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## Composite Access Solutions Frames and Covers



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Made in the USA

GMI Composites is now EJ.

Composite products offer exceptional solutions for the most challenging environments.

Safety for pedestrian traffic and utility workers has driven EJ to develop an advanced solution offering the highest level of safety and performance.

Composite manhole covers neither conduct stray voltage nor high heat, thus shielding pedestrians from the underground environment.



**Non-Corrosive**

Composite products offer superior performance in harsh environments that can develop in underground infrastructure.



**Ergonomics – Strong and Lightweight**

Composite products are light enough for one person to easily access the underground infrastructure, yet strong enough for vehicular traffic.



**Security and Theft Deterrent**

Composite manhole covers are compatible with a variety of security options, and have no scrap value.

# Product Application

## Non-Corrosive

Sewer, storm, and wastewater environments can be highly corrosive. By its inherent nature, composite products will remain unchanged, even in the most aggressive environments. This can apply to areas with exposure to sewer, petrochemical, gasoline, diesel, de-icing solutions, and salt water.



A non-corrosive composite manhole frame and cover is the perfect product for areas with high levels of hydrogen sulfide, or other corrosive gases.



Composites will remain structurally unchanged\* when exposed to the elements.

## Corrosion in the Real World

Hydrogen sulfide (H<sub>2</sub>S) is a highly toxic and flammable gas. It can wreak havoc on cast iron and other infrastructure materials. In the picture below, the municipality has been battling the effects throughout its system, including the effects on cast iron manhole frames and covers. H<sub>2</sub>S attacks the iron structurally through material decomposition, as well as through fusion of the frame and cover together.



The covers have been replaced every 2-3 years, while the frames have been replaced every 5-7 years. Crews monitor the corrosion every 3 months. Trials have been conducted with various forms of powder coatings and asphaltic dips, but nothing has held up to the hydrogen sulfide gas in the long term.

Thousands of dollars can be attributed toward the maintenance, monitoring, and replacement costs of manhole covers throughout the city.

Composite materials thrive in this environment, where others crumble. In the past, composites have not been a valid option due to vehicular traffic, but advancements in the production process now make this the perfect solution.

\*Color fading may occur in the first two years, but it will not change the structural integrity.

### Ergonomically Friendly

Standard composite covers weigh between 28 lbs (22" clear opening) and 75 lbs (36" clear opening). For areas that are frequently accessed, the reduced weight improves the ease of access and overall worker safety.

### Theft Deterrent

The scrap value of traditional manhole covers make them an easy target for theft. Missing manhole covers cause real dangers for vehicular and pedestrian traffic, creating hazardous situations for a community. Since composite covers have no scrap value, they are not a target for thieves and are less likely to be stolen. Additional locking options are available for security purposes.

### Non-Conductive

Composite products do not conduct electricity, which makes them a safe choice for electrical utilities and municipalities that may have stray voltage concerns. When the product is placed over steam manholes, heat transfer is reduced. This provides additional protection to pedestrians and utility workers.

### No Signal Interference

Composite covers are constructed of advanced fiberglass reinforced plastic materials that offer little interference with the wireless communication signals. This is typically used in applications associated with water metering automation or electrical switching for smart grid technology.



Custom colors are available to help the cover blend in with its surroundings.



# Product Testing



**Fatigue Loading:** 16,000 lb load is applied for 2 million cycles. Upon conclusion of the fatigue loading, the test specimens are subjected to proof load testing—there is no loss of load carrying performance.

**Temperature:** Products have been tested to destruction at temperature extremes of -60 degrees Fahrenheit and 160 degrees Fahrenheit with no loss in performance.

**Ultraviolet Radiation:** Will not affect the long term structural performance.

**ADA Compliant:** All traffic rated covers have a slip resistant textured surface that is greater than 0.6 coefficient of friction.

**Proof Load Test:** The average frame and cover proof load test is in excess of 125,000 lbs concentrated on a 9" x 9" square area held for one minute. Products are available from medium to extra heavy duty load ratings.

# Load Ratings

## Loading Requirements

All products manufactured by EJ are designed to meet or exceed the specified loading requirements. They are tested to AASHTO and ASTM standards.

## Proof Load Testing

All H-20 heavy duty traffic rated products must pass a proof load test conducted in accordance with AASHTO M 306 guidelines. The proof load testing procedure calls for the load to be concentrated on a 9" x 9" contact area in the center of the cover or grate and hold 40,000 pounds for one minute (or 50,000 pounds for H-25). Following the test the product is carefully inspected. Cracks or permanent deformation are cause for rejection. Frequently, EJ products are tested far beyond the specified proof load, often to destruction.

