H07RN-F 450/750V

EN 50525-2-21

— Flexible rubber insulated and sheathed cable

Applications: The cables may be rated 0.6/1 kV where the installation has been built in protection and for motors in lifting appliances – machine tools etc. Heavy-duty flexible cables for medium mechanical stress in dry and wet, suitable for large boiling installations. heating plates. Inspections lamps, electrical tools such as drills circular saws. Domestic electric tools, transportable motors etc. Suitable for water immersion up to 50 meters. Other industrial applications

Standard length cable packing: 1000m on drums. Other forms of packing and delivery are available on request

Construction

Conductors	Annealed flexible stranded tin coated or bare copper class 5 to EN 60228	
Separator	If needed a suitable tape separator between the conductor and insulation	
Insulation	Ethylene-propylene rubber (EPR) type EI4 in acc. to EN 50363-1	
Circuit identification	Colour coding of power conductors comply to HD 308, DIN VDE 0293- 308	
	G (earth core)	**x (without earth core)**
2-core	-	Blue and brown
3-core	Green-yellow, blue, brown	Brown, Black, Grey Blue, Brown, Black[a]
4-żyłowe	Green-yellow, brown, black, grey Green-yellow, Blue, Brown, Black[a]	Blue, Brown, Black, Grey
5-core	Green-yellow, blue, brown black, grey	Blue, Brown, Black, Grey, Black
> 5 core	Green-yellow, other cores black with white numbering	Black with white numbering
[a] for certain applications only Other colours can be provided as 07RN-F without BBJ HAR approval		
Internal jacket	A synthetic thermosetting compound type EM3 in acc. to EN 50363-2-1	
Outer jacket	A synthetic thermosetting compound type EM2 in acc. to EN 50363-2-1	
Colour of outer jacket	Black or colours can be provided	

Characteristic

Nominal voltage rating	450/750V[b] [b] When installed in conduit or similar closed systems. the cable is suitable for use at voltages up to and including 1000V a.c. or up to 750V d.c. to earth.
Maximum operating voltage	AC: U0/Umax 476/825V DC: U0/Umax 619/1238V
Maximum conductor operating temperature	+60°C
Maximum conductor temperature during short circuit	+250°C
Lowest ambient temperature for fixed installation	-40°C
Lowest ambient temperature for mobile installation	-25°C
Flame propagation	EN 60332-1-2:2004, IEC 60332-1-2:2004
Oil resistant	EN 50363-2-1 (test method EN60811-404), UV resistant
Water resistance	AD8: according to Annex E of EN 50525-2-21

Minimum bending radius	For cable diameter D (mm)			
	D < 8	8 < D < 12	12 < D < 20	D > 20
For fixed installation	3 D	3 D	4 D	4 D
At inlet of portable appliance or mobile equipment. No mechanical load on cable	4 D	4 D	5 D	6 D
Under mechanical load	6 D	6 D	6 D	8 D

Fire performance

Flame retardant	EN 60332-1-2:2004, IEC 60332-1-2:2004
CPR – class reaction to fire (acc EN 50575)	Eca

Approvals

BBJ HAR

Parameters

Size	Maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Approx. weight of cable
			Single	Double layer			
				Internal	Outer		
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**kg/km**
1 x 1.5	0.26	0.8	1.4	—	—	6.0	52
1 x 2.5	0.26	0.9	1.4	—	—	6.6	66
1 x 4	0.31	1.0	1.5	—	—	7.5	90
1 x 6	0.31	1.0	1.6	—	—	8.2	117
1 x 10	0.41	1.2	1.8	—	—	10.1	183
1 x 16	0.41	1.2	1.9	—	—	11.4	251
1 x 25	0.41	1.4	2.0	—	—	13.2	357
1 x 35	0.41	1.4	2.2	—	—	14.7	471
1 x 50	0.41	1.6	2.4	—	—	17.0	650
1 x 70	0.51	1.6	2.6	—	—	19.2	875
1 x 95	0.51	1.8	2.8	—	—	21.6	1132
1 x 120	0.51	1.8	3.0	—	—	23.6	1403
1 x 150	0.51	2.0	3.2	—	—	26.0	1725
1 x 185	0.51	2.2	3.4	—	—	28.5	2088
1 x 240	0.51	2.4	3.5	—	—	31.2	2659
1 x 300	0.51	2.6	3.6	—	—	34.4	3268
1 x 400	0.51	2.8	3.8	—	—	38.1	4196
1 x 500	0.61	3.0	4.0	—	—	43.9	5328
1 x 630	0.61	3.0	4.1	—	—	48.4	6886

