



*noSmoke: the range of non toxic, halogen free
LS0H (Low Smoke Zero Halogen) cables;
insulated with rubber type G7 or G9
or thermoplastic material, resistant to fire propagation,
and/or flame retardant on a single vertical cable test,
with low emission of smoke
and toxic and corrosive gases when exposed to fire.*

Minimum emission of opaque smoke in case of fire

Absence of corrosive gasses

Absence of lead

Extremely low emission of toxic substances

FG7M1-0,6/1 kV	Single-core flexible conductor
FG7OM1-0,6/1 kV	Multicore flexible conductor
FG7OM1-0,6/1 kV	For signalling and control circuits

Nominal voltage: $U_0/U = 0,6/1$ kV

Standards: CEI 20-13, CEI 20-11, CEI 20-37/4-0, EN 60228, EN / IEC 60332-1, EN 50267-2-1, EN / IEC 61034-1, EN / IEC 61034-2, EN / IEC 60332-3-24.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: flexible annealed plain copper.

Insulation: hard ethylene propylene rubber (HEPR) compound, of type G7 having low emission of smoke and toxic and corrosive gases when exposed to fire.

Colour of the cores:

Two cores	: blue – brown.
Three cores	: blue – brown – green/yellow or brown – black – grey.
Four cores	: brown – black – grey – green/yellow or blue – brown – black – grey.
Five cores	: blue – brown – black – grey – green/yellow or blue – brown – black – grey – black.

Signalling and control cables: black cores with white progressive numbering inscription with or without green/yellow

Sheath: thermoplastic compound of type M1, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Marking: continuous marking on the sheath: «ICEL noSmoke (cable designation and cross nominal section) CEI 20-22 III cat. C CEI 20-13 IEMMEQU production date», with under the sheath the IEMMEQU thread. Progressive meter marking.

Maximum operating temperature: 90°C on the conductor.

Maximum short circuit temperature: 250°C on the conductor (for maximum 5 seconds).

Minimum permissible bending radii: 4 times the cable overall diameter for power cables; 6 times the cable overall diameter for signalling and control cables.

Maximum pulling force during laying: 5 kg/mm² of the conductor cross section.

Current carrying capacity: see CEI-UNEL 35024, 35026.

Guide to Use: for installation with fire risk area and where high presence of people is foreseen. For internal installations, also in wet locations and for external installations; for installation in surface mounted or on metallic structures; direct laying in earth permitted.

Cables to be used only for electrical power transmission and to be installed only by skilled personal. See also the guide to use standard CEI 20-67.

FG7(O)M1-0,6/1 kV



Single and multicore core **flexible** power cable for fixed installation, G7 rubber insulated, LS0H thermoplastic sheathed. Resistant to fire propagation with a low emission of smoke and toxic and corrosive gases when exposed to fire.

