

WIRES & WIRING CABLES



RIYADH CABLES GROUP OF COMPANIES

INTRODUCTION

Wires, Cables and cords rated 300/500 V, 300/500 V and 450/750 V used forelectric power, lighting, internal wiring, electric power, domestic, office and similar enviroments as specified in IEC 60227. BS 6004 and BS EN 50525-3-41.

In addition, RCGC manufactures numerous varieties of cables and conductors to both National and International Standards to meet specific customer needs and specifications.

As a leading manufacturer of wire and cables known as WIRE PEOPLE in the Middle East, we have devoted ourselves to the development of National and International key industries by supplying quality products on time with the best service.

Quality Assured

Effective Quality Management system is maintaind at RCGC as a key to the long term operational reliability of its cable. Stringent Quality Assurance measures are implemented in all stages of production from raw material tocable performance by a central Quality Assurance Department. Under the professional control many divisions of the joint venture have demonstrated competence by obtaining ISO - 9001 (TUV certified) and QMS approval from B.A.S.E.C. (British Approvals Service for Cables). At RCGC all Quality Assurance procedures and systems are regulary audited against International Standards.

MORE INFORMATION FOR LSHF WIRES

Fire is a complex and emotive subject, the consequences of fire can be catastrophic.

The nature of organic material used in the manufacture of wires and possible installation conditions in areas of the fire risk can lead to a situation where wires may contribute to the spread of fire, emission of smoke and release of combustion products injurious to equipment and human health.

In power stations, hospitals, theatres, hotels and other large public buildings, the loss of visibility caused by smoke evolved from burning cable materials can cause panic and create serious problems when evacuating personnel. Location of the fire source and fire fighting are also greatly hampered by smoke. Additionally the presence of corrosive gases in the smoke result in damage and failure of sensitive electrical equipment and may initiate long term deterioration of structures, as well as being injurious to the health of personnel even after short exposure.

Awareness of this situation has led to the development of new wire technologies and introduction by major cable users of wire types with low emission of smoke, corrosive and toxic fumes and reduced flame propagation properties.

In considering cable systems with improved fire performance characteristics it is useful to first consider the various aspects of the effect of fire on a cable:

- Propagation of fire along cable runs
- Evolution of smoke leading to obstruction of exits
- Evolution of acid gas leading to corrosion of equipment
- Evolution of toxic fumes leading to personal injury

LSHF wires use special formulation based on non-halogenated polymers in order to restrict the generation of smoke as much as possible. Materials are carefully selected and the compounds carefully designed in order to ensure the best performance of the external sheaths, which are directly exposed to fire.

LSHF wires manufactured by Riyadh Cables group have been designed to offer improved performance in areas where smoke and fume emission in the event of a fire would cause particular problems. Compounds used in LSHF wires do not contain halogen hence, do not emit halogenated acids when burnt which help in minimizing the total cost of the damage caused by fire and generate little smoke when burned. Furthermore, the rate at which this low level of smoke is released, is very much slower than that of PVC or similar halogenated polymers.

LSHF wires manufactured by Riyadh Cables have controlled limits on smoke evolution, when assessed by burning samples of wires in a 3 meter cube smoke chamber as per IEC 61034. Generally these wires combine the properties of low corrosive gas emission and low toxic gas emission as they are essentially halogen free when assessed by IEC 60754-1 and IEC 60754-2.

MORE INFORMATION FOR LSHF WIRES

VERTICAL FLAME TEST FOR SINGLE CABLES (IEC 60332-1-2)

PURPOSE

The purpose of the test is to determine the resistance to flame propagation for single vertical cables.

This test is not suitable for small wires with solid conductor having a diameter less than 0.8 mm or stranded conductors less than 0.5 mm² because the conductor melts before the test is completed. (See IEC 60332-1-2)

EQUIPMENT

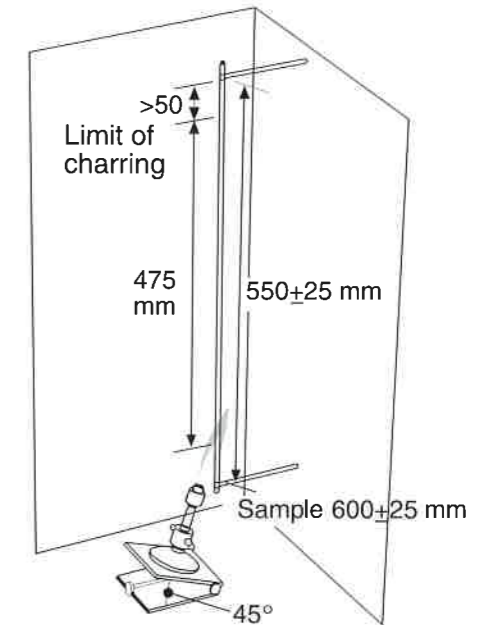
1. Enclosure
2. Burner
3. Wedge (45°)
4. A verticle adjustable jig
5. Matches
6. Ruler
7. Stop-watch

This test is to be conducted in a 3-sided enclosure (300mm wide, 450 mm deep and 1200 mm high) with open front and closed top and bottom. A 1 kW flame produced by a propane burner with adjustable air and gas flow is used.

(This design of the burner is described in IEC 60695-11-2)

CALIBRATION

The burner is calibrated by adjusting the flame to about 180 mm and the inner blue cone to 55 mm. The temperature increase is measured 95 mm above the top of the burner by using a thermocouple in a copper slug. The time for the temperature from 100°C to 700°C should be 45 s.



