

KATHODICA™ CABLE

Marketing its products under the brand name Kathodica™, CCEL is one of the Cathodic Protection industry's largest stockists of cable. The most commonly used types and construction are outlined in this data sheet.

RECOMMENDED CABLE TYPES AND THEIR APPLICATIONS

PVC Single Insulated - 6491X

With a single layer of insulation offering the minimum of protection, this cable is not recommended for positive CP cables.

XLPE/PVC-6181XY Cathodic Protection Cable.

With a layer of XLPE insulation over the cable conductors and an outer sheath of PVC, this cable is suitable for most land based CP applications and general marine use. The outer PVC layer provide mechanical and abrasion resistance whilst the double insulation gives added security by reducing the likelihood of conductor damage.

XLPE/PVC Armoured

XLPE/PVC cable is available with a layer of steel wire armouring and further PVC sheath to provide added mechanical protection either where the cable is directly buried or not run inside conduit.

EPR/CSP and Armoured

This special cable is very resistant to chloride attack and although more expensive than XLPE/PVC, it provides far greater reliability when used in deepwell applications and offshore. It is also available with armouring and over sheath.

PVDF (KYNAR)/Polyolefin (HMWPE) - BASCORAD™

BASCORAD™ offers the best resistance against chloride attack making it especially suitable for use in deepwell installations where nascent chlorine is present. The inner insulation is irradiated PVDF (KYNAR) and the outer sheath modified Polyolefin (HMWPE).

HALAR/HMWPE

BASCORAD™ is also produced (both metric and AWG conductor sizes) as HALAR®/HMPWE.

HMWPE and HMWPE/PVC

The thickness of the insulation on this type of cable is nominally the same as XLPE and XLPE/PVC.

WHICH CONDUCTOR MATERIAL SHOULD BE USED

Stranded conductors should always be used as they are more flexible than solid conductors and less prone to breakage during handling. Copper is more common than aluminium. However, whilst plain copper conductors are satisfactory for most Cathodic Protection applications, tinned copper is sometimes specified as it can be less susceptible to attack where exposed to water and moisture.

RANGE AVAILABLE

KATHODICA™ cable is manufactured from sizes 6 through to 185mm sq in both non armoured and armoured.

CCEL stocks a range of commonly used sizes as follows:

XLPE/PVC

Red/Red or Black/Black:

6/10/16/25/35/50/70mm sq sizes

Armoured

Black: 10/16/25/35mm sq sizes

Cables not stocked are normally available with short delivery time.

Detailed conductor data is available for all KATHODICA™ AND BASCORAD™ cable.

Note:

CCEL standard cables are manufactured and stocked in both metric and AWG dimensions.

Quality Assurance

The CCEL KATHODICA™ range of cables conforms to the following international standards:

Conductors: Plain stranded circular annealed copper to BS.6360 (IEC 228/78 class 2).

Insulation: Cross-Linked Polyethylene (XLPE) to BS. 5468.

Outer Sheath: PVC to BS.6746.

Overall: Construction to BS.5467, IEC 502/83 (600/1000 V grade).

Armouring: Steel wire to BS.1442.

All cables are tested and approved by manufacturers with full ISO 9001 (BS.5750 Part1) who are in the main, BASEC approved.



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**Table1. Conductor data Stranded Copper
600/1000v Grade**

Strand Metric Size	Equiv areas and former imp sizes	Equiv metric size	American sizes and equivalent areas		Max DC resist of single core cable at 20°C
mmsq	inchsq	mmsq	MCM	B&S & AWG	ohm/km
-	0.002	1.3	-	-	14.0
1.5	0.0023	-	3.0	-	13.3
-	0.003	1.94	-	-	9.11
-	-	2.1	4.1	14	8.60
2.5	0.0038	-	4.9	-	7.27
-	0.0045	2.9	-	-	6.00
-	-	3.3	6.5	12	5.42
4	0.0061	-	7.7	-	4.52
-	0.007	4.5	-	-	3.89
-	-	5.3	10.4	10	3.41
6	0.0092	-	11.5	-	3.02
-	-	8.4	16.5	8	2.15
-	0.0145	9.5	-	-	1.86
10	0.016	-	19.4	-	1.79
-	-	13	26.2	6	1.35
-	0.0025	15	-	-	1.23
16	0.025	-	30.8	-	1.13
-	-	21	41.7	4	0.847
25	0.038	-	48.9	-	0.712
-	0.04	25	-	-	0.688
-	-	34	66.4	2	0.532
35	0.063	-	67.7	-	0.514
-	0.06	40	-	-	0.454
-	-	42	83.7	1	0.422
50	0.072	-	91.6	-	0.379
-	-	53	106	1/0	0.335
-	0.01	65	-	-	0.270
70	0.104	-	132	-	0.262
-	-	67	133	2/0	0.266
-	-	85	168	3/0	0.211
95	0.144	-	184	-	0.189
-	0.15	95	-	-	0.184
-	-	107	212	4/0	0.167
120	0.182	-	232	-	0.150
-	0.2	125	-	-	0.139
150	0.22	-	285	-	0.122

**Table2 Nominal Weights & Dimensions of
Kathodic Cable**

TABLE OF WEIGHTS & DIMENSIONS							
		PVC only 6491X		XLPE/PVC		XLPE/PVC/SWA/PVC	
Size mmsq	Strands	O/Dia mm	Wt Kg/Km	O/Di mm	Wt Kg/Km	O/Dia mm	Wt Kg/Km
2.5	7/0.67	3.7	34				
4	7/0.85	4.2	51				
6	7/1.04	4.8	71	7.2	105	11.5	285
10	7/1.35	6.1	120	8.1	150	12.5	355
16	7/1.70	7.1	180	9.0	210	13.5	435
25	7/2.14	8.9	285	10.6	305	15.0	585
35	19/1.53	10.1	380	11.6	395	16.0	685
50	19/1.78	11.8	510	13.0	515	17.5	835
70	19/2.14	13.6	715	14.9	725	19.5	1080
95	19/2.52	15.9	990	17.0	1052	23.4	1620
120	37/2.03	17.5	1230	18.5	1313	26.3	2100
150	37/2.25	19.4	1510	21.0	1649	28.3	2460
185	37/2.52	21.7	1900	23.0	1994		

CCEL KATHODICA™ PVDF (KYNAR) Polyolefin (HMWPE)-BASCORAD™

BASCORAD™ is available in both metric and AWG sizes and is manufactured to meet major oil company specifications.

Specification:

- Conductors:** Tinned circular copper wire
- Insulation:** Irradiated PVDF, radial thickness 0.51mm.
- Outer Sheath:** High molecular weight polyethylene, radial thickness 1.65mm.
- Std. Colours:** Insulation - natural, Sheath - black

**Table 3 Nominal Weights & Dimensions of
BASCORAD™ Metric**

Size mmsq	Strands	O/Dia mm	Weight kg/km
6	7/1.04	7.44	89
10	7/1.35	8.37	144
16	7/1.70	9.42	196
25	19/1.35	11.07	312
35	19/1.53	12.3	409

**Table 4 Nominal Weights & Dimensions of
BASCORAD™ AWG**

Size AWG	Strands No.	O/Dia mm
8	7	8.13
6	19	9.04
4	19	10.29
2	19	11.84
8	7	8.89
6	19	9.80
4	19	11.05