Tab. CEI-UNEL 35382

Number and nominal cross-sectional area of conductors n x mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Indicative core diameter mm	Thickness of the sheath specified value mm	Maximum overall diameter mm	Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
FG7M1-0,6/1 kV							
1 x 1,5	0,26	0,7	2,9	1,4	6,7	51	13,3
1 x 2,5	0,26	0,7	3,4	1,4	7,2	65	7,98
1 x 4	0,31	0,7	3,9	1,4	7,8	80	4,95
1 x 6	0,31	0,7	4,4	1,4	8,4	105	3,30
1 x 10	0,41	0,7	5,3	1,4	9,4	150	1,91
1 x 16	0,41	0,7	6,4	1,4	10,4	200	1,21
1 x 25	0,41	0,9	8,2	1,4	12,2	300	0,780
1 x 35	0,41	0,9	9,5	1,4	13,6	390	0,554
1 x 50	0,41	1,0	11,2	1,4	15,4	540	0,386
1 x 70	0,51	1,1	13,2	1,4	17,3	740	0,272
1 x 95	0,51	1,1	14,7	1,5	19,4	940	0,206
1 x 120	0,51	1,2	16,6	1,5	21,4	1200	0,161
1 x 150	0,51	1,4	18,6	1,6	23,8	1480	0,129
1 x 185	0,51	1,6	20,7	1,6	26,0	1830	0,106
1 x 240	0,51	1,7	23,5	1,7	29,2	2340	0,0801
1 x 300	0,51	1,8	26,1	1,8	32,0	2950	0,0641
FG7OM1-0,6/1 kV							
2 x 1,5	0,26	0,7	2,9	1,8	12,0	150	13,3
2 x 2,5	0,26	0,7	3,4	1,8	13,0	190	7,98
2 x 4	0,31	0,7	3,9	1,8	14,2	240	4,95
2 x 6	0,31	0,7	4,4	1,8	15,4	310	3,30
2 x 10	0,41	0,7	5,3	1,8	17,3	440	1,91
2 x 16	0,41	0,7	6,4	1,8	19,4	600	1,21
2 x 25	0,41	0,9	8,2	1,8	23,0	850	0,780
2 x 35	0,41	0,9	9,5	1,8	25,7	1130	0,554
2 x 50	0,41	1,0	11,2	1,8	29,3	1580	0,386
2 x 70	0,51	1,1	13,2	1,8	33,1	2050	0,272
2 x 95	0,51	1,1	14,7	2,0	37,4	2670	0,206
2 x 120	0,51	1,2	16,6	2,1	41,5	3330	0,161
2 x 150	0,51	1,4	18,6	2,2	46,1	4100	0,129

Continued

Number and nominal cross-sectional area of conductors n x mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Indicative core diameter mm	Thickness of the sheath specified value mm	Maximum overall diameter mm	Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
FG7OM1-0,6/1 kV							
3 G 1,5	0,26	0,7	2,9	1,8	12,5	170	13,3
3 G 2,5	0,26	0,7	3,4	1,8	13,6	220	7,98
3 G 4	0,31	0,7	3,9	1,8	14,9	280	4,95
3 G 6	0,31	0,7	4,4	1,8	16,2	370	3,30
3 G 10	0,41	0,7	5,3	1,8	18,2	530	1,91
3 G 16	0,41	0,7	6,4	1,8	20,6	740	1,21
3 G 25	0,41	0,9	8,2	1,8	24,5	1060	0,780
3 G 35	0,41	0,9	9,5	1,8	27,3	1420	0,554
3 G 50	0,41	1,0	11,2	1,8	31,2	1960	0,386
3 G 70	0,51	1,1	13,2	1,9	35,6	2700	0,272
3 G 95	0,51	1,1	14,7	2,0	40,0	3430	0,206
3 G 120	0,51	1,2	16,6	2,1	44,4	4390	0,161
3 G 150	0,51	1,4	18,6	2,3	49,5	5400	0,129
3 G 185	0,51	1,6	20,7	2,4	55,2	6700	0,106
3 G 240	0,51	1,7	23,5	2,6	61,9	8700	0,0801
3 G 300	0,51	1,8	26,1	2,8	68,0	10700	0,0641
4 G 1,5	0,26	0,7	2,9	1,8	13,4	200	13,3
4 G 2,5	0,26	0,7	3,4	1,8	14,6	260	7,98
4 G 4	0,31	0,7	3,9	1,8	16,0	330	4,95
4 G 6	0,31	0,7	4,4	1,8	17,5	430	3,30
4 G 10	0,41	0,7	5,3	1,8	19,8	640	1,91
4 G 16	0,41	0,7	6,4	1,8	22,4	900	1,21
4 G 25	0,41	0,9	8,2	1,8	26,8	1300	0,780
3x35 +25	0,41	0,9	9,5	1,8	29,2	1650	0,554/0,780
3x50 +25	0,41	1,0	11,2	1,8	32,4	2200	0,386/0,780
3x70 +35	0,51	1,1	13,2	1,9	37,0	3000	0,272/0,554
3x95 +50	0,51	1,1	14,7	2,1	42,0	3900	0,206/0,386
3x120 +70	0,51	1,2	16,6	2,2	46,9	4700	0,161/0,272
3x150 +95	0,51	1,4	18,6	2,4	52,5	6300	0,129/0,206
3x185 +95	0,51	1,6	20,7	2,5	57,3	7600	0,106/0,206
3x240 +150	0,51	1,7	23,5	2,7	65,5	10000	0,0801/0,129
3x300 +150	0,51	1,8	26,1	2,9	70,8	12000	0,0641/0,129
5 G 1,5	0,26	0,7	2,9	1,8	14,4	230	13,3
5 G 2,5	0,26	0,7	3,4	1,8	15,6	310	7,98
5 G 4	0,31	0,7	3,9	1,8	17,3	400	4,95
5 G 6	0,31	0,7	4,4	1,8	18,9	520	3,30
5 G 10	0,41	0,7	5,3	1,8	21,5	780	1,91
5 G 16	0,41	0,7	6,4	1,8	24,4	1120	1,21
5 G 25	0,41	0,9	8,2	1,8	29,3	1680	0,780
5 G 35	0,41	0,9	9,5	1,8	32,8	2150	0,554
5 G 50	0,41	1,0	11,2	2,0	38,2	3000	0,386

