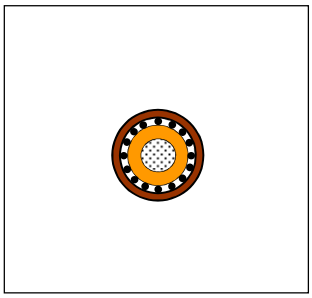
Single core and triple core medium tension, flame retardant

CEI 20-13 IEC 60502
CEI EN 50363
CEI 20-29 CEI EN 60228
CEI EN 60332-1-2
CEI 11-17 CEI 20-16

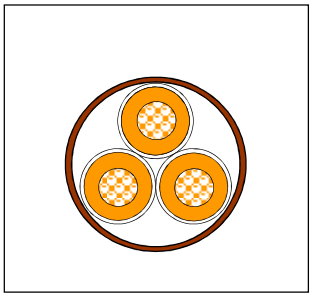
RG7H1R



Manufacturing characteristics
Compact Round Stranded red copper, semi-conductive inner elastomeric, rubber insulation HEPR G7; peelable semiconductive outer elastomeric cold-shielding copper wires for single wires or ribbons of copper for the cables multicore, PVC sheathed in red, Rz quality

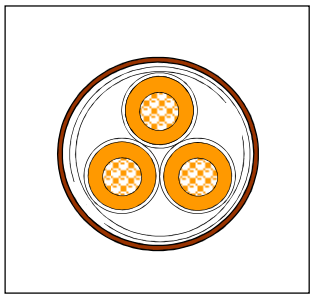
Marking
Marking on the external insulation with special ink:
IRCE CAVI RG7H1(O)R <U_o/U> kV CEI 20-13
<nr. conductors x section><year>< metric marking >

RG7H1OR



Application – intended use
Cables for the transport of electricity in medium tension, nominal voltage level from 3 kV to 30 kV.

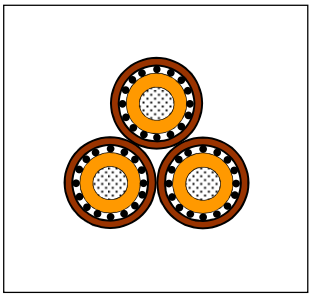
RG7H1ONR



Laying
The medium voltage cables can be routed :
- free in the air
- underground in channels
- underground in tubes
- directly underground
- underground with protections.

Cables on request
- Cables with nominal tension U_0/U = 1,8/3 – 3,6/6 – 6/10.
- United cables with strands visible.
- Cables reinforced with galvanized steel tape.
- Fire retardant CEI 20-22/2 and reduced emission of corrosive gases.
- Low emission of and fumes opaque and corrosive toxic gases sheath M1.

RG7H1RX



Functional and laying characteristics	
Nominal voltage U_0/U	8,7/15 kV - 12/20 kV – 18/30 kV
Operating temperature max	90° C
Short circuit temperature max	250° C
Laying temperature min	0° C
Traction force max	60N/mm^2
Minimum bending radius	16 x D

Nominal Cross Sectional Area mm²	Conductor diameter mm	Average insulation thickness mm	Average shealth thickness mm	Maximum external diameter mm	Cable nominal weight kg / km	Minimum bending radius mm
Single core RG7H1R-8,7/15 kV						
16	4,8	4,5	1,8	23,0	635	360
25	5,9	4,5	1,8	24,0	750	380
35	6,9	4,5	1,8	25,0	850	400
50	8,1	4,5	1,8	26,2	1000	420
70	9,7	4,5	1,9	28,0	1250	450
95	11,3	4,5	1,9	29,5	1550	470
120	12,7	4,5	2,0	31,0	1800	500
150	14,1	4,5	2,0	32,4	2050	520
185	15,8	4,5	2,1	34,4	2500	550
240	19,0	4,5	2,2	37,2	3050	590
300	20,7	4,5	2,2	39,5	3750	630
400	23,5	4,5	2,3	42,2	4550	670
Single core RG7H1R-12/20 kV						
25	5,9	5,5	2,0	26,5	850	420
35	6,9	5,5	2,0	27,5	950	440
50	8,1	5,5	2,0	28,6	1100	460
70	9,7	5,5	2,0	30,4	1350	480
95	11,3	5,5	2,2	32,0	1660	510
120	12,7	5,5	2,2	33,4	1930	530
150	14,1	5,5	2,2	35,0	2220	560
185	15,8	5,5	2,2	37,0	2600	590
240	19,0	5,5	2,3	39,5	3200	630
300	20,7	5,5	2,4	42,0	3850	670
400	23,5	5,5	2,4	44,8	4720	720
Single core RG7H1R-18/30 kV						
35	6,9	8,0	2,0	33,4	1300	530
50	8,1	8,0	2,2	34,6	1550	550
70	9,7	8,0	2,2	36,3	1730	580
95	11,3	8,0	2,3	38,0	2050	600
120	12,7	8,0	2,3	39,4	2300	630
150	14,1	8,0	2,4	41,0	2600	650
185	15,8	8,0	2,4	42,7	3080	680
240	19,0	8,0	2,5	45,5	3650	730
300	20,7	8,0	2,6	48,0	4400	770
400	23,5	8,0	2,7	50,8	5250	810

