CABLES FOR POWER STATIONS AND HIGH-RISK SITES

omerin
LES CABLES DE L'EXTREME



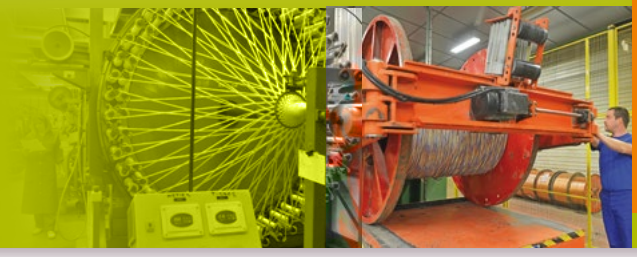







- ***The world's leading manufacturer of silicone-insulated wires and cables***
- ***Europe's leading manufacturer of glass-yarn braids***
- ***France's leading manufacturer of fire safety cables***

The Omerin group has been producing electrical cables for extreme conditions since 1959



At Omerin, we use our know-how and technology to develop increasingly high-performance products.

Our expertise is recognized in over 120 countries.

Omerin offers a wide range of high-performance products covering a large number of applications in very diverse industries, including the electrothermal construction, electromechanical, chemical, nuclear energy, railway, automotive, naval, aerospace, heavy industry, power plant and other sectors.
Our product range is further extended by varnished, impregnated and treated braided insulating sleevings, door seals for ovens, fireproof sleevings, thermocouple, extension and compensation cables as well as industrial braids.

Men and women at your service

The technical expertise of our teams is at your disposal, providing responses and solutions to all your requirements.

Our Methods, Quality and Research and Development Departments work permanently together with the aim of constantly improving our products and processes.

All our staff subscribe to this approach with their involvement and constant self-checking at all stages of production.

List of all the available catalogues:

Ultimately, this catalogue is the result of the passionate endeavours of an entire team, who have displayed great talent in writing it for you.

It is designed to be a simple and concise working tool for you, serving as a reference document that is able to meet the majority of your needs.

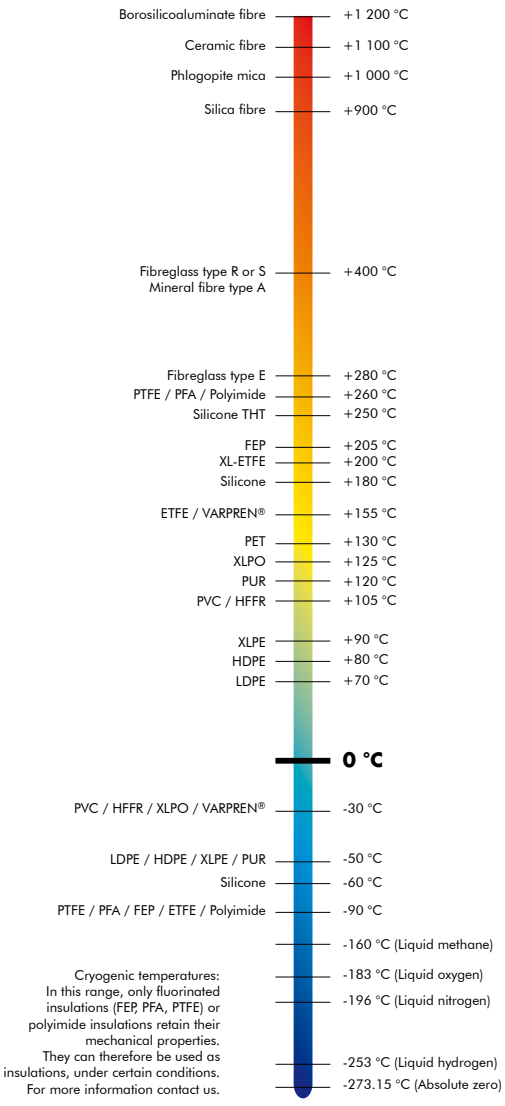
This catalogue, as well as nine others from our collection are available on line with real time updates and much more information at

www.omerin.com

All the trademarks listed below are registered trademarks of the OMERIN Group.

BIO-HABITAT®	Wires and cables for a home without electromagnetic interference
CERAFIL®	Miniature ceramic insulated wires for very high temperatures
COAXRAIL®	Coaxial cables for railway industry
COAXTHERM®	High temperature coaxial cables
COUPLIX®	Pyrometry cables (thermocouples, extension, compensation cables)
DATARAIL®	Data cables for the railway industry
ELECTROAIR®	Aerospace & Defence wires and cables
ENERSYL®	Electrical cables for power station and high risk sites
FLEXBAT®	Extra flexible battery cables
LUMIPLAST®	Wires and cables for lighting systems
METALTRESSE®	High performance metallic braids
MINOROC®	Very high tensile strength synthetic cables
MULTIMAX®	Power, control and instrumentation cables for the marine industry
MULTI-VX®	Hybrid data and power cables
ODIOSIS®	Sound, amplification and loudspeaker cables
OILPLAST®	Cables for industrial environments and intrinsically safe system
OMBILIFLEX®	High performance special multi-function cables
PLASTHERM®	Special thermoplastic insulated wires and cables
POWER CONNECT®	High performance power cords
PROFIPLAST®	Thermoplastic insulated wires and cables
PYRISOL®	Fire resistant power cables for safety circuits
PYRITEL®	Fire resistant communication cables for safety circuits
SILIBOX®	Wire and cables cardboard box packaging system
SILICABLE®	Special high temperature wires and cables
SILICOUL®	Low and medium voltage class H (180°C) power cables
SILIFLAM®	Very high safety cables for extreme temperatures
SILIFLON®	Fluoropolymer insulated high temperature wires and cables
SILIGAINE®	Braided insulating sleevings
SILIRAD®	Electron beam cross-linked cables
SILITUBE®	Braided or extruded tubes
SOLARPLAST®	Power cables for photovoltaic solar panels
SONDIX®	Platinum resistance temperature sensors connection cables
SPIRFLEX®	High performance spiral cables
TEXALARM®	Cables for safety systems and fire alarms
TS CABLES®	Coaxial and data cables
TS COM 900®	Telephonic cables for very speed reception
TS LAN®	Copper LAN cables
TWINLINK®	High temperature controlled impedance twisted pair cables
TWINPLAST®	Extra flexible cables for battery chargers or jump starters
VARPREN®	Wires and cables with special cross-linked Varpren® insulation
VEROX®	Fiberglass braided seals
VIDEOCOAX®	Analog and digital video cables

Thermal classification of insulations



Contents

Product list

HALOGEN FREE CABLES

HIGH TEMPERATURE CABLES

FIRE RESISTANT CABLES

CABLES WITH PVC SHEATH

HYDROCARBON RESISTANT CABLES

CABLES FOR OFFSHORE APPLICATIONS

HALOGEN FREE CABLES

ENERSYL® ZH

HALOGEN FREE CABLES

Technical data

Continuous operating temperature	
Maximum core temperature	
Rated voltage	
Test voltage	

Standard products

Stranding of the core	
Insulation of conductors	
Outer sheath	
Colour identification of conductors	
Colour of the outer sheath	

Options

- Flexible core - CuSn class 5
- Individual electrical screen (pair / triple / quad) using aluminium/PET tape + continuity wire*
- General electrical screen using aluminium/PET tape + continuity wire
- General electrical screen using bare copper braid
- General electrical screen using tin-plated copper braid
- Mechanical armour using galvanized steel braid (+ inner sheath)
- Mechanical armour using double steel tape (+ inner sheath)
- Use in ATEX zone as per NF C 15-100 part 4-42 or EN 60079-14 (excluding "i" intrinsic safety circuit)
- Use in ATEX zone for "i" intrinsic safety circuit only as per EN 60079-14
- Fire retardant cable as per NF C 32-070 test C1

Characteristics

- Core - as per standard
- Insulation - as per standard
- Sheath - material as per standard
- Cable - construction as per standard

Fire-smoke resistance properties of cable

- Flame retardant - IEC 60332-3-22 (Cat. A bundled cables)
- Flame retardant - IEC 60332-3-24 (Cat. C bundled cables)
- Fire retardant - NF C 32-070 test C1
- Flame retardant - IEC 60332-1-2 / NF C 32-070 test C2
- Fire-resistant - IEC 60331-21 / EN 50200
- Low smoke density - IEC 61034-2
- Halogen-free - IEC 60754-1
- Low corrosiveness of gas emissions - IEC 60754-2

Physical / chemical properties of the sheath

- Resistance to acid (immersion 168 h)**
- Resistance to base (immersion 168 h)**
- Resistance to IRM 902 mineral oil (24 h immersion at 100 °C)**
- Reinforced resistance to IRM 902 mineral oil (168 h immersion at 90 °C)**
- Resistance to aliphatic hydrocarbons (immersion 168 h)**
- AD7 class as per IEC 60529 (immersion in water - ends not immersed)**
- Resistance to saline mist (immersion in salt water - 168 h at 60 °C)**
- Resistance to UV ≥ 2000 h as per EN 16472 **

* By default all cables with individual screens also have EG type general screens.
** Based on the OMERIN method. Refer to the corresponding test report for further information.

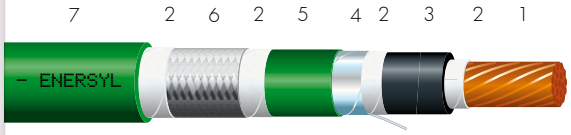
ENERSYL® ZH POWER Power cables	ENERSYL® ZH CONTROL Control cables	ENERSYL® ZH INSTRUM Instrumentation cables	COUPLIX® ZH Pyrometry cables
-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C
+90 °C	+90 °C	+90 °C	+90 °C
600 / 1000 V	450 / 750 V	300 / 500 V	N/A
3500 V	2500 V	2000 V	500 V
CuA1 class 2	CuA1 class 2	CuA1 class 2	N/A
PR type cross-linked polyethylene	halogen-free cross-linked polyolefine	halogen-free cross-linked polyolefine	halogen-free cross-linked polyolefine
HFFR, type ST8	HFFR, type ST8	HFFR, type ST8	HFFR, type ST8
HD 308 S2 or black numbered if → 5 conductors	HD 308 S2 or white numbered if → 5 conductors	white/blue OR white/red/blue OR white/red/blue/black	as per IEC 60584
green	green	green	as per IEC 60584
FLEX	FLEX	FLEX	N/A
N/A	N/A	EI	EI
EG	EG	EG	EG
BR	BR	BR	BR
BE	BE	BE	BE
BG	BG	BG	BG
FA	FA	FA	FA
EX	N/A	N/A	N/A
N/A	EX	EX	N/A
C1	C1	C1	C1
IEC 60228	IEC 60228	IEC 60228	IEC 60584
IEC 60502-1	N/A	N/A	N/A
IEC 60502-1	IEC 60502-1	IEC 60502-1	IEC 60502-1
IEC 60502-1	N/A	N/A	N/A
-	-	-	-
✓	✓	✓	✓
option C1	option C1	option C1	option C1
✓	✓	✓	✓
-	-	-	N/A
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
-	-	-	-
-	-	-	-
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓

omerin
LES CABLES DE L'EXTREME

www.omerin.com

ENERSYL® ZH POWER

Single core power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type PR as per IEC 60502-1.
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® ZH EG BG POWER 150 mm²
ZH: halogen free
EG, BE, BR : type of electrical screen
BG, FA: type of armour
POWER: power cable
150 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60502-1.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < ZH xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: green.
• **Insulation**: black.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-24 cat. C / NF EN 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **C1**: Fire retardant cable as per NF C 32-070 test C1: contact us.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® ZH BG EX POWER** : with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20° (Ω/km)
1.5	7 / 0.52	0.7	3.1	1.4	6.3	57	1.4	9.9	150	12.1
2.5	7 / 0.67	0.7	3.5	1.4	6.7	69	1.4	10.3	168	7.41
4	7 / 0.85	0.7	4.2	1.4	7.4	89	1.4	11.0	197	4.61
6	7 / 1.04	0.7	4.8	1.4	8.0	114	1.4	11.6	229	3.08
10	7 / 1.33	0.7	5.5	1.4	8.8	155	1.4	12.4	280	1.83
16	7 / 1.68	0.7	6.6	1.4	9.9	217	1.4	13.5	356	1.15
25	7 strands	0.9	8.1	1.4	11.4	312	1.4	15.0	471	0.727
35	7 strands	0.9	8.9	1.4	12.2	407	1.4	15.9	580	0.524
50	19 strands	1.0	10.1	1.4	13.4	538	1.5	17.3	734	0.387
70	19 strands	1.1	12.0	1.4	15.4	729	1.5	19.2	947	0.268
95	19 strands	1.1	13.6	1.5	17.2	989	1.6	21.3	1257	0.193
120	19 strands	1.2	16.0	1.5	19.6	1252	1.7	23.9	1567	0.153
150	19 strands	1.4	17.4	1.6	21.2	1517	1.7	25.5	1856	0.124
185	37 strands	1.6	20.4	1.7	24.4	1915	1.8	28.7	2302	0.0991
240	37 strands	1.7	22.4	1.7	26.4	2414	1.9	31.1	2861	0.0754
300	61 strands	1.8	26.7	1.8	30.9	3068	2.0	35.6	3587	0.0601
400	61 strands	2.0	30.0	1.9	34.4	3886	2.1	39.3	4480	0.0470

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

For this product, please contact:

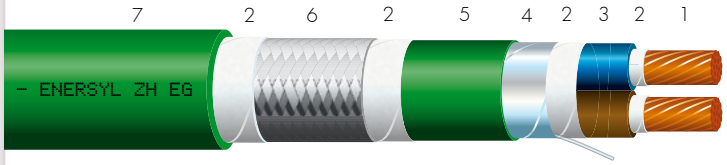
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

ENERSYL® ZH POWER

Multicore power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type PR as per IEC 60502-1 + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® ZH EG BG POWER 2x4 mm²
ZH: halogen free
EG, BE, BR : type of electrical screen
BG, FA: type of armour
POWER: power cable
2: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60502-1.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < ZH xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: green.
• **Colour identification of conductors**:
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: black numbered.

Technical characteristics

Thermal

• Continuous operating temperature: - 30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-24 cat. C / NF EN 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **C1**: Fire retardant cable as per NF C 32-070 test C1: contact us.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® ZH BG EX POWER** : with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

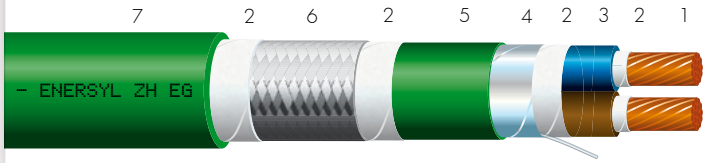
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20° (Ω/km)
2 x 1.5	7 / 0.52	0.7	3.1	1.8	10.3	118	1.8	13.9	259	12.1
3 x 1.5	7 / 0.52	0.7	3.1	1.8	10.8	142	1.8	14.4	289	12.1
4 x 1.5	7 / 0.52	0.7	3.1	1.8	11.6	168	1.8	15.3	329	12.1
5 x 1.5	7 / 0.52	0.7	3.1	1.8	12.5	194	1.8	16.2	367	12.1
7 x 1.5	7 / 0.52	0.7	3.1	1.8	13.4	240	1.8	17.1	425	12.1
12 x 1.5	7 / 0.52	0.7	3.1	1.8	17.1	371	1.8	21.0	625	12.1
19 x 1.5	7 / 0.52	0.7	3.1	1.8	19.7	526	1.8	23.6	818	12.1
24 x 1.5	7 / 0.52	0.7	3.1	1.8	22.8	649	1.8	26.9	998	12.1
27 x 1.5	7 / 0.52	0.7	3.1	1.8	23.3	709	1.8	27.3	1065	12.1
37 x 1.5	7 / 0.52	0.7	3.1	1.8	25.9	921	1.8	30.0	1316	12.1
2 x 2.5	7 / 0.67	0.7	3.5	1.8	11.1	145	1.8	14.7	296	7.41
3 x 2.5	7 / 0.67	0.7	3.5	1.8	11.7	179	1.8	15.4	340	7.41
4 x 2.5	7 / 0.67	0.7	3.5	1.8	12.6	215	1.8	16.3	389	7.41
5 x 2.5	7 / 0.67	0.7	3.5	1.8	13.6	253	1.8	17.3	439	7.41
7 x 2.5	7 / 0.67	0.7	3.5	1.8	14.6	319	1.8	18.3	519	7.41
12 x 2.5	7 / 0.67	0.7	3.5	1.8	18.8	502	1.8	22.6	780	7.41
19 x 2.5	7 / 0.67	0.7	3.5	1.8	21.7	728	1.8	25.6	1048	7.41
24 x 2.5	7 / 0.67	0.7	3.5	1.8	25.2	903	1.8	29.3	1287	7.41
27 x 2.5	7 / 0.67	0.7	3.5	1.8	25.7	993	1.8	29.8	1385	7.41
37 x 2.5	7 / 0.67	0.7	3.5	1.8	28.7	1304	1.9	33.2	1772	7.41
2 x 4	7 / 0.85	0.7	4.2	1.8	12.5	188	1.8	16.2	361	4.61
3 x 4	7 / 0.85	0.7	4.2	1.8	13.2	237	1.8	16.9	419	4.61
4 x 4	7 / 0.85	0.7	4.2	1.8	14.3	291	1.8	18.0	487	4.61
5 x 4	7 / 0.85	0.7	4.2	1.8	15.5	349	1.8	19.1	556	4.61
7 x 4	7 / 0.85	0.7	4.2	1.8	16.8	447	1.8	20.7	697	4.61
12 x 4	7 / 0.85	0.7	4.2	1.8	21.7	710	1.8	25.5	1029	4.61
2 x 6	7 / 1.04	0.7	4.8	1.8	13.7	239	1.8	17.4	427	3.08
3 x 6	7 / 1.04	0.7	4.8	1.8	14.5	309	1.8	18.2	508	3.08
4 x 6	7 / 1.04	0.7	4.8	1.8	15.8	388	1.8	19.4	599	3.08
5 x 6	7 / 1.04	0.7	4.8	1.8	17.2	464	1.8	21.0	719	3.08
7 x 6	7 / 1.04	0.7	4.8	1.8	18.6	604	1.8	22.5	880	3.08
2 x 10	7 / 1.33	0.7	5.5	1.8	15.1	320	1.8	18.8	527	1.83
3 x 10	7 / 1.33	0.7	5.5	1.8	16.1	429	1.8	19.7	644	1.83
4 x 10	7 / 1.33	0.7	5.5	1.8	17.5	540	1.8	21.4	800	1.83
5 x 10	7 / 1.33	0.7	5.5	1.8	19.1	652	1.8	22.9	934	1.83
2 x 16	7 / 1.68	0.7	6.6	1.8	17.4	453	1.8	21.3	711	1.15
3 x 16	7 / 1.68	0.7	6.6	1.8	18.5	615	1.8	22.3	888	1.15
4 x 16	7 / 1.68	0.7	6.6	1.8	20.2	783	1.8	24.0	1081	1.15
5 x 16	7 / 1.68	0.7	6.6	1.8	22.0	952	1.8	25.9	1276	1.15
2 x 25	7 strands	0.9	8.1	1.8	20.4	650	1.8	24.3	951	0.727
3 x 25	7 strands	0.9	8.1	1.8	21.7	898	1.8	25.6	1217	0.727
4 x 25	7 strands	0.9	8.1	1.8	23.8	1153	1.8	27.9	1517	0.727
5 x 25	7 strands	0.9	8.1	1.8	26.1	1411	1.8	30.1	1808	0.727
2 x 35	7 strands	0.9	8.9	1.8	22.0	843	1.8	26.1	1180	0.524
3 x 35	7 strands	0.9	8.9	1.8	23.4	1182	1.8	27.5	1540	0.524
4 x 35	7 strands	0.9	8.9	1.8	25.7	1528	1.9	30.0	1935	0.524
5 x 35	7 strands	0.9	8.9	1.8	28.2	1877	2.0	32.9	2353	0.524
2 x 50	19 strands	1.0	10.1	1.8	24.4	1109	1.8	28.5	1481	0.387
3 x 50	19 strands	1.0	10.1	1.8	26.0	1571	1.9	30.3	1981	0.387
4 x 50	19 strands	1.0	10.1	1.9	28.8	2055	2.0	33.3	2524	0.387
5 x 50	19 strands	1.0	10.1	2.0	31.9	2545	2.1	36.5	3078	0.387
2 x 70	19 strands	1.1	12.0	1.8	28.2	1491	2.0	32.9	1967	0.268
3 x 70	19 strands	1.1	12.0	1.9	30.3	2144	2.0	34.8	2636	0.268
4 x 70	19 strands	1.1	12.0	2.0	33.6	2810	2.1	38.3	3373	0.268
2 x 95	19 strands	1.1	13.6	1.9	31.6	2017	2.1	36.5	2564	0.193
3 x 95	19 strands	1.1	13.6	2.0	34.0	2914	2.2	38.8	3500	0.193

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

ENERSYL® ZH CONTROL

Control cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked halogen-free polyolefine + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® ZH EG BG CONTROL 19x1,5 mm²
ZH: halogen free
EG, BE, BR : type of electrical screen
BG, FA: type of armour
CONTROL: control cable
19: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
1,5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < ZH xx xx CONTROL > < cross-section > – 450/750V – < batch > – < year >

Standard products

• **Sheath**: green.
• **Colour identification of conductors**:
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-24 cat. C / NF EN 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **C1**: Fire retardant cable as per NF C 32-070 test C1: contact us.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® ZH EX CONTROL:** no electrical screen.
> **ENERSYL® ZH BE EX CONTROL:** with electrical screen.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

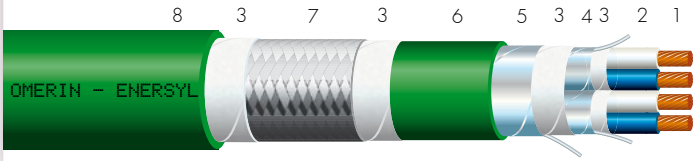
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20° (Ω/km)
2 x 0.34	7 / 0.25	0.6	1.9	0.6	5.2	34	1.0	8.3	105	57.5
3 x 0.34	7 / 0.25	0.6	1.9	0.6	5.5	39	1.0	8.6	113	57.5
4 x 0.34	7 / 0.25	0.6	1.9	0.6	6.0	46	1.0	9.1	126	57.5
5 x 0.34	7 / 0.25	0.6	1.9	0.6	6.5	43	1.0	9.6	130	57.5
7 x 0.34	7 / 0.25	0.6	1.9	0.6	7.1	56	1.0	10.3	151	57.5
12 x 0.34	7 / 0.25	0.6	1.9	0.8	9.7	97	1.0	12.9	224	57.5
19 x 0.34	7 / 0.25	0.6	1.9	1.0	11.7	151	1.1	15.1	308	57.5
24 x 0.34	7 / 0.25	0.6	1.9	1.1	13.8	193	1.2	17.4	384	57.5
27 x 0.34	7 / 0.25	0.6	1.9	1.1	14.1	211	1.2	17.8	409	57.5
37 x 0.34	7 / 0.25	0.6	1.9	1.2	15.9	280	1.3	20.0	532	57.5
2 x 0.5	7 / 0.30	0.6	2.1	0.6	5.6	41	1.0	8.7	116	36.0
3 x 0.5	7 / 0.30	0.6	2.1	0.6	5.9	47	1.0	9.0	127	36.0
4 x 0.5	7 / 0.30	0.6	2.1	0.6	6.5	57	1.0	9.6	142	36.0
5 x 0.5	7 / 0.30	0.6	2.1	0.6	7.1	54	1.0	10.3	149	36.0
7 x 0.5	7 / 0.30	0.6	2.1	0.8	8.1	78	1.0	11.3	185	36.0
12 x 0.5	7 / 0.30	0.6	2.1	0.8	10.5	122	1.1	13.9	265	36.0
19 x 0.5	7 / 0.30	0.6	2.1	1.0	12.7	191	1.2	16.3	368	36.0
24 x 0.5	7 / 0.30	0.6	2.1	1.1	15.0	244	1.2	18.9	474	36.0
27 x 0.5	7 / 0.30	0.6	2.1	1.2	15.5	274	1.2	19.4	512	36.0
37 x 0.5	7 / 0.30	0.6	2.1	1.2	17.3	356	1.3	21.4	629	36.0
2 x 0.75	7 / 0.37	0.6	2.2	0.6	5.8	47	1.0	8.9	125	24.5
3 x 0.75	7 / 0.37	0.6	2.2	0.6	6.2	56	1.0	9.3	137	24.5
4 x 0.75	7 / 0.37	0.6	2.2	0.6	6.7	68	1.0	9.8	156	24.5
5 x 0.75	7 / 0.37	0.6	2.2	0.8	7.7	73	1.0	10.9	176	24.5
7 x 0.75	7 / 0.37	0.6	2.2	0.8	8.4	94	1.0	11.6	205	24.5
12 x 0.75	7 / 0.37	0.6	2.2	1.0	11.4	161	1.1	14.8	314	24.5
19 x 0.75	7 / 0.37	0.6	2.2	1.1	13.4	242	1.2	17.0	428	24.5
24 x 0.75	7 / 0.37	0.6	2.2	1.2	15.8	308	1.3	19.9	559	24.5
27 x 0.75	7 / 0.37	0.6	2.2	1.2	16.1	338	1.3	20.2	594	24.5
37 x 0.75	7 / 0.37	0.6	2.2	1.2	18.0	442	1.3	22.1	726	24.5
2 x 1	7 / 0.43	0.6	2.4	0.6	6.2	55	1.0	9.3	138	18.1
3 x 1	7 / 0.43	0.6	2.4	0.6	6.6	66	1.0	9.7	153	18.1
4 x 1	7 / 0.43	0.6	2.4	0.8	7.6	88	1.0	10.8	189	18.1
5 x 1	7 / 0.43	0.6	2.4	0.8	8.3	88	1.0	11.5	197	18.1
7 x 1	7 / 0.43	0.6	2.4	0.8	9.0	115	1.0	12.2	233	18.1
12 x 1	7 / 0.43	0.6	2.4	1.0	12.2	196	1.2	15.8	367	18.1
19 x 1	7 / 0.43	0.6	2.4	1.1	14.4	296	1.2	18.1	499	18.1
24 x 1	7 / 0.43	0.6	2.4	1.2	17.0	377	1.3	21.1	645	18.1
27 x 1	7 / 0.43	0.6	2.4	1.2	17.4	415	1.3	21.4	689	18.1
37 x 1	7 / 0.43	0.6	2.4	1.3	19.6	555	1.3	23.7	862	18.1
2 x 1.5	7 / 0.52	0.6	2.85	0.6	7.1	75	1.0	10.3	171	12.1
3 x 1.5	7 / 0.52	0.6	2.85	0.8	8.0	99	1.0	11.2	204	12.1
4 x 1.5	7 / 0.52	0.6	2.85	0.8	8.7	121	1.0	11.9	235	12.1
5 x 1.5	7 / 0.52	0.6	2.85	0.8	9.5	121	1.0	12.7	245	12.1
7 x 1.5	7 / 0.52	0.6	2.85	0.8	10.4	160	1.1	13.8	300	12.1
12 x 1.5	7 / 0.52	0.6	2.85	1.1	14.3	280	1.2	18.0	481	12.1
19 x 1.5	7 / 0.52	0.6	2.85	1.2	16.9	425	1.3	20.9	691	12.1
24 x 1.5	7 / 0.52	0.6	2.85	1.3	19.9	539	1.3	24.0	850	12.1
27 x 1.5	7 / 0.52	0.6	2.85	1.3	20.3	594	1.3	24.4	912	12.1
37 x 1.5	7 / 0.52	0.6	2.85	1.3	22.8	786	1.4	27.0	1152	12.1
2 x 2.5	7 / 0.67	0.6	3.2	0.8	8.2	109	1.0	11.4	217	7.41
3 x 2.5	7 / 0.67	0.6	3.2	0.8	8.7	134	1.0	11.9	249	7.41
4 x 2.5	7 / 0.67	0.6	3.2	0.8	9.5	167	1.0	12.7	291	7.41
5 x 2.5	7 / 0.67	0.6	3.2	0.8	10.4	172	1.1	13.8	313	7.41
7 x 2.5	7 / 0.67	0.6	3.2	1.0	11.8	241	1.1	15.2	399	7.41
12 x 2.5	7 / 0.67	0.6	3.2	1.2	15.9	408	1.3	20.0	661	7.41
19 x 2.5	7 / 0.67	0.6	3.2	1.2	18.6	613	1.3	22.7	906	7.41
24 x 2.5	7 / 0.67	0.6	3.2	1.3	22.0	777	1.4	26.3	1132	7.41
27 x 2.5	7 / 0.67	0.6	3.2	1.3	22.5	862	1.4	26.7	1224	7.41
37 x 2.5	7 / 0.67	0.6	3.2	1.4	25.4	1162	1.4	29.7	1568	7.41

