



***Rubber insulated power cables according to CENELEC HD 22 harmonised Standards, marked with IMQ <HAR> quality mark which guarantees equivalence with the corresponding Standards in use in the following countries: Italy • Austria • Belgium • Czech Republic • Finland • France • Germany • Great Britain • Greece • Holland • Hungary • Norway • Poland • Portugal • Spain • Sweden • Switzerland • Turkey.***

The mark IMQ <HAR> states that ICEL has been initially evaluated and that the production is submitted to a continuous control from the Italian Quality Mark Institute (IMQ), in conformity with special technical procedures contained in the harmonised documents.



**H01N2-D** Single-core high-flexibility cable.

**Rated voltage:**

U<sub>0</sub>/U = 100/100 V

**Standards:** CENELEC HD 22.6

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

**Conductor:** flexible annealed plain copper.

**Sheath:** Black rubber type EM5. If specifically requested, and for agreed quantities, the sheath can be supplied in other single-colours.

**Marking:** continuous marking on the sheath: «H01N2-D nominal cross section IEMMEQU <HAR> LOMBARDA production date Made in Italy».

**Maximum operating temperature:** 85°C on the conductor.

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

**Minimum internal bending radius:**

For free movement 4 times the overall diameter if less than 12 mm; 5 times if between 8 and 12 mm; 6 times if greater than 12 mm.

For repeated reeling 6 times the overall diameter if less than 20 mm; 8 times if higher than 20 mm.

**Maximum tensile stress:** 1,5 kg/mm<sup>2</sup> of the conductor cross section.

**Current rating:** see CENELEC HD 516.

**Guide to use:** Arc welding cables, for use with hand-held electrodes at 100 V.

**ATTENTION:** the harmonised standards, for industrial or for hobby arc welding apparatus, only allow the use of cross-linked rubber insulated cables according to the HD 22.6 standards. The standards do not allow the use of PVC cables that can become dangerous as they are not able to meet relevant requirements relating to safety, including a special test for resistance to the hot particles that are commonly generated during welding.



## H01N2-D



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Single-core **extra-flexible** arc welding cables, plain copper conductor with rubber covering.

Nominal cross-sectional area of conductor n x mm <sup>2</sup>	Maximum diameter of conductor wires mm	Thickness of covering Specified value mm	Mean overall diameter		Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
			MIN mm	MAX mm		
1 x 10	0,21	2,0	7,7	9,7	135	1,91
1 x 16	0,21	2,0	8,8	11,0	198	1,21
1 x 25	0,21	2,0	10,1	12,7	285	0,780
1 x 35	0,21	2,0	11,4	14,2	385	0,554
1 x 50	0,21	2,2	13,2	16,5	550	0,386
1 x 70	0,21	2,4	15,3	19,2	750	0,272
1 x 95	0,21	2,6	17,1	21,4	1015	0,206
1 x 120	0,51	2,8	19,2	24,0	1250	0,161
1 x 150	0,51	3,0	21,1	26,4	1540	0,129
1 x 185	0,51	3,2	23,1	28,9	1800	0,106

## H05RR-F



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Multicore **flexible** power cables, insulated and sheathed with tough ordinary rubber.

Number and nominal cross-sectional area of conductors n x mm <sup>2</sup>	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Thickness of sheath specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
				MIN mm	MAX mm		
2 x 0,75	0,21	0,6	0,8	5,7	7,4	58	26,0
2 x 1	0,21	0,6	0,9	6,1	8,0	75	19,5
2 x 1,5	0,26	0,8	1,0	7,6	9,8	105	13,3
2 x 2,5	0,26	0,9	1,1	9,0	11,5	145	7,98
2 x 4	0,31	1,0	1,2	10,6	13,7	200	4,95
3 G 0,75	0,21	0,6	0,9	6,2	8,1	72	26,0
3 G 1	0,21	0,6	0,9	6,5	8,5	83	19,5
3 G 1,5	0,26	0,8	1,0	8,0	10,4	125	13,3
3 G 2,5	0,26	0,9	1,1	9,6	12,4	175	7,98
3 G 4	0,31	1,0	1,2	11,3	14,5	245	4,95
3 G 6	0,31	1,0	1,4	12,8	16,3	305	3,30
4 G 0,75	0,21	0,6	0,9	6,8	8,8	90	26,0
4 G 1	0,21	0,6	0,9	7,1	9,3	100	19,5
4 G 1,5	0,26	0,8	1,1	9,0	11,6	150	13,3
4 G 2,5	0,26	0,9	1,2	10,7	13,8	220	7,98
4 G 4	0,31	1,0	1,3	12,7	16,2	330	4,95
4 G 6	0,31	1,0	1,5	14,2	18,1	400	3,30
5 G 0,75	0,21	0,6	1,0	7,6	9,9	105	26,0
5 G 1	0,21	0,6	1,0	8,0	10,3	120	19,5
5 G 1,5	0,26	0,8	1,1	9,8	12,7	180	13,3
5 G 2,5	0,26	0,9	1,3	11,9	15,3	270	7,98
5 G 4	0,31	1,0	1,4	14,6	18,6	410	4,95

