Technical Catalogue
Edition 4


CIGWELD
Professional

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.

EJ
A world of infrastructure products and service

Queensland Factory, Brisbane, Australia.

EJ is the world's leading designer and manufacturer of high quality cast ductile manhole covers and frames, gratings, fabricated metal products, fire hydrants and gate valves. The construction, civil engineering, water, energy and telco industries that choose to install first-rate, quality fittings, instinctively turn to EJ here in Australia.

EJ is a global leader in infrastructure access solutions. Its global presence provides clients with immediate access to people who bear the superior knowledge and expertise in the industry, no matter where they are in the world.

Now, EJ has multiple, well established sales, distribution and manufacturing facilities for infrastructure systems in the Americas, Europe, Asia-Pacific and Australia.

The Malpass Family, from East Jordan, Michigan, USA, owns and operates the company, as they have since 1883. The family believes strongly in the value of regional knowledge and supports local initiatives in every one of their worldwide centres.

We thank you for your business and look forward to your continued support. For more information please visit **ejco.com**

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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.

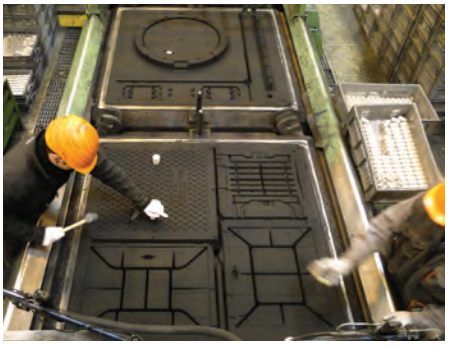
EJ is a family-owned company that has a long history of fostering strong customer relationships. These relationships are supported with personal contact from company representatives, a complete offering of product literature, a comprehensive website (ejco.com), trade show exhibits, as well as seminars 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 21st 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
- Meter 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

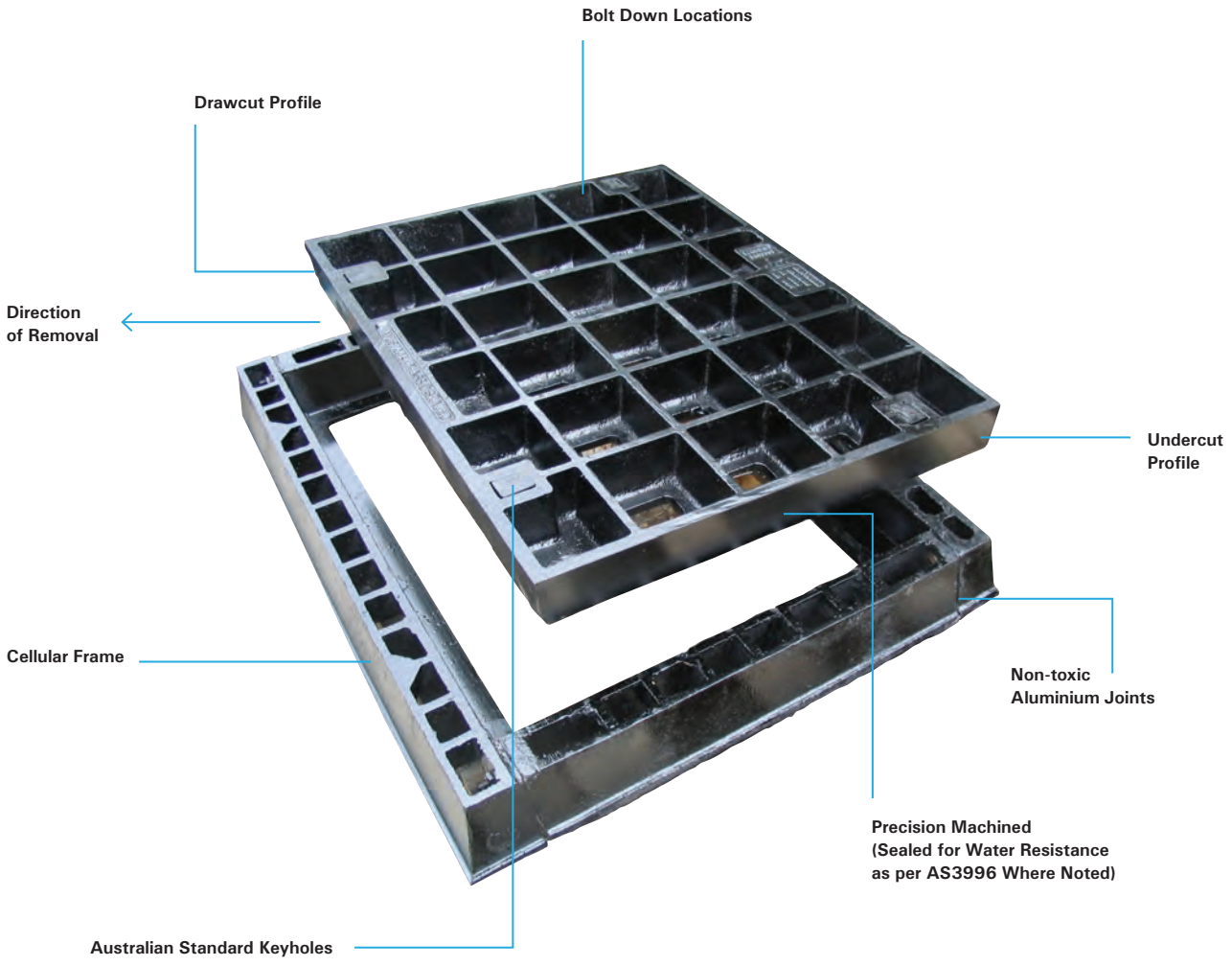






PRODUCT FEATURES

- Products designed to meet and exceed AS3996, the Australian Standard for Access Covers, Road Grates and Frames.
- Comprehensive range of sizes and load classes from Class B and D; right through to Class E, F and G.
- Ductile Iron: Grade 500/7 castings (AS1831).
- Grey Cast Iron: Grade T220 castings (AS1830).
- Precision machined (sealed for water resistance as per AS3996 where noted).
- Australian Standard lifting keyholes: safe lifting with non-rotating keyways.
- Non-rocking of cover in the frame with machined drawcut/undercut profiles.
- Covers are neatly ribbed to provide maximum strength and an aesthetic appearance.
- "T" and cellular style frames designed to anchor the frame into position.



SPECIFICATION OPTIONS

Option	Reason	Required Specification Suffix	Example
Brass Edging	To allow cover and frame to be completely filled and concealed – leaving only the brass edging and brass keycaps exposed.	BE (height of edging)	A66B BE 24
Stainless Steel Edging	To allow cover and frame to be completely filled and concealed – leaving only the stainless steel edging and stainless steel keycaps exposed.	SS (height of edging)	A66B SS 24
Security Bolt Down	Areas with no 'head' conditions where cover is required to be retained to stop easy removal: requires an allen key to remove bolts.	SBD	A66B SBD
Barri Bolt Down	Areas such as prisons where the cover is locked with tamper resistant Barri Bolts which require the use of an authorised 'keyed bolt' to open.	BBD	A66B BBD
Back Pressure Bolt Down	Areas which may be subject to back pressure 'head' conditions of 5m or less. Covers are modified to accept 10mm stainless steel bolts.	BPD (amount of head/m)	A66B BPD 3
Vented Covers	Covers which are required to vent steam or allow the escape of other build-ups (gas, etc). Details of the vent style can be discussed with the local EJ office.	VC	A66B VC
Inspection Openings	Covers which are required to have an inspection point; normally for frequent inspections and not requiring a full opening (fuel tank areas). Available in 100, 150 and 225mm openings.	IO 100 IO 150 IO 225	A66B IO 150
Identification Plates	To specifically identify the service underneath the cover. Names to consider are: trade waste, comms, electrical.	ID (name on plate)	A66B ID(comms)

LOAD CLASSIFICATION (AS3996)

Access covers and grates shall be designated by classes A, B, C, D, E, F and G according to load capacity as set out in the table below. The design loads as specified below, shall be used for testing.

The appropriate class for a cover or grate depends upon the place of installation. Some places of installation, relative to class, are outlined below. The selection of the appropriate class is the responsibility of the designer and where there is doubt the stronger class shall be selected.

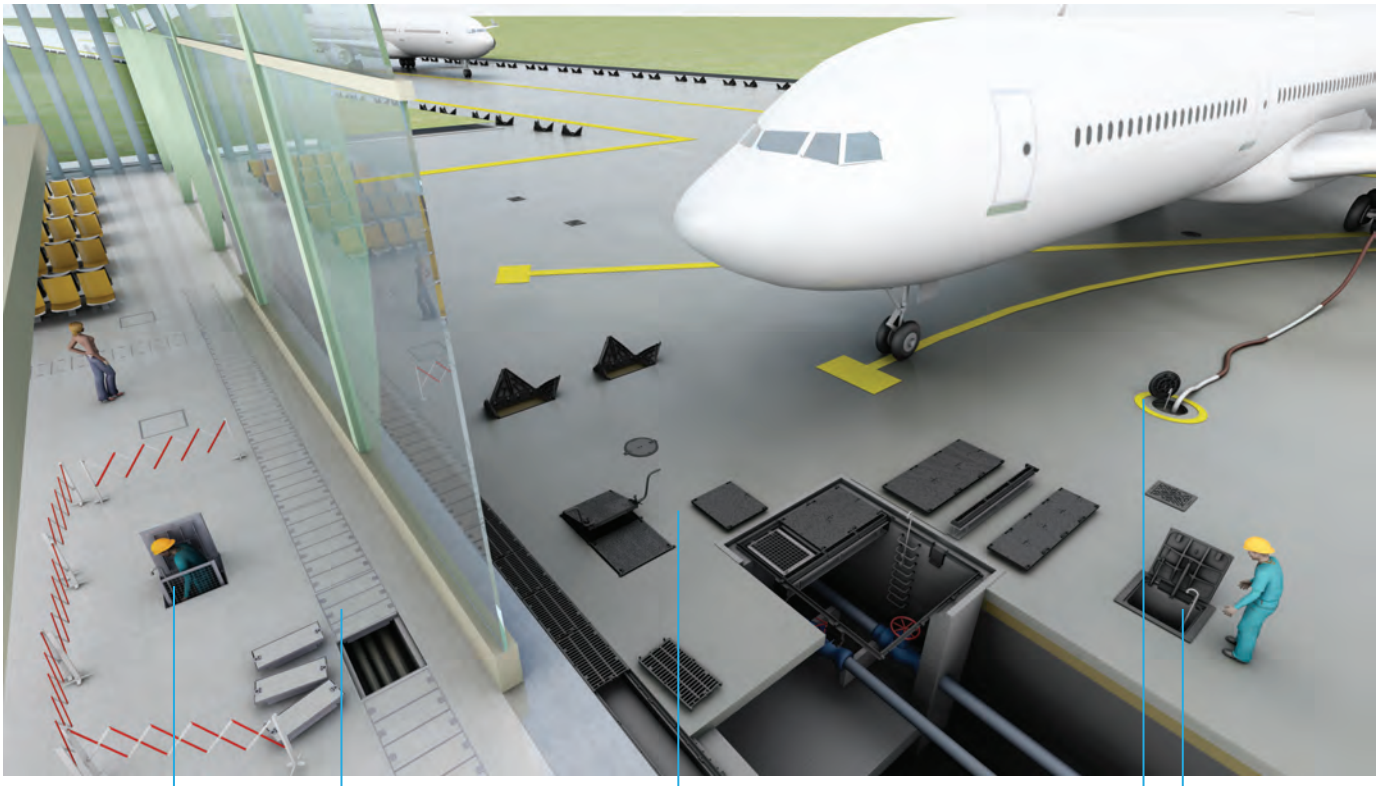
Load Classifications of Covers and Grates

AS3996:2006 – ACCESS COVERS, ROAD GRATES & FRAMES

Rating	CLASS A	CLASS B	CLASS C	CLASS D	CLASS E	CLASS F	CLASS G
Typical Use	Areas (including footways) accessible only to pedestrians and pedal cyclists, and closed to other traffic (extra light duty)	Areas (including footways and light tractor paths) accessible to vehicles (excluding commercial vehicles) or livestock (light duty)	Malls and areas open to slow moving commercial vehicles (medium duty)	Carriageways of roads and areas open to commercial vehicles (heavy duty)	General docks and aircraft pavements (extra heavy duty - E)	Docks and aircraft pavements subject to high wheel loads (extra heavy duty - F)	Docks and aircraft pavements subject to very high wheel loads (extra heavy duty - G)
Nominal Wheel Loading (kg)	330	2,670	5,000	8,000	13,700	20,000	30,000
Service-ability Design Load (kN)	6.7	53	100	140	267	400	600
Ultimate Limit State Design Load (kN)	10	80	150	210	400	600	900

