EPR Insulated, Heavy Duty HOFR Sheathed Flexible Cables

90°C 450/750 V 638*TQ

Application

For power/lighting services and mains supply or extension leads in situations requiring frequent handling, trailing and flexing applications. Incorporates heavy duty HOFR (Heat resisting Oil resisting Flame Retardant) outer sheath.
*denotes number of cores.

Specifications

- In accordance with BS EN 50525-2-21 and Cenelec code H07BN4-F
- **Conductors:** Flexible Class tinned copper conductors to BS EN 60228
- **Insulation:** EPR insulation Type EI.7 to BS7655
- **Core Identification:**
  2 core - blue, brown
  3 core - green/yellow, blue, brown
  4 core - green/yellow, brown, black, grey
  5 core - green/yellow, brown, black, grey, blue
- **Sheath:** Black heavy duty HOFR Sheath Type EM.7 to BS EN 50363-4-1
- Flame retardant to BS EN 60332-1-2
- **Temperature Rating:** 90°C maximum conductor operating temperature
- **Voltage Rating:** 450/750 V

For further technical information see page 2:53. (Single-Core), and 2:57 (Multicore).

EPR Insulated, Heavy Duty HOFR Sheathed Flexible Cables

90°C 450/750 V 638*TQ

Anixter Number	Nominal Conductor Area	Nominal Conductor Stranding	Insulation Thickness	Minimum O/D	Maximum O/D	Approximate Cable Weight
	mm^2	#/mm	mm	mm	mm	kg/km
Single-Core Type 6381TQ						
6381TQ-0040	4.0	56/0.3	1.0	7.2	9.0	107
6381TQ-0060	6.0	84/0.3	1.0	7.9	9.8	145
6381TQ-0100	10	80/0.4	1.2	9.5	11.9	220
6381TQ-0160	16	126/0.4	1.2	10.8	13.4	330
6381TQ-0250	25	196/0.4	1.4	12.7	15.8	425
6381TQ-0350	35	276/0.4	1.4	14.3	17.9	560
6381TQ-0500	50	396/0.4	1.6	16.5	20.6	760
6381TQ-0700	70	360/0.5	1.6	18.6	23.3	1000
6381TQ-0950	95	475/0.5	1.8	20.8	26.0	1300
6381TQ-1200	120	608/0.5	1.8	22.8	28.6	1600
6381TQ-1500	150	756/0.5	2.0	25.2	31.4	2000
6381TQ-1850	185	925/0.5	2.2	27.6	34.4	2400
6381TQ-2400	240	1221/0.5	2.4	30.6	38.3	3050
6381TQ-3000	300	1525/0.5	2.6	33.5	41.9	3750
6381TQ-4000	400	2013/0.5	2.8	37.4	46.8	4850
6381TQ-5000	500	1769/0.5	3.0	41.3	52.0	6000
6381TQ-6300	630	2257/0.6	3.0	45.5	56.5	7450
Two Core Type 6382TQ						
6382TQ-0040	4.0	56/0.3	1.0	11.8	15.1	280
6382TQ-0060	6.0	84/0.3	1.0	13.1	16.8	395
6382TQ-0100	10	80/0.4	1.2	17.7	22.6	680
6382TQ-0160	16	126/0.4	1.2	20.2	25.7	905
6382TQ-0250	25	196/0.4	1.4	24.3	30.7	1300
Three Core Type 6383TQ						
6383TQ-0040	4.0	56/0.3	1.0	12.7	16.2	340
6383TQ-0060	6.0	84/0.3	1.0	14.1	18.0	480
6383TQ-0100	10	80/0.4	1.2	19.1	24.2	840
6383TQ-0160	16	126/0.4	1.2	21.8	27.6	1150
6383TQ-0250	25	196/0.4	1.4	26.1	33.0	1600
6383TQ-0350	35	276/0.4	1.4	29.3	37.1	2100
6383TQ-0500	50	396/0.4	1.6	34.1	42.9	2900
6383TQ-0700	70	360/0.5	1.6	38.4	48.3	3700
6383TQ-0950	95	475/0.5	1.8	43.3	54.0	4850
6383TQ-1200	120	608/0.5	1.8	47.4	60.0	5950
6383TQ-1500	150	756/0.5	2.0	52.0	66.0	7300
6383TQ-1850	185	925/0.5	2.2	57.8	72.0	8800
6383TQ-2400	240	1221/0.5	2.4	65.0	82.0	11450
6383TQ-3000	300	1525/0.5	2.6	72.0	90.0	14000

Continued overleaf...