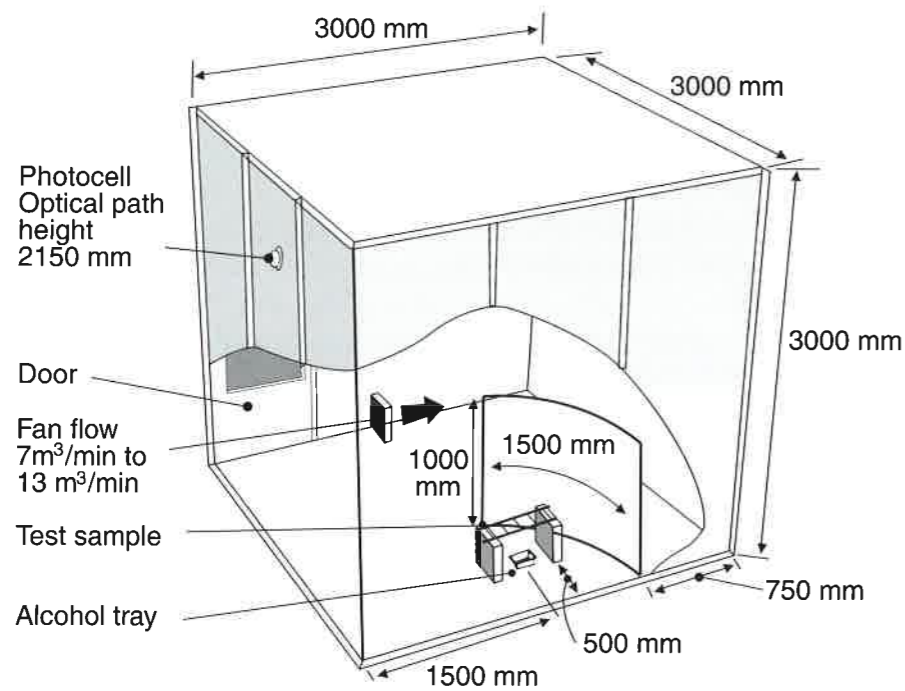
MORE INFORMATION FOR LSHF WIRES SMOKE DENSITY 3 M TEST CUBE (IEC 61034)

PURPOSE

The measurement of smoke density is an important aspect in the evaluation of the burning performance of electric cables as it is related to the evacuation of persons and accessibility for fire-fighting. The standard describe measurements of smoke emission when electric wires are burned horizontally. The light transmittance for flaming and smouldering conditions can be used when comparing different cables.

EQUIPMENT

1. Cube enclosure
2. Photometric system
3. Fire source
4. Smoke mixer



MORE INFORMATION FOR LSHF WIRES ACIDITY (pH) AND CONDUCTIVITY (IEC 60754-2)

TEST ON GASES EVOLVED DURING COMBUSTION OF ELECTRIC CABLES

PURPOSE

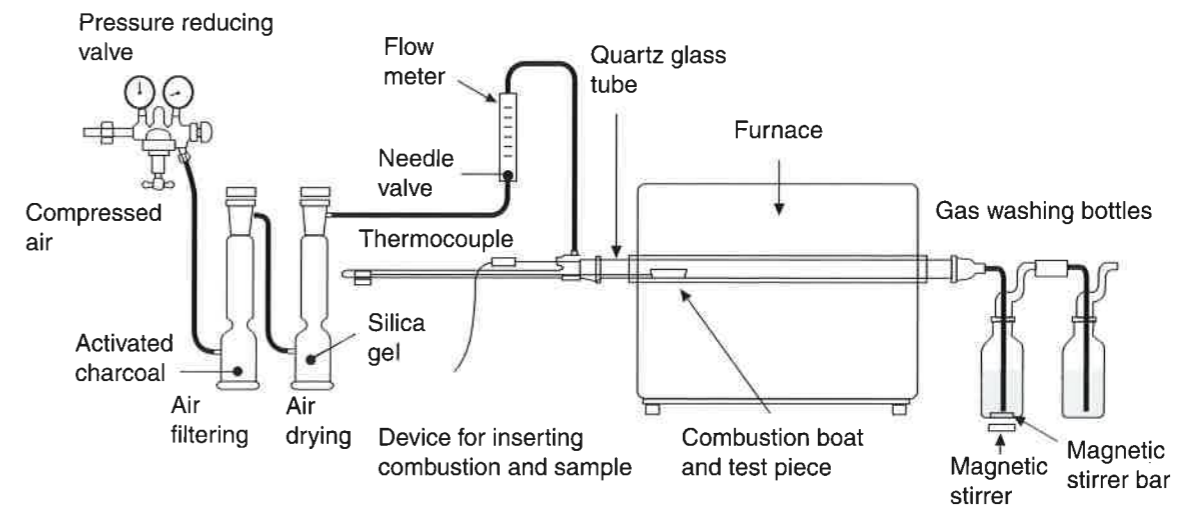
The purpose of this test is to determine the pH and conductivity of gases evolved during the combustion of materials taken from electric wires as a function of temperature.

PRINCIPLE OF OPERATION

A predetermined quantity of the test material is burned in a tube furnace. The evolved gases are trapped by bubbling through bottles filled with distilled or demineralized water. The acidity is measured by determination of pH value. The conductivity of the solution is also measured.

EQUIPMENT

1. Test apparatus
2. pH meter
3. Conductivity meter
4. Analytical balance
5. Computer containing a measuring program
5. Deionized water



450 - 750 VOLTS - Copper conductor PVC insulated SSA 1320, IEC 60227
HO 7V - U With Solid Conductor - TYPE 60227 IEC 01



450 - 750 VOLTS - Copper conductor PVC insulated SSA 1320, IEC 60227
HO 7V - R With Stranded Conductor - TYPE 60227 IEC 01



For internal wiring of equipment rated voltage up to 1000 V AC and up to 750 V DC to earth.

Catalogue Number	Nominal Cross Section	Conductor		Insulation Thickness	Overall Diameter	Weight of Finished Cable Approx.	Maximum DC Resistance at 20 °C	Standard Packing Length
		Number of Wires in Conductor	Diameter of Conductor Approx.					
	mm ²	No	mm	mm	mm	Kg / Km	Ohm / Km	M ± 5%
OC 010004xx	1 x 1.5	1	1.38	0.7	3.2	21	12.1	100 C
OC 010005xx	1 x 2.5	1	1.78	0.8	3.9	34	7.41	100 C
OC 010006xx	1 x 4	1	2.25	0.8	4.4	50	4.61	100 C
OC 010007xx	1 x 6	1	2.76	0.8	5.0	70	3.08	100 C
OC 010008xx	1 x 10	1	3.57	1.0	6.4	115	1.83	100 C

Color: green / yellow, blue, black, green, red, yellow, brown, grey, orange, white,
Code: 01 02 03 04 05 06 07 08 09 10

For required colour replace the last two digits - xx, by color code.

For internal wiring of equipment rated voltage up to 1000 V AC and up to 750 V DC to earth.