If specifically requested, and for agreed quantities, a version of the cables without the protective conductor (green/yellow) can be supplied.

CABLES FOR CONTROL AND SIGNALLING CIRCUITS

Multicore core **flexible** cables for signalling and control, G7 rubber insulated, LS0H thermoplastic sheathed, for fixed installation. Resistant to fire propagation with a low emission of smoke and toxic and corrosive gases when exposed to fire.

Tab. CEI-UNEL 35382

Number and nominal cross-sectional area of conductors mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Indicative core diameter mm	Thickness of the sheath specified value mm	Maximum overall diameter mm	Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
5 G 1,5	0,26	0,7	2,9	1,8	14,4	230	13,3
7 G 1,5	0,26	0,7	2,9	1,8	15,4	275	13,3
10 G 1,5	0,26	0,7	2,9	1,8	18,7	365	13,4
12 G 1,5	0,26	0,7	2,9	1,8	19,3	410	13,4
16 G 1,5	0,26	0,7	2,9	1,8	21,1	510	13,4
19 G 1,5	0,26	0,7	2,9	1,8	22,1	580	13,4
24 G 1,5	0,26	0,7	2,9	1,8	25,4	700	13,5
7 G 2,5	0,26	0,7	3,4	1,8	16,8	310	7,98
10 G 2,5	0,26	0,7	3,4	1,8	20,6	395	8,06
12 G 2,5	0,26	0,7	3,4	1,8	21,3	445	8,06
16 G 2,5	0,26	0,7	3,4	1,8	23,3	545	8,06
19 G 2,5	0,26	0,7	3,4	1,8	24,5	615	8,06
24 G 2,5	0,26	0,7	3,4	1,8	28,3	750	8,10

If specifically requested, and for agreed quantities, a version of the cables without the protective conductor (green/yellow) can be supplied.

H07Z1-K Type 2



◁HAR▷



Single core flexible power cable for fixed installation, insulated with thermoplastic materials, resistant to fire propagation and with low emission of smoke and toxic and corrosive gases when exposed to fire, particularly suitable for installation in bunches.

nominal cross-sectional area of conductors mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
1,5	0,26	0,7	2,8	3,4	22	13,3	0,010
2,5	0,26	0,8	3,4	4,1	33	7,98	0,009
4	0,31	0,8	3,9	4,8	47	4,95	0,007
6	0,31	0,8	4,4	5,3	65	3,30	0,006
10	0,41	1,0	5,7	6,8	110	1,91	0,0056
16	0,41	1,0	6,7	8,1	163	1,21	0,0046
25	0,41	1,2	8,4	10,2	250	0,780	0,0044
35	0,41	1,2	9,7	11,7	339	0,554	0,0038
50	0,41	1,4	11,5	13,9	492	0,386	0,0037
70	0,51	1,4	13,2	16,0	674	0,272	0,0032
95	0,51	1,6	15,1	18,2	890	0,206	0,0032
120	0,51	1,6	16,7	20,2	1125	0,161	0,0029
150	0,51	1,8	18,6	22,5	1400	0,129	0,0029
185	0,51	2,0	20,6	24,9	1716	0,106	0,0029
240	0,51	2,2	23,5	28,4	2263	0,0801	0,0028

H07Z1-K Type 2 Single-core flexible conductor

Rated voltage: U₀/U = 450/750 V

Standards: Cenelec HD 21.15, EN/IEC 60332-3-24, EN/IEC 60332-1, EN 50267, EN/IEC 61034.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: flexible annealed plain copper.

