

# LIBAN CABLES

Quality • Reliability • Innovation

ISO 9001 CERTIFIED  
BY AFAQ No. QUAL / 1997 / 7034

SPECIAL CABLES



# CERTIFICAT



# CERTIFICATE

N° QUAL/1997/7034

AF AQ certifie que le système qualité adopté par,  
AF AQ certifies that the quality system developed by:

## LIBAN CABLES SAL

pour les activités suivantes,  
for the following activities:

CONCEPTION, DEVELOPPEMENT, PRODUCTION ET COMMERCIALISATION DE  
FILS, CORDES ET CABLES NUS ET ISOLES : ELECTRIQUES (BASSE,  
MOYENNE ET HAUTE TENSION) ET DE TELECOMMUNICATION (A CONDUCTEUR  
CUIVRE ET A FIBRE OPTIQUE), LE TOUT A USAGE PUBLIC, DOMESTIQUE,  
INDUSTRIEL ET SPECIAL.

DESIGN, DEVELOPMENT, MANUFACTURING, MARKETING AND SALES OF  
WIRES, ROPES AND CABLES, BARE OR INSULATED : ELECTRICAL (LOW,  
MEDIUM AND HIGH VOLTAGE) AND TELECOMMUNICATION (COPPER  
CONDUCTOR AND OPTICAL FIBER), FOR PUBLIC, DOMESTIC, INDUSTRIAL  
AND SPECIAL USE.

siège social : (en) (ar) (fr) (en) (ar) (fr)  
(located at the following locality):

Siège Social : Banayeh - rue Justine - Immeuble CCI  
BP 11 - 80% BEYROUTH - LIBAN  
Usine : Nahr Bchara - LIBAN

à la fois en ce qui concerne son exécution de la norme  
and also in respect of its compliance with the requirements of the standard:

## ISO 9001 (1994)

Le présent certificat, délivré dans les conditions fixées par AF AQ, est valable à compter de  
This certificate, issued under AF AQ rules, is valid from:

1996-01-26

Le Directeur Général

(signature)

2000-02-06

(date month-day)

Le Président du Comité de Certification  
The President of the Certification Committee

A. PIGEONNIER

Le Directeur Général AF AQ  
The Managing Director of AF AQ

G. PEYRAT

Le Directeur Général AF AQ  
The Director General AF AQ

G. BOULARD



## **SPECIAL CABLES**

---

---

## CONTENTS

---

---

	Page
<b>1 NOTICE</b>	1
<b>2 INTRODUCTION</b>	2
<b>3 QUALITY ASSURANCE</b>	3
<b>4 RECOMMENDED ORDERING PARAMETERS</b>	3
<b>5 HALOGEN FREE - LOW SMOKE &amp; FUME - FIRE RETARDANT CABLES</b>	4
5.1 - 0.6/1 KV Unarmoured	6
5.2 - 0.6/1 KV Steel or Aluminium tape armoured	10
5.3 - 0.6/1 KV Steel Wire armoured	12
<b>6 HALOGEN FREE - LOW SMOKE &amp; FUME - FIRE RESISTANT CABLES</b>	14
6.1 - 0.6/1 KV Unarmoured	16
6.2 - 0.6/1 KV Steel or Aluminium tape armoured	18
6.3 - 0.6/1 KV Steel Wire armoured	20
6.4 - 300/500 V Screened Fire Alarm Cables	22
<b>7 PETROCHEMICAL INDUSTRY CABLES</b>	24
7.1 - 0.6/1 KV Lead sheathed, Steel tape Armoured	24
7.2 - Instrumentation cables, Lead sheathed, Steel tape Armoured	26
<b>8 CONTROL, TRAFIC AND DATA CABLES</b>	28
8.1 - Multicores, Overall screen	29
8.2 - Multipairs, Overall screen	31
8.3 - Multipairs, Individual screen	33
<b>9 SUBSTATION AND PILOT CABLES</b>	35
9.1- Power and signalling cables, Fire retardant, Halogen free, Low smoke and fume	35
9.2 - Control & Telecommunication, Screened, Fire retardant cables	37
<b>10 AIRFIELD LIGHTING CABLES</b>	39
<b>11 HANDLING &amp; LIFT CABLES</b>	40
11.1 - 450/750 V PVC flat, Flexible cables	40
11.2 - 0.6/1 KV Thermoplastic rubber flat, Flexible cables	42
11.3 - Flat lift cables	44
11.4 - Flat lift cables with strain bearing members	46
<b>12 SUBMERSIBLE PUMP CABLES</b>	48
12.1 - 450/750 V Thermoplastic rubber round flexible cable	48
12.2 - 0.6/1 KV PE/PE Round flexible cables	50
12.3 - 0.6/1 KV PE/PE Flat flexible cables	52



## 1 NOTICE

---

As this catalogue is not intended to cover all of **LIBAN CABLES SAL** possibilities in special cables manufacturing, the hereafter listing of the types of cables is not restrictive but only indicative of the main and most current types we manufacture.

On the other hand, our specification sheets are inspired mainly from the most usually required.

Whereas, in facts some special cables may require special conception, fully within the capabilities of **LIBAN CABLES SAL**, ISO 9001 certified, precisely because in position to conceive / tailor your special needs.

That is why, while consulting this brochure, it is important to take into account that any combination or change of the constructional details mentioned in this catalogue remain feasible, on base of special conception / development, matching any special or different specifications.

Finally, and within our policy of constant improvement, we reserve the right to alter any part of the information contained in this publication without incurring any obligation. In all cases this brochure being only indicative, and unless expressly agreed upon, it cannot be considered by any mean as contractual document.



## INTRODUCTION

---

Devoted to the manufacturing of electric and telecom cables, Liban Cables is the first and largest supplier in Lebanon and a leader in the Middle-East region.

Liban Cables was founded in 1968 by a group of Lebanese industrialists backed up by the technical assistance of two international leading firms :

- Les Cables de Lyon - France (became ALCATEL afterwards)
- Phelps Dodge - U.S.A.

Staffed with qualified engineers and highly skilled technicians, our plant is located in Nahr-Ibrahim at 30 Km from Beirut, where cables are designed and manufactured according to all international specifications : IEC, VDE, UTE, BS and others on customer request.

Early after its foundation, Liban Cables has become the major supplier of the Lebanese market in both the public and private sectors. The product range of Liban Cables covers all electric cables, copper communications cables, (and optical fiber cables since 1995), in addition to a wide variety of special cables manufactured on customer request.

High quality cables, continuous developments of the production range, direct and fast shipments have contributed in rendering Liban Cables an important exporter for many countries on the three limitrophe continents (Asia, Europe, Africa). Liban Cables products are particularly appreciated by administrations and international contractors operating in the region and seeking reliable and direct supplies of power and communication cables.

### **QUALITY**

---

Step by step, from raw material to final product, quality constitutes a major concern to Liban Cables.

Raw material are continuously and repetitively tested from trial orders till the last batch received afterwards.

In addition to the final tests carried out on finished products, work in process is already tested within two simultaneous procedures :

- A built in quality control system carried out by the production itself at any step of work in process.
- A parallel and contradictory procedure is also carried out on the same stages and products by independent inspectors reporting to the quality control service.

End users and/or third part inspection authorities are also constantly commissioning the finished products and assessing the strict conformity to ordered specifications.

In fact, our ISO 9001 certification stated in Feb 1997 by the International Certification Network (EQNET) is certified by the French Association for Quality Assurance (AFAQ), the well known rigourous and independant accredited European assessor. This certification, under reference AFAQ N° QUAL/ 1997 / 7034, confirms the soundness and the performance of the Quality System we apply for the Design, the Development, the Manufacturing and the Marketing & Sales of all our products.

### **RECOMMENDED ORDERING PARAMETERS**

---

For prompt quotation / supplies, please make sure your inquiries and your orders are securing the following data :

- 1 - International or Special Standard. (Alternatively, the precise usage of the cable.)
- 2 - Constructional details
- 3 - Other requirements
- 4 - Packing
- 5 - Required delivery time
- 6 - Required validity

## 5 HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

### COMMON GENERAL CHARACTERISTICS

#### FIRE PERFORMANCES

FIRE RETARDANT	FLAME RETARDANT
IEC 332 Part 3 NF C 32-070 Cat. C1* (test no 2) + NF C 32-072 BS 4066 Part 3 NBN C 30-004 Cat. F2 UNE 20-427 + UNE 20-432(3) DIN VDE 0472 Teil 804(C) CEI 20-22-3 IEEE 383	IEC 332 Part 1 CENELEC HD 405.1 NF C 32-070 Cat. C2 (test n° 1) BS 4066 Part 1 NBN C 30-004 Cat. F1 UNE 20-432 (1) DIN VDE 0472 Teil 804 (B) CEI 20-35 UL44

LOW SMOKE		NON CORROSIVITY- NON TOXICITY
<b>27 M<sup>3</sup> Chamber test</b>	<b>NBS chamber Test</b>	IEC 754 Part 1 + Part 2 CENELEC HD 602 S1 NF C 32-074 NF C 20-453 + NF C 20-454 BS 6425 Part 1 + LUL UNE 21-147 Part 1 + Part 2 DIN VDE 0472 Teil 813 CEI 20-37
IEC 1034 UITPAPTATest E4 CENELEC HD 606 1/2 S1 NF C 32-073 BS 7622-93 UNE 21172 Draft DIN VDE 0472 Teil 816	NF C 20-902/1 BS 6401-83 CEI 20-37	

\* NF C 32-070 tests are designed for cables diameters: ≤ 70 mm for n°2 test - C1

**CORE IDENTIFICATION :** According to customer requirements



## HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

Conductor sizes (mm <sup>2</sup> )	Current carrying capacities (A) (single circuit ratings)						Voltage drop cos φ = 0.8 (V/Ax km)	
	Cables in free air				Buried cable			
	single core cables <sup>(2)</sup>		≤ 5 cores cables		≤ 5 cores cables		2 <sup>(1)</sup>	3 <sup>(1)</sup>
	2 <sup>(1)</sup>	3 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(1)</sup>		
<b>Copper</b>								
1.5	-	24	26	23	37	31	24.8	21.5
2.5	-	33	36	32	48	41	14.8	12.8
4	-	45	49	42	63	53	9.2	8.0
6	-	58	63	54	80	66	6.2	5.4
10	-	80	86	75	104	87	3.7	3.2
16	-	107	115	100	136	113	2.4	2.1
25	161	135	149	127	173	144	1.6	1.35
35	200	169	185	157	208	174	1.2	1.0
50	242	207	225	192	247	206	-	0.75
70	310	268	289	246	304	254	-	0.55
95	377	328	352	298	360	301	-	0.42
120	437	382	410	346	410	343	-	0.35
150	504	443	473	399	463	387	-	0.30
185	575	509	542	456	518	434	-	0.25
240	679	604	641	538	598	501	-	0.21
300	783	699	741	620	677	565	-	0.20
400	940	839	-	-	-	-	-	0.17
500	1083	958	-	-	-	-	-	0.15
630	1254	1077	-	-	-	-	-	0.14
<b>Aluminium</b>								
16	-	84	91	77	104	87	4.0	3.45
25	121	103	108	97	133	111	2.5	2.2
35	150	129	135	120	160	134	1.9	1.6
50	184	159	164	147	188	160	-	1.22
70	237	209	211	187	233	197	-	0.85
95	289	253	257	227	275	234	-	0.65
120	337	296	300	263	314	266	-	0.52
150	389	343	346	302	359	300	-	0.43
185	447	395	397	346	398	337	-	0.36
240	530	471	470	409	458	388	-	0.29
300	613	547	543	471	520	440	-	0.26
400	740	663	-	-	-	-	-	0.23
500	856	770	-	-	-	-	-	0.21
630	996	899	-	-	-	-	-	0.18

<sup>(1)</sup> Number of loaded conductors - <sup>(2)</sup> Trefoil for 3 single core cables

Multicore cables		Current carrying capacities (A)						Voltage drop cos φ = 0.8 (V/Ax km)	
Installation	C. sizes (mm <sup>2</sup> )	Number of cores							
		7	12	19	24	27	37		
free air	1.5	16	11	9	8	8	7	21.5	
	2.5	21	17	15	14	14	12	12.8	
	4	28	22					8.0	
buried	1.5	21	16	14	12	11	10	21.5	
	2.5	26	21	19	17	16	14	12.8	
	4	34	28					8.0	

### CURRENT RATING GENERAL CONDITIONS

These current data are indicated for continuous duty operation and apply to :

- Maximum conductor temperature **90°C**
- Industrial frequency **50Hz**

- **Cable in free air** (Laying on perforated trays)

- Ambient temperature **30°C**

- **Directly buried cable :**

- Ambient ground temperature **20°C**
- Soil thermal resistivity **1 K.m/W**
- Laying depth **0.7m**

**Current rating ...data according to :**

- IEC 364-5-523 (1983)
- or NFC 15-100 (1991)
- or LIBAN CABLES data

*For other laying conditions, see here above recommendations or standard.*

## 5 HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

### 5.1 - 0.6 / 1 kv Unarmoured Cables

- Halogen free - Low smoke
- Fire retardant

ACCORDING TO :  
NF C 32-323  
IEC 502 (for dimensions)  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

stranded copper or aluminium, class 2  
NF C 32-013 / IEC 228

#### 2 - Insulation

Special XLPE

#### 3 - Filler(optional)

#### 4 - Outer sheath

Halogen free Compound  
Colour : black

#### N.B.:

Colours and other constructional details  
can be according to customer special  
requirements.

