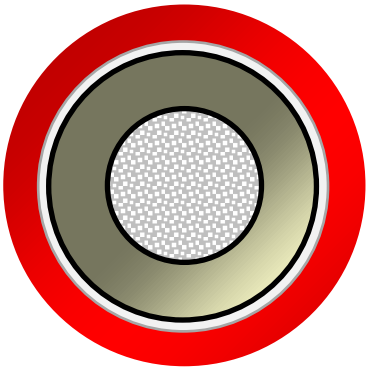
ARE4H5E 12/20 kV

SCHERMATO/SHIELDED

CONFORME CPR REG.305/2011/UE
CPR COMPLIANT REG.305/2011/UE



VISTA IN SEZIONE
SECTION VIEW

CARATTERISTICHE TECNICHE
TECHNICAL FEATURES

CONDUTTORE CONDUCTOR	Conduttore in alluminio compatto a trefoli tondi, classe 2 secondo IEC 60228 Round stranded compacted aluminium conductor, class 2 acc. to IEC 60228
SCHERMATURA SHIELD	Schermo estruso sul conduttore Extruded screen over conductor
ISOLAMENTO INSULATION	Polietilene Reticolato XLPE Cross-Linked Polyethylene XLPE
SCHERMATURA SHIELD	Schermo estruso sopra l'isolamento, rimuovibile Extruded screen over insulation, strippable
SEMICONDUTTORE SEMICONDUCTOR	Nastro semiconduttore impermeabile Semiconducting waterblocking tape
SCHERMATURA SHIELD	Schermo metallico di nastro laminato AL/PE, applicato longitudinalmente con sovrapposizione Metallic screen of laminated AL/PE tape, applied longitudinally with overlap
GUAINA ESTERNA OUTER SHEATH	Guaina esterna in PE estruso con schermo a nastro in AL/PE, colore rosso Extruded PE outer sheath bonded AL/PE tape screen, colour red
TENSIONE DI ESERCIZIO OPERATING VOLTAGE	12 / 20 (24) kV

NORMATIVE
NORMS

COMPORTAMENTO AL FUOCO FIRE PERFORMANCE	EN 50575 (Fca)
CONFORME CPR CPR COMPLIANT	Fca

NORMATIVE DI RIFERIMENTO | STANDARD REFERENCE
EN50575 | IEC 60228 | GSC001 rev.05 (ENEL) | IEC 60502-2 PQA | HD 620 PQA

MARCATURA
MARKING

ARE4H5E 12/20 kV 1x"S" Fca O.F./Anno Metrica
ARE4H5E 12/20 kV 1x"S" Fca O.F./Year Metric marking

USO
USE

Il cavo è adatto per l'installazione a interramento diretto, a condizione che vengano seguite le buone pratiche di installazione, che il terreno circostante sia il più appropriato (non può causare danni al cavo) e che non sia soggetto a sforzi significativi di schiacciamento, poiché il cavo non ha un'armatura per la protezione meccanica.
The cable is suitable for direct burial installation provided that good installation practices are followed, the surrounding terrain is the most appropriate (cannot cause damage to the cable) and isn't subject to significant crushing efforts, since the cable do not have armour for mechanical protection.

Dimensional characteristics	70mm²	95mm²	120mm²	150mm²
Nominal diameter of conductor (mm)	9,6	11,2	12,5	14,0
Minimum/average conductor screen thickness (mm)	0,3/0,5	0,3/0,5	0,3/0,5	0,3/0,5
Minimum/nominal insulation thickness (mm)	4,31/4,9	4,31/4,9	4,31/4,9	4,31/4,9
Nominal diameter over insulation (mm)	20,2	21,8	23,1	24,6
Minimum/average conductor screen thickness (mm)	0,3/0,5	0,3/0,5	0,3/0,5	0,3/0,5
Nominal AL/PE tape thickness (mm)	0,3	0,3	0,3	0,3
Nominal outer sheath thickness (mm)	2,75	2,75	2,75	2,75
Approximated outer diameter of cable (mm)	28	30	31	33
Approximated weight of cable (kg/km)	730	850	940	1070