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® ZH INSTRUM

Instrumentation cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Insulation: cross-linked halogen-free polyolefine + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® ZH EI BG INSTRUM 2P1,5 mm²
ZH: halogen free
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P,T,Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < ZH xx xx INSTRUM > < cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: green.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-24 cat. C / NF EN 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
(0.9 mm² cross-section replaced by 1 mm²).
• **C1**: Fire retardant cable as per NF C 32-070 test C1: contact us.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® ZH EI BE EX INSTRUM:**
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> **ENERSYL® ZH EI EX INSTRUM:**
with individual and general electrical screen (aluminium/PET tape).
> **ENERSYL® ZH BE EX INSTRUM:**
with general electrical screen (tin-plated copper braid).
> **ENERSYL® ZH EG EX INSTRUM:**
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.0	0.6	2.1	6.0		6.3		6.9		9.1		9.4		10.0	
2 **	0.5	7 / 0.30	36.0	0.6	2.1	6.9	9.7	10.0	11.0	12.7	13.1	10.0	12.9	13.2	14.4	16.3	16.7
3	0.5	7 / 0.30	36.0	0.6	2.1	9.4	10.2	10.6	11.9	13.7	14.1	12.6	13.6	13.8	15.3	17.3	17.8
4	0.5	7 / 0.30	36.0	0.6	2.1	10.4	11.1	11.9	13.3	15.0	15.7	13.8	14.5	15.3	16.9	18.7	19.5
5	0.5	7 / 0.30	36.0	0.6	2.1	11.6	12.6	13.4	14.7	16.6	17.2	15.0	16.2	16.8	18.4	20.7	21.2
6	0.5	7 / 0.30	36.0	0.6	2.1	12.8	13.9	14.5	16.3	18.2	18.8	16.4	17.5	18.2	20.1	22.3	22.9
7	0.5	7 / 0.30	36.0	0.6	2.1	12.8	13.9	14.5	16.3	18.2	18.8	16.4	17.5	18.2	20.1	22.3	22.9
8	0.5	7 / 0.30	36.0	0.6	2.1	14.6	15.6	16.5	18.4			18.3	19.5	20.4	22.4		
9	0.5	7 / 0.30	36.0	0.6	2.1	16.0	17.1	18.0	19.9			20.0	21.2	22.1	24.0		
12	0.5	7 / 0.30	36.0	0.6	2.1	17.2	18.6	19.4	21.7			21.3	22.6	23.5	26.0		
19	0.5	7 / 0.30	36.0	0.6	2.1	20.4	21.9	22.9	25.5			24.5	26.2	27.0	29.7		
24	0.5	7 / 0.30	36.0	0.6	2.1	23.9	25.6					28.1	30.1				
37	0.5	7 / 0.30	36.0	0.6	2.1	27.5	29.6					32.0	34.0				
1	0.9	7 / 0.40	20.6	0.6	2.4	6.6		7.0		7.6		9.7		10.1		10.8	
2 **	0.9	7 / 0.40	20.6	0.6	2.4	7.8	10.8	11.3	12.6	14.3	14.7	11.0	14.2	14.5	16.2	18.0	18.4
3	0.9	7 / 0.40	20.6	0.6	2.4	10.6	11.5	12.2	13.4	15.2	15.9	14.0	14.9	15.6	17.0	19.1	19.9
4	0.9	7 / 0.40	20.6	0.6	2.4	11.8	12.8	13.6	14.9	17.0	17.4	15.2	16.4	17.0	18.6	21.0	21.5
5	0.9	7 / 0.40	20.6	0.6	2.4	13.1	14.2	14.9	16.6	18.7	19.2	16.7	17.9	18.6	20.6	22.7	23.3
6	0.9	7 / 0.40	20.6	0.6	2.4	14.5	15.7	16.4	18.2	20.6	21.2	18.2	19.6	20.3	22.2	24.7	25.5
7	0.9	7 / 0.40	20.6	0.6	2.4	14.5	15.7	16.4	18.2	20.6	21.2	18.2	19.6	20.3	22.2	24.7	25.5
8	0.9	7 / 0.40	20.6	0.6	2.4	16.5	17.7	18.6	20.7			20.5	21.8	22.6	24.7		
9	0.9	7 / 0.40	20.6	0.6	2.4	18.0	19.2	20.3	22.4			22.0	23.3	24.4	26.7		
12	0.9	7 / 0.40	20.6	0.6	2.4	19.4	21.0	22.0	24.3			23.4	25.2	26.0	28.5		
19	0.9	7 / 0.40	20.6	0.6	2.4	22.9	24.6	26.0	28.7			27.1	28.8	30.2	33.2		
24	0.9	7 / 0.40	20.6	0.6	2.4	27.0	29.0					31.5	33.5				
37	0.9	7 / 0.40	20.6	0.6	2.4	31.2	33.5					35.8	38.2				
1	1.5	7 / 0.52	12.1	0.6	2.85	7.7		8.0		8.7		10.9		11.2		11.9	
2 **	1.5	7 / 0.52	12.1	0.6	2.85	8.9	12.8	13.4	14.6	16.7	17.1	12.1	16.4	16.6	18.3	20.8	21.2
3	1.5	7 / 0.52	12.1	0.6	2.85	12.6	13.7	14.3	15.6	17.9	18.3	16.2	17.3	18.0	19.5	22.0	22.4
4	1.5	7 / 0.52	12.1	0.6	2.85	14.0	15.0	15.9	17.4	19.9	20.4	17.7	18.7	19.7	21.4	24.0	24.4
5	1.5	7 / 0.52	12.1	0.6	2.85	15.3	16.6	17.4	19.1	21.8	22.4	19.2	20.7	21.2	23.2	26.1	26.6
6	1.5	7 / 0.52	12.1	0.6	2.85	16.9	18.2	19.1	21.1	23.9	24.5	21.0	22.3	23.1	25.2	28.2	28.8
7	1.5	7 / 0.52	12.1	0.6	2.85	16.9	18.2	19.1	21.1	23.9	24.5	21.0	22.3	23.1	25.2	28.2	28.8
8	1.5	7 / 0.52	12.1	0.6	2.85	19.1	20.7	21.7	23.8			23.2	24.8	25.7	28.1		
9	1.5	7 / 0.52	12.1	0.6	2.85	21.0	22.5	23.6	26.1			25.2	26.7	27.8	30.6		
12	1.5	7 / 0.52	12.1	0.6	2.85	22.6	24.3	25.7	28.3			26.9	28.6	29.9	32.7		
19	1.5	7 / 0.52	12.1	0.6	2.85	26.8	28.8	30.4	33.5			31.2	33.2	34.8	38.1		
24	1.5	7 / 0.52	12.1	0.6	2.85	31.6	34.0					36.3	38.7				
37	1.5	7 / 0.52	12.1	0.6	2.85	36.5	39.3					41.4	44.2				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00
omerin@omerin.com

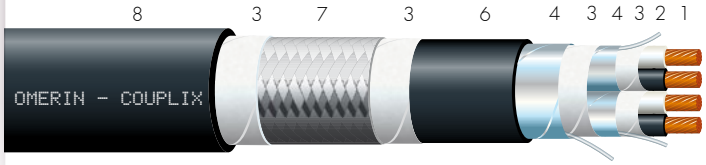
OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

COUPLIX® ZH

Pyrometry cables (Extension and compensation)



1 • Stranded core extension: JX, KX, EX, TX or compensation: BC, KCB.
2 • Insulation: cross-linked halogen-free polyolefine + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) COUPLIX® JX ZH EI BG 2P0.5 mm²
JX, TX, KX, EX, BC, KCB: type of extension cable or compensation cable
ZH: halogen free
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
2P: number of pairs
0.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.
• IEC 60584-1 / IEC 60584-2 / IEC 60584-3.

Markings

• OMERIN – COUPLIX < xx ZH xx xx >
< cross-section > – < batch > – < year >

Category

• Extension cable – tolerance class: 1.
• Compensation cable – tolerance class: 2.

Colour code

IEC

Form

Round

Technical characteristics

Thermal

• Temperature of insulation under continuous operation: -30 °C to +80 °C.

Electrical

• Test voltage: 500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-24 cat. C / NF EN 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **Other extension cables or compensation cables:** contact us.
• **C1**: Fire retardant cable as per NF C 32-070 test C1: contact us.
• **105 °C cable**: contact us.
• **Other colour codes:** contact us.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs	Nominal cross-section (mm^2)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm) EG	NON-SHIELDED CABLES Nominal outside diameter* (mm) EI	ARMOURED CABLES Nominal outside diameter* (mm) EG	ARMOURED CABLES Nominal outside diameter* (mm) EI
1	0.5	7 / 0.30	0.5	1.9	5.6		8.7	
2 **	0.5	7 / 0.30	0.5	1.9	6.4	9.0	9.5	12.2
3	0.5	7 / 0.30	0.5	1.9	8.7	9.3	11.9	12.7
4	0.5	7 / 0.30	0.5	1.9	9.5	10.3	12.9	13.7
5	0.5	7 / 0.30	0.5	1.9	10.7	11.6	14.1	15.2
6	0.5	7 / 0.30	0.5	1.9	11.8	12.8	15.4	16.4
7	0.5	7 / 0.30	0.5	1.9	11.8	12.8	15.4	16.4
8	0.5	7 / 0.30	0.5	1.9	13.5	14.4	17.1	18.1
9	0.5	7 / 0.30	0.5	1.9	14.7	15.8	18.6	19.8
12	0.5	7 / 0.30	0.5	1.9	15.9	17.0	19.9	21.0
19	0.5	7 / 0.30	0.5	1.9	18.8	20.1	22.8	24.4
24	0.5	7 / 0.30	0.5	1.9	21.9	23.5	26.2	28.0
37	0.5	7 / 0.30	0.5	1.9	25.2	27.1	29.7	31.5
1	1	14 / 0.30	0.5	2.4	6.6		9.7	
2 **	1	14 / 0.30	0.5	2.4	7.8	11.0	11.0	14.4
3	1	14 / 0.30	0.5	2.4	10.6	11.5	14.0	14.9
4	1	14 / 0.30	0.5	2.4	11.8	12.8	15.2	16.4
5	1	14 / 0.30	0.5	2.4	13.1	14.2	16.7	17.9
6	1	14 / 0.30	0.5	2.4	14.5	15.7	18.2	19.6
7	1	14 / 0.30	0.5	2.4	14.5	15.7	18.2	19.6
8	1	14 / 0.30	0.5	2.4	16.5	17.7	20.5	21.8
9	1	14 / 0.30	0.5	2.4	18.0	19.2	22.0	23.3
12	1	14 / 0.30	0.5	2.4	19.4	21.0	23.4	25.2
19	1	14 / 0.30	0.5	2.4	22.9	24.6	27.1	28.8
24	1	14 / 0.30	0.5	2.4	27.0	29.0	31.5	33.5
37	1	14 / 0.30	0.5	2.4	31.2	33.5	35.8	38.2

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

HIGH TEMPERATURE CABLES

ENERSYL® HT

HIGH TEMPERATURE CABLES

Technical data

Continuous operating temperature
Maximum core temperature
Rated voltage
Test voltage

Standard products

Stranding of the core
Insulation of conductors
Outer sheath
Colour identification of conductors

Colour of the outer sheath

Options

Flexible core - CuSn class 5
Individual electrical screen (pair / triple / quad) using aluminium/PET tape + continuity wire*
General electrical screen using aluminium/PET tape + continuity wire
General electrical screen using bare copper braid
General electrical screen using tin-plated copper braid
Mechanical armour using galvanized steel braid (+ inner sheath)
Mechanical armour using double steel tape (+ inner sheath)
Use in ATEX zone as per NF C 15-100 part 4-42 or EN 60079-14 (excluding "i" intrinsic safety circuit)
Use in ATEX zone for "i" intrinsic safety circuit only as per EN 60079-14

Characteristics

Core - as per standard
Insulation - as per standard
Sheath - material as per standard
Cable - construction as per standard

Fire-smoke resistance properties of cable

Flame retardant - IEC 60332-3-22 (Cat. A bundled cables)
Flame retardant - IEC 60332-3-24 (Cat. C bundled cables)
Fire retardant - NF C 32-070 test C1
Flame retardant - IEC 60332-1-2 / NF C 32-070 test C2
Fire-resistant - IEC 60331-21 / EN 50200
Low smoke density - IEC 61034-2
Halogen-free - IEC 60754-1
Low corrosiveness of gas emissions - IEC 60754-2

Physical / chemical properties of the sheath

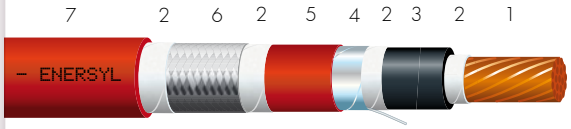
Resistance to acid (immersion 168 h)**
Resistance to base (immersion 168 h)**
Resistance to IRM 902 mineral oil (24 h immersion at 100 °C)**
Reinforced resistance to IRM 902 mineral oil (168 h immersion at 90 °C)**
Resistance to aliphatic hydrocarbons (immersion 168 h)**
AD7 class as per IEC 60529 (immersion in water - ends not immersed)**
Resistance to saline mist (immersion in salt water - 168 h at 60 °C)**
Resistance to UV ≥ 2000 h as per EN 16472**

* By default all cables with individual screens also have EG type general screens.
** Based on the OMERIN method. Refer to the corresponding test report for further information.

ENERSYL® HT POWER Power cables	ENERSYL® HT CONTROL Control cables	ENERSYL® HT INSTRUM Instrumentation cables	COUPLIX® HT Pyrometry cables
-60 °C to +200 °C	-60 °C to +200 °C	-60 °C to +200 °C	-60 °C to +200 °C
+230 °C	+230 °C	+230 °C	+230 °C
600 / 1000 V	450 / 750 V	300 / 500 V	N/A
3500 V	2500 V	2000 V	500 V
CuA1 class 2	CuA1 class 2	CuA1 class 2	N/A
silicone rubber	silicone rubber	silicone rubber	silicone rubber
silicone rubber	silicone rubber	silicone rubber	silicone rubber
HD 308 S2 or black numbered if → 5 conductors	HD 308 S2 or white numbered if → 5 conductors	white/blue OR white/red/blue OR white/red/blue/black	as per IEC 60584
brick red	brick red	brick red	as per IEC 60584
FLEX	FLEX	FLEX	N/A
N/A	N/A	EI	EI
EG	EG	EG	EG
BR	BR	BR	BR
BE	BE	BE	BE
BG	BG	BG	BG
N/A	N/A	N/A	N/A
EX	N/A	N/A	N/A
N/A	EX	EX	N/A
IEC 60228	IEC 60228	IEC 60228	IEC 60584
NF C 32-090	NF C 32-090	NF C 32-090	NF C 32-090
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	N/A
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
-	-	-	-
✓	✓	✓	✓
-	-	-	-
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓

ENERSYL® HT POWER

Single core power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber as per NF C 32-090.
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: silicone rubber.
6 • (optional) Armour: galvanized steel braid (BG).
7 • Outer sheath: silicone rubber.

Reference

• (example) ENERSYL® HT EG BG POWER 150 mm²
HT: high temperature
EG, BE, BR: type of electrical screen
BG: type of armour
POWER: power cable
150 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < HT xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: brick red.
• **Insulation:** black.

Technical characteristics

Thermal

• Continuous operating temperature: -60 °C to +200 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140102-01:

• Good resistance to acid.
• Fairly good resistance to base.
• Good resistance to IRM 902 mineral oil.
• Good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® HT BG EX POWER :** with a silicone sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
1.5	7 / 0.52	0.8	3.1	0.7	4.7	35	1.0	7.8	98	12.1
2.5	7 / 0.67	0.8	3.6	0.7	5.2	48	1.0	8.3	117	7.41
4	7 / 0.85	0.8	4.2	0.8	6.0	68	1.2	9.5	154	4.61
6	7 / 1.04	1.0	5.2	1.0	7.4	104	1.4	11.4	219	3.08
10	7 / 1.33	1.1	6.4	1.0	8.6	151	1.4	12.6	282	1.83
16	7 / 1.68	1.1	7.4	1.2	10.0	220	1.5	14.2	377	1.15
25	7 strands	1.2	8.6	1.4	11.6	322	1.5	15.8	501	0.727
35	7 strands	1.3	9.7	1.4	12.7	427	1.5	16.9	621	0.524
50	19 strands	1.4	11.5	1.5	14.7	587	1.6	19.2	821	0.387
70	19 strands	1.4	12.7	1.5	15.9	759	1.6	20.6	1031	0.268
95	19 strands	1.5	14.8	1.6	18.3	1047	1.8	23.4	1377	0.193
120	19 strands	1.5	16.4	1.6	19.9	1287	2.0	25.4	1666	0.153
150	19 strands	1.5	18.3	1.8	22.2	1593	2.0	27.7	2012	0.124
185	37 strands	1.6	20.7	1.8	24.6	1966	2.4	30.9	2481	0.0991
240	37 strands	1.8	23.4	2.2	28.1	2565	2.4	34.4	3148	0.0754
300	61 strands	2.0	27.0	2.4	32.1	3215	2.6	38.8	3909	0.0601
400	61 strands	2.4	30.4	2.6	35.9	4087	2.8	43.0	4895	0.0470

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

For this product, please contact:

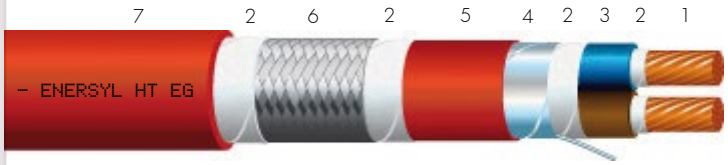
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

ENERSYL® HT POWER

Multicore power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: silicone rubber.
6 • (optional) Armour: galvanized steel braid (BG).
7 • Outer sheath: silicone rubber.

Reference

• (example) ENERSYL® HT EG BG POWER 2x4 mm²
HT: high temperature
EG, BE, BR: type of electrical screen
BG: type of armour
POWER: power cable
2: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < HT xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: brick red.
• **Colour identification of conductors**:
> up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -60 °C to +200 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140102-01:

• Good resistance to acid.
• Fairly good resistance to base.
• Good resistance to IRM 902 mineral oil.
• Good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® HT BG EX POWER:** with a silicone sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

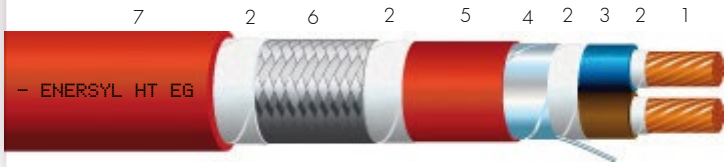
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 1.5	7 / 0.52	0.8	3.1	1.0	8.4	100	1.4	12.4	229	12.1
3 x 1.5	7 / 0.52	0.8	3.1	1.0	8.9	120	1.4	12.9	256	12.1
4 x 1.5	7 / 0.52	0.8	3.1	1.2	10.1	156	1.5	14.3	314	12.1
5 x 1.5	7 / 0.52	0.8	3.1	1.4	11.4	173	1.5	15.6	348	12.1
7 x 1.5	7 / 0.52	0.8	3.1	1.4	12.3	222	1.5	16.5	410	12.1
12 x 1.5	7 / 0.52	0.8	3.1	1.5	16.1	360	1.6	20.8	635	12.1
19 x 1.5	7 / 0.52	0.8	3.1	1.6	19.0	541	1.8	24.1	883	12.1
24 x 1.5	7 / 0.52	0.8	3.1	1.8	22.5	692	2.2	28.4	1141	12.1
27 x 1.5	7 / 0.52	0.8	3.1	1.8	23.0	760	2.2	28.8	1218	12.1
37 x 1.5	7 / 0.52	0.8	3.1	2.0	26.0	1020	2.4	32.3	1562	12.1
2 x 2.5	7 / 0.67	0.8	3.6	1.2	9.8	142	1.4	13.8	290	7.41
3 x 2.5	7 / 0.67	0.8	3.6	1.4	10.8	182	1.5	15.0	350	7.41
4 x 2.5	7 / 0.67	0.8	3.6	1.4	11.7	224	1.5	15.9	404	7.41
5 x 2.5	7 / 0.67	0.8	3.6	1.4	12.7	236	1.5	16.9	430	7.41
7 x 2.5	7 / 0.67	0.8	3.6	1.5	14.0	314	1.6	18.5	538	7.41
12 x 2.5	7 / 0.67	0.8	3.6	1.6	18.5	517	1.8	23.5	850	7.41
19 x 2.5	7 / 0.67	0.8	3.6	1.8	21.9	785	2.0	27.4	1200	7.41
24 x 2.5	7 / 0.67	0.8	3.6	2.0	25.9	1001	2.4	32.2	1541	7.41
27 x 2.5	7 / 0.67	0.8	3.6	2.0	26.4	1103	2.4	32.7	1653	7.41
37 x 2.5	7 / 0.67	0.8	3.6	2.2	29.9	1481	2.6	36.6	2130	7.41
2 x 4	7 / 0.85	0.8	4.2	1.4	11.4	199	1.5	15.6	375	4.61
3 x 4	7 / 0.85	0.8	4.2	1.4	12.1	244	1.5	16.3	429	4.61
4 x 4	7 / 0.85	0.8	4.2	1.4	13.2	303	1.5	17.4	503	4.61
5 x 4	7 / 0.85	0.8	4.2	1.5	14.5	328	1.6	19.0	559	4.61
7 x 4	7 / 0.85	0.8	4.2	1.5	15.8	431	1.6	20.5	702	4.61
12 x 4	7 / 0.85	0.8	4.2	1.6	21.0	716	2.0	26.4	1114	4.61
2 x 6	7 / 1.04	1.0	5.2	1.4	13.4	285	1.5	17.6	488	3.08
3 x 6	7 / 1.04	1.0	5.2	1.5	14.4	359	1.6	18.9	589	3.08
4 x 6	7 / 1.04	1.0	5.2	1.5	15.8	447	1.6	20.4	718	3.08
5 x 6	7 / 1.04	1.0	5.2	1.5	17.2	475	1.8	22.3	788	3.08
7 x 6	7 / 1.04	1.0	5.2	1.6	19.1	644	1.8	24.2	988	3.08
2 x 10	7 / 1.33	1.1	6.4	1.5	16.0	421	1.6	20.7	695	1.83
3 x 10	7 / 1.33	1.1	6.4	1.5	17.0	528	1.8	22.1	837	1.83
4 x 10	7 / 1.33	1.1	6.4	1.6	19.0	675	1.8	24.0	1017	1.83
5 x 10	7 / 1.33	1.1	6.4	1.6	20.8	719	2.0	26.2	1114	1.83
2 x 16	7 / 1.68	1.1	7.4	1.6	18.3	590	1.8	23.4	921	1.15
3 x 16	7 / 1.68	1.1	7.4	1.6	19.5	750	1.8	24.5	1100	1.15
4 x 16	7 / 1.68	1.1	7.4	1.8	21.8	966	2.0	27.3	1378	1.15
5 x 16	7 / 1.68	1.1	7.4	1.8	23.9	1041	2.4	30.1	1543	1.15
2 x 25	7 strands	1.2	8.6	1.6	20.7	821	2.0	26.2	1215	0.727
3 x 25	7 strands	1.2	8.6	1.8	22.5	1080	2.2	28.3	1529	0.727
4 x 25	7 strands	1.2	8.6	2.0	25.1	1392	2.4	31.4	1917	0.727
5 x 25	7 strands	1.2	8.6	2.0	27.5	1518	2.4	33.8	2090	0.727
2 x 35	7 strands	1.3	9.7	1.8	23.3	1099	2.2	29.2	1563	0.524
3 x 35	7 strands	1.3	9.7	2.0	25.3	1452	2.4	31.5	1980	0.524
4 x 35	7 strands	1.3	9.7	2.2	28.2	1874	2.4	34.4	2458	0.524
5 x 35	7 strands	1.3	9.7	2.4	31.3	2089	2.6	38.0	2767	0.524
2 x 50	19 strands	1.4	11.5	2.0	27.3	1520	2.4	33.6	2087	0.387
3 x 50	19 strands	1.4	11.5	2.4	29.9	2035	2.6	36.6	2685	0.387
4 x 50	19 strands	1.4	11.5	2.4	32.9	2590	2.6	39.6	3301	0.387
5 x 50	19 strands	1.4	11.5	2.6	36.6	2881	2.8	43.6	3702	0.387
2 x 70	19 strands	1.4	12.7	2.4	30.5	1987	2.6	37.2	2649	0.268
3 x 70	19 strands	1.4	12.7	2.4	32.5	2608	2.6	39.2	3310	0.268
4 x 70	19 strands	1.4	12.7	2.6	36.2	3369	2.8	43.3	4183	0.268

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

ENERSYL® HT CONTROL

Control cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: silicone rubber.
6 • (optional) Armour: galvanized steel braid (BG).
7 • Outer sheath: silicone rubber.

Reference

• (example) ENERSYL® HT EG BG CONTROL 19x1,5 mm²
HT: high temperature
EG, BE, BR: type of electrical screen
BG: type of armour
CONTROL: control cable
19: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < HT xx xx CONTROL > < cross-section > – 450/750V – < batch > – < year >

Standard products

• **Sheath**: brick red.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -60 °C to +200 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140102-01:

• Good resistance to acid.
• Fairly good resistance to base.
• Good resistance to IRM 902 mineral oil.
• Good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX:** flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® HT EX CONTROL:** no electrical screen.
> **ENERSYL® HT BE EX CONTROL:** with electrical screen.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

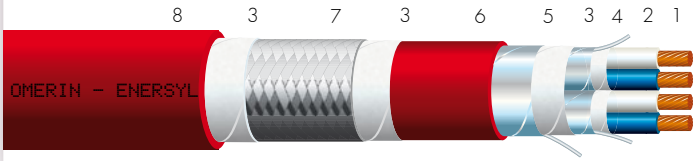
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 0.34	7 / 0.25	0.6	2.0	0.8	5,8	42	1.0	8.9	118	57.5
3 x 0.34	7 / 0.25	0.6	2.0		6,1	49	1.2	9.6	137	57.5
4 x 0.34	7 / 0.25	0.6	2.0	1.0	7,0	65	1.4	11.0	175	57.5
5 x 0.34	7 / 0.25	0.6	2.0		7,6	66	1.4	11.6	185	57.5
7 x 0.34	7 / 0.25	0.6	2.0	1.0	8,2	83	1.4	12.2	209	57.5
12 x 0.34	7 / 0.25	0.6	2.0		11,3	148	1.5	15.5	323	57.5
19 x 0.34	7 / 0.25	0.6	2.0	1.4	13,0	208	1.5	17.2	406	57.5
24 x 0.34	7 / 0.25	0.6	2.0		15,2	263	1.6	19.9	524	57.5
27 x 0.34	7 / 0.25	0.6	2.0	1.5	15,5	286	1.6	20.2	552	57.5
37 x 0.34	7 / 0.25	0.6	2.0		17,2	367	1.8	22.3	679	57.5
2 x 0.5	7 / 0.30	0.6	2.1	0.8	6,0	47	1.2	9.5	133	36.0
3 x 0.5	7 / 0.30	0.6	2.1		6,3	55	1.2	9.8	146	36.0
4 x 0.5	7 / 0.30	0.6	2.1	1.0	7,3	73	1.4	11.3	187	36.0
5 x 0.5	7 / 0.30	0.6	2.1		7,9	76	1.4	11.9	198	36.0
7 x 0.5	7 / 0.30	0.6	2.1	1.0	8,5	96	1.4	12.5	226	36.0
12 x 0.5	7 / 0.30	0.6	2.1		11,7	171	1.5	15.9	351	36.0
19 x 0.5	7 / 0.30	0.6	2.1	1.4	13,5	242	1.5	17.7	447	36.0
24 x 0.5	7 / 0.30	0.6	2.1		15,8	306	1.6	20.5	577	36.0
27 x 0.5	7 / 0.30	0.6	2.1	1.5	16,1	334	1.6	20.8	609	36.0
37 x 0.5	7 / 0.30	0.6	2.1		17,9	432	1.8	23.0	756	36.0
2 x 0.75	7 / 0.37	0.6	2.4	1.0	7,0	65	1.4	11.0	175	24.5
3 x 0.75	7 / 0.37	0.6	2.4		7,4	77	1.4	11.4	192	24.5
4 x 0.75	7 / 0.37	0.6	2.4	1.0	8,0	92	1.4	12.0	216	24.5
5 x 0.75	7 / 0.37	0.6	2.4		8,7	96	1.4	12.7	229	24.5
7 x 0.75	7 / 0.37	0.6	2.4	1.2	9,8	131	1.4	13.8	279	24.5
12 x 0.75	7 / 0.37	0.6	2.4		13,0	218	1.5	17.2	415	24.5
19 x 0.75	7 / 0.37	0.6	2.4	1.5	15,2	320	1.6	19.9	582	24.5
24 x 0.75	7 / 0.37	0.6	2.4		17,6	396	1.8	22.7	715	24.5
27 x 0.75	7 / 0.37	0.6	2.4	1.6	18,2	442	1.8	23.2	770	24.5
37 x 0.75	7 / 0.37	0.6	2.4		20,3	580	2.0	25.8	966	24.5
2 x 1	7 / 0.43	0.6	2.5	1.0	7,1	70	1.4	11.1	182	18.1
3 x 1	7 / 0.43	0.6	2.5		7,5	84	1.4	11.5	201	18.1
4 x 1	7 / 0.43	0.6	2.5	1.0	8,1	102	1.4	12.1	227	18.1
5 x 1	7 / 0.43	0.6	2.5		8,8	107	1.4	12.8	242	18.1
7 x 1	7 / 0.43	0.6	2.5	1.2	10,0	147	1.5	14.2	303	18.1
12 x 1	7 / 0.43	0.6	2.5		13,2	244	1.5	17.4	445	18.1
19 x 1	7 / 0.43	0.6	2.5	1.5	15,5	362	1.6	20.2	628	18.1
24 x 1	7 / 0.43	0.6	2.5		18,2	457	1.8	23.2	785	18.1
27 x 1	7 / 0.43	0.6	2.5	1.6	18,6	505	1.8	23.7	841	18.1
37 x 1	7 / 0.43	0.6	2.5		20,7	660	2.0	26.2	1053	18.1
2 x 1.5	7 / 0.52	0.6	2.8	1.0	7,8	89	1.4	11.8	210	12.1
3 x 1.5	7 / 0.52	0.6	2.8		8,2	108	1.4	12.2	235	12.1
4 x 1.5	7 / 0.52	0.6	2.8	1.0	8,9	132	1.4	12.9	269	12.1
5 x 1.5	7 / 0.52	0.6	2.8		10,2	149	1.5	14.4	308	12.1
7 x 1.5	7 / 0.52	0.6	2.8	1.4	11,4	203	1.5	15.6	379	12.1
12 x 1.5	7 / 0.52	0.6	2.8		14,8	329	1.6	19.3	565	12.1
19 x 1.5	7 / 0.52	0.6	2.8	1.5	17,2	483	1.8	22.3	795	12.1
24 x 1.5	7 / 0.52	0.6	2.8		20,3	614	2.0	25.8	1000	12.1
27 x 1.5	7 / 0.52	0.6	2.8	1.6	20,7	676	2.0	26.2	1070	12.1
37 x 1.5	7 / 0.52	0.6	2.8		23,5	911	2.2	29.4	1379	12.1
2 x 2.5	7 / 0.67	0.7	3.4	1.2	9,4	134	1.4	13.4	277	7.41
3 x 2.5	7 / 0.67	0.7	3.4		9,9	164	1.4	13.9	314	7.41
4 x 2.5	7 / 0.67	0.7	3.4	1.4	11,2	212	1.5	15.4	385	7.41
5 x 2.5	7 / 0.67	0.7	3.4		12,2	226	1.5	16.4	413	7.41
7 x 2.5	7 / 0.67	0.7	3.4	1.4	13,2	295	1.5	17.4	495	7.41
12 x 2.5	7 / 0.67	0.7	3.4		17,3	484	1.8	22.4	798	7.41
19 x 2.5	7 / 0.67	0.7	3.4	1.6	20,5	734	2.0	26.0	1124	7.41
24 x 2.5	7 / 0.67	0.7	3.4		24,3	937	2.4	30.6	1447	7.41
27 x 2.5	7 / 0.67	0.7	3.4	2.0	25,2	1057	2.4	31.5	1584	7.41
37 x 2.5	7 / 0.67	0.7	3.4		28,5	1419	2.4	34.8	2010	7.41

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® HT INSTRUM

Instrumentation cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: silicone rubber.
7 • (optional) Armour: galvanized steel braid (BG).
8 • Outer sheath: silicone rubber.

