

H07RN-F EN 50525-2-21 Flexible Rubber Cable



APPLICATION

These cables are designed to provide high flexibility and have the capacity to withstand weather, oil/grease, mechanical and thermal stresses. Applications include handling equipment, mobile power supplies, worksites, stage and audio visual equipment, port areas and dams. Also for use in drainage and water treatment, cold environments and severe industrial environments.

CHARACTERISTICS

Voltage Rating U/U₀
450/750V

Temperature Rating
Fixed: -30°C to +60°C
Fixed protected installations: +85°C
Flexed: -15°C to +60°C

Minimum Bending Radius
Fixed: 4 x overall diameter
Flexed: 6 x overall diameter

CONSTRUCTION

Conductor
Class 5 flexible copper conductor

Insulation
EPR (Ethylene Propylene Rubber)

Sheath
PCP (Polychloroprene)

Core Identification
1 core: ● Black
2 core: ● Blue ● Brown
3 core: ● Green/Yellow ● Blue ● Brown
4 core: ● Green/Yellow ● Brown ● Black ● Grey
5 core: ● Green/Yellow ● Blue ● Brown ● Black ● Grey
6 core and above: ● Black with ○ White numbers
● Green/Yellow

Sheath Colour
● Black

STANDARDS

EN 50525-2-21, EN 60228

Flame Retardant according to IEC/EN 60332-1-2

DIMENSIONS

	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	NOMINAL THICKNESS OF INSULATION mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	A2 GLANDS Brass	A2PL GLAND Plastic
	1	1.5	0.8	5.8	52	20/16	20S
	1	2.5	0.9	6.5	67	20/16	20S
	1	4	1	7.4	92	20/16	20S
	1	6	1	8.1	119	20S	20S
	1	10	1.2	9.8	185	20S	20S
	1	16	1.2	11.35	258	20	20
	1	25	1.4	13.3	375	25	20
	1	35	1.4	14.6	485	25	25
	1	50	1.6	17.2	669	25	25
	1	70	1.6	19.35	892	32	32
	1	95	1.8	22.2	1160	32	32
	1	120	1.8	24.3	1436	32	32
	1	150	2	25.9	1748	40	40
	1	185	2.2	29.7	2142	40	40
	1	240	2.4	31.5	2698	50S	50S
	1	300	2.6	36.5	3348	50	50S
	1	400	2.8	40.4	4293	50	50
	1	500	3	42.6	5262	50	50
	1	630	3	47.2	6790	63S	63S
	2	1	0.8	8.1	94	20S	20S
	2	1.5	0.8	9	120	20S	20S
	2	2.5	0.9	10.7	173	20S	20S
	2	4	1	12.3	239	20	20
	2	6	1	13.8	313	25	25
	2	10	1.2	18.6	563	32	25
	2	16	1.2	21.7	830	32	32
	2	25	1.4	25.8	1211	40	40
	3	1	0.8	8.74	117	20S	20S
	3	1.5	0.8	9.68	147	20S	20S
	3	2.5	0.9	11.48	123	20	20
	3	4	1	13.2	297	25	25
	3	6	1	14.78	390	25	25
	3	10	1.2	19.9	705	32	32
	3	16	1.2	23.31	1031	32	32
	3	25	1.4	27.7	1512	40	40
	3	35	1.4	30.2	1907	50S	50S
	3	50	1.6	35.8	2651	50	50S
	3	70	1.6	40.1	3484	50	50
	3	95	1.8	46.4	4594	63S	63S
	4	1	0.8	9.63	142	20S	20S
	4	1.5	0.8	10.63	180	20S	20S
	4	2.5	0.9	12.6	260	20	20
	4	4	1	14.6	336	25	25
	4	6	1	16.4	449	25	32
	4	10	1.2	21.8	833	32	32
	4	16	1.2	25.4	1138	40	40
	4	25	1.4	30.7	1714	50S	50

	NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	NOMINAL THICKNESS OF INSULATION mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km	A2 GLANDS Brass	A2PL GLAND Plastic
	4	35	1.4	33.4	2204	50S	50
	4	50	1.6	39.6	3029	50	-
	4	70	1.6	44.9	4121	63	-
	4	95	1.8	51.9	5361	63	-
	5	1.5	0.8	11.8	206	20	20L
	5	2.5	0.9	14	297	25	25
	5	4	1	16.2	422	25	25
	5	6	1	18.2	567	32	32
	5	10	1.2	24	1010	40	40
	5	16	1.2	28.2	1400	40	40
	5	25	1.4	33.9	2096	50S	50
	5	35	1.4	37.2	2700	50	50
	5	50	1.6	44	3730	63S	63S
	5	70	1.6	48	5033	63	-
	5	95	1.6	53.2	6271	63	-
	7	1.5	0.8	15.13	315	25	25
	7	2.5	0.9	17.6	445	25	32
	12	1.5	0.8	18.2	493	25	32
	12	2.5	0.9	21.4	702	32	32
	19	1.5	0.8	22.1	710	32	32

CONDUCTORS

Class 5 Flexible Copper Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
		Plain Wires
1	0.21	19.5
1.5	0.26	13.3
2.5	0.26	7.98
4	0.31	4.95
6	0.31	3.3
10	0.41	1.91
16	0.41	1.21
25	0.41	0.78
35	0.41	0.554
50	0.41	0.386
70	0.51	0.272
95	0.51	0.206
120	0.51	0.161
150	0.51	0.129
185	0.51	0.106
240	0.51	0.0801
300	0.51	0.0641
400	0.51	0.0486
500	0.61	0.0384
630	0.61	0.0287

The above table is in accordance with EN 60228

ELECTRICAL CHARACTERISTICS (1mm² to 2.5mm²)

