOTEL	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	CENTRAL BANK OF BAHRAIN	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	ELITE HOTEL	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	FORMULA 1 CIRCUIT	ALPHA FIRE SERVICES W.L.L.	FIRE RESISTANT CABLES
BAHRAIN	GULF PEARL HOTEL	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	HINDU TEMPLE (T.H.M.C. HALL)	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	LEWAN ENGINEERING	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	MERCURE GRAND HOTEL	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	RAFFIE JEWELLERY	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BAHRAIN	SHEZA TOWER	ALPHA FIRE SERVICES W.L.L.	Fire Resistant Cables
BANGLADESH	Bay Developments Ltd.	BTCL	FIRE CONTROL CABLES
BANGLADESH	Birds Bangladesh Agencies Limited	BTCL	FIRE CONTROL CABLES
BANGLADESH	GrameenPhone HQ	BTCL	FIRE CONTROL CABLES
BANGLADESH	Independent Television Limited	BTCL	FIRE CONTROL CABLES
BANGLADESH	Maasranga Television	BTCL	FIRE CONTROL CABLES
BANGLADESH	Shadharan Bima Corporation	BTCL	FIRE CONTROL CABLES
BANGLADESH	Bangladesh Bank H/Q	BTCL	FIRE/ CONTROL CABLES
BANGLADESH	Sugar & Food Ind. Corporation	BTCL	FIRE/ CONTROL CABLES
ESTONIA	ESTONIAN TELEVISION		FIRE RESISTANT CABLES
KUWAIT	BANK OF MIDDLE EAST & KUWAIT	UNIVERSAL PROJECT	FIRE ALARM CABLE
LEBANON	University of Lebanon in the North	Ali Tlayss &Co(AI Ahlia Est)	FIRE CABLES
LEBANON	BCD SOUKS AND GOLD SOUKS - BEIRUT	Mac-Corp SARL	Fire Resistant Cables
LEBANON	CITY MALL - BEIRUT	Mac-Corp SARL	Fire Resistant Cables
MONTENEGRO	HOTEL QUEEN	KOVING	FIRE ALARM CABLES, COAXSIAL CABLES
MONTENEGRO	PETRO HOTEL	KOVING	FIRE ALARM CABLES, COAXSIAL CABLES
QATAR	Fire alarm in M'saieed power plant	Contractor : Iberdrola	FIRE RESISTANT CABLES
QATAR	QATAR GAS 2	CCIC	FIRE RESISTANT CABLES ARMoured AND UNARMoured
RUSSIA	AKVAREL MALL	ELETEC systems	FIRE RESISTANT CABLES
RUSSIA	BANK SBERBANK – REGIONAL BRANCH	ELETEC systems	FIRE RESISTANT CABLES
RUSSIA	GALEREYA MEGA MALL	ELETEC systems	FIRE RESISTANT CABLES
RUSSIA	KVATTRO CORTI HOTEL	ELETEC systems	FIRE RESISTANT CABLES
RUSSIA	PRIZMA SUPERMARKETS	ELETEC systems	FIRE RESISTANT CABLES
RUSSIA	STATE MINISTRY OF TAX SERVICE	ELETEC systems	FIRE RESISTANT CABLES
RUSSIA	STOCKMAN MEGA MALL	ELETEC systems	FIRE RESISTANT CABLES
UAE	AL BARARI DEVELOPMENT SUB STA-TIONS AND PUMP ROOM	ABWAR REAL ESTATE	FIRE RESISTANT CABLES
UAE	AL YASSAT TOWER	NEB	FIRE RESISTANT CABLES
UAE	DELMA TOWER	NEB	FIRE RESISTANT CABLES
UAE	ENNOC FILLING STATION	ENOC	FIRE RESISTANT CABLES
UAE	G+1 WORKSHOP AND OFFICE BUILDING	G.B.M.T. STRUCTURAL STEEL MAN.	FIRE RESISTANT CABLES
UAE	G+4 FLOORS COMMERCIAL & RESIDEN-TIAL BULDING	ASCON REAL ESTATE	FIRE RESISTANT CABLES
UAE	HASEEB RASOUL INDUSTRIAL COMPLEX	HASEED RASOUL CO LLC	FIRE RESISTANT CABLES
UAE	PAPA JOHNS - SITE 84	JAWAB BUSINESS GROUP	FIRE RESISTANT CABLES
UAE	DUBAI POLICE HQ	ARENCO	FIRE RESISTANT TELEPHONE CABLES

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