EPR Insulated, Heavy Duty HOFR Sheathed Flexible Cables

90°C 450/750 V 638*TQ (continued)

Anixter Number	Nominal Conductor Area	Nominal Conductor Stranding	Insulation Thickness	Minimum O/D	Maximum O/D	Approximate Cable Weight
	mm^2	#/mm	mm	mm	mm	kg/km
Four Core Type 6384TQ						
6384TQ-0040	4.0	56/0.3	1.0	14.0	17.9	425
6384TQ-0060	6.0	84/0.3	1.0	15.7	20.0	605
6384TQ-0100	10	80/0.4	1.2	20.9	26.5	1050
6384TQ-0160	16	126/0.4	1.2	23.8	30.1	1400
6384TQ-0250	25	196/0.4	1.4	28.9	36.6	2050
6384TQ-0350	35	276/0.4	1.4	32.5	41.1	2700
6384TQ-0500	50	396/0.4	1.6	37.7	47.5	3650
6384TQ-0700	70	360/0.5	1.6	42.7	54.0	4750
6384TQ-0950	95	475/0.5	1.8	48.4	61.0	6200
6384TQ-1200	120	608/0.5	1.8	53.0	66.0	7600
6384TQ-1500	150	756/0.5	2.0	58.0	73.0	9350
6384TQ-1850	185	925/0.5	2.2	64.0	80.0	11350
6384TQ-2400	240	1221/0.5	2.4	72.0	91.0	14700
Five Core Type 6385TQ						
6385TQ-0040	4.0	56/0.3	1.0	15.6	19.9	490
6385TQ-0060	6.0	84/0.3	1.0	17.5	22.2	660
6385TQ-0100	10	80/0.4	1.2	22.9	29.1	1086
6385TQ-0160	16	126/0.4	1.2	26.4	33.3	1508
6385TQ-0250	25	196/0.4	1.4	32.0	40.4	2350

Technical Specifications for 6381TQ

Single-core, EPR insulated, HOFR sheathed. BS EN 50525-2-21 - 6381TQ.
Ambient temperature: 30°C Conductor operating temperature: 90°C.

CURRENT CARRYING CAPACITY (Amperes):

Conductor Cross Sectional Area	Reference Method B (enclosed in conduit etc in or on a wall)		Reference Method C (clipped direct)	
	2 Cables, Single Phase a.c. or d.c.	3 or 4 Cables, Three Phase a.c.	2 Cables, Single Phase a.c. or d.c. flat and touching	3 or 4 Cables, Three Phase a.c. flat and touching or trefoil
1	2	3	4	5
mm^2	A	A	A	A
4	40	35	44	39
6	51	46	56	51
10	72	64	78	71
16	96	84	104	95
25	127	112	137	124
35	158	139	170	155
50	198	175	228	209
70	250	219	290	265
95	294	259	342	314
120	343	302	400	367
150	383	334	465	425
185	431	369	524	481
240	510	434	622	569
300	580	494	715	655
400	669	572	850	777
500	760	647	961	878
630	891	756	1118	1022

Technical Specifications for 6381TQ

Ratings do not apply if the cable is protected by a semi-enclosed fuse to BS3036. For further guidance refer to the BS7671. Requirements for Electrical Installations (IEE Wiring Regulations - latest edition).
For ambient air temperatures other than 30°C, the following factors should be applied.

Ambient air temp °C	25	30	35	40	45	50	55	60	65	70	75	80	85
Rating factor	1.04	1.0	0.95	0.91	0.86	0.82	0.76	0.70	0.64	0.57	0.50	0.40	0.28

Reference Method F (on a perforated cable tray) Horizontal or Vertical		Reference Method G (Free Air)		
2 Cables, Single Phase a.c. or d.c. Flat and Touching	3 or 4 Cables, Three Phase a.c. Flat and Touching	Single Phase a.c. or d.c. 3 or 4 Cables, Three Phase a.c. Flat Horizontal (H) or Vertical (V)		3 Cables Trefoil Three Phase a.c.
6	7	Horizontal (H)	Vertical (V)	9
A	A	A		A
-	-	-		-
-	-	-		-
-	-	-	-	-
-	-	-	-	-
154	135	174	154	129
193	170	218	194	163
234	216	275	246	207
310	276	349	314	265
373	329	414	374	316
421	387	484	439	371
488	453	563	514	433
561	512	635	582	490
655	612	754	694	586
754	708	868	802	676
921	850	1063	987	806
1052	969	1217	1135	919
1241	1139	1439	1348	1077

Ratings shown in Column 9, also apply to cables in trefoil formation on a perforated cable tray, Reference Method F.