#### Sheath marking

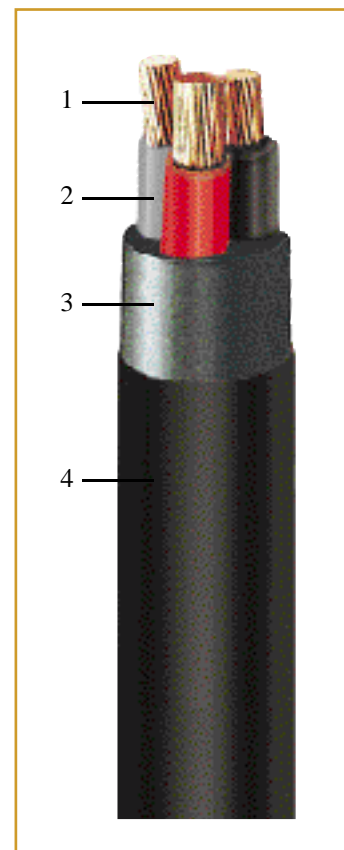
- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area  
(mm<sup>2</sup>)
- Other : as per customer requirements

#### Fire performances :

See page 4

#### Electrical data :

See page 5



## UNARMOURED, HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )		Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
		Min. (mm)	Max. (mm)		
<b>COPPER (c12)</b>					
	1 x 1.5	5.0	6.6	60	60
	1 x 2.5	5.5	7.0	65	70
	1 x 4	6.0	7.6	70	90
	1 x 6	6.5	8.2	75	115
	1 x 10	7.3	9.2	85	160
	1 x 16	8.5	10.5	95	230
	1 x 25	10.2	12.5	115	340
	1 x 35	11.3	13.5	125	440
	1 x 50	12.4	15.0	135	570
	1 x 70	14.3	17.0	155	800
	1 x 95	16.0	19.0	175	1080
	1 x 120	17.5	21.0	190	1340
	1 x 150	19.5	23.0	210	1640
	1 x 185	21.5	25.5	230	2000
	1 x 240	24.5	28.5	260	2700
	1 x 300	27.0	31.0	280	3200
	1 x 400	30.0	34.5	310	4100
	1 x 500	34.0	38.5	350	5100
	1 x 630	38.5	43.0	390	6600
	2 x 1.5	8.8	10.5	65	140
	2 x 2.5	9.6	11.5	70	180
	2 x 4	10.5	13.0	80	240
	2 x 6	11.5	14.0	85	310
	2 x 10	13.0	16.0	100	420
	2 x 16	14.5	18.5	115	600
	2 x 25	17.5	22.0	135	900
	2 x 35	19.5	24.5	150	1150
3 G 1.5	3 x 1.5	9.2	11.0	70	160
3 G 2.5	3 x 2.5	10.0	12.5	75	200
3 G 4	3 x 4	11.0	13.5	85	270
3 G 6	3 x 6	12.0	15.0	90	350
3 G 10	3 x 10	13.5	17.0	105	510
3 G 16	3 x 16	15.5	19.5	120	740
3 G 25	3 x 25	19.0	23.5	145	1110
3 G 35	3 x 35	21.0	26.0	160	1570
	3 x 50	24.5	29.0	175	2070
	3 x 70	28.5	34.0	205	2910
	3 x 95	32.5	38.5	235	3880
	3 x 120	36.0	42.5	255	4870
	3 x 150	40.0	47.5	285	5980
	3 x 185	44.5	53.0	320	7370
	3 x 240	50.5	59.5	360	9700
	3 x 300	56.0	66.0	400	12000

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

### INSTALLATION

These cables will be installed according to the wiring regulations and installation standards in operation

**Laying temperature :** In case of laying between 0 and -10°C, it is advised to warm up again the cables in a hot room 48 hours minimum before installation.

Use of these cables should be limited to short lengths when buried in soil non saturated with water.



## UNARMOURED, HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )		Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
		Min. (mm)	Max. (mm)		
<b>COPPER (c12)</b>					
3 x 50 + 25		26.6	31.1	190	2460
3 x 70 + 50		31.1	36.2	220	3420
3 x 95 + 50		34.7	40.6	245	4360
3 x 120 + 70		38.9	45.4	275	5600
3 x 150 + 70		42.6	49.5	300	6670
3 x 185 + 70		47.1	54.4	330	7980
3 x 240 + 95		53.2	61.5	370	10500
4 G 1.5	4 x 1.5	9.8	12.0	75	190
4 G 2.5	4 x 2.5	10.5	13.0	80	240
4 G 4	4 x 4	12.0	14.5	90	320
4 G 6	4 x 6	13.0	16.0	100	430
4 G 10	4 x 10	15.0	18.5	115	630
4 G 16	4 x 16	17.0	21.0	130	930
4 G 25	4 x 25	20.5	25.5	155	1420
4 G 35	4 x 35	23.0	28.5	175	1990
	4 x 50	27.0	32.5	195	2480
	4 x 70	31.5	37.5	225	3700
	4 x 95	36.0	42.5	255	4690
	4 x 120	40.0	47.5	285	6210
	4 x 150	44.5	52.5	315	7650
	4 x 185	50.0	59.0	355	9420
	4 x 240	56.5	66.5	400	12400
	4 x 300	62.5	73.5	445	15300
5 G 1.5	5 x 1.5	10.5	13.0	80	220
5 G 2.5	5 x 2.5	11.5	14.5	90	290
5 G 4	5 x 4	13.0	16.0	100	390
5 G 6	5 x 6	14.0	17.5	105	530
5 G 10	5 x 10	16.5	20.0	120	780
5 G 16	5 x 16	18.5	23.0	140	1140
5 G 25	5 x 25	23.0	28.0	170	1750
7 G 1.5	7 x 1.5	11.5	13.5	85	250
7 G 2.5	7 x 2.5	12.5	15.0	90	390
7 G 4	7 x 4	13.5	16.5	100	530
	10 x 1.5	14.5	16.5	100	420
	10 x 2.5	15.5	19.0	115	560
12 G 1.5	12 x 1.5	14.5	17.0	105	420
12 G 2.5	12 x 2.5	16.0	19.5	120	650
12 G 4	12 x 4	17.5	21.5	130	890
	14 x 1.5	15.0	18.0	110	500
	14 x 2.5	17.0	20.5	125	670
19 G 1.5	19 x 1.5	17.0	19.5	120	620
19 G 2.5	19 x 2.5	19.0	22.5	135	840
27 G 1.5	27 x 1.5	20.0	23.0	140	870
27 G 2.5	27 x 2.5	22.5	27.0	165	
37 G 1.5	37 x 1.5	22.5	25.5	155	1110
37 G 2.5	37 x 2.5	25.0	29.5	180	1680

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

## UNARMOURED, HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )		Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
		Min. (mm)	Max. (mm)		
Aluminium (cl2)	1 x 16	8.5	10.5	95	130
	1 x 25	10.2	12.5	115	180
	1 x 35	11.3	13.5	125	220
	1 x 50	12.4	15.0	135	270
	1 x 70	14.3	17.0	155	340
	1 x 95	16.0	19.0	175	460
	1 x 120	17.5	21.0	190	550
	1 x 150	19.5	23.0	210	640
	1 x 185	21.5	25.5	230	790
	1 x 240	24.5	28.5	260	990
	1 x 300	27.0	31.0	280	1230
	1 x 400	30.0	34.5	310	1550
	1 x 500	34.0	38.5	350	2000
1 x 630	38.5	43.0	390	2540	
	2 x 16	14.5	18.5	115	360
	2 x 25	17.5	22.0	135	530
	2 x 35	19.4	24.5	150	660
3 G 16	3 x 16	15.5	19.5	120	420
3 G 25	3 x 25	19.0	23.5	145	620
3 G 35	3 x 35	21.0	26.0	160	770
3 G 50	3 x 50	24.5	29.0	175	970
	3 x 70	28.5	34.0	205	1330
	3 x 95	32.5	38.5	235	1710
	3 x 120	36.0	42.5	255	2120
	3 x 150	40.0	47.5	285	2590
	3 x 185	44.5	53.0	320	3240
	3 x 240	50.5	59.5	360	4080
	3 x 300	56.0	66.0	400	5090
	3 x 50 + 35	26.6	31.1	190	1130
	3 x 70 + 50	31.1	36.2	220	1600
	3 x 95 + 50	34.7	40.6	245	1890
	3 x 120 + 70	38.9	45.4	275	2400
	3 x 150 + 70	42.6	49.5	300	2840
	3 x 185 + 70	47.1	54.4	330	3430
	3 x 240 + 95	53.2	61.5	370	4320
4 G 16	4 x 16	17.0	21.0	130	510
4 G 25	4 x 25	20.5	25.5	155	750
4 G 35	4 x 35	23.0	28.5	175	940
4 G 50	4 x 50	27.0	32.5	195	1180
	4 x 70	31.5	37.5	225	1630
	4 x 95	36.0	42.5	255	2110
	4 x 120	40.0	47.5	285	2610
	4 x 150	44.5	52.5	315	3210
	4 x 185	50.0	59.0	355	4010
	4 x 240	56.5	66.5	400	5030
	4 x 300	62.5	73.5	445	6280

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available



## 5 HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

### 5.2 - 0.6 / 1 kv Armoured (by tapes)

- Halogen free - Low smoke
- Fire retardant

ACCORDING TO :  
NF C 32-323  
IEC 502 (for dimensions)  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

Bare copper :

- ( $\leq 4 \text{ mm}^2$ ) Copper :  
Solid-class 1 or stranded class 2
- ( $\geq 6 \text{ mm}^2$ ) Stranded copper or  
aluminium, class 2  
NF C 32-013 / IEC 228

#### 2 - Insulation

Special XLPE

#### 3 - Filler (optional) + Innersheath

Halogen free Compound  
Colour : black

#### 4 - Armour

- Black or galvanized steel tapes  
(aluminium tapes for single core  
cables)

#### 5 - Outersheath:

Halogen free Compound  
Colour : black

#### N.B.:

Colours and other constructional details  
can be according to customer special  
requirements.

#### Sheath marking

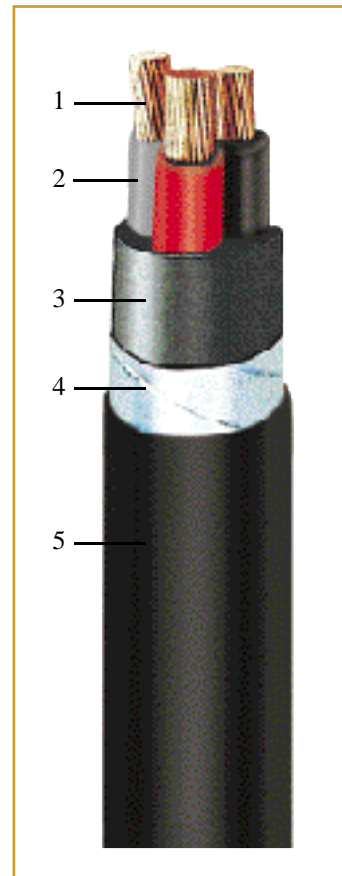
- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area  
( $\text{mm}^2$ )
- Other : as per customer requirements

#### Fire performances :

See page 4

#### Electrical data :

See page 5



## ARMoured (BY TAPES), HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)		Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)	
	Min. (mm)	Max. (mm)		Copper	Alu		Min. (mm)	Max. (mm)		Copper	Alu
2 x 1.5	10.5	14.5	120	250		4 x 1.5	11.5	16.0	130	320	
2 x 2.5	11.0	15.5	125	290		4 x 2.5	12.5	17.0	140	390	
2 x 4	12.0	17.0	140	350		4 x 4	13.5	18.5	150	490	
2 x 6	13.5	18.0	145	450		4 x 6	15.0	20.0	160	620	
2 x 10	15.0	20.0	160	600		4 x 10	17.0	22.5	180	860	
2 x 16	17.0	22.5	180	800	520	4 x 16	19.5	25.5	205	1 200	690
2 x 25	20.0	26.5	220	1 150	740	4 x 25	23.0	30.0	240	1 750	980
2 x 35	22.5	29.0	235	1 500	890	4 x 35	26.0	33.5	270	2 300	1 200
						4 x 50	29.5	37.5	300	2 950	1 490
						4 x 70	36.5	44.5	360	4 500	2 400
3 x 1.5	11.0	15.0	120	270		4 x 95	40.5	50.0	400	5 800	2 980
3 x 2.5	11.5	16.5	135	330		4 x 120	45.5	55.0	440	7 200	3 640
3 x 4	12.5	17.5	140	420		4 x 150	49.5	60.5	485	8 800	4 380
3 x 6	14.0	19.0	155	520		4 x 185	54.5	67.0	540	10 600	5 250
3 x 10	16.0	21.0	170	700		4 x 240	61.5	75.0	600	13 800	6 450
3 x 16	17.5	23.5	190	980	580	4 x 300	67.5	82.5	660	17 000	7 900
3 x 25	21.0	28.0	225	1 400	830						
3 x 35	23.5	30.5	245	1 800	1 010	4 G 1.5	11.5	16.0	130	320	
3 x 50	27.0	34.0	275	2 350	1 250	4 G 2.5	12.5	17.0	140	390	
3 x 70	32.0	39.0	315	3 200	1 670	4 G 4	13.5	18.5	150	490	
3 x 95	36.5	45.5	365	4 550	2 510	4 G 6	15.0	20.0	160	620	
3 x 120	40.5	50.0	400	5 700	3 020	4 G 10	17.0	22.5	180	860	
3 x 150	45.0	55.0	440	6 900	3 650	4 G 16	19.5	25.5	205	1 200	690
3 x 185	49.5	60.5	485	8 400	4 380	4 G 25	23.0	30.0	240	1 750	980
3 x 240	56.0	67.5	540	10 600	5 350	4 G 35	26.0	33.5	270	2 300	1 200
3 x 300	61.0	74.5	600	13 000	6 600	4 G 50	29.5	37.5	300	2 950	1 490
3 G 1.5	11.0	15.0	120	270		5 G 1.5	12.5	17.0	140	360	
3 G 2.5	11.5	16.5	135	330		5 G 2.5	13.5	18.5	150	440	
3 G 4	12.5	17.5	140	420		5 G 4	14.5	20.0	160	560	
3 G 6	14.0	19.0	155	520		5 G 6	16.5	21.5	175	720	
3 G 10	16.0	21.0	170	700		5 G 10	19.5	24.5	200	1 000	
3 G 16	17.5	23.5	190	980	580	5 G 16	22.5	27.5	220	1 400	
3 G 25	21.0	28.0	225	1 400	830	5 G 25	25.5	33.0	265	2 100	
3 G 35	23.5	30.5	245	1 800	1 010						
3 G 50	27.0	34.0	275	2 350	1 250	7 G 1.5	14.0	17.5	140	420	
						12 G 1.5	17.0	21.0	170	660	
3x50+35	29.0	36.0	290	2 800	1 440	19 G 1.5	19.5	23.5	190	850	
3x70+50	34.0	41.5	335	3 800	1 930	27 G 1.5	23.0	27.5	220	1 200	
3x95+50	38.0	47.5	380	5 200	2 710	37 G 1.5	25.5	30.0	240	1 450	
3x120+70	42.5	52.5	420	6 500	3 290						
3x150+70	46.5	57.0	460	7 600	3 890	7 G 2.5	15.0	19.0	155	540	
3x185+70	50.5	62.5	500	9 000	4 560	12 G 2.5	19.0	23.5	190	830	
3x240+95	57.5	70.0	560	12 000	5 650	19 G 2.5	21.5	27.0	220	1 150	
						27 G 2.5	25.5	31.5	255	1 700	
						37 G 2.5	28.5	34.5	280	2 000	

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

### INSTALLATION

These cables will be installed according to the wiring regulations and installation standards in operation

**Laying temperature :** In case of laying between 0 and -10°C, it is advised to warm up again the cables in a hot room 48 hours minimum before installation.