Reference

• (example) ENERSYL® HT EI BG INSTRUM 2P1,5 mm²
HT: high temperature
EI, EG, BE, BR: type of electrical screen
BG: type of armour
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P,T,Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < HT xx xx INSTRUM > < cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: brick red.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -60 °C to +200 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140102-01:

• Good resistance to acid.
• Fairly good resistance to base.
• Good resistance to IRM 902 mineral oil.
• Good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
(0.9 mm² cross-section replaced by 1 mm²).
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® HT EI BE EX INSTRUM:**
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> **ENERSYL® HT EI EX INSTRUM:**
with individual and general electrical screen (aluminium/PET tape).
> **ENERSYL® HT BE EX INSTRUM:**
with general electrical screen (tin-plated copper braid).
> **ENERSYL® HT EG EX INSTRUM:**
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.0	0.6	2.1	6.0		6.4		7.5		9.4		9.8		11.5	
2**	0.5	7 / 0.30	36.0	0.6	2.1	7.3	10.0	11.5	12.3	12.8	13.8	11.2	14.1	15.6	16.5	17.0	18.0
3	0.5	7 / 0.30	36.0	0.6	2.1	10.0	11.1	12.1	12.8	13.8	14.9	14.1	15.2	16.2	17.0	18.2	19.4
4	0.5	7 / 0.30	36.0	0.6	2.1	11.4	12.0	13.2	13.9	15.0	16.2	15.5	16.1	17.3	18.1	19.5	20.8
5	0.5	7 / 0.30	36.0	0.6	2.1	12.4	13.0	14.6	15.4	16.4	17.7	16.5	17.1	19.0	20.0	21.4	22.8
6	0.5	7 / 0.30	36.0	0.6	2.1	13.4	14.3	15.8	16.7	18.0	19.6	17.5	18.7	20.3	21.3	23.1	24.6
7	0.5	7 / 0.30	36.0	0.6	2.1	13.4	14.3	15.8	16.7	18.0	19.6	17.5	18.7	20.3	21.3	23.1	24.6
8	0.5	7 / 0.30	36.0	0.6	2.1	15.2	16.0	17.6	19.0			19.7	20.5	22.6	24.0		
9	0.5	7 / 0.30	36.0	0.6	2.1	16.4	17.2	19.4	20.5			20.9	22.2	24.3	26.0		
12	0.5	7 / 0.30	36.0	0.6	2.1	17.6	18.9	20.8	22.5			22.6	23.8	26.2	28.3		
19	0.5	7 / 0.30	36.0	0.6	2.1	20.8	22.3	24.7	26.6			26.2	28.1	30.8	32.8		
24	0.5	7 / 0.30	36.0	0.6	2.1	24.7	26.4					30.8	32.5				
37	0.5	7 / 0.30	36.0	0.6	2.1	28.9	30.8					35.5	37.4				
1	0.9	7 / 0.40	20.6	0.6	2.4	7.0		7.5		8.2		10.9		11.4		12.2	
2**	0.9	7 / 0.40	20.6	0.6	2.4	8.0	11.5	12.7	13.9	14.2	15.5	11.9	15.6	16.8	18.1	18.5	20.1
3	0.9	7 / 0.40	20.6	0.6	2.4	11.6	12.1	13.4	14.3	15.1	16.4	15.7	16.2	17.5	18.8	19.5	21.1
4	0.9	7 / 0.40	20.6	0.6	2.4	12.6	13.2	14.8	15.5	16.6	17.9	16.7	17.3	19.2	20.2	21.3	23.0
5	0.9	7 / 0.40	20.6	0.6	2.4	13.7	14.6	16.1	16.9	18.3	20.0	17.8	19.0	20.7	22.0	23.0	25.4
6	0.9	7 / 0.40	20.6	0.6	2.4	15.1	15.8	17.5	18.7	19.9	22.2	19.7	20.4	22.5	23.8	25.0	27.6
7	0.9	7 / 0.40	20.6	0.6	2.4	15.1	15.8	17.5	18.7	19.9	22.2	19.7	20.4	22.5	23.8	25.0	27.6
8	0.9	7 / 0.40	20.6	0.6	2.4	16.9	17.7	19.9	21.0			21.8	22.6	25.3	26.4		
9	0.9	7 / 0.40	20.6	0.6	2.4	18.6	19.4	22.0	23.1			23.5	24.4	27.3	29.0		
12	0.9	7 / 0.40	20.6	0.6	2.4	20.0	20.9	23.7	25.3			25.3	26.3	29.4	31.6		
19	0.9	7 / 0.40	20.6	0.6	2.4	23.7	24.8	28.4	30.3			29.4	30.9	34.6	37.0		
24	0.9	7 / 0.40	20.6	0.6	2.4	28.4	30.1					34.6	36.7				
37	0.9	7 / 0.40	20.6	0.6	2.4	32.8	34.7					39.3	41.6				
1	1.5	7 / 0.52	12.1	0.6	2.8	7.8		8.3		9.1		11.7		12.2		13.1	
2**	1.5	7 / 0.52	12.1	0.6	2.8	9.4	12.8	14.4	15.9	16.2	17.4	13.3	16.9	18.8	20.6	20.9	22.5
3	1.5	7 / 0.52	12.1	0.6	2.8	13.0	13.6	15.3	15.9	17.2	18.8	17.1	17.7	19.9	20.6	21.9	23.9
4	1.5	7 / 0.52	12.1	0.6	2.8	14.4	14.9	16.7	17.4	18.9	20.5	18.8	19.3	21.2	22.4	23.6	26.0
5	1.5	7 / 0.52	12.1	0.6	2.8	15.7	16.3	18.5	19.4	21.0	23.0	20.3	20.9	23.5	24.4	26.0	28.8
6	1.5	7 / 0.52	12.1	0.6	2.8	17.1	18.0	20.2	21.1	22.9	25.4	22.0	22.9	25.5	26.5	28.3	31.7
7	1.5	7 / 0.52	12.1	0.6	2.8	17.1	18.0	20.2	21.1	22.9	25.4	22.0	22.9	25.5	26.5	28.3	31.7
8	1.5	7 / 0.52	12.1	0.6	2.8	19.4	20.2	23.0	24.1			24.4	25.6	28.8	30.3		
9	1.5	7 / 0.52	12.1	0.6	2.8	21.0	22.3	25.3	26.5			26.4	28.1	31.5	32.7		
12	1.5	7 / 0.52	12.1	0.6	2.8	23.1	24.0	27.3	29.0			28.9	30.2	33.5	35.0		
19	1.5	7 / 0.52	12.1	0.6	2.8	27.4	28.9	32.7	34.2			33.5	35.4	39.3	41.3		
24	1.5	7 / 0.52	12.1	0.6	2.8	32.8	34.1					39.3	41.0				
37	1.5	7 / 0.52	12.1	0.6	2.8	37.7	39.2					44.7	46.6				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

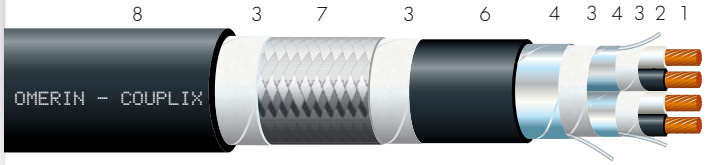
OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

COUPLIX® HT

Pyrometry cables (Extension and compensation)



1 • Stranded core extension: JX, KX, EX, TX or compensation: BC, KCB.
2 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: silicone rubber.
7 • (optional) Armour: galvanized steel braid (BG).
8 • Outer sheath: silicone rubber.

Reference

• (example) COUPLIX® JX HT EI BG 2P0,5 mm²
JX, TX, KX, EX, BC, KCB: type of extension cable or compensation cable
HT: high temperature
EI, EG, BE, BR: type of electrical screen
BG: type of armour
2P: number of pairs
0.5 mm²: cross-section in mm²

Approvals - standards

• NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.
• IEC 60584-1 / IEC 60584-2 / IEC 60584-3.

Markings

• OMERIN – COUPLIX < xx HT xx xx > < cross-section > – < batch > – < year >

Category

• Extension cable – tolerance class: 1.
• Compensation cable – tolerance class: 2.

Colour code

IEC

Form

Round

Technical characteristics

Thermal

• Temperature of insulation under continuous operation: -60 °C to +200 °C.

Electrical

• Test voltage: 500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140102-01:

• Good resistance to acid.
• Fairly good resistance to base.
• Good resistance to IRM 902 mineral oil.
• Good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **Other extension cables or compensation cables:** contact us.
• **Other colour codes:** contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs	Nominal cross-section (mm^2)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm) EG	NON-SHIELDED CABLES Nominal outside diameter* (mm) EI	ARMOURED CABLES Nominal outside diameter* (mm) EG	ARMOURED CABLES Nominal outside diameter* (mm) EI
1	0.5	7 / 0.30	0.6	2.1	6.0		9.4	
2 **	0.5	7 / 0.30	0.6	2.1	7.3	10.0	11.2	14.1
3	0.5	7 / 0.30	0.6	2.1	10.0	11.1	14.1	15.2
4	0.5	7 / 0.30	0.6	2.1	11.4	12.0	15.5	16.1
5	0.5	7 / 0.30	0.6	2.1	12.4	13.0	16.5	17.1
6	0.5	7 / 0.30	0.6	2.1	13.4	14.3	17.5	18.7
7	0.5	7 / 0.30	0.6	2.1	13.4	14.3	17.5	18.7
8	0.5	7 / 0.30	0.6	2.1	15.2	16.0	19.7	20.5
9	0.5	7 / 0.30	0.6	2.1	16.4	17.2	20.9	22.2
12	0.5	7 / 0.30	0.6	2.1	17.6	18.9	22.6	23.8
19	0.5	7 / 0.30	0.6	2.1	20.8	22.3	26.2	28.1
24	0.5	7 / 0.30	0.6	2.1	24.7	26.4	30.8	32.5
37	0.5	7 / 0.30	0.6	2.1	28.9	30.8	35.5	37.4
1	1	14 / 0.30	0.6	2.5	7.2		11.2	
2 **	1	14 / 0.30	0.6	2.5	8.3	11.8	12.3	15.9
3	1	14 / 0.30	0.6	2.5	12.0	12.5	16.2	16.6
4	1	14 / 0.30	0.6	2.5	13.0	13.6	17.2	17.7
5	1	14 / 0.30	0.6	2.5	14.4	15.0	18.9	19.6
6	1	14 / 0.30	0.6	2.5	15.6	16.3	20.3	20.9
7	1	14 / 0.30	0.6	2.5	15.6	16.3	20.3	20.9
8	1	14 / 0.30	0.6	2.5	17.4	18.5	22.5	23.5
9	1	14 / 0.30	0.6	2.5	19.2	20.0	24.2	25.4
12	1	14 / 0.30	0.6	2.5	20.7	22.0	26.1	27.3
19	1	14 / 0.30	0.6	2.5	24.5	26.0	30.8	32.2
24	1	14 / 0.30	0.6	2.5	29.4	31.1	36.1	37.7
37	1	14 / 0.30	0.6	2.5	33.9	35.8	41.0	42.8

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

FIRE RESISTANT CABLES

ENERSYL® FR

FIRE RESISTANT CABLES

Technical data

Continuous operating temperature
Maximum core temperature
Rated voltage
Test voltage

Standard products

Stranding of the core
Insulation of conductors
Outer sheath
Colour identification of conductors

Colour of the outer sheath

Options

Flexible core - CuSn class 5
Individual electrical screen (pair / triple / quad) using aluminium/PET tape + continuity wire*
General electrical screen using aluminium/PET tape + continuity wire
General electrical screen using bare copper braid
General electrical screen using tin-plated copper braid
Mechanical armour using galvanized steel braid (+ inner sheath)
Mechanical armour using double steel tape (+ inner sheath)
Use in ATEX zone as per NF C 15-100 part 4-42 or EN 60079-14 (excluding "i" intrinsic safety circuit)
Use in ATEX zone for "i" intrinsic safety circuit only as per EN 60079-14

Characteristics

Core - as per standard
Insulation - as per standard
Sheath - material as per standard
Cable - construction as per standard

Fire-smoke resistance properties of cable

Flame retardant - IEC 60332-3-22 (Cat. A bundled cables)
Flame retardant - IEC 60332-3-24 (Cat. C bundled cables)
Fire retardant - NF C 32-070 test C1
Flame retardant - IEC 60332-1-2 / NF C 32-070 test C2
Fire-resistant - IEC 60331-21 / EN 50200
Low smoke density - IEC 61034-2
Halogen-free - IEC 60754-1
Low corrosiveness of gas emissions - IEC 60754-2

Physical / chemical properties of the sheath

Resistance to acid (immersion 168 h)**
Resistance to base (immersion 168 h)**
Resistance to IRM 902 mineral oil (24 h immersion at 100 °C)**
Reinforced resistance to IRM 902 mineral oil (168 h immersion at 90 °C)**
Resistance to aliphatic hydrocarbons (immersion 168 h)**
AD7 class as per IEC 60529 (immersion in water - ends not immersed)**
Resistance to saline mist (immersion in salt water - 168 h at 60 °C)**
Resistance to UV ≥ 2000 h as per EN 16472 **

* By default all cables with individual screens also have EG type general screens.
** Based on the OMERIN method. Refer to the corresponding test report for further information.

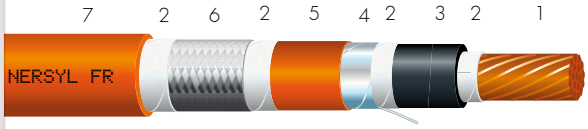
ENERSYL® FR POWER Power cables	ENERSYL® FR CONTROL Control cables	ENERSYL® FR INSTRUM Instrumentation cables	COUPLIX® FR Pyrometry cables
-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C
+90 °C	+90 °C	+90 °C	+90 °C
600 / 1000 V	450 / 750 V	300 / 500 V	N/A
3500 V	2500 V	2000 V	500 V
CuA1 class 2	CuA1 class 2	CuA1 class 2	N/A
silicone rubber	silicone rubber	silicone rubber	silicone rubber
HFFR, type ST8	HFFR, type ST8	HFFR, type ST8	HFFR, type ST8
HD 308 S2 or black numbered if → 5 conductors	HD 308 S2 or white numbered if → 5 conductors	white/blue OR white/red/blue OR white/red/blue/black	as per IEC 60584
orange	orange	orange	as per IEC 60584
FLEX	FLEX	FLEX	N/A
N/A	N/A	EI	EI
EG	EG	EG	EG
BR	BR	BR	BR
BE	BE	BE	BE
BG	BG	BG	BG
FA	FA	FA	FA
EX	N/A	N/A	N/A
N/A	EX	EX	N/A
IEC 60228	IEC 60228	IEC 60228	IEC 60584
NF C 32-090	NF C 32-090	NF C 32-090	NF C 32-090
IEC 60502-1	IEC 60502-1	IEC 60502-1	IEC 60502-1
N/A	N/A	N/A	N/A
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	N/A
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
-	-	-	-
-	-	-	-
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓

omerin
LES CABLES DE L'EXTREME

www.omerin.com

ENERSYL® FR POWER

Single core power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber as per NF C 32-090.
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® FR EG BG POWER 150 mm²
FR : fire resistant
EG, BE, BR: type of electrical screen
BG, FA: type of armour
POWER: power cable
150 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < FR xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Insulation**: black.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® FR BG EX POWER** : with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
1.5	7 / 0.52	0.8	3.1	0.6	4.7	36	1.0	7.8	101	12.1
2.5	7 / 0.67	0.8	3.6	0.6	5.2	49	1.0	8.3	120	7.41
4	7 / 0.85	0.8	4.2	0.6	5.8	66	1.0	8.9	144	4.61
6	7 / 1.04	1.0	5.2	0.6	6.8	95	1.0	9.9	185	3.08
10	7 / 1.33	1.1	6.4	0.7	8.2	145	1.0	11.4	253	1.83
16	7 / 1.68	1.1	7.4	0.7	9.2	205	1.0	12.4	325	1.15
25	7 strands	1.2	8.6	0.8	10.7	302	1.1	14.1	447	0.727
35	7 strands	1.3	9.7	1.0	12.2	417	1.2	15.8	587	0.524
50	19 strands	1.4	11.5	1.1	14.2	574	1.2	17.9	775	0.387
70	19 strands	1.4	12.7	1.2	15.6	753	1.2	19.5	992	0.268
95	19 strands	1.6	14.8	1.2	17.8	1032	1.3	21.9	1313	0.193
120	19 strands	1.5	16.4	1.2	19.4	1271	1.3	23.5	1575	0.153
150	19 strands	1.5	18.3	1.3	21.5	1566	1.4	25.8	1913	0.124
185	37 strands	1.6	20.7	1.3	23.9	1936	1.4	28.2	2320	0.0991
240	37 strands	1.8	23.4	1.4	26.8	2495	1.5	31.3	2938	0.0754
300	61 strands	2.0	27.0	1.5	30.6	3123	1.6	35.3	3641	0.0601
400	61 strands	2.4	30.4	1.5	34.0	3952	1.6	38.7	4526	0.0470

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

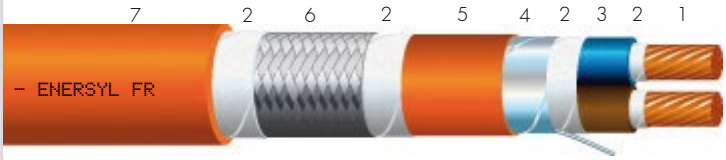
OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

ENERSYL® FR POWER

Multicore power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® FR EG BG POWER 2x4 mm²
FR : fire resistant
EG, BE, BR: type of electrical screen
BG, FA: type of armour
POWER: power cable
2: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < FR xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors**:
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® FR BG EX POWER** : with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

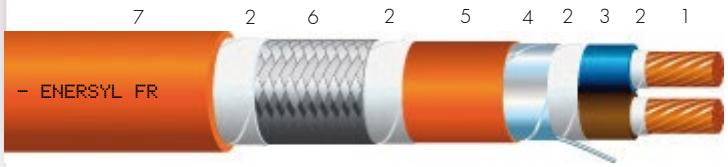
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm^2)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 1.5	7 / 0.52	0.8	3.1	0.7	8.0	95	1.0	11.2	201	12.1
3 x 1.5	7 / 0.52	0.8	3.1	0.7	8.5	115	1.0	11.7	227	12.1
4 x 1.5	7 / 0.52	0.8	3.1	0.7	9.3	142	1.0	12.5	263	12.1
5 x 1.5	7 / 0.52	0.8	3.1	0.8	10.5	151	1.1	13.9	293	12.1
7 x 1.5	7 / 0.52	0.8	3.1	0.9	11.6	204	1.1	15.0	359	12.1
12 x 1.5	7 / 0.52	0.8	3.1	1.2	15.8	351	1.3	19.9	602	12.1
19 x 1.5	7 / 0.52	0.8	3.1	1.2	18.5	522	1.3	22.6	813	12.1
24 x 1.5	7 / 0.52	0.8	3.1	1.3	21.8	660	1.4	26.1	1012	12.1
27 x 1.5	7 / 0.52	0.8	3.1	1.3	22.3	727	1.4	26.5	1086	12.1
37 x 1.5	7 / 0.52	0.8	3.1	1.3	24.9	960	1.5	29.4	1373	12.1
2 x 2.5	7 / 0.67	0.8	3.6	0.7	9.0	129	1.0	12.2	247	7.41
3 x 2.5	7 / 0.67	0.8	3.6	0.8	9.9	165	1.0	13.1	294	7.41
4 x 2.5	7 / 0.67	0.8	3.6	0.9	11.0	210	1.1	14.4	358	7.41
5 x 2.5	7 / 0.67	0.8	3.6	1.0	12.2	223	1.2	15.8	394	7.41
7 x 2.5	7 / 0.67	0.8	3.6	1.1	13.5	300	1.2	17.1	487	7.41
12 x 2.5	7 / 0.67	0.8	3.6	1.2	18.0	499	1.3	22.0	782	7.41
19 x 2.5	7 / 0.67	0.8	3.6	1.3	21.2	754	1.4	25.5	1097	7.41
24 x 2.5	7 / 0.67	0.8	3.6	1.3	24.8	941	1.5	29.3	1352	7.41
27 x 2.5	7 / 0.67	0.8	3.6	1.4	25.5	1054	1.5	30.0	1476	7.41
37 x 2.5	7 / 0.67	0.8	3.6	1.4	28.6	1399	1.5	33.1	1870	7.41
2 x 4	7 / 0.85	0.8	4.2	0.8	10.5	182	1.1	13.9	324	4.61
3 x 4	7 / 0.85	0.8	4.2	0.9	11.4	231	1.1	14.8	384	4.61
4 x 4	7 / 0.85	0.8	4.2	1.0	12.7	294	1.2	16.3	470	4.61
5 x 4	7 / 0.85	0.8	4.2	1.1	14.0	313	1.2	17.7	511	4.61
7 x 4	7 / 0.85	0.8	4.2	1.1	15.3	415	1.2	19.2	650	4.61
12 x 4	7 / 0.85	0.8	4.2	1.3	20.7	704	1.3	24.7	1027	4.61
2 x 6	7 / 1.04	1.0	5.2	1.0	12.9	277	1.2	16.5	456	3.08
3 x 6	7 / 1.04	1.0	5.2	1.1	13.9	350	1.2	17.5	543	3.08
4 x 6	7 / 1.04	1.0	5.2	1.1	15.3	438	1.2	19.1	672	3.08
5 x 6	7 / 1.04	1.0	5.2	1.2	16.9	465	1.3	21.0	733	3.08
7 x 6	7 / 1.04	1.0	5.2	1.2	18.6	625	1.3	22.7	918	3.08
2 x 10	7 / 1.33	1.1	6.4	1.2	15.7	421	1.2	19.6	661	1.83
3 x 10	7 / 1.33	1.1	6.4	1.2	16.7	526	1.3	20.8	790	1.83
4 x 10	7 / 1.33	1.1	6.4	1.2	18.5	665	1.3	22.5	955	1.83
5 x 10	7 / 1.33	1.1	6.4	1.3	20.5	708	1.3	24.5	1028	1.83
2 x 16	7 / 1.68	1.1	7.4	1.2	17.8	583	1.3	21.9	863	1.15
3 x 16	7 / 1.68	1.1	7.4	1.2	19.0	740	1.3	23.0	1038	1.15
4 x 16	7 / 1.68	1.1	7.4	1.3	21.1	946	1.4	25.4	1287	1.15
5 x 16	7 / 1.68	1.1	7.4	1.3	23.2	1008	1.4	27.4	1380	1.15
2 x 25	7 strands	1.2	8.6	1.3	20.4	824	1.3	24.5	1143	0.727
3 x 25	7 strands	1.2	8.6	1.3	21.8	1060	1.4	26.0	1412	0.727
4 x 25	7 strands	1.2	8.6	1.3	24.0	1349	1.4	28.3	1734	0.727
5 x 25	7 strands	1.2	8.6	1.4	26.6	1468	1.5	31.1	1908	0.727
2 x 35	7 strands	1.2	9.7	1.3	22.6	1083	1.4	26.9	1447	0.524
3 x 35	7 strands	1.2	9.7	1.3	24.2	1410	1.4	28.4	1798	0.524
4 x 35	7 strands	1.2	9.7	1.4	26.9	1815	1.5	31.3	2259	0.524
5 x 35	7 strands	1.2	9.7	1.5	29.8	1993	1.6	34.5	2498	0.524
2 x 50	19 strands	1.4	11.5	1.4	26.4	1493	1.5	30.9	1929	0.387
3 x 50	19 strands	1.4	11.5	1.4	28.2	1949	1.5	32.7	2414	0.387
4 x 50	19 strands	1.4	11.5	1.5	31.4	2510	1.6	36.1	3042	0.387
5 x 50	19 strands	1.4	11.5	1.6	34.9	2752	1.7	39.7	3358	0.387
2 x 70	19 strands	1.4	12.7	1.4	28.8	1907	1.5	33.3	2380	0.268
3 x 70	19 strands	1.4	12.7	1.5	31.0	2531	1.6	35.7	3056	0.268
4 x 70	19 strands	1.4	12.7	1.6	34.5	3268	1.6	39.2	3850	0.268

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

ENERSYL® FR CONTROL

Control cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® FR EG BG CONTROL 19x1,5 mm²
FR : fire resistant
EG, BE, BR: type of electrical screen
BG, FA: type of armour
CONTROL: control cable
19: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < FR xx xx CONTROL > < cross-section > – 450/750V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® FR EX CONTROL:** without electrical screen.
> **ENERSYL® FR BE EX CONTROL:** with electrical screen.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