Parameters

Size	Maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Approx. weight of cable
			Single	Double layer			
				Internal	Outer		
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**kg/km**
2 x 1	0.21	0.8	1.3	—	—	8.2	92
2 x 1.5	0.26	0.8	1.5	—	—	9.2	118
2 x 2.5	0.26	0.9	1.7	—	—	11.0	172
2 x 4	0.31	1.0	1.8	—	—	12.5	233
2 x 6	0.31	1.0	2.0	—	—	14.1	306
2 x 10	0.41	1.2	—	1.2	1.9	19.4	558
2 x 16	0.41	1.2	—	1.3	2	21.9	750
2 x 25	0.41	1.4	—	1.4	2.2	25.7	1067
2 x 35	0.41	1.4	—	1.5	2.3	28.3	1358
2 x 50	0.41	1.6	—	1.7	2.5	32.8	1906
2 x 70	0.41	1.6	—	1.8	2.8	37.2	2546
3 x 1	0.21	0.8	1.4	—	—	8.8	110
3 x 1.5	0.26	0.8	1.6	—	—	9.9	142
3 x 2.5	0.26	0.9	1.8	—	—	11.8	208
3 x 4	0.31	1.0	1.9	—	—	13.4	284
3 x 6	0.31	1.0	2.1	—	—	15.0	375
3 x 10	0.41	1.2	—	1.3	2	20.7	682
3 x 16	0.41	1.2	—	1.4	2.1	23.3	926
3 x 25	0.41	1.4	—	1.5	2.3	27.4	1328
3 x 35	0.41	1.4	—	1.6	2.5	30.4	1721
3 x 50	0.41	1.6	—	1.8	2.7	35.3	2373
3 x 70	0.51	1.6	—	1.9	2.9	39.8	3158
3 x 95	0.51	1.8	—	2.1	3.2	45.1	4108
3 x 120	0.51	1.8	—	2.2	3.4	49.2	5042
3 x 150	0.51	2.0	—	2.4	3.6	54.3	6197
3 x 185	0.51	2.2	—	2.5	3.9	59.6	7508
3 x 240	0.51	2.4	—	2.8	4.3	66.4	9655
3 x 300	0.51	2.6	7.7	3.1	4.6	74.0	12035
4 x 1	0.21	0.8	1.5	—	—	9.7	137
4 x 1.5	0.26	0.8	1.7	—	—	10.9	174
4 x 2.5	0.26	0.9	1.9	—	—	12.9	256
4 x 4	0.31	1.0	2.0	—	—	14.7	352
4 x 6	0.31	1.0	2.3	—	—	16.7	475
4 x 10	0.41	1.2	—	1.4	2	22.6	838

Parameters

Size	Maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Approx. weight of cable
			Single	Double layer			
				Internal	Outer		
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**kg/km**
4 x 16	0.41	1.2	—	1.4	2.2	25.5	1146
4 x 25	0.41	1.4	—	1.6	2.5	30.4	1677
4 x 35	0.41	1.4	—	1.7	2.7	33.6	2177
4 x 50	0.41	1.6	—	1.9	2.9	39.0	3001
4 x 70	0.51	1.6	—	2	3.2	44.2	4023
4 x 95	0.51	1.8	—	2.3	3.6	50.5	5274
4 x 120	0.51	1.8	—	2.4	3.6	54.5	6426
4 x 150	0.51	2.0	—	2.6	3.9	60.3	7923
4 x 185	0.51	2.2	—	2.8	4.2	66.4	9623
4 x 240	0.51	2.4	7.7	—	—	73.8	12423
4 x 300	0.51	2.6	8.4	—	—	82.5	15449
5 x 1	0.21	0.8	1.6	—	—	10.7	166
5 x 1.5	0.26	0.8	1.8	—	—	12.0	213
5 x 2.5	0.26	0.9	2.0	—	—	14.2	311
5 x 4	0.31	1.0	2.2	—	—	16.4	436
5 x 6	0.31	1.0	2.5	—	—	18.6	586
5 x 10	0.41	1.2	—	1.4	2.2	24.8	1023
5 x 16	0.41	1.2	—	1.5	2.4	28.3	1421
5 x 25	0.41	1.4	—	1.7	2.7	33.6	2064
5 x 35	0.41	1.4	—	1.8	2.8	37.0	2662
5 x 50	0.41	1.6	—	2.1	3.1	43.3	3713
5 x 70	0.51	1.6	—	2.3	3.4	49.2	4997
5 x 95	0.51	1.8	—	2.5	3.8	55.8	6507
5 x 120*	0.51	1.8	—	2.5	3.8	60.2	7909
5 x 150*	0.51	2.0	—	2.7	4.1	66.6	9748
5 x 185*	0.51	2.2	7.4	—	—	73.4	11917
6 x 1*	0.21	0.8	2.4	—	—	14.5	294
6 x 1.5	0.26	0.8	2.5	—	—	14.5	294
6 x 2.5	0.26	0.9	2.7	—	—	17.0	414
6 x 4	0.31	1.0	2.9	—	—	19.4	568
6 x 6*	0.31	1.0	3.1	—	—	22.1	774
6 x 10*	0.41	1.2	3.5	—	—	26.8	1184
7 x 0.75*	0.21	0.8	2.4	—	—	13.9	251
7 x 1*	0.21	0.8	2.6	—	—	15.7	341

