Synergy Cables Ltd.
Sapirim Industrial Park, 1 Eshel Street P.O.B.102,
Sderot ISRAEL 8701002
TEL 972-8-6809444, FAX 972-8-6890014
http://www.synergy-cables.com

1. Applications

For indoor or outdoor installation in the open-air in-tray, trough, and conduit or for direct burial in free-draining soil or inside duct where no mechanical damage is to be expected. Power cable for utilities low voltage underground distribution systems and in commercial buildings, industrial plants, power stations and substations. For systems operating at not more than 0.6 kV between a conductor to earth or 1 kV between conductors at a maximum conductor temperature of 90 °C for continuous normal operation and 250 °C for short circuit.

2. Reference Standards and documents

The cables covered by this specification manufactured and tested as per the following references:

2.1	Conforms to IEC 60502-1 Standard: *"Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV)" – "Part 1: Cables for rated voltages of 1 kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV)".*
2.2	Conforms to SI 1516-1 Standard: *"Extruded solid dielectric insulated power cables for rated voltages from 1 kV to 30 kV"*.
2.3	Conforms to IEC 60228 Standard: *"Conductors of insulated cables*
2.4	Conforms to European Union Regulation (EC) No. 1907/2006, concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (*REACH Regulation*).
2.5	Conforms to EU Directive No. 2002/95/CE on Restriction on Hazardous Substances, (*RoHS Directive*).
2.6	Conforms to IEC 60332-1 (*Flame propagation test*)

3. Low-Voltage Cables Construction

A copper or aluminum compacted, sector-shaped stranded conductors, have an extruded cross-linked polyethylene (XLPE) colored insulation, applied around the conductor. The cores twisted together and covered with an extruded inner covering. A green PVC outer sheath with printed marking extruded overall.

TYPICAL DRAWING

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4. Low-Voltage Cable Data

4.1 N2XY FR1 FOUR CORE SECTOR-SHAPED COPPER CONDUCTOR

Construction and Dimensional Data

Catalog number	Conductor * cross-sectional area	Nominal		Minimum at any point	Approximate		Minimum bending radius	Max. conductor resistance at 20°C	Short circuit rating, 1sec (1)	Current rating (2)		Voltage drop ac (5)	
		Insulation thickness	Assembly diameter	Sheath thickness	Outer diameter	Cable weight				In Air (3)	Buried (4)	Single phase	Three phase
	mm²	mm	mm	mm	mm	kg/km	mm	Ω/km	kA	A		mV/A/m	
18109696	4 x 35	0.9	21.0	1.24	25.5	1,610	385	0.524	5.0	152	113	-	1.16
18109695	4 x 35G												
18110606	4 x 50	1.0	24.0	1.32	28.5	2,160	430	0.387	7.1	184	134	-	0.856
18110605	4 x 50G												
18110996	4 x 70	1.1	27.0	1.40	32.0	3,000	480	0.268	10.0	236	166	-	0.598
18110995	4 x 70G												
18102994	4 x 95	1.1	31.0	1.48	36.0	4,075	540	0.193	13.6	286	196	-	0.429
18102995	4 x 95G												
18110396	4 x 120	1.2	34.0	1.56	39.5	5,110	595	0.153	17.1	332	223	-	0.341
18110395	4 x 120G												
18110796	4 x 150	1.4	38.5	1.72	44.5	6,255	670	0.124	21.4	383	252	-	0.278
18110795	4 x 150G												
1810986	4 x 185	1.6	42.0	1.80	48.0	7,820	720	0.0991	26.4	438	283	-	0.223
1810985	4 x 185G												
18119497	4 x 240	1.7	48.7	2.04	55.5	10,125	835	0.0754	34.3	516	326	-	0.172
18119696	4 x 240G												

1. *Short-circuit current calculated for adiabatic heating considering a temperature rise from 90ºC up to 250ºC in 1.0 sec.*
2. *Current rating based on the value listed in Israeli Electrical Code 2014, for a conductor working temperature of 90ºC load factor LF = 1.0 (100%)*
3. *Current rating for one cable in free air, ambient temperature =35ºC, as per table 90.7 from Israeli Electrical Code.*
4. *Current rating for one cable in buried duct as per table 90.6 form Israeli Electrical Code, duct buried at 0.8m depth, ambient temperature=30ºC, in soil having thermal resistivity of 2.5 K*m/W.*
5. *Calculated for one cable, conductor temperature = 90ºC, System frequency = 50 Hz, load power factor (cos φ)= 1.0*

*Note: * - G - means a grounding core.*

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4.2 NA2XY FR1 FOUR CORE SECTOR-SHAPED ALUMINUM CONDUCTOR

Construction and Dimensional Data

Catalog number	Conductor * cross-sectional area	Nominal		Minimum at any point	Approximate		Minimum bending radius	Max. conductor resistance at 20°C	Short circuit rating, 1sec (1)	Current rating (2)		Voltage drop ac (5)	
		Insulation thickness	Assembly diameter	Sheath thickness	Outer diameter	Cable weight				In Air (3)	Buried (4)	Single phase	Three phase
	mm²	mm	mm	mm	mm	kg/km	mm	Ω/km	kA	A		mV/A/m	
33709996	4 x 35	0.9	21.0	1.24	25.5	780	385	0.868	3.3	115	87	-	1.93
33709995	4 x 35G												
33710096	4 x 50	1.0	24.0	1.32	28.5	970	430	0.641	4.7	140	104	-	1.42
33710095	4 x 50G												
33711296	4 x 70	1.1	27.0	1.40	32.0	1,330	480	0.443	6.6	180	128	-	0.98
33711295	4 x 70G												
33712096	4 x 95	1.1	31.0	1.48	36.0	1,720	540	0.320	9.0	218	153	-	0.71
33712095	4 x 95G												
33713296	4 x 120	1.2	34.0	1.56	39.5	2,105	595	0.253	11.3	252	173	-	0.56
33713295	4 x 120G												
33714396	4 x 150	1.4	38.5	1.72	44.5	2,610	670	0.206	14.2	292	195	-	0.46
33714395	4 x 150G												
33715396	4 x 185	1.6	42.0	1.80	48.0	3,185	720	0.164	17.5	333	219	-	0.366
33715395	4 x 185G												
33716196	4 x 240	1.7	48.7	2.04	55.5	4,125	835	0.125	22.7	393	253	-	0.280
33716195	4 x 240G												

1. *Short-circuit current calculated for adiabatic heating considering a temperature rise from 90ºC up to 250ºC in 1.0 sec.*
2. *Current rating based on the value listed in Israeli Electrical Code 2014, for a conductor working temperature of 90ºC load factor LF = 1.0 (100%)*
3. *Current rating for one cable in free air, ambient temperature =35ºC, as per table 90.7 from Israeli Electrical Code.*
4. *Current rating for one cable in buried duct as per table 90.6 form Israeli Electrical Code, duct buried at 0.8m depth, ambient temperature=30ºC, in soil having thermal resistivity of 2.5 K*m/W.*
5. *Calculated for one cable, conductor temperature = 90ºC, System frequency = 50 Hz, load power factor (cos φ)= 1.0*

*Note: * - G - means a grounding core.*


Rated Voltage 0.6/1 kV


Conductor Flexibility – Stranded CL. 2


Minimum Bending Radius during Pull 15 x D


Maximum Conductor Temperature in Service 90°C

Lead Free


Flame Retardant IEC 60332 - 1