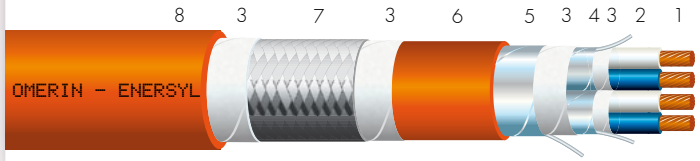
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 0.34	7 / 0.25	0.6	2.0	0.6	5.6	32	1.0	8.7	107	57.5
3 x 0.34	7 / 0.25	0.6	2.0	0.6	5.9	40	1.0	9.0	119	57.5
4 x 0.34	7 / 0.25	0.6	2.0	0.6	6.4	49	1.0	9.5	134	57.5
5 x 0.34	7 / 0.25	0.6	2.0	0.6	7.0	58	1.0	10.2	152	57.5
7 x 0.34	7 / 0.25	0.6	2.0	0.7	7.8	77	1.0	11.0	181	57.5
12 x 0.34	7 / 0.25	0.6	2.0	0.8	10.4	129	1.1	13.8	270	57.5
19 x 0.34	7 / 0.25	0.6	2.0	1.0	12.5	197	1.2	16.1	371	57.5
24 x 0.34	7 / 0.25	0.6	2.0	1.1	14.7	250	1.2	18.4	457	57.5
27 x 0.34	7 / 0.25	0.6	2.0	1.1	15.0	273	1.2	18.9	503	57.5
37 x 0.34	7 / 0.25	0.6	2.0	1.2	16.9	360	1.3	21.0	628	57.5
2 x 0.5	7 / 0.30	0.6	2.1	0.6	5.8	36	1.0	8.9	114	36.0
3 x 0.5	7 / 0.30	0.6	2.1	0.6	6.1	46	1.0	9.2	127	36.0
4 x 0.5	7 / 0.30	0.6	2.1	0.6	6.7	56	1.0	9.8	144	36.0
5 x 0.5	7 / 0.30	0.6	2.1	0.7	7.5	70	1.0	10.7	170	36.0
7 x 0.5	7 / 0.30	0.6	2.1	0.7	8.1	90	1.0	11.3	197	36.0
12 x 0.5	7 / 0.30	0.6	2.1	0.9	11.0	155	1.1	14.4	304	36.0
19 x 0.5	7 / 0.30	0.6	2.1	1.0	13.0	231	1.2	16.6	411	36.0
24 x 0.5	7 / 0.30	0.6	2.1	1.1	15.3	293	1.2	19.2	527	36.0
27 x 0.5	7 / 0.30	0.6	2.1	1.2	15.8	327	1.3	19.9	579	36.0
37 x 0.5	7 / 0.30	0.6	2.1	1.2	17.7	429	1.3	21.8	708	36.0
2 x 0.75	7 / 0.37	0.6	2.4	0.6	6.4	44	1.0	9.5	129	24.5
3 x 0.75	7 / 0.37	0.6	2.4	0.6	6.8	58	1.0	9.9	147	24.5
4 x 0.75	7 / 0.37	0.6	2.4	0.7	7.6	75	1.0	10.8	176	24.5
5 x 0.75	7 / 0.37	0.6	2.4	0.7	8.3	90	1.0	11.5	199	24.5
7 x 0.75	7 / 0.37	0.6	2.4	0.7	9.0	116	1.0	12.2	234	24.5
12 x 0.75	7 / 0.37	0.6	2.4	1.0	12.5	207	1.2	16.1	381	24.5
19 x 0.75	7 / 0.37	0.6	2.4	1.1	14.7	308	1.2	18.4	514	24.5
24 x 0.75	7 / 0.37	0.6	2.4	1.2	17.3	390	1.3	21.4	663	24.5
27 x 0.75	7 / 0.37	0.6	2.4	1.2	17.8	431	1.3	21.8	712	24.5
37 x 0.75	7 / 0.37	0.6	2.4	1.3	20.0	573	1.3	24.1	886	24.5
2 x 1	7 / 0.43	0.6	2.5	0.6	6.5	49	1.0	9.6	135	18.1
3 x 1	7 / 0.43	0.6	2.5	0.6	6.9	64	1.0	10.0	155	18.1
4 x 1	7 / 0.43	0.6	2.5	0.7	7.7	84	1.0	10.9	187	18.1
5 x 1	7 / 0.43	0.6	2.5	0.7	8.4	101	1.0	11.6	212	18.1
7 x 1	7 / 0.43	0.6	2.5	0.7	9.2	132	1.0	12.4	252	18.1
12 x 1	7 / 0.43	0.6	2.5	1.0	12.7	233	1.2	16.3	410	18.1
19 x 1	7 / 0.43	0.6	2.5	1.1	15.0	349	1.2	18.9	579	18.1
24 x 1	7 / 0.43	0.6	2.5	1.2	17.8	446	1.3	21.8	726	18.1
27 x 1	7 / 0.43	0.6	2.5	1.2	18.1	490	1.3	22.2	775	18.1
37 x 1	7 / 0.43	0.6	2.5	1.3	20.4	652	1.3	24.5	972	18.1
2 x 1.5	7 / 0.52	0.6	2.8	0.6	7.2	63	1.0	10.4	160	12.1
3 x 1.5	7 / 0.52	0.6	2.8	0.7	7.8	88	1.0	11.0	192	12.1
4 x 1.5	7 / 0.52	0.6	2.8	0.7	8.5	110	1.0	11.7	223	12.1
5 x 1.5	7 / 0.52	0.6	2.8	0.7	9.4	133	1.0	12.6	256	12.1
7 x 1.5	7 / 0.52	0.6	2.8	0.8	10.5	183	1.1	13.9	325	12.1
12 x 1.5	7 / 0.52	0.6	2.8	1.1	14.3	317	1.2	18.0	519	12.1
19 x 1.5	7 / 0.52	0.6	2.8	1.2	16.9	476	1.3	21.0	744	12.1
24 x 1.5	7 / 0.52	0.6	2.8	1.3	20.0	607	1.3	24.1	920	12.1
27 x 1.5	7 / 0.52	0.6	2.8	1.3	20.4	669	1.3	24.5	988	12.1
37 x 1.5	7 / 0.52	0.6	2.8	1.3	22.8	882	1.4	27.1	1249	12.1
2 x 2.5	7 / 0.67	0.7	3.4	0.7	8.6	94	1.0	11.8	208	7.41
3 x 2.5	7 / 0.67	0.7	3.4	0.7	9.1	128	1.0	12.3	247	7.41
4 x 2.5	7 / 0.67	0.7	3.4	0.8	10.3	169	1.1	13.7	309	7.41
5 x 2.5	7 / 0.67	0.7	3.4	0.9	11.5	210	1.1	14.9	365	7.41
7 x 2.5	7 / 0.67	0.7	3.4	1.0	12.7	284	1.2	16.3	460	7.41
12 x 2.5	7 / 0.67	0.7	3.4	1.2	17.0	477	1.3	21.1	747	7.41
19 x 2.5	7 / 0.67	0.7	3.4	1.3	20.2	727	1.3	24.3	1043	7.41
24 x 2.5	7 / 0.67	0.7	3.4	1.3	23.6	907	1.4	27.9	1287	7.41
27 x 2.5	7 / 0.67	0.7	3.4	1.3	24.1	1004	1.4	28.4	1331	7.41
37 x 2.5	7 / 0.67	0.7	3.4	1.4	27.2	1311	1.5	31.7	1796	7.41

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® FR INSTRUM

Instrumentation cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) ENERSYL® FR EI BG INSTRUM 2P1,5 mm²
FR : fire resistant
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P,T,Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 60331-21 / NF EN 50200.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < FR xx xx xx INSTRUM > < cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21 / NF EN 50200.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
(0.9 mm² cross-section replaced by 1 mm²).
• **Other colours**: contact us.
• **105 °C cable**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® FR EI BE EX INSTRUM:**
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> **ENERSYL® FR EI EX INSTRUM:**
with individual and general electrical screen (aluminium/PET tape).
> **ENERSYL® FR BE EX INSTRUM:**
with general electrical screen (tin-plated copper braid).
> **ENERSYL® FR EG EX INSTRUM:**
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.0	0.6	2.1	5.6		6.0		6.5		8.6		9.0		9.8	
2**	0.5	7 / 0.30	36.0	0.6	2.1	6.5	9.0	10.3	11.3	11.8	13.0	9.5	12.1	13.6	14.7	15.2	16.6
3	0.5	7 / 0.30	36.0	0.6	2.1	9.0	9.9	11.1	11.8	12.8	14.1	12.1	13.0	14.4	15.2	16.4	17.8
4	0.5	7 / 0.30	36.0	0.6	2.1	10.2	11.0	12.4	13.1	14.2	15.6	13.5	14.3	15.9	16.7	17.9	19.4
5	0.5	7 / 0.30	36.0	0.6	2.1	11.4	12.2	13.8	14.6	15.8	17.1	14.7	15.7	17.3	18.3	19.6	21.2
6	0.5	7 / 0.30	36.0	0.6	2.1	12.6	13.5	15.0	16.1	17.2	18.8	16.1	17.0	18.6	20.1	21.3	22.8
7	0.5	7 / 0.30	36.0	0.6	2.1	12.6	13.5	15.0	16.1	17.2	18.8	16.1	17.0	18.6	20.1	21.3	22.8
8	0.5	7 / 0.30	36.0	0.6	2.1	14.4	15.2	17.0	18.2			18.0	18.9	21.0	22.2		
9	0.5	7 / 0.30	36.0	0.6	2.1	15.8	16.6	18.6	19.9			19.5	20.6	22.5	24.0		
12	0.5	7 / 0.30	36.0	0.6	2.1	17.0	18.1	20.2	21.5			21.0	22.0	24.2	25.7		
19	0.5	7 / 0.30	36.0	0.6	2.1	20.2	21.3	23.7	25.4			24.2	25.5	27.8	29.8		
24	0.5	7 / 0.30	36.0	0.6	2.1	23.7	25.2					27.8	29.5				
37	0.5	7 / 0.30	36.0	0.6	2.1	27.3	28.8					31.7	33.2				
1	0.9	7 / 0.40	20.6	0.6	2.4	6.2		6.7		7.6		9.2		9.7		10.8	
2**	0.9	7 / 0.40	20.6	0.6	2.4	7.4	10.3	11.7	13.1	13.6	14.7	10.5	13.6	15.0	16.7	17.2	18.4
3	0.9	7 / 0.40	20.6	0.6	2.4	10.4	11.1	12.6	13.5	14.5	15.8	13.7	14.4	16.1	17.1	18.2	19.9
4	0.9	7 / 0.40	20.6	0.6	2.4	11.6	12.4	14.0	14.7	16.0	17.3	14.9	15.9	17.5	18.4	20.1	21.4
5	0.9	7 / 0.40	20.6	0.6	2.4	12.9	13.8	15.3	16.3	17.7	19.2	16.4	17.3	19.1	20.4	21.8	23.2
6	0.9	7 / 0.40	20.6	0.6	2.4	14.3	15.0	16.9	17.9	19.3	21.2	17.9	18.8	20.9	22.0	23.4	25.4
7	0.9	7 / 0.40	20.6	0.6	2.4	14.3	15.0	16.9	17.9	19.3	21.2	17.9	18.8	20.9	22.0	23.4	25.4
8	0.9	7 / 0.40	20.6	0.6	2.4	16.3	17.1	19.1	20.4			20.2	21.0	23.1	24.4		
9	0.9	7 / 0.40	20.6	0.6	2.4	17.8	18.6	21.0	22.1			21.7	22.6	25.1	26.4		
12	0.9	7 / 0.40	20.6	0.6	2.4	19.2	20.3	22.7	23.9			23.1	24.3	26.8	28.2		
19	0.9	7 / 0.40	20.6	0.6	2.4	22.7	23.8	26.8	28.3			26.8	27.9	31.2	32.8		
24	0.9	7 / 0.40	20.6	0.6	2.4	26.8	28.1					31.2	32.5				
37	0.9	7 / 0.40	20.6	0.6	2.4	31.0	32.5					35.5	37.0				
1	1.5	7 / 0.52	12.1	0.6	2.8	7.0		7.7		8.5		10.1		10.8		11.7	
2**	1.5	7 / 0.52	12.1	0.6	2.8	8.4	11.8	13.6	15.1	15.6	16.8	11.5	15.1	17.1	19.0	19.5	20.9
3	1.5	7 / 0.52	12.1	0.6	2.8	12.2	12.8	14.5	15.1	16.6	18.0	15.7	16.3	18.1	19.0	20.7	22.1
4	1.5	7 / 0.52	12.1	0.6	2.8	13.6	14.1	16.1	16.8	18.3	19.9	17.1	17.7	20.0	20.8	22.4	24.0
5	1.5	7 / 0.52	12.1	0.6	2.8	14.9	15.7	17.7	18.6	20.4	22.0	18.5	19.5	21.7	22.6	24.4	26.2
6	1.5	7 / 0.52	12.1	0.6	2.8	16.5	17.2	19.4	20.5	22.3	24.0	20.4	21.1	23.3	24.5	26.5	28.3
7	1.5	7 / 0.52	12.1	0.6	2.8	16.5	17.2	19.4	20.5	22.3	24.0	20.4	21.1	23.3	24.5	26.5	28.3
8	1.5	7 / 0.52	12.1	0.6	2.8	18.6	19.4	22.0	23.1			22.6	23.4	26.2	27.3		
9	1.5	7 / 0.52	12.1	0.6	2.8	20.4	21.3	23.9	25.3			24.4	25.5	28.1	29.7		
12	1.5	7 / 0.52	12.1	0.6	2.8	22.1	23.0	26.1	27.4			26.3	27.2	30.5	31.8		
19	1.5	7 / 0.52	12.1	0.6	2.8	26.2	27.3	30.9	32.4			30.5	31.6	35.5	37.1		
24	1.5	7 / 0.52	12.1	0.6	2.8	31.0	32.3					35.5	36.8				
37	1.5	7 / 0.52	12.1	0.6	2.8	35.7	37.2					40.5	42.0				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

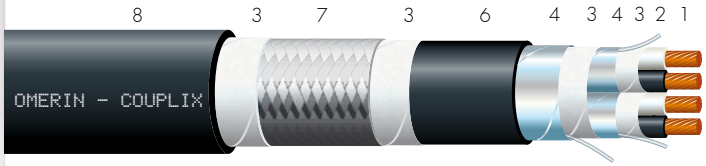
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

COUPLIX® FR

Pyrometry cables (Extension and compensation)



1 • Stranded core extension: JX, KX, EX, TX or compensation: BC, KCB.
2 • Insulation: silicone rubber as per NF C 32-090 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type ST8 as per IEC 60502-1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type ST8 as per IEC 60502-1.

Reference

• (example) COUPLIX® JX FR EI BG 2P0,5 mm²
JX, TX, KX, EX, BC, KCB: type of extension cable or compensation cable
FR : fire resistant
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
2P: number of pairs
0.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60332-1 / IEC 60332-3 / NF C 32-070 test C1.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.
• IEC 60584-1 / IEC 60584-2 / IEC 60584-3.

Markings

• OMERIN – COUPLIX < xx FR xx xx > < cross-section > – < batch > – < year >

Category

• Extension cable – tolerance class: 1.
• Compensation cable – tolerance class: 2.

Colour code

IEC

Form

Round

Technical characteristics

Thermal

• Temperature of insulation under continuous operation: -30 °C to +80 °C.

Electrical

• Test voltage: 500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable:
IEC 60332-3-22 cat. A / NF EN 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Low smoke density: IEC 61034-2 / NF EN 61034-2.
• Halogen-free: IEC 60754-1 / NF EN 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2 / NF EN 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **Other extension cable or compensation cable:** contact us.
• **105 °C cable:** contact us.
• **Other colour code:** contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs	Nominal cross-section (mm^2)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm) EG	NON-SHIELDED CABLES Nominal outside diameter* (mm) EI	ARMOURED CABLES Nominal outside diameter* (mm) EG	ARMOURED CABLES Nominal outside diameter* (mm) EI
1	0.5	7 / 0.30	0.6	2.1	5.6		8.6	
2 **	0.5	7 / 0.30	0.6	2.1	6.5	9.0	9.5	12.1
3	0.5	7 / 0.30	0.6	2.1	9.0	9.9	12.1	13.0
4	0.5	7 / 0.30	0.6	2.1	10.2	11.0	13.5	14.3
5	0.5	7 / 0.30	0.6	2.1	11.4	12.2	14.7	15.7
6	0.5	7 / 0.30	0.6	2.1	12.6	13.5	16.1	17.0
7	0.5	7 / 0.30	0.6	2.1	12.6	13.5	16.1	17.0
8	0.5	7 / 0.30	0.6	2.1	14.4	15.2	18.0	18.9
9	0.5	7 / 0.30	0.6	2.1	15.8	16.6	19.5	20.6
12	0.5	7 / 0.30	0.6	2.1	17.0	18.1	21.0	22.0
19	0.5	7 / 0.30	0.6	2.1	20.2	21.3	24.2	25.5
24	0.5	7 / 0.30	0.6	2.1	23.7	25.2	27.8	29.5
37	0.5	7 / 0.30	0.6	2.1	27.3	28.8	31.7	33.2
1	1	14 / 0.30	0.6	2.5	6.4		9.5	
2 **	1	14 / 0.30	0.6	2.5	7.7	10.6	10.9	13.9
3	1	14 / 0.30	0.6	2.5	11.0	11.5	14.4	14.8
4	1	14 / 0.30	0.6	2.5	12.2	12.8	15.8	16.3
5	1	14 / 0.30	0.6	2.5	13.6	14.2	17.2	17.8
6	1	14 / 0.30	0.6	2.5	14.8	15.7	18.5	19.5
7	1	14 / 0.30	0.6	2.5	14.8	15.7	18.5	19.5
8	1	14 / 0.30	0.6	2.5	16.8	17.7	20.9	21.7
9	1	14 / 0.30	0.6	2.5	18.4	19.2	22.4	23.2
12	1	14 / 0.30	0.6	2.5	20.1	21.0	24.1	25.1
19	1	14 / 0.30	0.6	2.5	23.5	24.6	27.8	28.8
24	1	14 / 0.30	0.6	2.5	27.8	29.3	32.3	33.7
37	1	14 / 0.30	0.6	2.5	32.1	33.6	36.8	38.2

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

CABLES WITH PVC SHEATH

ENERSYL® LH

CABLES WITH PVC SHEATH

Technical data

Continuous operating temperature
Maximum core temperature
Rated voltage
Test voltage

Standard products

Stranding of the core
Insulation of conductors
Outer sheath
Colour identification of conductors

Colour of the outer sheath

Options

Flexible core - CuSn class 5
Individual electrical screen (pair / triple / quad) using aluminium/PET tape + continuity wire*
General electrical screen using aluminium/PET tape + continuity wire
General electrical screen using bare copper braid
General electrical screen using tin-plated copper braid
Mechanical armour using galvanized steel braid (+ inner sheath)
Mechanical armour using double steel tape (+ inner sheath)
Use in ATEX zone as per NF C 15-100 part 4-42 or EN 60079-14 (excluding "i" intrinsic safety circuit)
Use in ATEX zone for "i" intrinsic safety circuit only as per EN 60079-14

Characteristics

Core - as per standard
Insulation - as per standard
Sheath - material as per standard
Cable - construction as per standard

Fire-smoke resistance properties of cable

Flame retardant - IEC 60332-3-22 (Cat. A bundled cables)
Flame retardant - IEC 60332-3-24 (Cat. C bundled cables)
Fire retardant - NF C 32-070 test C1
Flame retardant - IEC 60332-1-2 / NF C 32-070 test C2
Fire-resistant - IEC 60331-21 / EN 50200
Low smoke density - IEC 61034-2
Halogen-free - IEC 60754-1
Low corrosiveness of gas emissions - IEC 60754-2

Physical / chemical properties of the sheath

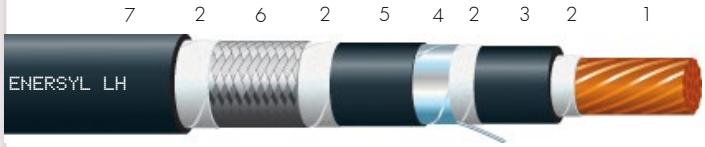
Resistance to acid (immersion 168 h)**
Resistance to base (immersion 168 h)**
Resistance to IRM 902 mineral oil (24 h immersion at 100 °C)**
Reinforced resistance to IRM 902 mineral oil (168 h immersion at 90 °C)**
Resistance to aliphatic hydrocarbons (immersion 168 h)**
AD7 class as per IEC 60529 (immersion in water - ends not immersed)**
Resistance to saline mist (immersion in salt water - 168 h at 60 °C)**
Resistance to UV ≥ 2000 h as per EN 16472**

* By default all cables with individual screens also have EG type general screens.
** Based on the OMERIN method. Refer to the corresponding test report for further information.

ENERSYL® LH POWER Power cables	ENERSYL® LH CONTROL Control cables	ENERSYL® LH INSTRUM Instrumentation cables	COUPLIX® LH Pyrometry cables
-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C
+90 °C	+90 °C	+90 °C	+90 °C
600 / 1000 V	450 / 750 V	300 / 500 V	N/A
3500 V	2500 V	2000 V	500 V
CuA1 class 2	CuA1 class 2	CuA1 class 2	N/A
PR type cross-linked polyethylene	Cross-linked polyethylene	Cross-linked polyethylene	Cross-linked polyethylene
PVC, type ST2	PVC, type ST2	PVC, type ST2	PVC, type ST2
HD 308 S2 or black numbered if → 5 conductors	HD 308 S2 or white numbered if → 5 conductors	white/blue OR white/red/blue OR white/red/blue/black	as per IEC 60584
black	black	black	as per IEC 60584
FLEX	FLEX	FLEX	N/A
N/A	N/A	EI	EI
EG	EG	EG	EG
BR	BR	BR	BR
BE	BE	BE	BE
BG	BG	BG	BG
FA	FA	FA	FA
EX	N/A	N/A	N/A
N/A	EX	EX	N/A
IEC 60228	IEC 60228	IEC 60228	IEC 60584
IEC 60502-1	NF C 32-090	NF C 32-090	NF C 32-090
IEC 60502-1	IEC 60502-1	IEC 60502-1	IEC 60502-1
IEC 60502-1	N/A	N/A	N/A
-	-	-	-
-	-	-	-
-	-	-	-
✓	✓	✓	✓
-	-	-	N/A
-	-	-	-
-	-	-	-
-	-	-	-
✓	✓	✓	✓
✓	✓	✓	✓
-	-	-	-
-	-	-	-
-	-	-	-
✓	✓	✓	✓
-	-	-	-
-	-	-	-

ENERSYL® LH POWER

Single core power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type PR as per IEC 60502-1.
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: PVC, type ST2 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: PVC, type ST2 as per IEC 60502-1.

Reference

• (example) ENERSYL® LH EG BG POWER 150 mm²
EG, BE, BR: type of electrical screen
BG, FA: type of armour
POWER: power cable
150 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60502-1.
• IEC 60332-1.

Markings

• OMERIN – ENERSYL < LH xx xx POWER >
< cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: black.
• **Insulation**: black.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140825-01:

• Good resistance to acid.
• Good resistance to base.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® LH BG EX POWER:** with a silicone sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
1.5	7 / 0.52	0.7	3.1	1.4	6.3	54	1.4	9.9	142	12.1
2.5	7 / 0.67	0.7	3.5	1.4	6.7	66	1.4	10.3	159	7.41
4	7 / 0.85	0.7	4.2	1.4	7.4	86	1.4	11.0	187	4.61
6	7 / 1.04	0.7	4.8	1.4	8.0	110	1.4	11.6	218	3.08
10	7 / 1.33	0.7	5.5	1.4	8.8	150	1.4	12.4	268	1.83
16	7 / 1.68	0.7	6.6	1.4	9.9	212	1.4	13.5	343	1.15
25	7 strands	0.9	8.1	1.4	11.4	306	1.4	15.0	456	0.727
35	7 strands	0.9	8.9	1.4	12.2	400	1.4	15.9	563	0.524
50	19 strands	1.0	10.1	1.4	13.4	530	1.5	17.3	715	0.387
70	19 strands	1.1	12.0	1.4	15.4	719	1.5	19.2	926	0.268
95	19 strands	1.1	13.6	1.5	17.2	978	1.6	21.3	1233	0.193
120	19 strands	1.2	16.0	1.5	19.6	1239	1.7	23.9	1538	0.153
150	19 strands	1.4	17.4	1.6	21.2	1502	1.7	25.5	1824	0.124
185	37 strands	1.6	20.4	1.7	24.4	1897	1.8	28.7	2264	0.0991
240	37 strands	1.7	22.4	1.7	26.4	2394	1.9	31.1	2817	0.0754
300	61 strands	1.8	26.7	1.8	30.9	3043	2.0	35.6	3534	0.0601
400	61 strands	2.0	30.0	1.9	34.4	3857	2.1	39.3	4419	0.0470

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

For this product, please contact:

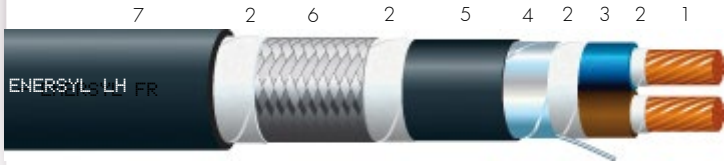
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

ENERSYL® LH POWER

Multicore power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type PR as per IEC 60502-1 + optional filler(s).
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: PVC, type ST2 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: PVC, type ST2 as per IEC 60502-1.

Reference

• (example) ENERSYL® LH EG BG POWER 2x4 mm²
EG, BE, BR: type of electrical screen
BG, FA: type of armour
POWER: power cable
2: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60502-1.
• IEC 60332-1.

Markings

• OMERIN – ENERSYL < LH xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: black.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: black numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140825-01:

• Good resistance to acid.
• Good resistance to base.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® LH BG EX POWER:** with a PVC sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

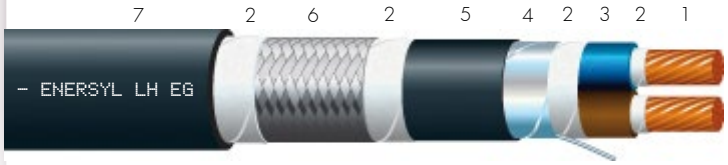
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 1.5	7 / 0.52	0.7	3.1	1.8	10.3	111	1.8	13.9	244	12.1
3 x 1.5	7 / 0.52	0.7	3.1	1.8	10.8	134	1.8	14.4	273	12.1
4 x 1.5	7 / 0.52	0.7	3.1	1.8	11.6	160	1.8	15.3	312	12.1
5 x 1.5	7 / 0.52	0.7	3.1	1.8	12.5	186	1.8	16.2	348	12.1
7 x 1.5	7 / 0.52	0.7	3.1	1.8	13.4	231	1.8	17.1	405	12.1
12 x 1.5	7 / 0.52	0.7	3.1	1.8	17.1	358	1.8	21.0	599	12.1
19 x 1.5	7 / 0.52	0.7	3.1	1.8	19.7	511	1.8	23.6	788	12.1
24 x 1.5	7 / 0.52	0.7	3.1	1.8	22.8	631	1.8	26.9	963	12.1
27 x 1.5	7 / 0.52	0.7	3.1	1.8	23.3	691	1.8	27.3	1029	12.1
37 x 1.5	7 / 0.52	0.7	3.1	1.8	25.9	901	1.8	30.0	1276	12.1
2 x 2.5	7 / 0.67	0.7	3.5	1.8	11.1	137	1.8	14.7	280	7.41
3 x 2.5	7 / 0.67	0.7	3.5	1.8	11.7	170	1.8	15.4	323	7.41
4 x 2.5	7 / 0.67	0.7	3.5	1.8	12.6	206	1.8	16.3	370	7.41
5 x 2.5	7 / 0.67	0.7	3.5	1.8	13.6	243	1.8	17.3	419	7.41
7 x 2.5	7 / 0.67	0.7	3.5	1.8	14.6	308	1.8	18.3	498	7.41
12 x 2.5	7 / 0.67	0.7	3.5	1.8	18.8	488	1.8	22.6	752	7.41
19 x 2.5	7 / 0.67	0.7	3.5	1.8	21.7	711	1.8	25.6	1015	7.41
24 x 2.5	7 / 0.67	0.7	3.5	1.8	25.2	883	1.8	29.3	1248	7.41
27 x 2.5	7 / 0.67	0.7	3.5	1.8	25.7	972	1.8	29.8	1345	7.41
37 x 2.5	7 / 0.67	0.7	3.5	1.8	28.7	1281	1.9	33.2	1725	7.41
2 x 4	7 / 0.85	0.7	4.2	1.8	12.5	179	1.8	16.2	342	4.61
3 x 4	7 / 0.85	0.7	4.2	1.8	13.2	228	1.8	16.9	400	4.61
4 x 4	7 / 0.85	0.7	4.2	1.8	14.3	280	1.8	18.0	466	4.61
5 x 4	7 / 0.85	0.7	4.2	1.8	15.5	337	1.8	19.1	533	4.61
7 x 4	7 / 0.85	0.7	4.2	1.8	16.8	434	1.8	20.7	672	4.61
12 x 4	7 / 0.85	0.7	4.2	1.8	21.7	693	1.8	25.5	996	4.61
2 x 6	7 / 1.04	0.7	4.8	1.8	13.7	229	1.8	17.4	407	3.08
3 x 6	7 / 1.04	0.7	4.8	1.8	14.5	299	1.8	18.2	486	3.08
4 x 6	7 / 1.04	0.7	4.8	1.8	15.8	376	1.8	19.4	576	3.08
5 x 6	7 / 1.04	0.7	4.8	1.8	17.2	451	1.8	21.0	693	3.08
7 x 6	7 / 1.04	0.7	4.8	1.8	18.6	590	1.8	22.5	852	3.08
2 x 10	7 / 1.33	0.7	5.5	1.8	15.1	309	1.8	18.8	504	1.83
3 x 10	7 / 1.33	0.7	5.5	1.8	16.1	417	1.8	19.7	620	1.83
4 x 10	7 / 1.33	0.7	5.5	1.8	17.5	527	1.8	21.4	774	1.83
5 x 10	7 / 1.33	0.7	5.5	1.8	19.1	637	1.8	22.9	905	1.83
2 x 16	7 / 1.68	0.7	6.6	1.8	17.4	440	1.8	21.3	685	1.15
3 x 16	7 / 1.68	0.7	6.6	1.8	18.5	600	1.8	22.3	860	1.15
4 x 16	7 / 1.68	0.7	6.6	1.8	20.2	767	1.8	24.0	1050	1.15
5 x 16	7 / 1.68	0.7	6.6	1.8	22.0	934	1.8	25.9	1243	1.15
2 x 25	7 strands	0.9	8.1	1.8	20.4	634	1.8	24.3	920	0.727
3 x 25	7 strands	0.9	8.1	1.8	21.7	881	1.8	25.6	1185	0.727
4 x 25	7 strands	0.9	8.1	1.8	23.8	1135	1.8	27.9	1480	0.727
5 x 25	7 strands	0.9	8.1	1.8	26.1	1390	1.8	30.1	1767	0.727
2 x 35	7 strands	0.9	8.9	1.8	22.0	826	1.8	26.1	1146	0.524
3 x 35	7 strands	0.9	8.9	1.8	23.4	1163	1.8	27.5	1503	0.524
4 x 35	7 strands	0.9	8.9	1.8	25.7	1508	1.9	30.0	1894	0.524
5 x 35	7 strands	0.9	8.9	1.8	28.2	1854	2.0	32.9	2305	0.524
2 x 50	19 strands	1.0	10.1	1.8	24.4	1089	1.8	28.5	1444	0.387
3 x 50	19 strands	1.0	10.1	1.8	26.0	1550	1.9	30.3	1940	0.387
4 x 50	19 strands	1.0	10.1	1.9	28.8	2031	2.0	33.3	2476	0.387
5 x 50	19 strands	1.0	10.1	2.0	31.9	2517	2.1	36.5	3022	0.387
2 x 70	19 strands	1.1	12.0	1.8	28.2	1469	2.0	32.9	1919	0.268
3 x 70	19 strands	1.1	12.0	1.9	30.3	2118	2.0	34.8	2585	0.268
4 x 70	19 strands	1.1	12.0	2.0	33.6	2781	2.1	38.3	3313	0.268
2 x 95	19 strands	1.1	13.6	1.9	31.6	1990	2.1	36.5	2508	0.193
3 x 95	19 strands	1.1	13.6	2.0	34.0	2884	2.2	38.8	3438	0.193

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

ENERSYL® LH CONTROL

Control cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene as per NF C 32-090 + optional filler(s).
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: PVC, type ST2 as per IEC 60502-1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: PVC, type ST2 as per IEC 60502-1.