## 5 HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

### 5.3 - 0.6 / 1 kv Steel Wire Armoured

- Halogen free - Low smoke
- Fire retardant

ACCORDING TO :  
IEC 502 (for dimensions)  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

Bare copper :

- ( $\leq 4 \text{ mm}^2$ ) Copper :  
Solid-class 1 or stranded class 2
- ( $\geq 6 \text{ mm}^2$ ) Stranded Copper or  
aluminium, class 2  
NFC 32-013 / IEC 228

#### 2 - Insulation

Special XLPE

#### 3 - Filler(optional) + Innersheath

Halogen free polyolefin

#### 4 - Armour

- Single layer of galvanized steel  
wires (aluminium wire for single core  
cables)

#### 5 - Outer sheath:

Halogen free polyolefin  
Colour : black

#### N.B.:

Colours and other constructional details  
can be according to customer special  
requirements.

#### Sheath marking

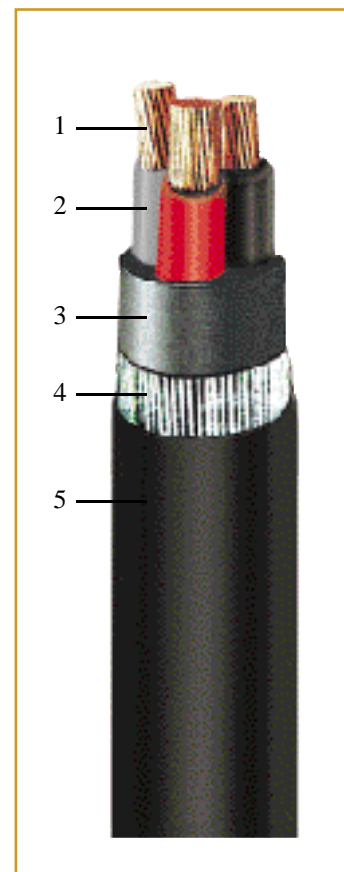
- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area  
( $\text{mm}^2$ )
- Other : as per customer requirements

#### Fire performances :

See page 4

#### Electrical data :

See page 5





## ARMoured (STEELWIRES), HALOGEN FREE, LOW SMOKE, FIRE RETARDANT CABLES

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)		Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)	
	Min. (mm)	Max. (mm)		Copper	Alu		Min. (mm)	Max. (mm)		Copper	Alu
2 x 1.5	12.0	16.0	160	340		4 x 1.5	13.0	17.5	175	410	
2 x 2.5	12.5	17.5	175	390		4 x 2.5	14.0	18.5	185	490	
2 x 4	13.5	18.5	185	470		4 x 4	16.0	21.0	210	720	
2 x 6	15.0	20.0	200	570		4 x 6	17.5	22.5	225	870	
2 x 10	17.0	22.0	220	880		4 x 10	19.5	25.0	250	1 140	
2 x 16	19.5	26.0	260	1 120	730	4 x 16	23.0	29.0	290	1 650	950
2 x 25	23.5	30.0	300	1 700	1090	4 x 25	27.0	34.0	340	2 300	1 290
2 x 35	25.5	32.0	320	2 000	1190	4 x 35	30.0	37.5	375	2 850	1 500
						4 x 50	33.5	41.5	415	3 850	1 950
						4 x 70	38.5	46.5	465	5 100	2 720
3 x 1.5	12.5	16.5	165	370		4 x 95	43.0	52.5	525	6 550	3 370
3 x 2.5	13.0	18.5	185	430		4 x 120	48.5	58.0	580	8 500	4 300
3 x 4	14.0	19.0	190	510		4 x 150	53.0	64.0	640	10 100	5 030
3 x 6	16.0	21.0	210	780		4 x 185	58.0	70.5	705	12 000	5 950
3 x 10	18.0	23.0	230	980		4 x 240	65.5	79.0	790	15 200	7 100
3 x 16	20.5	26.5	265	1 290	770	4 x 300	70.5	85.5	855	18 500	8 600
3 x 25	25.0	32.0	320	1 940	1 150						
3 x 35	27.0	34.0	340	2 390	1 340	4 G 1.5	13.0	17.5	175	410	
3 x 50	30.0	37.0	370	3 000	1 600	4 G 2.5	14.0	18.5	185	490	
3 x 70	35.0	42.0	420	4 250	2 220	4 G 4	16.0	21.0	210	720	
3 x 95	39.0	48.0	480	5 400	2 980	4 G 6	17.5	22.5	225	870	
3 x 120	42.5	52.0	520	6 500	3 450	4 G 10	19.5	25.0	250	1 140	
3 x 150	48.0	58.0	580	8 500	4 500	4 G 16	23.0	29.0	290	1 650	950
3 x 185	53.0	63.0	630	10 000	5 220	4 G 25	27.0	34.0	340	2 300	1 290
3 x 240	59.0	70.5	710	12 400	6 260	4 G 35	30.0	37.5	375	2 850	1 500
3 x 300	64.0	76.0	760	15 000	7 620	4 G 50	33.5	41.5	415	3 850	1 950
3 G 1.5	12.5	16.5	165	370		5 G 1.5	14.0	18.5	185	460	
3 G 2.5	13.0	18.5	185	430		5 G 2.5	15.0	20.0	200	560	
3 G 4	14.0	19.0	190	510		5 G 4	17.0	22.5	225	800	
3 G 6	16.0	21.0	210	780		5 G 6	19.0	24.0	240	1 000	
3 G 10	18.0	23.0	230	980		5 G 10	21.5	26.5	265	1 450	
3 G 16	20.5	26.5	265	1 290	770	5 G 16	24.5	29.5	295	1 930	
3 G 25	25.0	32.0	320	1 940	1 150	5 G 25	29.5	37.0	370	2 720	
3 G 35	27.0	34.0	340	2 390	1 340						
3 G 50	30.0	37.0	370	3 000	1 600	7 G 1.5	14.5	18.5	185	550	
						12 G 1.5	19.0	23.0	230	920	
3x50+35	33.0	40.0	400	3 700	1 900	19 G 1.5	22.0	26.0	360	1 300	
3x70+50	37.5	45.0	450	4 850	2 470	37 G 1.5	27.5	32.0	320	2 050	
3x95+50	41.0	50.5	505	5 900	3 080						
3x120+70	46.0	56.0	560	7 700	3 900	7 G 2.5	16.5	20.5	205	770	
3x150+70	50.0	60.5	605	9 000	4 610	12 G 2.5	20.5	25.0	250	1 150	
3x185+70	54.0	66.0	660	10 500	5 320	19 G 2.5	24.0	29.5	295	1 650	
3x240+95	61.0	73.5	735	13 300	6 260	37 G 2.5	31.0	37.0	370	2 600	

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

### INSTALLATION

These cables will be installed according to the wiring regulations and installation standards in operation

**Laying temperature :** In case of laying between 0 and -10°C, it is advised to warm up again the cables in a hot room 48 hours minimum before installation.

## 6 HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

### COMMON GENERAL CHARACTERISTICS

#### FIRE PERFORMANCES

FIRE RESISTANT	FIRE RETARDANT	FLAME RETARDANT
IEC 331 BS 6387 Cat. CWZ UNE 20-431 DIN VDE 0472 Teil 814(180 mm)	IEC 332 Part 3 NF C 32-070 Cat. C1* (test n°2) + NF C 2-072 BS 4066 Part 3 NBN C 30-004 Cat. F2 UNE 20-427 + UNE 20-432 (3) DIN VDE 0472 Teil 804 (C) CEI 20-22-3 IEEE 383	IEC 332 Part 1 CENELEC HD 405.1 NF C 32-070 Cat. C2 (test n° 1) BS 4066 Part 1 NBN C 30-004 Cat. F1 UNE 20-432 (1) DIN VDE 0472 Teil 804 (B) CEI 20-35 UL44

LOW SMOKE		NON CORROSIVITY- NON TOXICITY
<b>27 M<sup>3</sup> Chamber test</b>	<b>NBS chamber Test</b>	IEC 754 Part 1 + Part 2 CENELEC HD 602 S1 NF C 32-074 NF C 20-453 + NF C 20-454 BS 6425 Part 1 + LUL UNE 21-147 Part 1 + Part 2 DIN VDE 0472 Teil 813 CEI 20-37
IEC 1034 UITP APTA Test E4 CENELEC HD 606 1/2 S1 NF C 32-073 BS 7622-93 UNE 21172 (Draft) DIN VDE 0472 Teil 816	NF C 20-902/1 BS 6401-83 CEI 20-37	

\* NF C 32-070 tests are designed for cables diameters: ≤ 70 mm for n°2 test - C1

**CORE IDENTIFICATION :** According to customer requirements

## HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

Conductor sizes (mm <sup>2</sup> )	Current carrying capacities (A) (single circuit ratings)						Voltage drop cos φ = 0.8 (V/Ax km)	
	Cables in free air				Buried cable			
	single core cables <sup>(2)</sup>		≤ 5 cores cables		≤ 5 cores cables		2 <sup>(1)</sup>	3 <sup>(1)</sup>
	2 <sup>(1)</sup>	3 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(1)</sup>	2 <sup>(1)</sup>	3 <sup>(1)</sup>
<b>Copper</b>								
1.5	-	24	26	23	37	31	24.8	21.5
2.5	-	33	36	32	48	41	14.8	12.8
4	-	45	49	42	63	53	9.2	8.0
6	-	58	63	54	80	66	6.2	5.4
10	-	80	86	75	104	87	3.7	3.2
16	-	107	115	100	136	113	2.4	2.1
25	161	135	149	127	173	144	1.6	1.35
35	200	169	185	157	208	174	1.2	1.0
50	242	207	225	192	247	206	-	0.75
70	310	268	289	246	304	254	-	0.55
95	377	328	352	298	360	301	-	0.42
120	437	382	410	346	410	343	-	0.35
150	504	443	473	399	463	387	-	0.30
185	575	509	542	456	518	434	-	0.25
240	679	604	641	538	598	501	-	0.21
300	783	699	741	620	677	565	-	0.20
400	940	839	-	-	-	-	-	0.17
500	1083	958	-	-	-	-	-	0.15
630	1254	1077	-	-	-	-	-	0.14

<sup>(1)</sup> Number of loaded conductors - <sup>(2)</sup> Trefoil for 3 single core cables

Multicore cables		Current carrying capacities (A)						Voltage drop cos φ = 0.8 (V/Ax km)	
Installation	C. sizes (mm <sup>2</sup> )	Number of cores							
		7	12	19	24	27	37		
free air	1.5	16	11	9	8	8	7	21.5	
	2.5	21	17	15	14	14	12	12.8	
	4	28	22					8.0	
buried	1.5	21	16	14	12	11	10	21.5	
	2.5	26	21	19	17	16	14	12.8	
	4	34	28					8.0	

### CURRENT RATING GENERAL CONDITIONS

These current data are indicated for continuous duty operation and apply to :

- Maximum conductor temperature **90°C**
- Industrial frequency **50Hz**

- **Cable in free air** (Laying on perforated trays)

- Ambient temperature **30°C**

- **Directly buried cable :**

- Ambient ground temperature **20°C**
- Soil thermal resistivity **1 K.m/W**
- Laying depth **0.7m**

**Current rating ...data according to :**

- IEC 364-5-523 (1983)
- or NFC 15-100 (1991)
- or LIBAN CABLES data

*For other laying conditions, see here above recommendations or standard.*

## 6 HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

### 6.1 - 0.6 / 1 kv Unarmoured

- Halogen free - Low smoke
- Fire resistant, Fire retardant

ACCORDING TO :  
NF C 32-323  
IEC 502 (for dimensions)  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

Bare copper :

- solid-class 1 ( $\leq 4 \text{ mm}^2$ )
  - stranded-class 2 ( $\geq 6 \text{ mm}^2$ )
- NF C 32-013 / IEC 228

#### 2 - Mica tape

#### 3 - Insulation

Special XLPE

#### 4 - Filler(optional)

#### 5 - Outer sheath

Halogen free compound,  
Colour : black

#### N.B.:

Colours and other constructional details can be according to customer special requirements.

#### Sheath marking

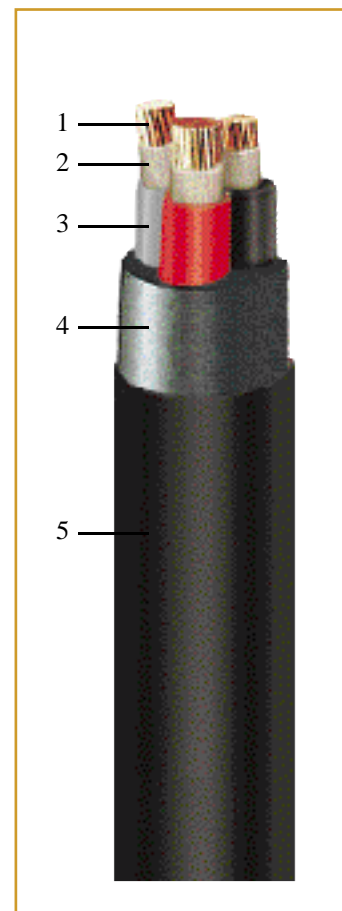
- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area ( $\text{mm}^2$ )
- Other : as per customer requirements

#### Fire performances :

See page 18

#### Electrical data :

See page 19



### INSTALLATION

These cables will be installed according to the wiring regulations and installation standards in operation.

The use of these cables will be limited to short lengths when buried in soil non-saturated with water.

**Laying temperature** : in case of laying between 0 and  $-10^{\circ}\text{C}$ , it is advised to warm up again the cables in a hot room 48 hours minimum before installation.