Catalogue Number	Nominal Cross Section	Conductor		Insulation Thickness	Overall Diameter	Weight of Finished Cable Approx.	Maximum DC Resistance at 20 °C	Standard Packing Length
		Number of Wires in Conductor	Diameter of Conductor Approx.					
	mm ²	No	mm	mm	mm	Kg / Km	Ohm / Km	M ± 5%
OC 010104xx	1 x 1.5	7	1.50	0.7	3.3	22	12.1	100 C
OC 010105xx	1 x 2.5	7	2.01	0.8	4.0	35	7.41	100 C
OC 010106xx	1 x 4	7	2.55	0.8	4.6	52	4.61	100 C
OC 010107xx	1 x 6	7	3.12	0.8	5.2	71	3.08	100 C
OC 010108xx	1 x 10	7	4.05	1.0	6.7	116	1.83	100 C
OC 010109xx	1 x 16	7	5.10	1.0	7.8	185	1.15	100 C
OC 010110xx	1 x 25	7	6.42	1.2	9.7	290	0.727	100 C
OC 010111xx	1 x 35	7	7.65	1.2	10.9	390	0.524	100 C
000101xx12	1 x 50	19	8.90	1.4	12.8	525	0.387	3000 D
000101xx13	1 x 70	19	10.70	1.4	14.6	735	0.268	3000 D
000101xx14	1 x 95	19	12.60	1.6	17.1	1010	0.193	3000 D
000101xx15	1 x 120	37	14.21	1.6	18.8	1260	0.153	2000 D
000101xx16	1 x 150	37	15.75	1.8	20.9	1540	0.124	2000 D
000101xx17	1 x 185	37	17.64	2.0	23.3	1940	0.0991	2000 D
000101xx18	1 x 240	61	20.25	2.2	26.6	2550	0.0754	1000 D
000101xx19	1 x 300	61	22.68	2.4	29.6	3180	0.0601	1000 D
000101xx20	1 x 400	61	25.65	2.6	33.2	4050	0.0470	500 D
000101xx21	1 x 500	61	28.80	2.8	37.0	5050	0.0366	500 D
000101xx22	1 x 630	127/91	32.76	2.8	41.0	6050	0.0283	500 D

Color: green / yellow, blue, black, green, red, yellow, brown, grey, orange, white,
Code: 01 02 03 04 05 06 07 08 09 10

For required colour replace the last two digits - xx, by color code.

450 - 750 VOLTS - Copper conductor PVC insulated SSA 1320, IEC 60227
HO 7V - K With Flexible Conductor - TYPE 60227 IEC 02



For internal wiring of equipment rated voltage up to 1000 V AC and up to 750 V DC to earth.

Catalogue Number	Nominal Cross Section	Conductor		Insulation Thickness	Overall Diameter Approx.	Weight of Finished Cable Approx.	Max. DC Resistance at 20 °C	Standard Packing Length
		Approx No & Nom. strand Diameter	Diameter of Conductor Approx.					
	mm ²	No x mm	mm	mm	mm	Kg / Km	Ohm / Km	M ± 5%
OC 010504xx	1 x 1.5	27 x 0.25	1.8	0.7	3.4	23	13.3	100 C
OC 010505xx	1 x 2.5	46 x 0.25	2.4	0.8	4.1	35	7.98	100 C
OC 010506xx	1 x 4	51 x 0.30	3.0	0.8	4.8	51	4.95	100 C
OC 010507xx	1 x 6	77 x 0.30	3.9	0.8	5.3	71	3.30	100 C
OC 010508xx	1 x 10	74 x 0.40	5.1	1.0	6.8	125	1.91	100 C
OC 010509xx	1 x 16	118 x 0.40	6.3	1.0	8.1	195	1.21	100 C
OC 010510xx	1 x 25	182 x 0.40	7.8	1.2	9.2	300	0.780	100 C
OC 010511xx	1 x 35	257 x 0.40	9.2	1.2	10.5	410	0.554	100 C
000105xx12	1 x 50	371 x 0.40	11.0	1.4	13.9	585	0.386	1000 D
000105xx13	1 x 70	336 x 0.50	13.1	1.4	16.0	810	0.272	1000 D
000105xx14	1 x 95	444 x 0.50	15.1	1.6	18.2	1065	0.206	1000 D
000105xx15	1 x 120	568 x 0.50	17.0	1.6	20.2	1335	0.161	1000 D
000105xx16	1 x 150	708 x 0.50	19.0	1.8	22.5	1600	0.129	1000 D
000105xx17	1 x 185	864 x 0.50	21.0	2.0	24.9	2000	0.106	1000 D
000105xx18	1 x 240	1134x0.50	24.0	2.2	28.4	2500	0.0801	1000 D

Color: green / yellow, blue, black, green, red, yellow, brown, grey, orange, white,
Code: 01 02 03 04 05 06 07 08 09 10

For required colour replace the last two digits - xx, by color code.

300 - 500 VOLTS - Copper conductor PVC insulated and Sheathed
IEC 60227(IEC 10)



Catalogue Number	Nominal Cross Section	Number of Wires in Conductor	Diameter of Conductor Approx.	Insulation Thickness	Sheath Thickness	Overall Diameter	Weight of Finished Cable Approx.	Max. DC Resistance at 20 °C	Standard Packing Length
	mm ²	No	mm	mm	mm	mm	Kg/Km	Ohm/Km	M ± 5%
OB 01002408	2 x 1.5	1	1.38	0.7	1.2	10.0	120	12.1	100 C
OB 01002508	2 x 2.5	1	1.78	0.8	1.2	11.5	165	7.41	100 C
OB 01002608	2 x 4	1	2.25	0.8	1.2	12.5	215	4.61	100 C
OB 01002708	2 x 6	1	2.76	0.8	1.2	13.5	270	3.08	100 C
OB 01002808	2 x 10	1	3.57	1.0	1.4	16.5	440	1.83	1000/2000
OB 01003408	3 x 1.5	1	1.38	0.7	1.2	10.5	140	12.1	100 C
OB 01003508	3 x 2.5	1	1.78	0.8	1.2	12.0	195	7.41	100 C
OB 01003608	3 x 4	1	2.25	0.8	1.2	13.0	250	4.61	100 C
OB 01003708	3 x 6	1	2.76	0.8	1.4	14.5	345	3.08	100 C
OB 01003808	3 x 10	1	3.57	1.0	1.4	17.5	540	1.83	1000/2000
OB 01004408	4 x 1.5	1	1.38	0.7	1.2	11.5	165	12.1	100 C
OB 01004508	4 x 2.5	1	1.78	0.8	1.2	13.0	235	7.41	100 C
OB 01004608	4 x 4	1	2.25	0.8	1.4	14.5	325	4.61	100 C
OB 01004708	4 x 6	1	2.76	0.8	1.4	16.0	430	3.08	1000/2000
OB 01004808	4 x 10	1	3.57	1.0	1.4	19.0	665	1.83	1000/2000
OB 01005408	5 x 1.5	1	1.38	0.7	1.2	12.0	195	12.1	100 C
OB 01005508	5 x 2.5	1	1.78	0.8	1.2	14.0	285	7.41	100 C
OB 01005608	5 x 4	1	2.25	0.8	1.4	16.0	405	4.61	100 C
OB 01005708	5 x 6	1	2.78	0.8	1.4	17.5	530	3.08	1000/2000
OB 01005808	5 x 10	1	3.57	1.0	1.4	21.0	810	1.83	1000/2000

