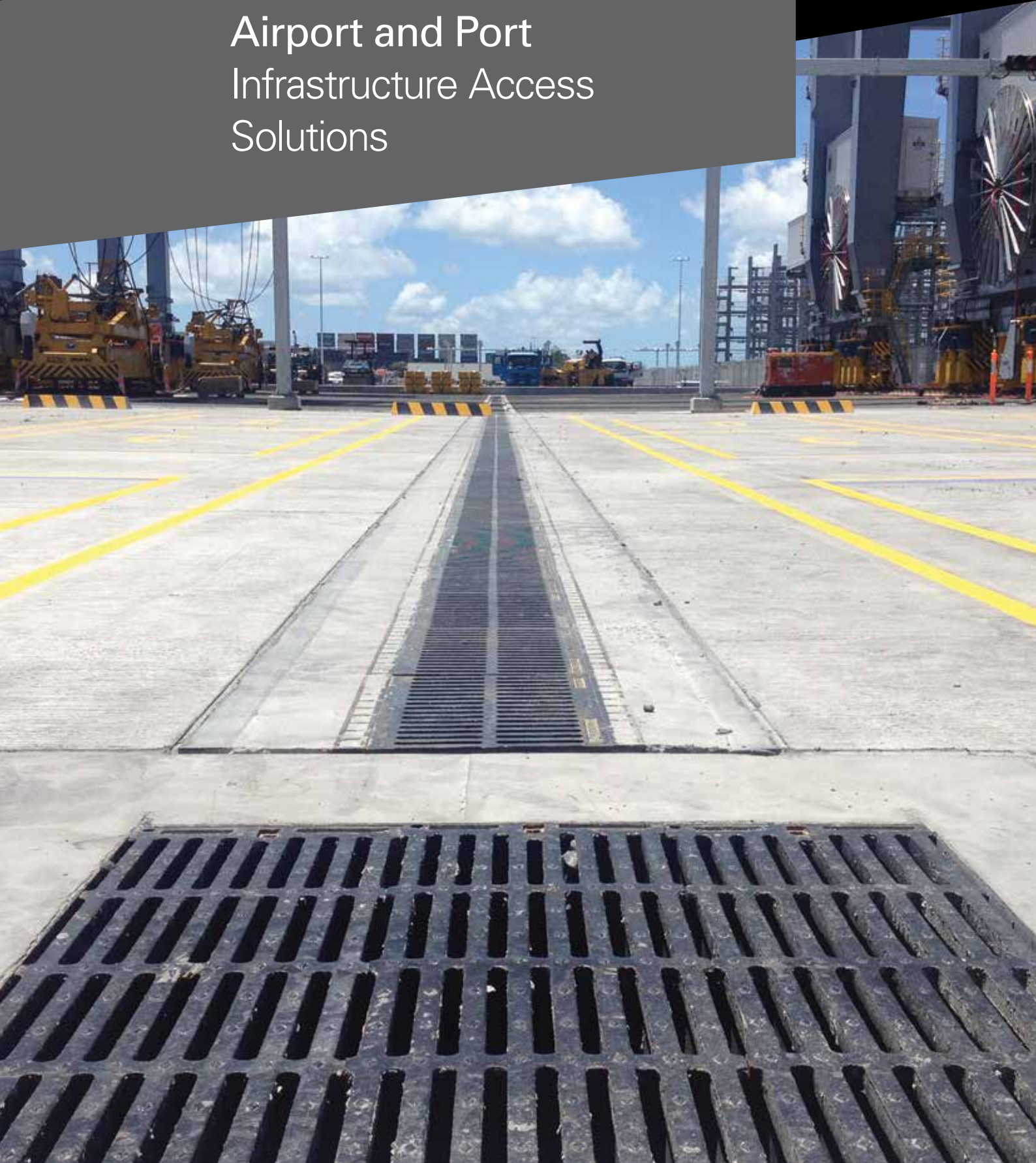




ej

# Airport and Port Infrastructure Access Solutions









Our people:  
Our core strength.

Along with our distributors and agents, we take pride in what we do. We are honest and genuinely committed to creating and maintaining real, long-lasting relationships. We work where you work, we live where you live. We hire the right people, and give them superior knowledge. It is our employees' world-class knowledge and expertise that continues to keep us leading in our globally competitive industry.

We are fortunate to have a long history of attracting and retaining outstanding people. Our workforce is diverse, knowledgeable and loyal and often includes multiple generations from the same family. Our passionate and dedicated teams repeatedly earn recognition for their high degree of professionalism.



# Table of Contents

<b>Loading Requirements and Proof Load Testing</b>	<b>6</b>
<b>General Overview</b>	<b>7</b>
<b>Manhole Frames, Covers &amp; Assemblies</b>	<b>11</b>
<b>Trench &amp; Drainage Grates</b>	<b>19</b>
<b>Cleanout &amp; Monument Boxes</b>	<b>27</b>
<b>Additional Solutions &amp; Information</b>	<b>31</b>

## Airport and Port Authority Access Solutions

Section	Category	Description	Page
	<b>Airport Introduction</b>	Overview	5
		Loading Requirements, Proof Load Testing, and Material Selection	6
	<b>General Overview</b>	We are EJ	7
		A Legacy is Cast	8
		Product Lines	9
<b>1</b>	<b>Manhole Frames, Covers and Assemblies</b>	Hinged Access Assemblies	12
		Single Part Gastight Covers	14
		ERMATIC® Modular Covers	16
		Junction Boxes	17
<b>2</b>	<b>Trench and Drainage Grates</b>	Longitudinal & Transverse Grates	20
		Ductile Iron Grates	21
		Linear Trench Drainage	23
<b>3</b>	<b>Cleanout and Monument Boxes</b>	Cleanout and Monument Boxes	28
		Airport Mooring Eyes	30
<b>4</b>	<b>Additional Solutions and Information</b>	Aluminium Access Hatches	32
		Product Lines	33
		ejco.com	37
		Airport and Port Projects	38



Quality  
ISO 9001



Our product and service quality is officially assured as EJ holds the international Quality Certification ISO 9001 and the IAPMO OceanaMark.

# Airport and Port Construction Castings and Innovative Access Solutions



EJ products are used on airport projects around the world, providing reliable drainage and access solutions.

EJ offers many styles of construction castings specifically designed for airports and other environments that undergo excessive load conditions. From round or square manhole frames and covers, catch basins, drainage inlets, trench grating and mooring eyes, EJ has you covered. All extra heavy duty construction castings are manufactured with grey iron conforming to ASTM A48 Class 35B and ductile iron conforming to ASTM A536. Many of our airport castings can be made-to-order with custom logos and messaging, in most languages, to meet your project specifications.

These airport and sea port authority access solutions can be found installed and in use at numerous airports, ports and other large projects located in North America, Europe, Australia and other parts of the world. For a list of projects utilising EJ products, please see page 38.

**Loading Requirements**

All of our products are designed to meet or exceed the specified loading requirements. They conform to AASHTO and ASTM standards. These standards specify product groups and minimum load classifications dependent on the place of installation. Additionally many castings are also certified by a third party to meet EN124 and AS3996 requirements.



**Proof Load Testing – Airport Castings**

All airport construction castings must pass a rigorous proof load test conducted in accordance with AASHTO M306 and AS3996 guidelines, with the proof load amount revised to 900 kN to account for high loading environments. The proof load testing procedure calls for the load to be concentrated on a 250mm x 250mm contact area in the centre of the cover or grate and hold 90 tonnes for one minute. Following the test the casting is carefully inspected. Cracks or permanent deformation beyond prescribed limits are cause for rejection. Frequently, EJ castings are tested far beyond the specified proof load, often to destruction. EJ castings that are rated for airport service are designed to meet or exceed the loading requirements listed in Federal Aviation Administration (FAA) advisory circulars AC 150/5320-6D Appendix 3 and AC 150/5370-10A, Item D-751.



**Material Selection**

Depending on the model, our construction castings can be manufactured using either grey iron or ductile iron. Grey iron has an unequalled record of success as a material for construction castings. Grey iron is highly resistant to corrosion and maintains compressive strength, abrasion resistance, vibration absorption and low-notch sensitivity. Additionally, grey iron has a long service life and is very cost effective. Ductile iron combines the advantages of grey iron with greater strength, toughness, higher impact resistance and increased durability without additional weight. Because it has the ability to withstand greater loads without failure, it is often specified for extra-heavy load applications.

Load Ratings and Descriptions

Rating (AS3996)	Acceptable Load Weight (T)	Typical Use
Airport Extra Heavy Duty Class G	Max. 90 tonnes 900 kN	Docks and aircraft pavements subject to very high wheel loads.
Extra Heavy Duty Class E and F	40-60 tonnes 400-600 kN	Docks and aircraft pavements subject to high wheel loads (Class F). General docks and aircraft pavements (Class E).
Heavy Duty Class D	21 tonnes 210 kN	Carriageways of roads and areas open to commercial vehicles.

# 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 website (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 specialised requirements. Our sales staff around the world understands 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 organisation.

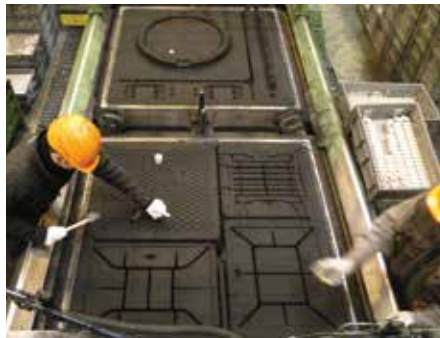
Our state-of-the-art manufacturing plants employ world class machinery, systems and processes to produce specified products efficiently and on time.

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.



## A Legacy is Cast



William E. Malpass (standing back right, next to window) with employees during the 1920s.

The EJ legacy dates back to 1883 when William E. Malpass and his father-in-law Richard W. Round established a foundry on the shores of Lake Charlevoix, in the town of East Jordan, Michigan, USA. This foundry was called East Jordan Iron Works and originally produced cast parts for the lumber industry, machinery, ships, agricultural equipment and railroads.