## UNARMoured, HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)	Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
	Min. (mm)	Max. (mm)				Min. (mm)	Max. (mm)		
1 x 1.5	5.8	6.6	60	70	3 x 50 + 35	27.5	31.1	190	2 530
1 x 2.5	6.0	7.0	65	80	3 x 70 + 50	32.0	36.2	220	3 500
1 x 4	6.6	7.6	70	110	3 x 95 + 50	35.0	40.6	245	4 440
1 x 6	7.0	8.2	75	120	3x120+70	39.5	45.4	275	5 690
1 x 10	8.0	9.2	80	170	3x150+70	43.0	49.5	300	6 770
1 x 16	8.7	10.5	90	230	3x185+70	47.1	54.4	330	8 080
1 x 25	10.8	12.5	110	340	3x240+95	53.2	61.5	370	10 700
1 x 35	11.8	13.5	120	440					
1 x 50	12.9	15.0	130	600	4G 1.5	9.8	12.0	75	220
1 x 70	14.7	17.0	150	820	4 G 2	12.1	13.3	80	290
1 x 95	16.5	19.0	170	1 100	4 G 4	13.1	14.5	90	380
1 x 120	18.0	21.0	180	1 370	4 G 6	14.7	16.0	100	500
1 x 150	20.0	23.0	200	1 670	4 G 10	16.5	18.0	110	720
1 x 185	22.0	25.5	220	2 040	4 G 16	17.0	21.0	130	1 000
1 x 240	24.5	28.5	250	2 680	4 G 25	23.0	25.5	160	1 580
1 x 300	27.0	31.0	280	3 500					
1 x 400	30.5	34.5	310	4 440	4 x 1.5	9.8	12.0	75	220
1 x 500	34.0	38.5	350	6 710	4 x 2	12.1	13.3	80	290
1 x 630	38.5	43.0	390	7 190	4 x 4	13.1	14.5	90	380
					4 x 6	14.7	16.0	100	500
					4 x 10	16.5	18.0	110	720
2 x 1.5	8.8	10.5	65	170	4 x 16	17.0	21.0	130	1 000
2 x 2.5	10.6	11.7	70	210	4 x 25	23.0	25.5	160	1 580
2 x 4	11.5	12.7	80	270	4 x 35	25.5	28.5	170	2 050
2 x 6	12.9	14.1	85	350	4 x 50	28.0	32.5	195	2 690
2 x 10	14.4	16.0	100	480	4 x 70	33.0	37.5	225	3 780
2 x 16	16.5	18.5	110	670	4 x 95	37.0	42.5	255	5 060
2 x 25	19.5	22.0	130	1 000	4 x 120	41.0	47.5	285	6 310
2 x 35	21.5	24.0	150	1 280	4 x 150	45.5	52.5	315	7 770
					4 x 185	51.0	59.0	355	9 550
					4 x 240	57.5	66.5	400	12 600
					4 x 300	63.0	73.5	440	15 500
3 G 1.5	9.2	11.0	70	190					
3 G 2.5	10.0	12.5	75	240	5 G 1.5	10.5	13.0	80	270
3 G 4	12.2	13.4	80	320	5 G 2.5	11.5	14.5	90	340
3 G 6	13.2	14.6	90	410	5 G 4	14.0	16.0	100	450
3 G 10	15.0	17.0	100	590	5 G 6	14.0	17.5	110	590
3 G 16	17.5	19.5	120	840	5 G 10	18.0	20.0	120	860
3 G 25	21.0	23.5	140	1 250	5 G 16	18.5	23.0	140	1 230
					5 G 25	25.5	28.0	170	1 900
3 x 1.5	9.2	11.0	70	190					
3 x 2.5	10.0	12.5	75	240	7 G 1.5	13.0	14.2	85	330
3 x 4	12.2	13.4	80	320	7 G 2.5	14.1	15.5	95	430
3 x 6	13.2	14.6	90	410	7 G 4	15.5	17.0	100	570
3 x 10	15.0	17.0	100	590					
3 x 16	17.5	19.5	120	840	12 G 1.5	16.5	18.5	110	540
3 x 25	21.0	23.5	140	1 250	12 G 2.5	18.0	20.0	120	720
3 x 35	23.0	26.0	160	1 640	12 G 4	20.0	22.0	130	970
3 x 50	25.5	29.0	175	2 130					
3 x 70	29.5	34.0	205	2 980	19 G 1.5	19.0	21.5	130	750
3 x 95	33.5	38.5	230	3 960	19 G 2.5	21.0	23.5	140	1 010
3 x 120	37.0	42.5	255	4 960	19 G 4	23.5	26.0	160	1 410
3 x 150	41.0	47.5	285	6 080					
3 x 185	45.5	53.0	320	7 480	37 G 1.5	25.5	28.5	170	1 370
3 x 240	51.5	59.5	360	9 830	37 G 2.5	28.0	31.0	190	1 870
3 x 300	56.5	66.0	400	12 100					

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

## 6 HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

### 6.2 - 0.6 / 1 kv Armoured (tapes)

- Halogen free - Low smoke
- Fire resistant, Fire retardant

ACCORDING TO :  
NF C 32-323  
IEC 502 (for dimensions)  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

Bare copper :

- solid-class 1 ( $\leq 4 \text{ mm}^2$ )
- stranded-class 2 ( $\geq 6 \text{ mm}^2$ )

NF C 32-013 / IEC 228

#### 2 - Mica tape

#### 3 - Insulation

Special XLPE

#### 4 - Filler(optional) + Innersheath

Halogen free polyolefin

#### 5 - Armour

Black or galvanized steel tapes  
(Aluminium tapes for single core  
cables)

#### 6 - Outer sheath

Halogen free compound  
Colour : black

#### N.B.:

Colours and other constructional details  
can be according to customer special  
requirements.

#### Sheath marking

- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area  
( $\text{mm}^2$ )
- Other : as per customer requirements

#### Fire performances :

See page 18

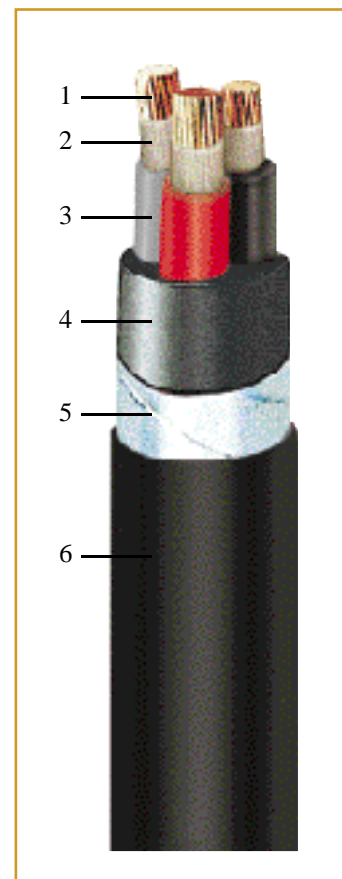
#### Electrical data :

See page 19

### INSTALLATION

These cables will be installed according to the wiring regulations and installation standards in operation

**Laying temperature** : in case of laying between 0 and  $-10^\circ\text{C}$ , it is advised to warm up again the cables in a hot room 48 hours minimum before installation.



## ARMOURED (BY TAPES), HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)	Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
	Min. (mm)	Max. (mm)				Min. (mm)	Max. (mm)		
2 x 1.5	10.5	14.5	120	270	4 x 1.5	11.05	16.0	130	340
2 x 2.5	11.0	15.5	125	320	4 x 2.5	12.5	17.0	140	430
2 x 4	12.0	17.0	140	380	4 x 4	13.5	18.5	150	530
2 x 6	13.5	18.0	145	500	4 x 6	15.0	20.0	160	680
2 x 10	15.0	20.0	160	650	4 x 10	17.0	22.5	180	930
2 x 16	17.0	22.5	180	870	4 x 16	19.5	25.5	205	1 300
2 x 25	20.0	26.5	220	1 190	4 x 25	23.0	30.0	240	1 880
2 x 35	22.5	29.0	235	1 560	4 x 35	26.0	33.5	270	2 400
					4 x 50	29.5	37.5	300	3 090
					4 x 70	36.5	44.5	360	4 700
					4 x 95	40.5	50.0	400	6 000
					4 x 120	45.5	55.0	440	7 500
3 G 1.5	11.0	15.0	120	290	4 x 150	49.5	60.5	485	9 100
3 G 2.5	11.5	16.5	135	360	4 x 185	54.5	67.0	540	9 900
3 G 4	12.5	17.5	140	460	4 x 240	61.5	75.0	600	14 300
3 G 6	14.0	19.0	155	560	4 x 300	67.5	82.5	660	17 600
3 G 10	16.0	21.0	170	750					
3 G 16	17.5	23.5	190	1030	5 G 1.5	12.5	17.0	140	390
3 G 25	21.0	28.0	225	1450	5 G 2.5	13.5	18.5	150	480
					5 G 4	14.5	20.0	160	610
3 x 1.5	11.0	15.0	120	290	5 G 6	16.5	21.5	175	790
3 x 2.5	11.5	16.5	135	360	5 G 10	19.5	24.5	200	1 090
3 x 4	12.5	17.5	140	460	5 G 16	22.5	27.5	220	1 510
3 x 6	14.0	19.0	155	560	5 G 25	25.5	33.0	265	2 230
3 x 10	16.0	21.0	170	750					
3 x 16	17.5	23.5	190	1030	3x50+35	29.0	36.0	290	2 920
3 x 25	21.0	28.0	225	1450	3x70+50	34.0	41.5	335	4 000
3 x 35	23.5	30.5	245	1850	3x95+50	38.0	47.5	380	5 420
3 x 50	27.0	34.0	275	2400	3x120+70	42.5	52.5	420	6 770
3 x 70	32.0	39.0	315	3280	3x150+70	46.5	57.0	460	8 000
3 x 95	36.5	45.5	365	4650	3x185+70	50.5	62.5	500	9 430
3 x 120	40.5	50.5	400	5800	3x240+95	57.5	70.0	560	12 500
3 x 150	45.0	55.0	440	7150					
3 x 185	49.5	60.5	485	8600	7 G 1.5	14.0	17.5	140	450
3 x 240	56.0	67.5	540	10800	7 G 2.5	15.0	19.0	155	580
3 x 300	61.0	74.5	600	13300	7 G 4	16.5	21.5	170	760
					12 G 1.5	17.0	21.0	170	710
					12 G 2.5	19.0	23.5	190	900
					12 G 4	21.0	26.5	210	1 130
					19 G 1.5	19.5	23.5	190	990
4 G 1.5	11.5	16.0	130	340	19 G 2.5	21.5	27.0	220	1 300
4 G 2.5	12.5	17.0	140	430	19 G 4	26.0	29.0	230	1 720
4 G 4	13.5	18.5	150	530					
4 G 6	15.0	20.0	160	680					
4 G 10	17.0	22.5	180	930					
4 G 16	19.5	25.5	205	1 300	37 G 1.5	25.5	30.0	240	1 700
4 G 25	23.0	30.0	240	1 880	37 G 2.5	28.5	34.5	280	2 270

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

## 6 HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

### 6.3 - 0.6 / 1 kv Steel wire Armoured

- Halogen free - Low smoke
- Fire resistant, Fire retardant

ACCORDING TO :  
IEC 502 (for dimensions)  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

Bare copper :

- solid-class 1 ( $\leq 4 \text{ mm}^2$ )
  - stranded-class 2 ( $\geq 6 \text{ mm}^2$ )
- NFC 32-013 / IEC 228

#### 2 - Mica tape

#### 3 - Insulation

Special XLPE

#### 4 - Filler(optional) + Innersheath

Halogen free polyolefin

#### 5 - Armour

- Single layer of galvanized steel wires (Aluminium wires for single core cables)

#### 6 - Outer sheath

Halogen free compound  
Colour : black

#### N.B.:

Colours and other constructional details can be according to customer special requirements.

#### Sheath marking

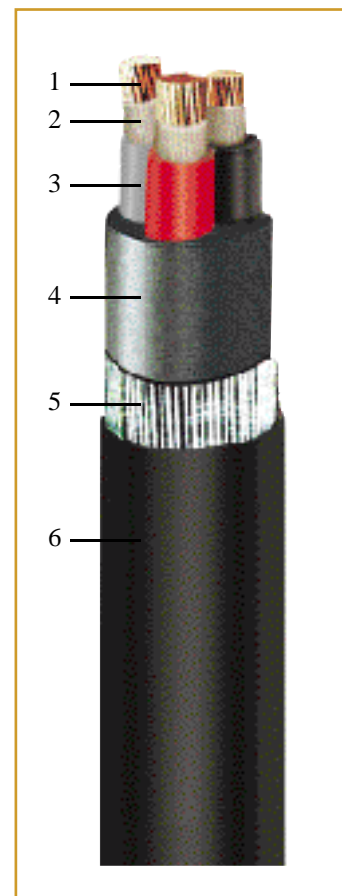
- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area ( $\text{mm}^2$ )
- Other : as per customer requirements

#### Fire performances :

See page 18

#### Electrical data :

See page 19



### INSTALLATION

These cables will be installed according to the wiring regulations and installation standards in operation

**Laying temperature** : in case of laying between 0 and  $-10^{\circ}\text{C}$ , it is advised to warm up again the cables in a hot room 48 hours minimum before installation.