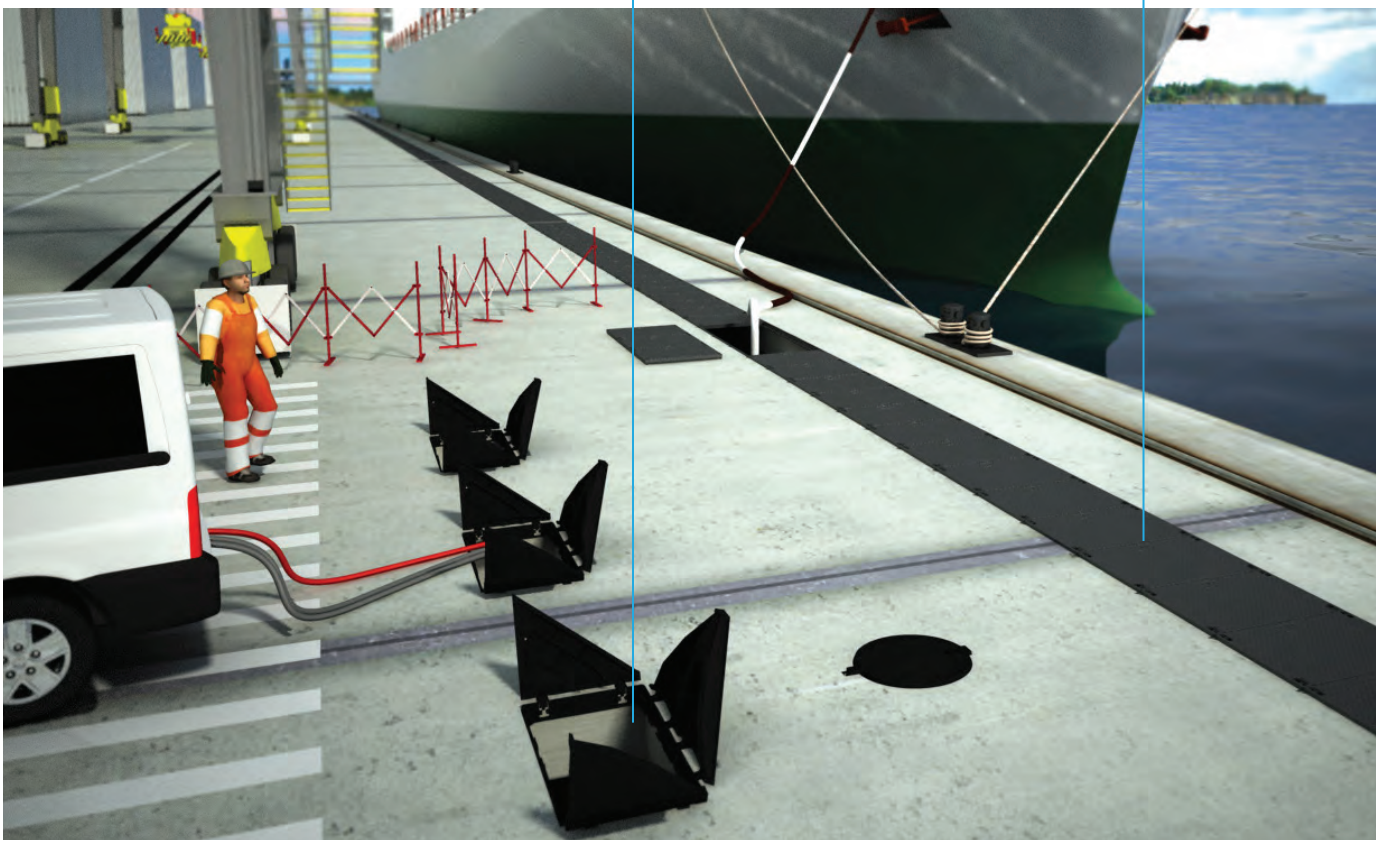
NOTES:
1. Nominal wheel loads are given for guidance only. Consideration should be given to the type, size and pneumatic pressure of the load applied.
2. Class B design loads exceed AS 5100.2 requirements for footway loading.
3. Class D design loads exceed AS 5100.2 requirements for a W80 wheel load.
4. Class C units are based on intermediate load.
5. The serviceability load is set at 2/3 of the ultimate limit state design load.
6. A force of 1 kN approximately equal to the weight of 100kg.

LOAD CLASSIFICATION



Class B: 80kN

Class G: 900kN



QUALITY ASSURANCE

Certified System™

Quality
ISO 9001

Our products are manufactured to comply with Australian Standard AS3996/2006. Our foundries and factories have certification to the relevant Standards and the International Standard for Quality Assurance IS0 9001/2008.

Our products are manufactured to the highest standards and all products assembled in Australian facilities are conducted by highly trained personnel. Constant checks are made of the products to ensure they comply to our Quality Assurance Accreditation.

PRODUCT CERTIFICATION

IAPMO R&T OCEANA™

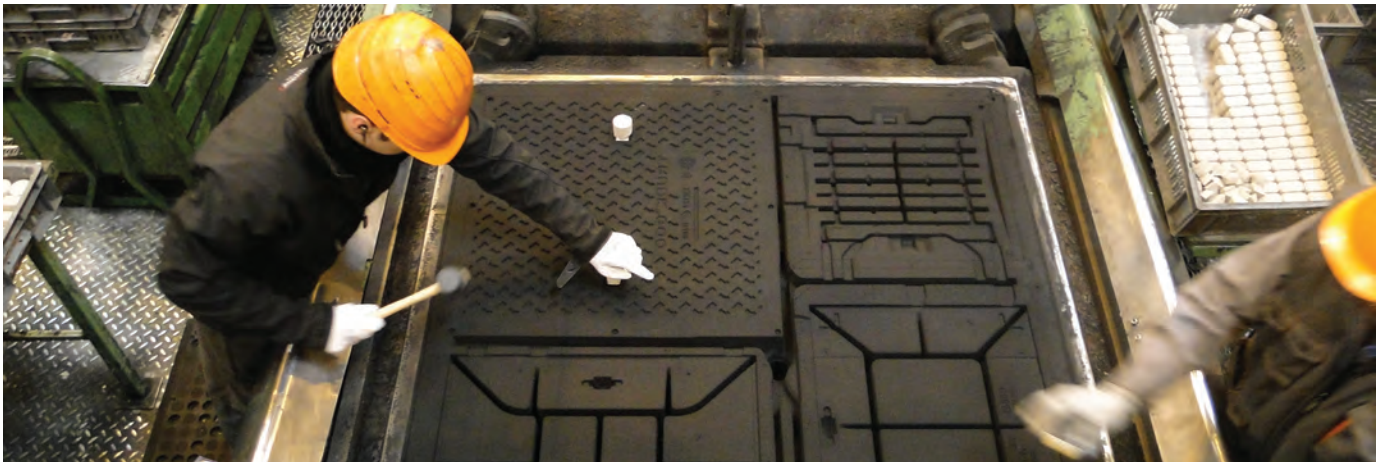
OceanaMark
AS3996
Certification

In the Asia Pacific region, we also have Product Certification on a schedule of common products under the IAPMO R&T Oceana Mark to AS3996.

For compliance to the Standard, all product must be inspected and samples taken from each incoming shipment for load testing. This is conducted both at the foundry level and also in our Australian locations.

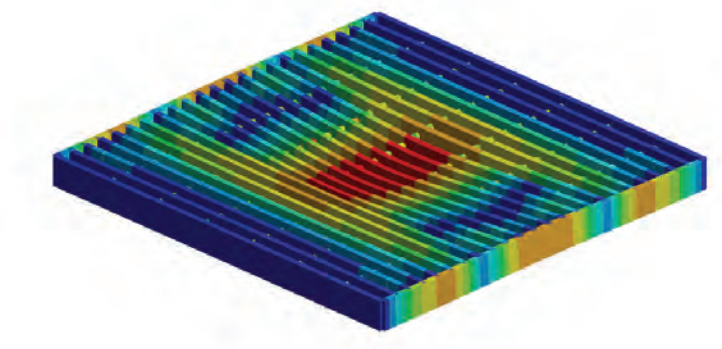
Under the Standard load tests must be completed to
- Serviceability Design Load
- Ultimate Limit Design Load

Further testing is available from our records for Third Party Independent NATA testing and this is also available on demand.



TESTING

Prior to full scale production, our products are drawn in CAD and rendered to show the casting details. The designs are then tested using sophisticated computer modeling techniques to simulate load stresses on the products under various loading conditions. Not only does this allow us to confirm the design but we can also work at optimising our design to save on both materials and costs.



Once testing is complete and the results approved by the management team, our products are then produced in batch runs to suit the market volume demands. With each batch produced, we than take the care to run the products through a random batch test for:

- Material Composition Chemical Analysis
- Tensile Stress Test
- Serviceability Design Load Tests as per AS3996
- Ultimate Limit Design Load Tests as per AS3996
- Water testing on certain products as per AS3996

Each batch of product must be accompanied by a Test Bar; which is a sample of the material used in the production. These Test Bars are periodically tested by a Third Party NATA accredited laboratory to ensure they comply to Cast Iron AS1831/2008 or Ductile Iron 5007 or 600/3 grades as specified.

SEALED - AS PER AS3996

Our sealed products are also tested, when required, for both water resistance and gas resistance by a Third Party NATA accredited laboratory as per AS3996 standards.

AS3996 states that sealed covers must hold a head of water at 150mm for 10 minutes without any leakage. Obviously, the performance of these products in the field requires:

1. Product to be installed correctly - our products must be installed correctly and the instructions for this are contained at the back of this catalogue.
2. All frame rails must be fully supported by concrete and the covers must be installed in their original frames when the concrete is poured - failure to do so may find the covers and frames out of square and no longer level and sealed.
3. It must be borne in mind that cast and ductile iron is, before it is fully concreted in, fragile and excessive mistreatment can lead to damage; especially if it has a decorative edge (brass or stainless steel) attached.
4. Mating surfaces cleaned and greased with Denso Manhole Sealing Grease.
5. Tested for water/gas resistance in the field prior to any operations or placement of subterranean equipment.
6. Checked and signed off by a registered engineer.
7. Maintained on a regular basis of every 3 months (machined mating surfaces to be scrapped, cleaned and new grease applied) and checked for water resistance at each interval.
8. If equipment under the manhole cover is required to be water proof, a secondary water proofing protection/insulator is required to be installed.
9. Roof slabs to be designed and cast with a water channel line to direct water flows to basement drainage sump.

ANTI-SLIP TESTING

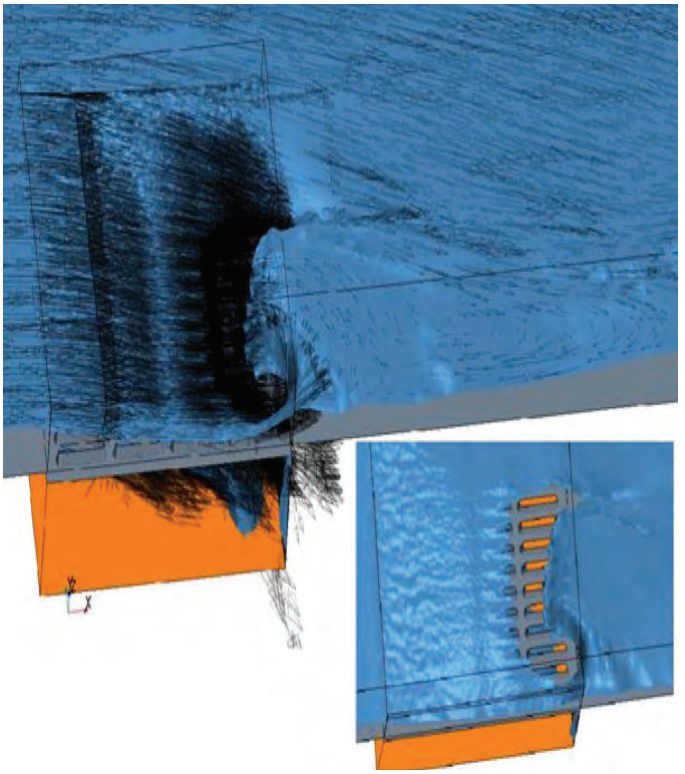
Anti Slip tests are also conducted on our products by Third Party engineers.

In independent slip tests conducted under stringent conditions, our new HEELPROOF™ Ductile Iron Trench Grates and Frames (LG30Dim-HP) rated very low for slippage in the P5 (V) classification with a 65 BPN.

In similar testing, our standard Ductile Iron Trench Grates (LG30Dim) rated very low for slippage also in the P5 (V) classification with a BPN of 72.

Further results for our Galvanised HEELPROOF™ testing achieved a mean BPN of 73 for the test area and a rating of very low for slippage.

FLOW RATE TESTING



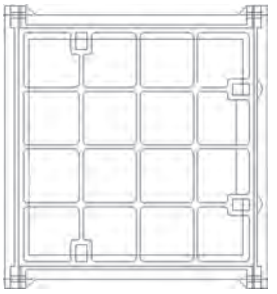
The flow rate or hydraulic intake of our grating and floor outlets is calculated by registered engineers using the latest computer modeling programmes. These test reports are available on request.

If any information regarding installation or maintenance is required any of our highly trained sales team will be only too happy to assist you.