Insulation: thermoplastic compound of type T17, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-K TYPE 2 IEMMEQU ◁HAR▷ Ecogamma FM9», on the opposed side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter if the cable diameter is lower than 8 mm; 5 times if between 8 and 12 mm; 6 times if over 12 mm.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation with fire risk area and where high presence of people is foreseen. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth. **Particular suitability for installation in bunches** (according to the relative test conditions).

Unsuitable: for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

H07Z1-U Type 2



◁HAR▷



Single core power cable with solid conductor insulated with thermoplastic materials, resistant to fire propagation, having low emission of smoke and toxic and corrosive gases when exposed to fire, particular suitable for installation in bunches.

Nominal cross-sectional area of conductors mm ²	Number of conductor wires n	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
1,5	1	0,7	2,6	3,2	19	12,1	0,011
2,5	1	0,8	3,2	3,9	32	7,41	0,010
4	1	0,8	3,6	4,4	47	4,61	0,0087
6	1	0,8	4,1	5,0	65	3,08	0,0074

H07Z1-U Type 2 Single-core solid conductor from 1,5 up to 6 mm²

Rated voltage: U_o/U = 450/750 V

Standards: Cenelec HD 21.15, EN/IEC 60332-3-24, EN/IEC 60332-1, EN 50267, EN/IEC 61034.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: solid, annealed plain copper.

Insulation: thermoplastic compound of type T17, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-U TYPE 2 IEMMEQU ◁HAR▷ Ecogamma», on the opposed side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation with fire risk area and where high presence of people is foreseen. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth. **Particular suitability for installation in bunches** (according to the relative test conditions).

Unsuitable: for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

H07Z1-R Type 2



◁HAR▷



Single core power cable with stranded conductor insulated with thermoplastic materials, resistant to fire propagation, having low emission of smoke and toxic and corrosive gases when exposed to fire, particular suitable for installation in bunches.

Nominal cross-sectional area of conductors mm ²	Minimum number of conductor wires n	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
10	6	1,0	5,6	6,7	112	1,83	0,0067
16	6	1,0	6,4	7,8	168	1,15	0,0056
25	6	1,2	8,1	9,7	265	0,727	0,0053
35	6	1,2	9,0	10,9	355	0,524	0,0046
50	15	1,4	10,6	12,8	485	0,387	0,0046
70	15	1,4	12,1	14,6	675	0,268	0,0040
95	15	1,6	14,1	17,1	940	0,193	0,0039
120	30	1,6	15,6	18,8	1170	0,153	0,0035
150	30	1,8	17,3	20,9	1440	0,124	0,0035
185	30	2,0	19,3	23,3	1820	0,0991	0,0035
240	51	2,2	22,0	26,6	2340	0,0754	0,0034

H07Z1-R Type 2 Single-core stranded conductor over 6 mm²

Rated voltage: U₀/U = 450/750 V

Standards: Cenelec HD 21.15, EN/IEC 60332-3-24, EN/IEC 60332-1, EN 50267, EN/IEC 61034.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: stranded, annealed plain copper.

Insulation: thermoplastic compound of type TI7, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-R TYPE 2 IEMMEQU ◁HAR▷ Ecogamma», on the opposed side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter if the cable diameter is lower than 8 mm; 5 times if between 8 and 12 mm; 6 times if over 12 mm.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation with fire risk area and where high presence of people is foreseen. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth. **Particular suitability for installation in bunches** (according to the relative test conditions).