Color code:

2 cores : Red, Black
3 cores : Red, Yellow and Blue
4 cores : Red, Yellow, Blue and Black
5 cores : Red, Yellow, Blue, Black and Green

2 cores : light Blue, Brown
3 cores : light Blue, Black, Brown
4 cores : light Blue, Black, Brown, Black
5 cores : light Blue, Black, Brown, Brown, Black

For Green / Yellow Core - Replace 5th digits by 3.

For green / yellow Core - add letter "J" at the end of item code.

outer sheath Gray.

300 - 500 VOLTS - Copper conductor PVC insulated and Sheathed
IEC 60227 (IEC 10)



Catalogue Number	Nominal Cross Section	Number of Wires in Conductor	Diameter of Conductor Approx.	Insulation Thickness	Sheath Thickness	Overall Diameter	Weight of Finished Cable Approx.	Max. DC Resistance at 20 C	Standard Packing Length
	mm ²	No	mm	mm	mm	mm	Kg/Km	Ohm/Km	M ± 5%
OB 01012408	2 x 1.5	7	1.50	0.7	1.2	10.5	125	12.1	100 C
OB 01012508	2 x 2.5	7	2.01	0.8	1.2	12.0	170	7.41	100 C
OB 01012608	2 x 4	7	2.55	0.8	1.2	13.0	220	4.61	100 C
OB 01012708	2 x 6	7	3.12	0.8	1.2	14.0	280	3.08	100 C
OB 01012808	2 x 10	7	4.05	1.0	1.4	17.5	470	1.83	1000/2000
OB 01012908	2 x 16	7	5.10	1.0	1.4	20.0	650	1.15	1000/2000
OB 01012108	2 x 25	7	6.42	1.2	1.4	24.0	980	0.727	1000
OB 01012118	2 x 35	7	7.65	1.2	1.6	27.5	1300	0.524	1000
OB 01013408	3 x 1.5	7	1.50	0.7	1.2	11.0	145	12.1	100 C
OB 01013508	3 x 2.5	7	2.01	0.8	1.2	12.5	200	7.41	100 C
OB 01013608	3 x 4	7	2.55	0.8	1.2	13.5	270	4.61	100 C
OB 01013708	3 x 6	7	3.12	0.8	1.4	15.5	360	3.08	100 C
OB 01013808	3 x 10	7	4.05	1.0	1.4	19.0	570	1.83	1000/2000
OB 01013908	3 x 16	7	5.10	1.0	1.4	21.5	830	1.15	1000/2000
OB 01013108	3 x 25	7	6.42	1.2	1.6	26.0	1255	0.727	1000
OB 01013118	3 x 35	7	7.65	1.2	1.6	29.0	1640	0.524	1000
OB 01014408	4 x 1.5	7	1.50	0.7	1.2	12.0	165	12.1	100 C
OB 01014508	4 x 2.5	7	2.01	0.8	1.2	13.5	240	7.41	100 C
OB 01014608	4 x 4	7	2.55	0.8	1.4	15.0	330	4.61	100 C
OB 01014708	4 x 6	7	3.12	0.8	1.4	17.0	460	3.08	1000/2000
OB 01014808	4 x 10	7	4.05	1.0	1.4	20.5	700	1.83	1000/2000
OB 01014908	4 x 16	7	5.10	1.0	1.4	23.5	1025	1.15	1000/2000
OB 01014108	4 x 25	7	6.42	1.2	1.6	28.5	1590	0.727	1000
OB 01014118	4 x 35	7	7.65	1.2	1.6	32.0	2040	0.524	1000
OB 01015408	5 x 1.5	7	1.50	0.7	1.2	12.0	200	12.1	100 C
OB 01015508	5 x 2.5	7	2.01	0.8	1.2	14.5	290	7.41	100 C
OB 01015608	5 x 4	7	2.55	0.8	1.4	17.0	410	4.61	100 C
OB 01015708	5 x 6	7	3.12	0.8	1.4	18.5	550	3.08	1000/2000
OB 01015808	5 x 10	7	4.05	1.0	1.4	22.0	850	1.83	1000/2000
OB 01015908	5 x 16	7	5.10	1.0	1.6	26.0	1250	1.15	1000/2000
OB 01015108	5 x 25	7	6.42	1.2	1.6	31.5	1860	0.727	1000
OB 01015118	5 x 35	7	7.65	1.2	1.6	35.0	2540	0.524	1000

Color code:
 2 cores : Red, Black
 3 cores : Red, Yellow and Blue
 4 cores : Red, Yellow, Blue and Black
 5 cores : Red, Yellow, Blue, Black and Green

2 cores : light Blue, Brown
 3 cores : light Blue, Black, Brown
 4 cores : light Blue, Black, Brown, Black
 5 cores : light Blue, Black, Brown, Brown, Black

For Green / Yellow Core - Replace 5th digits by 3.

For green / yellow Core - add letter "J" at the end of item code.

outer sheath Gray.

300 - 500 VOLTS - Flexible Copper conductor PVC insulated and Sheathed
HO5VV-F, IEC 60227 (IEC 53)