**ARMOURED ( STEELWIRES ), HALOGEN FREE, LOW SMOKE,  
FIRE RESISTANT CABLES**

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)	Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
	Min. (mm)	Max. (mm)				Min. (mm)	Max. (mm)		
2 x 1.5	12.0	16.0	160	360	4 x 1.5	13.0	17.5	175	440
2 x 2.5	12.5	17.5	175	420	4 x 2.5	14.0	18.5	185	540
2 x 4	13.5	18.5	185	510	4 x 4	16.0	21.0	210	780
2 x 6	15.0	20.0	200	620	4 x 6	17.5	22.5	225	940
2 x 10	17.0	22.0	220	950	4 x 10	19.5	25.0	250	1 220
2 x 16	19.5	26.0	260	1 200	4 x 16	23.0	29.0	290	1 850
2 x 25	23.5	30.0	300	1 800	4 x 25	27.0	34.0	340	2 500
2 x 35	25.5	32.0	320	2 150	4 x 35	30.0	37.5	375	3 020
					4 x 50	33.5	41.5	415	4 050
					4 x 70	38.5	46.5	465	5 300
					4 x 95	43.0	52.5	525	6 800
3 G 1.5	12.5	16.5	165	390	4 x 120	48.5	58.0	580	8 850
3 G 2.5	13.0	18.5	185	460	4 x 150	53.0	64.0	640	10 600
3 G 4	14.0	19.0	190	520	4 x 185	58.0	70.5	705	12 500
3 G 6	16.0	21.0	210	840	4 x 240	65.5	79.0	790	15 800
3 G 10	18.0	23.0	230	1 050	4 x 300	70.5	85.5	855	19 200
3 G 16	20.5	26.5	265	1 360					
3 G 25	25.0	32.0	320	2 100	5 G 1.5	14.0	18.5	185	490
					5 G 2.5	15.0	20.0	200	600
					5 G 4	17.0	22.5	225	890
3 x 1.5	12.5	16.5	165	390	5 G 6	19.0	24.0	240	1 100
3 x 2.5	13.0	18.5	185	460	5 G 10	21.5	26.5	265	1 550
3 x 4	14.0	19.0	190	520	5 G 16	24.5	29.5	295	2 050
3 x 6	16.0	21.0	210	840	5 G 25	29.5	37.0	370	2 870
3 x 10	18.0	23.0	230	1 050					
3 x 16	20.5	26.5	265	1 360	3x50+35	33.0	40.0	400	3 900
3 x 25	25.0	32.0	320	2 100	3x70+50	37.5	45.0	450	5 070
3 x 35	27.0	34.0	340	2 520	3x95+50	41.0	50.5	505	6 200
3 x 50	30.0	37.0	370	3 200	3x120+70	46.0	56.0	560	8 000
3 x 70	35.0	42.0	420	4 510	3x150+70	50.0	60.5	605	9 350
3 x 95	39.0	48.0	480	5 680	3x185+70	54.0	66.0	660	10 900
3 x 120	42.5	52.0	520	6 830	3x240+95	61.0	73.5	735	13 700
3 x 150	48.0	58.0	580	8 800					
3 x 185	53.0	63.0	630	10 300	7 G 1.5	14.5	18.5	185	590
3 x 240	59.0	70.5	710	12 800	7 G 2.5	16.5	20.5	205	820
3 x 300	64.0	76.0	760	15 400	7 G 4	17.5	22.5	225	950
4 G 1.5	13.0	17.5	175	440	12 G 1.5	19.0	23.0	230	990
4 G 2.5	14.0	18.5	185	540	12 G 2.5	20.5	25.0	250	1 250
4 G 4	16.0	21.0	210	780	12 G 4	22.5	27.5	275	1 450
4 G 6	17.5	22.5	225	940					
4 G 10	19.5	25.0	250	1 220	19 G 1.5	22.0	26.0	260	1 450
4 G 16	23.5	29.0	290	1 850	19 G 2.5	24.0	29.5	295	1 800
4 G 25	27.0	34.0	340	2 500	19 G 4	26.0	32.0	320	2 150
					37 G 1.5	27.5	32.0	320	2 200
					37 G 2.5	31.0	37.0	370	2 800

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

## 6 HALOGEN FREE, LOW SMOKE, FIRE RESISTANT CABLES

### 6.4 - 300 / 500 V Screened, Fire Alarm Cables

- Halogen free - Low smoke
- Fire resistant, Fire retardant

ACCORDING TO :  
BS 6387  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

#### 1 - Conductors

Bare copper :

- stranded-class 2  
NFC 32-013 / IEC 228

#### 2 - Mica tape

#### 3 - Insulation

Special XLPE

#### 4 - Circuit protective / drain wire

Stranded copper conductor

#### 5 - Aluminium / Polyester tape

#### 6 - Outersheath

Halogen free compound  
Colour : red or white

#### N.B.:

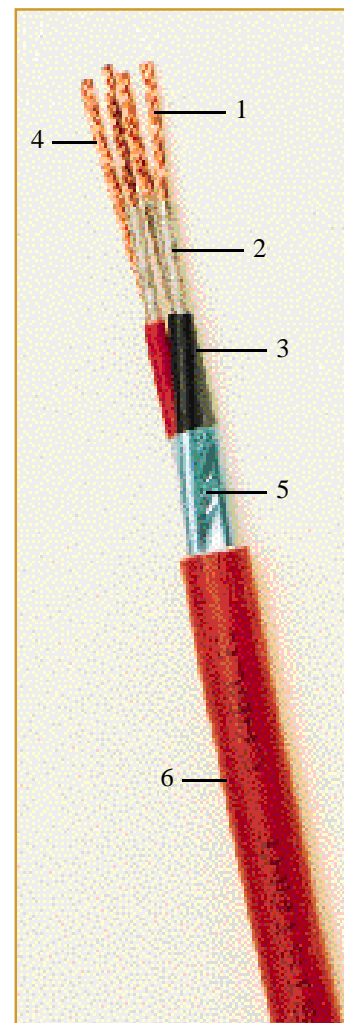
Colours and other constructional details can be according to customer special requirements.

#### Sheath marking

- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area (mm<sup>2</sup>)
- Other : as per customer requirements

#### Fire performances :

See page 18



**300 / 500 V SCREENED, FIRE, ALARM CABLES,  
HALOGEN FREE, LOW SMOKE,  
FIRE RESISTANT CABLES**

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Permissible current rating (A)	Voltage drop cos φ = 0.8 (V/Ax km)	Nominal Outerdiam. (mm)	Weight approx. (kg/km)
2 x 1 + 1	15	44	8.2	75
2 x 1.5 + 1.5	20	29	9.2	95
2 x 2.5 + 2.5	27	18	10.1	135
2 x 4 + 4	36	11	11.4	185
3 x 1 + 1	14	38	8.6	90
3 x 1.5 + 1.5	18	25	9.9	125
3 x 2.5 + 2.5	24	15	11.0	170
4 x 1 + 1	14	38	9.6	115
4 x 1.5 + 1.5	18	25	10.9	165
4 x 2.5 + 2.5	24	15	12.0	210
7 x 1 + 1	8	44	11.4	170
7 x 1.5 + 1.5	11	29	13.1	240
12 x 1.5 + 1.5	9	29	17.3	400
12 x 2.5 + 2.5	12	18	19.3	545
19 x 1.5 + 1.5	8	29	20.6	585
19 x 2.5 + 2.5	11	18	22.8	810

Other sizes are also available

### 7.1 - POWER CABLES

- 0.6 / 1 kv, Lead Sheathed, Steel tape or wire armoured
- NFC 32 - 111
- Maximum conductor temperature : 90° C

#### CONSTRUCTION

##### 1 - Conductors

Bare copper :

- solid-class 1 ( $\leq 4 \text{ mm}^2$ )
  - stranded-class 2 ( $\geq 6 \text{ mm}^2$ )
- NFC 32-013 / IEC 228

##### 2 - Insulation

XLPE

##### 3 - Fillersheath

PVC

##### 4 - Sheath

Lead

##### 5 - Bedding

Paper tapes

##### 6 - Armour

Steel tape or wires, or flat wire plus hellically applied tape.

##### 7 - Outersheath

PVC - HR

Colour : black

#### N.B.:

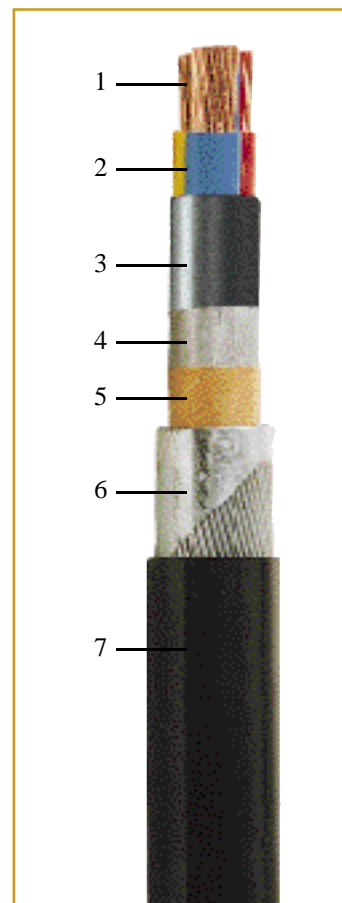
Colours and other constructional details can be according to customer special requirements.

#### Identification

According to customer requirements

#### Sheath marking

- Name of manufacturer
- Metric marking
- Number of cores / cross sectional area ( $\text{mm}^2$ )
- Other : as per customer requirements



**PETROCHEMICAL INDUSTRY CABLES**  
**0.6/1 KV, LEAD SHEATHED, STEEL TAPE ARMoured**

Usual Technical Data

Conductor : Copper

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Permissible current rating (A)		Voltage drop cos φ = 0.8 (V/Ax km)	Nominal Outerdiam ( mm )	Min. bending radius ( mm )	Weight approx. (Kg/Km)
	Buried	Open air				
2 x 1.5	34	24	24.8	12.9	103	475
2 x 2.5	46	33	14.8	13.7	109	540
2 x 4	59	45	9.2	16.5	132	795
2 x 6	74	58	6.2	18.7	149	1 030
2 x 10	101	80	3.7	21.3	170	1 355
2 x 16	128	107	2.4	23.1	184	1 600
2 x 25	162	142	1.6	27.3	218	2 205
2 x 35	195	175	1.2	29.9	239	2 705
2 x 50	235	212	0.9	32.5	260	3 285
2 x 70	290	270	0.7	35.5	284	3 900
2 x 95	347	327	0.4	41.6	333	5 390
2 x 120	397	379	0.3	45	360	6 355
2 x 150	444	435	0.28	49	390	7 505
2 x 185	500	496	0.2	53.8	430	9 010
2 x 240	584	579	0.19	59.6	477	11 245
3 x 1.5	34	24	21.5	13.4	107	515
3 x 2.5	46	33	12.8	14.2	113	590
3 x 4	59	45	8	17.5	140	925
3 x 6	74	58	3.8	19.5	156	1 140
3 x 10	101	80	3.2	22.2	177	1 495
3 x 16	128	107	2.1	24.2	193	1 870
3 x 25	162	142	1.35	28.8	230	2 605
3 x 35	170	157	1	32	256	3 270
3 x 50	204	190	0.75	34.3	274	3 970
3 x 70	252	242	0.55	39.6	316	5 005
3 x 95	302	293	0.42	44	352	6 500
3 x 120	345	339	0.35	47.9	383	7 745
3 x 150	390	386	0.3	52.2	417	9 150
3 x 185	444	435	0.25	57.5	460	11 035
3 x 240	522	504	0.21	63.5	508	13 755
4 x 1.5	29	22	21.5	14	112	565
4 x 2.5	40	30	12.8	17.2	137	880
4 x 4	51	40	8	18.4	147	1 025
4 x 6	64	52	5.4	21.2	169	1 325
4 x 10	88	71	3.2	23.6	188	1 700
4 x 16	111	96	2.1	26.6	212	2 200
4 x 25	141	127	1.35	31.1	248	3 040
4 x 35	170	157	1	34.6	276	3 830
4 x 50	204	190	0.75	39.2	313	5 185
4 x 70	252	242	0.55	43	344	6 160
4 x 95	302	293	0.42	47.9	383	7 925
4 x 120	345	339	0.35	52.2	417	9 435
4 x 150	390	386	0.21	57.1	547	11 275
5 x 1.5	29	22	21.5	16.9	135	820
5 x 2.5	40	30	12.8	18.2	145	985
5 x 4	51	40	8	19.5	156	1 150
5 x 6	64	52	5.4	22.7	182	1 560
5 x 10	88	71	3.2	25.6	205	2 010
5 x 16	111	96	2.1	28.7	230	2 630
5 x 25	141	127	1.35	34	272	3 660

**7.2 - INSTRUMENTATION CABLES**

**- 300 / 500 V, Lead sheathed,  
Steel tape armoured**

ACCORDING TO :  
NF M 87 - 202  
Maximum conductor  
temperature : 70° C

**APPLICATION**

**- NFM 87 - 202 instrumentation cables are used in the oil industry to transmit d.c. ora.c. analog signals.**

**CONSTRUCTION**

**1 - Conductors**

Bare copper :

- Model 05 : 0.8 mm wire  
( cross-section area 0.5 mm<sup>2</sup> )
- Model 09 : 7 x 0.4 mm wires  
( cross-section area 0.88 mm<sup>2</sup> )

**2 - Insulation**

Special PVC

**3 - Individual screen ( if applicable )**

Aluminium / polyester tape with tinned copper ( 7 x 0.20 mm ) drain wire

**4 - Sheath ( if applicable )**

PVC

**5 - General screen**

Aluminium / polyester tape with tinned copper drain wire ( 7 x 0.20 mm )

**6 - Inner sheath**

PVC - HR

**7 - Sheath**

Lead if aromatic hydrocarbons are present

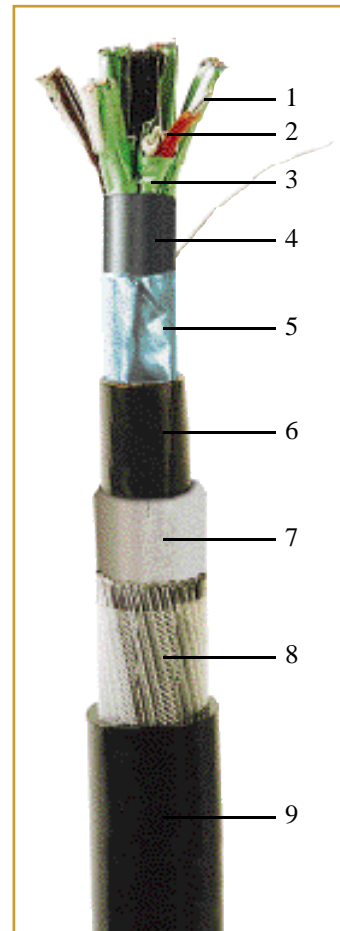
**8 - Armour**

steel tapes or wires

**9 - Outer sheath**

PVC - HR

Colour : Light blue



**N.B.:**

Colours and other constructional details can be according to customer special requirements.