Reference

• (example) ENERSYL® LH EG BG CONTROL 19x1,5 mm²
EG, BE, BR: type of electrical screen
BG, FA: type of armour
CONTROL: control cable
19: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1.

Markings

• OMERIN – ENERSYL < LH xx xx CONTROL > < cross-section > – 450/750V – < batch > – < year >

Standard products

• **Sheath**: black.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: black numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140825-01:

• Good resistance to acid.
• Good resistance to base.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments except for "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® LH EX CONTROL:** without electrical screen.
> **ENERSYL® LH BE EX CONTROL:** with electrical screen.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

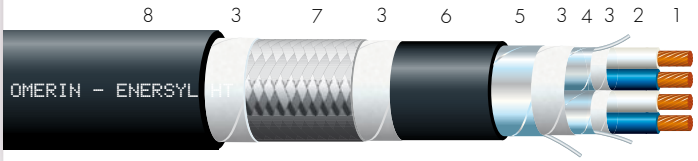
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 0.34	7 / 0.25	0.6	1.9	0.6	5.2	32	1.0	8.3	99	57.5
3 x 0.34	7 / 0.25	0.6	1.9	0.6	5.5	37	1.0	8.6	107	57.5
4 x 0.34	7 / 0.25	0.6	1.9	0.6	6.0	44	1.0	9.1	120	57.5
5 x 0.34	7 / 0.25	0.6	1.9	0.6	6.5	42	1.0	9.6	124	57.5
7 x 0.34	7 / 0.25	0.6	1.9	0.6	7.1	54	1.0	10.3	144	57.5
12 x 0.34	7 / 0.25	0.6	1.9	0.8	9.7	94	1.0	12.9	214	57.5
19 x 0.34	7 / 0.25	0.6	1.9	1.0	11.7	147	1.1	15.1	296	57.5
24 x 0.34	7 / 0.25	0.6	1.9	1.1	13.8	187	1.2	17.4	368	57.5
27 x 0.34	7 / 0.25	0.6	1.9	1.1	14.1	204	1.2	17.8	393	57.5
37 x 0.34	7 / 0.25	0.6	1.9	1.2	15.9	272	1.3	20.0	512	57.5
2 x 0.5	7 / 0.30	0.6	2.1	0.6	5.6	38	1.0	8.7	110	36.0
3 x 0.5	7 / 0.30	0.6	2.1	0.6	5.9	45	1.0	9.0	120	36.0
4 x 0.5	7 / 0.30	0.6	2.1	0.6	6.5	54	1.0	9.6	136	36.0
5 x 0.5	7 / 0.30	0.6	2.1	0.6	7.1	52	1.0	10.3	143	36.0
7 x 0.5	7 / 0.30	0.6	2.1	0.8	8.1	75	1.0	11.3	177	36.0
12 x 0.5	7 / 0.30	0.6	2.1	0.8	10.5	119	1.1	13.9	254	36.0
19 x 0.5	7 / 0.30	0.6	2.1	1.0	12.7	186	1.2	16.3	354	36.0
24 x 0.5	7 / 0.30	0.6	2.1	1.1	15.0	237	1.2	18.9	456	36.0
27 x 0.5	7 / 0.30	0.6	2.1	1.2	15.5	266	1.2	19.4	493	36.0
37 x 0.5	7 / 0.30	0.6	2.1	1.2	17.3	347	1.3	21.4	607	36.0
2 x 0.75	7 / 0.37	0.6	2.2	0.6	5.8	44	1.0	8.9	118	24.5
3 x 0.75	7 / 0.37	0.6	2.2	0.6	6.2	53	1.0	9.3	131	24.5
4 x 0.75	7 / 0.37	0.6	2.2	0.6	6.7	65	1.0	9.8	149	24.5
5 x 0.75	7 / 0.37	0.6	2.2	0.8	7.7	71	1.0	10.9	168	24.5
7 x 0.75	7 / 0.37	0.6	2.2	0.8	8.4	92	1.0	11.6	197	24.5
12 x 0.75	7 / 0.37	0.6	2.2	1.0	11.4	157	1.1	14.8	302	24.5
19 x 0.75	7 / 0.37	0.6	2.2	1.1	13.4	236	1.2	17.0	412	24.5
24 x 0.75	7 / 0.37	0.6	2.2	1.2	15.8	300	1.3	19.9	539	24.5
27 x 0.75	7 / 0.37	0.6	2.2	1.2	16.1	330	1.3	20.2	573	24.5
37 x 0.75	7 / 0.37	0.6	2.2	1.2	18.0	433	1.3	22.1	703	24.5
2 x 1	7 / 0.43	0.6	2.4	0.6	6.2	53	1.0	9.3	131	18.1
3 x 1	7 / 0.43	0.6	2.4	0.6	6.6	64	1.0	9.7	146	18.1
4 x 1	7 / 0.43	0.6	2.4	0.8	7.6	85	1.0	10.8	181	18.1
5 x 1	7 / 0.43	0.6	2.4	0.8	8.3	85	1.0	11.5	189	18.1
7 x 1	7 / 0.43	0.6	2.4	0.8	9.0	112	1.0	12.2	224	18.1
12 x 1	7 / 0.43	0.6	2.4	1.0	12.2	191	1.2	15.8	353	18.1
19 x 1	7 / 0.43	0.6	2.4	1.1	14.4	290	1.2	18.1	482	18.1
24 x 1	7 / 0.43	0.6	2.4	1.2	17.0	368	1.3	21.1	624	18.1
27 x 1	7 / 0.43	0.6	2.4	1.2	17.4	406	1.3	21.4	667	18.1
37 x 1	7 / 0.43	0.6	2.4	1.3	19.6	545	1.3	23.7	837	18.1
2 x 1.5	7 / 0.52	0.6	2.85	0.6	7.1	72	1.0	10.3	162	12.1
3 x 1.5	7 / 0.52	0.6	2.85	0.8	8.0	94	1.0	11.2	195	12.1
4 x 1.5	7 / 0.52	0.6	2.85	0.8	8.7	116	1.0	11.9	224	12.1
5 x 1.5	7 / 0.52	0.6	2.85	0.8	9.5	118	1.0	12.7	236	12.1
7 x 1.5	7 / 0.52	0.6	2.85	0.8	10.4	156	1.1	13.8	290	12.1
12 x 1.5	7 / 0.52	0.6	2.85	1.1	14.3	274	1.2	18.0	464	12.1
19 x 1.5	7 / 0.52	0.6	2.85	1.2	16.9	416	1.3	20.9	670	12.1
24 x 1.5	7 / 0.52	0.6	2.85	1.3	19.9	528	1.3	24.0	824	12.1
27 x 1.5	7 / 0.52	0.6	2.85	1.3	20.3	583	1.3	24.4	886	12.1
37 x 1.5	7 / 0.52	0.6	2.85	1.3	22.8	774	1.4	27.0	1122	12.1
2 x 2.5	7 / 0.67	0.6	3.2	0.8	8.2	104	1.0	11.4	207	7.41
3 x 2.5	7 / 0.67	0.6	3.2	0.8	8.7	129	1.0	11.9	238	7.41
4 x 2.5	7 / 0.67	0.6	3.2	0.8	9.5	161	1.0	12.7	279	7.41
5 x 2.5	7 / 0.67	0.6	3.2	0.8	10.4	168	1.1	13.8	303	7.41
7 x 2.5	7 / 0.67	0.6	3.2	1.0	11.8	236	1.1	15.2	386	7.41
12 x 2.5	7 / 0.67	0.6	3.2	1.2	15.9	401	1.3	20.0	641	7.41
19 x 2.5	7 / 0.67	0.6	3.2	1.2	18.6	604	1.3	22.7	882	7.41
24 x 2.5	7 / 0.67	0.6	3.2	1.3	22.0	766	1.4	26.3	1102	7.41
27 x 2.5	7 / 0.67	0.6	3.2	1.3	22.5	850	1.4	26.7	1194	7.41
37 x 2.5	7 / 0.67	0.6	3.2	1.4	25.4	1147	1.4	29.7	1533	7.41

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® LH INSTRUM

Instrumentation cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Insulation: cross-linked polyethylene (XLPE) as per NF C 32-090 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: PVC, type ST2 as per IEC 60502-1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: PVC, type ST2 as per IEC 60502-1.

Reference

• (example) ENERSYL® LH EI BG INSTRUM 2P1,5 mm²
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P,T,Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1.

Markings

• OMERIN – ENERSYL < LH xx xx INSTRUM >
< cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: black.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140825-01:

• Good resistance to acid.
• Good resistance to base.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
(0.9 mm² cross-section replaced by 1 mm²).
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® LH EI BE EX INSTRUM:**
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> **ENERSYL® LH EI EX INSTRUM:**
with individual and general electrical screen (aluminium/PET tape).
> **ENERSYL® LH BE EX INSTRUM:**
with general electrical screen (tin-plated copper braid).
> **ENERSYL® LH EG EX INSTRUM:**
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.0	0.6	2.1	6.0		6.3		6.9		9.1		9.4		10.0	
2 **	0.5	7 / 0.30	36.0	0.6	2.1	6.9	9.7	10.0	11.0	12.7	13.1	10.0	12.9	13.2	14.4	16.3	16.7
3	0.5	7 / 0.30	36.0	0.6	2.1	9.4	10.2	10.6	11.9	13.7	14.1	12.6	13.6	13.8	15.3	17.3	17.8
4	0.5	7 / 0.30	36.0	0.6	2.1	10.4	11.1	11.9	13.3	15.0	15.7	13.8	14.5	15.3	16.9	18.7	19.5
5	0.5	7 / 0.30	36.0	0.6	2.1	11.6	12.6	13.4	14.7	16.6	17.2	15.0	16.2	16.8	18.4	20.7	21.2
6	0.5	7 / 0.30	36.0	0.6	2.1	12.8	13.9	14.5	16.3	18.2	18.8	16.4	17.5	18.2	20.1	22.3	22.9
7	0.5	7 / 0.30	36.0	0.6	2.1	12.8	13.9	14.5	16.3	18.2	18.8	16.4	17.5	18.2	20.1	22.3	22.9
8	0.5	7 / 0.30	36.0	0.6	2.1	14.6	15.6	16.5	18.4			18.3	19.5	20.4	22.4		
9	0.5	7 / 0.30	36.0	0.6	2.1	16.0	17.1	18.0	19.9			20.0	21.2	22.1	24.0		
12	0.5	7 / 0.30	36.0	0.6	2.1	17.2	18.6	19.4	21.7			21.3	22.6	23.5	26.0		
19	0.5	7 / 0.30	36.0	0.6	2.1	20.4	21.9	22.9	25.5			24.5	26.2	27.0	29.7		
24	0.5	7 / 0.30	36.0	0.6	2.1	23.9	25.6					28.1	30.1				
37	0.5	7 / 0.30	36.0	0.6	2.1	27.5	29.6					32.0	34.0				
1	0.9	7 / 0.40	20.6	0.6	2.4	6.6		7.0		7.6		9.7		10.1		10.8	
2 **	0.9	7 / 0.40	20.6	0.6	2.4	7.8	10.8	11.3	12.6	14.3	14.7	11.0	14.2	14.5	16.2	18.0	18.4
3	0.9	7 / 0.40	20.6	0.6	2.4	10.6	11.5	12.2	13.4	15.2	15.9	14.0	14.9	15.6	17.0	19.1	19.9
4	0.9	7 / 0.40	20.6	0.6	2.4	11.8	12.8	13.6	14.9	17.0	17.4	15.2	16.4	17.0	18.6	21.0	21.5
5	0.9	7 / 0.40	20.6	0.6	2.4	13.1	14.2	14.9	16.6	18.7	19.2	16.7	17.9	18.6	20.6	22.7	23.3
6	0.9	7 / 0.40	20.6	0.6	2.4	14.5	15.7	16.4	18.2	20.6	21.2	18.2	19.6	20.3	22.2	24.7	25.5
7	0.9	7 / 0.40	20.6	0.6	2.4	14.5	15.7	16.4	18.2	20.6	21.2	18.2	19.6	20.3	22.2	24.7	25.5
8	0.9	7 / 0.40	20.6	0.6	2.4	16.5	17.7	18.6	20.7			20.5	21.8	22.6	24.7		
9	0.9	7 / 0.40	20.6	0.6	2.4	18.0	19.2	20.3	22.4			22.0	23.3	24.4	26.7		
12	0.9	7 / 0.40	20.6	0.6	2.4	19.4	21.0	22.0	24.3			23.4	25.2	26.0	28.5		
19	0.9	7 / 0.40	20.6	0.6	2.4	22.9	24.6	26.0	28.7			27.1	28.8	30.2	33.2		
24	0.9	7 / 0.40	20.6	0.6	2.4	27.0	29.0					31.5	33.5				
37	0.9	7 / 0.40	20.6	0.6	2.4	31.2	33.5					35.8	38.2				
1	1.5	7 / 0.52	12.1	0.6	2.85	7.7		8.0		8.7		10.9		11.2		11.9	
2 **	1.5	7 / 0.52	12.1	0.6	2.85	8.9	12.8	13.4	14.6	16.7	17.1	12.1	16.4	16.6	18.3	20.8	21.2
3	1.5	7 / 0.52	12.1	0.6	2.85	12.6	13.7	14.3	15.6	17.9	18.3	16.2	17.3	18.0	19.5	22.0	22.4
4	1.5	7 / 0.52	12.1	0.6	2.85	14.0	15.0	15.9	17.4	19.9	20.4	17.7	18.7	19.7	21.4	24.0	24.4
5	1.5	7 / 0.52	12.1	0.6	2.85	15.3	16.6	17.4	19.1	21.8	22.4	19.2	20.7	21.2	23.2	26.1	26.6
6	1.5	7 / 0.52	12.1	0.6	2.85	16.9	18.2	19.1	21.1	23.9	24.5	21.0	22.3	23.1	25.2	28.2	28.8
7	1.5	7 / 0.52	12.1	0.6	2.85	16.9	18.2	19.1	21.1	23.9	24.5	21.0	22.3	23.1	25.2	28.2	28.8
8	1.5	7 / 0.52	12.1	0.6	2.85	19.1	20.7	21.7	23.8			23.2	24.8	25.7	28.1		
9	1.5	7 / 0.52	12.1	0.6	2.85	21.0	22.5	23.6	26.1			25.2	26.7	27.8	30.6		
12	1.5	7 / 0.52	12.1	0.6	2.85	22.6	24.3	25.7	28.3			26.9	28.6	29.9	32.7		
19	1.5	7 / 0.52	12.1	0.6	2.85	26.8	28.8	30.4	33.5			31.2	33.2	34.8	38.1		
24	1.5	7 / 0.52	12.1	0.6	2.85	31.6	34.0					36.3	38.7				
37	1.5	7 / 0.52	12.1	0.6	2.85	36.5	39.3					41.4	44.2				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

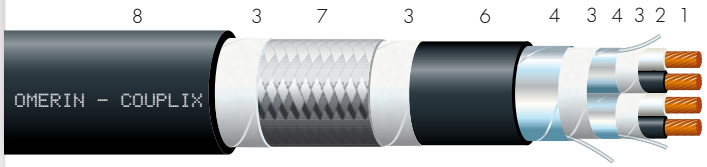
OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

COUPLIX® LH

Pyrometry cables (Extension and compensation)



1 • Stranded core extension: JX, KX, EX, TX or compensation: BC, KCB.
2 • Insulation: cross-linked polyethylene (XLPE) as per NF C 32-090 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: PVC, type ST2 as per IEC 60502-1.
7 • (optional) Armour: galvanized steel braid (BG).
8 • Outer sheath: PVC, type ST2 as per IEC 60502-1.

Reference

• (example) COUPLIX® JX LH EI BG 2P0,5 mm²
JX, TX, KX, EX, BC, KCB: type of extension cable or compensation cable
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
2P: number of pairs
0.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60332-1.
• IEC 60584-1 / IEC 60584-2 / IEC 60584-3.

Markings

• OMERIN – COUPLIX < xx LH xx xx >
< cross-section >
– < batch > – < year >

Category

• Extension cable – tolerance class: 1.
• Compensation cable – tolerance class: 2.

Colour code

IEC

Form

Round

Technical characteristics

Thermal

• Temperature of insulation under continuous operation: -30 °C to +80 °C.

Electrical

• Test voltage: 500 V.

Smoke - fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140825-01:

• Good resistance to acid.
• Good resistance to base.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **Other extension cables or compensation cables:** contact us.
• **Other colour codes:** contact us.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs	Nominal cross-section (mm^2)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm) EG	NON-SHIELDED CABLES Nominal outside diameter* (mm) EI	ARMOURED CABLES Nominal outside diameter* (mm) EG	ARMOURED CABLES Nominal outside diameter* (mm) EI
1	0.5	7 / 0.30	0.5	1.9	5.6		8.7	
2 **	0.5	7 / 0.30	0.5	1.9	6.4	9.0	9.5	12.2
3	0.5	7 / 0.30	0.5	1.9	8.7	9.3	11.9	12.7
4	0.5	7 / 0.30	0.5	1.9	9.5	10.3	12.9	13.7
5	0.5	7 / 0.30	0.5	1.9	10.7	11.6	14.1	15.2
6	0.5	7 / 0.30	0.5	1.9	11.8	12.8	15.4	16.4
7	0.5	7 / 0.30	0.5	1.9	11.8	12.8	15.4	16.4
8	0.5	7 / 0.30	0.5	1.9	13.5	14.4	17.1	18.1
9	0.5	7 / 0.30	0.5	1.9	14.7	15.8	18.6	19.8
12	0.5	7 / 0.30	0.5	1.9	15.9	17.0	19.9	21.0
19	0.5	7 / 0.30	0.5	1.9	18.8	20.1	22.8	24.4
24	0.5	7 / 0.30	0.5	1.9	21.9	23.5	26.2	28.0
37	0.5	7 / 0.30	0.5	1.9	25.2	27.1	29.7	31.5
1	1	14 / 0.30	0.5	2.4	6.6		9.7	
2 **	1	14 / 0.30	0.5	2.4	7.8	11.0	11.0	14.4
3	1	14 / 0.30	0.5	2.4	10.6	11.5	14.0	14.9
4	1	14 / 0.30	0.5	2.4	11.8	12.8	15.2	16.4
5	1	14 / 0.30	0.5	2.4	13.1	14.2	16.7	17.9
6	1	14 / 0.30	0.5	2.4	14.5	15.7	18.2	19.6
7	1	14 / 0.30	0.5	2.4	14.5	15.7	18.2	19.6
8	1	14 / 0.30	0.5	2.4	16.5	17.7	20.5	21.8
9	1	14 / 0.30	0.5	2.4	18.0	19.2	22.0	23.3
12	1	14 / 0.30	0.5	2.4	19.4	21.0	23.4	25.2
19	1	14 / 0.30	0.5	2.4	22.9	24.6	27.1	28.8
24	1	14 / 0.30	0.5	2.4	27.0	29.0	31.5	33.5
37	1	14 / 0.30	0.5	2.4	31.2	33.5	35.8	38.2

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

HYDROCARBON RESISTANT CABLES

ENERSYL® RH

HYDROCARBON RESISTANT CABLES

Technical data

Continuous operating temperature	
Maximum core temperature	
Rated voltage	
Test voltage	

Standard products

Stranding of the core	
Insulation of conductors	
Outer sheath	
Colour identification of conductors	
Colour of the outer sheath	

Options

- Flexible core - CuSn class 5
- Individual electrical screen (pair / triple / quad) using aluminium/PET tape + continuity wire*
- General electrical screen using aluminium/PET tape + continuity wire
- General electrical screen using bare copper braid
- General electrical screen using tin-plated copper braid
- Mechanical armour using galvanized steel braid (+ inner sheath)
- Mechanical armour using double steel tape (+ inner sheath)
- Use in ATEX zone as per NF C 15-100 part 4-42 or EN 60079-14 (excluding "i" intrinsic safety circuit)
- Use in ATEX zone for "i" intrinsic safety circuit only as per EN 60079-14

Characteristics

- Core - as per standard
- Insulation - as per standard
- Sheath - material as per standard
- Cable - construction as per standard

Fire-smoke resistance properties of cable

- Flame retardant - IEC 60332-3-22 (Cat. A bundled cables)
- Flame retardant - IEC 60332-3-24 (Cat. C bundled cables)
- Fire retardant - NF C 32-070 test C1
- Flame retardant - IEC 60332-1-2 / NF C 32-070 test C2
- Fire-resistant - IEC 60331-21 / EN 50200
- Low smoke density - IEC 61034-2
- Halogen-free - IEC 60754-1
- Low corrosiveness of gas emissions - IEC 60754-2

Physical / chemical properties of the sheath

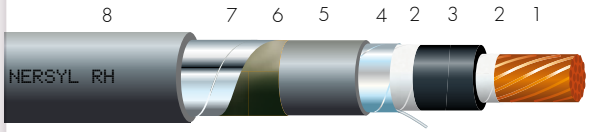
- Resistance to acid (immersion 168 h)**
- Resistance to base (immersion 168 h)**
- Resistance to IRM 902 mineral oil (24 h immersion at 100 °C)**
- Reinforced resistance to IRM 902 mineral oil (168 h immersion at 90 °C)**
- Resistance to aliphatic hydrocarbons (immersion 168 h)**
- AD7 class as per IEC 60529 (immersion in water - ends not immersed)**
- Resistance to saline mist (immersion in salt water - 168 h at 60 °C)**
- Resistance to UV ≥ 2000 h as per EN 16472**

* By default all cables with individual screens also have EG type general screens.
** Based on the OMERIN method. Refer to the corresponding test report for further information.

ENERSYL® RH POWER Power cables	ENERSYL® RH CONTROL Control cables	ENERSYL® RH INSTRUM Instrumentation cables	COUPLIX® RH Pyrometry cables
-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C
N/A	N/A	N/A	N/A
600 / 1000 V	450 / 750 V	300 / 500 V	N/A
3500 V	2500 V	2000 V	500 V
CuA1 class 2	CuA1 class 2	CuA1 class 2	N/A
PVC, type PVC/A	PVC	PVC	PVC
Hydrocarbon resistant PVC, type ST1	Hydrocarbon resistant PVC, type ST1	Hydrocarbon resistant PVC	Hydrocarbon resistant PVC
HD 308 S2 or black numbered if → 5 conductors	HD 308 S2 or white numbered if → 5 conductors	white/blue OR white/red/blue OR white/red/blue/black	as per NF C 42-324 OR as per IEC 60584
grey	grey	gris OR blue as per NF M 87-202	as per NF C 42-324 OR as per IEC 60584
FLEX	FLEX	N/A	N/A
N/A	N/A	EI	EI
EG	EG	EG	EG
BR	BR	N/A	N/A
BE	BE	N/A	N/A
BG	BG	N/A	N/A
FA	FA	FA	FA
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
IEC 60228	IEC 60228	IEC 60228	NF C 42-324
IEC 60502-1	NF C 32-090	NF M 87-202	NF C 42-324
IEC 60502-1	IEC 60502-1	NF M 87-202	NF C 42-324
IEC 60502-1	N/A	NF M 87-202	NF M 87-201
-	-	-	-
-	-	-	-
-	-	-	-
✓	✓	✓	✓
-	-	-	N/A
-	-	-	-
-	-	-	-
-	-	-	-
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
-	-	-	-

ENERSYL® RH POWER

Single core power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: PVC, type PVC/A as per IEC 60502-1.
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: Hydrocarbon resistant PVC, type ST1 as per IEC 60502-1.
6 • (optional) Bedding: waxed crepe paper.
7 • (optional) Armour: double steel tape (FA) / galvanized steel braid (BG).
8 • Outer sheath: Hydrocarbon resistant PVC, type ST1 as per IEC 60502-1.

Reference

• (example) ENERSYL® RH EG BG POWER 95 mm²
RH: Hydrocarbon resistant
EG, BE, BR: type of electrical screen
FA, BG: type of armour
POWER: power cable
95 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60502-1.
• IEC 60332-1.
• Inspired by standard NF M 87-202 for oil industry.

Markings

• OMERIN – ENERSYL < RH xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: grey.
• **Insulation**: black.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140404-01:

• Good resistance to acid.
• Good resistance to base.
• Excellent resistance to aliphatic hydrocarbons as per NF M 87-202.
• Excellent resistance to mineral oil in IRM 902.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
1.5	7 / 0.52	0.8	3.1	1.4	6.3	58	1.4	10.7	175	12.1
2.5	7 / 0.67	0.8	3.6	1.4	6.8	73	1.4	11.2	197	7.41
4	7 / 0.85	1.0	4.7	1.4	7.9	100	1.4	12.3	240	4.61
6	7 / 1.04	1.0	5.1	1.4	8.4	124	1.4	12.7	268	3.08
10	7 / 1.33	1.0	6.2	1.4	9.5	172	1.4	13.9	335	1.83
16	7 / 1.68	1.0	7.3	1.4	10.6	237	1.4	15.0	416	1.15
25	7 strands	1.2	8.7	1.4	12.0	335	1.4	16.5	538	0.727
35	7 strands	1.2	9.5	1.4	12.8	432	1.5	17.5	655	0.524
50	19 strands	1.4	11.0	1.4	14.3	575	1.5	19.0	821	0.387
70	19 strands	1.4	12.8	1.4	16.2	770	1.6	21.1	1054	0.268
95	19 strands	1.6	14.8	1.5	18.4	1052	1.7	23.3	1369	0.193
120	19 strands	1.6	17.0	1.6	20.8	1328	1.7	25.5	1670	0.153
150	19 strands	1.8	18.4	1.6	22.2	1593	1.8	27.3	1982	0.124
185	37 strands	2.0	21.3	1.7	25.3	2004	1.8	30.2	2428	0.0991
240	37 strands	2.2	23.5	1.8	27.7	2539	1.9	32.8	3016	0.0754
300	61 strands	2.4	28.0	1.9	32.4	3235	2.0	37.5	3786	0.0601
400	61 strands	2.6	31.0	2.0	35.6	4061	2.2	40.9	4681	0.0470

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

For this product, please contact:

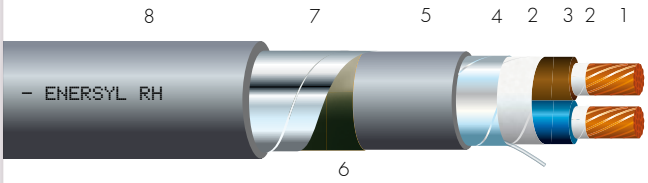
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

ENERSYL® RH POWER

Multicore power cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: PVC, type PVC/A as per IEC 60502-1 + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: Hydrocarbon resistant PVC, type ST1 as per IEC 60502-1.
6 • (optional) Bedding: waxed crepe paper.
7 • (optional) Armour: double steel tape (FA) / galvanized steel braid (BG).
8 • Outer sheath: Hydrocarbon resistant PVC, type ST1 as per IEC 60502-1.

Reference

• (example) ENERSYL® RH EG FA POWER 2x4 mm²
RH: Hydrocarbon resistant
EG, BE, BR: type of electrical screen
FA, BG: type of armour
POWER: power cable
2: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60502-1.
• IEC 60332-1.
• Inspired by standard NF M 87-202 for oil industry.