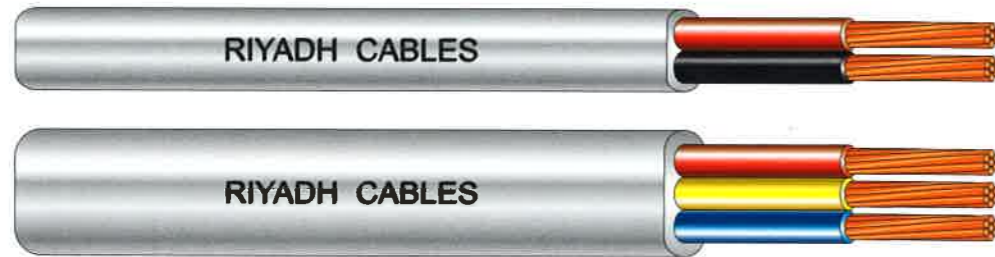
Catalogue Number	Nominal Cross Section Approx.	Number & dia of wires in Conductor	Diameter of Conductor Approx.	Insulation Thickness	Thickness of Sheath Approx.	Overall Diameter Approx	Weight of Finished Cable Approx.	Max DC Resistance at 20 C	Packing
	mm ²	no x mm	mm	mm	mm	mm	Kg/Km	Ohm/Km	M ± 5%
OB 01052210	2 x 0.75	22 x 0.20	1.3	0.6	0.8	7.2	56	26.0	100
OB 01052310	2 x 1	29 x 0.20	1.5	0.6	0.8	7.5	65	19.5	100
OB 01052410	2 x 1.5	27 x 0.25	1.8	0.7	0.8	8.6	80	13.3	100
OB 01052510	2 x 2.5	46 x 0.25	2.4	0.8	1.0	10.6	130	7.98	100
OB 01053210	3 x 0.75	22 x 0.20	1.3	0.6	0.8	7.6	65	26.0	100
OB 01053310	3 x 1	29 x 0.20	1.5	0.6	0.8	8.0	80	19.5	100
OB 01053410	3 x 1.5	27 x 0.25	1.8	0.7	0.9	9.4	100	13.3	100
OB 01053510	3 x 2.5	46 x 0.25	2.4	0.8	1.1	11.4	155	7.98	100
OB 01054210	4 x 0.75	22 x 0.20	1.3	0.6	0.8	8.3	80	26.0	100
OB 01054310	4 x 1	29 x 0.20	1.5	0.6	0.9	9.0	95	19.5	100
OB 01054410	4 x 1.5	27 x 0.25	1.8	0.7	1.0	10.5	130	13.3	100
OB 01054510	4 x 2.5	46 x 0.25	2.4	0.8	1.1	12.5	200	7.98	100
OB 01055210	5 x 0.75	22 x 0.20	1.3	0.6	0.9	9.3	105	26.0	100
OB 01055310	5 x 1	29 x 0.20	1.5	0.6	0.9	9.8	125	19.5	100
OB 01055410	5 x 1.5	27 x 0.25	1.8	0.7	1.1	11.6	160	13.3	100
OB 01055510	5 x 2.5	46 x 0.25	2.4	0.8	1.2	13.9	245	7.98	100

Color code:
 2 cores : blue, brown
 3 cores : blue, black, brown
 4 cores : blue, black, brown, black
 5 cores : blue, black, brown, brown, Black
 3 cores : green / yellow, blue, brown
 4 cores : green / yellow, blue, brown, black
 5 cores : green / yellow, blue, brown, black, grey

For Green / Yellow Core - add letter "J" at the end of item Code.

outer sheath White.

PVC insulated, PVC Sheathed Cables, Single core, Flat Twin and Three cores
 COPPER CONDUCTOR - STANDARD(S) : GENERALLY TO BS 6004 - 300/500 VOLTS



No. & Cross sectional area of conductor	No. of wires in conductor	Radial Thickness of insulation	Radial Thickness of sheath	Mean overall dia. or dimensions.		Max. DC Resistance at 20°C	Approx. Weight
				Lower Limit	Upper Limit		
mm ²	No	mm	mm	mm	mm	ohm/ Km	Kg / Km
2 x 1.0	1	0.6	0.9	3.9 x 7.2	4.8 x 8.7	18.1	53
2 x 1.5	1	0.7	0.9	4.4 x 8.1	5.3 x 9.7	12.1	71
2 x 2.5	1	0.8	1.0	5.1 x 9.6	6.2 x 11.7	7.41	106
2 x 4	7	0.8	1.0	5.7 x 10.8	6.9 x 13.1	4.61	150
2 x 6	7	0.8	1.1	6.4 x 12.4	7.8 x 15.0	3.08	200
2 x 10	7	1.0	1.2	7.9 x 15.6	9.5 x 18.9	1.83	320
2 x 16	7	1.0	1.3	8.9 x 18.1	10.8 x 21.9	1.15	460
3 x 1.0	1	0.6	0.9	3.9 x 9.4	4.8 x 11.4	18.1	76
3 x 1.5	1	0.7	0.9	4.4 x 10.7	5.3 x 12.9	12.1	106
3 x 2.5	1	0.8	1.0	5.1 x 12.6	6.2 x 13.5	15.3	160
3 x 4	7	0.8	1.1	5.9 x 14.8	7.1 x 17.9	4.61	230
3 x 6	7	0.8	1.1	6.4 x 16.8	7.8 x 20.2	3.08	300
3 x 10	7	1.0	1.2	7.9 x 21.3	9.5 x 25.7	1.83	475
3 x 16	7	1.0	1.3	8.9 x 24.6	10.8 x 29.7	1.15	690

Construction :

- Plain annealed copper conductor Class 1 & 2 as per IEC 60228.
- PVC Insulation.
 - PVC Sheath.
 - The sheath shall be closely fitting but shall not adhere to the cores and in the case of twin and three-core, the cores shall be laid parallel.

Core Identification :

Single : Brown or Blue, Single : Red or Black
 Twin : Brown, Blue Twin : Red, Black
 Three-core : Brown, Black (Centre core), Gray Three-core : Red, Yellow (centre core), Blue

Colour of sheath

Single : Gray, (other colour on request)
 Flat Twin and three core : Gray

450 - 750 VOLTS Copper Conductor LSHF insulated Wires to BSEN 50525-3-41
 HO7Z-U with Solid Conductor



For internal wiring of equipment rated voltage up to 1000 V AC and up to 750 V DC to earth.

Item Code	Nominal Cross Section	Conductor		Insulation Thickness	Overall Diameter	Weight of Finished Cable Approx.	Maximum DC Resistance at 20°C	Standard Packing Length
		Number of Wires in Conductor	Diameter of Conductor Approx.					
	mm ²	No.	mm	mm	mm	Kg / Km	Ohm / Km	Yards
OC 063004xx	1 x 1.5	1	1.38	0.7	3.0	20	12.1	100 C
OC 063005xx	1 x 2.5	1	1.78	0.8	3.5	30	7.41	100 C
OC 063006xx	1 x 4	1	2.25	0.8	4.0	50	4.61	100 C
OC 063007xx	1 x 6	1	2.76	0.8	5.0	65	3.08	100 C
OC 063008xx	1 x 10	1	3.57	1.0	6.0	110	1.83	100 C

Color Code : Green / Yellow, 01 Blue, 02 Black, 03 Green, 04 Red, 05 Yellow, 06 Brown, 07 Grey, 08 Orange, 09 White, 10

For required colour replace the last two digits - xx, by color code.