Current Carrying Capacity and Mass Supportable

NOMINAL CROSS SECTIONAL AREA mm ²	CURRENT CARRYING CAPACITY Amps		MAXIMUM MASS SUPPORTABLE BY TWIN FLEXIBLE CABLE (See Regulations 522.7.2 and 559.6.1.5 of the 17th Edition of IEE Wiring Regulations) kg
	Single-Phase AC	Three-Phase AC	
1	10	10	5
1.5	16	16	5
2.5	25	20	5

Voltage Drop

NOMINAL CROSS SECTIONAL AREA mm ²	DC OR SINGLE-PHASE AC mV/A/m	THREE-PHASE AC mV/A/m
1	46	40
1.5	32	27
2.5	19	16

Conductor operating temperature: 60°C

ELECTRICAL CHARACTERISTICS (4mm² and above)

Current Carrying Capacity

NOMINAL CROSS SECTIONAL AREA mm ²	60°C CONDUCTOR OPERATING TEMPERATURE Amps			85°C CONDUCTOR OPERATING TEMPERATURE** Amps		
	Single-Phase AC		Three-Phase AC	Single-Phase AC		Three-Phase AC
	1 Two Core Cable, With or Without Protective Conductor	2 Single Core Cables	1 Three Core, Four Core or Five Core Cable	1 Two Core Cable, With or Without Protective Conductor	2 Single Core Cables Touching	1 Three Core, Four Core or Five Core Cable
4	30	-	26	41	-	36
6	39	-	34	53	-	47
10	51	-	47	73	-	64
16	73	-	63	99	-	86
25	97	-	83	131	-	114
35	-	140	102	-	192	140
50	-	175	124	-	240	170
70	-	216	158	-	297	216
95	-	258	192	-	354	262
120	-	302	222	-	414	303
150	-	347	255	-	476	348
185	-	394	291	-	540	397
240	-	471	343	-	645	467
300	-	541	394	-	741	537
400	-	644	-	-	885	-
500	-	738	-	-	1017	-
630	-	861	-	-	1190	-

Ambient temperature: 30°C

Conductor operating temperature: 60°C / 85°C

The above table for 60°C conductor operating temperature is in accordance with Table 4F1A of the 18th Edition of IEE Wiring Regulations BS7671 and IEC 60364-5-52

** 85°C Table is in accordance with Table 4H2A of the 16th Edition of IEE Wiring Regulations.

The current ratings tabulated are for cables in free air but may also be used for cables resting on a surface. If the cable is to be wound on a drum on load the ratings should be reduced in accordance with NOTE 2 below and for cables which may be covered, NOTE 3 below.

2. Flexible cables wound on reeling drums

The current ratings of cables used on reeling drums are to be reduced by the following factors:

a) Radial type drum

ventilated: 85%
unventilated: 75%

b) Ventilated cylindrical type drum

1 layer of cable: 85%
2 layers of cable: 65%
3 layers of cable: 45%
4 layers of cable: 35%

A radial type drum is one where spiral layers of cable are accommodated between closely spaced flanges; if fitted with solid flanges the ratings given above should be reduced and the drum is described as non-ventilated. If the flanges have suitable apertures the drum is described as ventilated.

A ventilated cylindrical cable drum is one where layers of cable are accommodated between widely spaced flanges and the drum and end flanges have suitable ventilating apertures.

3. Where cable may be covered or coiled up whilst on load, or the air movement over the cable restricted, the current rating should be reduced.

It is not possible to specify the amount of reduction but the table of rating factors for reeling drums can be used as a guide.

VOLTAGE DROP

NOMINAL CROSS SECTIONAL AREA mm ²	TWO CORE CABLES DC mV/A/m	TWO CORE CABLE, SINGLE-PHASE AC mV/A/m			1 THREE CORE, FOUR CORE OR FIVE CORE CABLE, THREE-PHASE AC mV/A/m			2 SINGLE CORE CABLES, TOUCHING mV/A/m			
								DC	Single-Phase AC*		
4	12	12			10			-	-		
6	7.8	7.8			6.7			-	-		
10	4.6	4.6			4			-	-		
16	2.9	2.9			2.5			-	-		
		r	x	z	r	x	z		r	x	z
25	1.80	1.80	0.175	1.85	1.55	0.150	1.55	-	-	-	-
35	-	-	-	-	1.10	0.150	1.15	1.31	1.31	0.21	1.32
50	-	-	-	-	0.83	0.145	0.84	0.91	0.91	0.21	0.93
70	-	-	-	-	0.57	0.140	0.58	0.64	0.64	0.20	0.67
95	-	-	-	-	0.42	0.135	0.44	0.49	0.49	0.195	0.53
120	-	-	-	-	0.33	0.135	0.36	0.38	0.38	0.190	0.43
150	-	-	-	-	0.27	0.130	0.30	0.31	0.31	0.190	0.36
185	-	-	-	-	0.22	0.130	0.26	0.25	0.25	0.190	0.32
240	-	-	-	-	0.170	0.130	0.21	0.190	0.195	0.185	0.27
300	-	-	-	-	0.135	0.125	0.185	0.150	0.155	0.180	0.24
400	-	-	-	-	-	-	-	0.115	0.120	0.175	0.21
500	-	-	-	-	-	-	-	0.090	0.099	0.170	0.20
630	-	-	-	-	-	-	-	0.068	0.079	0.170	0.185

Conductor operating temperature: 60°C

r = Resistive Component

x = Reactive Component

z = Impedance Value

* A larger voltage drop will result if the cables are spaced.

DE-RATING FACTORS

AMBIENT TEMPERATURE	35°C	40°C	45°C	50°C	55°C
DE-RATING FACTOR	0.95	0.91	0.86	0.82	0.41