Unsuitable: for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

H07Z1-K Type 1



◁HAR▷



Single core flexible power cable insulated with thermoplastic materials, flame retardant on a single vertical cable test, having low emission of smoke and toxic and corrosive gases when exposed to fire.

nominal cross-sectional area of conductors mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
1,5	0,26	0,7	2,8	3,4	22	13,3	0,010
2,5	0,26	0,8	3,4	4,1	33	7,98	0,009
4	0,31	0,8	3,9	4,8	47	4,95	0,007
6	0,31	0,8	4,4	5,3	65	3,30	0,006
10	0,41	1,0	5,7	6,8	110	1,91	0,0056
16	0,41	1,0	6,7	8,1	163	1,21	0,0046
25	0,41	1,2	8,4	10,2	250	0,780	0,0044
35	0,41	1,2	9,7	11,7	339	0,554	0,0038
50	0,41	1,4	11,5	13,9	492	0,386	0,0037
70	0,51	1,4	13,2	16,0	674	0,272	0,0032
95	0,51	1,6	15,1	18,2	890	0,206	0,0032
120	0,51	1,6	16,7	20,2	1125	0,161	0,0029
150	0,51	1,8	18,6	22,5	1400	0,129	0,0029
185	0,51	2,0	20,6	24,9	1716	0,106	0,0029
240	0,51	2,2	23,5	28,4	2263	0,0801	0,0028

H07Z1-K Type 1 Single-core flexible conductor

Rated voltage: U₀/U = 450/750 V

Standards: Cenelec HD 21.15, EN / IEC 60332-1, EN 50267, EN / IEC 61034.

European directives: L.V.D. 2006/95/EC - 93/68/CEE - 2002/95/CEE (RoHS).

Conductor: flexible annealed plain copper.

Insulation: thermoplastic compound of type TI7, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-K TYPE 1 IEMMEQU ◁HAR▷ Ecogamma», on opposite side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter if the cable diameter is lower than 8 mm; 5 times if between 8 and 12 mm; 6 times if over 12 mm.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation where high presence of people is foreseen and cables are not installed in bunches. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth.

Unsuitable: for installation in bunches, for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40.

H07Z1-U Type 1



◁HAR▷



Single core power cable with solid conductor insulated with thermoplastic materials, flame retardant on a single vertical cable test, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Nominal cross-sectional area of conductors mm ²	Number of conductor wires n	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
1,5	1	0,7	2,6	3,2	19	12,1	0,011
2,5	1	0,8	3,2	3,9	32	7,41	0,010
4	1	0,8	3,6	4,4	47	4,61	0,0087
6	1	0,8	4,1	5,0	65	3,08	0,0074

H07Z1-U Type 1 Single-core solid conductor from 1,5 up to 6 mm²

Rated voltage: U_o/U = 450/750 V

Standards: Cenelec HD 21.15, EN / IEC 60332-1, EN 50267, EN / IEC 61034.

European directives: L.V.D. 2006/95/EC - 93/68/CEE - 2002/95/CEE (RoHS).

Conductor: solid, annealed plain copper.

Insulation: thermoplastic compound of type T17, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-U TYPE 1 IEMMEQU ◁HAR▷ Ecogamma», on opposite side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation where high presence of people is foreseen and cables are not installed in bunches. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth.

Unsuitable: for installation in bunches, for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40.

H07Z1-R Type 1



◁HAR▷



Single core power cable with stranded conductor insulated with thermoplastic materials, flame retardant on a single vertical cable test, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Nominal cross-sectional area of conductors mm ²	Minimum number of conductor wires n	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
10	6	1,0	5,6	6,7	112	1,83	0,0067
16	6	1,0	6,4	7,8	168	1,15	0,0056
25	6	1,2	8,1	9,7	265	0,727	0,0053
35	6	1,2	9,0	10,9	355	0,524	0,0046
50	15	1,4	10,6	12,8	485	0,387	0,0046
70	15	1,4	12,1	14,6	675	0,268	0,0040
95	15	1,6	14,1	17,1	940	0,193	0,0039
120	30	1,6	15,6	18,8	1170	0,153	0,0035
150	30	1,8	17,3	20,9	1440	0,124	0,0035
185	30	2,0	19,3	23,3	1820	0,0991	0,0035
240	51	2,2	22,0	26,6	2340	0,0754	0,0034

H07Z1-R Type 1 Single-core flexible conductor

Rated voltage: U₀/U = 450/750 V

Standards: Cenelec HD 21.15, EN / IEC 60332-1, EN 50267, EN / IEC 61034.