	GROUND LAYING (A) 1°Cm/W -20°C		AIR LAYING (A) AT 30°C		Phase reactance at 50Hz (Ω/km)	CAPACITY AT 50Hz (μF/km)	OHMIC RESISTANCE AT 20°C (Ω/km)
							
RG7H1R-8,7/15 kV							
1x16	122	118	135	119	0,154	0,16	1,150
1x25	158	150	178	155	0,144	0,18	0,727
1x35	190	180	215	188	0,137	0,19	0,524
1x50	225	213	258	225	0,130	0,21	0,387
1x70	275	262	322	280	0,122	0,24	0,268
1x95	330	314	393	345	0,116	0,26	0,193
1x120	375	356	455	398	0,112	0,29	0,153
1x150	420	398	515	450	0,109	0,31	0,124
1x185	475	453	590	517	0,106	0,33	0,0991
1x240	550	525	700	613	0,101	0,37	0,0754
1x300	619	590	800	705	0,098	0,41	0,0601
1x400	699	669	920	815	0,095	0,45	0,0470
RG7H1R-12/20 kV							
1x25	157	152	175	156	0,158	0,16	0,727
1x35	189	185	213	190	0,141	0,17	0,524
1x50	228	215	255	227	0,134	0,18	0,387
1x70	275	265	320	285	0,126	0,21	0,268
1x95	328	315	389	345	0,121	0,23	0,193
1x120	374	365	450	399	0,118	0,25	0,153
1x150	416	450	511	450	0,113	0,26	0,124
1x185	474	457	584	520	0,109	0,29	0,0991
1x240	545	529	690	615	0,105	0,32	0,0754
1x300	610	595	790	705	0,101	0,35	0,0601
1x400	689	673	910	815	0,099	0,38	0,0470
RG7H1R-18/30 kV							
35	187	180	210	190	0,155	0,14	0,524
50	223	215	253	230	0,147	0,14	0,387
70	272	263	315	285	0,135	0,16	0,268
95	325	315	385	347	0,131	0,18	0,193
120	369	358	445	400	0,126	0,19	0,153
150	412	400	505	452	0,122	0,20	0,124
185	466	453	579	520	0,118	0,22	0,0991
240	540	525	680	615	0,113	0,24	0,0754
300	605	592	775	705	0,109	0,26	0,0601
400	685	670	894	815	0,105	0,28	0,0470