In the 1920s, when the lumbering era came to a close, the company expanded into new markets allowing continued success in changing times and shifted to the production of street castings, water works valves, fire hydrants and various industrial castings.

During World War II the foundry produced castings for the war effort.

In the 1950s semi-automation was introduced into the foundry. During the 60s, the third generation converted the foundry to an automated high-pressure molding line. By integrating automatic sand processing and mechanised casting handling systems, the company was

operating the largest automated molding line in the United States and maximised production capabilities.

Since the mid-1980s the business has been led by the fourth generation descendants of the Malpass family. They have transformed the Midwest business into an international leader of construction castings.

In the 1990s, new acquisitions throughout the United States allowed the company to expand product lines, sales offices, distribution capabilities and customer service across North America. In 2001, a new foundry was built in Oklahoma, providing additional capacity to service the construction castings market.

The 21<sup>st</sup> century had barely introduced itself when East Jordan Iron Works began turning its attention to expansion in other parts of the world, including Cavanagh Foundry in Ireland (2000), Norinco in France (2004), McCoy Construction Castings in Canada (2006), and HaveStock in Australia (2010).

In 1999, the fifth generation of the Malpass family began joining the company to continue the strong family commitment to its success. Dedicated to maintaining the company's long-established culture and values, they are significantly involved in strategies and priorities, bringing a renewed energy and enthusiasm to the company.

In 2012, East Jordan Iron Works and its affiliated companies began doing business using the same name and brand EJ. One global name and brand, supported by a single mission, vision and set of values has unified the company. This action leverages all company resources to improve internal operations, as well as provide superior product offerings and services to its valued customers. EJ has supplied products to infrastructure projects in over 140 countries around the world.

EJ continues to be 100% owned and operated by the Malpass family with corporate headquarters located in East Jordan, Michigan.



# Product Lines

## Street Castings

- Manhole Frames and Covers
- Curb Inlets and Frames
- Utility Castings
- Airport and Port Authority Castings
- Tree Grates
- Trench Grates
- Drainage Grates
- DURALAST® Detectable Warning Plates



## Fabricated Products

- Grating
- Riser Rings
- INFRA-RISER® Adjustment Risers
- Aluminium Access Hatches
- Custom Fabrications



## Water Products

- WaterMaster® Fire Hydrants
- FlowMaster® RW Gate Valves
- Valve Boxes
- Metre Boxes

## Innovative Access Solutions

- Captive Hinge Grates/Covers
- ERGO® and ERGO® XL Access Assemblies
- Ductile Hinged Hatch Access Assemblies
- 5624 Heavy Duty Hinged Grates
- SELFLEVEL® Access Assemblies
- REVOLUTION® Access Assemblies
- ERMATIC® Modular Covers
- Multi-Leaf® Hinged Covers
- CAMPRESSION® Access Assemblies
- Composite Access Covers



## Innovative Features

- LOCKEO® Security Feature
- Mechanical Strut Lift Assist
- Cam Lock
- EON LOCK® Designs
- EPIC® Pick Bar
- MPIC® Multi-tool Pick Bar







# Manhole Frames, Covers and Assemblies Section 1



## 8192-8198 HINGED ACCESS ASSEMBLIES



8192 hinged hatch  
610mm x 915mm



8197 grate option  
915mm x 915mm

Features	Cover	Grate	Frame	Lock Type	Other
Airport extra heavy duty Self-engaging hold open arm Lift assist	Ductile iron Solid Vented MPIC multi-tool pick bar	Ductile iron 4840 sq. cm. of open area—8197 series only	Ductile iron  <b>Top Flange</b> 130mm frame 150mm frame—8198 1220mm x 1220mm series only  <b>Bottom Flange</b> 130mm frame 150mm frame—8198 1220mm x 1220mm series only	Hex bolts Pent head bolts Cam lock	Gasketed Custom badging/ lettering



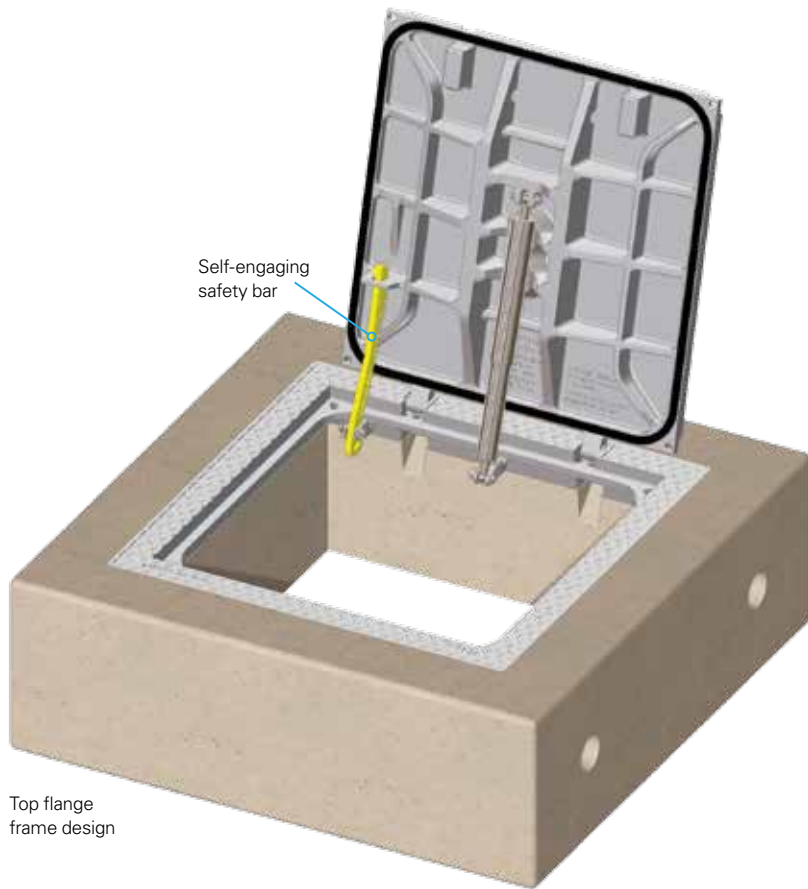
### Airport Extra Heavy Duty Sizes

Series No.	Clear Opening
8195	610 x 610
8192	610 x 915
8196	760 x 760
8196—Double	760 x 1575
8197	915 x 915
8197—Double	915 x 1880
8198	1220 x 1220

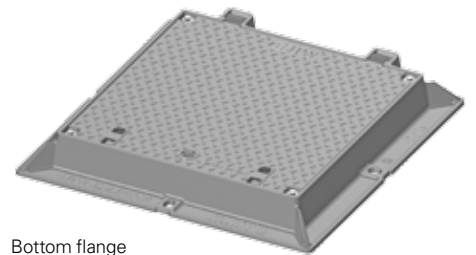
Note: All dimensions are in mm. Heavy duty rated hatches available.



## 8192-8198 HINGED ACCESS ASSEMBLIES (CONTINUED)



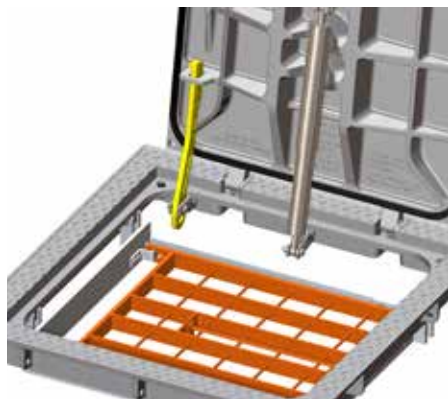
Top flange frame design



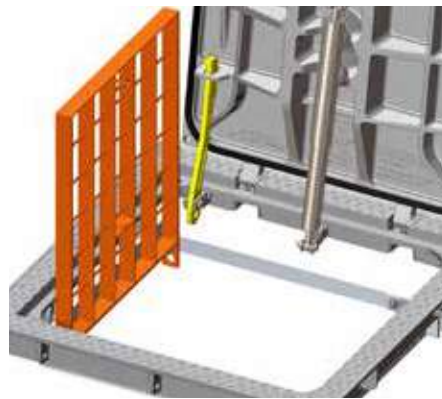
Bottom flange



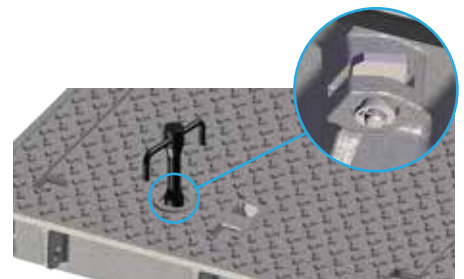
8196 double assembly  
760mm x 1575mm



Optional aluminium safety grate in the closed position



Optional aluminium safety grate in the open position



Optional security cam lock and wrench. Wrench is only removable when cover is in the locked position.



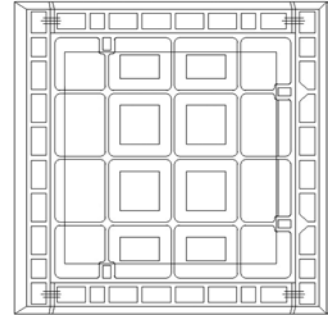
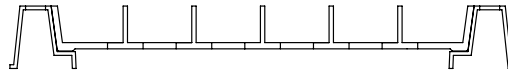
Lift assist is a corrosion-resistant stainless steel mechanical spring strut. Reduces the lifting force of the cover to less than 16 kg.



For a video on the functionality of our Hinged Hatches, please scan this QR code.