Electrical characteristics	70mm²	95mm²	120mm²	150mm²
Maximum DC conductor resistance, 20°C (Ω/km)	0,443	0,320	0,253	0,206
AC conductor resistance, 90°C (Ω/km)	0,568	0,411	0,325	0,265
Maximum DC metallic screen resistance, 20°C (Ω/km)	1,448	1,344	1,271	1,186
Inductance – trefoil formation (mH/km)	0,41	0,40	0,37	0,36
Reactance at 50Hz – trefoil formation (Ω/km)	0,13	0,12	0,12	0,11
Capacitance (µF/km)	0,23	0,25	0,27	0,30
Rated current in normal operation, cables installed in open air, ambient temperature = 30°C, trefoil formation (A) – IEC conditions	230	280	324	368
Rated current in normal operation, cables installed in open air, ambient temperature = 40°C, trefoil formation (A)	210	255	295	335
Rated current in normal operation, cables directly buried, soil temperature = 20°C, depth of burial = 0,8m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A) – IEC conditions	180	217	249	275
Rated current in normal operation, cables directly buried, soil temperature = 25°C, depth of burial = 1,0m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A)	170	205	235	260
Rated current in normal operation, cables buried in duct, soil temperature = 20°C, depth of burial = 0,8m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A) – IEC conditions	169	201	228	259
Rated current in normal operation, cables buried in duct, soil temperature = 25°C, depth of burial = 1,0m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A)	160	190	215	245
Maximum short-circuit current, conductor, 90°C-250°C (kA) During 0,5 seconds During 1 second	 9,4 6,6	 12,7 9,0	 16,0 11,3	 20,0 14,2
Maximum short-circuit current, screen, 75°C-150°C (kA) During 0,5 seconds During 1 second	 3,6 2,8	 3,8 3,0	 4,0 3,2	 4,2 3,3

Mechanical and thermal characteristics	70mm²	95mm²	120mm²	150mm²
Minimum bending radius – during installation (mm) [1]	20 x D	20 x D	20 x D	20 x D
Minimum bending radius – after installation (mm) [1]	15 x D	15 x D	15 x D	15 x D
Maximum pulling effort – conductor (daN)	210	285	360	450
Maximum conductor temperature (°C) In normal operation In short-circuit	 90 250	 90 250	 90 250	 90 250

Dimensional characteristics	185mm²	240mm²	300mm²	400mm²
Nominal diameter of conductor (mm)	15,7	17,9	20,0	22,8
Minimum/average conductor screen thickness (mm)	0,3/0,5	0,3/0,5	0,3/0,5	0,3/0,5
Minimum/nominal insulation thickness (mm)	4,31/4,9	4,31/4,9	4,31/4,9	4,31/4,9
Nominal diameter over insulation (mm)	26,3	28,5	30,6	33,4
Minimum/average conductor screen thickness (mm)	0,3/0,5	0,3/0,5	0,3/0,5	0,3/0,5
Nominal AL/PE tape thickness (mm)	0,3	0,3	0,3	0,3
Nominal outer sheath thickness (mm)	2,75	3,0	3,0	3,0
Approximated outer diameter of cable (mm)	35	37	39	42
Approximated weight of cable (kg/km)	1220	1440	1670	1990