Composite Product Load Ratings

Rating	Proof Load Range (lbs)*
Extra Heavy Duty	100,000–200,000
Heavy Duty	40,000–100,000
Medium Duty	16,000–40,000
Light Duty	2,500–16,000

\*Design engineer should also consider appropriate safety factors. An example of appropriate safety factor is 2.5 per section 6.2 of AASHTO M 306-10.



# Features

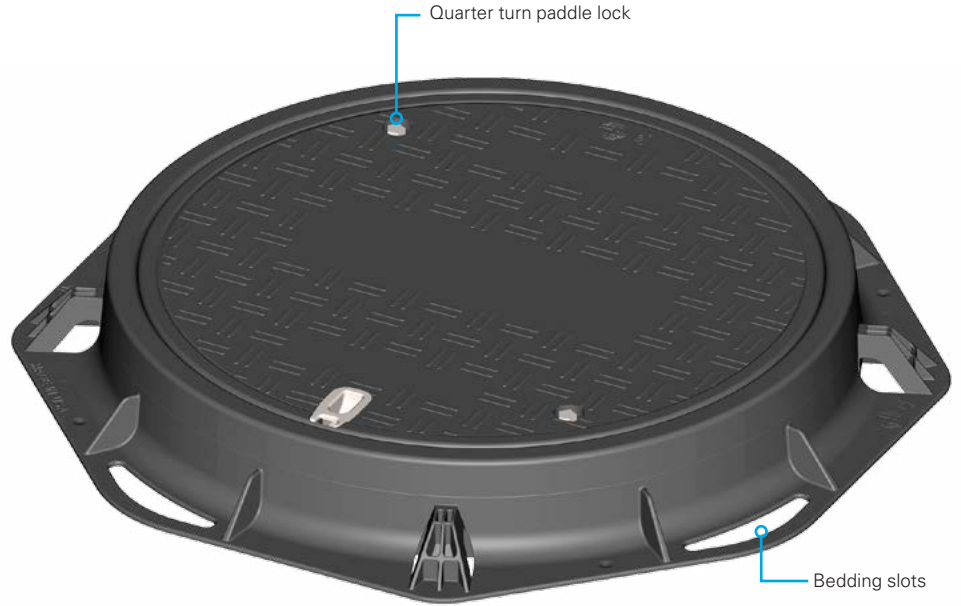
Optimized strength-to-weight design  
One-person operation  
Perimeter dampener - shock absorbing gasket

### Standard Features

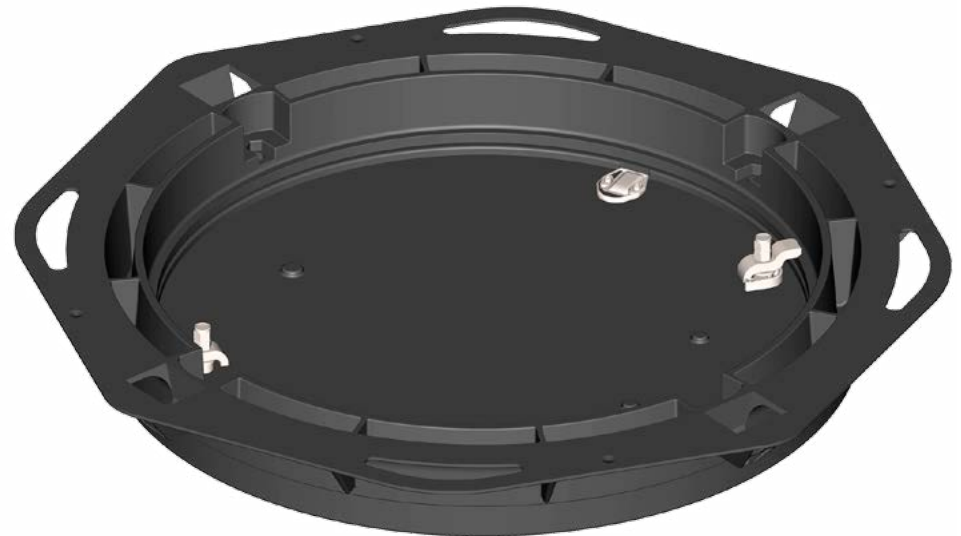
- Heavy duty rated
- Color: black
- Shape: round
- Stainless steel pick bar
- Security locking: quarter turn paddle lock (mechanical latch), bolting
- UV resistant