## SINGLE PART GASTIGHT COVERS

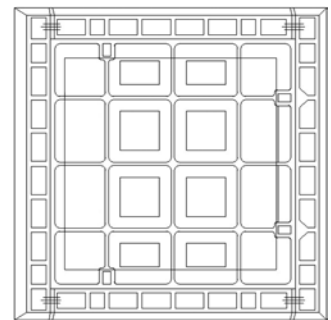
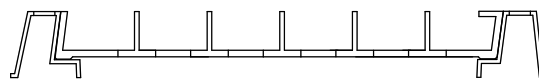
### Concrete Infill



Class E Concrete Infill

**400kN**

Code	Clear Opening (mm) Width x Length		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
A44E	450	450	530	520	662	662	73	100	84
A64E	600	465	680	535	812	677	73	100	100
A66E	600	600	680	670	812	812	73	100	115
A67E	600	750	680	820	812	962	73	100	142
A74E	750	450	830	520	962	662	73	100	120
A76E	750	600	830	670	962	812	73	100	138
A77E	750	750	830	820	962	962	73	100	155
A94E	915	465	995	535	1127	677	73	100	136
A96E	915	600	995	670	1127	812	73	100	155
A99E 2P	915	1000	995	1070	1127	1212	73	100	265
A106E	1067	600	1147	670	1279	812	73	100	190
A124E	1200	450	1300	540	1436	686	100	125	290
A126E	1200	600	1300	690	1436	836	100	125	332



Class F Concrete Infill

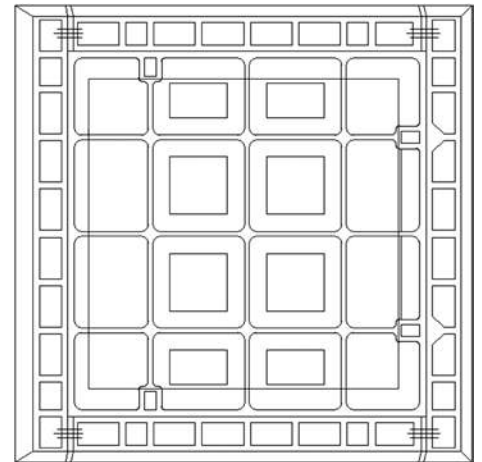
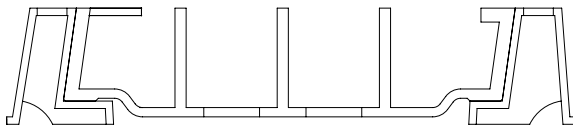
**600kN**

Code	Clear Opening (mm) Width x Length		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
A44F	450	450	550	540	686	686	100	125	125
A64F	600	450	700	540	836	686	100	125	149
A66F	600	600	700	690	836	836	100	125	171
A67F	600	750	700	840	836	986	100	125	212
A74F	750	450	850	540	986	686	100	125	170
A76F	750	600	850	690	986	836	100	125	205
A77F	750	750	850	840	986	986	100	125	231
A94F	915	450	1015	540	1151	686	100	125	210
A96F	915	600	1015	690	1151	836	100	125	235
A99F 2P	915	990	1015	1080	1151	1226	100	125	420



## SINGLE PART GASTIGHT COVERS

### Concrete Infill



Class G Concrete Infill

**900kN**

Code	Clear Opening (mm)		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
	Width	x Length							
A44G	450	450	550	540	686	686	100	125	125
A64G	600	450	700	540	836	686	100	125	149
A66G	600	600	700	690	836	836	100	125	171
A67G	600	750	700	840	836	986	100	125	212
A74G	750	450	850	540	986	686	100	125	170
A76G	750	600	850	690	986	836	100	125	205
A77G	750	750	850	840	986	986	100	125	231
A94G	915	450	1015	540	1151	686	100	125	210
A96G	915	600	1015	690	1151	836	100	125	235
A99G 2P	915	990	1015	1080	1151	1226	100	125	420

# ERMATIC® Modular Covers

The ERMATIC® system is a comprehensive and highly engineered range of access covers for a wide variety of underground services. This modular system can be customized to fit any underground vault dimension or cover configuration. The ERMATIC® range leverages the global engineering and design experience within EJ, to enhance ergonomic design and security.

### Features/Options

- Pedestrian to airport rated (or EN124 Standards—B125, C250, D400, E600, F900)
- Standard sizes between 50mm x 50mm to 255mm x 430mm
- Custom sizes available
- Water resistant
- Security locking
- Available with hinged and assisted opening (gas or spring loaded struts)
- Ergonomic key for opening
- Available with safety grates and/or safety railings
- Cover options: solid cover with 4L slip resistant tread, recessed for concrete infill or brick pavers, or cover with removable inner hatch/cover
- Available with PREMARK® anti-skid coating

### Project Applications

- Sewerage: inspection pits for sludge chambers, access shafts for large plants, etc.
- Telecommunications: cable jointing chambers, etc.
- Utility: lighting, signals, transformer pits, cable joint boxes, etc.

### Project Types

- Airports and ports
- Railways
- Tunnels
- Power stations
- Water treatment and purification plants
- Manufacturing plants
- Exhibition and convention centres, leisure parks, stadiums, etc.



Modular Construction—The use of modular elements gives a vast range of sizes. Frame elements (side frames and end plates) are assembled using bolts and aluminium joints to provide linear openings for even the longest ducts. Above clear opening spans of 1200 mm, ERMATIC® units use removable beams supported in boxes which are fixed to the frames. This allows the construction of units to suit the largest openings.



1/2/3 covers and frames



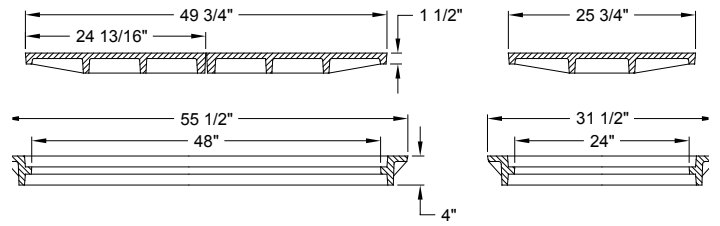
### Maximises Surface Area for Unobstructed Use

ERMATIC® products assure protection against damage, debris or aggressive chemicals, and allow designers to conceal underground services, maximising productive use of the unobstructed surface area.



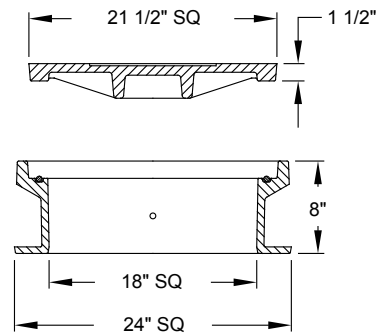
Cover with removable beams

## V6667 JUNCTION BOX FRAME WITH DOUBLE COVERS, GRATES



Features	Cover	Grate	Frame	Lock Type	Other
Extra heavy duty	Ductile iron Solid Pick bar	Ductile iron V5667	Grey iron <b>Reversible</b> 100mm frame—V6667	Crack drill hex bolts Crack drill pent head bolting	Custom badging/ lettering

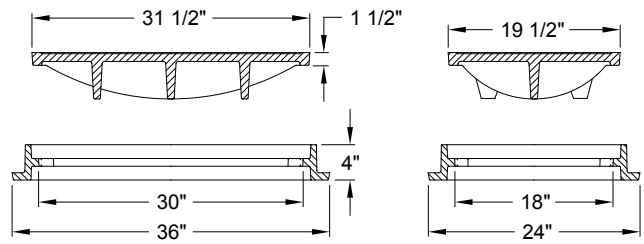
## 8080 JUNCTION BOX FRAME AND COVER



Features	Cover	Frame	Lock Type	Other
Airport extra heavy duty	Ductile iron Solid Pick bar	Grey iron <b>Bottom Flange</b> 205mm frame—8080Z	Hex bolts Pent head bolts	Gasketed Custom badging/ lettering

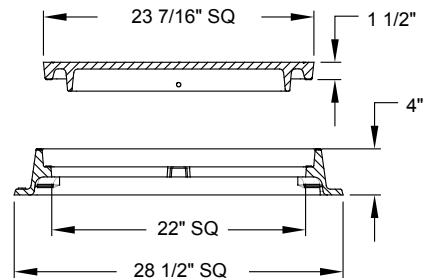
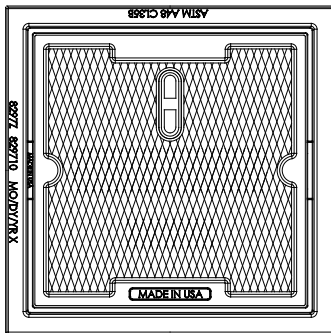


### 8083 JUNCTION BOX FRAME AND COVER



Features	Cover	Frame	Lock Type	Other
Airport extra heavy duty	Ductile iron Solid Drop handles	Grey iron <b>Reversible</b> 100mm frame—8083Z	Hex bolts Pent head bolts	Custom badging/ lettering