**Identification**

According to customer requirements

**Sheath marking**

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

**PETROCHEMICAL INDUSTRY CABLES**  
**INSTRUMENTATION CABLES**  
**300 / 500 V, LEAD SHEATHED, STEEL TAPE ARMoured**

Technical Data  
NF M 87 - 202

TYPE	Nominal Outer diam (mm)	Weight approx. (Kg/Km)	TYPE	Nominal Outer diam (mm)	Weight approx. (Kg/Km)
01 IP09 EGSF	7	70	27 IP05 EGSF	19.3	515
EGPF	13.1	530	EGPF	26.6	1960
EGFA	10.9	205	EGFA	24	880
03 IP05 EGSF	8.6	110	EISF	34.5	1 410
EGPF	14.8	710	EIPF	43.2	4 680
EGFA	12.6	270	EIFA	39.8	2 110
EISF	13.6	280	01 IT09 EGSF	7.4	80
EIPF	20.4	1 140	EGPF	13.5	570
EIFA	17.9	550	EGFA	11.3	225
07 IP05 EGSF	11.1	165	07 IT05 EGSF	12.8	230
EGPF	17.6	950	EGPF	19.5	1 130
EGFA	15.4	380	EGFA	17.1	480
EISF	18	420	EISF	19.5	490
EIPF	25.3	1 735	EIPF	26.8	1 880
EIFA	22.5	740	EIFA	24.2	830
12 IP05 EGSF	14	260	12 IT05 EGSF	16	380
EGPF	20.3	1 270	EGPF	22.9	1 690
EGFA	18.5	520	EGFA	20.5	695
EISF	24.4	700	EISF	25.5	780
EIPF	32.1	2 540	EIPF	33.6	2 850
EIFA	29.3	1 140	EIFA	30.4	1 250
19 IP05 EGSF	16.8	375	01 IQ 09 EGSF	7.9	100
EGPF	23.7	1 150	EGPF	14	610
EGFA	21.3	680	EGFA	11.8	240
EISF	28.5	1 050			
EIPF	36.8	3 470			
EIFA	33.6	1 590			

*other sizes and constructions are also available*

**LETTER - DIGIT CODING EXPLANATION**

1st series = number of pairs, triples or quads : 01 to 27

2nd series = as pair (IP), as triple (IT) as quad (IQ)

3rd series = core 05 or 09

4th series = general screen (EG), individual screen + general screen (EI)

5th series = mechanical protection : without armour (SF), with armour (FA), with lead + armour (PF)

**COMMON GENERAL CHARACTERISTICS**

**Maximum conductor temperature : 105°C**

**Technical data for conductors**

<b>Cross-section area (mm<sup>2</sup>)</b>	<b>Equivalence size AWG</b>	<b>Number and Ø of wires (mm)</b>	<b>Electrical resistance (Ω/km)</b>	<b>Capacitance between cores (nF/km)</b>
0.22	24	7 x 0.20	87.2	110
0.34	22	7 x 0.25	55.8	125
0.50		16 x 0.20	39.0	140
0.75		24 x 0.20	26.0	160
1.00		32 x 0.20	19.5	180
1.50		32 x 0.25	13.3	180

**Identification of cores**

According to customers requirements.

**APPLICATION**

**Control, Traffic and Data cables** are designed for all control links : connection of remote control, data processing, electronic, remote monitoring, telemetry, robot and automation equipment.

These cables are also suitable for home computing requirements.

**N.B.:**

Different specification can be offered on special request



### 8.1 - 300 / 500 V MULTICORES OVERALL SCREENED CABLES

- Maximum conductor temperature : 70° C

#### CONSTRUCTION

**1 - Conductors**

Stranded, bare copper

**2 - Insulation**

PVC TI 2  
according to NF C 32 201

**3 - Tape**

Polyester

**4 - Screen**

Aluminium / Polyester tape or copper  
tape

**5 - Sheath**

PVC TM 2  
according to NF C 32 201

**N.B.:**

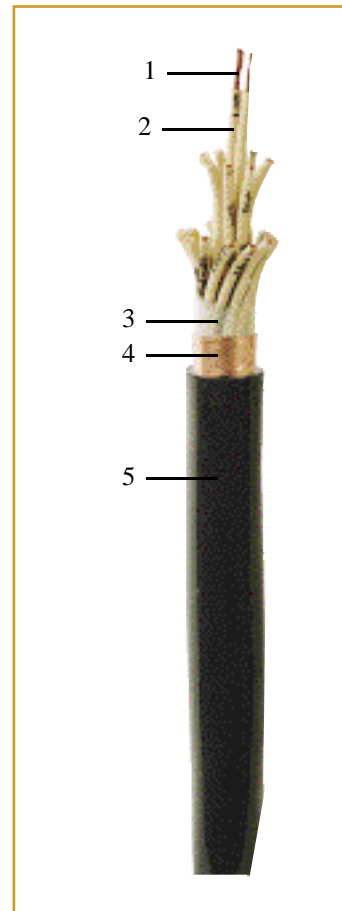
Colours and other constructional details  
can be according to customer special  
requirements.

**Core Identification**

By colour coding or numbering

**Minimum Bending radius**

6 x outer diameter



### Technical Data

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Outer diameter max. (mm)	Weight approx. (kg/km)
2 x 0.22	4.7	35
3 x 0.22	4.9	40
4 x 0.22	5.2	45
5 x 0.22	5.5	55
7 x 0.22	5.9	60
12 x 0.22	7.3	90
19 x 0.22	8.3	120
25 x 0.22	9.7	155
30 x 0.22	10.3	185
37 x 0.22	10.9	210
2 x 0.34	5.0	40
3 x 0.34	5.2	45
4 x 0.34	5.6	55
5 x 0.34	5.9	60
7 x 0.34	6.3	75
12 x 0.34	7.9	115
19 x 0.34	9.0	155
27 x 0.34	10.8	215
2 x 0.50	5.3	45
3 x 0.50	5.5	55
4 x 0.50	5.9	65
5 x 0.50	6.3	70
7 x 0.50	6.8	90
12 x 0.50	8.5	135
19 x 0.50	9.8	185
27 x 0.50	12.0	270
32 x 0.50	12.7	295
37 x 0.50	13.6	365
2 x 0.75	5.9	60
3 x 0.75	6.2	65
4 x 0.75	6.6	80
5 x 0.75	7.1	95
7 x 0.75	7.7	115
12 x 0.75	9.8	180
19 x 0.75	11.5	265
27 x 0.75	14.4	400
32 x 0.75	15.6	470
37 x 0.75	16.2	515
2 x 1.0	6.3	70
3 x 1.0	6.6	80
4 x 1.0	7.1	95
5 x 1.0	7.7	110
7 x 1.0	8.3	140
12 x 1.0	10.8	225
19 x 1.0	13.1	340
24 x 1.0	15.7	495
32 x 1.0	17.4	575
37 x 1.0	18.0	645
2 x 1.5	6.7	80
3 x 1.5	7.0	100
4 x 1.5	7.6	120
5 x 1.5	8.2	140
7 x 1.5	8.9	175

*other sizes are also available*

8.2 - 300 / 500 V MULTIPAIRS, OVERALL SCREENED CABLES

- Maximum conductor temperature : 70° C

**CONSTRUCTION**

**1 - Conductors**

Stranded, bare copper

**2 - Insulation**

PVC TI 2  
according to NFC 32 201

**3 - Tape**

Polyester (optional)

**4 - General Screen**

Drain copper wire 0.22mm<sup>2</sup>  
Aluminium / Polyester tape or copper  
tape

**5 - Sheath**

PCV TM 2  
according to NFC 32 201

**N.B.:**

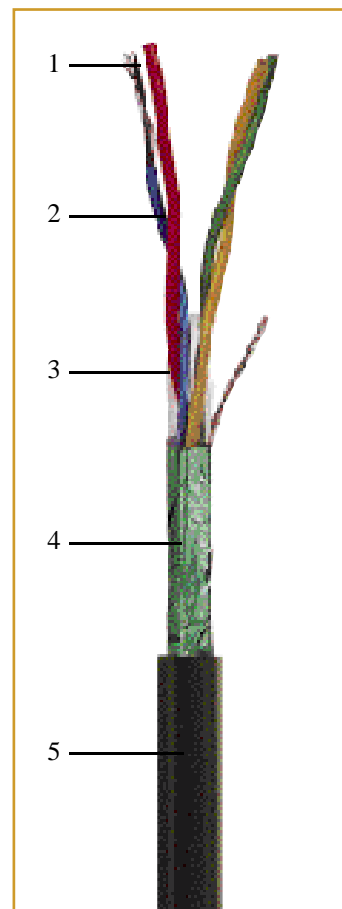
Colours and other constructional details  
can be according to customer special  
requirements.

**Core Identification**

By colour coding

**Minimum Bending radius**

6 x outer diameter



---

---

## Technical Data

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Outer diameter max. (mm)	Weight approx. (kg/km)	Cables (mm <sup>2</sup> )	Outer diameter max. (mm)	Weight approx. (kg/km)
2 P0.22	6.7	70	2 P0.34	7.3	85
3 P0.22	7.1	80	3 P0.34	7.7	95
4 P0.22	7.6	90	4 P0.34	8.3	105
5 P0.22	8.3	100	2 P0.50	7.8	95
7 P0.22	9.0	120	3 P0.50	8.2	110
12 P0.22	11.3	180	4 P0.50	9.0	125
15 P0.22	12.8	230	2 P0.75	9.0	120
20 P0.22	14.7	295	3 P0.75	9.4	140
			4 P0.75	10.6	180

*other sizes are also available*

8.3 - 300 / 500 V MULTIPAIRS, INDIVIDUALLY SCREENED CABLES

- Maximum conductor temperature : 70° C

**CONSTRUCTION**

**1 - Conductors**

Stranded, bare copper

**2 - Insulation**

PVC TI 2

according to NF C 32 201

**3 - Pairing**

Wrapped with polyester tape  
(optional)

**4 - Individual screen**

Aluminium / Polyester tape

**5 - Tape**

Polyester (optional)

**6 - Sheath**

PCV TM 2

according to NF C 32 201

**N.B.:**

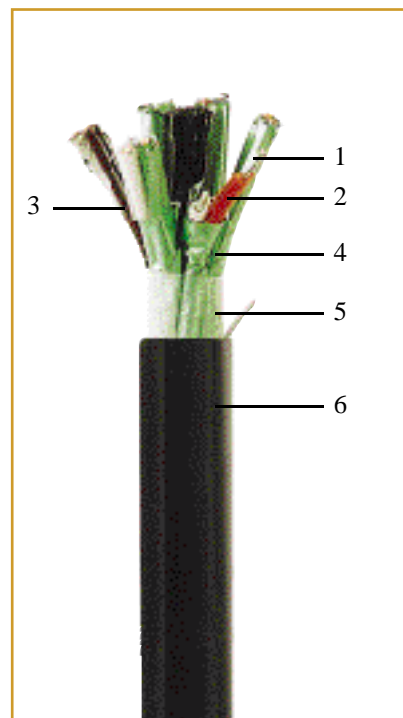
Colours and other constructional details can be according to customer special requirements.

**Pair identification**

By colour coding

**Minimum Bend radius**

6 x outer diameter



---

---

## Technical Data

Specifications can change according to customer requirements.

Cables (mm <sup>2</sup> )	Outer diameter max. (mm)	Weight approx. (kg/km)
2 P0.22	7.3	75
3 P0.22	7.8	90
5 P0.22	9.4	127
2 P0.34	7.9	85
3 P0.34	8.4	105
2 P0.50	8.5	100
3 P0.50	9.0	125
2 P0.75	9.6	130
3 P0.75	10.2	165

*other sizes are also available*

- 9.1 - Power and Signalling Cable**
- Screened
  - Fire retardant
  - Halogen free, Low smoke

ACCORDING TO :  
DIMENSIONS : IEC 502  
NF C 32-070 - Tests n°1 and 2  
IEC 332-3  
Maximum conductor  
temperature : 90° C

### CONSTRUCTION

**1 - Conductor**

Bare copper :  
• stranded-class 2  
NF C 32-013 / IEC 228

**2 - Insulation**

XLPE

**3 - Inner sheath**

Halogen free compound

**4 - Screen**

Copper tape (s)

**5 - Outersheath**

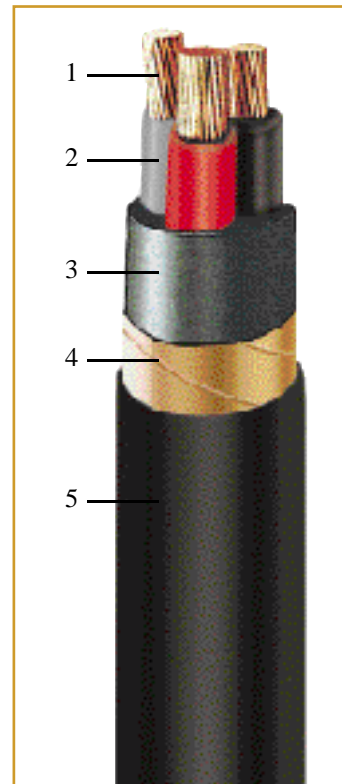
Halogen free compound  
colour : black

**N.B.:**

Colours and other constructional details can be according to customer special requirements.