European directives: L.V.D 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: stranded, annealed plain copper.

Insulation: thermoplastic compound of type T17, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-R TYPE 1 IEMMEQU ◁HAR▷ Ecogamma», on opposite side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter if the cable diameter is lower than 8 mm; 5 times if between 8 and 12 mm; 6 times if over 12 mm.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation where high presence of people is foreseen and cables are not installed in bunches. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth.

Unsuitable: for installation in bunches, for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

H05Z1-K



◁HAR▷



Single core power cable with flexible conductor insulated with thermoplastic materials, flame retardant on a single vertical cable test, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Nominal cross-sectional area of conductor mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
0,5	0,21	0,6	2,1	2,5	10	39,0	0,013
0,75	0,21	0,6	2,2	2,7	12	26,0	0,011
1	0,21	0,6	2,4	2,8	15	19,5	0,010

H05Z1-K Single-core flexible conductor

Rated voltage: U₀/U = 300/500 V

Standards: Cenelec HD 21.15, EN / IEC 60332-1, EN 50267, EN / IEC 61034.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: flexible, annealed plain copper.

Insulation: thermoplastic compound of type T17, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H05Z1-K IEMMEQU ▷HAR▷ Ecogamma», on opposite side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation where high presence of people is foreseen and cables are not installed in bunches. Fixed protected installation inside appliances and in, or on, lighting fittings; suitable for installation in surface mounted or embedded conduits, only for signalling or control circuits.

Unsuitable: for installation in bunches, for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

H05Z1-U



◁HAR▷



Single core power cable with solid conductor insulated with thermoplastic materials, flame retardant on a single vertical cable test, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Nominal cross-sectional area of conductor mm ²	Number of conductor wires n	Thickness of insulation specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductor at 20°C Ohm/km	Minimum insulation resistance at 70°C Mohm•km
			MIN mm	MAX mm			
0,5	1	0,6	1,9	2,3	9	36,0	0,014
0,75	1	0,6	2,1	2,5	12	24,5	0,013
1	1	0,6	2,2	2,7	15	18,1	0,011

H05Z1-U Single-core solid conductor

Rated voltage: U_o/U = 300/500 V

Standards: Cenelec HD 21.15, EN / IEC 60332-1, EN 50267, EN / IEC 61034.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: solid, annealed plain copper, solid.

Insulation: thermoplastic compound of type T17, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: on one side «ICEL H07Z1-U TYPE 1 IEMMEQU ◁HAR▷ Ecogamma», on opposite side the nominal cross-section and the year of manufacture.

Maximum operating temperature: 70°C on the conductor.

Maximum short circuit temperature: 160°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024.

Guidance for Use: for installation where high presence of people is foreseen and cables are not installed in bunches. Fixed protected installation inside appliances and in, or on, lighting fittings; suitable for installation in surface mounted or embedded conduits, only for signalling or control circuits.

Unsuitable: for installation in bunches, for outdoor use, direct or indirect burring in earth, in damp premises, directly under plaster.

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

N07G9-K



Single core flexible power cable with G9 rubber insulation, resistant to fire propagation, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Tab. CEI-UNEL 35368

Nominal cross-sectional area of conductor mm ²	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Mean overall dimensions max mm	Indicative cable weight g/m	Maximum resistance of conductor at 20°C Ohm/km
1	0,21	0,7	3,0	15	19,5
1,5	0,26	0,7	3,4	21	13,3
2,5	0,26	0,8	4,1	33	7,98
4	0,31	0,8	4,8	48	4,95
6	0,31	0,8	5,3	66	3,30
10	0,41	1,0	6,8	111	1,91
16	0,41	1,0	8,7	172	1,21
25	0,41	1,2	10,2	255	0,780
35	0,41	1,2	11,7	350	0,554
50	0,41	1,4	13,9	500	0,386
70	0,51	1,4	16,0	690	0,272
95	0,51	1,6	18,2	910	0,206
120	0,51	1,6	20,2	1140	0,161
150	0,51	1,8	22,5	1420	0,129
185	0,51	2,0	24,8	1730	0,106
240	0,51	2,2	28,4	2270	0,0801

Rated voltage: U₀/U = 450/750 V

Standards: CEI 20-38, 20-11, 20-22 II, 20-37/4-0 ; EN 60228, EN / IEC 60332-1, EN 50267-2-1, EN 61034-1, EN 61034-2.