450 - 750 VOLTS Copper Conductor LSHF insulated Wires to BSEN 50525-3-41
HO7Z-R with Stranded Conductor



450 - 750 VOLTS Copper Conductor LSHF insulated Wires to BS EN 50525-3-41
HO7Z-K with Flexible Conductor



For internal wiring of equipment rated voltage up to 1000 V AC and up to 750 V DC to earth.

Item Code	Nominal Cross Section	Conductor		Insulation Thickness	Overall Diameter	Weight of Finished Cable Approx.	Maximum DC Resistance at 20°C	Standard Packing Length
		Number of Wires in Conductor	Diameter of Conductor Approx.					
	mm ²	No.	mm	mm	mm	Kg / Km	Ohm / Km	M ± 5%
OC 063104xx	1 x 1.5	7	1.50	0.7	3.0	20	12.1	100 C
OC 063105xx	1 x 2.5	7	12.0	0.8	3.7	35	7.41	100 C
OC 063106xx	1 x 4	7	2.6	0.8	4.2	50	4.61	100 C
OC 063107xx	1 x 6	7	3.1	0.8	4.8	70	3.08	100 C
OC 063108xx	1 x 10	7	4.0	1.0	6	115	1.83	100 C
OC 063109xx	1 x 16	7	5.0	1.0	7	170	1.15	100 C
OC 063110xx	1 x 25	7	6.3	1.2	8.7	265	0.727	100 C
OC 063111xx	1 x 35	7	7.4	1.2	10	360	0.524	100 C
000631xx12	1 x 50	19	8.8	1.4	11.6	485	0.387	3000 D
000631xx13	1 x 70	19	10.6	1.4	13.4	685	0.268	3000 D
000631xx14	1 x 95	19	12.4	1.6	15.6	950	0.193	3000 D
000631xx15	1 x 120	37	14.0	1.6	17.5	1175	0.153	2000 D
000631xx16	1 x 150	37	15.5	1.8	19.0	1450	0.124	2000 D
000631xx17	1 x 185	37	17.4	2.0	21.5	1825	0.0991	2000 D
000631xx18	1 x 240	61	20.0	2.2	25	2375	0.0754	1000 D
000631xx19	1 x 300	61	22.5	2.4	27.5	2980	0.0601	1000 D
000631xx20	1 x 400	61	25.5	2.6	31	3800	0.0470	500 D
000631xx21	1 x 500	61	28.5	2.8	35	4850	0.0366	500 D
000631xx22	1 x 630	91	32.8	2.8	39	6250	0.0283	500 D

Color : Green / Yellow, Blue, Black, Green, Red, Yellow, Brown, Grey, Orange, White,
Code : 01 02 03 04 05 06 07 08 09 10

For required colour replace the last two digits - xx, by color code.

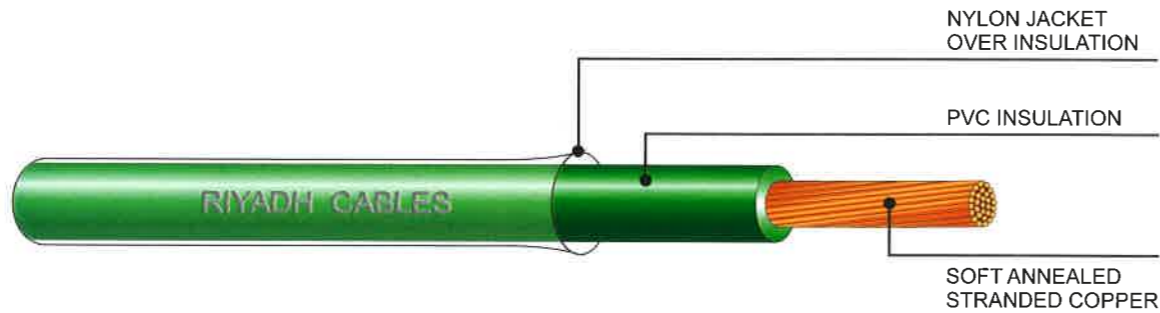
For internal wiring of equipment rated voltage up to 1000 V AC and up to 750 V DC to earth.

Item Code	Nominal Cross Section	Conductor		Insulation Thickness	Overall Diameter	Weight of Finished Cable Approx.	Maximum DC Resistance at 20°C	Standard Packing Length
		Approx No & Nom. strand Diameter.	Diameter of Conductor Approx.					
	mm ²	No. x mm	mm	mm	mm	Kg / Km	Ohm / Km	M ± 5%
OC 063504xx	1 x 1.5	27 x 0.25	1.55	0.7	3.0	20	13.3	100 C
OC 063505xx	1 x 2.5	46 x 0.25	2.0	0.8	3.6	30	7.98	100 C
OC 063506xx	1 x 4	51 x 0.30	2.5	0.8	4.1	45	4.95	100 C
OC 063507xx	1 x 6	77 x 0.30	3.0	0.8	4.7	65	3.30	100 C
OC 063508xx	1 x 10	74 x 0.40	4.0	1.0	6.1	105	1.91	100 C
OC 063509xx	1 x 16	118 x 0.40	5.1	1.0	7.1	165	1.21	100 C
OC 063510xx	1 x 25	182 x 0.40	6.4	1.2	9	250	0.780	100 C
OC 063511xx	1 x 35	257 x 0.40	7.5	1.2	10	350	0.554	100 C
000635xx12	1 x 50	371 x 0.40	9.0	1.4	12	500	0.386	1000 D
000635xx13	1 x 70	336 x 0.50	10.7	1.4	14	685	0.272	1000 D
000635xx14	1 x 95	444 x 0.50	12.3	1.6	16	900	0.206	1000 D
000635xx15	1 x 120	568 x 0.50	14.0	1.6	18	1150	0.161	1000 D
000635xx16	1 x 150	708 x 0.50	15.6	1.8	20	1425	0.129	1000 D
000635xx17	1 x 185	864 x 0.50	17.2	2.0	22	1725	0.106	1000 D
000635xx18	1 x 240	1134x0.50	20.0	2.2	25	2250	0.0801	1000 D
000635xx19	1 x 300	1414x0.50	22.0	2.4	27	2800	0.0641	1000 D

Color : Green / Yellow, Blue, Black, Green, Red, Yellow, Brown, Grey, Orange, White,
Code : 01 02 03 04 05 06 07 08 09 10

For required colour replace the last two digits - xx, by color code.