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

# H07RN-F



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Single-core and multicore **flexible** power cables, rubber insulated and heavy polychloroprene or other synthetic elastomer sheathed.

Number and nominal cross-sectional area of conductors n x mm <sup>2</sup>	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Thickness of sheath specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
				MIN mm	MAX mm		
1 x 1,5	0,26	0,8	1,4	5,7	7,1	57	13,3
1 x 2,5	0,26	0,9	1,4	6,3	7,9	79	7,98
1 x 4	0,31	1,0	1,5	7,2	9,0	100	4,95
1 x 6	0,31	1,0	1,6	7,9	9,8	135	3,30
1 x 10	0,41	1,2	1,8	9,5	11,9	200	1,91
1 x 16	0,41	1,2	1,9	10,8	13,4	270	1,21
1 x 25	0,41	1,4	2,0	12,7	15,8	385	0,780
1 x 35	0,41	1,4	2,2	14,3	17,9	510	0,554
1 x 50	0,41	1,6	2,4	16,5	20,6	690	0,386
1 x 70	0,51	1,6	2,6	18,6	23,3	900	0,272
1 x 95	0,51	1,8	2,8	20,8	26,0	1180	0,206
1 x 120	0,51	1,8	3,0	22,8	28,6	1450	0,161
1 x 150	0,51	2,0	3,2	25,2	31,4	1820	0,129
1 x 185	0,51	2,2	3,4	27,6	34,4	2150	0,106
1 x 240	0,51	2,4	3,5	30,6	38,4	2840	0,0801
2 x 1	0,21	0,8	1,3	7,7	1,0	105	19,5
2 x 1,5	0,26	0,8	1,5	8,5	11,0	130	13,3
2 x 2,5	0,26	0,9	1,7	10,2	13,1	190	7,98
2 x 4	0,31	1,0	1,8	11,8	15,1	255	4,95
2 x 6	0,31	1,0	2,0	13,1	16,8	320	3,30
2 x 10	0,41	1,2	3,1	17,7	22,6	610	1,91
2 x 16	0,41	1,2	3,3	20,2	25,7	770	1,21
2 x 25	0,41	1,4	3,6	24,3	30,7	1130	0,780
3 G 1	0,21	0,8	1,4	8,3	10,7	120	19,5
3 G 1,5	0,26	0,8	1,6	9,2	11,9	160	13,3
3 G 2,5	0,26	0,9	1,8	10,9	14,0	220	7,98
3 G 4	0,31	1,0	1,9	12,7	16,2	300	4,95
3 G 6	0,31	1,0	2,1	14,1	18,0	415	3,30
3 G 10	0,41	1,2	3,3	19,1	24,2	740	1,91
3 G 16	0,41	1,2	3,5	21,8	27,6	1000	1,21
3 G 25	0,41	1,4	3,8	26,1	33,0	1380	0,780
3 G 35	0,41	1,4	4,1	29,3	37,1	1790	0,554
3 G 50	0,41	1,6	4,5	34,1	42,9	2550	0,386
3 G 70	0,51	1,6	4,8	38,4	48,3	3250	0,272
3 G 95	0,51	1,8	5,3	43,3	54,0	4740	0,206
4 G 1	0,21	0,8	1,5	9,2	11,9	150	19,5
4 G 1,5	0,26	0,8	1,7	10,2	13,1	190	13,3
4 G 2,5	0,26	0,9	1,9	12,1	15,5	280	7,98
4 G 4	0,31	1,0	2,0	14,0	17,9	380	4,95
4 G 6	0,31	1,0	2,3	15,7	20,0	500	3,30

## H07RN-F



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Multicore **flexible** power cables, rubber insulated and heavy polychloroprene or other synthetic elastomer sheathed.