Markings

• OMERIN – ENERSYL < RH xx xx POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: grey.
• **Colour identification of conductors**:
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: black numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140404-01:

• Good resistance to acid.
• Good resistance to base.
• Excellent resistance to aliphatic hydrocarbons as per NF M 87-202.
• Excellent resistance to mineral oil in IRM 902.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

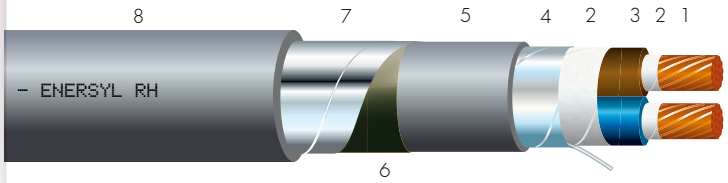
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 1.5	7 / 0.52	0.8	3.1	1.8	10.3	121	1.8	14.7	292	12.1
3 x 1.5	7 / 0.52	0.8	3.1	1.8	10.8	147	1.8	15.2	325	12.1
4 x 1.5	7 / 0.52	0.8	3.1	1.8	11.6	175	1.8	16.1	369	12.1
5 x 1.5	7 / 0.52	0.8	3.1	1.8	12.5	204	1.8	17.0	411	12.1
7 x 1.5	7 / 0.52	0.8	3.1	1.8	13.4	255	1.8	17.9	475	12.1
12 x 1.5	7 / 0.52	0.8	3.1	1.8	17.1	398	1.8	21.6	673	12.1
19 x 1.5	7 / 0.52	0.8	3.1	1.8	19.7	572	1.8	24.2	885	12.1
24 x 1.5	7 / 0.52	0.8	3.1	1.8	22.8	707	1.8	27.5	1079	12.1
27 x 1.5	7 / 0.52	0.8	3.1	1.8	23.3	776	1.8	28.0	1154	12.1
37 x 1.5	7 / 0.52	0.8	3.1	1.8	25.9	1014	1.9	30.8	1446	12.1
2 x 2.5	7 / 0.67	0.8	3.6	1.8	11.3	151	1.8	15.8	341	7.41
3 x 2.5	7 / 0.67	0.8	3.6	1.8	11.9	189	1.8	16.4	386	7.41
4 x 2.5	7 / 0.67	0.8	3.6	1.8	12.8	229	1.8	17.3	441	7.41
5 x 2.5	7 / 0.67	0.8	3.6	1.8	13.8	271	1.8	18.3	497	7.41
7 x 2.5	7 / 0.67	0.8	3.6	1.8	14.9	345	1.8	19.4	587	7.41
12 x 2.5	7 / 0.67	0.8	3.6	1.8	19.2	547	1.8	23.7	852	7.41
19 x 2.5	7 / 0.67	0.8	3.6	1.8	22.2	800	1.8	26.7	1150	7.41
24 x 2.5	7 / 0.67	0.8	3.6	1.8	25.8	994	1.9	30.7	1425	7.41
27 x 2.5	7 / 0.67	0.8	3.6	1.8	26.3	1096	1.9	31.2	1535	7.41
37 x 2.5	7 / 0.67	0.8	3.6	1.8	29.4	1446	2.0	34.7	1965	7.41
2 x 4	7 / 0.85	1.0	4.7	1.8	13.5	211	1.8	18.0	432	4.61
3 x 4	7 / 0.85	1.0	4.7	1.8	14.3	269	1.8	18.8	502	4.61
4 x 4	7 / 0.85	1.0	4.7	1.8	15.6	336	1.8	20.0	583	4.61
5 x 4	7 / 0.85	1.0	4.7	1.8	16.9	400	1.8	21.4	671	4.61
7 x 4	7 / 0.85	1.0	4.7	1.8	18.3	517	1.8	22.8	809	4.61
12 x 4	7 / 0.85	1.0	4.7	1.8	23.8	827	1.8	28.3	1199	4.61
2 x 6	7 / 1.04	1.0	5.1	1.8	14.3	257	1.8	18.8	490	3.08
3 x 6	7 / 1.04	1.0	5.1	1.8	15.1	336	1.8	19.6	581	3.08
4 x 6	7 / 1.04	1.0	5.1	1.8	16.5	423	1.8	21.0	689	3.08
5 x 6	7 / 1.04	1.0	5.1	1.8	18.0	507	1.8	22.5	795	3.08
7 x 6	7 / 1.04	1.0	5.1	1.8	19.5	665	1.8	24.0	974	3.08
2 x 10	7 / 1.33	1.0	6.2	1.8	16.6	360	1.8	21.1	627	1.83
3 x 10	7 / 1.33	1.0	6.2	1.8	17.6	480	1.8	22.1	762	1.83
4 x 10	7 / 1.33	1.0	6.2	1.8	19.2	606	1.8	23.7	912	1.83
5 x 10	7 / 1.33	1.0	6.2	1.8	20.9	733	1.8	25.4	1064	1.83
2 x 16	7 / 1.68	1.0	7.3	1.8	18.8	494	1.8	23.3	793	1.15
3 x 16	7 / 1.68	1.0	7.3	1.8	20.0	673	1.8	24.5	990	1.15
4 x 16	7 / 1.68	1.0	7.3	1.8	21.9	859	1.8	26.4	1204	1.15
5 x 16	7 / 1.68	1.0	7.3	1.8	23.9	1046	1.8	28.4	1421	1.15
2 x 25	7 strands	1.2	8.7	1.8	21.6	696	1.8	26.1	1037	0.727
3 x 25	7 strands	1.2	8.7	1.8	23.0	966	1.8	27.5	1327	0.727
4 x 25	7 strands	1.2	8.7	1.8	25.3	1244	1.8	30.0	1653	0.727
5 x 25	7 strands	1.2	8.7	1.8	27.7	1523	1.9	32.6	1984	0.727
2 x 35	7 strands	1.2	9.5	1.8	23.2	894	1.8	27.9	1271	0.524
3 x 35	7 strands	1.2	9.5	1.8	24.7	1256	1.9	29.6	1670	0.524
4 x 35	7 strands	1.2	9.5	1.8	27.2	1627	1.9	32.1	2080	0.524
5 x 35	7 strands	1.2	9.5	1.9	30.1	2014	2.0	35.2	2526	0.524
2 x 50	19 strands	1.4	11.0	1.8	26.2	1186	1.9	31.1	1623	0.387
3 x 50	19 strands	1.4	11.0	1.8	28.0	1684	2.0	33.1	2163	0.387
4 x 50	19 strands	1.4	11.0	1.9	31.0	2205	2.1	36.3	2749	0.387
5 x 50	19 strands	1.4	11.0	2.0	34.3	2731	2.2	39.8	3347	0.387
2 x 70	19 strands	1.4	12.8	1.9	30.0	1590	2.0	35.1	2102	0.268
3 x 70	19 strands	1.4	12.8	1.9	32.0	2269	2.1	37.3	2831	0.268
4 x 70	19 strands	1.4	12.8	2.0	35.6	2977	2.2	41.1	3615	0.268
2 x 95	19 strands	1.6	14.8	2.0	34.2	2160	2.2	39.7	2775	0.193
3 x 95	19 strands	1.6	14.8	2.1	36.8	3119	2.3	42.3	3777	0.193

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected (excluding FLEX option +/- 25%).

ENERSYL® RH CONTROL

Control cables



1 • Stranded bare copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: PVC as per NF C 32-090 + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: Hydrocarbon resistant PVC, type ST1 as per IEC 60502-1.
6 • (optional) Bedding: waxed crepe paper.
7 • (optional) Armour: double steel tape (FA) / galvanized steel braid (BG).
8 • Outer sheath: Hydrocarbon resistant PVC, type ST1 as per IEC 60502-1.

Reference

• (example) ENERSYL® RH EG FA CONTROL 19x1,5 mm²
RH: Hydrocarbon resistant
EG, BE, BR: type of electrical screen
BG, FA: type of armour
CONTROL: control cable
19: number of conductors
X, G: type of assembly: without (X) or with (G) an earth wire
1.5 mm²: cross-section in mm²

Markings

• OMERIN – ENERSYL < RH xx xx CONTROL > < cross-section > – 450/750V – < batch > – < year >

Approvals - standards

• IEC 60228 / NF C 32-090.
• IEC 60332-1.
• Inspired by standard NF M 87-202 for oil industry.

Standard products

• **Sheath**: grey.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140404-01:

• Good resistance to acid.
• Good resistance to base.
• Excellent resistance to aliphatic hydrocarbons as per NF M 87-202.
• Excellent resistance to mineral oil in IRM 902.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **FLEX**: flexible tin-plated copper core, class 5 as per IEC 60228.
• **Other colours**: contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

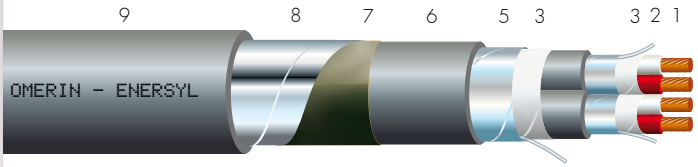
					NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 0.34	7 / 0.25	0.6	1.9	0.6	5.2	35	1.0	9.1	124	57.5
3 x 0.34	7 / 0.25	0.6	1.9	0.6	5.5	41	1.0	9.4	134	57.5
4 x 0.34	7 / 0.25	0.6	1.9	0.6	6.0	50	1.0	9.9	149	57.5
5 x 0.34	7 / 0.25	0.6	1.9	0.6	6.5	51	1.0	10.5	159	57.5
7 x 0.34	7 / 0.25	0.6	1.9	0.6	7.1	66	1.0	11.1	182	57.5
12 x 0.34	7 / 0.25	0.6	1.9	0.8	9.8	116	1.1	14.0	274	57.5
19 x 0.34	7 / 0.25	0.6	1.9	1.0	11.8	179	1.2	16.2	371	57.5
24 x 0.34	7 / 0.25	0.6	1.9	1.1	13.9	227	1.2	18.4	453	57.5
27 x 0.34	7 / 0.25	0.6	1.9	1.1	14.2	248	1.2	18.7	478	57.5
37 x 0.34	7 / 0.25	0.6	1.9	1.2	16.0	329	1.3	20.7	594	57.5
2 x 0.5	7 / 0.30	0.6	2.1	0.6	5.6	42	1.0	9.5	137	36.0
3 x 0.5	7 / 0.30	0.6	2.1	0.6	5.9	50	1.0	9.8	149	36.0
4 x 0.5	7 / 0.30	0.6	2.1	0.6	6.5	61	1.0	10.5	169	36.0
5 x 0.5	7 / 0.30	0.6	2.1	0.6	7.1	63	1.0	11.1	178	36.0
7 x 0.5	7 / 0.30	0.6	2.1	0.8	8.1	89	1.0	12.1	218	36.0
12 x 0.5	7 / 0.30	0.6	2.1	0.8	10.6	144	1.1	14.8	313	36.0
19 x 0.5	7 / 0.30	0.6	2.1	1.0	12.8	223	1.2	17.2	429	36.0
24 x 0.5	7 / 0.30	0.6	2.1	1.1	15.1	283	1.2	19.6	526	36.0
27 x 0.5	7 / 0.30	0.6	2.1	1.2	15.6	317	1.3	20.3	577	36.0
37 x 0.5	7 / 0.30	0.6	2.1	1.2	17.4	414	1.3	22.1	699	36.0
2 x 0.75	7 / 0.37	0.6	2.3	0.6	6.0	51	1.0	9.9	151	24.5
3 x 0.75	7 / 0.37	0.6	2.3	0.6	6.4	62	1.0	10.4	168	24.5
4 x 0.75	7 / 0.37	0.6	2.3	0.6	6.9	75	1.0	10.9	190	24.5
5 x 0.75	7 / 0.37	0.6	2.3	0.8	8.0	85	1.0	12.0	213	24.5
7 x 0.75	7 / 0.37	0.6	2.3	0.8	8.7	110	1.0	12.7	248	24.5
12 x 0.75	7 / 0.37	0.6	2.3	1.0	11.9	191	1.2	16.3	384	24.5
19 x 0.75	7 / 0.37	0.6	2.3	1.1	14.0	286	1.2	18.5	513	24.5
24 x 0.75	7 / 0.37	0.6	2.3	1.2	16.5	362	1.3	21.2	635	24.5
27 x 0.75	7 / 0.37	0.6	2.3	1.2	16.8	398	1.3	21.5	676	24.5
37 x 0.75	7 / 0.37	0.6	2.3	1.2	18.9	527	1.3	23.6	835	24.5
2 x 1	7 / 0.43	0.6	2.5	0.6	6.4	60	1.0	10.4	167	18.1
3 x 1	7 / 0.43	0.6	2.5	0.6	6.8	73	1.0	10.8	185	18.1
4 x 1	7 / 0.43	0.6	2.5	0.8	7.8	97	1.0	11.8	223	18.1
5 x 1	7 / 0.43	0.6	2.5	0.8	8.6	101	1.0	12.6	237	18.1
7 x 1	7 / 0.43	0.6	2.5	0.8	9.3	133	1.1	13.5	284	18.1
12 x 1	7 / 0.43	0.6	2.5	1.0	12.7	229	1.2	17.1	434	18.1
19 x 1	7 / 0.43	0.6	2.5	1.1	15.0	345	1.2	19.5	586	18.1
24 x 1	7 / 0.43	0.6	2.5	1.2	17.8	441	1.3	22.5	733	18.1
27 x 1	7 / 0.43	0.6	2.5	1.2	18.2	486	1.3	22.9	783	18.1
37 x 1	7 / 0.43	0.6	2.5	1.3	20.5	649	1.4	25.4	992	18.1
2 x 1.5	7 / 0.52	0.6	2.8	0.6	7.0	77	1.0	11.0	191	12.1
3 x 1.5	7 / 0.52	0.6	2.8	0.8	7.8	102	1.0	11.8	227	12.1
4 x 1.5	7 / 0.52	0.6	2.8	0.8	8.5	125	1.0	12.5	260	12.1
5 x 1.5	7 / 0.52	0.6	2.8	0.8	9.4	132	1.1	13.6	284	12.1
7 x 1.5	7 / 0.52	0.6	2.8	0.8	10.3	177	1.1	14.5	342	12.1
12 x 1.5	7 / 0.52	0.6	2.8	1.1	14.1	308	1.2	18.6	537	12.1
19 x 1.5	7 / 0.52	0.6	2.8	1.2	16.7	465	1.3	21.4	741	12.1
24 x 1.5	7 / 0.52	0.6	2.8	1.3	19.8	593	1.3	24.5	914	12.1
27 x 1.5	7 / 0.52	0.6	2.8	1.3	20.2	655	1.4	25.1	993	12.1
37 x 1.5	7 / 0.52	0.6	2.8	1.3	22.6	867	1.4	27.5	1242	12.1
2 x 2.5	7 / 0.67	0.7	3.4	0.8	8.6	119	1.0	12.6	255	7.41
3 x 2.5	7 / 0.67	0.7	3.4	0.8	9.1	148	1.0	13.1	291	7.41
4 x 2.5	7 / 0.67	0.7	3.4	0.8	10.1	187	1.1	14.3	348	7.41
5 x 2.5	7 / 0.67	0.7	3.4	1.0	11.5	208	1.1	15.7	389	7.41
7 x 2.5	7 / 0.67	0.7	3.4	1.0	12.5	276	1.2	16.9	478	7.41
12 x 2.5	7 / 0.67	0.7	3.4	1.2	16.8	466	1.3	21.5	744	7.41
19 x 2.5	7 / 0.67	0.7	3.4	1.3	20.0	714	1.3	24.7	1038	7.41
24 x 2.5	7 / 0.67	0.7	3.4	1.3	23.4	892	1.4	28.3	1278	7.41
27 x 2.5	7 / 0.67	0.7	3.4	1.3	23.9	988	1.4	28.8	1382	7.41
37 x 2.5	7 / 0.67	0.7	3.4	1.4	27.0	1330	1.5	32.1	1785	7.41

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

www.omerin.com

ENERSYL® RH INSTRUM

Instrumentation cables



1 • Solid or stranded bare copper core.
2 • Insulation: PVC as per NF M 87-202 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire + PVC sheath.
5 • General electrical screen: aluminium/PET tape + continuity wire.
6 • (optional) Internal sheath: Hydrocarbon resistant PVC as per NF M 87-202.
7 • (optional) Bedding: waxed crepe paper.
8 • (optional) Armour: double steel tape (FA).
9 • Outer sheath: Hydrocarbon resistant PVC as per NF M 87-202.

Reference

• (example) ENERSYL® RH EI FA INSTRUM 2P0.9 mm²
RH: Hydrocarbon resistant
EI, EG: type of electrical screen
FA, SF: type of armour (SF = no armour)
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P, T, Q: pairs, triples or quads
0.9 mm²: cross-section in mm²

Approvals - standards

• IEC 60332-1.
• Inspired by standard NF M 87-202 for oil industry.

Markings

• OMERIN – ENERSYL < RH xx xx INSTRUM > < cross-section > – NF M 87-202 – 300/500V – < batch > – < year > (if described in standard)

• OMERIN – ENERSYL < RH xx xx INSTRUM > < cross-section > – 300/500V – < batch > – < year > (if not described in standard)

Standard products

• **Sheath**: grey.
• **Colour identification of conductors**:
> Pair: red and natural numbered.
> Triple: blue, red and natural numbered.
> Quad: blue, red, yellow and natural numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 1500 V.

Fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140404-01:

• Good resistance to acid.
• Good resistance to base.
• Excellent resistance to aliphatic hydrocarbons as per NF M 87-202.
• Excellent resistance to mineral oil in IRM 902.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **Other colours**: contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
					Pairs		Triples		Quads		Pairs		Triples		Quads	
					EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	1 / 0.80	37.5	1.7	5.7		6.0		6.4		9.6		9.9		10.4	
2**	0.5	1 / 0.80	37.5	1.7	6.4	12.5	8.7	13.0	10.6	14.1	10.4	16.9	12.7	17.4	14.8	18.6
3	0.5	1 / 0.80	37.5	1.7	**8.6**	**13.6**	9.2	14.1	11.3	15.1	**12.6**	**17.9**	13.4	18.6	15.7	19.6
4	0.5	1 / 0.80	37.5	1.7	9.0	14.6	10.1	15.7	12.4	16.8	13.0	19.1	14.3	20.4	16.8	21.5
5	0.5	1 / 0.80	37.5	1.7	9.8	16.1	11.0	17.2	13.7	18.5	14.0	20.8	15.2	21.9	18.2	23.2
6	0.5	1 / 0.80	37.5	1.7	10.8	17.9	12.0	18.9	14.9	20.4	15.0	22.5	16.4	23.6	19.4	25.3
7	0.5	1 / 0.80	37.5	1.7	**11.1**	**18.0**	**12.8**	**19.5**	14.9	20.4	**15.4**	**22.5**	**17.1**	**24.2**	19.4	25.3
8	0.5	1 / 0.80	37.5	1.7	12.0	20.2	13.6	21.5			16.4	25.1	18.1	26.4		
9	0.5	1 / 0.80	37.5	1.7	13.0	22.2	14.7	23.4			17.4	27.1	19.2	28.3		
12	0.5	1 / 0.80	37.5	1.7	**14.0**	**24.4**	**16.0**	**25.5**			**18.5**	**29.3**	**20.5**	**30.4**		
19	0.5	1 / 0.80	37.5	1.7	**16.8**	**28.5**					**21.3**	**33.6**				
24	0.5	1 / 0.80	37.5	1.7	19.6	33.6					24.0	38.9				
27	0.5	1 / 0.80	37.5	1.7	**19.3**	**34.5**					**24.0**	**39.8**				
37	0.5	1 / 0.80	37.5	1.7	22.6	38.9					27.5	44.4				
1	0.9	7 / 0.40	21.4	2.3	**7.0**		**7.4**		**7.9**		**10.9**		**11.3**		**11.8**	
2**	0.9	7 / 0.40	21.4	2.3	7.9	15.1	11.0	16.0	13.7	17.2	12.0	19.6	15.2	20.7	18.2	21.9
3	0.9	7 / 0.40	21.4	2.3	10.5	16.3	11.7	17.1	14.6	18.5	14.7	21.0	16.1	21.8	19.1	23.2
4	0.9	7 / 0.40	21.4	2.3	11.5	18.0	12.9	18.9	16.3	20.6	15.7	22.7	17.3	23.6	21.0	25.5
5	0.9	7 / 0.40	21.4	2.3	12.6	20.0	14.3	21.0	17.9	22.6	17.0	24.7	18.8	25.9	22.6	27.5
6	0.9	7 / 0.40	21.4	2.3	13.9	22.0	15.8	23.0	19.8	25.0	18.4	26.8	20.5	27.9	24.5	30.1
7	0.9	7 / 0.40	21.4	2.3	13.9	22.0	15.8	23.0	19.8	25.0	18.4	26.8	20.5	27.9	24.5	30.1
8	0.9	7 / 0.40	21.4	2.3	15.8	24.7	17.8	26.2			20.5	29.8	22.5	31.3		
9	0.9	7 / 0.40	21.4	2.3	17.1	27.1	19.3	28.5			21.8	32.2	24.0	33.6		
12	0.9	7 / 0.40	21.4	2.3	18.6	29.6	21.1	31.1			23.3	34.9	26.0	36.4		
19	0.9	7 / 0.40	21.4	2.3	22.0	35.1	24.7	36.9			26.9	40.6	29.8	42.4		
24	0.9	7 / 0.40	21.4	2.3	25.9	41.6					31.0					
37	0.9	7 / 0.40	21.4	2.3	29.9						32.2					
1	1.5	7 / 0.52	12.1	2.8	7.9		8.3		9.1		11.9		12.3		13.1	
2**	1.5	7 / 0.52	12.1	2.8	9.1	17.3	12.9	18.5	16.4	20.4	13.1	22.0	17.3	23.2	21.1	25.3
3	1.5	7 / 0.52	12.1	2.8	12.3	18.6	14.0	20.0	17.4	21.7	16.7	23.3	18.5	24.7	22.1	26.6
4	1.5	7 / 0.52	12.1	2.8	13.7	20.7	15.5	22.0	19.3	24.0	18.2	25.8	20.2	26.9	24.0	28.9
5	1.5	7 / 0.52	12.1	2.8	15.0	22.7	17.0	24.2	21.4	26.6	19.5	27.6	21.7	29.3	26.3	31.7
6	1.5	7 / 0.52	12.1	2.8	16.6	25.1	18.7	26.7	23.4	29.4	21.3	30.2	23.4	31.8	28.3	34.7
7	1.5	7 / 0.52	12.1	2.8	16.6	25.1	18.7	26.7	23.4	29.4	21.3	30.2	23.4	31.8	28.3	34.7
8	1.5	7 / 0.52	12.1	2.8	18.7	28.4	21.3	30.5			23.4	33.5	26.2	35.8		
9	1.5	7 / 0.52	12.1	2.8	20.5	31.3	23.1	33.2			25.4	36.4	28.0	38.5		
12	1.5	7 / 0.52	12.1	2.8	22.2	33.8	25.2	36.2			27.1	39.1	30.3	41.7		
19	1.5	7 / 0.52	12.1	2.8	26.3	40.3	29.8	43.0			31.4	46.0	35.1			
24	1.5	7 / 0.52	12.1	2.8	31.1						36.4					
37	1.5	7 / 0.52	12.1	2.8	35.8						41.3					

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.
Strandings described in standard NF M 87-202 with a blue sheath.

For this product, please contact:

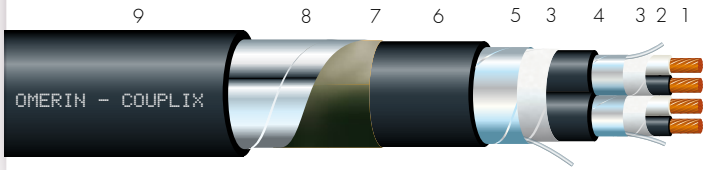
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

COUPLIX® RH

Pyrometry cables (Extension and compensation)



1 • Solid core or stranded core extension: JX, KX, EX, TX or compensation: BC, KCA, KCB.
2 • Insulation: PVC as per NF M 87-201 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire + PVC sheath.
5 • General electrical screen: aluminium/PET tape + continuity wire.
6 • (optional) Internal sheath: Hydrocarbon resistant PVC as per NF M 87-201.
7 • (optional) Bedding: waxed crepe paper.
8 • (optional) Armour: double steel tape (FA).
9 • Outer sheath: Hydrocarbon resistant PVC as per NF M 87-201.

Reference

• (example) COUPLIX® JX RH EI FA 2P0,5 mm²
JX, TX, KX, EX, BC, KCA, KCB: type of extension cable or compensation cable
RH: Hydrocarbon resistant
EI, EG: type of electrical screen
FA, SF: type of armour (SF = no armour)
2P: number of pairs
0.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60332-1.
• IEC 60584-1 / IEC 60584-2 / IEC 60584-3.
• Inspired by standard NF M 87-201 for oil industry.

Markings

• OMERIN – COUPLIX < xx RH xx xx > < cross-section > – NF M 87-201– < batch > – < year > (if described in standard)

• OMERIN – COUPLIX < xx RH xx xx > < cross-section > – < batch > – < year > (if not described in standard)

Category

• Extension cable – tolerance class: 1.
• Compensation cable – tolerance class: 2.

Colour code

IEC

Form

Round

Technical characteristics

Thermal

• Temperature of insulation under continuous operation: -30 °C to +80 °C.

Electrical

• Test voltage: 500 V.

Fire

• Flame retardant – cable alone:
IEC 60332-1-2 / NF EN 60332-1-2 / NF C 32-070 test C2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140404-01:

• Good resistance to acid.
• Good resistance to base.
• Excellent resistance to aliphatic hydrocarbons as per NF M 87-202.
• Excellent resistance to mineral oil in IRM 902.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.

Options

• **Other extension cables or compensation cables:** contact us.
• **Other colour codes:** contact us.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Strandings described in standard NF M 87-201:
Types of cables available: (extension) TX, JX, KX, (compensation) KCA, KCB.

Number of pairs	Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm) EG	NON-SHIELDED CABLES Nominal outside diameter* (mm) EI	ARMOURED CABLES Nominal outside diameter* (mm) EG	ARMOURED CABLES Nominal outside diameter* (mm) EI
3	0.5	1 / 0.80	0.45	1.7	8.6	13.6	12.6	17.9
7	0.5	1 / 0.80	0.45	1.7	11.1	18.0	15.4	22.5
12	0.5	1 / 0.80	0.45	1.7	14.0	24.4	18.5	29.3
19	0.5	1 / 0.80	0.45	1.7	16.8	28.5	21.3	33.6
27	0.5	1 / 0.80	0.45	1.7	19.3	34.5	24.0	39.8
1	1	14 / 0.30	0.6	2.5	7.4		11.3	

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.

Stranding not described in standard NF M 87-201:
All types of extension cable or compensation cable

Number of pairs	Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm) EG	NON-SHIELDED CABLES Nominal outside diameter* (mm) EI	ARMOURED CABLES Nominal outside diameter* (mm) EG	ARMOURED CABLES Nominal outside diameter* (mm) EI
1	0.5	7 / 0.30	0.45	1.8	5.8		9.7	
2 **	0.5	7 / 0.30	0.45	1.8	6.7	12.7	10.5	17.1
3	0.5	7 / 0.30	0.45	1.8	8.6	13.7	12.6	18.2
4	0.5	7 / 0.30	0.45	1.8	9.3	15.1	13.5	19.6
5	0.5	7 / 0.30	0.45	1.8	10.3	16.7	14.5	21.4
6	0.5	7 / 0.30	0.45	1.8	11.2	18.4	15.6	23.1
7	0.5	7 / 0.30	0.45	1.8	11.2	18.4	15.6	23.1
8	0.5	7 / 0.30	0.45	1.8	12.5	20.9	16.9	25.8
9	0.5	7 / 0.30	0.45	1.8	13.7	22.8	18.2	27.7
12	0.5	7 / 0.30	0.45	1.8	14.8	24.6	19.3	29.7
19	0.5	7 / 0.30	0.45	1.8	17.5	29.4	22.2	34.7
27	0.5	7 / 0.30	0.45	1.8	20.7	34.8	25.6	40.3
37	0.5	7 / 0.30	0.45	1.8	23.7	40.2	28.6	45.9
1	1	14 / 0.30	0.6	2.5	7.2		11.1	
2 **	1	14 / 0.30	0.6	2.5	8.3	15.9	12.3	20.6
3	1	14 / 0.30	0.6	2.5	11.2	17.0	15.6	21.7
4	1	14 / 0.30	0.6	2.5	12.2	18.8	16.6	23.5
5	1	14 / 0.30	0.6	2.5	13.6	20.8	18.1	25.7
6	1	14 / 0.30	0.6	2.5	14.8	22.8	19.3	27.7
7	1	14 / 0.30	0.6	2.5	14.8	22.8	19.3	27.7
8	1	14 / 0.30	0.6	2.5	16.8	26.0	21.5	31.1
9	1	14 / 0.30	0.6	2.5	18.4	28.3	23.1	33.4
12	1	14 / 0.30	0.6	2.5	20.1	30.9	24.8	36.2
19	1	14 / 0.30	0.6	2.5	23.5	36.6	28.4	42.1
27	1	14 / 0.30	0.6	2.5	27.8	43.4	32.9	
37	1	14 / 0.30	0.6	2.5	32.1		37.4	

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

CABLES FOR OFFSHORE APPLICATIONS

ENERSYL® OS

CABLES FOR OFFSHORE APPLICATIONS

Technical data

Continuous operating temperature	
Maximum core temperature	
Rated voltage	
Test voltage	

Standard products

Stranding of the core	
Insulation of conductors	
Outer sheath	
Colour identification of conductors	
Colour of the outer sheath	

Options

- Flexible core - CuSn class 5
- Individual electrical screen (pair / triple / quad) using aluminium/PET tape + continuity wire
- General electrical screen using aluminium/PET tape + continuity wire
- General electrical screen using bare copper braid
- General electrical screen using tin-plated copper braid
- Mechanical armour using galvanized steel braid (+ inner sheath)
- Mechanical armour using double steel tape (+ inner sheath)
- Cross-linked HFFR outer sheath, type SHF2 as per IEC 60092-359
- Use in ATEX zone as per NF C 15-100 part 4-42 or EN 60079-14 (excluding "i" intrinsic safety circuit)
- Use in ATEX zone for "i" intrinsic safety circuit only as per EN 60079-14

Characteristics

Core	as per standard
Insulation	as per standard
Sheath	material as per standard
Cable	construction as per standard

Fire-smoke resistance properties of cable

- Flame retardant - IEC 60332-3-22 (Cat. A bundled cables)
- Flame retardant - IEC 60332-3-24 (Cat. C bundled cables)
- Fire retardant - NF C 32-070 test C1
- Flame retardant - IEC 60332-1-2 / NF C 32-070 test C2
- Fire-resistant - IEC 60331-21
- Low smoke density - IEC 61034-2
- Halogen-free - IEC 60754-1
- Low corrosiveness of gas emissions - IEC 60754-2

Physical / chemical properties of the sheath

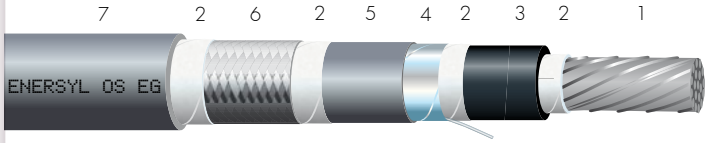
- Resistance to acid (immersion 168 h)*
- Resistance to base (immersion 168 h)*
- Resistance to IRM 902 mineral oil (24 h immersion at 100 °C)*
- Reinforced resistance to IRM 902 mineral oil (168 h immersion at 90 °C)*
- Resistance to aliphatic hydrocarbons (immersion 168 h)*
- AD7 class as per IEC 60529 (immersion in water - ends not immersed)*
- Resistance to saline mist (immersion in salt water - 168 h at 60 °C)*
- Resistance to UV ≥ 2000 h as per EN 16472*

* Based on the OMERIN method. Refer to the corresponding test report for further information.