### Options

- Load ratings—pedestrian to extra heavy duty
- Shape: square or rectangular
- Security locking—various levels
- Pick bars
- Special lettered covers
- Custom logo covers
- Wireless monitoring
- Antenna/data transmission
- Custom color matching
- Custom diameters
- Special machining
- Flame retardant resin

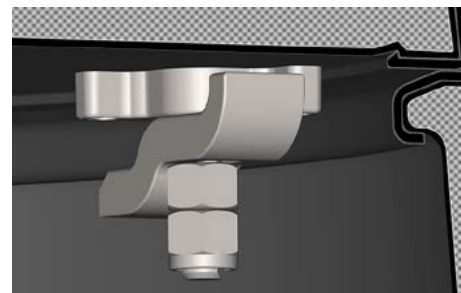
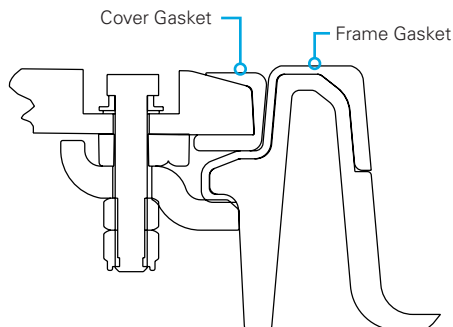


30" clear opening frame and cover. For this size and larger, the frame includes bedding slots (voids in the frame), which offer improved bond with sealant or cement. Shown with the standard pick slot, and quarter turn paddle locks.

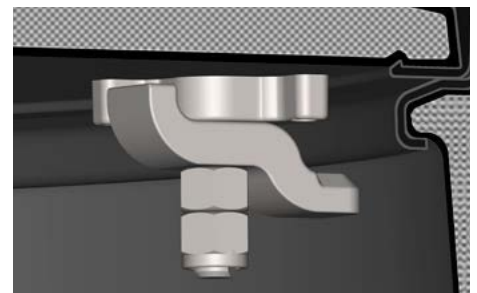


Standard quarter turn paddle locks include two on each cover.

### Quarter Turn Paddle Detail



Quarter turn paddle lock—open position.



Quarter turn paddle lock—closed position.

## Sizes and Options

Composite Frames and Covers	Series Number	Clear Opening	Cover Diameter	Cover Thickness	Frame Height	Weight (lbs)	Available Options
<p><b>22" CLEAR OPENING</b></p> 	Reference EJ 1120 and GMI 2400	<b>22"</b>	23 7/8"	1"	4 1/4"	Cover 28 lbs  Set 54 lbs	Standard (quarter turn paddle lock and pick slot) Special lettered covers Custom logo covers Security locking
<p><b>24" CLEAR OPENING</b></p> 	Reference EJ 1040 and GMI 2600	<b>24"</b>	26"	1 1/4"	4 1/4"	Cover 32 lbs  Set 60 lbs	Standard (quarter turn paddle lock and pick slot) Special lettered covers Custom logo covers Security locking Water resistant
<p><b>30" CLEAR OPENING</b></p> 	Reference EJ 1480 and GMI 3200	<b>30"</b>	31 15/16"	1 1/2"	5"	Cover 55 lbs  Set 95 lbs	Standard (quarter turn paddle lock and pick slot) Special lettered covers Custom logo covers Security locking Water resistant
<p><b>36" CLEAR OPENING</b></p> 	Reference EJ 1581 and GMI 3800	<b>36"</b>	37 7/8"	1 1/2"	5"	Cover 75 lbs  Set 120 lbs	Standard (quarter turn paddle lock and pick slot) Special lettered covers Custom logo covers Security locking Water resistant



Custom logo covers



Special lettered covers

## Temporary Safety Covers

A temporary safety cover is intended for short-term use. The cover can be placed over an open or unattended manhole structure. This prevents foreign debris and material from entering the open hole and protects pedestrian walk paths. They are a perfect solution during construction or maintenance projects and provide added security to the site. Composite safety covers are lightweight and portable. Maintenance vehicles can easily carry a "spare" cover. The durability and strength of the composite safety cover make it a better alternative to plywood coverings.

### Ergonomics

The covers are lightweight and have a handle for ease of carrying to the job site. The covers have two spike holes included to secure the cover from movement.