Single Part Access Covers
Section 2

SINGLE PART ACCESS COVERS

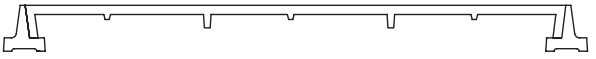
Concrete Infill & Solid Top | Machined Mating Surfaces

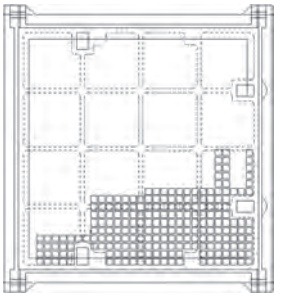


Class B
80kN

Concrete Infill

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)
A33B	300	300	348	345	440	410	38	55	26
A44B	450	450	498	495	590	560	38	55	30
A64B	600	475	648	520	740	585	38	55	48
A66B	600	600	648	645	740	710	38	55	56
A67B	600	775	648	820	740	885	38	55	76
A74B	750	450	798	495	890	560	38	55	62
A76B	750	600	798	645	890	710	38	55	72
A77B	750	750	798	795	890	860	38	55	88
A94B	900	450	948	495	1040	560	38	55	74
A96B	900	600	948	645	1040	710	38	55	84
A97B	915	762	963	807	1055	872	38	55	97
A99B 1P	900	900	945	945	1050	1010	38	55	110
A99B 2P	900	945	948	990	1040	1055	38	55	148
A126B	1200	600	1260	655	1380	740	60	75	166





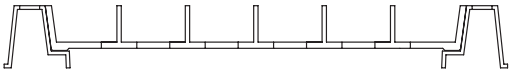
Class B
80kN

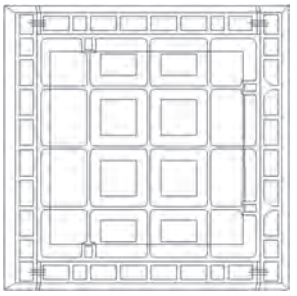
Solid Top

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)
LA33B	300	300	348	345	440	410	38	55	26
LA44B	450	450	498	495	590	560	38	55	30
LA64B	600	475	648	520	740	585	38	55	48
LA66B	600	600	648	645	740	710	38	55	56
LA67B	600	775	648	820	740	885	38	55	76
LA74B	750	450	798	495	890	560	38	55	62
LA76B	750	600	798	645	890	710	38	55	72
LA77B	750	750	798	795	890	860	38	55	88
LA94B	900	450	948	495	1040	560	38	55	74
LA96B	900	600	948	645	1040	710	38	55	84
LA97B	915	762	963	807	1055	872	38	55	97
LA99B 1P	900	900	950	945	1050	1010	38	55	123
LA99B 2P	900	945	948	990	1040	1055	38	55	148
LA126B	1200	600	1260	655	1380	740	60	75	186

SINGLE PART ACCESS COVERS

Concrete Infill & Solid Top | Machined Mating Surfaces

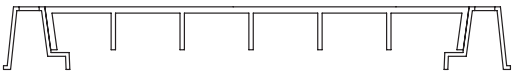


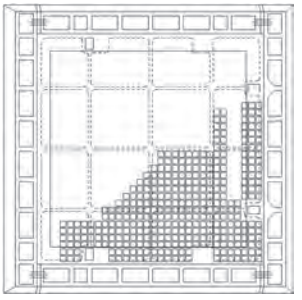


Class D
210kN

Concrete Infill

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)
A44D	450	450	530	520	662	662	73	100	84
A64D	600	465	680	535	812	677	73	100	100
A66D	600	600	680	670	812	812	73	100	115
A67D	600	750	680	820	812	962	73	100	142
A74D	750	450	830	520	962	662	73	100	120
A76D	750	600	830	670	962	812	73	100	138
A77D	750	750	830	820	962	962	73	100	155
A94D	915	465	995	535	1127	677	73	100	136
A96D	915	600	995	670	1127	812	73	100	155
A97D	900	750	995	820	1125	970	73	100	186
A99D 1P	900	900	980	970	1112	1112	73	100	272
A99D 2P	915	1000	995	1070	1127	1212	73	100	265
A106D	1067	600	1147	670	1279	812	73	100	190
A124D	1200	450	1300	540	1436	686	100	125	290
A126D	1200	600	1300	690	1436	836	100	125	332





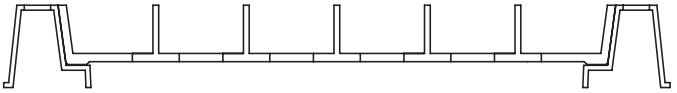
Class D
210kN

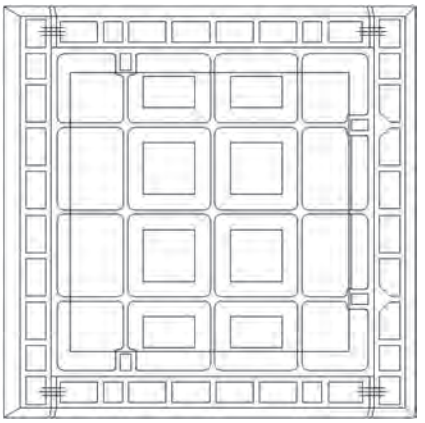
Solid Top

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)
LA44D	450	450	530	520	662	662	73	100	84
LA64D	600	465	680	535	812	677	73	100	100
LA66D	600	600	680	670	812	812	73	100	115
LA67D	600	750	680	820	812	962	73	100	142
LA74D	750	450	830	520	962	662	73	100	120
LA76D	750	600	830	670	962	812	73	100	138
LA77D	750	750	830	820	962	962	73	100	155
LA94D	915	465	995	535	1127	677	73	100	136
LA96D	915	600	995	670	1127	812	73	100	155
LA97D	900	750	995	820	1125	970	73	100	196
LA99D	900	900	980	970	1115	1115	73	100	213
LA99D 2P	915	1000	995	1070	1127	1212	73	100	265
LA126D	1200	600	1300	690	1436	836	100	125	332

SINGLE PART ACCESS COVERS

Concrete Infill | Machined Mating Surfaces





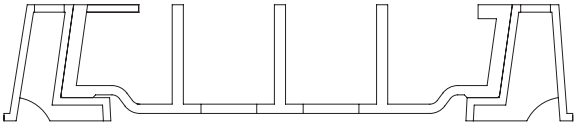
Class E Concrete Infill

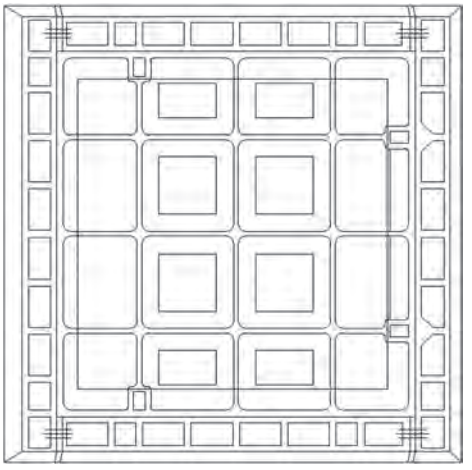
400kN

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

SINGLE PART ACCESS COVERS

Concrete Infill | Machined Mating Surfaces





Class G Concrete Infill

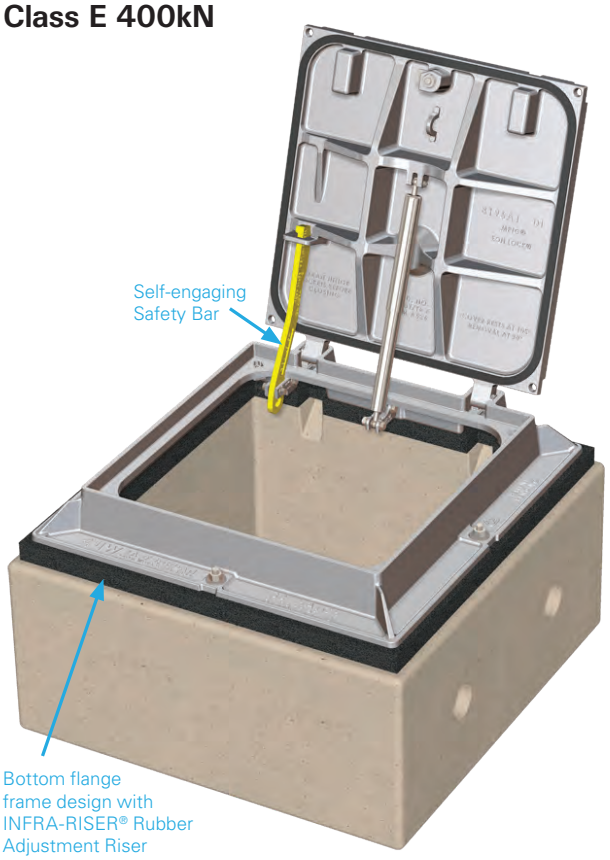
900kN

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)
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

ERGO HINGED COVERS

Hinged Access Covers

ERGO 8210 HEAVY DUTY HINGED ACCESS ASSEMBLY
Class E 400kN



The 8210 series is typically installed in high traffic areas and provides a secure and easy access point to underground utility structures. The unit comes pre-assembled to the job site; just "drop and pour!" The optional mechanical strut reduces the lifting force of the cover to less than 23kg.

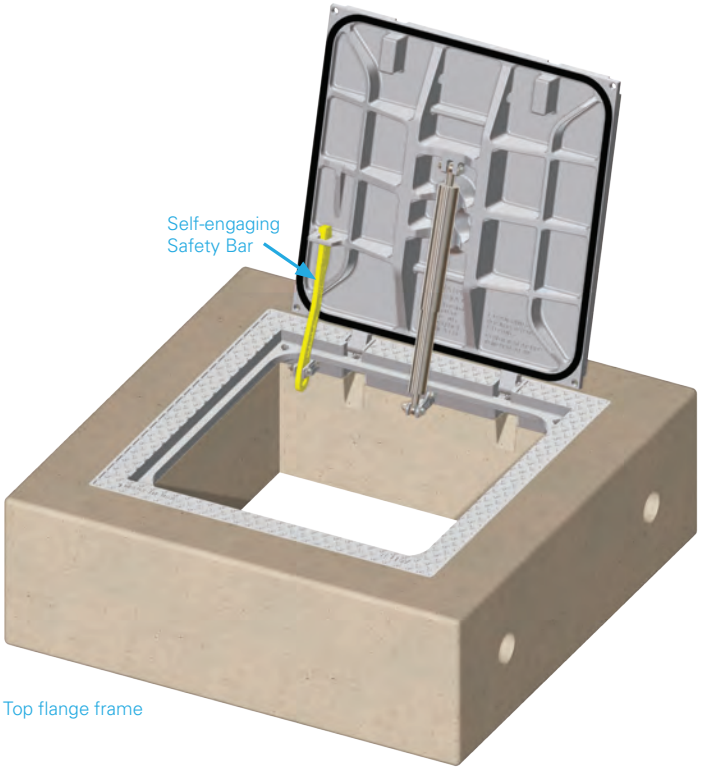
Standard Features	Options
Ductile iron frame and cover	Special lettered covers
MPIC® multi-tool pick bar	Water resistant
EON LOCK®	Security Bolting
Bolting	Lift assist
Cover opens to 105°, safety catch and removal of cover at 90°	Top or bottom flange frame

Frame Clear Openings

Catalog Number	Clear Opening
8215	610 x 610
8216	762 x 762
8216 - Double	762 x 1575
8217	915 x 915
8217 - Double	915 x 1880
8218	1219 x 1219
8218 - Double	1219 x 1219

Note: All dimensions are in mm.

ERGO 8190 EXTRA HEAVY DUTY HINGED ACCESS ASSEMBLY
Class G 900kN



The 8190 Extra Heavy Duty Hinged Hatch Access Assembly is typically installed in high traffic areas, airports, and ports. Our airport rated hinged hatch provides a secure and easy access point to underground utility structures. The standard mechanical strut reduces the lifting force of the cover to less than 23kg.

Standard Features	Options
Ductile iron frame and cover	Heavy duty
Lift assist	Extra heavy duty airport
MPIC® multi-tool pick bar	Special lettered covers
EON LOCK®	Water resistant
Bolting	Security Bolting
Cover opens to 105°, safety catch and removal of cover at 90°	Top or bottom flange frame

Frame Clear Openings

Catalog Number	Clear Opening
8195	610 x 610
8196	762 x 762
8196 - Double	762 x 1575
8197	915 x 915
8197 - Double	915 x 1880
8198	1219 x 1219

Note: All dimensions are in mm.

ERGO SQUARE HINGED COVERS
Hinged Access Covers

Innovative Features and Options

ERGO 8210 Heavy Duty Hinged Access Assembly - Class E 400kN
ERGO 8190 Extra Heavy Duty Hinged Access Assembly - Class G 900kN

- MPIC® multi-tool pick bar
- Double assembly available
- Self-engaging safety bar
- Lift assist

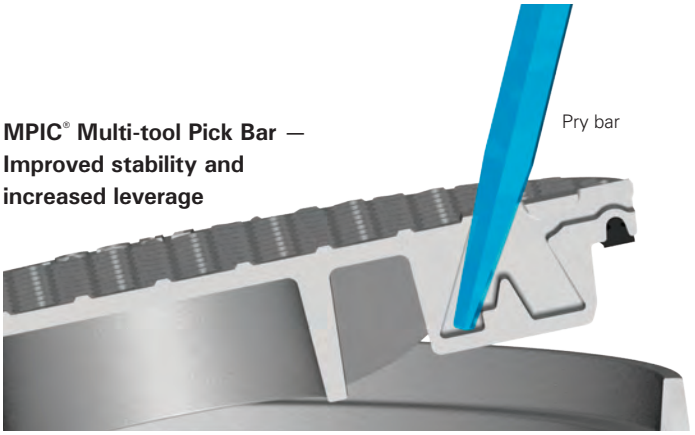
Mechanical Strut

Lift Assist is a corrosion-resistant stainless steel mechanical spring strut. The rugged design is clean and maintenance free. The strut takes up less space in the clear opening than a traditional spring assist. It is fully self-contained, which avoids high stress exposed coils.