ENERSYL® OS SHF1 POWER Power cables	ENERSYL® OS SHF1 CONTROL Control cables	ENERSYL® OS SHF1 INSTRUM Instrumentation cables
-30 °C to +80 °C	-30 °C to +80 °C	-30 °C to +80 °C
+90 °C	+90 °C	+90 °C
ENERSYL OS 331 SHF1 : +95 °C	ENERSYL OS 331 SHF1 : +95 °C	ENERSYL OS 331 SHF1 : +95 °C
600 / 1000 V	450 / 750 V	300 / 500 V
3500 V	2500 V	2000 V
CuSn class 2 or 5	CuSn class 2	CuSn class 2
cross-linked polyethylene, type XLPE	cross-linked polyethylene, type XLPE	cross-linked polyethylene, type XLPE
ENERSYL OS 331 SHF1 :	ENERSYL OS 331 SHF1 :	ENERSYL OS 331 SHF1 :
Silicone rubber, type S 95	Silicone rubber, type S 95	Silicone rubber, type S 95
HFFR, type SHF1	HFFR, type SHF1	HFFR, type SHF1
HD 308 S2 or black numbered	HD 308 S2 or white numbered	white/blue OR white/red/blue
if → 5 conductors	if → 5 conductors	OR white/red/blue/black
grey	grey	grey
ENERSYL OS 331 SHF1 : orange	ENERSYL OS 331 SHF1 : orange	ENERSYL OS 331 SHF1 : orange
N/A	N/A	N/A
N/A	N/A	EI
EG	EG	EG
BR	BR	BR
BE	BE	BE
BG	BG	BG
FA	FA	FA
SHF2	SHF2	SHF2
EX	N/A	N/A
N/A	EX	EX
IEC 60228	IEC 60228	IEC 60228
IEC 60092-360	IEC 60092-360	IEC 60092-360
IEC 60092-360	IEC 60092-360	IEC 60092-360
IEC 60092-353	IEC 60092-376	IEC 60092-376
ENERSYL OS 331 SHF1	ENERSYL OS 331 SHF1	ENERSYL OS 331 SHF1
✓	✓	✓
ENERSYL OS 331 SHF1	ENERSYL OS 331 SHF1	ENERSYL OS 331 SHF1
✓	✓	✓
ENERSYL OS 331 SHF1	ENERSYL OS 331 SHF1	ENERSYL OS 331 SHF1
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
option SHF2	option SHF2	option SHF2
-	-	-
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓

ENERSYL® OS SHF1 POWER

Single core power cables



1 • Tin-plated copper core, class 2 or 5 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type XLPE.
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type SHF1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EG BG SHF1 POWER 150 mm²
OS: for offshore applications
EG, BE, BR: type of electrical screen
BG, FA: type of armour
SHF1: nature of sheath material
POWER: power cable
150 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-353.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx SHF1 POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: grey.
• **Insulation**: black.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® OS BG EX SHF1 POWER:** with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
1.5	7 / 0.52	0.7	3.1	1.0	5.5	48	0.8	8.5	121	12.2
2.5	19 / 0.41	0.7	3.5	1.0	5.9	62	0.8	8.7	135	7.56
4	56 / 0.30	0.7	4.2	1.0	6.6	81	0.8	9.4	162	5.09
6	84 / 0.30	0.7	4.8	1.0	7.2	104	0.8	10.0	191	3.39
10	77 / 0.40	0.7	6.0	1.0	8.5	150	0.8	11.5	257	1.95
16	119 / 0.40	0.7	7.2	1.1	9.9	211	0.8	12.9	334	1.24
25	192 / 0.40	0.9	9.1	1.1	11.8	313	0.9	15.0	464	0.795
35	259 / 0.40	0.9	10.4	1.2	13.3	410	0.9	16.7	587	0.56
50	370 / 0.40	1.0	12.2	1.2	15.1	555	1.0	18.7	774	0.393
70	333 / 0.50	1.1	14.2	1.3	17.4	756	1.0	21.2	1015	0.277
95	444 / 0.50	1.1	16.0	1.4	19.4	982	1.1	23.2	1270	0.210
120	568 / 0.50	1.2	18.0	1.4	21.4	1234	1.1	25.4	1562	0.164
150	703 / 0.50	1.4	19.9	1.5	23.5	1514	1.1	27.5	1872	0.132
185	888 / 0.50	1.6	22.0	1.6	25.8	1885	1.2	30.0	2291	0.108
240	1184 / 0.50	1.7	25.2	1.7	29.2	2475	1.3	33.4	2932	0.0817
300	1480 / 0.50	1.8	28.3	1.8	32.5	3073	1.3	36.9	3596	0.0654

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

For this product, please contact:

OMERIN division principale
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

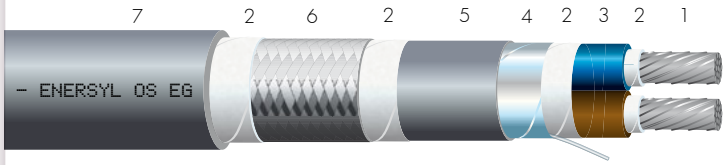
OMERIN division silisol
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

ENERSYL® OS SHF1 POWER

Multicore power cables



1 • Tin-plated copper core, class 2 or 5 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type XLPE + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type SHF1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EG BG SHF1 POWER 2x4 mm²
OS: for offshore applications
EG, BE, BR: type of electrical screen
BG, FA: type of armour
SHF1: nature of sheath material
POWER: power cable
2: number of conductors
X, G: type of assembly without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-353.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx SHF1 POWER > < cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: grey.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: black numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® OS BG EX SHF1 POWER:** with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

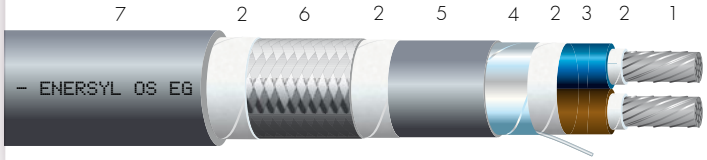
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 1.5	7 / 0.52	0.7	3.1	1.1	8.9	89	0.8	11.9	200	12.2
3 x 1.5	7 / 0.52	0.7	3.1	1.1	9.4	111	0.9	12.5	230	12.2
4 x 1.5	7 / 0.52	0.7	3.1	1.1	10.2	134	0.9	13.3	263	12.2
5 x 1.5	7 / 0.52	0.7	3.1	1.1	11.1	158	0.9	14.3	300	12.2
7 x 1.5	7 / 0.52	0.7	3.1	1.2	12.2	206	0.9	15.4	362	12.2
12 x 1.5	7 / 0.52	0.7	3.1	1.3	16.1	333	1.0	19.7	566	12.2
19 x 1.5	7 / 0.52	0.7	3.1	1.4	18.9	491	1.1	22.7	772	12.2
24 x 1.5	7 / 0.52	0.7	3.1	1.5	22.2	618	1.2	26.2	957	12.2
27 x 1.5	7 / 0.52	0.7	3.1	1.5	22.7	678	1.2	26.6	1024	12.2
37 x 1.5	7 / 0.52	0.7	3.1	1.6	25.5	897	1.2	29.7	1298	12.2
2 x 2.5	19 / 0.41	0.7	3.5	1.1	9.7	116	0.9	12.8	239	7.56
3 x 2.5	19 / 0.41	0.7	3.5	1.1	10.3	148	0.9	13.5	281	7.56
4 x 2.5	19 / 0.41	0.7	3.5	1.1	11.2	182	0.9	14.4	326	7.56
5 x 2.5	19 / 0.41	0.7	3.5	1.2	12.4	222	0.9	15.8	387	7.56
7 x 2.5	19 / 0.41	0.7	3.5	1.2	13.4	286	1.0	16.8	464	7.56
12 x 2.5	19 / 0.41	0.7	3.5	1.4	18.0	476	1.1	21.7	743	7.56
19 x 2.5	19 / 0.41	0.7	3.5	1.5	21.1	708	1.1	24.9	1020	7.56
24 x 2.5	19 / 0.41	0.7	3.5	1.6	24.8	891	1.2	28.8	1268	7.56
27 x 2.5	19 / 0.41	0.7	3.5	1.6	25.3	981	1.2	29.5	1379	7.56
37 x 2.5	19 / 0.41	0.7	3.5	1.7	28.5	1305	1.3	32.7	1751	7.56
2 x 4	56 / 0.30	0.7	4.2	1.1	11.1	154	0.9	14.3	297	5.09
3 x 4	56 / 0.30	0.7	4.2	1.2	12.0	207	0.9	15.2	361	5.09
4 x 4	56 / 0.30	0.7	4.2	1.2	13.1	258	0.9	16.5	432	5.09
5 x 4	56 / 0.30	0.7	4.2	1.2	14.2	309	1.0	17.6	497	5.09
7 x 4	56 / 0.30	0.7	4.2	1.3	15.8	415	1.0	19.4	643	5.09
12 x 4	56 / 0.30	0.7	4.2	1.4	20.9	677	1.1	24.6	986	5.09
2 x 6	84 / 0.30	0.7	4.8	1.2	12.5	206	0.9	15.9	373	3.39
3 x 6	84 / 0.30	0.7	4.8	1.2	13.3	274	0.9	16.7	450	3.39
4 x 6	84 / 0.30	0.7	4.8	1.2	14.5	345	1.0	17.9	537	3.39
5 x 6	84 / 0.30	0.7	4.8	1.3	16.2	428	1.0	19.7	661	3.39
7 x 6	84 / 0.30	0.7	4.8	1.3	17.6	564	1.0	21.4	827	3.39
2 x 10	77 / 0.40	0.7	6.0	1.2	14.9	298	1.0	18.3	494	1.95
3 x 10	77 / 0.40	0.7	6.0	1.3	16.2	416	1.0	19.7	649	1.95
4 x 10	77 / 0.40	0.7	6.0	1.3	17.7	528	1.0	21.5	792	1.95
5 x 10	77 / 0.40	0.7	6.0	1.4	19.6	650	1.1	23.4	941	1.95
2 x 16	119 / 0.40	0.7	7.2	1.3	17.6	425	1.0	21.4	688	1.24
3 x 16	119 / 0.40	0.7	7.2	1.3	18.8	585	1.0	22.5	863	1.24
4 x 16	119 / 0.40	0.7	7.2	1.4	20.8	759	1.1	24.6	1066	1.24
5 x 16	119 / 0.40	0.7	7.2	1.5	23.0	936	1.1	27.0	1287	1.24
2 x 25	192 / 0.40	0.9	9.1	1.4	21.6	644	1.1	25.6	974	0.795
3 x 25	192 / 0.40	0.9	9.1	1.5	23.3	907	1.1	27.2	1262	0.795
4 x 25	192 / 0.40	0.9	9.1	1.5	25.6	1168	1.2	29.8	1571	0.795
5 x 25	192 / 0.40	0.9	9.1	1.6	28.4	1444	1.2	32.5	1888	0.795
2 x 35	259 / 0.40	0.9	10.4	1.5	24.4	841	1.2	28.4	1213	0.565
3 x 35	259 / 0.40	0.9	10.4	1.6	26.3	1192	1.2	30.4	1605	0.565
4 x 35	259 / 0.40	0.9	10.4	1.7	29.2	1554	1.3	33.3	2010	0.565
5 x 35	259 / 0.40	0.9	10.4	1.8	32.3	1920	1.3	36.6	2440	0.565
2 x 50	370 / 0.40	1.0	12.2	1.6	28.2	1150	1.2	32.4	1591	0.393
3 x 50	370 / 0.40	1.0	12.2	1.7	30.4	1639	1.3	34.7	2129	0.393
4 x 50	370 / 0.40	1.0	12.2	1.8	33.7	2142	1.4	38.1	2684	0.393
5 x 50	370 / 0.40	1.0	12.2	1.9	37.3	2650	1.4	41.9	3267	0.393
2 x 70	333 / 0.50	1.1	14.2	1.8	32.6	1565	1.3	37.0	2090	0.277
3 x 70	333 / 0.50	1.1	14.2	1.8	34.9	2221	1.4	39.2	2781	0.277
4 x 70	333 / 0.50	1.1	14.2	2.0	39.0	2926	1.5	43.5	3569	0.277
2 x 95	444 / 0.50	1.1	16.0	1.9	36.4	2025	1.4	41.0	2628	0.210
3 x 95	444 / 0.50	1.1	16.0	2.0	39.2	2907	1.5	43.7	3554	0.210

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® OS SHF1 CONTROL

Control cables



1 • Stranded tin-plated copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: cross-linked polyethylene, type XLPE + optional filler(s).
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type SHF1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EG BG SHF1 CONTROL 19x1,5 mm²
OS: for offshore applications
EG, BE, BR: type of electrical screen
BG, FA: type of armour
SHF1: nature of sheath material
CONTROL: control cable
19: number of conductors
X, G: type of assembly without (X) or with (G) an earth wire
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-376.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx SHF1 CONTROL > < cross-section > – 450/750V – < batch > – < year >

Standard products

• **Sheath**: grey.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® OS EX SHF1 CONTROL:** without electrical screen.
> **ENERSYL® OS BE EX SHF1 CONTROL:** with electrical screen.

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

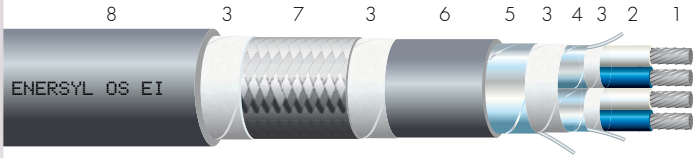
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 0.5	7 / 0.30	0.6	2.1	1.0	6.6	46	0.8	9.6	131	36.7
3 x 0.5	7 / 0.30	0.6	2.1	1.0	6.9	55	0.8	9.9	143	36.7
4 x 0.5	7 / 0.30	0.6	2.1	1.0	7.5	65	0.8	10.5	160	36.7
5 x 0.5	7 / 0.30	0.6	2.1	1.0	8.1	75	0.8	11.1	176	36.7
7 x 0.5	7 / 0.30	0.6	2.1	1.1	9.0	98	0.9	12.1	213	36.7
12 x 0.5	7 / 0.30	0.6	2.1	1.2	11.6	154	0.9	14.8	303	36.7
19 x 0.5	7 / 0.30	0.6	2.1	1.2	13.4	214	1.0	16.8	392	36.7
24 x 0.5	7 / 0.30	0.6	2.1	1.3	15.8	274	1.0	19.4	502	36.7
27 x 0.5	7 / 0.30	0.6	2.1	1.3	16.1	298	1.0	19.7	530	36.7
37 x 0.5	7 / 0.30	0.6	2.1	1.4	18.1	390	1.1	21.9	659	36.7
2 x 0.75	7 / 0.37	0.6	2.2	1.0	6.8	53	0.8	9.8	140	24.8
3 x 0.75	7 / 0.37	0.6	2.2	1.0	7.2	64	0.8	10.2	155	24.8
4 x 0.75	7 / 0.37	0.6	2.2	1.0	7.7	77	0.8	10.7	174	24.8
5 x 0.75	7 / 0.37	0.6	2.2	1.1	8.6	95	0.8	11.6	203	24.8
7 x 0.75	7 / 0.37	0.6	2.2	1.1	9.3	118	0.9	12.4	236	24.8
12 x 0.75	7 / 0.37	0.6	2.2	1.2	12.1	186	0.9	15.3	340	24.8
19 x 0.75	7 / 0.37	0.6	2.2	1.3	14.1	270	1.0	17.5	456	24.8
24 x 0.75	7 / 0.37	0.6	2.2	1.3	16.4	336	1.0	20.0	572	24.8
27 x 0.75	7 / 0.37	0.6	2.2	1.4	16.9	374	1.1	20.6	623	24.8
37 x 0.75	7 / 0.37	0.6	2.2	1.4	18.8	482	1.1	22.6	762	24.8
2 x 1	7 / 0.43	0.6	2.4	1.0	7.2	63	0.8	10.2	154	18.2
3 x 1	7 / 0.43	0.6	2.4	1.0	7.6	77	0.8	10.6	173	18.2
4 x 1	7 / 0.43	0.6	2.4	1.0	8.3	94	0.8	11.3	199	18.2
5 x 1	7 / 0.43	0.6	2.4	1.1	9.2	114	0.8	12.2	228	18.2
7 x 1	7 / 0.43	0.6	2.4	1.1	9.9	143	0.9	13.0	268	18.2
12 x 1	7 / 0.43	0.6	2.4	1.2	12.9	226	0.9	16.1	390	18.2
19 x 1	7 / 0.43	0.6	2.4	1.3	15.1	331	1.0	18.7	549	18.2
24 x 1	7 / 0.43	0.6	2.4	1.3	17.6	412	1.0	21.4	675	18.2
27 x 1	7 / 0.43	0.6	2.4	1.3	18.0	451	1.0	21.7	719	18.2
37 x 1	7 / 0.43	0.6	2.4	1.4	20.2	596	1.1	24.0	895	18.2
2 x 1.5	7 / 0.52	0.6	2.85	1.0	8.2	80	0.8	11.2	183	12.2
3 x 1.5	7 / 0.52	0.6	2.85	1.1	8.9	104	0.8	11.9	215	12.2
4 x 1.5	7 / 0.52	0.6	2.85	1.1	9.6	126	0.9	12.7	248	12.2
5 x 1.5	7 / 0.52	0.6	2.85	1.1	10.4	148	0.9	13.5	280	12.2
7 x 1.5	7 / 0.52	0.6	2.85	1.1	11.3	188	0.9	14.5	333	12.2
12 x 1.5	7 / 0.52	0.6	2.85	1.3	15.0	310	1.0	18.4	507	12.2
19 x 1.5	7 / 0.52	0.6	2.85	1.4	17.7	461	1.1	21.4	724	12.2
24 x 1.5	7 / 0.52	0.6	2.85	1.5	20.7	580	1.1	24.5	886	12.2
27 x 1.5	7 / 0.52	0.6	2.85	1.5	21.1	636	1.1	24.9	948	12.2
37 x 1.5	7 / 0.52	0.6	2.85	1.6	23.8	842	1.2	27.7	1204	12.2
2 x 2.5	19 / 0.41	0.6	3.2	1.1	9.1	109	0.9	12.2	225	7.56
3 x 2.5	19 / 0.41	0.6	3.2	1.1	9.6	139	0.9	12.7	261	7.56
4 x 2.5	19 / 0.41	0.6	3.2	1.1	10.4	171	0.9	13.5	303	7.56
5 x 2.5	19 / 0.41	0.6	3.2	1.2	11.5	209	0.9	14.7	357	7.56
7 x 2.5	19 / 0.41	0.6	3.2	1.2	12.5	269	0.9	15.7	428	7.56
12 x 2.5	19 / 0.41	0.6	3.2	1.3	16.5	439	1.0	20.1	677	7.56
19 x 2.5	19 / 0.41	0.6	3.2	1.4	19.4	656	1.1	23.2	944	7.56
24 x 2.5	19 / 0.41	0.6	3.2	1.6	23.0	837	1.2	27.0	1187	7.56
27 x 2.5	19 / 0.41	0.6	3.2	1.6	23.5	922	1.2	27.4	1279	7.56
37 x 2.5	19 / 0.41	0.6	3.2	1.7	26.4	1227	1.3	30.6	1641	7.56

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® OS SHF1 INSTRUM

Instrumentation cables



1 • Stranded tin-plated copper core, class 2 as per IEC 60228.
2 • Insulation: cross-linked polyethylene, type XLPE + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type SHF1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EI BG INSTRUM 2P1,5 mm²
OS: for offshore applications
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
SHF1: nature of sheath material **INSTRUM**: instrumentation cable
2 : number of pairs, triples or quads
P,T,Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-376.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx SHF1 INSTRUM > < cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: grey.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +90 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-24 cat. C.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> ENERSYL® OS EI BE EX SHF1 INSTRUM:
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> ENERSYL® OS EI EG EX SHF1 INSTRUM:
with individual and general electrical screen (aluminium/PET tape).
> ENERSYL® OS BE EX SHF1 INSTRUM:
with general electrical screen (tin-plated copper braid).
> ENERSYL® OS EG EX SHF1 INSTRUM:
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ❑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ☑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

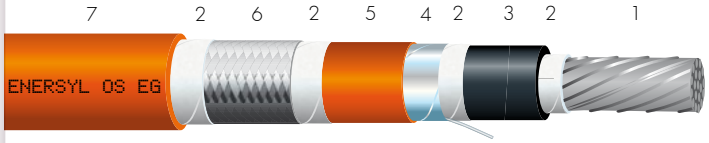
www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.7	0.6	2.1	6.6		6.9		7.5		9.6		9.9		10.5	
2 **	0.5	7 / 0.30	36.7	0.6	2.1	7.5	10.2	10.5	11.4	13.0	13.1	10.5	13.3	13.6	14.6	16.4	16.5
3	0.5	7 / 0.30	36.7	0.6	2.1	10.0	10.8	11.3	12.1	14.0	14.1	13.1	13.9	14.5	15.3	17.4	17.5
4	0.5	7 / 0.30	36.7	0.6	2.1	10.9	11.9	12.4	13.2	15.4	15.5	14.0	15.1	15.6	16.6	19.0	19.1
5	0.5	7 / 0.30	36.7	0.6	2.1	12.1	13.0	13.5	14.6	17.0	17.1	15.3	16.4	16.9	18.0	20.7	20.8
6	0.5	7 / 0.30	36.7	0.6	2.1	13.1	14.3	14.8	16.0	18.5	18.6	16.5	17.7	18.2	19.6	22.3	22.4
7	0.5	7 / 0.30	36.7	0.6	2.1	13.1	14.3	14.8	16.0	18.5	18.6	16.5	17.7	18.2	19.6	22.3	22.4
8	0.5	7 / 0.30	36.7	0.6	2.1	14.9	16.1	16.9	18.1			18.3	19.7	20.6	21.9		
9	0.5	7 / 0.30	36.7	0.6	2.1	16.2	17.6	18.3	19.6			19.7	21.4	22.1	23.4		
12	0.5	7 / 0.30	36.7	0.6	2.1	17.6	19.0	19.9	21.3			21.4	22.7	23.7	25.2		
19	0.5	7 / 0.30	36.7	0.6	2.1	20.7	22.3	23.4	25.1			24.5	26.3	27.4	29.1		
24	0.5	7 / 0.30	36.7	0.6	2.1	24.4	26.4					28.3	30.6				
37	0.5	7 / 0.30	36.7	0.6	2.1	28.2	30.4					32.4	34.6				
1	0.75	7 / 0.37	24.8	0.6	2.2	6.8		7.2		7.7		9.8		10.2		10.7	
2 **	0.75	7 / 0.37	24.8	0.6	2.2	7.7	10.5	11.1	11.8	13.4	13.5	10.7	13.6	14.2	15.0	16.8	16.9
3	0.75	7 / 0.37	24.8	0.6	2.2	10.4	11.4	11.7	12.5	14.5	14.6	13.5	14.6	14.9	15.8	17.9	18.0
4	0.75	7 / 0.37	24.8	0.6	2.2	11.5	12.4	12.8	13.9	16.0	16.1	14.7	15.6	16.1	17.3	19.5	19.6
5	0.75	7 / 0.37	24.8	0.6	2.2	12.5	13.5	14.2	15.2	17.7	17.8	15.8	16.9	17.6	18.7	21.4	21.5
6	0.75	7 / 0.37	24.8	0.6	2.2	13.8	14.8	15.5	16.8	19.5	19.6	17.2	18.2	19.1	20.5	23.2	23.3
7	0.75	7 / 0.37	24.8	0.6	2.2	13.8	14.8	15.5	16.8	19.5	19.6	17.2	18.2	19.1	20.5	23.2	23.3
8	0.75	7 / 0.37	24.8	0.6	2.2	15.5	16.9	17.6	18.8			19.1	20.6	21.3	22.6		
9	0.75	7 / 0.37	24.8	0.6	2.2	17.0	18.3	19.0	20.6			20.7	22.0	22.8	24.3		
12	0.75	7 / 0.37	24.8	0.6	2.2	18.3	19.9	20.7	22.4			22.1	23.7	24.6	26.3		
19	0.75	7 / 0.37	24.8	0.6	2.2	21.5	23.4	24.4	26.3			25.4	27.3	28.3	30.5		
24	0.75	7 / 0.37	24.8	0.6	2.2	25.5	27.7					29.6	31.9				
37	0.75	7 / 0.37	24.8	0.6	2.2	29.4	31.8					33.6	36.2				
1	1	7 / 0.43	18.2	0.6	2.4	7.2		7.6		8.3		10.2		10.6		11.3	
2 **	1	7 / 0.43	18.2	0.6	2.4	8.3	11.2	11.6	12.6	14.4	14.5	11.3	14.4	14.8	15.8	17.8	17.9
3	1	7 / 0.43	18.2	0.6	2.4	11.1	12.1	12.5	13.4	15.6	15.7	14.3	15.3	15.7	16.8	19.2	19.3
4	1	7 / 0.43	18.2	0.6	2.4	12.3	13.2	13.7	14.7	17.2	17.3	15.5	16.6	17.1	18.1	20.9	21.0
5	1	7 / 0.43	18.2	0.6	2.4	13.4	14.4	15.2	16.4	19.0	19.1	16.8	17.8	18.7	19.9	22.7	22.8
6	1	7 / 0.43	18.2	0.6	2.4	14.6	16.0	16.6	17.8	20.7	20.8	18.0	19.6	20.2	21.6	24.5	24.6
7	1	7 / 0.43	18.2	0.6	2.4	14.6	16.0	16.6	17.8	20.7	20.8	18.0	19.6	20.2	21.6	24.5	24.6
8	1	7 / 0.43	18.2	0.6	2.4	16.7	17.9	18.9	20.2			20.2	21.7	22.6	24.0		
9	1	7 / 0.43	18.2	0.6	2.4	18.3	19.6	20.4	22.1			22.0	23.4	24.2	26.1		
12	1	7 / 0.43	18.2	0.6	2.4	19.7	21.4	22.3	23.9			23.4	25.1	26.2	27.8		
19	1	7 / 0.43	18.2	0.6	2.4	23.2	25.2	26.3	28.4			27.1	29.1	30.4	32.5		
24	1	7 / 0.43	18.2	0.6	2.4	27.5	29.6					31.7	33.8				
37	1	7 / 0.43	18.2	0.6	2.4	31.7	34.3					36.0	38.7				
1	1.5	7 / 0.52	12.2	0.6	2.85	8.2		8.7		9.6		11.2		11.7		12.7	
2 **	1.5	7 / 0.52	12.2	0.6	2.85	9.4	13.0	13.5	14.7	16.9	17.0	12.4	16.4	16.9	18.1	20.5	20.8
3	1.5	7 / 0.52	12.2	0.6	2.85	12.9	13.9	14.6	15.7	18.2	18.3	16.1	17.3	18.0	19.3	22.0	22.1
4	1.5	7 / 0.52	12.2	0.6	2.85	14.1	15.5	16.1	17.2	20.0	20.1	17.5	19.0	19.6	21.0	23.8	23.9
5	1.5	7 / 0.52	12.2	0.6	2.85	15.7	16.9	17.8	19.0	22.1	22.2	19.3	20.5	21.5	22.8	26.1	26.2
6	1.5	7 / 0.52	12.2	0.6	2.85	17.1	18.6	19.4	21.0	24.4	24.5	20.9	22.4	23.1	24.7	28.4	28.5
7	1.5	7 / 0.52	12.2	0.6	2.85	17.1	18.6	19.4	21.0	24.4	24.5	20.9	22.4	23.1	24.7	28.4	28.5
8	1.5	7 / 0.52	12.2	0.6	2.85	19.4	21.1	22.0	23.8			23.2	24.9	25.9	27.7		
9	1.5	7 / 0.52	12.2	0.6	2.85	21.3	22.9	24.1	25.8			25.0	26.8	28.0	29.7		
12	1.5	7 / 0.52	12.2	0.6	2.85	22.9	24.9	26.0	28.1			26.9	28.9	30.1	32.2		
19	1.5	7 / 0.52	12.2	0.6	2.85	27.3	29.6	30.9	33.3			31.4	33.7	35.1	37.7		
24	1.5	7 / 0.52	12.2	0.6	2.85	32.3	34.8					36.7	39.3				
37	1.5	7 / 0.52	12.2	0.6	2.85	37.2	40.3					41.8	45.0				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

ENERSYL® OS 331 SHF1 POWER

Single core power cables



1 • Tin-plated copper core, class 2 or 5 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber, type S 95.
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type SHF1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EG BG 331 SHF1 POWER 150 mm²
OS: for offshore applications
EG, BE, BR: type of electrical screen
BG, FA: type of armour
331 : fire resistant cable
SHF1: nature of sheath material
POWER: power cable
150 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-353.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3 / IEC 60331-21.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx 331 SHF1 POWER >< cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Insulation**: black.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +95 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **Electrical screen using copper/PET tape**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® OS BG 331 EX SHF1 POWER:** with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
1.5	7 / 0.52	1.0	3.6	1.0	6.0	57	0.8	9.0	135	12.2
2.5	19 / 0.41	1.0	4.1	1.0	6.5	74	0.8	9.3	153	7.56
4	56 / 0.30	1.0	4.7	1.0	7.1	93	0.8	9.9	179	5.09
6	84 / 0.30	1.0	5.2	1.0	7.6	115	0.8	10.4	206	3.39
10	77/0.40	1.0	6.4	1.1	9.1	169	0.8	10.4	282	1.95
16	119 / 0.40	1.0	7.8	1.1	10.5	233	0.9	13.6	365	1.24
25	192 / 0.40	1.2	9.6	1.2	12.5	345	0.9	15.7	504	0.795
35	259 / 0.40	1.2	11.0	1.2	13.9	445	0.9	17.3	629	0.565
50	370 / 0.40	1.4	13.2	1.3	16.4	621	1.0	20.0	857	0.393
70	333 / 0.50	1.4	14.8	1.3	18.0	802	1.0	21.8	1070	0.277
95	444 / 0.50	1.6	17.4	1.4	20.8	1071	1.1	24.6	1378	0.210
120	568 / 0.50	1.6	19.4	1.5	23.0	1350	1.1	27.0	1701	0.164
150	703 / 0.50	1.8	21.4	1.5	25.0	1639	1.2	29.0	2019	0.132
185	888 / 0.50	2.0	23.9	1.6	27.7	2050	1.2	31.9	2484	0.108
240	1184 / 0.50	2.2	26.4	1.7	30.4	2619	1.3	34.6	3094	0.0817
300	1480 / 0.50	2.4	29.9	1.8	34.1	3271	1.4	38.5	3819	0.0654

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

For this product, please contact:

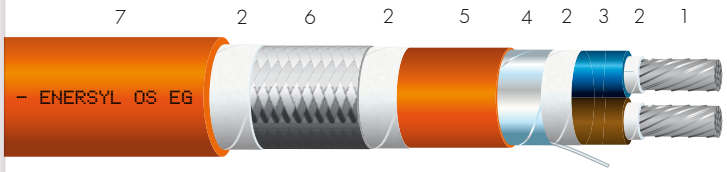
OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

www.omerin.com

ENERSYL® OS 331 SHF1 POWER

Multicore power cables



1 • Tin-plated copper core, class 2 or 5 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber, type S 95 + optional filler(s).
4 • (optional) electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type SHF1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EG BG 331 SHF1 POWER 2x4 mm²
OS: for offshore applications
EG, BE, BR: type of electrical screen
BG, FA: type of armour
331 : fire resistant cable
SHF1: nature of sheath material
POWER: power cable
2: number of conductors
X, G: type of assembly without (X) or with (G) an earth wire
4 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-353.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3 / IEC 60331-21.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx 331 SHF1 POWER >< cross-section > – 600/1000V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: black numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +95 °C.