Electrical characteristics	185mm²	240mm²	300mm²	400mm²
Maximum DC conductor resistance, 20°C (Ω/km)	0,164	0,125	0,100	0,0778
AC conductor resistance, 90°C (Ω/km)	0,211	0,161	0,130	0,102
Maximum DC metallic screen resistance, 20°C (Ω/km)	1,120	1,008	0,955	0,877
Inductance – trefoil formation (mH/km)	0,35	0,33	0,32	0,31
Reactance at 50Hz – trefoil formation (Ω/km)	0,11	0,11	0,10	0,10
Capacitance (µF/km)	0,32	0,36	0,39	0,44
Rated current in normal operation, cables installed in open air, ambient temperature = 30°C, trefoil formation (A) – IEC conditions	423	502	577	673
Rated current in normal operation, cables installed in open air, ambient temperature = 40°C, trefoil formation (A)	385	455	525	610
Rated current in normal operation, cables directly buried, soil temperature = 20°C, depth of burial = 0,8m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A) – IEC conditions	313	369	417	476
Rated current in normal operation, cables directly buried, soil temperature = 25°C, depth of burial = 1,0m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A)	295	345	390	445
Rated current in normal operation, cables buried in duct, soil temperature = 20°C, depth of burial = 0,8m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A) – IEC conditions	297	342	390	444
Rated current in normal operation, cables buried in duct, soil temperature = 25°C, depth of burial = 1,0m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A)	280	320	365	415
Maximum short-circuit current, conductor, 90°C-250°C (kA) During 0,5 seconds During 1 second	 24,7 17,5	 32,1 22,7	 40,1 28,3	 53,4 37,8
Maximum short-circuit current, screen, 75°C-150°C (kA) During 0,5 seconds During 1 second	 4,4 3,5	 4,9 3,8	 5,1 4,0	 5,5 4,3

Mechanical and thermal characteristics	185mm²	240mm²	300mm²	400mm²
Minimum bending radius – during installation (mm) [2]	20 x D	20 x D	20 x D	20 x D
Minimum bending radius – after installation (mm) [2]	15 x D	15 x D	15 x D	15 x D
Maximum pulling effort – conductor (daN)	555	720	900	1200
Maximum conductor temperature (°C) In normal operation In short-circuit	 90 250	 90 250	 90 250	 90 250

Dimensional characteristics	500mm²	630mm²
Nominal diameter of conductor (mm)	25,7	29,1
Minimum/average conductor screen thickness (mm)	0,3/0,5	0,3/0,5
Minimum/nominal insulation thickness (mm)	4,31/4,9	4,31/4,9
Nominal diameter over insulation (mm)	36,6	40,0
Minimum/average conductor screen thickness (mm)	0,3/0,5	0,3/0,5
Nominal AL/PE tape thickness (mm)	0,3	0,3
Nominal outer sheath thickness (mm)	3,0	3,0
Approximated outer diameter of cable (mm)	45	49
Approximated weight of cable (kg/km)	2365	2820

Electrical characteristics	500mm²	630mm²
Maximum DC conductor resistance, 20°C (Ω/km)	0,0605	0,0469
AC conductor resistance, 90°C (Ω/km)	0,080	0,064
Maximum DC metallic screen resistance, 20°C (Ω/km)	0,796	0,749
Inductance – trefoil formation (mH/km)	0,30	0,29
Reactance at 50Hz – trefoil formation (Ω/km)	0,10	0,09
Capacitance (µF/km)	0,48	0,53
Rated current in normal operation, cables installed in open air, ambient temperature = 30°C, trefoil formation (A) – IEC conditions	786	913
Rated current in normal operation, cables installed in open air, ambient temperature = 40°C, trefoil formation (A)	715	830
Rated current in normal operation, cables directly buried, soil temperature = 20°C, depth of burial = 0,8m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A) – IEC conditions	540	615
Rated current in normal operation, cables directly buried, soil temperature = 25°C, depth of burial = 1,0m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A)	505	575
Rated current in normal operation, cables buried in duct, soil temperature = 20°C, depth of burial = 0,8m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A) – IEC conditions	514	583
Rated current in normal operation, cables buried in duct, soil temperature = 25°C, depth of burial = 1,0m, thermal resistivity of soil = 1,5K.m/W, trefoil formation (A)	480	545
Maximum short-circuit current, conductor, 90°C-250°C (kA) During 0,5 seconds During 1 second	 66,8 47,2	 84,2 59,5
Maximum short-circuit current, screen, 75°C-150°C (kA) During 0,5 seconds During 1 second	 5,9 4,6	 6,3 5,0

Mechanical and thermal characteristics	500mm²	630mm²
Minimum bending radius – during installation (mm) [3]	20 x D	20 x D
Minimum bending radius – after installation (mm) [2]	15 x D	15 x D
Maximum pulling effort – conductor (daN)	1500	1890
Maximum conductor temperature (°C) In normal operation In short-circuit	 90 250	 90 250