




DUROdisk Markers are used to electronically mark underground utilities to prevent accidental damage or incidental contact and facilitate easy location and service of vital underground assets.

DUROdisk Markers are primarily suitable for direct burial over the utility to be marked up to a depth of 5'(1.5m). The marker can be accurately detected even if position of marker is 60° offset with respect to ground level.

DUROdisk Markers can be fixed over the utility to be marked, using the two integral mounting tabs or can be rigidly screwed on the inner side of all standard non-metallic manhole covers by drilling through the optional hole location (1/4" max) provided in the centre of the marker casing, without requiring any additional brackets and their associated costs.

DUROdisk Markers are available for marking all standard utilities & are compatible with any industry standard marker locators.

Features:

- Hermetically fused rugged HDPE casing. Provides high ingress protection to IEC IP68. Superior impact resistance rating IEC IK09 (10 Joules) tested at 
- Frequency and color to match specific utility
- Completely passive product with long service life
- Locating and Service of:
 - Vital underground utilities
 - Marking buried structures, splices
 - Locating buried pipe joints, service points and drops
 - Cable paths, fiber optic installations
- Standard RFID tag available on request



Technical Details:

- Marker Type: Round disk
- Diameter: 5.25" (133 mm)
- Thickness: 0.65" (16.5mm)
- Detection Range: 5 feet (1.5m)
- Frequency: Based on application.

Standard Packaging:

Carton Size Inch (L X W x H) (mm)	Qty. Per Carton	Weight Lbs (kgs)
5.7 x 5.7 x 7.5 (145 x 145 x 190)	10	2.64 (1.20)
11.8 x 11.8 x 7.9 (300 x 300 x 200)	40	11.55 (5.25)

Ordering information:

Color	Utility	Frequency (KHz)	Part Number
Red	Power	169.80	PWR 100
Blue	Portable Water	145.70	WAT 200
Green	Waste Water	121.60	SWG 300
Orange	Telephone	101.40	TEL 400
Yellow	Gas	83.00	GAS 500
Orange/Black	CATV	77.00	CTV 600
Purple	General Purpose	66.35	GEN 700
Blue / Red	European Power	134.00	EPO 800
Yellow / Black	Fiber Optic	92.00	FOP 900





TECHNICAL SPECIFICATIONS:


DUROdisk Markers are comprised of **DUROcoil** – a precision tuned passive circuit positioned and fused between two High Density Polyethylene (HDPE) casings. The fused HDPE casing provides superior hermetically water tight and dust tight seal that is both impact and puncture resistant when buried underground to a depth of 5' (1.5M) over the utility to be marked. All impact and ingress protection properties have been tested by Underwriters Laboratories (UL). The HDPE casing is color coded with molded in identification indicating frequency and utility type.

Electrical:		
Detection Field	Dipole	
Detection Range	up to 5' (1.5 M)	
Dimensions / Fixing Arrangement:		
Case Diameter	5.25" (133mm)	
External Mounting	(2) 1/8" dia. (3.14mm) mounting hole/tabs	
Optional Mounting	(1) 1/8 " dia (3.14mm) at the center of casing on request, for direct flush mounting on inside of utility non-metallic manhole cover or can be field drilled on site as required.	
Water resistance		
Water Ingress protection	i) Housing- Welded, hermetically sealed/water tight & pressure tested to 1 bar ii) IP as per IEC 60529 tested at UL , pass IP 68 iii) Immersion water test for 30 days, Pass	
Thermal Shock	Conditioning at -5° C for 2 hours and immediate immersion in boiling water (95° C / 203° F) for 10 minutes (constitute 1 cycle). No stress cracking or ingress failure, Pass 3 Cycles.	
Water absorption	< 0.5%, as per ASTM D570	
Mechanical		
Compression Test	Withstand load > 1000 kgs (10,000 N) over the marker disk & deflection <0.25" (6mm) – No cracking or structural failure	
Crush Strength	Withstand >30 Kg (300 N) applied load with a 0.187" point (4.75mm) radius & deflection <0.25" (6mm) – No cracking or structural failure Withstand >300 kg (3000 N) uniformly distributed load with 1.5" (40mm) aggregate – No cracking or structural failure	
Puncture Resistance	Withstand >20 Kg (200 N) force applied with a 1/64" point (0.4mm) radius & deflection < 0.25 " (6mm) – No cracking or structural failure	
Impact Resistance	Withstand 20 foot (6m) drop on concrete – No cracking or structural failure IK as per IEC 62262:2002 & 60068-2-75:1997 tested at UL , pass IK 09	
Chemical		
HDPE is a proven material for underground burial applications and has good resistance to non-oxidizing acids, alkalis and solvents like diesel fuel, gasoline, alcohol and motor oil.		
Outdoor Exposure		Thermal
U V resistance (as per ASTM G154). Withstand 1-year direct sunlight exposure simulated storage with no degradation of material physical properties.		Operating conditions Storage conditions
		-30° C (-86° F) to +65° C (149° F) -30° C (-86° F) to +70° C (158° F)

* All tests derived from industry actual usage needs and derived from Bell Core and other documents that apply to buried enclosures/components made of HDPE.

* All tests done at room temperature unless otherwise specified.

* Criteria for Pass/withstand, when signal detection **Db** has no change before and after tests.

* **IP68 & IK09** tested at  **Underwriters Laboratories** All other tests performed at recognized laboratories & Durotek Labs