Technical Specifications for 6381TQ

(continued)

VOLTAGE DROP (per Amperes per metre):

2 Cables - Single Phase a.c.										
Conductor Cross Sectional Area	2 Cables d.c.	Reference Method B (enclosed in conduit etc in or on a wall)			Reference Methods C & F (clipped direct or on trays, touching)			Reference Method G (spaced*)		
1	2	3			4			5		
mm²	mV	mV			mV			mV		
4	13.2	13.2			13.2			-		
6	8.5	8.5			8.5			-		
10	5.1	5.1			5.1			-		
16	3.2	3.2			3.2			-		
		r	x	z	r	x	z	r	x	z
25	2.03	2.03	0.31	2.05	2.03	0.19	2.04	2.03	0.28	2.05
35	1.42	1.44	0.29	1.47	1.44	0.21	1.46	1.44	0.27	1.47
50	1.00	1.07	0.29	1.11	1.00	0.21	1.02	1.01	0.27	1.05
70	0.71	0.72	0.28	0.77	0.71	0.20	0.73	0.70	0.26	0.75
95	0.54	0.55	0.27	0.61	0.54	0.195	0.57	0.53	0.26	0.59
120	0.42	0.44	0.26	0.51	0.42	0.190	0.46	0.42	0.25	0.49
150	0.35	0.34	0.26	0.44	0.34	0.190	0.39	0.34	0.25	0.42
185	0.27	0.29	0.26	0.39	0.27	0.190	0.33	0.27	0.25	0.37
240	0.21	0.23	0.25	0.34	0.21	0.185	0.28	0.21	0.25	0.33
300	0.167	0.188	0.25	0.31	0.173	0.180	0.25	0.167	0.25	0.30
400	0.127	0.146	0.25	0.29	0.132	0.175	0.22	0.130	0.24	0.27
500	0.100	0.127	0.25	0.28	0.107	0.170	0.20	0.104	0.24	0.26
630	0.074	0.102	0.25	0.27	0.085	0.170	0.19	0.080	0.24	0.25

* Spaced by one cable diameter.

Conductor operating temperature: 90°C.

Technical Specifications for 6381TQ

3 or 4 Cables - Three Phase a.c.											
Reference Method B (enclosed in conduit etc in or on a wall)			Reference Methods C, F & G (in trefoil touching)			Reference Methods C & F (flat touching)			Reference Method G (flat spaced*)		
6			7			8			9		
mV			mV			mV			mV		
11.4			11.4			11.4			-		
7.4			7.4			7.4			-		
4.4			4.4			4.4			-		
2.8			2.8			2.8			-		
r	x	z	r	x	z	r	x	z	r	x	z
1.73	0.27	1.75	1.73	0.180	1.74	1.73	0.190	1.74	1.73	0.27	1.75
1.23	0.25	1.26	1.23	0.180	1.24	1.23	0.180	1.24	1.23	0.26	1.26
0.88	0.25	0.91	0.86	0.170	0.88	0.86	0.180	0.88	0.86	0.26	0.90
0.62	0.24	0.66	0.61	0.170	0.63	0.61	0.175	0.63	0.61	0.25	0.66
0.47	0.23	0.52	0.46	0.165	0.49	0.46	0.170	0.49	0.46	0.25	0.52
0.37	0.23	0.44	0.36	0.165	0.40	0.36	0.165	0.40	0.36	0.24	0.43
0.30	0.23	0.38	0.29	0.165	0.33	0.29	0.165	0.33	0.29	0.24	0.38
0.25	0.23	0.34	0.24	0.160	0.29	0.24	0.165	0.29	0.24	0.24	0.34
0.20	0.22	0.30	0.182	0.160	0.24	0.182	0.165	0.25	0.182	0.24	0.30
0.162	0.22	0.27	0.150	0.150	0.21	0.145	0.160	0.22	0.145	0.24	0.28
0.130	0.22	0.26	0.115	0.150	0.19	0.115	0.160	0.20	0.115	0.24	0.27
0.106	0.22	0.24	0.095	0.150	0.18	0.093	0.160	0.19	0.090	0.24	0.26
0.090	0.21	0.23	0.076	0.150	0.17	0.072	0.160	0.18	0.069	0.23	0.24