Number and nominal cross-sectional area of conductors n x mm <sup>2</sup>	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Thickness of sheath specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
				MIN mm	MAX mm		
4 G 10	0,41	1,2	3,4	20,9	26,5	880	1,91
4 G 16	0,41	1,2	3,6	23,8	30,1	1170	1,21
4 G 25	0,41	1,4	4,1	28,9	36,6	1680	0,780
4 G 35	0,41	1,4	4,4	32,5	41,1	2350	0,554
4 G 50	0,41	1,6	4,8	37,7	47,5	3150	0,386
4 G 70	0,51	1,6	5,2	42,7	54,0	4770	0,272
4 G 95	0,51	1,8	5,9	48,4	61,0	8090	0,206
5 G 1	0,21	0,8	1,6	10,2	13,1	205	19,5
5 G 1,5	0,26	0,8	1,8	11,2	14,4	240	13,3
5 G 2,5	0,26	0,9	2,0	13,3	17,0	340	7,98
5 G 4	0,31	1,0	2,2	15,6	19,9	470	4,95
5 G 6	0,31	1,0	2,5	17,5	22,2	610	3,30
5 G 10	0,41	1,2	3,6	22,9	29,1	1100	1,91
5 G 16	0,41	1,2	3,9	26,4	33,3	1490	1,21
5 G 25	0,41	1,4	4,4	32,0	40,4	2380	0,780

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

## H07RN8-F



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Single-core and multi-core **flexible** power cables, water resistant (submersible pump cables).

The data tables are the same as those for H07RN-F cables.

# H07RN-F



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## CABLES FOR CONTROL AND SIGNALLING CIRCUITS

**Flexible** multi-core cables for control and signalling circuits, rubber insulated and heavy polychloroprene or other synthetic elastomer sheathed.

Number and nominal cross-sectional area of conductors n x mm <sup>2</sup>	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Thickness of sheath specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
				MIN mm	MAX mm		
6 G 1,5	0,26	0,8	2,5	13,4	17,2	310	13,3
7 G 1,5	0,26	0,8	2,6	13,4	17,2	335	13,3
12 G 1,5	0,26	0,8	2,9	17,6	22,4	560	13,3
18 G 1,5	0,26	0,8	3,2	20,7	26,3	750	13,3
19 G 1,5	0,26	0,8	3,3	20,7	26,3	795	13,3
24 G 1,5	0,26	0,8	3,5	24,3	30,7	1000	13,3
36 G 1,5	0,26	0,8	3,8	27,8	35,2	1350	13,3
6 G 2,5	0,26	0,9	2,7	15,7	20,0	450	7,98
7 G 2,5	0,26	0,9	2,9	15,7	20,0	465	7,98
12 G 2,5	0,26	0,9	3,1	20,6	26,2	770	7,98
18 G 2,5	0,26	0,9	3,5	24,4	30,9	1100	7,98
19 G 2,5	0,26	0,9	3,7	24,4	30,9	1125	7,98
24 G 2,5	0,26	0,9	3,9	28,8	36,4	1500	7,98
36 G 2,5	0,26	0,9	4,3	33,2	41,8	2050	7,98
6 G 4	0,31	1,0	2,9	18,2	23,2	640	4,95
12 G 4	0,31	1,0	3,5	24,4	30,9	1000	4,95
18 G 4	0,31	1,0	3,9	28,8	36,4	1590	4,95

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

# H05RN-F



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Multicore **flexible** power cables, rubber insulated and heavy polychloroprene or other synthetic elastomer sheathed.

Number and nominal cross-sectional area of conductors n x mm <sup>2</sup>	Maximum diameter of conductor wires mm	Thickness of insulation specified value mm	Thickness of sheath specified value mm	Mean overall dimensions		Indicative cable weight g/m	Maximum resistance of conductors at 20°C ohm/km
				MIN mm	MAX mm		
2 x 0,75	0,21	0,6	0,8	5,7	7,4	58	26,0
2 x 1	0,21	0,6	0,9	6,1	8,0	69	19,5
3 G 0,75	0,21	0,6	0,9	6,2	8,1	72	26,0
3 G 1	0,21	0,6	0,9	6,5	8,5	89	19,5

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

<b>H07RN-F</b>	Single-core and multicore flexible cables
<b>H07RN-F</b>	Multicore flexible cables, polychloroprene sheathed for control and signalling circuits
<b>H07RN8-F</b>	Single-core and multi-core flexible cables water resistant
<b>H05RR-F</b>	Multicore flexible cables
<b>H05RN-F</b>	Multicore flexible cables

**Rated voltage:**

U<sub>0</sub>/U = 300/500 V for H05RR-F and H05RN-F cables;  
 U<sub>0</sub>/U = 450/750 V for H07RN-F and H07RN8-F cables.