### Theft

When manhole covers are stolen, cities often have to park a police vehicle over the dangerous opening. Instead of waiting for a replacement cover, a temporary safety cover can be used to secure the open hole until the utility can replace it with a permanent access cover.

Temporary safety covers are rated medium duty with a 20,000 lbs proof load test.

### Making the Grid More Dependable, Safer, and Cleaner

One large utility maintains over 12,000 miles of transmission lines, 90,000 miles of distribution lines, 844 substations, and over 1.4 million electric poles. They are continuously striving to improve safety and reliability. The company is investing billions of dollars to replace and upgrade infrastructure where needed. To help ensure all manhole covers are properly secured, they have purchased approximately 1,000 of the 40" and 500 of the 30" safety covers. Each service facility and maintenance truck now has at least one available. The safety covers are used to cover holes dug for electric utility poles, for maintenance when existing cast iron covers need to be pulled, installation of new manhole covers and frames, and to temporarily cover an open manhole in the event of theft.



Round Temporary Safety Covers

Series No.	Clear Opening	Cover Dia.	Cover Thickness	Weight
3000	28"	30"	3/4"	22 lbs
4000	37"	40"	3/4"	38 lbs

Square and Rectangular Temporary Safety Covers

Series No.	Cover Width	Cover Length	Cover Thickness	Weight
3434	34"	34"	1/2"	33 lbs
4040	40"	40"	1/2"	44 lbs
4252	42"	52"	1/2"	48 lbs

## Meter Box Frames and Covers

Water meter covers made from composite materials offer little interference with wireless communication signals. The fiberglass reinforcement help make this product a more durable option than standard plastic lids.

Round sizes are available from 12" to 20". The product features an adjustable hook that allows for retrofitting into existing frames. Optional molded inserts allow for attaching antenna boxes to the underside of the cover.



# We Are EJ

EJ is the leader in the design, manufacture and distribution of access solutions for water, sewer, drainage, telecommunications and utility networks worldwide.

EJ offers the broadest range of high-quality infrastructure access solutions. Our distribution coverage continues to expand into new markets. As an entrepreneurial family-owned company, we have a long, successful heritage of meeting change with innovation.

Since our founding in 1883, we have grown by providing access solutions to meet the demands of the world's growing infrastructure. Fueled by innovation, our design, manufacturing, and distribution processes continue to evolve—creating solutions that provide an unparalleled customer experience.

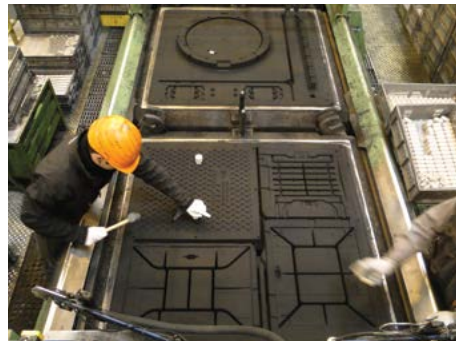
EJ is a family-owned company that has a long history of fostering strong customer relationships. These relationships are supported with personal contact from company representatives, a complete offering of product literature, a comprehensive web site (ejco.com), trade show exhibits, as well as seminars and training opportunities. All these services help to provide customers with the product information required for successful projects.

Wherever you are, EJ provides access solutions that adhere to the local specifications in a timely and competitive manner. We also work with our customers to produce access solutions to meet their specialized requirements. Our sales staff around the world understand the unique needs of your market.

Our people: our core strength. While working together, employees use their expertise, knowledge, and ability to achieve positive results. Core values at EJ include safety and security, honesty and integrity, environmental responsibility, respect for others, quality and excellence, and social responsibility. These core values are imbedded into our culture and are practiced daily throughout the organization.

Our state-of-the-art manufacturing plants employ world class machinery, systems, and processes to produce specified products efficiently and on time.

Wherever you are, whatever your specific requirement might be, EJ has the best access solutions for your infrastructure project.



## Product Range

EJ offers a comprehensive portfolio of products and services, including municipal and construction castings, fabricated products, water distribution solutions, and other infrastructure access solutions.

## Quality Manufacturing

Integrating technology, lean processes and over a century of experience in crafting metal castings and fabrications, keeps our facilities performing at peak efficiencies.

## Distribution Network

Access solution products, including municipal and construction castings, are available worldwide at our internal stocking locations and from our extensive network of distribution partners.



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