Nominal Cross Sectional Area mm²	Conductor diameter mm	Average insulation thickness mm	Average shealth thickness mm	Maximum external diameter mm	Cable nominal weight kg / km	Minimum bending radius mm
TRIPOLAR RG7H1OR-8,7/15 kV						
16	4,8	4,5	2,4	47,5	2750	750
25	5,9	4,5	2,5	49,2	3150	790
35	6,9	4,5	2,6	52,0	3600	830
50	8,1	4,5	2,8	54,0	4200	860
70	9,7	4,5	2,9	58,2	5150	930
95	11,3	4,5	3,0	62,0	6200	990
120	12,7	4,5	3,2	65,0	7200	1040
150	14,1	4,5	3,3	68,5	8200	1100
185	15,8	4,5	3,4	72,5	9750	1160
240	19,0	4,5	3,6	78,0	11800	1250
TRIPOLAR RG7H1OR-12/20 kV						
25	5,9	5,5	2,6	54,5	3600	870
35	6,9	5,5	2,8	56,8	4100	910
50	8,1	5,5	3,0	59,0	4700	940
70	9,7	5,5	3,2	63,0	5700	1000
95	11,3	5,5	3,4	66,5	6800	1060
120	12,7	5,5	3,4	70,0	7800	1120
150	14,1	5,5	3,6	73,0	8900	1170
185	15,8	5,5	3,6	77,5	10500	1240
240	19,0	5,5	3,6	83,0	12500	1330
TRIPOLAR RG7H1OR-18/30 kV						
35	6,9	8,0	3,2	69,5	5800	1110
50	8,1	8,0	3,4	72,0	6400	1150
70	9,7	8,0	3,5	76,0	7600	1210
95	11,3	8,0	3,6	79,5	8700	1280
120	12,7	8,0	3,6	82,8	9800	1330
150	14,1	8,0	3,8	86,0	10900	1380
185	15,8	8,0	4,0	90,0	12600	1440
240	19,0	8,0	4,0	95,0	14700	1520

	GROUND LAYING (A) 1°Cm/W -20°C	LAYING IN AIR (A) A 30°C	Phase reactance at 50Hz (Ω/km)	Capacity at 50Hz (µF/km)	Ohmic resistance at 20°C (Ω/km)
TRIPOLAR RG7H1OR-8,7/15 kV					
3 x 16	100	98	0,139	0,16	1,150
3 x 25	145	144	0,129	0,18	0,727
3 x 35	173	175	0,123	0,19	0,524
3 x 50	205	210	0,117	0,21	0,387
3 x 70	250	260	0,110	0,24	0,268
3 x 95	297	315	0,105	0,26	0,193
3 x 120	338	360	0,101	0,29	0,153
3 x 150	377	407	0,098	0,31	0,124
3 x 185	430	467	0,095	0,33	0,0991
3 x 240	500	550	0,091	0,37	0,0754
TRIPOLAR RG7H1OR-12/20 kV					
3 x 25	148	143	0,137	0,16	0,727
3 x 35	175	177	0,129	0,17	0,524
3 x 50	206	208	0,123	0,18	0,387
3 x 70	252	260	0,115	0,21	0,268
3 x 95	300	315	0,110	0,23	0,193
3 x 120	342	362	0,106	0,25	0,153
3 x 150	380	407	0,103	0,26	0,124
3 x 185	430	468	0,099	0,29	0,0991
3 x 240	500	550	0,095	0,32	0,0754
TRIPOLAR RG7H1OR-18/30 kV					
3 x 35	175	178	0,144	0,14	0,524
3 x 50	205	210	0,136	0,14	0,387
3 x 70	250	265	0,127	0,16	0,268
3 x 95	297	315	0,121	0,18	0,193
3 x 120	340	360	0,117	0,19	0,153
3 x 150	378	405	0,113	0,20	0,124
3 x 185	427	465	0,109	0,22	0,0991
3 x 240	495	545	0,105	0,24	0,0754

FLOW OF CURRENT:
CORRECTION FACTORS
The current ratings are calculated assuming the installation conditions specified in the relevant tables.

K correction for different thermal soil resistance.

Resistivity (°CM/W)	1,0	1,5	2,0
K	1,00	0,87	0,77

TESTS AFTER INSTALLATION
Before the commissioning of the plant is recommended to perform an inspection and voltage test in order to ensure that cables and elevators are not damaged during installation. The values and rules for such tests are described in standard national IEC 11-17.

K correction for different thermal environment resistance.

Environment temperature °C	15	2	25	30	35	40	45	50
K for burried cables	1,04	1,00	0,96	0,92	0,88	0,84	0,80	-
K for aerial cables	-	1,09	1,05	1,00	0,95	0,90	0,85	0,79

Insulation voltage U0 underground	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Test after installation in c.c. kVx15 min.	1,09	1,09	1,09	1,09	1,09	1,09	1,09	1,09