### 8297 JUNCTION BOX FRAME AND COVER



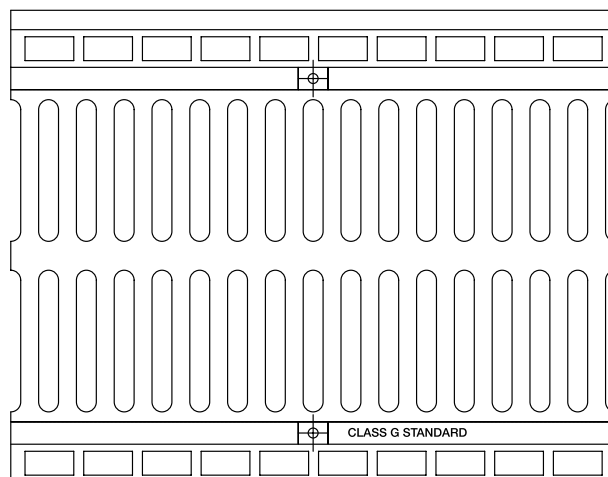
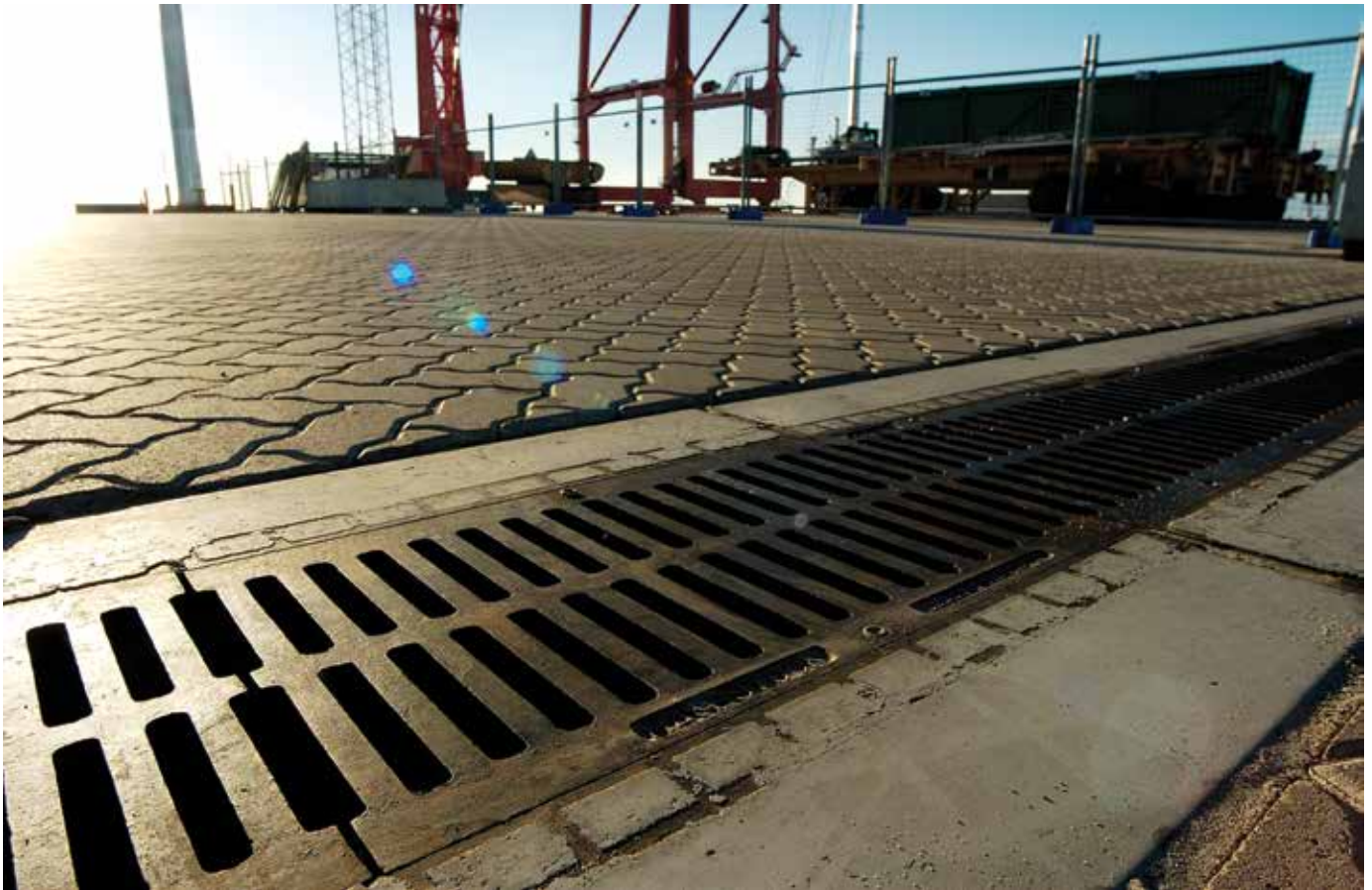
Features	Cover	Frame	Lock Type	Other
Extra heavy duty	Ductile iron Solid Pick bar Location for grounding strap	Grey iron <b>Bottom Flange</b> 100mm frame—8297Z Location for grounding strap	Hex bolts Pent head bolts	Custom badging/ lettering

## Trench and Drainage Grates Section 2



## LONGITUDINAL & TRANSVERSE GRATES

### Ductile Iron | Trench Grates



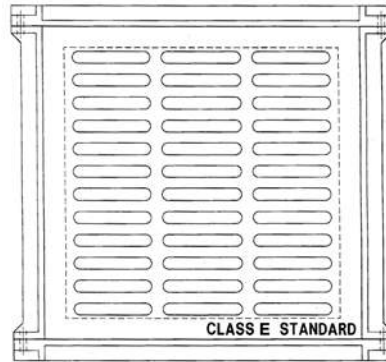
Class G  
**900kN**

Code	Bar Pattern	Clear Opening (mm) Width x Length		Overall Grate Width	Overall Grate Length	Overall Frame Width	Overall Frame Length	Grate Depth	Frame Depth	Mass (kg)
TG30G-T	Transverse	300	600	368	600	430	600	58	70	55
TG30G-C	Transverse	300	600	370	600	570	600	56	125	70



## DUCTILE IRON GRATES

### Sump Grates



Class E

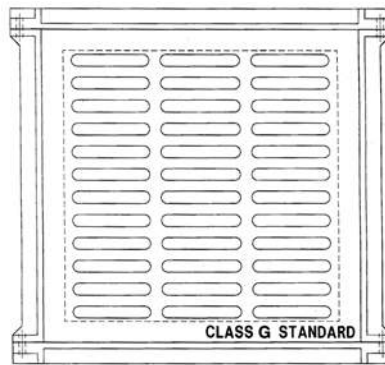
**400kN**

Code	Clear Opening (mm) Width x Length		Overall Grate Width	Overall Grate Length	Overall Frame Width	Overall Frame Length	Grate Depth	Frame Depth	Mass (kg)
G44E	450	450	520	520	620	590	60	80	98
G64E	600	450	670	520	770	590	60	80	120
G66E	600	600	670	670	770	740	60	80	145
G93E	900	300	940	320	1060	340	75	100	78
G96E	900	600	940	640	1060	660	75	100	156
G99E	900	900	940	960	1060	980	75	100	233
G912E	900	1200	940	1280	1060	1300	75	100	312



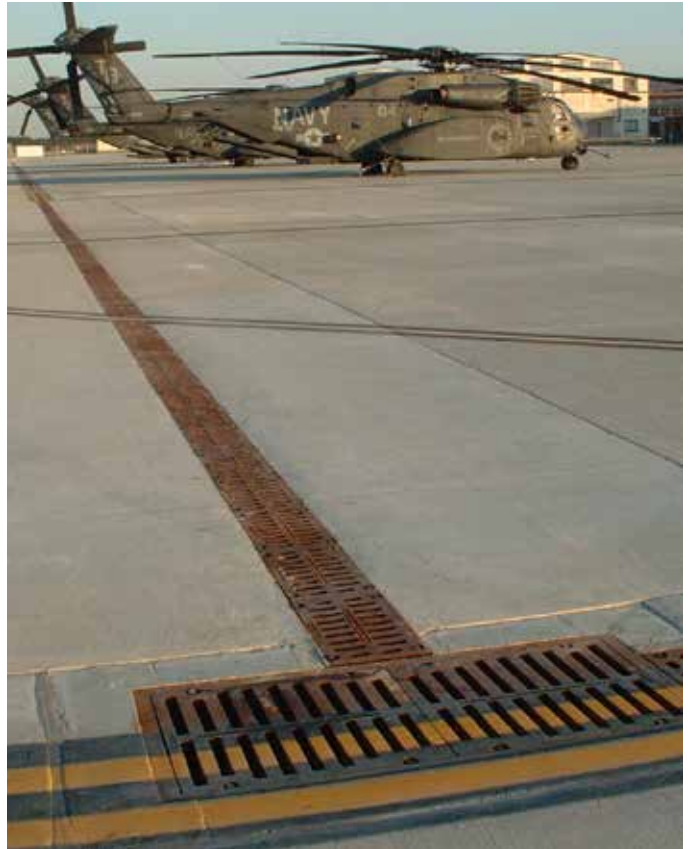
## DUCTILE IRON GRATES

### Sump Grates

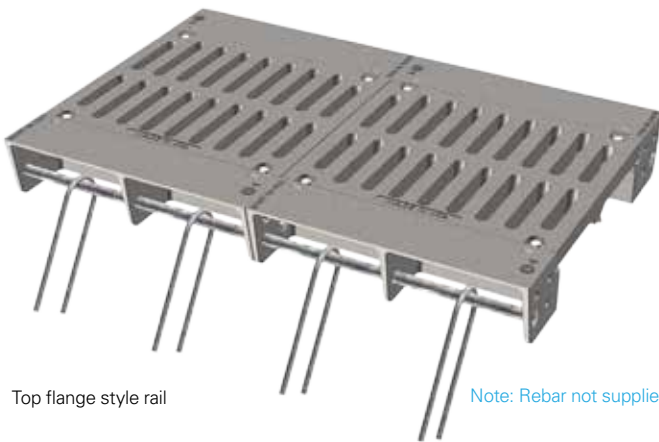


Class G  
**900kN**

Code	Frame Style	Clear Opening (mm) Width x Length		Overall Grate Width	Overall Grate Length	Overall Frame Width	Overall Frame Length	Grate Depth	Frame Depth	Mass (kg)
G44G	Tee	450	450	520	520	620	590	60	80	98
G44G-C	Cell	450	450	550	550	680	680	100	125	140
G64G	Tee	600	450	670	520	770	590	60	80	120
G66G	Tee	600	600	670	670	770	740	60	80	145
G66G-C	Cell	600	600	700	700	830	830	100	125	210
G93G	Tee	900	300	940	320	1060	340	100	125	134
G96G	Tee	900	600	940	640	1060	660	100	125	264
G99G	Tee	900	900	940	960	1060	980	100	125	396
G912G	Tee	900	1200	940	1280	1060	1300	100	125	498



## LINEAR TRENCH DRAINAGE



Top flange style rail

Note: Rebar not supplied



Angle style rail

Features	Grate	Trench Rail	Lock Type	Other
Airport extra heavy duty Holes in rail for rebar	Ductile or grey iron	<p><b>Top Flange</b> Grey iron 610mm lengths— 6900Z4</p> <p><b>Angle Style</b> Grey iron or ductile iron 610mm and 1220mm lengths— 6900Z1 and 6900Z2</p>	Hex bolts Pent head bolts	End cap for 610mm wide trench 45 degree turns— 460mm, 1220mm wide trenches 90 degree turns— 460mm, 610mm, wide trenches 90 degree tee—460mm, 610mm, wide trenches 90 degree cross intersection— 460mm, 610mm, wide trenches

6900 Top Flange Trench Frame 'Rail' and Grate Options

Catalog Number	Trench Width	Sq. mm. of Opening per Linear cm
6901M	150	740
6902M2DI	200	840
6903M2DI	255	1015
6904M2DI	305	1245
6905M2DI	380	1675
6906M3M4DI	460	2285
6908M4DI	610	2590
6909M1DI	760	6450
6910M2DI	815	3505
6912M	1220	6300

Note: All dimensions are in mm.