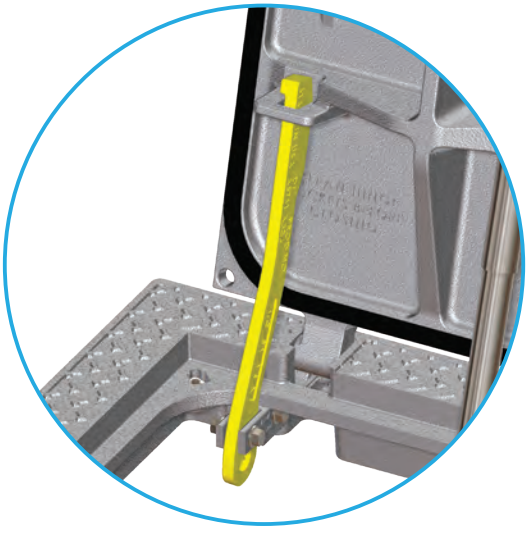
Made without internal gases or seals, the struts have an effective operating temperature range of -34°C to 204°C. The durability has been tested at over 150,000 cycles.

8196
Double Assembly
762 x 1575

MPIC® Multi-tool Pick Bar — Improved stability and increased leverage



The MPIC® multi-tool pick bar design eliminates surface water inflow and provides a solid point of contact for most removal tools used in AUS/NZ (hooks, pry bars, pick-axes, and lift assist mechanisms).



Self-engaging Safety Bar

ERMATIC® Modular Covers

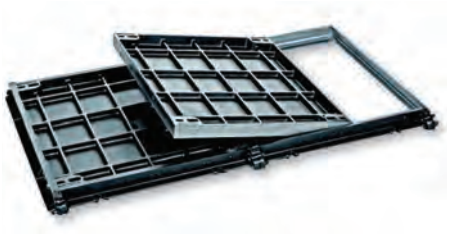
The ERMATIC® system is a comprehensive and highly engineered range of access covers for a wide variety of underground services. This modular system can be customized to fit any underground vault dimension or cover configuration. The ERMATIC® range leverages the global engineering and design experience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

Features/Options
- Pedestrian to airport rated
- 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

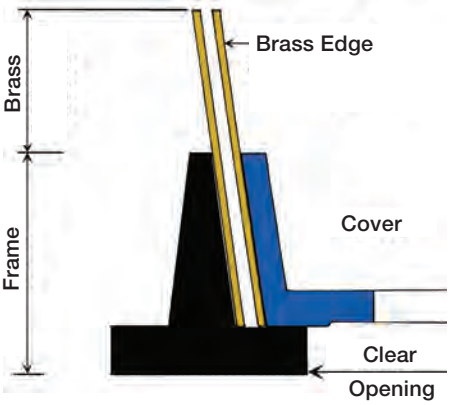
ERMATIC® products assure protection against damage, debris or aggressive chemicals, and allow designers to conceal underground services, maximising productive use of the unobstructed surface area.

Cover with removable beams

Decorative Edged Covers
Section 3

DECORATIVE EDGED COVERS

Brass Edge



CLASS B

Class B
80kN

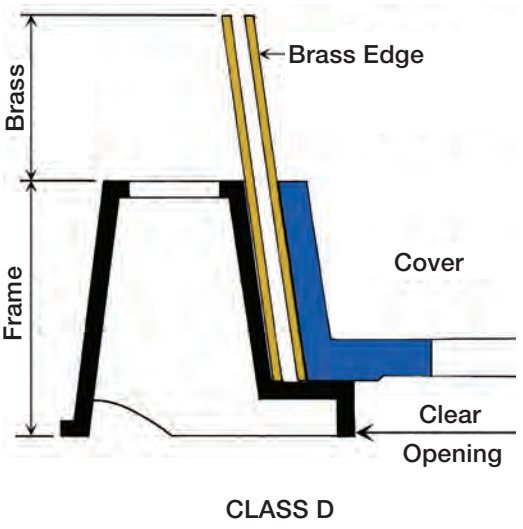
Brass Edge

To specify list code with Height of Edge: A64B BE12. Brass or SS edges can be supplied to all EJ access covers and frames (i.e. multiparts, greasetrap lids,etc) - except to circular covers. Clear Openings will change once Brass or Stainless Steel is added to Cover and Frame.

Code	Height of Brass (mm)				Clear Opening (mm) Width x Length		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	C.I. Frame Depth	Mass (kg)
A33B BE	12	24	40	60	312	312	360	357	452	422	38	55	26
A44B BE	12	24	40	60	462	462	510	507	602	572	38	55	30
A64B BE	12	24	40	60	612	487	660	532	752	597	38	55	48
A66B BE	12	24	40	60	612	612	660	657	752	722	38	55	56
A67B BE	12	24	40	60	612	787	660	832	752	897	38	55	76
A74B BE	12	24	40	60	762	462	810	507	902	572	38	55	62
A76B BE	12	24	40	60	762	612	810	657	902	722	38	55	72
A77B BE	12	24	40	60	762	762	810	807	902	872	38	55	88
A94B BE	12	24	40	60	912	462	960	507	1052	572	38	55	74
A96B BE	12	24	40	60	912	612	960	657	1052	722	38	55	84
A97B BE	12	24	40	60	927	774	975	819	1067	884	38	55	97
A99B 2P BE	12	24	40	60	912	957	960	1002	1052	1067	38	55	148

DECORATIVE EDGED COVERS

Brass Edge



CLASS D

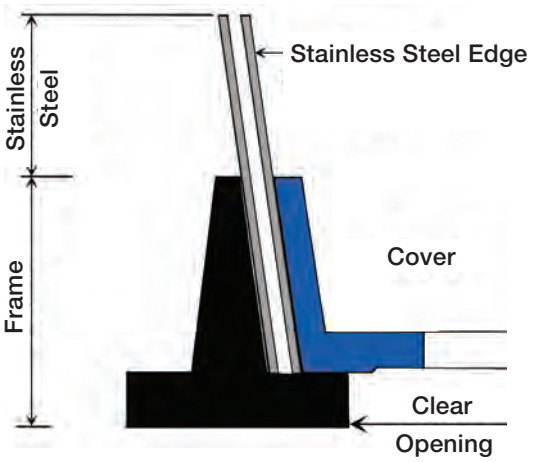
Class D Brass Edge

210kN

Code	Height of Brass (mm)				Clear Opening (mm) Width x Length		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	C.I. Frame Depth	Mass (kg)
A44D BE	12	24	40	60	462	462	542	542	674	674	73	100	84
A64D BE	12	24	40	60	612	477	692	547	824	689	73	100	100
A66D BE	12	24	40	60	612	612	692	682	824	824	73	100	115
A67D BE	12	24	40	60	612	762	692	832	824	974	73	100	142
A74D BE	12	24	40	60	762	462	842	532	974	674	73	100	120
A76D BE	12	24	40	60	762	612	842	682	974	824	73	100	138
A77D BE	12	24	40	60	762	762	842	832	974	974	73	100	155
A94D BE	12	24	40	60	927	477	1007	547	1139	689	73	100	136
A96D BE	12	24	40	60	927	612	1007	682	1139	824	73	100	155
A99D 1P BE	12	24	40	60	912	912	992	982	1124	1124	73	100	272
A99D 2P BE	12	24	40	60	927	1012	1007	1082	1139	1224	73	100	265
A106D BE	12	24	40	60	1079	612	1159	682	1291	824	73	100	190
A124D BE	12	24	40	60	1212	462	1312	552	1448	698	100	125	290
A126D BE	12	24	40	60	1212	612	1312	702	1448	848	100	125	332

DECORATIVE EDGED COVERS

Stainless Steel Edge



CLASS B

Class B
80kN

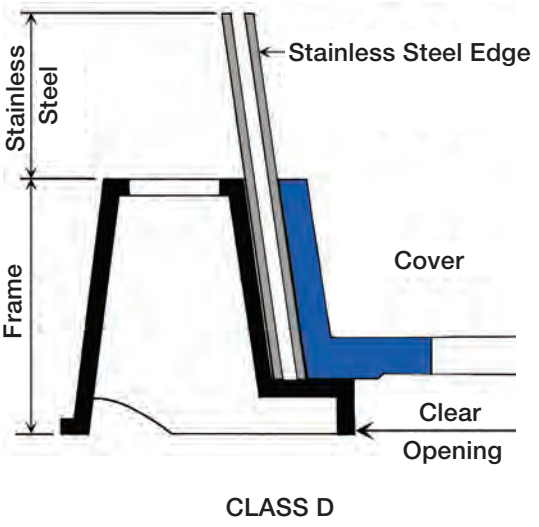
Stainless Steel

To specify list code with Height of Edge: A64B BE12. Brass or SS edges can be supplied to all EJ access covers and frames (i.e. multiparts, greasetrap lids,etc) - except to circular covers. Clear Openings will change once Brass or Stainless Steel is added to Cover and Frame.

Code	Height of Stainless Steel (mm)				Clear Opening (mm) Width x Length		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	C.I. Frame Depth	Mass (kg)
A33B SS	12	24	40	60	312	312	360	357	452	422	38	55	26
A44B SS	12	24	40	60	462	462	510	507	602	572	38	55	30
A64B SS	12	24	40	60	612	487	660	532	752	597	38	55	48
A66B SS	12	24	40	60	612	612	660	657	752	722	38	55	56
A67B SS	12	24	40	60	612	787	660	832	752	897	38	55	76
A74B SS	12	24	40	60	762	462	810	507	902	572	38	55	62
A76B SS	12	24	40	60	762	612	810	657	902	722	38	55	72
A77B SS	12	24	40	60	762	762	810	807	902	872	38	55	88
A94B SS	12	24	40	60	912	462	960	507	1052	572	38	55	74
A96B SS	12	24	40	60	912	612	960	657	1052	722	38	55	84
A97B SS	12	24	40	60	927	774	975	819	1067	884	38	55	97
A99B 2P SS	12	24	40	60	912	957	960	1002	1052	1067	38	55	148

DECORATIVE EDGED COVERS

Stainless Steel Edge



CLASS D

Class D Stainless Steel

210kN

Code	Height of Stainless Steel (mm)				Clear Opening (mm) Width x Length		Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	C.I. Frame Depth	Mass (kg)
A44D SS	12	24	40	60	462	462	542	532	674	674	73	100	84
A64D SS	12	24	40	60	612	477	692	547	824	689	73	100	100
A66D SS	12	24	40	60	612	612	692	682	824	824	73	100	115
A67D SS	12	24	40	60	612	762	692	832	824	974	73	100	142
A74D SS	12	24	40	60	762	462	842	532	974	674	73	100	120
A76D SS	12	24	40	60	762	612	842	682	974	824	73	100	138
A77D SS	12	24	40	60	762	762	842	832	974	974	73	100	155
A94D SS	12	24	40	60	927	477	1007	547	1139	689	73	100	136
A96D SS	12	24	40	60	927	612	1007	682	1139	824	73	100	155
A99D 1P SS	12	24	40	60	912	912	992	982	1124	1124	73	100	272
A99D 2P SS	12	24	40	60	927	1012	1007	1082	1139	1224	73	100	265
A106D SS	12	24	40	60	1079	612	1159	682	1291	824	73	100	190
A124D SS	12	24	40	60	1212	462	1312	552	1448	698	100	125	290
A126D SS	12	24	40	60	1212	612	1312	702	1448	848	100	125	332

DECORATIVE EDGED COVERS
Paver Infill Covers

Paver Infill Cover and Frame

Ideal for paved areas where a robust casting is needed for quick access.

Features

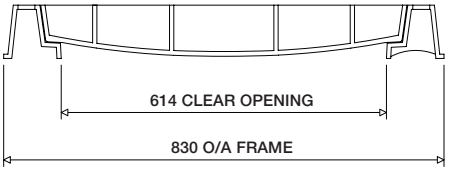
Class D 210kN loadings
Gas, air and water tight
'Step Down' cover design to accept 100mm paving height
Durable ductile iron casting

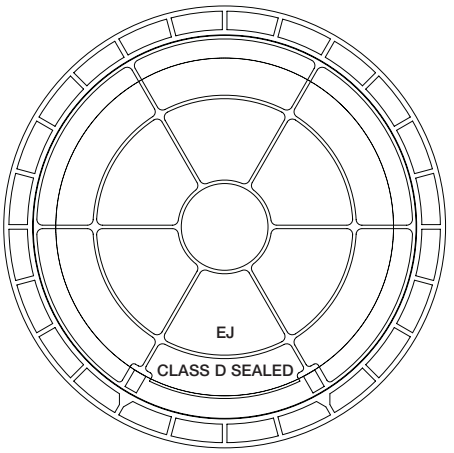
Code	Clear Opening (mm) Width x Length		Frame Overall (mm) Width x Length		Frame Depth	Internal Recess	Number of Parts
NOR-A66D-P	600	600	800	710	80 mm	100 mm	1 part
NOR-A612D-P	600	1220	800	1330	80 mm	100 mm	2 part
NOR-A618D-P	600	1840	800	1950	80 mm	100 mm	3 part

Circular Covers
Section 4

CIRCULAR COVERS

Concrete Infill





Concrete Infill

Note: Infill and Solid Covers can also be supplied with custom lettered brass plates for identification purposes (i.e. Electrical, Comms, Trade Waste, etc.).