THHN - THWN WIRES



Construction :

- Conductor** - Soft drawn annealed copper conductors as per UL 83. Available in solid or stranded Type for sizes 14, 12 and 10 AWG. Sizes 8 AWG and larger available in stranded only.
- Insulation** - Extruded Polyvinyl Chloride (PVC) compound rated 75 and 90 deg. C.
- Jacket** - Tough, smooth, heat and light stabilized, low moisture absorption nylon conforming to UL requirements for type THHN or THWN. This jacket offers a great degree of protection to the PVC insulation from abrasion and cut through which may be encountered in pulling wire through conduits. Nylon has long been recognized as one of the toughest jacketing material used in wire and cable manufacturing.

FEATURES :

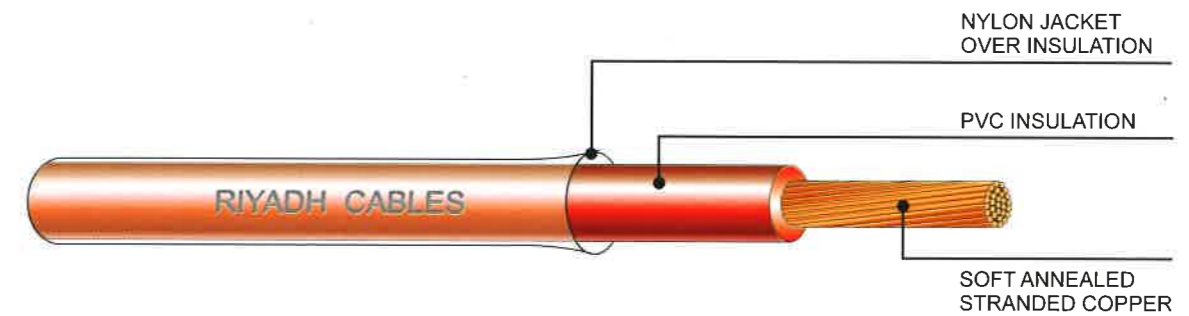
1. Meets UL 'VW - 1' Flame Test requirements.
2. Wet or dry locations - Rated 90 deg. C dry, 75 deg. C wet.
3. Resistant to gas and oil exposure - Rated gasoline and oil resistant II per UL.
4. Versatile - Can be used as follows:
 - a) THHN - 90 deg. C dry building wire
 - b) THWN - 75 deg. C wet and dry building wire
 - c) MTW - 90 deg. C machine tool wire
5. Pulls easier - tough, smooth nylon jacket over PVC insulation.
6. Small diameter - more conductors per conduit.

APPLICATIONS :

Type THHN - THWN building wires are intended for general purpose applications and may be installed in conduit, duct or other recognized raceways in wet or dry locations. Type THHN - THWN wires are designed to operate at conductor temperatures of 75 deg. C for 600 volts service in wet and dry locations. Applicable for both new work and rewiring installations where the smaller wire diameter permits additional circuits or larger conductors to be installed in the conduit without exceeding maximum fill limitations.

Type THHN - THWN wires are also recommended for industrial installation where exceptional resistance to heat and corrosive atmospheres are needed, such as chemical plants, oil refineries, paper mills, etc.

THHN - THWN - TFFN WIRES



MARKINGS :

The wire is surface marked as follows :

Riyadh Electric wire, Year of manufacture, Type THHN or THWN or TFFN Gasoline and Oil Resistant II, 600 Volts, VW - 1

Standards :

- UL 83-Underwriters Laboratories, Thermoplastic Insulated wires and Cables.
- UL 1063-Underwriters Laboratories, Machine Tool Wires and Cables.
- UL 1581-Underwriters Laboratories, Reference standard for Electrical wires, Cables and Flexible Cords.
- 600 Volts
- Copper Conductor PVC Insulated NYLON Jacketed THHN /THWN Wires UL83, 1581

AWG	Equiv. mm ²	CONDUCTOR		Insulation Thickness mm (Ave.)	Nylon Jacket Thickness mm (Min.)	Approx. Overall Diameter mm	Approx. Weight of Cond. Kg/Km	Standard DC Resistance at 20°C Ohm/Km	packing length M (± 5%)
		Stranding No x mm (Nom.)	Diameter mm (Nom.)						
18*	0.82	16 x 0.254	1.19	0.38	0.10	2.3	12	18.23	152 C
16*	1.31	19 x 0.296	1.48	0.38	0.10	2.5	17	13.42	152 C
14	2.08	19 x 0.373	1.86	0.38	0.10	2.9	25	8.62	152 C
12	3.31	19 x 0.47	2.35	0.38	0.10	3.4	37	5.43	152 C
10	5.26	19 x 0.594	2.97	0.51	0.10	4.3	59	3.409	152 C
8	8.37	19 x 0.749	3.75	0.76	0.13	5.6	96	2.144	152 C
6	13.30	19 x 0.945	4.72	0.76	0.13	6.6	146	1.348	152 C
4	21.15	19 x 1.19	5.95	1.02	0.15	8.4	233	0.8481	1000 C
2	33.63	19 x 1.50	7.50	1.02	0.15	9.9	356	0.5335	1000 C
1/0	53.48	37 x 1.36	9.52	1.27	0.18	12.5	567	0.3354	1000 C
2/0	67.43	37 x 1.52	10.64	1.27	0.18	13.6	697	0.266	1000 C

* Listed as TFFN

Colour: Black, White, Red, Blue, Green, Yellow, Orange, Brown, etc.
Cutting Length: 152 M (500 FT) in Coils 1000 M (3280 FT) in Drums

THHN - THWN WIRES

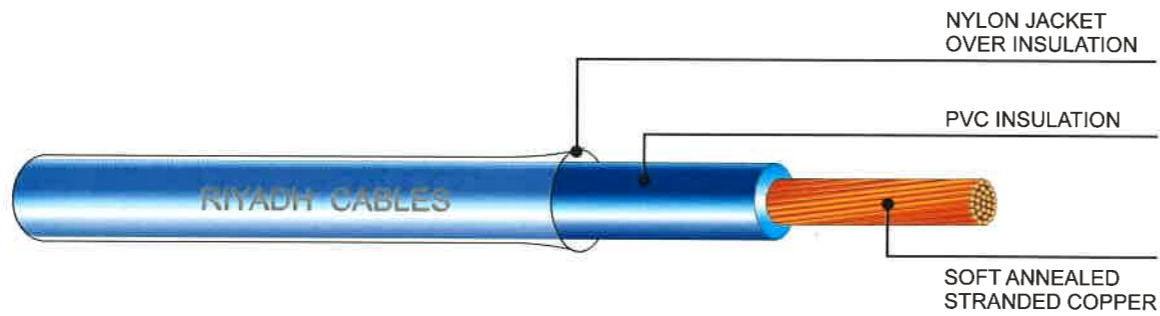


TABLE 1

Current carrying capacities of THWN and THHN insulated Copper Conductors rated 600 V not more than three conductors in raceway or cable or earth (Direct Buried) based on ambient temp. of 30 deg. C