### Trench frame and grate with EON LOCK® security feature



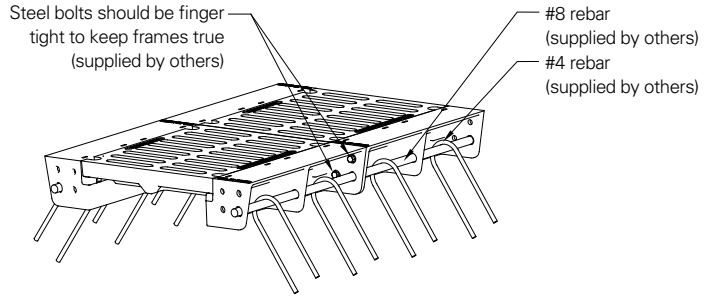
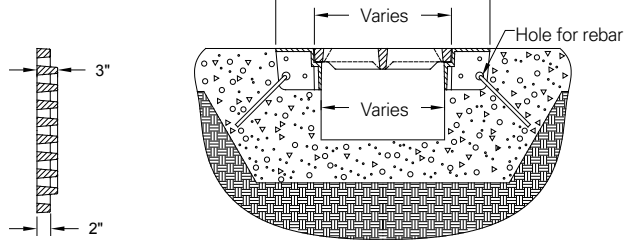
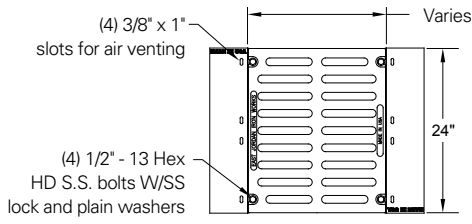
EON LOCK® square nut out horizontally



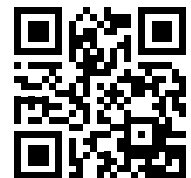
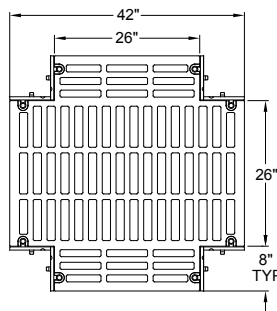
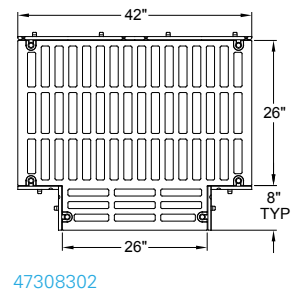
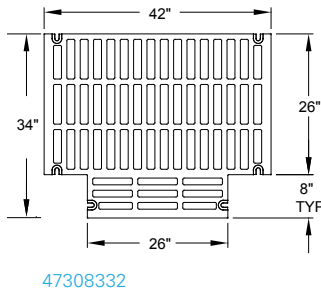
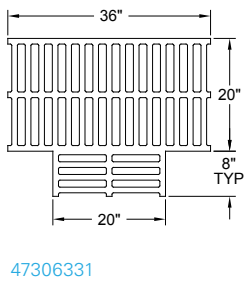
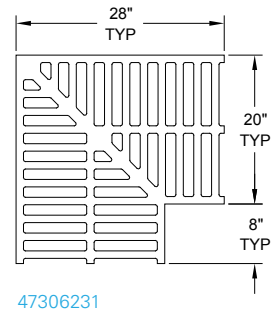
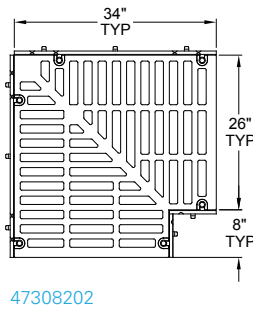
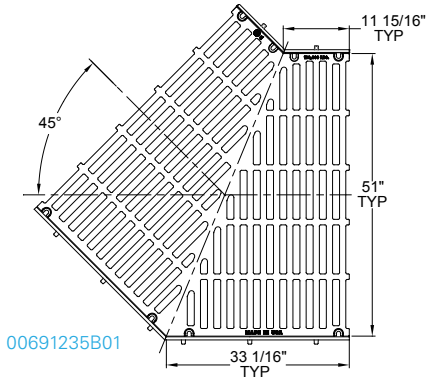
EON LOCK® square nut in horizontally



**LINEAR TRENCH DRAINAGE (CONTINUED)**

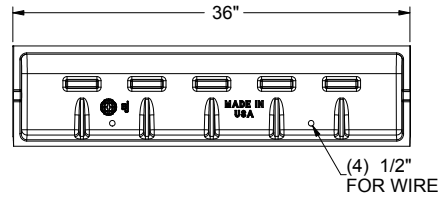


Caution: Do not disassemble bolted grates before setting sections in concrete



For more information about linear trench and other airport products, please scan this QR code.

### 6979 LINEAR SLOTTED DRAIN VANE GRATE

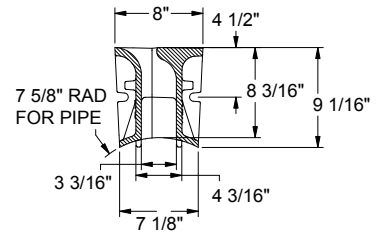


**Features**

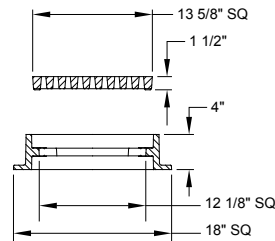
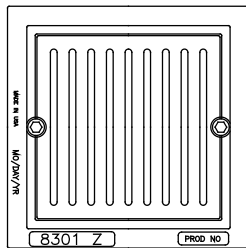
- Airport extra heavy duty
- 230mm tall
- Vane style grate
- Fits into slot cut into PVC pipe
- Allows for capture of surface water between catch basins



Cross section view



### 8301 FRAME AND GRATE



Features	Grate	Frame	Lock Type
Extra heavy duty	Ductile iron ADA style—325 sq. cm of open area—8201M	Grey iron  <b>Reversible</b> 100mm frame—8301Z	Crack drill hex bolts Crack drill pent head bolts

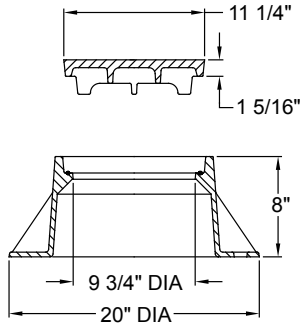




# Cleanout and Monument Boxes Section 3

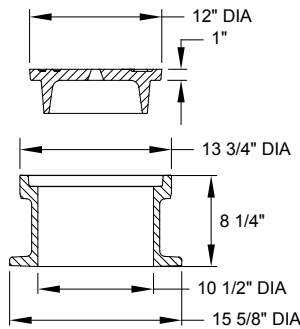


### 1578 CLEANOUT/MONUMENT BOX FRAME AND COVER



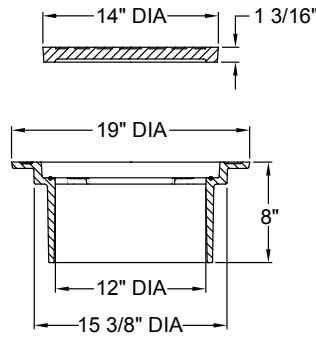
Features	Cover	Frame	Lock Type	Other
Airport extra heavy duty	Ductile iron Solid Closed pickholes	Grey iron <b>Bottom Flange</b> 205mm frame—1578Z	Hex bolts Pent head bolts	Gasketed Custom badging/ lettering

### 3697 CLEANOUT/MONUMENT BOX FRAME AND COVER



Features	Cover	Frame	Lock Type	Other
Airport extra heavy duty	Ductile iron Vented Lift hole	Grey iron <b>Bottom Flange</b> 210mm frame—3697Z	Crack drill hex bolts Crack drill pent head bolts	Custom badging/ lettering

### 1716 CLEANOUT/MONUMENT BOX FRAME AND COVER

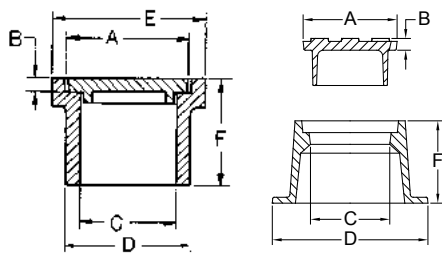


Features	Cover	Frame	Lock Type	Other
Airport extra heavy duty	Ductile iron Solid Closed pickholes	Grey iron <b>Top Flange</b> 25mm frame—1716Z 205mm frame—1716Z1	Hex bolts Pent head bolts	Gasketed Custom badging/ lettering Anchor studs on 75mm frame

### 2965 CLEANOUT/MONUMENT BOX FRAME, COVER AND GRATE



Illustrating bottom flange.