Code	Clear Opening Dia (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
A60B	614	Class B	664	734	38	58	Not Applicable	55
A60D	614	Class D	694	830	70	102	Not Applicable	100
A60E	614	Class E	694	830	70	102	Not Applicable	100

CIRCULAR COVERS

LA60 Series Council Covers

PRODUCTS ARE INTERCHANGEABLE WITH THE FRAMES -
GIVING FLEXIBILITY EVEN AFTER INSTALLATION.

Solid Top

Note: Infill and Solid Covers can also be supplied with custom lettered brass plates for identification purposes (i.e. Electrical, Comms, Trade Waste, etc.).

Code	Clear Opening Dia (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
LA60B Sew	605	Class B	636	686	38	50	SEWER	42
LA60B S/W	605	Class B	636	686	38	50	STORMWATER	42
LA60B Plain	605	Class B	636	686	38	50	No Lettering	42
LA60D SEW	605	Class D	656	750	60	75	SEWER	68
LA60D S/W	605	Class D	656	750	60	75	STORMWATER	68
LA60D Plain	605	Class D	656	750	60	75	No Lettering	68
LA60D Elect	605	Class D	656	750	60	75	ELECTRICAL	68
LA60D Comms	605	Class D	656	750	60	75	COMMUNICATIONS	68

Infill Covers

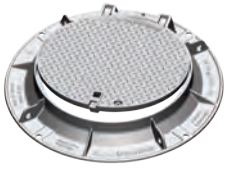
Code	Clear Opening Dia (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
LA60Bi Sew	605	Class B	636	686	38	50	SEWER	42
LA60Bi S/W	605	Class B	636	686	38	50	STORMWATER	42
LA60Di SEW	605	Class D	656	750	60	75	SEWER	68
LA60Di S/W	605	Class D	656	750	60	75	STORMWATER	68

Grates

Code	Clear Opening Dia (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
G60D	605	Class D	656	750	60	75	Grated	68

CIRCULAR COVERS

Hinged Covers

Class D/E **210/400kN**	Code	Clear Opening Dia (mm)	Type	Marking	Special Feature
	BRIO SRL BRIO 7 SRL BRIO SGR	600mm dia 700mm dia 600mm dia	Unsealed Hinged Cover Unsealed Hinged Cover Unsealed Hinged Grate	STORMWATER STORMWATER Grating - No Marking	Locking Handle Locking Handle Locking Handle
	Twino SR Twino SRL Twino V	600mm dia 600mm dia 600mm dia	Unsealed Hinged Cover Unsealed Hinged Cover Unsealed Hinged Cover	No Marking No Marking No Marking	Unlocked Locked Vented Cover (optional mudpan available)
	Solo	600mm dia	Sealed Hinged Cover	SEWER	AS Type Keyhole
	MAESTRO 6 MAESTRO 8	600mm dia 800mm dia	Sealed Hinged Cover Sealed Hinged Cover	SEWER/STWR SEWER/STWR	Snap Lock Snap Lock
	MAXIMO 8 MAXIMO 9	800mm dia 900mm dia	Sealed Hinged Cover Sealed Hinged Cover	SEWER/STWR SEWER/STWR	Lift Assist Lift Assist
	Ergo XL	900mm dia	Sealed Hinged Cover	No Marking	Lift Assist/Bolt Down

Class G **900kN**	Code	Clear Opening Dia (mm)	Type	Marking	Special Feature
	Solo G	600mm dia	Sealed Hinged Cover	No Marking	Locked/Bolt Down

MAESTRO™

A design for optimum performance, durability and user-friendliness.

ROADWAY CLASS E 400kN | AS 3996

- Suitable for high intensity traffic
- Exceeds HN-HO-72 transit load requirement

Creating tomorrow's solutions today.

Our highly trained and experienced in-house product development teams will provide the optimum solutions to solve our customers' challenges.

Our product designers use the latest software to generate designs. We also ensure that our products perform optimally through finite element analysis, in-house tests on materials and load tests on product prototypes. Dynamic testing ensures that the product will perform in a real life environment.

Our legacy of continuous improvement, innovation and safety will extend far into the future. As a result of this philosophy, **MAESTRO™** stands out as an undeniable reference point for the manhole covers industry.

Innovation ... inventing the products you need!

With over 750 approved products by third-party test houses, our commitment to you is that we will continue to create ingenious customer-oriented solutions that improve people's lives.

MAESTRO™

The result of decades of experience at EJ in designing the best access covers for more demanding road conditions.

A unique and industry-leading polypro EPDM cushioning insert

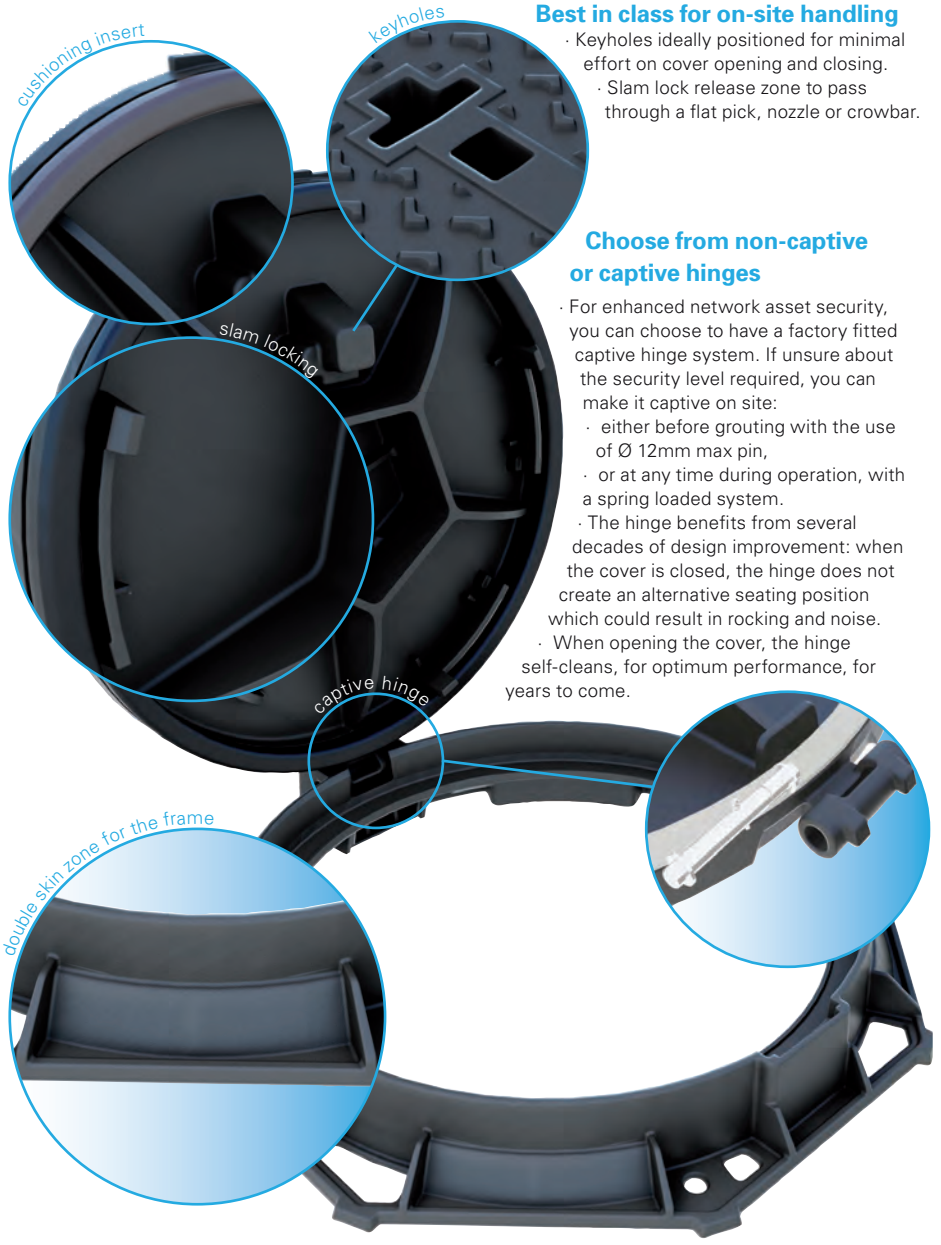
- Inspired by the automotive industry: it offers a long-lasting performance in high or low temperatures.
- Clipped onto the access cover without any glue: this reduces the impact on the environment.
- Easy to replace on-site.
- The frame cover seating offers a groove to minimise the material deformation, wear and tear.
- Its special profile is optimised to enhance the performance, even under the most intensive load.
- It is 100% recyclable.

Slam locking... for enhanced network asset safety

- **3 elastic ductile bars** placed under the cover will strongly secure the cover in place.
- This increases the network asset security and provides the initial theft deterrent security.
- The 3 elastic ductile bars help maintain the central position of the cover to further reduce seating wear.
- When closed, the cover will sustain small surges of back pressure without opening. When subject to larger back pressure surges, the cover will act as a pressure relief valve: opening itself up when under pressure, and resting back in its natural closed position.
- Pedestrian traffic will eventually shut the cover up completely.
- The cover will always stay in place thanks to the hinge and slam lock.

The frame... solidly anchored

- 4 double skin zones to maximise rigidity and take the most intense traffic stresses.
- Maximum frame anchoring with double skin and slots on the frame.
- 4 holes to bolt the frame onto the concrete head.
- Optimised seating area on the frame for the lowest pressure and long-lasting seating without seating wear.
- Seating also includes a lip to limit the insert deformation under maximum loads. This further extends the life span of the insert.



Best in class for on-site handling

- Keyholes ideally positioned for minimal effort on cover opening and closing.
- Slam lock release zone to pass through a flat pick, nozzle or crowbar.

Choose from non-captive or captive hinges

- For enhanced network asset security, you can choose to have a factory fitted captive hinge system. If unsure about the security level required, you can make it captive on site:
  - either before grouting with the use of Ø 12mm max pin,
  - or at any time during operation, with a spring loaded system.
- The hinge benefits from several decades of design improvement: when the cover is closed, the hinge does not create an alternative seating position which could result in rocking and noise.
- When opening the cover, the hinge self-cleans, for optimum performance, for years to come.

Customise your access cover

With millions of covers installed in our urban environment, why not take advantage of our custom badging facility:

- Enhanced network type recognition when on-site.
- Help identify network asset ownership; our wide badging area is ideal for customising your product with your city coat of arms or logo. Our 3D modelling tool will create your badge from a single photo.

- **NEW: colour markings available!**

- **Durable by design** for the highest traffic intensity;
- **Locking and captive hinge** for network security;
- **Special cushioning insert** for a durable silence;
- **Limited water ingress** by design;
- Pressure relief valve system;
- **Made from recycled material** and 100% recyclable;
- Made in a **low environmental impact** manufacturing facility.

MUNICIPAL PRODUCTS

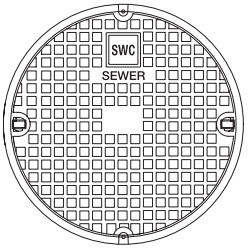
Circular Covers | BCC & BCC Rising Rings

BCC

Code	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
UA60B Con	600	Class B	670	850	25	60	Removable Tags, Sewer, ST/WR Roofwater	82
UA60B Sew	600	Class B	670	850	25	60	SEWER	92
UA60B S/W	600	Class B	670	850	25	60	STORMWATER	92
UA60D Sew	600	Class D	660	850	40	110	SEWER	130
UA60D S/W	600	Class D	660	850	40	110	STORMWATER	130

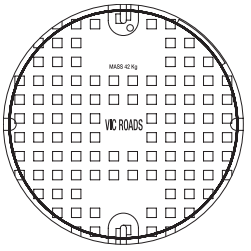
MUNICIPAL PRODUCTS

Circular Covers



Sydney Water Board

Code	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
XA60B	615	Class B	665	720	50	56	SEWER	40
XA60D	615	Class D	665	750	50	56	SEWER	50



VICROADS

Code	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
LA60B VR	615	Class B	664	686	38	50	COMMS, LIGHTING, ELECTRICAL & TRAFFIC SIGNAL	42

Maintenance Shaft Covers

Code	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Dia	Overall Frame Dia	Cover Depth	Frame Depth	Cover Marking	Mass (kg)
TC30BLF (low frame)	300	Class B	348	410	40	55	No Marking	20
TC40BLF (low frame)	375	Class B	430	475	54	65	SEWER	26
TC40BHF (high frame)	375	Class B	430	815	50	325	SEWER	48
TC30DLF (low frame)	300	Class D	348	410	40	100	No Marking	25
TC40DLF (low frame)	375	Class D	450	515	70	85	SEWER	38
TC40DHF (high frame)	375	Class D	450	930	70	325	SEWER	76

CIRCULAR COVERS
Innovative Access Solutions

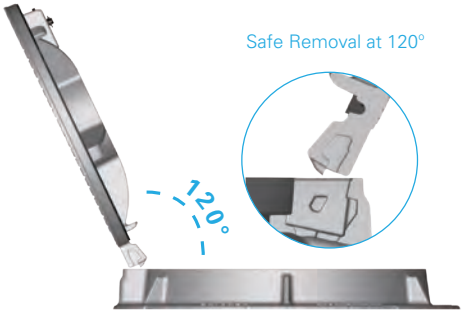
Innovative Features and Options

ERGO® Access Assembly and ERGO® XL Access Assembly

- MPIC® multi-tool pick bar
- Safe cover removal
- Safety catch
- Cam lock
- Lift assist

MPIC® Multi-tool Pick Bar — Improved stability and increased leverage

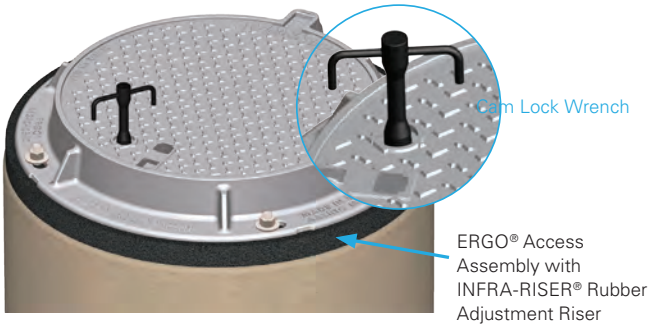
The MPIC® multi-tool pick bar design eliminates surface water inflow and provides a solid point of contact for most removal tools used in Australia (hooks, pry bars, pick-axes, and lift assist mechanisms).



