

CageGrate

CageGrate is a product in the LightLOC® family designed for securing and monitoring round pipes in remote locations. It is designed to protect underground pathways by protecting the pipe entrance as well as the sides from intrusion. It is comprised of a lattice of steel tubing in an outer frame laced with optical nerve fiber. Fiber is present in all

components of the grate providing complete coverage in the event of an attempted breach. Accessing the secure area protected by the CageGrate requires compromising the grate which the nerve fiber detects resulting in an alarm at the monitoring station. CageGrates may be monitored with either the LightLOC network level or Express level monitoring systems from up to 25km away. The information sheets on these monitoring systems provide more details on their features and capabilities.

CageGrate is designed to be a zero-false-alarm solution. The design of the grate and its monitoring systems ensure no alarms result from water flow, vibration, debris, wildlife, or other frivolous movements. Since the fibers are housed inside the metallic components of the grate and sensing is achieved by attenuation and not vibration or noise filtering, alarms do not occur unless the grate is damaged or cut.

LightLOC CageGrate can be installed in concrete, metal, or plastic pipes and is ideal for semi-exposed pipes without headwalls. Aside from stocked standard sizes, CageGrates are custom designed and manufactured according to site requirements. Since all monitoring is achieved through optical strands, there is no electrical power required at the grate location. This allows the grate to be installed in locations or environments where electrical power is not available or where it cannot be safely delivered (explosive environments, for example). The monitored fibers are also immune to electromagnetic interference and lightning strikes.

CageGrates may be removed when performing maintenance and cleaning of the secured pipe. An optional proximity sensor is recommended in these cases to monitor the presence of the grate and detect an unauthorized attempt to remove it.

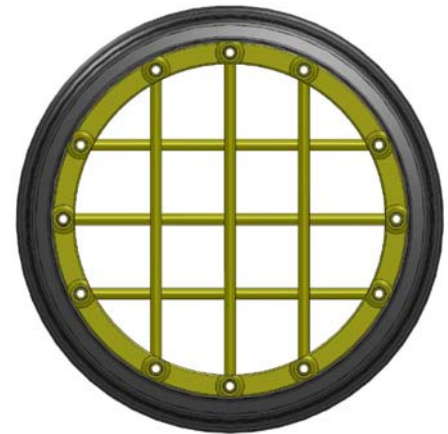
Technical Details

Standard Grate Diameters	12", 18", 24", 30", 36", 48"
Standard Grate Depths	4', 8', 10'
Standard Grate Opening Size	13" x 7" (<96 square inches design spec.)
Grate Material Available	Steel or Stainless Steel
Steel Grate Finish	Galvanized or Powder Coated
Standard Grate Tubing	3/8" Schedule 80 or Thin Wall 18 GA
Operating Temperature	-40C to 70C
Grate Life	20 Years
Power	Not Required for Grate
Fiber Type	Single mode

Ordering and Installation Information

The base part number to use when ordering a CageGrate of diameter D and depth P is CAG-D-P. When ordering the following information must also be specified: steel or stainless material, galvanized or powder coated finish if steel, grate opening size if not standard, grate tubing, and removable form or permanent. A mounting kit (CMK-D-P) and a network level or Express level monitoring system is also required with a grate purchase.

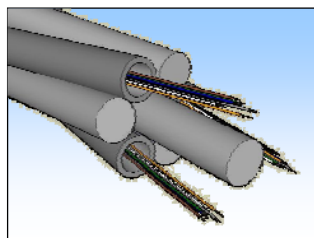
CageGrates are installed by certified LightLOC installers; if a site's preferred installers are not certified, training may be provided.



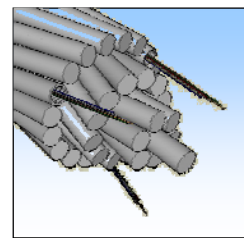
The family of LightLOC sensors is continuously growing! Current sensing products include:



Manhole Lid Sensors

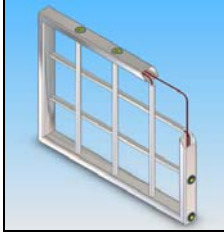


Vehicle Detection Cable (3/8")

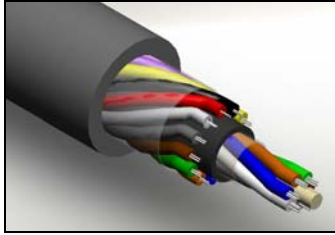


Vehicle Denial Cable (1")

For additional information on the LightLOC® system, please contact Doug Piper at 864-963-5131 or dpiper@wovenelectronics.com. Specifications are subject to change.



SmartGate



SmartComm Communications Cable



SmartGate

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