Electrical

• Rated voltage: 600/1000 V.
• Test voltage: 3500 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **Electrical screen using copper/PET tape**: contact us.
• **ATEX** as per NF C 15-100 part 4-42 / EN 60079-14.
Particularly suited for static facilities in potentially explosive environments, excluding the "i" intrinsic safety protection mode.
> **ENERSYL® OS BG 331 EX SHF1 POWER:** with a HFFR sheath under the armour and without hygroscopic separating tape.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

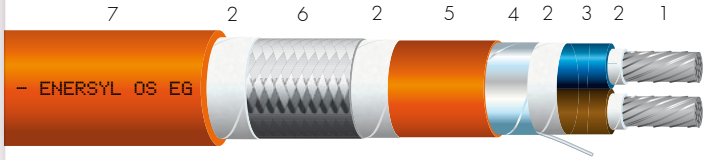
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 1.5	7 / 0.52	1.0	3.6	1.1	9.9	108	0.9	13.0	233	12.2
3 x 1.5	7 / 0.52	1.0	3.6	1.1	10.5	136	0.9	13.6	268	12.2
4 x 1.5	7 / 0.52	1.0	3.6	1.2	11.6	172	0.9	14.7	317	12.2
5 x 1.5	7 / 0.52	1.0	3.6	1.2	12.6	203	0.9	15.8	364	12.2
7 x 1.5	7 / 0.52	1.0	3.6	1.2	13.7	260	1.0	17.0	438	12.2
12 x 1.5	7 / 0.52	1.0	3.6	1.4	18.4	433	1.1	22.0	701	12.2
19 x 1.5	7 / 0.52	1.0	3.6	1.5	21.6	640	1.2	25.5	965	12.2
24 x 1.5	7 / 0.52	1.0	3.6	1.6	25.4	806	1.2	29.4	1192	12.2
27 x 1.5	7 / 0.52	1.0	3.6	1.7	26.1	898	1.3	30.2	1301	12.2
37 x 1.5	7 / 0.52	1.0	3.6	1.8	29.4	1188	1.3	33.6	1648	12.2
2 x 2.5	19 / 0.41	1.0	4.1	1.1	10.9	139	0.9	14.0	276	7.56
3 x 2.5	19 / 0.41	1.0	4.1	1.2	11.8	185	0.9	15.0	336	7.56
4 x 2.5	19 / 0.41	1.0	4.1	1.2	12.8	229	0.9	16.0	392	7.56
5 x 2.5	19 / 0.41	1.0	4.1	1.2	14.0	273	1.0	17.4	458	7.56
7 x 2.5	19 / 0.41	1.0	4.1	1.3	15.5	365	1.0	19.1	589	7.56
12 x 2.5	19 / 0.41	1.0	4.1	1.5	20.7	601	1.1	24.4	906	7.56
19 x 2.5	19 / 0.41	1.0	4.1	1.6	24.3	896	1.2	28.2	1260	7.56
24 x 2.5	19 / 0.41	1.0	4.1	1.7	28.6	1128	1.3	32.7	1568	7.56
27 x 2.5	19 / 0.41	1.0	4.1	1.8	29.4	1257	1.3	33.6	1717	7.56
37 x 2.5	19 / 0.41	1.0	4.1	1.9	33.1	1672	1.4	37.4	2196	7.56
2 x 4	56 / 0.30	1.0	4.7	1.2	12.3	184	0.9	15.5	341	5.09
3 x 4	56 / 0.30	1.0	4.7	1.2	13.1	241	0.9	16.3	407	5.09
4 x 4	56 / 0.30	1.0	4.7	1.2	14.3	301	1.0	17.7	490	5.09
5 x 4	56 / 0.30	1.0	4.7	1.3	15.9	373	1.0	19.5	603	5.09
7 x 4	56 / 0.30	1.0	4.7	1.3	17.3	488	1.0	20.9	737	5.09
12 x 4	56 / 0.30	1.0	4.7	1.5	23.2	811	1.2	27.0	1158	5.09
2 x 6	84 / 0.30	1.0	5.2	1.2	13.3	230	1.0	16.7	406	3.39
3 x 6	84 / 0.30	1.0	5.2	1.2	14.1	307	1.0	17.5	494	3.39
4 x 6	84 / 0.30	1.0	5.2	1.3	15.8	399	1.0	19.3	627	3.39
5 x 6	84 / 0.30	1.0	5.2	1.4	17.4	490	1.1	21.1	745	3.39
7 x 6	84 / 0.30	1.0	5.2	1.4	19.0	646	1.1	22.8	928	3.39
2 x 10	77 / 0.40	1.0	6.4	1.3	16.0	339	1.0	19.6	570	1.95
3 x 10	77 / 0.40	1.0	6.4	1.3	17.0	460	1.0	20.6	705	1.95
4 x 10	77 / 0.40	1.0	6.4	1.4	18.9	594	1.1	22.6	875	1.95
5 x 10	77 / 0.40	1.0	6.4	1.4	20.7	721	1.1	24.4	1027	1.95
2 x 16	119 / 0.40	1.0	7.8	1.4	19.0	479	1.1	22.8	761	1.24
3 x 16	119 / 0.40	1.0	7.8	1.4	20.2	658	1.1	24.0	958	1.24
4 x 16	119 / 0.40	1.0	7.8	1.5	22.5	853	1.1	26.2	1184	1.24
5 x 16	119 / 0.40	1.0	7.8	1.5	24.7	1040	1.2	28.6	1415	1.24
2 x 25	192 / 0.40	1.2	9.6	1.5	22.8	707	1.1	26.8	1055	0.795
3 x 25	192 / 0.40	1.2	9.6	1.5	24.3	984	1.2	28.3	1355	0.795
4 x 25	192 / 0.40	1.2	9.6	1.6	27.0	1282	1.2	31.2	1705	0.795
5 x 25	192 / 0.40	1.2	9.6	1.7	29.9	1583	1.3	34.1	2050	0.795
2 x 35	259 / 0.40	1.2	11.0	1.6	25.8	924	1.2	29.8	1315	0.565
3 x 35	259 / 0.40	1.2	11.0	1.6	27.6	1294	1.2	31.7	1726	0.565
4 x 35	259 / 0.40	1.2	11.0	1.7	30.6	1689	1.3	34.8	2166	0.565
5 x 35	259 / 0.40	1.2	11.0	1.8	33.9	2088	1.4	38.3	2632	0.565
2 x 50	370 / 0.40	1.4	13.2	1.7	30.4	1277	1.3	34.6	1752	0.393
3 x 50	370 / 0.40	1.4	13.2	1.8	32.7	1818	1.3	37.1	2345	0.393
4 x 50	370 / 0.40	1.4	13.2	1.9	36.3	2374	1.4	40.7	2957	0.393
5 x 50	370 / 0.40	1.4	13.2	2.0	40.2	2936	1.5	44.8	3600	0.393
2 x 70	333 / 0.50	1.4	14.8	1.8	33.8	1661	1.4	38.2	2204	0.277
3 x 70	333 / 0.50	1.4	14.8	1.9	36.4	2377	1.4	40.7	2959	0.277
4 x 70	333 / 0.50	1.4	14.8	2.0	40.4	3110	1.5	45.0	3776	0.277
2 x 95	444 / 0.50	1.6	17.4	2.0	39.4	2229	1.5	44.0	2879	0.210
3 x 95	444 / 0.50	1.6	17.4	2.1	42.4	3194	1.5	46.9	3892	0.210

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® OS 331 SHF1 CONTROL

Control cables



1 • Stranded tin-plated copper core, class 2 as per IEC 60228.
2 • Optional separating tape.
3 • Insulation: silicone rubber, type S 95 + optional filler(s).
4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
5 • (optional) Internal sheath: HFFR, type SHF1.
6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
7 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EG BG 331 SHF1 CONTROL 19x1,5 mm²
OS: for offshore applications
EG, BE, BR: type of electrical screen
BG, FA: type of armour
331 : fire resistant cable
SHF1: nature of sheath material
CONTROL: control cable
19: number of conductors
X, G: type of assembly without (X) or with (G) an earth wire
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-376.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3 / IEC 60331-21.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx 331 SHF1 CONTROL > < cross-section > – 450/750 V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors:**
< up to 5 conductors: as per HD 308 S2.
> more than 5 conductors: white numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +95 °C.

Electrical

• Rated voltage: 450/750 V.
• Test voltage: 2500 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> **ENERSYL® OS 331 EX SHF1 CONTROL:** without electrical screen.
> **ENERSYL® OS BE 331 EX SHF1 CONTROL:** with electrical screen.

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

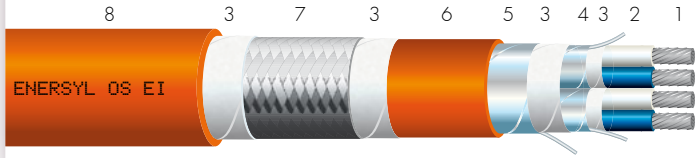
www.omerin.com

				NON-SHIELDED CABLES			ARMOURED CABLES			
Nominal cross-section (mm²)	Nominal stranding	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Nominal thickness of the sheath (mm)	Nominal outside diameter* (mm)	Approximate linear weight (kg/km)	Max. linear resistance at 20 °C (Ω/km)
2 x 0.5	7 / 0.30	0.6	2.1	1.0	6.6	48	0.8	9.6	133	36.7
3 x 0.5	7 / 0.30	0.6	2.1	1.0	6.9	59	0.8	9.9	147	36.7
4 x 0.5	7 / 0.30	0.6	2.1	1.0	7.5	70	0.8	10.5	165	36.7
5 x 0.5	7 / 0.30	0.6	2.1	1.0	8.1	81	0.8	11.1	183	36.7
7 x 0.5	7 / 0.30	0.6	2.1	1.1	9.0	108	0.9	12.1	223	36.7
12 x 0.5	7 / 0.30	0.6	2.1	1.2	11.6	170	0.9	14.8	319	36.7
19 x 0.5	7 / 0.30	0.6	2.1	1.2	13.4	240	1.0	16.8	418	36.7
24 x 0.5	7 / 0.30	0.6	2.1	1.3	15.8	306	1.0	19.4	534	36.7
27 x 0.5	7 / 0.30	0.6	2.1	1.3	16.1	334	1.0	19.7	566	36.7
37 x 0.5	7 / 0.30	0.6	2.1	1.4	18.1	439	1.1	21.9	708	36.7
2 x 0.75	7 / 0.37	0.6	2.4	1.0	7.2	60	0.8	10.2	151	24.8
3 x 0.75	7 / 0.37	0.6	2.4	1.0	7.6	73	0.8	10.6	170	24.8
4 x 0.75	7 / 0.37	0.6	2.4	1.0	8.3	90	0.8	11.3	195	24.8
5 x 0.75	7 / 0.37	0.6	2.4	1.1	9.2	110	0.8	12.2	224	24.8
7 x 0.75	7 / 0.37	0.6	2.4	1.1	9.9	138	0.9	13.0	263	24.8
12 x 0.75	7 / 0.37	0.6	2.4	1.2	12.9	219	0.9	16.1	383	24.8
19 x 0.75	7 / 0.37	0.6	2.4	1.3	15.1	321	1.0	18.7	540	24.8
24 x 0.75	7 / 0.37	0.6	2.4	1.3	17.6	401	1.0	21.2	653	24.8
27 x 0.75	7 / 0.37	0.6	2.4	1.4	18.2	447	1.1	21.8	712	24.8
37 x 0.75	7 / 0.37	0.6	2.4	1.4	20.2	580	1.1	24.0	879	24.8
2 x 1	7 / 0.43	0.6	2.5	1.0	7.4	68	0.8	10.4	162	18.2
3 x 1	7 / 0.43	0.6	2.5	1.0	7.8	84	0.8	10.8	183	18.2
4 x 1	7 / 0.43	0.6	2.5	1.0	8.8	108	0.8	11.8	217	18.2
5 x 1	7 / 0.43	0.6	2.5	1.1	9.5	126	0.8	12.6	246	18.2
7 x 1	7 / 0.43	0.6	2.5	1.1	10.2	159	0.9	13.3	288	18.2
12 x 1	7 / 0.43	0.6	2.5	1.2	13.3	253	0.9	16.6	426	18.2
19 x 1	7 / 0.43	0.6	2.5	1.3	15.7	377	1.0	19.3	604	18.2
24 x 1	7 / 0.43	0.6	2.5	1.3	18.4	474	1.0	22.2	748	18.2
27 x 1	7 / 0.43	0.6	2.5	1.3	18.8	520	1.0	22.5	799	18.2
37 x 1	7 / 0.43	0.6	2.5	1.4	21.1	687	1.1	24.9	999	18.2
2 x 1.5	7 / 0.52	0.7	3.0	1.0	8.7	92	0.8	11.7	201	12.2
3 x 1.5	7 / 0.52	0.7	3.0	1.1	9.2	115	0.8	12.3	232	12.2
4 x 1.5	7 / 0.52	0.7	3.0	1.1	10.0	141	0.9	13.1	267	12.2
5 x 1.5	7 / 0.52	0.7	3.0	1.1	10.8	166	0.9	13.9	302	12.2
7 x 1.5	7 / 0.52	0.7	3.0	1.1	11.9	218	0.9	15.1	370	12.2
12 x 1.5	7 / 0.52	0.7	3.0	1.3	15.7	354	1.0	19.2	581	12.2
19 x 1.5	7 / 0.52	0.7	3.0	1.4	18.4	525	1.1	22.2	799	12.2
24 x 1.5	7 / 0.52	0.7	3.0	1.5	21.6	661	1.1	25.5	985	12.2
27 x 1.5	7 / 0.52	0.7	3.0	1.5	22.1	726	1.1	25.9	1057	12.2
37 x 1.5	7 / 0.52	0.7	3.0	1.6	24.8	964	1.2	28.8	1341	12.2
2 x 2.5	19 / 0.41	0.7	3.4	1.1	9.5	119	0.9	12.6	240	7.56
3 x 2.5	19 / 0.41	0.7	3.4	1.1	10.0	153	0.9	13.1	280	7.56
4 x 2.5	19 / 0.41	0.7	3.4	1.1	10.9	189	0.9	14.0	326	7.56
5 x 2.5	19 / 0.41	0.7	3.4	1.2	12.1	231	0.9	15.3	385	7.56
7 x 2.5	19 / 0.41	0.7	3.4	1.2	13.1	298	0.9	16.4	469	7.56
12 x 2.5	19 / 0.41	0.7	3.4	1.3	17.5	497	1.0	21.2	754	7.56
19 x 2.5	19 / 0.41	0.7	3.4	1.4	20.6	743	1.1	24.4	1048	7.56
24 x 2.5	19 / 0.41	0.7	3.4	1.6	24.2	935	1.2	28.2	1303	7.56
27 x 2.5	19 / 0.41	0.7	3.4	1.6	24.7	1031	1.2	28.7	1407	7.56
37 x 2.5	19 / 0.41	0.7	3.4	1.7	27.8	1376	1.3	32.0	1811	7.56

* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.

ENERSYL® OS 331 SHF1 INSTRUM

Instrumentation cables



1 • Stranded tin-plated copper core, class 2 as per IEC 60228.
2 • Insulation: silicone rubber, type S 95 + optional filler(s).
3 • Optional separating tape.
4 • (optional) Individual electrical screen (EI): aluminium/PET tape + continuity wire.
5 • (optional) General electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
6 • (optional) Internal sheath: HFFR, type SHF1.
7 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
8 • Outer sheath: HFFR, type SHF1.

Reference

• (example) ENERSYL® OS EI EG BG 331 SHF1 INSTRUM 2P1,5 mm²
OS: for offshore applications
EI, EG, BE, BR: type of electrical screen
BG, FA: type of armour
331 : fire resistant cable
SHF1: nature of sheath material
INSTRUM: instrumentation cable
2 : number of pairs, triples or quads
P, T, Q: pairs, triples or quads
1.5 mm²: cross-section in mm²

Approvals - standards

• IEC 60228 / IEC 60092-376.
• IEC 60092-360.
• IEC 60332-1 / IEC 60332-3 / IEC 60331-21.
• IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

Markings

• OMERIN – ENERSYL < OS xx xx 331 SHF1 INSTRUM > < cross-section > – 300/500V – < batch > – < year >

Standard products

• **Sheath**: orange.
• **Colour identification of conductors**:
> Pair: white and blue numbered.
> Triple: white, red and blue numbered.
> Quad: white, black, red and blue numbered.

Technical characteristics

Thermal

• Continuous operating temperature: -30 °C to +80 °C.
• Maximum core temperature: +95 °C.

Electrical

• Rated voltage: 300/500 V.
• Test voltage: 2000 V.

Smoke - fire

• Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
• Flame retardant – bunched cable: IEC 60332-3-22 cat. A.
• Fire retardant: NF C 32-070 test C1.
• Fire resistant: IEC 60331-21.
• Low smoke density: IEC 61034-2.
• Halogen-free: IEC 60754-1.
• Low corrosivity of gas emissions: IEC 60754-2.

Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

• Good resistance to acid.
• Good resistance to base.
• Fairly good resistance to aliphatic hydrocarbons.
• Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
• Resistance to UV ≥ 2000 hours as per EN 16472.

Options

• **SHF2**: cross-linked HFFR outer sheath, type SHF2.
• **Other colours**: contact us.
• **Electrical screen using copper/PET tape**: contact us.
• **ATEX** as per EN 60079-14.
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.
> ENERSYL® OS EI BE 331 EX SHF1 INSTRUM:
with individual electrical screen (aluminium/PET tape) and general (tin-plated copper braid).
> ENERSYL® OS EI EG 331 EX SHF1 INSTRUM:
with individual and general electrical screen (aluminium/PET tape).
> ENERSYL® OS BE 331 EX SHF1 INSTRUM:
with general electrical screen (tin-plated copper braid).
> ENERSYL® OS EG 331 EX SHF1 INSTRUM:
with general electrical screen (aluminium/PET tape).

For this product, please contact:

OMERIN division principale ☑
Zone Industrielle - F 63600 Ambert
Tel. +33 (0)4 73 82 50 00 - Fax +33 (0)4 73 82 50 10
omerin@omerin.com

OMERIN division silisol ❑
BP 87 - ZI du Devey - F 42000 Saint-Étienne
Tel. +33 (0)4 77 81 36 00 - Fax +33 (0)4 77 81 37 00
silisol@omerin.com

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Number of pairs, triples or quads	Nominal cross-section (mm²)	Nominal stranding	Maximum linear resistance at 20 °C (Ω/km)	Nominal thickness of insulation (mm)	Nominal diameter of conductors (mm)	NON-SHIELDED CABLES Nominal outside diameter* (mm)						ARMOURED CABLES Nominal outside diameter* (mm)					
						Pairs		Triples		Quads		Pairs		Triples		Quads	
						EG	EI	EG	EI	EG	EI	EG	EI	EG	EI	EG	EI
1	0.5	7 / 0.30	36.7	0.6	2.1	6.6		6.9		7.5		9.6		9.9		10.5	
2 **	0.5	7 / 0.30	36.7	0.6	2.1	7.5	10.2	10.5	11.4	13.0	13.1	10.5	13.3	13.6	14.6	16.4	16.5
3	0.5	7 / 0.30	36.7	0.6	2.1	10.0	10.8	11.3	12.1	14.0	14.1	13.1	13.9	14.5	15.3	17.4	17.5
4	0.5	7 / 0.30	36.7	0.6	2.1	10.9	11.9	12.4	13.2	15.4	15.5	14.0	15.1	15.6	16.6	19.0	19.1
5	0.5	7 / 0.30	36.7	0.6	2.1	12.1	13.0	13.5	14.6	17.0	17.1	15.3	16.4	16.9	18.0	20.7	20.8
6	0.5	7 / 0.30	36.7	0.6	2.1	13.1	14.3	14.8	16.0	18.5	18.6	16.5	17.7	18.2	19.6	22.3	22.4
7	0.5	7 / 0.30	36.7	0.6	2.1	13.1	14.3	14.8	16.0	18.5	18.6	16.5	17.7	18.2	19.6	22.3	22.4
8	0.5	7 / 0.30	36.7	0.6	2.1	14.9	16.1	16.9	18.1			18.3	19.7	20.6	21.9		
9	0.5	7 / 0.30	36.7	0.6	2.1	16.2	17.6	18.3	19.6			19.7	21.4	22.1	23.4		
12	0.5	7 / 0.30	36.7	0.6	2.1	17.6	19.0	19.9	21.3			21.4	22.7	23.7	25.2		
19	0.5	7 / 0.30	36.7	0.6	2.1	20.7	22.3	23.4	25.1			24.5	26.3	27.4	29.1		
24	0.5	7 / 0.30	36.7	0.6	2.1	24.4	26.4					28.3	30.6				
37	0.5	7 / 0.30	36.7	0.6	2.1	28.2	30.4					32.4	34.6				
1	0.75	7 / 0.37	24.8	0.6	2.4	7.2		7.6		8.3		10.2		10.6		11.3	
2 **	0.75	7 / 0.37	24.8	0.6	2.4	8.3	11.2	11.8	12.6	14.4	14.5	11.3	14.3	14.9	15.8	17.8	17.9
3	0.75	7 / 0.37	24.8	0.6	2.4	11.1	12.1	12.5	13.4	15.6	15.7	14.2	15.3	15.7	16.7	19.2	19.3
4	0.75	7 / 0.37	24.8	0.6	2.4	12.3	13.2	13.7	14.9	17.2	17.3	15.5	16.4	17.0	18.3	20.7	20.8
5	0.75	7 / 0.37	24.8	0.6	2.4	13.4	14.4	15.2	16.4	19.0	19.1	16.7	17.8	18.7	19.9	22.7	22.8
6	0.75	7 / 0.37	24.8	0.6	2.4	14.8	16.0	16.6	18.0	20.9	21.0	18.2	19.6	20.2	21.7	24.7	24.8
7	0.75	7 / 0.37	24.8	0.6	2.4	14.8	16.0	16.6	18.0	20.9	21.0	18.2	19.6	20.2	21.7	24.7	24.8
8	0.75	7 / 0.37	24.8	0.6	2.4	16.7	18.1	18.9	20.2			20.2	21.8	22.6	24.0		
9	0.75	7 / 0.37	24.8	0.6	2.4	18.3	19.6	20.4	22.1			21.9	23.4	24.2	25.9		
12	0.75	7 / 0.37	24.8	0.6	2.4	19.7	21.4	22.3	24.1			23.4	25.1	26.1	28.0		
19	0.75	7 / 0.37	24.8	0.6	2.4	23.2	25.2	26.3	28.4			27.0	29.1	30.2	32.5		
24	0.75	7 / 0.37	24.8	0.6	2.4	27.5	29.8					31.6	34.0				
37	0.75	7 / 0.37	24.8	0.6	2.4	31.7	34.3					35.9	38.7				
1	1	7 / 0.43	18.2	0.6	2.5	7.4		7.8		8.8		10.4		10.8		11.8	
2 **	1	7 / 0.43	18.2	0.6	2.5	8.6	11.8	12.2	13.1	15.1	15.3	11.6	15.0	15.4	16.4	18.7	18.9
3	1	7 / 0.43	18.2	0.6	2.5	11.7	12.5	12.9	13.9	16.2	16.3	14.9	15.7	16.2	17.3	19.7	19.8
4	1	7 / 0.43	18.2	0.6	2.5	12.7	13.7	14.4	15.5	17.9	18.0	15.9	17.1	17.8	19.0	21.7	21.8
5	1	7 / 0.43	18.2	0.6	2.5	13.9	15.1	15.8	16.9	19.6	19.7	17.3	18.7	19.3	20.5	23.4	23.5
6	1	7 / 0.43	18.2	0.6	2.5	15.4	16.6	17.4	18.6	21.7	21.8	19.0	20.1	21.1	22.4	25.4	25.5
7	1	7 / 0.43	18.2	0.6	2.5	15.4	16.6	17.4	18.6	21.7	21.8	19.0	20.1	21.1	22.4	25.4	25.5
8	1	7 / 0.43	18.2	0.6	2.5	17.4	18.8	19.5	21.1			21.1	22.5	23.3	24.9		
9	1	7 / 0.43	18.2	0.6	2.5	18.9	20.5	21.4	22.9			22.6	24.3	25.1	26.8		
12	1	7 / 0.43	18.2	0.6	2.5	20.6	22.1	23.2	24.9			24.3	26.0	27.2	28.9		
19	1	7 / 0.43	18.2	0.6	2.5	24.2	26.3	27.4	29.6			28.2	30.3	31.6	33.7		
24	1	7 / 0.43	18.2	0.6	2.5	28.5	30.9					32.7	35.2				
37	1	7 / 0.43	18.2	0.6	2.5	33.0	35.8					37.4	40.2				
1	1.5	7 / 0.52	12.2	0.7	3.0	8.5		9.0		10.0		11.5		12.0		13.1	
2 **	1.5	7 / 0.52	12.2	0.7	3.0	10.0	13.6	14.3	15.4	17.8	17.9	13.0	17.0	17.7	18.9	21.5	21.7
3	1.5	7 / 0.52	12.2	0.7	3.0	13.4	14.6	15.2	16.4	19.0	19.1	16.7	18.0	18.7	19.9	22.7	22.8
4	1.5	7 / 0.52	12.2	0.7	3.0	14.9	16.1	16.7	18.1	21.1	21.2	18.3	19.7	20.3	21.9	24.8	24.9
5	1.5	7 / 0.52	12.2	0.7	3.0	16.4	17.8	18.5	19.8	23.3	23.4	19.9	21.5	22.3	23.6	27.3	27.4
6	1.5	7 / 0.52	12.2	0.7	3.0	18.1	19.4	20.4	21.9	25.5	25.6	21.8	23.2	24.2	25.7	29.4	29.5
7	1.5	7 / 0.52	12.2	0.7	3.0	18.1	19.4	20.4	21.9	25.5	25.6	21.8	23.2	24.2	25.7	29.4	29.5
8	1.5	7 / 0.52	12.2	0.7	3.0	20.5	22.0	23.1	24.8			24.2	25.9	27.1	28.8		
9	1.5	7 / 0.52	12.2	0.7	3.0	22.2	24.1	25.1	27.1			26.1	28.1	29.1	31.2		
12	1.5	7 / 0.52	12.2	0.7	3.0	24.2	26.2	27.4	29.5			28.1	30.3	31.5	33.7		
19	1.5	7 / 0.52	12.2	0.7	3.0	28.7	30.9	32.5	35.1			32.9	35.2	36.7	39.5		
24	1.5	7 / 0.52	12.2	0.7	3.0	33.8	36.6					38.3	41.1				
37	1.5	7 / 0.52	12.2	0.7	3.0	39.1	42.4					43.8	47.0				

* The rated outer diameter of cables may vary by +/- 20 % depending on the options selected.
** The two pairs with general electrical screen (EG) are twisted like a quad cable.

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Notes

omerin
LES CABLES DE L'EXTREME

www.omerin.com

Notes





omerin
division principale

omerin
division silisol

Headquarters and division principale
Zone industrielle - 63600 Ambert - France
Tel. +33 **(0)4 73 82 50 00**
Fax +33 (0)4 73 82 50 10
e-mail: omerin@omerin.com

division silisol
B.P. 87 - 11, allée du Couchant Z.I. du Devey
42010 Saint-Etienne Cedex 2 - France
Tel. +33 **(0)4 77 81 36 00**
Fax +33 (0)4 77 81 37 00
e-mail: silisol@omerin.com

www.omerin.com