**Standards:** CENELEC HD 22, CEI 20-19.

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

**Conductor:** flexible annealed plain copper.

**Insulation:** Rubber of type EI4.

**Core colours:**

Two-core : blue-brown;  
 Three-core : green/yellow-blue-brown or brown-black-grey;  
 Four-core : green/yellow-brown-black-grey or blue-brown-black-grey;  
 Five-core : green/yellow-blue-brown-black-grey or blue-brown-black-grey-black;  
 H07RN-F cables for control and signalling circuits: black numbered cores, with or without the green/yellow earth core.

**Sheath:** Rubber of type EM3 for H05RR-F cables, rubber of type EM2 for H05RN-F, H07RN-F and H07RN8-F cables. Colour black; if specifically requested, and for agreed quantities, the sheath can be supplied in other single-colours.

**Marking:** continuous marking on the sheath «(cable designation and nominal section), IEMMEQU <HAR> LOMBARDA production date Made in Italy»; WATER RESISTANT on H07RN8-F cables. Progressive meter marking on H07RN-F and H07RN8-F.

**Maximum operating temperature:** 60°C on the conductor. 85°C on the conductor only for H07RN-F and H07RN8-F cables, if in a protective installations.

**Maximum short circuit temperature:** 200°C on the conductor (for maximum 5 seconds).

**Minimum internal bending radius:**

For free movement: 4 times the greatest overall dimension if less than 12 mm; 5 times if between 8 and 12 mm; 6 times if greater than 12 mm.  
 For fixed installations: 3 times the greatest overall dimension if less than 12 mm; 4 times if greater than 12mm.  
 For repeated reeling: 6 times the greatest overall dimension if less than 20 mm; 8 times if greater than 12 mm.

**Maximum tensile stress:** 1,5 kg/mm<sup>2</sup> of the conductor cross section.

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

For cross-sections up to 1 mm<sup>2</sup>:

cross-section (mm <sup>2</sup> )	0,5	0,75	1
current (A)	3	6	10



**Guide to Use:**

H05RN-F, H05RR-F: for use in domestic premises, kitchens, offices and for appliances where the cables are subjected to low mechanical stresses (e.g. vacuum cleaners, cooking appliances, soldering irons, toasters).

Not suitable for permanent use outdoors, in agriculture, in industrial or agricultural workshops or for supplying non-domestic tools. Where a black sheath is specified and tested against appropriate requirements, or the manufacturer has demonstrated suitable alternative protection, permanent outdoor use may be permitted.

H07RN-F: for use in dry or moist rooms, in open air; for medium mechanical stresses, e.g. for industrial and agricultural workshop appliances, large boiler rooms, heating plates, inspection lamps, electrical tools such as drills, circular saws, domestic electric tools; also for mobile motors or machines on building sites or in agricultural working, etc; also for fixed installations, e.g. on rough-cast in temporary buildings and huts used for accommodation purposes; suitable for the wiring of construction components in lifting appliances, machinery, etc.

Use up to 1.000 V, a.c. is permitted for fixed, protected installations (in conduit or appliances), and also for motor connections of hoisting motors and like.

Installation directly or indirectly buried or immersed in water is not allowed.

H07RN8-F: Particularly for use in fresh water up to 10 m depth and a maximum water temperature up to 40°C such as the connection of submersible pumps or similar applications. Not suitable for underwater power transmission or installation in a watercourse, or where it is possible that mechanical damage might occur and cause a hazard.

Indirect underground installation is allowed provided that there is mechanical protection of the cables.

H07RN8-F cable is manufactured according to the standard CEI 20-19/16 (CENELEC HD 22.16). It is the only cable that the installation standard CEI 64-8 at section 702 allows for installation in swimming pools and fountains. With reference to the standards, and unless there are no instructions or indications to the contrary, this cable type is also suggested for use with submersible pumps.

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

The cables H05 / H07RN-F, H07RN8-F and H01N2-D, contained in this brochure are "**flame retardant on a single vertical cable test**" according to the test CEI 20-35 (EN and IEC 60332-1) as indicated in the CEI 20-19 and CENELEC HD 22 standards.



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