



# THE GROWING NEED FOR HIGH DENSITY POLYETHYLENE METER ENCLOSURES

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## Overview

The last three decades have seen significant changes in the market for meter enclosures and lids. Historically, meter enclosures were made from concrete or cast iron and the lids were cast iron or ductile iron. Due to their weight, the products required several workers to move and install, and often resulted in breakage and loss. The construction and waterworks industries saw improvements with the development of polymer and plastic materials to manufacture these products. Innovative use of plastic materials delivered a lightweight box that could offer traffic rating when designed properly, and provide a white interior, which enabled better visibility from the previously common black interior. In addition, the new lids offered easy access to the meter.

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## Changes in Water Metering

Metering technology has dramatically changed over the last decade; it is now increasingly digital, with real-time, remote readings becoming the norm. This is partially due to the general trend in technology and digitization, but it also reflects the critical need to monitor and conserve water. Real-time data enables technicians to spot leaks immediately, reducing cost and preserving clean water. Digital meters require a transmitter, and HDPE works well with this transmission technology. Some studies have shown transmission through plastic is much better than through other materials. Digital metering equipment is complicated and expensive, so it is essential to protect it with strong, durable enclosures. This avoids damage from vehicles, lawn-mowers, weather, animals, and pedestrians, and maintains its ability to transmit through the buried enclosure.

## The Current Marketplace

The market for meter enclosures and lids has experienced unprecedented growth over the last 18 months for 2 primary reasons:

- **The housing and construction industries have steadily grown, and this has created a high demand for new meter services.**
- **Significant federal monies have been allocated to upgrading municipal metering systems, and this has created enormous demand for replacement of older enclosures and lid technology.**

Suppliers of meter enclosures and lids have also experienced significant issues over this same time period. Labor and raw materials have become increasingly scarce and expensive when available.

These factors have all contributed to product unavailability in the market. As a result, the current HDPE manufacturers are challenged to provide customers with needed product. For this reason, it is essential to partner with a reliable supplier to ensure quality, service, and specification.

## Choosing the Right HDPE Product Provider

When choosing a partner for HDPE manufacturing, it is crucial to identify a skilled provider. Trained manufacturing professionals should be able to meet any and all required specifications, and should be willing to make modifications throughout the design and planning process. From a service and logistical standpoint, customers may wish to select a provider that offers a full range of affiliated products for the sake of convenience. By dealing with one vendor for all waterworks needs, customers can mitigate the hassle of multiple purchase orders, different sales reps, and potential errors. This can improve efficiency, and create economies of scale for shipping and logistics.



### SIGMA-Raven

SIGMA-Raven entered the HDPE market in 2016 when SIGMA Corporation acquired Idaho-based Raven Molded Plastic Products. Since then, the division has grown to encompass four locations across the US, with a fifth planned in the near future. In addition to the original Idaho factory, SIGMA-Raven operates manufacturing facilities in Ohio, Colorado, and Alabama, with a New Jersey plant coming soon. This nationwide presence benefits customers by providing regional manufacturing for regionally specified products, reducing shipping and logistics times and costs, and enabling delivery to customers anywhere in North America in a timely fashion.



SIGMA-Raven's approach always involves collaboration with our distribution partners. Whether we start with the municipal superintendent or the engineers, we bring the stakeholders together to gain a clear understanding of what the needs are. Because SIGMA owns and operates US-based manufacturing facilities, we strive to meet any specification with domestic product. We remodel and re-engineer the designs and prototypes until all of the customer needs and concerns are addressed. SIGMA-Raven commonly meets customization requirements such as adding a logo to the meter lids, using a particular color to conform to the American Public Works Association (APWA) color-code system, matching a sidewalk or landscape, or fabricating a lid that will not float. In the latter case, SIGMA-Raven met a Florida municipality's requirement by encapsulating rebar for additional weight and drilling holes in the lid to prevent buoyancy. The rebar also functions as a locator device, which makes it easier for the inspectors and readers to find the meters in grassy areas or places with a lot of undergrowth.

## Success Stories

SIGMA-Raven serves municipalities across the US, delivering custom, specified meter enclosures and lids on time and on budget.

### Alabama

When the Opelika, Alabama City Water and Sewer Department decided to change their water meters and boxes, they contacted SIGMA-Raven. SIGMA-Raven worked to design, customize, and engineer the meter boxes to meet the specifications of the City. The SIGMA-Raven team made over 30 visits to Opelika for modifications to ensure accuracy. The boxes were successfully installed and continue to perform well.

### California

Long Beach, California, the 4th largest water system in the state, specifies SIGMA-Raven for their meter boxes and lids. SIGMA-Raven customizes these boxes and lids with a special logo and a larger interior work area for easier access.

### Colorado

The Denver Water Department, which serves 1.5 million people in the City of Denver, launched a Lead Replacement Program. The program began in 2019, and involves the replacement of 5000-6000 service lines annually over approximately 10 years. SIGMA-Raven is supplying both the meter pits and the meter pit domes for this important safety upgrade project. The domes are emblazoned with "Denver Water Meter" and because SIGMA-Raven runs our own domestic manufacturing facilities, we are able to reliably meet this and all other specifications.

### Florida

SIGMA-Raven meter boxes have been specified and installed in many locations in Florida. Broward County began to specify SIGMA's meter boxes in 2018, and the cities of Jupiter and Pembroke Pines followed suit shortly thereafter.



## Utah

SIGMA-Raven was one of the first HDPE manufacturers to supply meter enclosures for non-potable water. As droughts spread and water becomes increasingly scarce, this practice is expected to become more common in municipalities in the US and beyond. Lehi City, UT became one of the first municipalities to meter non-potable water, and they approached SIGMA-Raven to supply the meter boxes.

The meter boxes had to be purple, which signifies non-potable water, and SIGMA-Raven was able to source purple resin and blend it appropriately to meet this requirement. Two prototypes were sent for inspection and SIGMA-Raven worked with the municipal engineers to meet the specification. SIGMA-Raven's purple meter boxes were approved, and the first one was installed at the Mayor's house. Since then, the boxes have been installed throughout the City and are performing well.

## Washington

The City of Tacoma specifies SIGMA-Raven for all of its meter boxes and lids. The specification requires a particular strength and rigidity, and SIGMA-Raven's product delivers. SIGMA-Raven also affixes a custom logo for the city.

Alderwood, Washington, one of the largest water systems in the state, specifies SIGMA-Raven for their meter boxes and lids. The durability, strength, and light weight, along with the traffic rating and the custom logo successfully met the City's requirements, and the product continues to perform well.

## Conclusion

Over the last two decades, there have been major transformations in water management, water metering, and the affiliated services that these changes require. HDPE meter enclosures have replaced cement and cast-iron materials as a better solution due to their durability, light weight, ease of installation and accessibility. In addition, the ability to color the resin ensures compliance with the APWA color-coding system, and affords aesthetic choice for the customer. SIGMA-Raven is in a strong position to meet the increasing market need for HDPE meter enclosure products.

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## **Raven HDPE Products**

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**For information on SIGMA-Raven product, please contact  
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