**Sheath marking**

- Name of manufacturer
- metric marking
- number of cores / cross sectional area (mm<sup>2</sup>)
- Other : as per customer requirements



## Technical Data

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
	Min. (mm)	Max. (mm)		
2 x 1.5	11.0	13.0	105	220
3 x 1.5	11.5	13.5	110	250
4 x 1.5	12.0	14.5	120	280
5 x 1.5	13.0	15.5	125	320
7 x 1.5	14.0	16.0	130	370
12 x 1.5	17.5	20.5	170	580
19 x 1.5	20.0	23.0	190	770
27 x 1.5	23.5	27.0	220	1060
37 x 1.5	26.0	30.0	240	1320
2 x 2.5	12.0	14.0	115	265
3 x 2.5	12.5	14.5	120	300
4 x 2.5	13.0	15.5	125	340
5 x 2.5	14.0	16.5	135	390
7 x 2.5	15.0	17.5	140	470
12 x 2.5	19.0	22.0	180	750
19 x 2.5	22.0	25.5	205	1020
27 x 2.5	26.0	30.0	240	1420
37 x 2.5	29.5	33.5	270	1810
2 x 4	13.0	15.0	120	330
3 x 4	13.5	15.5	125	370
4 x 4	14.5	17.0	140	440
5 x 4	15.5	18.0	150	500
7 x 4	17.0	19.5	160	620
2 x 6	13.5	16.0	130	390
3 x 6	14.0	16.5	135	450
4 x 6	15.5	18.0	150	540
5 x 6	16.5	19.5	160	630
7 x 6	18.0	21.0	170	790
2 x 10	15.0	17.5	140	520
3 x 10	16.0	18.5	150	630
4 x 10	17.5	20.0	160	760
5 x 10	19.0	22.0	180	890
2 x 16	17.5	20.0	160	720
3 x 16	18.5	21.5	175	880
4 x 16	20.0	23.0	185	1070
5 x 16	22.0	25.0	200	1270
2 x 25	20.5	24.0	190	1040
3 x 25	22.0	25.5	205	1300
4 x 25	24.0	28.0	230	1590
5 x 25	26.5	30.5	250	1910
3 x 25 + 16	23.0	27.0	220	1470
3 x 35 + 25	26.0	30.0	240	1950
3 x 50 + 35	29.0	33.5	270	2560
3 x 70 + 50	33.5	38.5	310	3530
3 x 95 + 50	37.0	42.5	340	4460



- 9.2 - Control and Telecommunication screened cables**  
**- Fire retardant**

ACCORDING TO :  
HN 33-S-4 (for screen and sheath)  
NF C 32-070 - Tests n°1 and 2  
Maximum conductor temperature :  
70° C

### CONSTRUCTION

#### 1 - Conductor

Solid bare copper :  
diam. 6/10 mm or 9/10 mm

#### 2 - Insulation

Stranding :  
Pairs or star quads

#### 3 - Screen

- Polyester - aluminium tape
- Copper continuity wire, diam.  
5 / 10 mm

#### 4 - Innersheath

Special PVC

#### 5 - Screen

copper tape

#### 6 - Outersheath

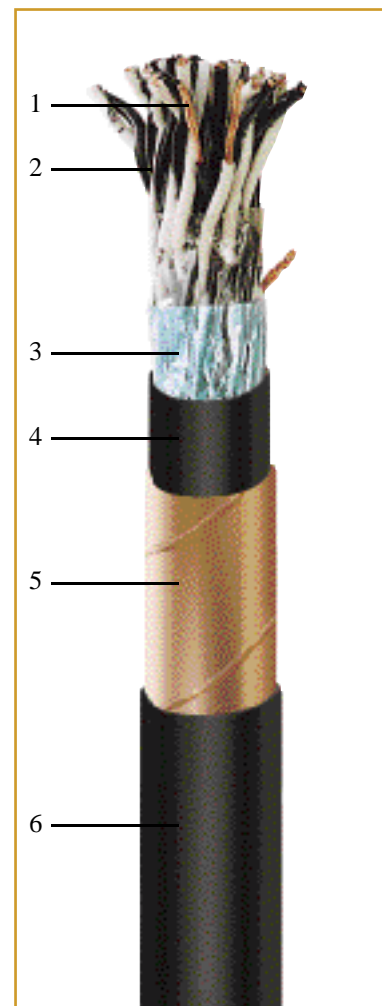
Special PVC  
Colour : black

#### N.B.:

Colours and other constructional details can be according to customer special requirements.

#### Application

These cables are designed for control or telecommunication cable networks which must be protected against electromagnetic disturbances, in particular in high voltage transformer equipment.



**CONTROL AND TELECOMUNICATION  
SCREENED CABLES**

<b>Cables (mm<sup>2</sup>)</b>	<b>Max. diam. (mm)</b>	<b>Weight approx. (kg/km)</b>
7 q 6 / 10 mm	16.0	350
14 q 6 / 10 mm	18.8	500
28 q 6 / 10 mm	24.0	770
56 q 6 / 10 mm	29.4	1 240
112 q 6 / 10 mm	40.0	2 140

q = quads  
• Other sizes are also available

**Identification of cores**

According to customers requirements.

### Medium voltage cables up to 6 KV

#### CONSTRUCTION (Unless differently required)

##### 1 - Conductors

Stranded bare or tinned copper  
Cross sectional area : 6 or 8 mm<sup>2</sup> or 8 AWG

##### 2 - Semi-conductive layer

Extruded or tape

##### 3 - Insulation

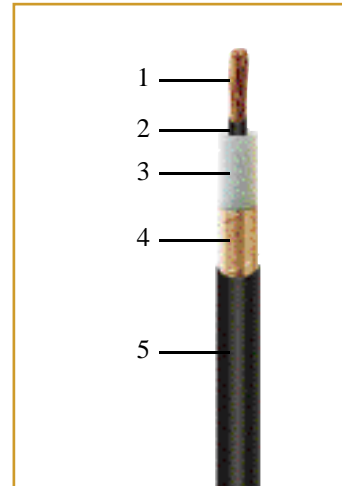
XLPE

##### 4 - Screen

Semi-conductive layer (extruded or tape) and copper tape (s)

##### 5 - Sheath

XLPE, PE or PVC



### Low voltage cables

1 or 2 cores

Low voltage : 1 KV or less, as per customer requirements.

#### CONSTRUCTION (Unless differently required)

##### 1 - Conductor

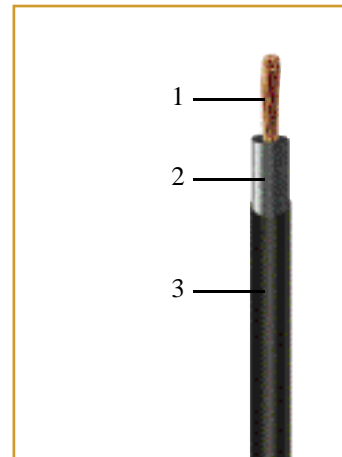
Stranded bare or tinned copper Class 2 or class 5  
Cross sectional area : 2.5, 4 or 6 mm<sup>2</sup>  
NFC 32-013  
IEC 228

##### 2 - Insulation

XLPE

##### 3 - Sheath (optional)

XLPE, PE or PVC



#### Application

These cables are used in airfield lighting systems :

- primary cables in medium voltage transformer circuits (series circuits)
- secondary cables in low voltage for lighting fixtures

Design on request according to :

France : STNA, ADP standards

USA: FAA-L824. Type A, B ou C standards.

Or others specifications or standards, as per customer requirements.

### 11.1 450 / 750 V Flat cables

CENELEC HD 359 S9  
IEC 227 Part 6  
Maximum conductor  
temperature : 70° C

#### CONSTRUCTION

##### 1 - Conductor

Bare copper :  
Flexible-class 5  
IEC 228

##### 2 - Insulation

PVC

##### 3 - Outersheath

Special PVC  
colour : black

##### N.B.:

Colours and other constructional details can be according to customer special requirements.

##### Core Identification

According to customer requirements usually as follows :  
cables < 6 cores : color code  
cables > 5 cores : printed numbers  
green / yellow core also available

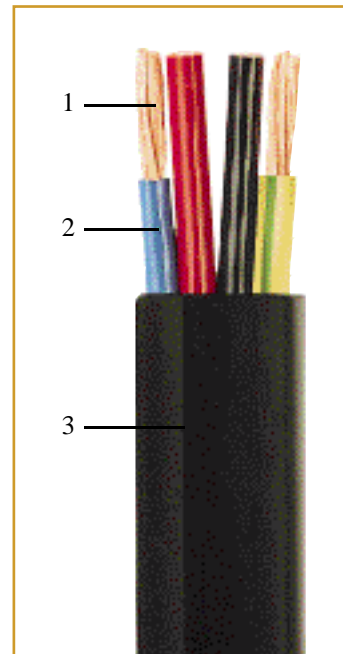
##### Sheath marking

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

These cables are in accordance with CENELEC harmonization document HD 359 / VDE 0281 / BS 6977 / CEI 20 - 25 / NFC 32 - 202 / SR C 36 / NEN 3623 / UNE 21 153

##### Application

These cables are used for festoons, trolleys, overhead cranes inside or outside.



## 450 / 750 V FLAT CABLES

### Technical Data

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Overall dimensions (mm)	Permissible current rating (A) <sup>(1)</sup>	(cos φ = 0.8) Voltage drop (V/Ax km)	Bending radius (mm)	Weight approx. (Kg/Km)
4 G 1.5	15 x 5	20	20.2	40	150
4 G 2.5	18.5 x 5.7	27	12.3	45	210
4 G 4	21 x 6.5	36	7.8	55	300
4 G 6	23 x 7	48	5.3	65	385
4 G 10	28.8 x 9	63	3.2	75	620
4 G 16	36.8 x 10.8	85	2.0	80	990
4 G 25	45.5 x 13.5	112	1.3	100	1 550
4 G 35	50.5 x 14.8	138	0.97	120	2 030
4 G 50	56 x 16.5	168	0.74	130	2 650
4 G 70	63 x 18	213	0.55	140	3 650
4 G 95	72.5 x 20.5	258	0.42	200	4 550
5 G 1.5	18 x 5	18	20.2	40	180
5 G 2.5	22 x 5.7	25	12.3	45	260
7 G 1.5	26 x 5	15	20.2	40	260
7 G 2.5	32.3 x 5.7	20	12.3	45	380
7 G 4	40 x 6.8	25	7.8	55	550
8 G 1.5	29 x 5	14	20.2	40	300
8 G 2.5	34.5 x 5.7	20	12.3	45	405
9 G 1.5	32 x 5	12	20.2	40	330
10 G 1.5	35 x 5	12	20.2	40	360
12 G 1.5	40.5 x 5	11	20.2	40	420
12 G 2.5	50.5 x 5.7	16	12.3	45	620
12 G 4	57 x 6.8	20	7.8	55	880
16 G 1.5	53.5 x 5	10	20.2	40	560
18 G 1.5	58 x 5	8	20.2	40	620

① Ambient temperature : 30°C

• Other sizes are also available

## ▶ 11 HANDLING & LIFT CABLES

### 11.2 - 0.6 / 1 KV Thermoplastic rubber flat cables

- Halogen free
- Low smoke

Maximum conductor temperature : 85° C

### CONSTRUCTION

#### 1 - Conductor

Bare copper :  
Flexible-class 5  
IEC 228

#### 2 - Insulation

TPR  
(thermoplastic rubber)

#### 3 - Outersheath

TPR  
colour : black

#### N.B.:

Colours and other constructional details can be according to customer special requirements.

#### Core Identification

According to customer requirements from 6 cores : printed numbers with 1 green / yellow core

#### Sheath marking

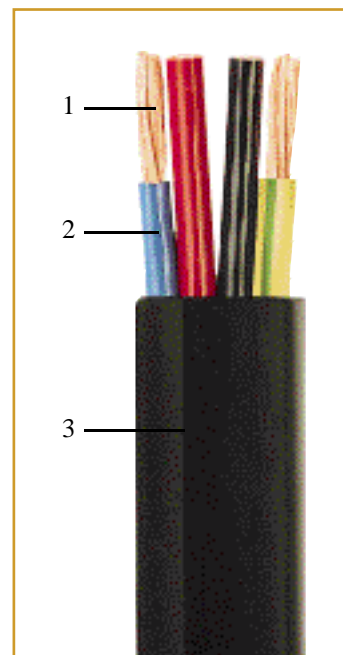
- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

#### Voltage test

Between conductors  
3500 V - 50 Hz

#### Application

These cables are used for hoisting systems, festoons, trolleys, overhead cranes, out doors with low temperature.



## 0.6 / 1 KV THERMOPLASTIC RUBBER FLAT CABLES

### Technical Data

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Overall dimensions (mm)	Permissible current rating (A)	(cos φ = 0.8) Voltage drop (V/Ax km)	Bending radius (mm)	Weight approx. (Kg/Km)
4 G 1.5	16 x 5	22	22.1	50	110
4 G 2.5	19 x 5.7	30	13.3	55	170
4 G 4	21 x 6.5	40	8.3	65	250
4 G 6	23.5 x 7	52	5.5	70	330
4 G 10	29 x 9	70	3.3	90	550
4 G 16	35 x 10.4	95	2.1	105	800
4 G 25	45.5 x 13.5	127	1.3	135	1 350
4 G 35	50.5 x 14.8	157	0.97	150	1 800
4 G 50	56 x 16.5	190	0.74	165	2 400
4 G 70	63 x 18	242	0.55	180	3 250
8 G 1.5	29 x 5	16	22.1	50	220
8 G 2.5	35 x 5.7	25	13.3	55	330
12 G 1.5	41 x 5	12	22.1	50	320
12 G 2.5	51 x 5.7	20	13.3	55	490

① Ambient temperature : 30°C

• Other sizes are also available

### 11.3 - 300 / 500 V Flat lifts cables

CENELEC HD 359 S3 Draft  
Maximum conductor  
temperature : 70° C

#### CONSTRUCTION

##### 1 - Conductor

Bare copper :  
Flexible-class 5  
IEC 228

##### 2 - Insulation

Special PVC

##### 3 - Outer sheath

Special PVC  
colour : black

##### N.B.:

Colours and other constructional details can be according to customer special requirements.

##### Core Identification

Printed numbers with 1 yellow / green core

##### Laying up

In parallel by group from 2 to 5 cores with a striping thread in each group.

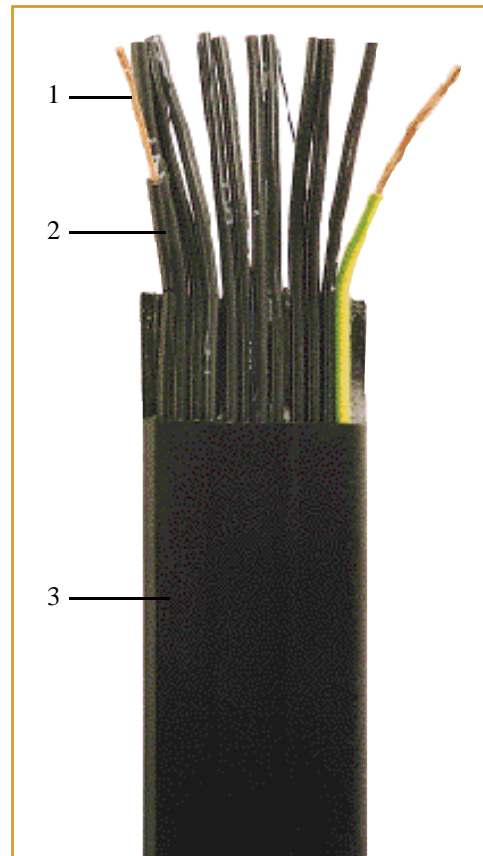
##### Sheath marking

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

##### Application

These cables are used as pendant lift cables where freely suspended length must not exceed 45 meters and the travelling speed must not exceed 4m/S for ambient temperature between -15°C to 40°C.

This standard allows to include 3 telecommunication units in central position (copper pairs or quads screened or unscreened, coaxial, optical fibers).