Illustrating top flange

Illustrating bottom flange

2960 - 2980 Monument Boxes

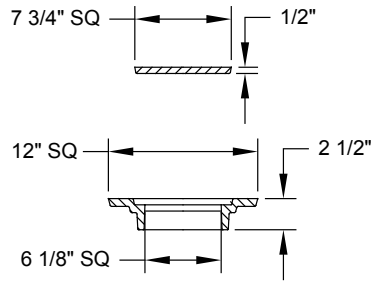
Catalog Number	Cover Diameter A	Cover Thickness B	Clear Opening C	Dimension D	Top Flange E	Frame Height F
2960 <sup>†</sup>	165	40	130	145	195	160
2965*	205	25	165	205	250	255
2966*	205	25	165	290	250	255
2967 <sup>†</sup>	205	25	165	200	250	255
2970 <sup>†</sup>	210	20	180	200	240	160
2975 <sup>†</sup>	245	20	210	230	275	190
2980 <sup>†</sup>	290	15	255	—	330	190

Note: All dimensions are in mm. \*Airport extra heavy duty rated. †Heavy duty rated.

Features	Cover	Grate	Frame	Lock Type	Other
Airport extra heavy duty	Ductile iron Solid Extra deep 75mm skirt on underside of cover Open pickholes	Ductile iron 2695M—110 sq. cm of open area	Grey iron <b>Bottom Flange</b> 45mm frame—1570Z 255mm frame—2966Z  <b>Top Flange</b> 255mm frame—2965Z custom badging/lettering	Crack drill hex bolts Crack drill pent head bolts	Custom badging/ lettering



### 8350 MONUMENT BOX FRAME AND COVER



Features	Cover	Frame	Lock Type	Other
Airport extra heavy duty	Grey iron Solid Open pickhole	Grey iron <b>Top Flange</b> 15mm frame—8380Z	Countersunk screw	Custom badging/ lettering

### AIRPORT MOORING EYES



5993 Series



5996 Series



5999 Series

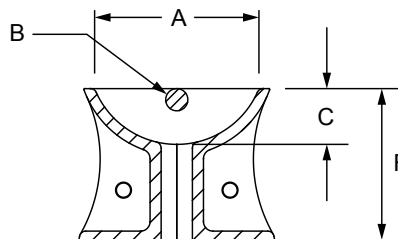
Features

Airport extra heavy duty  
Ductile iron

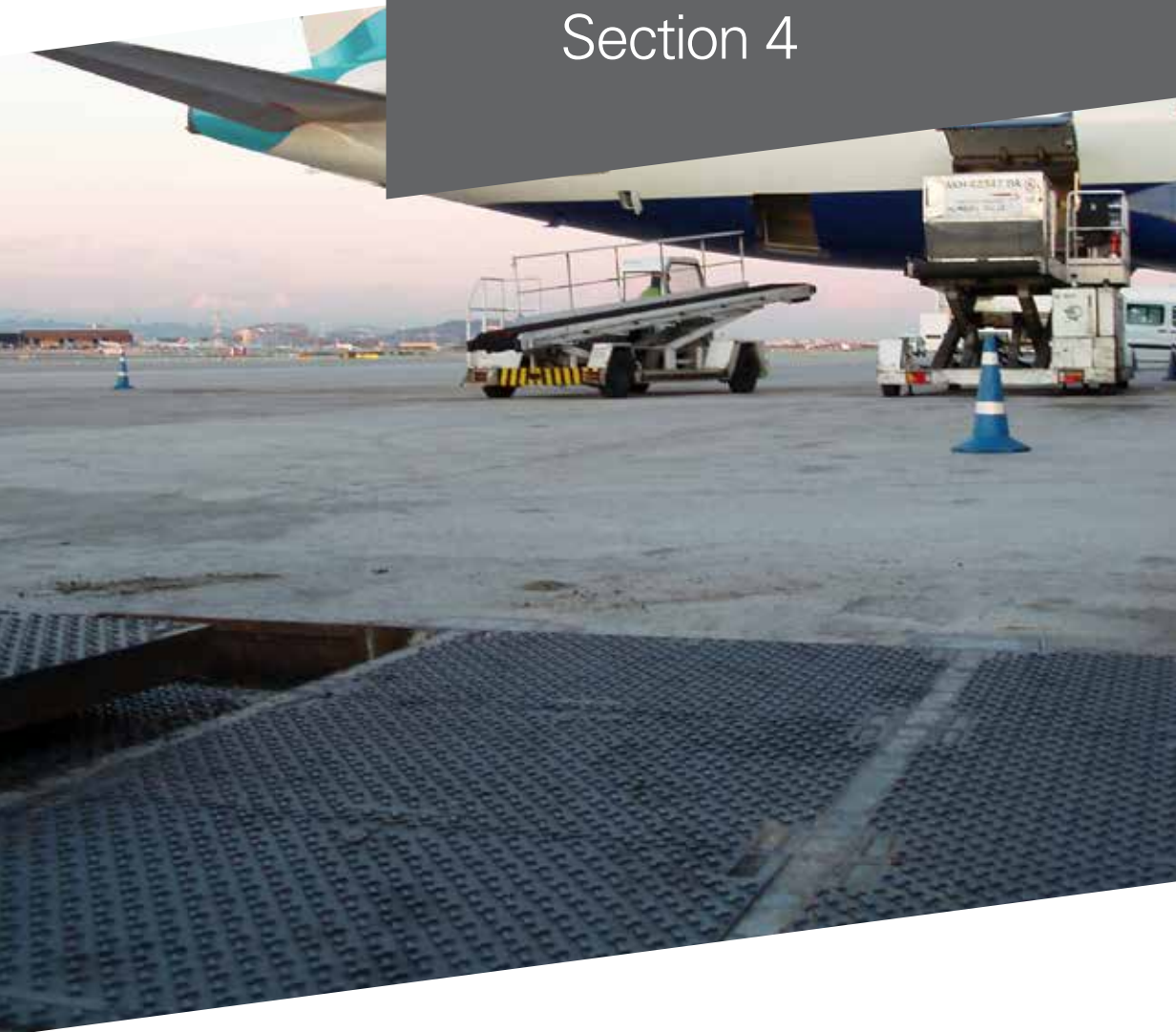
Airport Mooring Eyes

Catalog Number	Width A	Dia. B	Depth C	Height F	Pull Out Force*
00599300	165	20	55	90	900 kN
00599600	165	20	55	150	900 kN
00599900	405	60	205	230	900 kN

\*Pull out force of mooring eyes is dependent on proper anchoring in the field. These products are suitable for environments requiring much greater pull out force, if properly anchored. Measurements in mm unless otherwise noted.



# Additional Solutions and Information Section 4



# Aluminium Access Hatches

Hatches designed for pedestrian and unintended traffic rating, backed by proper engineering calculations. This product features heavy duty lift handles, stainless steel hinges with a 0.5mm diameter stainless steel hinge pin, and stainless steel slam lock plugs. State-of-the-art manufacturing.

### Design Features

- Easy installation: in many cases, all that is needed is the removal of the existing cover and hinges. The new hatch is then lagged to the top of the existing structure.
- All stainless steel hardware
- Stainless steel lift-spring for ease of opening cover
- Exposed padlock clip: other locking devices are available upon request.

### Design Benefits

- Visual inspection: limited maintenance can be performed with safety grates in place.
- Visible hazard barrier: safety orange epoxy coating is highly visible for hazard areas.
- Corrosion resistant

Caution: Aluminium access hatches are not airport traffic rated and are intended for pedestrian rated applications.



Shown with optional SAFE HATCH® Safety Grate System



Slam lock with plug



T-handle in slam lock



Lift hinges and hardware —stainless steel



Recessed padlock clip closed



Recessed padlock clip open



Safety sure grip optional (left), slip resistant surface per ADA standards



## MANHOLE FRAMES AND COVERS



EJ produces street castings to meet ASTM and AASHTO criteria. In addition, our castings meet federal and state DOT specifications, and that of individual customers. Non-traffic, light, medium, heavy and extra heavy-duty airport are the load designations assigned, which indicate where (on which application) a product should be used.

As a result of continued research and development—the product line is increasingly expanding—and has become more complex and diverse than ever. New features such as ergonomic lift-assist devices; new configurations that are more modular and scalable; new advanced security attributes help prevent theft or mitigate explosions; and applied technology provides capabilities like remote sensing with wireless telemetry.

## UTILITY CASTINGS



EJ offers a comprehensive line of high quality utility construction casting solutions for specialised applications such as telecommunication, electric, gas, traffic signals and street lighting.

Utilities are the lifeblood of any facility, and uninterrupted service is crucial. Our product designs offer superior access and unparalleled security for critical infrastructure—available in a variety of sizes, shapes, materials and load ratings to fit the needs of any project.

EJ is the world leader in telecom and utility solutions, offering features and attributes to meet your unique requirements:

- Ergonomic and safety
- Vented covers
- Composite materials
- Wireless monitoring
- Specialty and custom
- Explosion mitigation

## DRAINAGE CASTINGS



Drainage castings or grates are designed to accept water and can be round, square, or rectangular. They are typically sold with a frame, curb inlet frame, monument box, or bridge drain. Some markets call these slotted covers.

Specifying the appropriate drainage solution is an important part of a storm water management plan. EJ offers a wide array of products designed for storm water drainage including ditch grates, pipe grates, curb and gutter inlets and catch basins. Drainage castings are available as an assembly or set. EJ also offers bridge drains, scuppers and a grates.

Optional “Dump No Waste! Drains To Waterways” and other custom cast-in lettering is an effective, low cost and long term means to support local environmental initiatives.

## TRENCH



From pedestrian areas to airport loading ramps, EJ has the trench drainage solution to fit your application. With a grate that is designed to be supported on two sides, it is expandable and available in numerous widths.

Grating options include parallel grates, perpendicular cross-street drainage, and ADA styles - available in 610mm lengths, and width from 205mm up to 1295mm. Frames come in standard 610mm, 915mm and 1220mm lengths.