Technical Specifications for 638*TQ

CURRENT CARRYING CAPACITY (Amperes):

Conductor Cross Sectional Area	d.c. or Single Phase a.c. (1 Two Core cable, with or without protective conductor)	Three Phase a.c. (1 Three Core, Four Core or Five Core cable)	Single Phase a.c. or d.c. 2 Single-Core Cables Touching
mm^2	A	A	A
4	42	37	-
6	55	49	-
10	76	66	-
16	103	89	-
25	136	119	-
35	-	146	200
50	-	177	250
70	-	225	310
95	-	273	369
120	-	316	432
150	-	363	497
185	-	414	564
240	-	487	673
300	-	560	773
400	-	-	924
500	-	-	1062
630	-	-	1242

Technical Specifications for 638*TQ

The ratings do not apply if the cable is protected by a semi-enclosed fuse to BS3036.
For further guidance refer to the BS7671 Requirements for Electrical Installations (IEE Wiring Regulations - latest edition).
For ambient air temperature other than 30°C the following rating factors should be applied:

Ambient air temp °C	25	30	35	40	45	50	55	60	65	70	75	80	85
Rating factor	1.04	1.0	0.95	0.91	0.86	0.82	0.76	0.70	0.64	0.57	0.50	0.30	0.28

Ambient temperature: 30°C.

Conductor operating temperature: 90°C.

NOTE: The current ratings tabulated are for cables in free air but may also be used for cables resting on a surface.

See page 2:59 for Voltage Drops.

Technical Specifications for 638*TQ

(continued)

VOLTAGE DROP (per Ampere per metre):

Conductor Cross Sectional Area	1 Two Core or two Single-Core Cables d.c.	Two Core Cable Single Phase a.c.			1 Three Core, Four Core or Five Core Cable Three Phase a.c.		
mm²	mV	mV			mV		
4	13.2	13			11.1		
6	8.5	8.5			7.4		
10	5.1	5.1			4.4		
16	3.2	3.2			2.7		
		r	x	z	r	x	z
25	2.03	2.03	0.175	2.04	1.73	0.150	1.73
35	1.42	-	-	-	1.22	0.150	1.23
50	1.0	-	-	-	0.91	0.145	0.93
70	0.71	-	-	-	0.62	0.140	0.64
95	0.54	-	-	-	0.47	0.135	0.49
120	0.42	-	-	-	0.37	0.135	0.39
150	0.34	-	-	-	0.29	0.130	0.32
185	0.27	-	-	-	0.24	0.130	0.27
240	0.21	-	-	-	0.188	0.130	0.23
300	0.167	-	-	-	0.147	0.125	0.195
400	0.127	-	-	-	-	-	-
500	0.100	-	-	-	-	-	-
630	0.074	-	-	-	-	-	-

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

Conductor operating temperature: 90°C.

Technical Specifications for 638*TQ

Two Single-Core Cables Touching, Single Phase a.c.*		
mV		
-		
-		
-		
-		
r	x	z
-	-	-
1.44	0.21	1.46
1.00	0.21	1.02
0.71	0.20	0.73
0.54	0.195	0.57
0.42	0.190	0.46
0.34	0.190	0.39
0.27	0.190	0.33
0.21	0.185	0.28
0.173	0.180	0.25
0.132	0.175	0.22
0.107	0.170	0.20
0.085	0.170	0.190

GUIDE TO MINIMUM BENDING RADII ON FLEXIBLE CORDS AND CABLES

Cable Type	Cable Diameter (mm)			
	≤ 8 ≤	>8 ≤ 12	>12 ≤ 20	>20
	M.B.R. (Minimum Bending Radius)			
Flexible Cable Thermoplastic (e.g. PVC)				
Fixed installation	3D	3D	4D	4D
Free movement*	5D	5D	6D	6D
Flexible Cable Elastomeric (e.g. rubber)				
Fixed installation	3D	3D	4D	4D
Free movement*	4D	4D	5D	6D

Where D = cable diameter.

The above values are based on recommendations given in BS7540 “Use of cables with a rated voltage not exceeding 450/750 V”.

*These values do not apply to cables used on festoon, reeling drum, cranes, robotics, etc., where repetitive flexing and/or twisting is anticipated.

For further details refer to BS7540.