European directives: L.V.D. 2006/95/EC - 2002/95/CEE (RoHS).

Conductor: flexible annealed plain copper.

Insulation: rubber compound of type G9, having low emission of smoke and toxic and corrosive gases when exposed to fire.

Insulation Colour: blue, black, brown, grey, green/yellow, red, white, turquoise, violet, orange, pink.

Marking: continuous marking on the insulation: "LOMBARDA or ICEL noSmoke ECOGAMMA N07G9-K nominal cross section mm² CEI 20-22 II - 20-38 IEMMEQU year of manufacture".

Maximum operating temperature: 90°C on the conductor.

Maximum short circuit temperature: 250°C on the conductor (for maximum 5 seconds).

Minimum internal bending radii: 4 times the overall diameter if the cable diameter is lower than 8 mm; 5 times if between 8 and 12 mm; 6 times if over 12 mm.

Maximum tensile stress: 1,5 kg/mm² of the conductor cross section

Current carrying capacity: see CENELEC HD 516 and CEI UNEL 35024. 10 A for cross-sections of 1 mm².

Guidance for Use: for installation with fire risk area and where high presence of people is foreseen. Installation in surface mounted or embedded conduits, or similar closed systems; suitable for fixed protected installation in, or on, lighting or control gear for voltages up to 1000 V a.c. or, up to 750 V d.c. to earth. **Particular suitable for installation in bunches** (according to the relative test conditions).

The RINA (Registro Navale Italiano) approval mark qualifies these cables to be used for internal wiring of power switchboards on classified ships (passengers and merchant ships)

Further guidance and warnings for the use of these cables are given in the guide to use standards CENELEC HD 516 or CEI 20-40. Cables to be used only for electrical power transmission and to be installed only by skilled personal.

The cables of the **noSmoke** line have particular suitability for installations where the risk of fire has to be limited due to high presence of people and/or valuable goods. If exposed to fire these cables have a low emission of smoke and toxic and corrosive gases as from the under reported conditions.

The **FG7(O)M1-0,6/1 kV** cables are produced according to the standard CEI 20-13. They belong to the noSmoke cable line and for resistance to fire propagation are tested according to the standard CEI 20-22 III cat. C (EN / IEC 60332-3-24), that foresees in the burning test a bunch of cables of 1,5 l/m (about 2 kg/m) of non metallic material.

The **N07G9-K** are produced according to the CEI 20-38 standard and belong to the noSmoke line. For resistance to propagation of fire they are tested according to the **CEI 20-22 II** standard (more severe than test EN / IEC 60332-3-24) with cable bunches containing 5 kg/m of non metallic materials.

The **H07Z1-K** cables are produced and tested according to the Cenelec **HD 21.15** standard. Cables TYPE 2 are required to meet a more severe test for resistance propagation to fire (EN / IEC 60332-3-24) than TYPE 1, and have particular suitability for installation in bunches.

The **noSmoke** cables are all "flame retardant on a single vertical cable test" according to the test CEI 20-35 (EN and IEC 60332-1).

Test requirements for the emission of smoke and toxic and corrosive gases:

Measurement of corrosive gases CEI 20-37/2-0 and 2-1 (EN 50267 series)

The scope of the test is to verify that the release, in the installation ambient, of the gases from the cable combustion do not contain an appreciable quantity of halogens, quantities that can damage the delicate apparatus present in the ambient and that can be noxious for the people.

Measurement of smoke opacity CEI 20-37/3-0 and 3-1 (EN / IEC 61034 series)

The scope of the test is to verify that the smoke emission from the cable combustion, in the installation ambient, allows a good visibility of the room in which the cable bunch is installed and of enough time for the evacuation of the site.

Measurement of toxic gases CEI 20-37/4-0

The scope of the test is to verify that the release, in the installation ambient, of the gases from the cable combustion have a sufficiently low toxicity for the people so to allow the evacuation of the site with no relevant physiological damage.



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