Safe Cover Removal

Our patent pending hinge design allows the cover to open up to 120°, where it rests in a safe and secure position. From the 120° position, the cover can be safely removed.

Our patent pending ERGO hinge design also has a safety catch at 90° to prevent accidental closing.

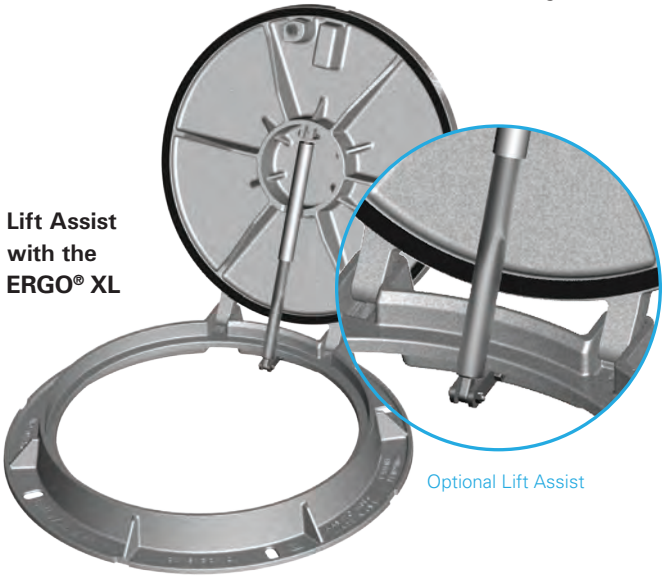


Cam Lock Security Option

The cam lock provides improved security to frame and cover assemblies, and also eliminates loose and missing fasteners. The cam lock wrench is only removable when the cover is in the locked position, so you can be sure it is engaged.

Security Cam Lock

Lift Assist with the ERGO® XL

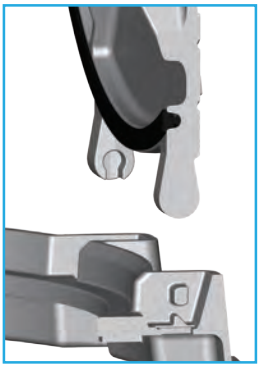


Optional Lift Assist

Optional lift assist is a corrosion-resistant stainless steel mechanical spring strut that reduces the lifting force of the cover to less than 23kg. It is available only on the ERGO® XL.

The rugged design is clean and maintenance free. The strut takes up less space in the clear opening than a traditional spring assist. It is fully self-contained, which avoids high stress exposed coils.

Made without internal gases or seals, the struts have an effective operating temperature range of -34°C to 204°C. The durability has been tested at over 150,000 cycles.

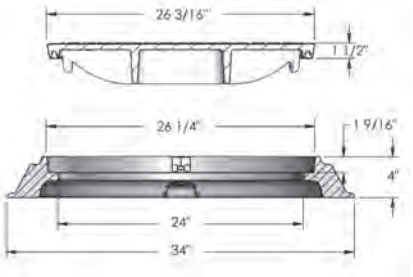


ERGO® XL

The cover can be removed at the 90° position. Patent pending.

CIRCULAR COVERS
Innovative Access Solutions

ERGO® ACCESS ASSEMBLY
Class E 400kN



Multiple frame openings and heights available.

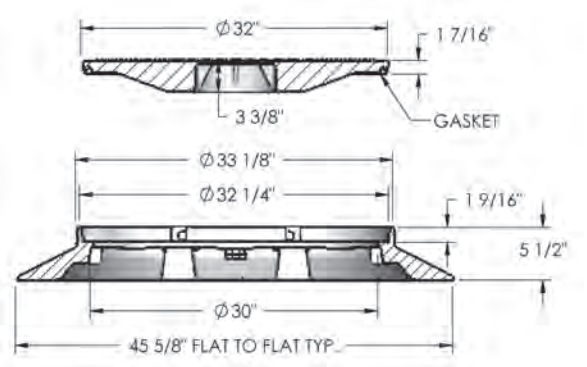
Standard Features

Heavy duty
Gasketed
Safety catch at 90°
Ductile iron cover
MPIC® multi-tool pick bar

Options

Available on SELFLEVEL®
Special lettered covers
Custom logo covers
Environmental messaging
Grates available
Cam lock security
Bolted EON LOCK® design
Water resistant
Top flange available
Multiple frame openings and heights available 101mm, 152mm, 178mm ht. frames

ERGO® XL ACCESS ASSEMBLY
Class E 400kN



Multiple frame openings and heights available (see table).

Standard Features

Heavy duty
Gasketed
Safety catch at 90°
Ductile iron cover
MPIC® multi-tool pick bar

Options

Special lettered covers
Custom logo covers
Environmental messaging
Grates available
Cam lock security
Bolted EON LOCK® design
Watertight seal
Lift assist
Top flange available

Frame Clear Openings and Heights

Clear Opening	Frame Height
762	114
762	140
915	152

Note: All dimensions are in mm.

CIRCULAR COVERS
Innovative Access Solutions

SELFLEVEL® ACCESS ASSEMBLY

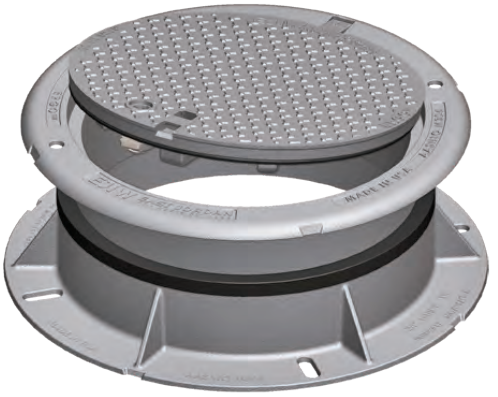
Standard Features

Heavy duty
Machined bearing surfaces
Upper frame is supported by road surface
Unit stays level with the road surface, even when road heaves due to extreme temperature changes
Proof load exceeds AASHTO M306 and M105 standards
Frame fits with existing manhole covers

Options

Special lettered covers
Custom logo covers
Environmental messaging
EON LOCK®
Cam lock
Neoprene gasket for cover
Watertight assembly
Adjusting risers
Multiple frame openings and heights available

ERGO® SELFLEVEL® ACCESS ASSEMBLY

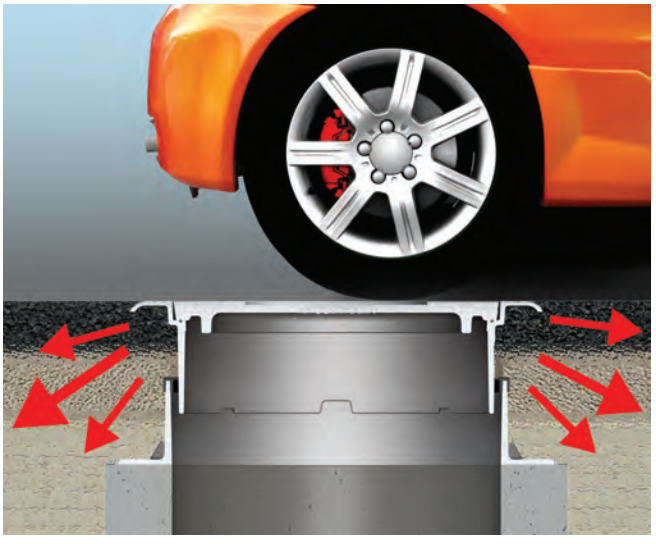


Standard Features

Heavy duty
Cover opens to 120°
Cover safety catch at 90° and removes at 120°

Options

Special lettered covers
Custom logo covers
Environmental messaging
EON LOCK®
Cam lock security
Neoprene gasket for cover
Watertight assembly
Grates available



Once installed, the unit will continue to move with the road surface. The road surface aids in absorption of traffic vibration and shock, further protecting the life of your infrastructure and critical underground structures.

SELFLEVEL® HELPS ELIMINATE:

- Frost Heave/Uplift
- Manhole Structure Settling
- Site Deterioration
- Pavement Cracking
- Inclined Installations
- Ride Quality and Smooth Street Initiatives

CIRCULAR COVERS
Innovative Access Solutions

REVOLUTION® ACCESS ASSEMBLY

This solution is designed for elevated structures and other raised access point applications.

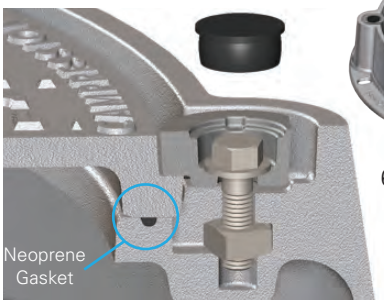
Standard Features	Options
Non-traffic	Special lettering
Neoprene gasket	Water resistant
Lightweight cover — easy to open, no lifting required, and takes only one person to operate	Security bolting
Cover remains attached to frame	
EON LOCK®	

CAMPRESSION® WATERTITE ASSEMBLY

762mm Four Bolt Design Custom logo and special lettered cover with Infra-Riser® Rubber Adjustment Riser.

The Campression® Watertight Assembly solution eliminates water infiltration, controls odor, and provides improved security.

Standard Features	Options
Heavy duty	Custom logo cover
Cam locks with EON LOCK® bolts	Special lettered cover
1/4" round neoprene gasket	
EPIC® closed pick slots	



610mm Three Bolt Design

Bolting: EON LOCK® replaceable threads
No need to remove bolts! Just loosen bolts and rotate cam.

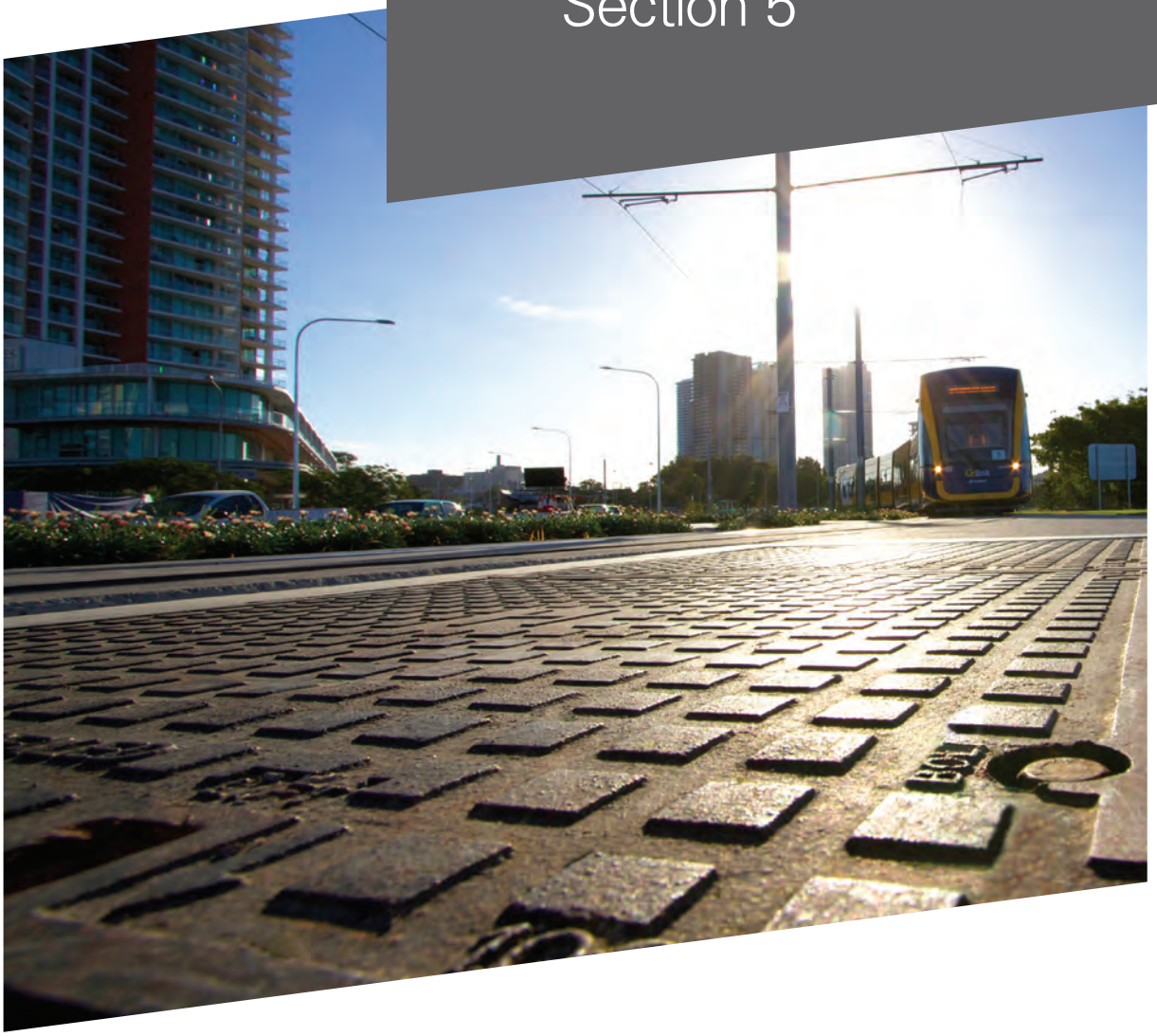
Cam Locks:
Stainless steel cam locks rotate to open cover, and back to tighten and secure cover.