Standard heavy duty grates and covers are suitable for general traffic service and AASHTO H-20 loading conditions. Our ADA style trench grating and solid trench covers are available for either general traffic loading or non-traffic applications. Extra heavy duty (EXA) airport trench grating is made with ductile iron and is proof load tested to 900 kN.

For that artistic touch, EJ offers designer trench grates that can be standalone architectural enhancements, or can accompany matching tree grate designs.

## ADJUSTMENT RISERS



Maintain the integrity of your infrastructure by reducing traffic vibration damage. Adjust any manhole or catch basin to grade on your resurfacing projects, new installations, or rehabilitation work with INFRA-RISER® rubber composite adjustment risers.

Below ground—INFRA-RISER® reduces traffic vibration damage—prolonging the life of manhole structures and surrounding pavement:

- Protects against load concentration stress
- Dramatically reduces water infiltration
- Perfect grade adjustment in moments with uniform precision
- Will not break, split, rot, crack, or chip
- Made of 92% recycled raw materials
- Round, square, and rectangular designs; flat and tapered risers, select bolt hole patterns
- Custom sizes available

INFRA-RISER® adjustment riser is a simple, economic, efficient, and long-lasting solution. It dissipates the energy transferred between the casting and the manhole structure.

## RISER RINGS



Riser rings are an adjustable solution to bring a manhole or catch basin to grade on your resurfacing projects. They are used in conjunction with a frame to increase its overall height. A typical application would be during pavement overlays.

Avoid unnecessary project costs by eliminating extra labour, equipment and materials. There are reduced traffic disruptions—when the street is paved the job is done and the manhole cover is finished to grade.

- Solid or adjustable styles
- Steel and cast iron risers available to fit all your grade adjustments
- Load tested to ensure dependable strength and long lasting durability
- Large inventory ready for delivery nationwide
- Made to order sizes for custom application
- Slope risers available
- DOT approved in many states

## FIRE HYDRANTS



WaterMaster® Fire Hydrants have set the standard for reliability and ease of maintenance. With 2 and 3-nozzle hydrant designs, along with multiple shoe connection options, WaterMaster® hydrants offer the right options to meet your standard specifications. All hydrants are compliant with the Reduction of Lead in Drinking Water Act 2011. Computer aided design and analysis, along with ductile iron construction, ensures superior performance. All cast components are made and assembled in the USA.

Each hydrant is pressure tested to twice the rated working pressure. WaterMaster 5CD250 and 5BR250 Fire Hydrants meet or exceed the requirements of ANSI/AWWA C502 Standard for Dry-Barrel Fire Hydrants, Underwriters Laboratories Standard UL246, and Factory Mutual 1510.

Options include individual hydrants being assembled to your (municipal) specification. Additionally, EJ offers hydrant accessories, including the snow barrel for BR models to keep hydrants accessible for areas with high snowfall, and Storz nozzle connections for quick pumper nozzle attachment.

## GATE VALVES



FlowMaster® Resilient Wedge Gate Valves are designed to control the flow of water, such as in fire hydrant applications—but can also be utilised for other water distribution or sewer system applications. All valves are compliant with the Reduction of Lead in Drinking Water Act 2011.

The valves incorporate quality parts and a simple design. All-ductile iron construction delivers superior strength, impact resistance and reduced weight ensuring long service life. All valve parts are manufactured and assembled in the USA.

Available in 50mm through 610mm sizes, with multiple end connections, and bevel or spur gear operators for 510mm and 610mm valves. The valves are available as either an assembly or set.

FlowMaster® meets or exceeds the performance requirements of AWWA C515 and Underwriters Laboratories Standards UL262. The valve body and other ductile iron components are manufactured from material conforming to ASTM A536. The wedge is fully rubber encapsulated to meet ASTM D429 requirements.

## VALVE BOXES



Valve boxes are used to access an underground valve and can be adjustable using multiple pieces with either a screw type or slip type arrangement.

Valve boxes are available to accommodate 100mm through 510mm valves.

- Natural grey iron and asphalt coated
- Covers with special lettering and custom logos
- Locking lids
- Valve box risers—raise valve box lid to adapt to a new grade
- Made in the USA

The slip type has interchangeable pieces that allow for overall height adjustment with parts sliding past each other, while the screw type has interchangeable pieces that allow for overall height adjustment with parts threaded into each other. The valve boxes are available as either an assembly or set—depending on whether assembled together before shipment to the customer.



## METRE BOXES



The metre box product is specifically intended to cover a water metre. It is typically large enough for inspection and limited access, and is often intended for non-traffic situations.

EJ offers an assortment of metre boxes, covers, and rings to fit your application. Our broad metre box product offering includes customised logo covers to help promote your entity's identity, special lettered covers that clearly identify the access point, and touch read covers.

- Oval metre boxes
- Round metre boxes
- Rectangular metre boxes
- Metre pits
- Metre lids
- Metre box cover accessories including security locking

Metre boxes are available as either an assembly or set—depending on whether assembled together before shipment to the customer.

## TREE GRATES



Style your surroundings with timeless and appealing streetscape products manufactured by EJ. Tree grates are durable, functional, and architecturally appealing, and promote healthy tree growth. Designed for pedestrian traffic; our full line of tree grates provide natural drainage and enhance any urban, campus, or park setting.

The slotted design allows for efficient watering and is ADA compliant for pedestrian safety. The narrow slot of an ADA grate also prohibits litter from collecting in the tree well and minimizes the growth of weeds.

Optional expandable tree openings consist of removable centre rings, which are a convenient way to adjust diameter of the grate opening as the tree trunk grows in width. Other options include security bolting features, and light port options.

Cast iron grating is strong and stands up to harsh environmental conditions. As an added value, the tree grates can carry community logos and mottos and made in the USA.

## DETECTABLE WARNING PLATES



DURALAST® Detectable Warning Plates help warn the blind or visually impaired of the approaching street. Engineered to outlast the sidewalk, this cast iron plate is a long-lasting streetscape product that can withstand rigorous urban conditions, such as snow plows, street cleaning machines, and vehicular traffic.

Lower your maintenance and product life cycle costs by using DURALAST® Detectable Warnings—your ADA compliant and environmentally friendly solution.

- Long-wearing cast iron (over 500 times more wear resistant than composites\*)
- Withstands vehicular and snow plow traffic
- Corrosion resistant
- Permanently embedded into concrete
- Comply with the latest ADA guidelines regarding pedestrian and vehicular traffic

\*An independent third party laboratory test was conducted to determine the wear index values of DURALAST® Detectable Warning Plates versus a competing composite surface. Test results indicate that DURALAST® plates are over 500 times more wear resistant than composites.

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Featuring a comprehensive product database with advanced search and browsing capabilities

### Information for Registered Users

- Quick and easy registration
- PDF sales drawings for download
- Specification information
- Customisable project lists
- Detailed product info

### Up-to-date Product Resources

- Literature
- Videos
- Installation instructions

### The Video Tour

- Collection of online videos providing an overview of key features and functions

### Finding your Solution

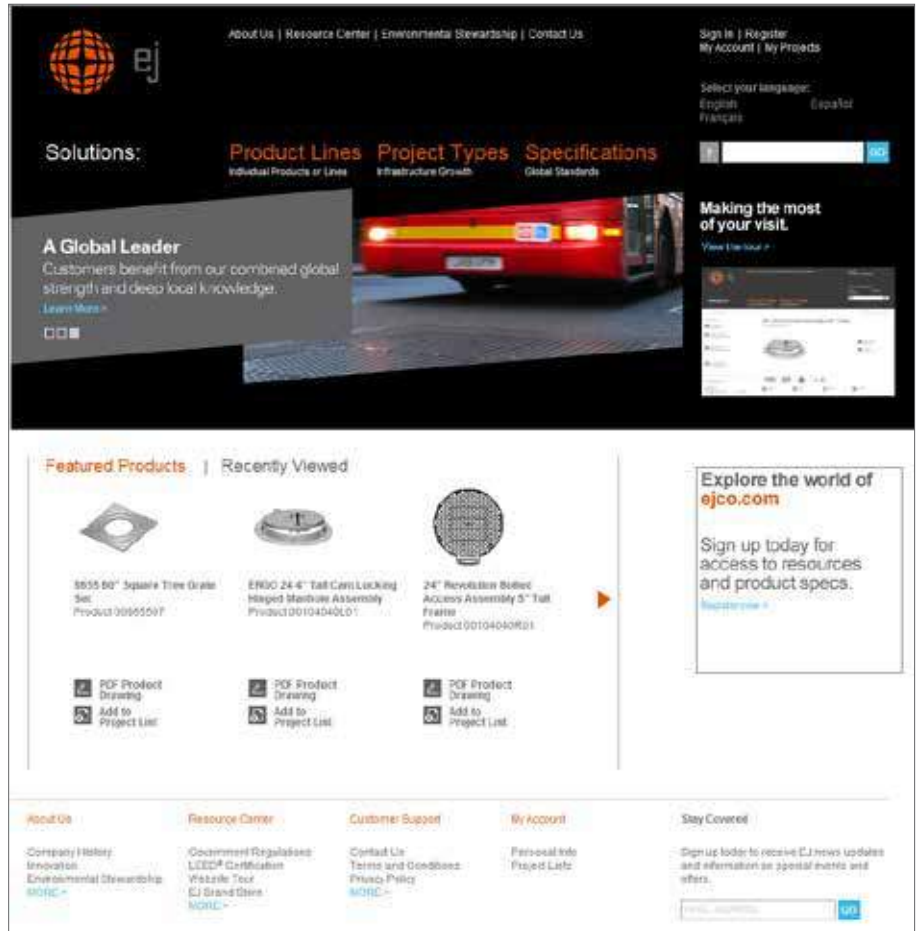
- Search by Product Line
- Search by Project Type
- Search Bar
- Narrow Search by Product Attributes
- Search by Regional Specification

### Product Specifications

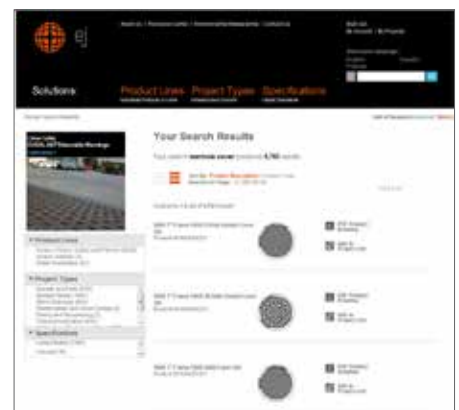
- Available only to registered users
- National and international specifications
- Local Standards—City, County, State

### Project Lists

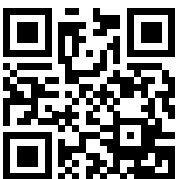
- Simple to create
- Quick access to frequently used products
- Helps manage complex projects
- Feature—request a quote with a click of a button
- Feature—print project list
- Feature—e-mail project list
- No limit to the number of lists



The Website Tour is available on the home page, and in the Resource Center



The search results can be narrowed by using the facets and attributes on the left



Scan this QR code to visit our website to learn more about our products and to set up your user account.