Parameters

Size	Maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Approx. weight of cable
			Single	Double layer			
				Internal	Outer		
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**kg/km**
7 x 1.5	0.26	0.8	2.6	—	—	15.7	341
7 x 2.5	0.26	0.9	2.8	—	—	18.3	483
7 x 4	0.31	1.0	3.1	—	—	21.7	694
7 x 6*	0.31	1.0	3.1	—	—	23.6	877
7 x 10*	0.41	1.2	3.9	—	—	29.6	1420
8 x 1*	0.21	0.8	2.9	—	—	17.2	408
8 x 1.5	0.26	0.8	2.9	—	—	17.2	408
8 x 2.5	0.26	0.9	3.1	—	—	20.1	575
8 x 4	0.31	1.0	3.5	—	—	24.0	842
8 x 6*	0.31	1.0	3.3	—	—	25.0	992
9 x 1.5	0.26	0.8	2.9	—	—	18.2	455
9 x 2.5	0.26	0.9	3.1	—	—	21.3	642
9 x 4	0.31	1.0	3.5	—	—	25.4	927
10 x 1*	0.21	0.8	2.9	—	—	17.2	375
10 x 1.5	0.26	0.8	2.9	—	—	18.4	457
10 x 2.5	0.26	0.9	3.1	—	—	21.5	635
10 x 4	0.31	1.0	3.5	—	—	25.0	890
12 x 1*	0.21	0.8	2.9	—	—	18.9	492
12 x 1.5	0.26	0.8	2.9	—	—	18.9	492
12 x 2.5	0.26	0.9	3.1	—	—	22.1	698
12 x 4	0.31	1.0	3.5	—	—	26.5	1021
12 x 6*	0.31	1.0	3.9	—	—	28.9	1329
13 x 1*	0.21	0.8	2.9	—	—	18.3	441
13 x 2.5	0.26	0.9	3.5	—	—	24.7	844
14 x 1.5	0.26	0.8	3.2	—	—	20.3	571
14 x 2.5	0.26	0.9	3.5	—	—	23.9	825
14 x 10	0.26	1.2	4.4	—	—	37.8	2385
16 x 1*	0.21	0.8	2.9	—	—	19.1	494
16 x 1.5	0.26	0.8	3.2	—	—	21.2	630
16 x 2.5	0.26	0.9	3.5	—	—	25.0	911
18 x 1*	0.21	0.21	3.2	—	—	22.1	692
18 x 1.5	0.26	0.26	3.2	—	—	22.1	692
18 x 2.5	0.26	0.26	3.5	—	—	26.1	1003
18 x 4	0.31	0.31	3.9	—	—	30.3	1413