Closed with cap on

Cap off, loosen bolt,rotate cam

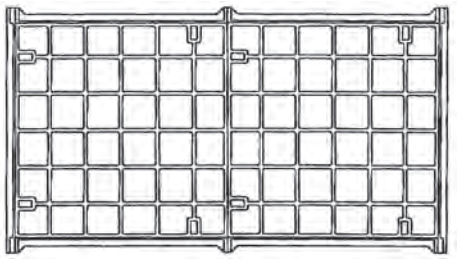
Rotate 90° to open

2 & 3 Part Covers
Section 5



2 & 3 PART COVERS

Concrete Infill | Two Part

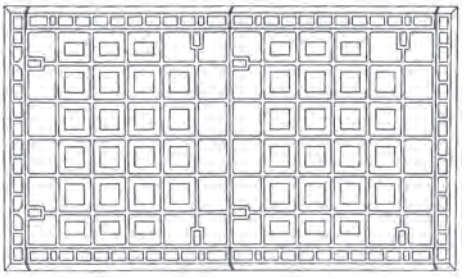


Class B

80kN

Concrete Infill

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
B201	300	645	348	690	440	755	38	55
B202	450	945	498	990	590	1055	38	55
B203	600	995	648	1040	740	1105	38	55
B204	600	1120	648	1165	740	1230	38	55
B205	600	1245	648	1290	740	1355	38	55
B206	600	1420	648	1465	740	1530	38	55
B207	600	1595	648	1640	740	1705	38	55
B208	750	945	798	990	890	1055	38	55
B209	750	1095	798	1140	890	1205	38	55
B210	750	1245	798	1290	890	1355	38	55
B211	750	1395	798	1440	890	1505	38	55
B212	750	1545	798	1590	890	1655	38	55
B213	900	945	948	990	1040	1055	38	55
B214	900	1095	948	1140	1040	1205	38	55
B215	900	1245	948	1290	1040	1355	38	55
B216	915	1569	963	1614	1055	1679	38	55



Class D

210kN

Concrete Infill

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
D201	450	970	530	1040	662	1182	73	100
D202	600	1000	680	1070	812	1212	73	100
D203	600	1135	680	1205	812	1347	73	100
D204	600	1270	680	1340	812	1482	73	100
D210	750	1270	830	1340	962	1482	73	100
D205	750	1420	830	1490	962	1632	73	100
D206	750	1570	830	1640	962	1782	73	100
D207	750	970	830	1040	962	1182	73	100
D208	915	1120	995	1190	1127	1332	73	100
D209	915	1270	995	1340	1127	1482	73	100
D212	1067	1270	1147	1340	1279	1482	73	100
D213	1200	1135	1280	1205	1436	1371	73	100
D214	1200	1290	1280	1340	1436	1506	73	125

2 & 3 PART COVERS

Solid Top | Two Part

Class B

80kN

Solid Top

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
LB201	300	645	348	690	440	755	38	55
LB202	450	945	498	990	590	1055	38	55
LB203	600	995	648	1040	740	1105	38	55
LB204	600	1120	648	1165	740	1230	38	55
LB205	600	1245	648	1290	740	1355	38	55
LB206	600	1420	648	1465	740	1530	38	55
LB207	600	1595	648	1640	740	1705	38	55
LB208	750	945	798	990	890	1055	38	55
LB209	750	1095	798	1140	890	1205	38	55
LB210	750	1245	798	1290	890	1355	38	55
LB211	750	1395	798	1440	890	1505	38	55
LB212	750	1545	798	1590	890	1655	38	55
LB213	900	945	948	990	1040	1055	38	55
LB214	900	1095	948	1140	1040	1205	38	55
LB215	900	1245	948	1290	1040	1355	38	55
LB216	915	1569	963	1614	1055	1679	38	55

Class D

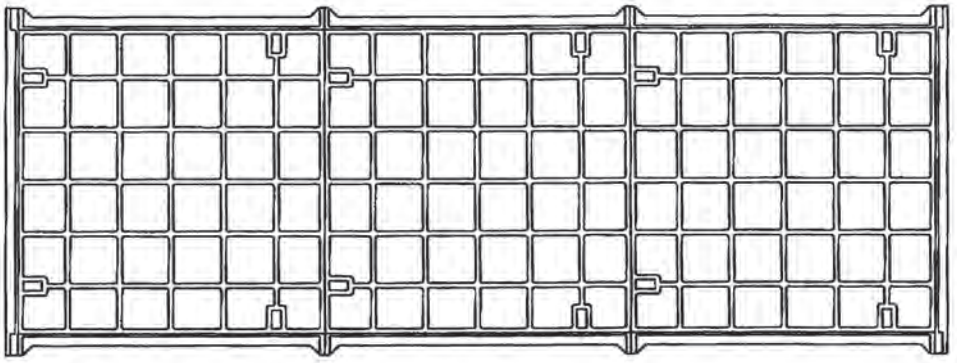
210kN

Solid Top

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
LD201	450	970	530	1040	662	1182	73	100
LD202	600	1000	680	1070	812	1212	73	100
LD203	600	1135	680	1205	812	1347	73	100
LD204	600	1270	680	1340	812	1482	73	100
LD210	750	1270	830	1340	962	1482	73	100
LD205	750	1420	830	1490	962	1632	73	100
LD206	750	1570	830	1640	962	1782	73	100
LD207	750	970	830	1040	962	1182	73	100
LD208	915	1120	995	1190	1127	1332	73	100
LD209	915	1290	995	1340	1127	1482	73	100

2 & 3 PART COVERS

Concrete Infill | Three Part



Class B

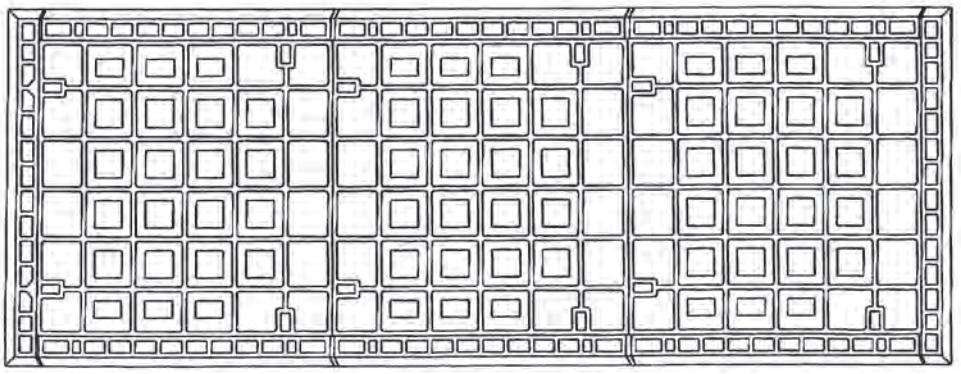
80kN

Concrete Infill

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
B301	450	1440	498	1485	590	1550	38	55
B302	600	1515	648	1560	740	1625	38	55
B303	600	1640	648	1685	740	1750	38	55
B304	600	1765	648	1810	740	1875	38	55
B305	600	1890	648	1935	740	2000	38	55
B306	600	2065	648	2110	740	2175	38	55
B307	600	2240	648	2285	740	2350	38	55
B308	600	2415	648	2460	740	2525	38	55
B309	750	1440	798	1485	890	1550	38	55
B310	750	1590	798	1635	890	1700	38	55
B311	750	1740	798	1785	890	1850	38	55
B312	750	1890	798	1935	890	2000	38	55
B313	750	2040	798	2085	890	2150	38	55
B314	750	2190	798	2235	890	2300	38	55
B315	750	2340	798	2385	890	2450	38	55
B316	900	1440	948	1485	1040	1550	38	55
B317	900	1590	948	1635	1040	1700	38	55
B318	900	1740	948	1785	1040	1850	38	55
B319	900	1890	948	1935	1040	2000	38	55
B320	915	2376	963	2421	1055	2486	38	55

2 & 3 PART COVERS

Concrete Infill | Three Part



Class D

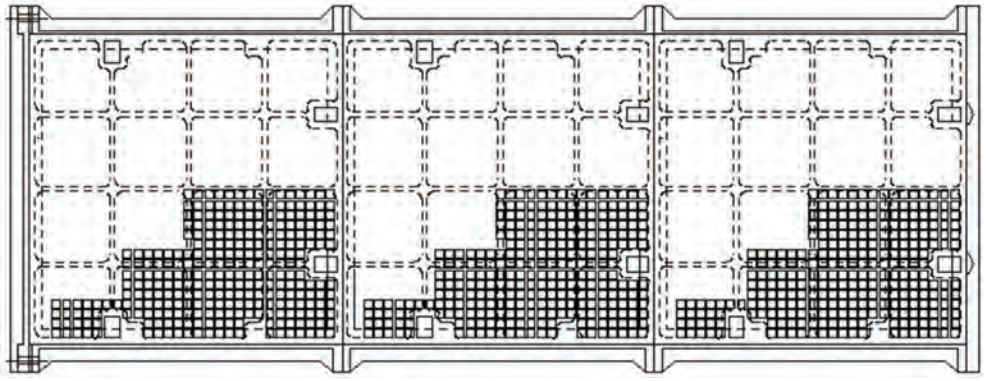
210kN

Concrete Infill

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
D301	450	1490	530	1560	662	1702	73	100
D302	600	1535	680	1605	812	1747	73	100
D303	600	1670	680	1740	812	1882	73	100
D304	600	1805	680	1875	812	2017	73	100
D305	600	1940	680	2010	812	2152	73	100
D306	600	2070	680	2140	812	2282	73	100
D307	600	2200	680	2270	812	2412	73	100
D308	600	2330	680	2400	812	2542	73	100
D309	750	1490	830	1560	962	1702	73	100
D310	750	1640	830	1710	962	1852	73	100
D311	750	1790	830	1860	962	2002	73	100
D312	750	1940	830	2010	962	2152	73	100
D313	750	2090	830	2160	986	2326	73	100
D314	750	2240	830	2310	986	2476	73	100
D315	750	2390	830	2460	986	2626	73	100
D316	915	1535	995	1605	1151	1771	73	100
D317	915	1670	995	1740	1151	1906	73	100
D318	915	1805	995	1875	1151	2041	73	100
D319	915	1940	995	2010	1151	2176	73	100

2 & 3 PART COVERS

Solid Top | Three Part



Class B

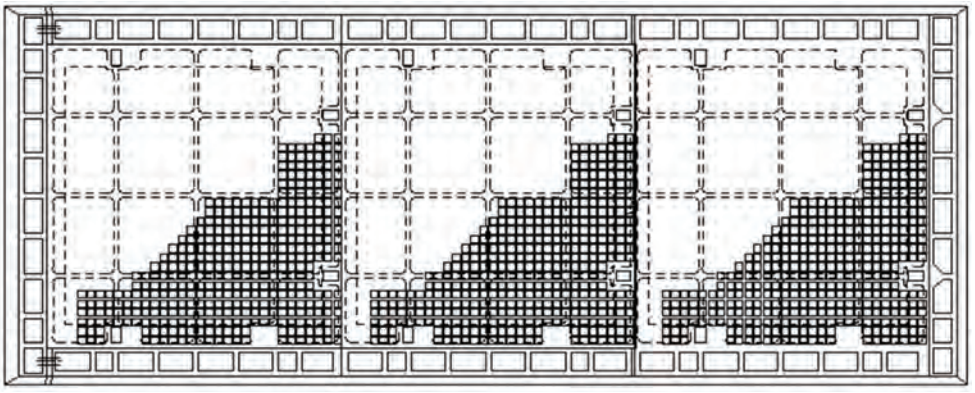
80kN

Solid Top

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
LB301	450	1440	498	1485	590	1550	38	55
LB302	600	1515	648	1560	740	1625	38	55
LB303	600	1640	648	1685	740	1750	38	55
LB304	600	1765	648	1810	740	1875	38	55
LB305	600	1890	648	1935	740	2000	38	55
LB306	600	2065	648	2110	740	2175	38	55
LB307	600	2240	648	2285	740	2350	38	55
LB308	600	2415	648	2460	740	2525	38	55
LB309	750	1440	798	1485	890	1550	38	55
LB310	750	1590	798	1635	890	1700	38	55
LB311	750	1740	798	1785	890	1850	38	55
LB312	750	1890	798	1935	890	2000	38	55
LB313	750	2040	798	2085	890	2150	38	55
LB314	750	2190	798	2235	890	2300	38	55
LB315	750	2340	798	2385	890	2450	38	55
LB316	900	1440	948	1485	1040	1550	38	55
LB317	900	1590	948	1635	1040	1700	38	55
LB318	900	1740	948	1785	1040	1850	38	55
LB319	900	1890	948	1935	1040	2000	38	55
LB320	915	2376	963	2421	1055	2486	38	55