## 300 / 500 V FLAT LIFT CABLES

### Technical Data

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Overall dimensions		Permissible current rating (A) <sup>①</sup>	Weight approx. (Kg/Km)
	Min. (mm)	Max. (mm)		
12 G 0.75	29.4 x 3.7	34.5 x 4.5	6	280
16 G 0.75	38.8 x 3.7	45.5 x 4.5	5	360
18 G 0.75	43.3 x 3.7	51 x 4.5	5	400
20 G 0.75	48.3 x 3.7	57 x 4.5	4	440
24 G 0.75	57.7 x 3.7	68 x 4.5	4	520
12 G 1	31 x 3.9	36 x 4.6	8	320
16 G 1	41 x 3.9	47 x 4.6	7	420
18 G 1	48.8 x 3.9	51.7 x 4.5	6	470
20 G 1	51.1 x 3.9	59 x 4.6	6	500
24 G 1	61.1 x 3.9	70 x 4.6	6	610

① Ambient temperature : 30°C

• Other sizes are also available

### 11.4 - 300 / 500 V Flat lifts cables

CENELEC HD 359 S2

Maximum conductor  
temperature : 70° C

#### CONSTRUCTION

##### 1 - Conductor

Bare copper :  
Flexible-class 5  
IEC 228

##### 2 - Insulation

PVC

##### 3 - Outersheath

PVC  
colour : black

##### 4 - Strain bearing members

Galvanized steel

##### N.B.:

Colours and other constructional details can be according to customer special requirements.

##### Core Identification

Printed numbers with 1 yellow / green core

##### Laying up

In parallel by group from 2 to 5 cores with a striping thread in each group.

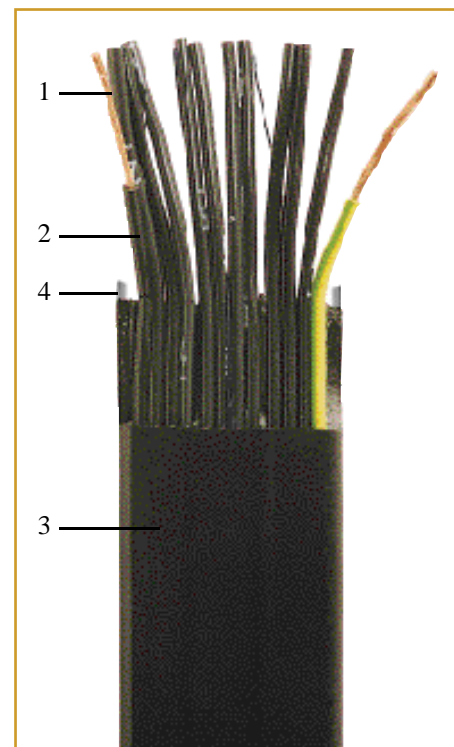
##### Sheath marking

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

They are in accordance with CENELEC harmonization document HD 359 and various national standards (CEI 2025, BS 6977, NF C 32-202, VDEO 281, UNE 21153)

##### Application

With strain bearing members, these cables can be used for freely suspended length up to 120 meters and the travelling speed must not exceed 1.6m/s.



## 300 / 500 V FLAT LIFT CABLES

### Technical Data

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Overall dimensions		Permissible current rating (A) <sup>①</sup>	Weight approx. (Kg/Km)
	Min. (mm)	Max. (mm)		
24 G 0.75	68.5 x 3.7	75 x 4.3	4	600
24 G 1	72.5 x 3.9	78.2 x 4.5	6	690

① Ambient temperature : 30°C

• Other sizes are also available

## ▶12 SUBMERSIBLE PUMP CABLES

### 12.1 - 450 / 750 V Thermoplastic rubber, round or flat flexible cable

#### ACCORDING TO

NF C 32-102

HD 22.4 S2

Water absorption tests:

IEC 811.1.3

VDE 0472 Teil 802

NF C 32-026

HD 505-1-3 s1

Maximum conductor temperature : 90° C

### CONSTRUCTION

#### 1 - Conductor

Bare or tinned copper  
Flexible-class 5  
NF C 32-013  
IEC 228

#### 2 - Insulation

Thermoplastic  
rubber

#### 3 - Outersheath

Thermoplastic  
rubber  
colour : black

#### N.B.:

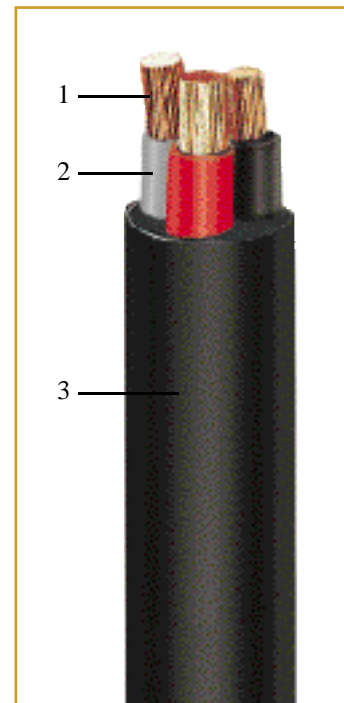
Colours and other constructional details  
can be according to customer special  
requirements.

#### Marking

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

#### Application

These cables are designed for  
submersible power supply used into  
water.



## 450 / 750 V THERMOPLASTIC RUBBER ROUND FLEXIBLE CABLE

### CURRENT RATING GENERAL CONDITIONS

The following current data are indicated for continuous duty operation and apply to :

- Maximum conductor temperature     **90°C**
- Industrial frequency                   **50Hz**
- Free air ambient temperature       **30°C**

Cables (mm <sup>2</sup> )	Permissible current rating (A)	Voltage drop cos $\phi = 0.8$ (V/Ax km)	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
			Min. (mm)	Max. (mm)		
3 G 1.5	24	28.0	9.6	12.5	50	160
3 G 2.5	33	16.9	11.5	14.5	60	220
3 G 4	45	10.5	13.0	16.0	65	300
3 G 6	58	7.0	14.5	20.0	80	410
3 G 10	80	4.0	20.0	25.5	105	720
3 G 16	107	2.5	22.5	29.5	120	1010
3 G 25	142	1.68	26.5	34.0	140	1450
3 G 35	175	1.22	29.5	38.0	155	1900
3 G 50	212	0.87	34.5	44.0	180	2580
4 G 1.5	22	23.3	10.5	13.5	55	195
4 G 2.5	30	14.0	12.5	15.5	65	270
4 G 4	40	8.74	14.5	18.0	75	380
4 G 6	52	5.86	16.5	22.0	90	520
4 G 10	71	3.44	21.5	28.0	115	900
4 G 16	96	2.21	24.5	32.0	130	1260
4 G 25	127	1.46	29.5	37.5	150	1850
4 G 35	157	1.07	33.0	42.0	170	2400
4 G 50	190	0.78	38.0	48.5	200	3290

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

### 12.2 - 0.6 / 1 K/V PE / PE Round Cables

Maximum conductor temperature : 70° C

#### CONSTRUCTION

##### 1 - Conductor

Flexible bare copper class 5  
NFC 32-013  
IEC 228

##### 2 - Insulation

Polyethylen

##### 3 - Outersheath

Polyethylen  
colour : black

##### N.B.:

Colours and other constructional details can be according to customer special requirements.

(+ green / yellow conductor when required)

##### Sheath marking

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

##### Application

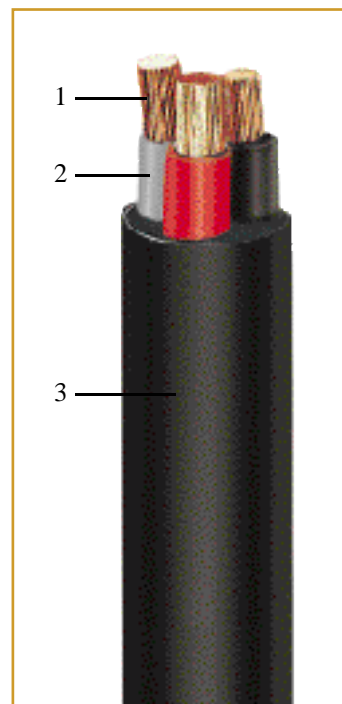
Submersible pump power supply cables must have excellent water tightness and very good insulation. Polyethylen is the material that best meets these requirements. The special PVC sheath improves the cable flexibility compared to a PE sheath. The designed materials are suitable for use in drinking water.

Cables with food-grade flexible PVC sheath, can also be manufactured

Use ambient temperature :

- in the water : up to 40°C
- in the air : -20°C to + 60°C

Maximum use depth : up to 200 m.



## 0.6 / 1KV PE / PE ROUND CABLES

### CURRENT RATING GENERAL CONDITIONS

The following current data are indicated for continuous duty operation and apply to :

- Maximum conductor temperature     **70°C**
- Industrial frequency                   **50Hz**
- Free air ambient temperature       **30°C**

### Technical Data

#### PE / PE Round cables

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Permissible current rating (A)	Voltage drop cos $\Phi = 0.8$ (V/ $\Delta x$ km)	Outerdiam.		Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
			Min. (mm)	Max. (mm)		
3 x 1.5	17.5	21.5	10.0	11.0	70	130
3 x 2.5	24	12.8	11.0	12.5	75	170
3 x 4	32	8.0	12.0	13.2	80	220
3 x 6	41	5.4	13.2	14.5	90	285
3 x 10	57	3.2	15.1	16.6	100	430
3 x 16	76	2.1	17.2	18.8	115	650
3 x 25	96	1.35	21.5	23.5	145	1 020
3 x 35	119	1.0	23.5	26.5	160	1 320
3 x 50	144	0.75	27.4	30.0	180	1 810
3 x 70	184	0.55	31.8	35.0	210	2 620
3 x 95	223	0.42	36.5	40.0	240	3 320
3 x 120	259	0.35	40.0	44.0	260	4 200
4 G 1.5	17.5	21.5	10.5	11.6	70	150
4 G 2.5	24	12.8	11.5	13.0	80	200
4 G 4	32	8.0	12.5	14.0	85	270
4 G 6	41	5.4	14.0	15.5	95	350
4 G 10	57	3.2	16.0	18.0	110	540
4 G 16	76	2.1	19.5	22.0	135	820
4 G 25	96	1.35	24.0	26.5	160	1 290
4 G 35	119	1.0	26.5	29.5	180	1 680
4 G 50	144	0.75	30.0	33.0	200	2 300

Also single core cables : on special request

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

Ambient temperature °C	5	10	15	20	25	30	35	40	45	50	55	60
Correction factors	1.27	1.22	1.17	1.12	1.06	1.00	0.94	0.87	0.79	0.71	0.61	0.50

### 12.3 - 0.6 / 1 K/V PE / PE Flat Flexible Cables

Maximum conductor temperature : 70° C

#### CONSTRUCTION

##### 1 - Conductor

Flexible bare copper class 5  
NF C 32-013  
IEC 228

##### 2 - Insulation

Polyethylen

##### 3 - Outer sheath

Polyethylen  
colour : black

##### N.B.:

Colours and other constructional details can be according to customer special requirements.

##### Core Identification

According to customer requirements (+ green / yellow for 4 core cables).

##### Laying up

Conductors are side by side and parallel.

##### Sheath marking

- Name of manufacturer
- Metric marking
- Size
- Other : as per customer requirements

##### Application

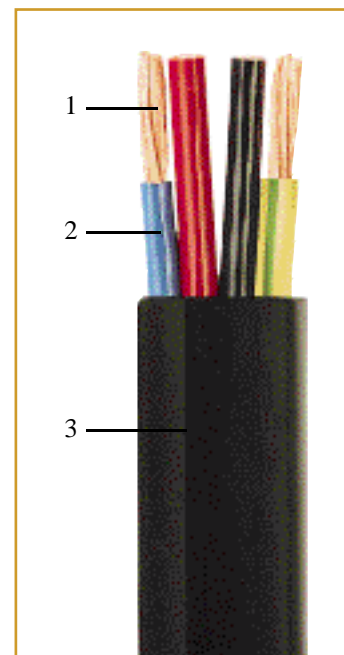
Submersible pump power supply cables must have excellent water tightness and very good insulation. Polyethylen is the material that best meets these requirements. The flat shape makes it possible to obtain smaller overall dimensions and a tighter bending radius. The designed materials are suitable for use in drinking water.

Cables with food grade flexible PVC sheath, can also be manufactured.

Use ambient temperature :

- in the water : up to 40°C
- in the air : -20°C to + 60°C

Maximum use depth : up to 200 m.





## 0.6 / 1 KV PE / PE FLAT FLEXIBLE CABLE

### CURRENT RATING GENERAL CONDITIONS

The following current data are indicated for continuous duty operation and apply to :

- Maximum conductor temperature     **70°C**
- Industrial frequency                   **50Hz**
- Free air ambient temperature       **30°C**

### Technical Data

#### PE / PE Flat cables

Specifications can change according to customer requirements

Cables (mm <sup>2</sup> )	Permissible current rating (A)	Voltage drop cos $\Phi = 0.8$ (V/Ax km)	External nominal dimensions (mm)	Min. bending radius (mm) <sup>①</sup>	Weight approx. (kg/km)
3 x 1.5	17.5	21.5	13.1 x 5.7	25	90
3 x 2.5	24	12.8	14.4 x 5.6	25	125
3 x 4	32	8.0	15.9 x 6.5	30	180
3 x 6	41	5.4	18.4 x 7.2	30	235
3 x 10	57	3.2	21.6 x 8.8	40	390
3 x 16	76	2.1	26.4 x 10.5	45	600
3 x 25	96	1.35	32.4 x 13.2	55	920
3 x 35	119	1.0	36.0 x 14.4	60	1 280
3 x 50	144	0.75	39.7 x 15.9	65	1 720
3 x 70	184	0.55	47.5 x 18.9	80	2 460
4 G 1.5	17.5	21.5	15.8 x 5.0	20	115
4 G 2.5	24	12.8	19.5 x 5.6	25	170
4 G 4	32	8.0	21.5 x 6.5	30	240
4 G 6	41	5.4	23.6 x 7.2	30	330
4 G 10	57	3.2	29.1 x 8.8	40	530
4 G 16	76	2.1	35.3 x 10.4	45	810
4 G 25	96	1.35	43.6 x 13.2	55	1 220
4 G 35	119	1.0	48.4 x 14.4	60	1 700
4 G 50	144	0.75	53.5 x 15.9	65	2 500

G = with green / yellow core

① Values to be doubled during laying operations

• Other sizes are also available

Ambient temperature °C	5	10	15	20	25	30	35	40	45	50	55	60
Correction factors	1.27	1.22	1.17	1.12	1.06	1.00	0.94	0.87	0.79	0.71	0.61	0.50