# Airport and Port Projects

Projects	Country	Location																																																																																										
<b>Airport Projects</b>																																																																																												
<b>AMERICAS</b>	United States of America	<table border="1"> <tr> <td> <b>Arizona</b> Phoenix Sky Harbor Intl. (PHX) Tucson Intl. (TUS)                 </td> <td> <b>Indiana</b> Indianapolis Intl. (IND)                 </td> <td> <b>Ohio</b> Cleveland Hopkins (CLE)                 </td> </tr> <tr> <td> <b>California</b> John Wayne (SNA) Los Angeles Intl. (LAX) San Jose Intl. (SJC) Santa Maria Public (SMX)                 </td> <td> <b>Iowa</b> Fort Dodge Regional (FOD)                 </td> <td> <b>Pennsylvania</b> Philadelphia Intl. (PHL) Pittsburgh Intl. (PIT)                 </td> </tr> <tr> <td> <b>Colorado</b> Denver Intl. (DEN)                 </td> <td> <b>Kentucky</b> Cincinnati/Northern Kentucky Intl. (CVG)                 </td> <td> <b>Tennessee</b> Memphis Intl. (MEM)                 </td> </tr> <tr> <td> <b>Delaware</b> New Castle County (ILG)                 </td> <td> <b>Maryland</b> Baltimore/Washington Intl. (BWI)                 </td> <td> <b>Texas</b> Dallas-Fort Worth Intl. (DFW) George Bush Intercontinental (IAH) Scholes Intl. at Galveston (GLS) William P. Hobby (HOU)                 </td> </tr> <tr> <td> <b>Florida</b> Jacksonville Intl. (JAX) Miami Intl. (MIA) Sarasota-Bradenton (SRQ)                 </td> <td> <b>Massachusetts</b> General Edward Lawrence Logan Intl. (BOS)                 </td> <td> <b>Virginia</b> Ronald Reagan Washington National (DCA) Washington Dulles Intl. (IAD)                 </td> </tr> <tr> <td> <b>Georgia</b> Hartsfield-Jackson Atlanta Intl. (ATL) Savannah Airport (SAV)                 </td> <td> <b>Michigan</b> Detroit Metropolitan (DTW)                 </td> <td> <b>Washington</b> Sea-Tac Intl. (SEA) Spokane Intl. (GEG)                 </td> </tr> <tr> <td> <b>Illinois</b> Chicago O'Hare Intl. (ORD)                 </td> <td> <b>Minnesota</b> Minneapolis-Saint Paul Intl. (MSP)                 </td> <td> <b>Wisconsin</b> General Mitchell Intl. (MKE)                 </td> </tr> <tr> <td>Canada</td> <td colspan="2">Montréal Pierre Elliott Trudeau Intl. (YUL)</td> </tr> <tr> <td>Mexico</td> <td colspan="2">Licenciado Benito Juarez Mexico Intl. (MEX)</td> </tr> <tr> <td>Argentina</td> <td colspan="2">Ministro Pistarini Intl. (EZE)</td> </tr> <tr> <td>Columbia</td> <td colspan="2">El Dorado Intl. (BOG)</td> </tr> <tr> <td>Jamaica</td> <td colspan="2">Sangster Intl. (MBJ)</td> </tr> <tr> <td>Puerto Rico</td> <td colspan="2">Luis Munoz Marin Intl. (SJU)</td> </tr> <tr> <td><b>EUROPE, MIDDLE EAST AND AFRICA (EMEA)</b></td> <td>United Kingdom</td> <td>Manchester Runway II (MAN), London Heathrow (LHR)</td> </tr> <tr> <td></td> <td>Spain</td> <td>Madrid Barajas Intl. (MAD)</td> </tr> <tr> <td></td> <td>France</td> <td>Charles de Gaulle Intl. (CDG)</td> </tr> <tr> <td></td> <td>Ireland</td> <td>Dublin (DUB), Shannon (SNN)</td> </tr> <tr> <td></td> <td>Germany</td> <td>Frankfurt am Main Intl. (FRA), Stuttgart (STR), Franz Josef Strauss Intl. (MUC)</td> </tr> <tr> <td></td> <td>Greece</td> <td>Eleftherios Venizelos Intl. (ATH)</td> </tr> <tr> <td></td> <td>Italy</td> <td>Linate (LIN), Malpensa Intl. (MXP)</td> </tr> <tr> <td></td> <td>Poland</td> <td>Warsaw Chopin (WAW)</td> </tr> <tr> <td></td> <td>Egypt</td> <td>Cairo Intl. (CAI)</td> </tr> <tr> <td></td> <td>United Arab Emirates</td> <td>Dubai Intl. (DXB)</td> </tr> <tr> <td></td> <td>South Africa</td> <td>OR Tambo Intl. (JNB)</td> </tr> <tr> <td><b>ASIA-PACIFIC</b></td> <td>Australia</td> <td>Sydney Intl. (SYD), Melbourne Intl. (MEL), Brisbane Intl. (BNE), Cairns Intl. (CNS), RAAF Base Amberley, Qantas Maintenance Hangars (BNE), Qantas Freight Facility (SYD)</td> </tr> <tr> <td></td> <td>China</td> <td>Beijing Capital Intl. (PEK)</td> </tr> <tr> <td></td> <td>Guam</td> <td>Antonio B. Won Pat Intl. (GUM)</td> </tr> <tr> <td></td> <td>New Zealand</td> <td>Christchurch Intl. 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(MIA) Sarasota-Bradenton (SRQ)	<b>Massachusetts</b> General Edward Lawrence Logan Intl. (BOS)	<b>Virginia</b> Ronald Reagan Washington National (DCA) Washington Dulles Intl. (IAD)	<b>Georgia</b> Hartsfield-Jackson Atlanta Intl. (ATL) Savannah Airport (SAV)	<b>Michigan</b> Detroit Metropolitan (DTW)	<b>Washington</b> Sea-Tac Intl. (SEA) Spokane Intl. (GEG)	<b>Illinois</b> Chicago O'Hare Intl. (ORD)	<b>Minnesota</b> Minneapolis-Saint Paul Intl. (MSP)	<b>Wisconsin</b> General Mitchell Intl. (MKE)	Canada	Montréal Pierre Elliott Trudeau Intl. (YUL)		Mexico	Licenciado Benito Juarez Mexico Intl. (MEX)		Argentina	Ministro Pistarini Intl. (EZE)		Columbia	El Dorado Intl. (BOG)		Jamaica	Sangster Intl. (MBJ)		Puerto Rico	Luis Munoz Marin Intl. (SJU)		<b>EUROPE, MIDDLE EAST AND AFRICA (EMEA)</b>	United Kingdom	Manchester Runway II (MAN), London Heathrow (LHR)		Spain	Madrid Barajas Intl. (MAD)		France	Charles de Gaulle Intl. 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Note: This list is not inclusive of all projects. Project references available upon request.



# Airport and Port Projects (continued)

Projects	Country	Location
<b>Port Projects</b>		
<b>AMERICAS</b>	United States of America	Long Beach (California), Port Authority of New York and New Jersey, Port of Houston (Texas), Blount Island Marine Terminal (Florida), Port of Savannah (Georgia)
	Mexico	Port of Vera Cruz
	Brazil	Paranagua
<b>EUROPE, MIDDLE EAST AND AFRICA (EMEA)</b>	United Kingdom	DML Devonport Royal Dockyard, Portsmouth Naval Base HMS Warrior Portsmouth
	France	Dunkerque - Rouen
	Germany	Bremenhaven, Kiel, Frankfort
	Spain	Valencia
<b>ASIA-PACIFIC</b>	Australia	Port of Brisbane (QLD), Darwin Port (NT), Tech Port (SA), HMAS Garden Island (NSW), Port Botany (NSW), Port of Melbourne (VIC), Swanston Dock, Webb Dock
	New Zealand	Port of Lytleton (CHC)
<b>Large Project</b>		
<b>AMERICAS</b>	United States of America	North Texas Tollway Extensions, Dallas Area Rapid Transit, Dallas Cowboys Metroplex Stadium, American Airlines Arena in Dallas, Texas, Heinz Field in Pittsburgh
<b>EUROPE, MIDDLE EAST AND AFRICA (EMEA)</b>	United Kingdom	Wembley Stadium, Channel Tunnel
	France	Disneyland Paris, TGV Train Stations
	Spain	Bilbao Exhibition Centre
<b>ASIA-PACIFIC</b>	Australia	APLNG Gas Pipeline (QLD), Perth Arena (WA), Gold Coast Light Rail (QLD), Sydney Opera House Forecourt Upgrade (NSW)
	Malaysia	Kuala Lumpur Exhibition Centre
	New Zealand	Hinged Sewer and Stormwater Covers for Auckland, Wellington and Christchurch
	Singapore	Night Race Formula 1 Circuit

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