Parameters

Size	Maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Approx. weight of cable
			Single	Double layer			
				Internal	Outer		
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**kg/km**
19 x 1.5	0.26	0.8	3.5	—	—	23.7	770
19 x 2.5	0.26	0.9	3.9	—	—	28.1	1122
19 x 4*	0.31	1.0	3.9	—	—	31.6	1524
20 x 1*	0.21	0.8	3.5	—	—	23.7	783
20 x 1.5	0.26	0.8	3.5	—	—	23.7	783
20 x 2.5	0.26	0.9	3.9	—	—	28.1	1144
20 x 4*	0.31	1.0	4.0	—	—	32.8	1613
21 x 1.5»	0.26	0.8	24.6	—	—	24.6	842
24 x 1*	0.21	0.8	3.5	—	—	25.8	898
24 x 1.5	0.26	0.8	3.5	—	—	25.8	898
24 x 2.5	0.26	0.9	3.9	—	—	30.7	1308
24 x 4*	0.31	1.0	4.3	—	—	36.6	1924
25 x 1.5	0.26	0.8	3.8	—	—	26.9	967
25 x 2.5	0.26	0.9	4.3	—	—	31.7	1386
27 x 1.5	0.26	0.8	3.8	—	—	26.9	996
27 x 2.5	0.26	0.9	4.3	—	—	32.1	1475
30 x 1.5	0.26	0.8	3.8	—	—	27.7	1072
30 x 2.5	0.26	0.9	4.3	—	—	33.1	1592
32 x 1.5	0.26	0.8	3.8	—	—	28.6	1144
34 x 1.5	0.26	0.8	3.8	—	—	29.5	1202
36 x 1*	0.21	0.8	3.8	—	—	29.5	1241
36 x 1.5	0.26	0.8	3.8	—	—	29.5	1241
36 x 2.5	0.26	0.9	4.3	—	—	35.3	1841
37 x 1.0*	0.21	0.8	3.8	—	—	29.4	1149
37 x 1.5*	0.26	0.8	3.8	—	—	30.7	1297
37 x 2.5*	0.26	0.9	4.3	—	—	36.7	1922
42 x 1.5*	0.26	0.8	4.3	—	—	32.6	1490
42 x 2.5*	0.26	0.9	4.8	—	—	37.6	2218
48 x 2.5*»	0.26	0.9	4.7	—	—	40.7	2386

** Based on Standard as 07RN-F without BBJ HAR approval*

» Without CPR classification (available at customer request)

Technical data

Nominal cross- section	Max. Resistance of power conductor at 20°C	
	Plain wires	Tin-coated wires
mm²	**Ω/km**	**Ω/km**
0.75	26.0	26.7
1.0	19.5	20.0
1.5	13.3	13.7
2.5	7.98	8.21
4	4.95	5.09
6	3.30	3.39
10	1.91	1.95
16	1.21	1.24
25	0.780	0.795
35	0.554	0.565
50	0.386	0.393
70	0.272	0.277
95	0,206	0.210
120	0.161	0.164
150	0.129	0.132
185	0.106	0.108
240	0.0801	0.0817
300	0.0641	0.0654
400	0.0486	0.0495
500	0.0384	0.0391
630	0.0287	0.0292

Current Rating in free air at air temperature of 30°C and conductor temperature of 60°C

Size	Single cable		Two core cables	Three core cables	Three core cables	Four core cables	Five core cables
mm²	**2 loaded cables**	**3 loaded cables**	**2 loaded cables**	**2 loaded cables**	**3 loaded cores***	**3 loaded cores**	**3 loaded cores**
			Current-carrying capacity (A)				
1	-	-	15.0	15.5	12.5	13.0	13.5
1.5	19.0	16.5	18.5	19.5	15.5	16.0	16.5
2.5	26	22	25	26	21	22	23
4	34	30	34	35	29	30	30
6	43	38	43	44	36	37	38
10	60	53	60	62	51	52	54
16	79	71	79	82	67	69	71
25	104	94	105	109	89	92	94
35	129	117	-	135	110	114	117
50	162	148	-	169	138	143	148
70	202	185	-	211	172	178	185
95	240	222	-	250	204	210	222
120	280	260	-	292	238	246	248
150	321	300	-	335	273	282	285
185	363	341	-	378	309	319	325
240	433	407	-	447	365	377	-
300	497	468	-	509	415	430	-
400	586	553	-	-	-	-	-
500	670	634	-	-	-	-	-
630	784	742	-	-	-	-	-

** For multi-core cables current-carrying capacity multiply by correct factor*

Number of loaded cores	Conversion factors
5	0.75
7	0.65
10	0.55
14	0.50
19	0.45
24	0.40
40	0.35

Correction factor for ambient temperature

Temperature of air [°C]	30	35	40	45	50	55
Correct factor	1	0.91	0.82	0.71	0.58	0.41