Size AWG	THWN AMPS	THHN AMPS
18		14
16		18
14	20	25
12	25	30
10	35	40
8	50	55
6	65	75
4	85	95
2	115	130
1/0	150	170
2/0	175	195

TABLE 2

Current carrying capacities of THWN and THHN single insulated Copper Conductors rated 600 V in free air based on ambient air temp. of 30 deg. C

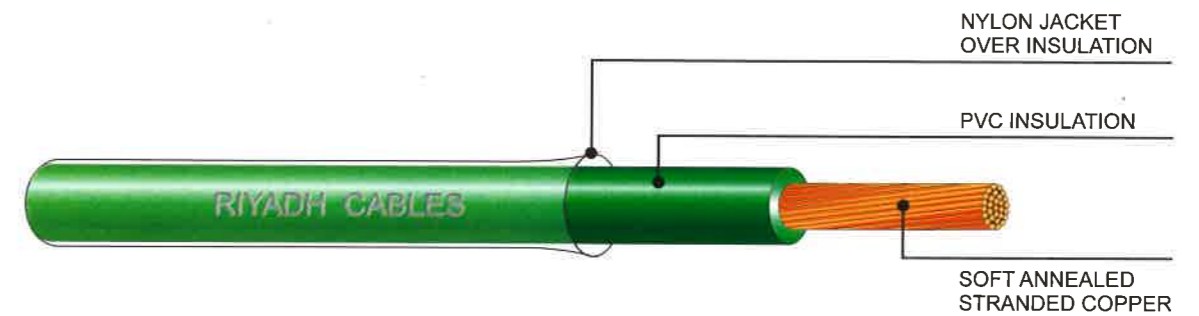
Size AWG	THWN AMPS	THHN AMPS
18		18
16		24
14	30	35
12	35	40
10	50	55
8	70	80
6	95	105
4	125	140
2	170	190
1/0	230	260
2/0	265	300

TABLE 3 - CORRECTION FACTORS

Ambient Temp °C	THWN (75 °C)	THHN (90 °C)
21 - 25	1.05	1.04
26 - 30	1.00	1.00
31 - 35	0.94	0.96
36 - 40	0.88	0.91
41 - 45	0.82	0.87
46 - 50	0.75	0.82
51 - 55	0.67	0.76
56 - 60	0.58	0.71
61 - 70	0.33	0.58
71 - 80	-	0.41

For ambient temp. other than 30 deg. C. multiply the ampacities given in tablets 1 & 2 by the appropriate factor given in Table 3.

THHN - THWN WIRES



THHN/THWN BUILDING WIRE 90 DEG. C 600 VOLTS

Table 4 : Conduit Fill

Maximum number of THHN/THWN Conductors in conduit or tubing as per 1990 NEC

Size AWG	Conduit trade size (inches)											
	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6
18*	19	34	55	97	132	216	-	-	-	-	-	-
16*	15	26	43	76	104	169	-	-	-	-	-	-
14	13	24	39	69	94	154	-	-	-	-	-	-
12	10	18	29	51	70	114	164	-	-	-	-	-
10	6	11	18	32	44	73	104	160	-	-	-	-
8	3	5	9	16	22	36	51	79	106	136	-	-
6	1	4	6	11	15	26	37	57	76	98	154	-
4	1	2	4	7	9	16	22	35	47	60	94	137
3	1	1	3	6	8	13	19	29	39	51	80	116
2	1	1	3	5	7	11	16	25	33	43	67	97
1	-	1	1	3	5	8	12	18	25	32	50	72
1/0	-	1	1	3	4	7	10	15	21	27	42	61
2/0	-	1	1	2	3	6	8	13	17	22	35	51

* Listed as TFFN

Table 5 : Combination of Conductors

For groups or combinations of conductors, the conduit or tubing shall be of such size that the sum of the cross sectional areas of the individual conductors will not be more than percentage of the internal cross sectional area of the conduit or tubing as shown below :

No. of conductors	1	2	3	4	over 4
Percentage	53	31	40	40	40



**Soft Drawn Bare Copper Conductors
IEC 60228.**

Nominal cross sectional area	Number of strands	Approx. Overall diameter	Approx. Weight	Max. Dc at 20°C	Standard packing
mm ²	No .	mm	kg/km	Ohm/km	m ±5%
2.5	7	2.0	20	7.41	2000
4	7	2.55	35	4.61	2000
6	7	3.1	50	3.08	2000
10	7	4.0	85	1.83	2000
16	7	5.0	135	1.15	2000
25	7	6.3	210	0.727	2000
35	7	7.4	300	0.524	2000
50	19	8.8	400	0.387	1000
70	19	10.5	580	0.268	1000
95	19	12.4	810	0.193	1000
120	37	14.0	1030	0.153	1000
150	37	15.5	1270	0.124	1000
185	37	17.4	1600	0.0991	1000
240	61	20.0	2100	0.0754	1000
300	61	22.5	2640	0.0601	1000
400	61	25.4	3400	0.0470	1000
500	61	28.5	4370	0.0366	1000
630	91	32.8	5680	0.0283	1000

NOTICE

RCGC Catalogues under circulation are still valid. Some international and National standards mentioned in RCGC Catalogues might get amended by respective organizations without prior notice. For Riyadh Cables Products, the latest Amendments of applicable standards under circulation are applicable. For Wires and Wiring cables manufactured by RCGC, colour code mentioned in respective standards are applicable. However, RCGC can also provide the following colour code as required by some utilities.

1 Core: Red or Black

2 Core: Red, Black

3 Core: Red, Yellow, Blue

4 Core: Red, Yellow, Blue, Black

5 Core: Red, Yellow, Blue, Black, Green

More than 5 cores: Black cores with white printed numerals.

In the interest of product improvement, Riyadh Cables reserves the right to alter the given data in this Catalogue without any prior notice.



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