2 & 3 PART COVERS

Solid Top | Three Part



Class D

210kN

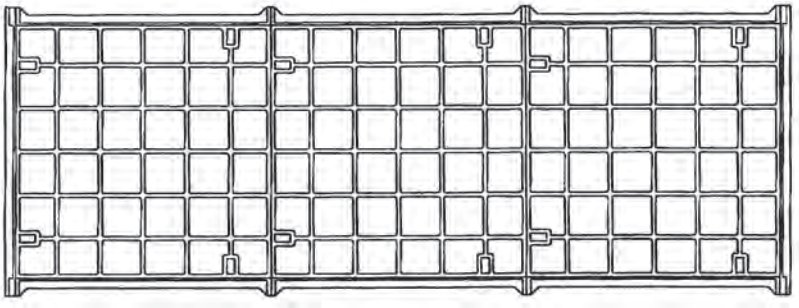
Solid Top

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
LD301	450	1490	530	1560	662	1702	73	100
LD302	600	1535	680	1605	812	1747	73	100
LD303	600	1670	680	1740	812	1882	73	100
LD304	600	1805	680	1875	812	2017	73	100
LD305	600	1940	680	2010	812	2152	73	100
LD306	600	2070	680	2140	812	2282	73	100
LD307	600	2200	680	2270	812	2412	73	100
LD308	600	2330	680	2400	812	2542	73	100
LD309	750	1490	830	1560	962	1702	73	100
LD310	750	1640	830	1710	962	1852	73	100
LD311	750	1790	830	1860	962	2002	73	100
LD312	750	1940	830	2010	962	2152	73	100
LD313	750	2090	830	2160	962	2302	73	100
LD314	750	2240	830	2310	962	2452	73	100
LD315	750	2390	830	2460	962	2602	73	100
LD316	915	1535	995	1605	1127	1747	73	100
LD317	915	1670	995	1740	1127	1882	73	100
LD318	915	1805	995	1875	1127	2017	73	100
LD319	915	1940	995	2010	1127	2152	73	100

Grease Trap Covers
Section 6

GREASE TRAP COVERS

Concrete Infill | Grease Trap Covers



Class B
80kN

Concrete Infill

Code	Everhard Trap Size	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
E250B	250 litre	600	1245	648	1290	740	1355	38	55	112
E550B	550 litre	600	1765	648	1810	740	1875	38	55	160
E1000B	1000 litre	600	2065	648	2110	740	2175	38	55	180
E2000(7)B	2000 litre	750	2340	798	2385	890	2450	38	55	234
E2000(9)B	2000 litre	915	2376	963	2421	1055	2486	38	55	264

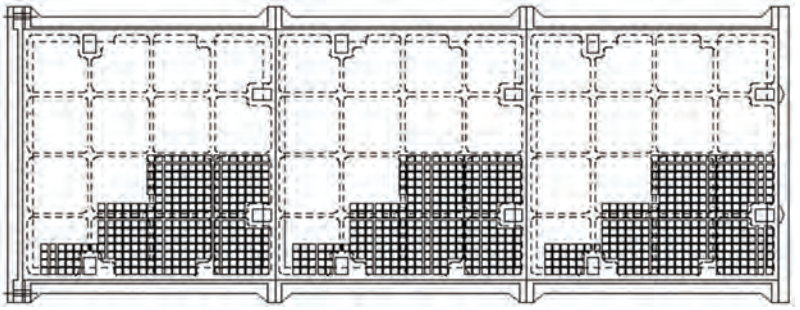
Class D
210kN

Concrete Infill

Code	Everhard Trap Size	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
E250D	250 litre	600	1270	680	1340	812	1482	73	100	230
E550D	550 litre	600	1670	680	1740	812	1882	73	100	311
E1000D	1000 litre	600	1940	680	2010	812	2152	73	100	345
E2000(7)D	2000 litre	750	2240	830	2310	962	2452	73	100	431
E2000(9)D	2000 litre	915	2340	995	2410	1127	2552	73	100	568

2 & 3 PART AND GREASE TRAP COVERS

Solid Top | Grease Trap Covers

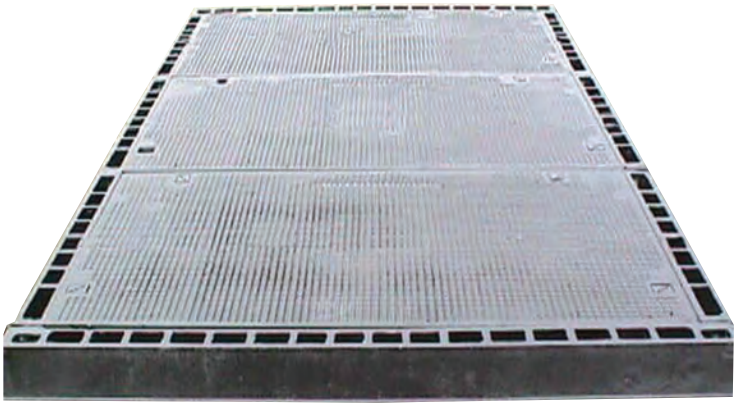


Class B
80kN

Solid Top

Note: Lidsets are also available to suit most makes of Grease Traps

Code	Everhard Trap Size	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
LE250B	250 litre	600	1245	648	1290	740	1355	38	55	112
LE550B	550 litre	600	1765	648	1810	740	1875	38	55	160
LE1000B	1000 litre	600	2065	648	2110	740	2175	38	55	180
LE2000(7)B	2000 litre	750	2340	798	2385	890	2450	38	55	234
LE2000(9)B	2000 litre	915	2376	963	2421	1055	2486	38	55	264



Class D
210kN

Solid Top

Code	Everhard Trap Size	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth	Mass (kg)
LE250D	250 litre	600	1270	680	1340	812	1482	73	100	230
LE550D	550 litre	600	1670	680	1740	812	1882	73	100	311
LE1000D	1000 litre	600	1940	680	2010	812	2152	73	100	345
LE2000(7)D	2000 litre	750	2240	830	2310	962	2452	73	100	431
LE2000(9)D	2000 litre	915	2340	995	2410	1127	2552	73	100	568

Electrical Covers
Section 7

ELECTRICAL COVERS
Single Part

Electrical Covers

Covers for electricity networks can be supplied as the Energex specification of 3mm shimmed gap around the cover, welded corners for rigidity and covers marked with the word 'Electricity'.

Class B
80kN

Options:
Concrete Infill
Solid Top

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)
A77B-E	750	750	798	795	890	860	38	55	88
LA77B-E	750	750	798	795	890	860	38	55	88

Class D
210kN

Options:
Concrete Infill
Solid Top

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)
A77D-E	750	750	830	820	962	962	73	100	155
LA77D-E	750	750	830	820	962	962	73	100	155

ELECTRICAL COVERS

2 Part

Class B

80kN

Options:
Concrete Infill
Solid Top
Light Weight Composite (Hinged and Lock Down)

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
B210-E	750	1245	798	1290	890	1355	38	55
LB210-E	750	1245	798	1290	890	1355	38	55
CB210-E	750	1245	798	1290	890	1355	38	55

Class D

210kN

Options:
Concrete Infill
Solid Top

Code	Clear Opening (mm) Width	x Length	Overall Cover Width	Overall Cover Length	Overall Frame Width	Overall Frame Length	Cover Depth	Frame Depth
D210-E	750	1270	830	1340	962	1482	73	100
LD210-E	750	1270	830	1340	962	1482	73	100

Ductile Iron Grates
Section 8

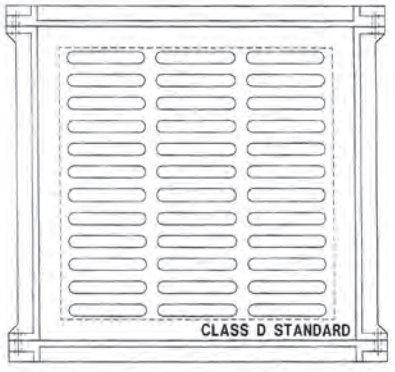
DUCTILE IRON GRATES

Sump Grates

Class B

80kN

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)
G33B	300	300	338	338	450	410	38	55	24
G44B	450	450	488	488	600	560	38	55	36
G64B	600	450	638	488	750	560	38	55	49
G66B	600	600	638	638	750	710	38	55	54
G69B 2P	600	938	638	976	750	1048	38	55	100
G612B 2P	600	1238	638	1276	750	1348	38	55	110



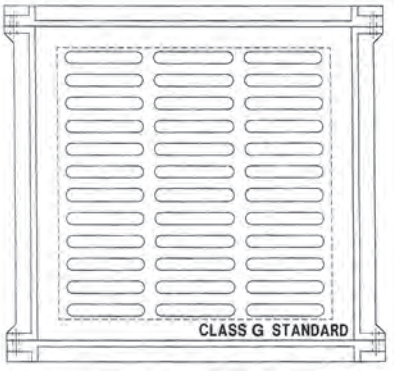
Class D

210kN

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)
G33D	300	300	338	338	450	410	38	55	24
G44D	450	450	488	488	600	560	38	55	36
G64D	600	450	638	488	750	560	38	55	49
G66D	600	600	638	638	750	710	38	55	54
G612D 2P	600	1238	638	1276	750	1348	38	55	110
G93D	900	320	940	320	1060	340	75	80	78
G96D	900	640	940	640	1060	660	75	80	156
G99D	900	960	940	960	1060	980	75	80	233
G912D	900	1280	940	1280	1060	1300	75	80	312

DUCTILE IRON GRATES

Sump Grates



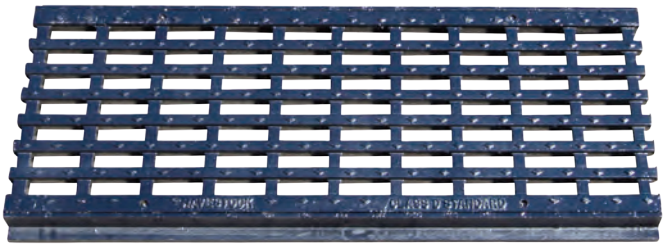
Class G

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	320	940	320	1060	340	100	125	134
G96G	Tee	900	640	940	640	1060	660	100	125	264
G99G	Tee	900	960	940	960	1060	980	100	125	396
G912G	Tee	900	1280	940	1280	1060	1300	100	125	498

LONGITUDINAL & TRANSVERSE GRATES

Ductile Iron | Trench Grates



Class B

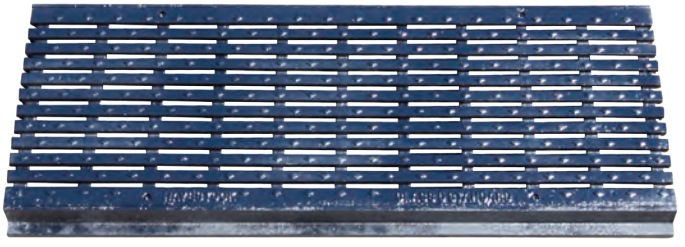
80kN

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)
LG15Bim	Longitudinal	150	1000	200	1000	265	1000	34	50	30
LG25Bim	Longitudinal	225	1000	275	1000	340	1000	35	50	34
LG30Bim	Longitudinal	300	1000	350	1000	415	1000	34	50	42
TG45B	Transverse	450	610	488	488	600	560	38	55	36
TG60B	Transverse	600	610	638	638	750	710	38	55	54

Class D

210kN

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)
LG15Dim	Longitudinal	150	1000	200	1000	265	1000	34	50	36
LG25Dim	Longitudinal	225	1000	275	1000	340	1000	35	50	40
LG30Dim	Longitudinal	300	1000	350	1000	415	1000	34	50	50
TG45D	Transverse	450	500	520	500	580	500	60	80	88
TG60D	Transverse	600	670	670	670	730	670	65	85	118



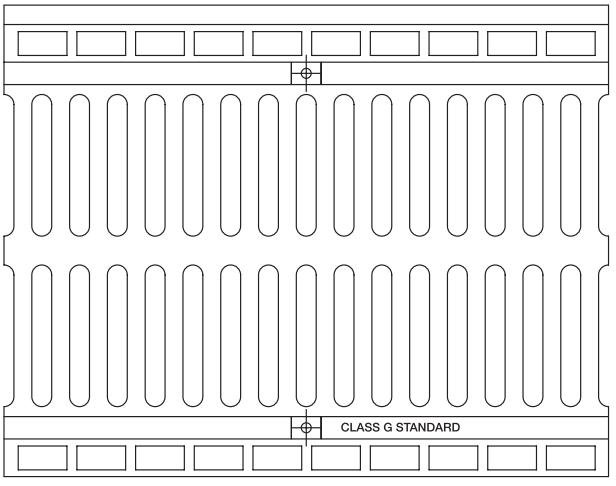
Class D HEELPROOF™

210kN

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)
LG15Dim - HP	Longitudinal HEELPROOF™	150	1000	200	1000	265	1000	34	50	36
LG25Dim - HP	Longitudinal HEELPROOF™	225	1000	275	1000	340	1000	35	50	40
LG30Dim - HP	Longitudinal HEELPROOF™	300	1000	350	1000	415	1000	34	50	50

LONGITUDINAL & TRANSVERSE GRATES

Ductile Iron | Trench Grates



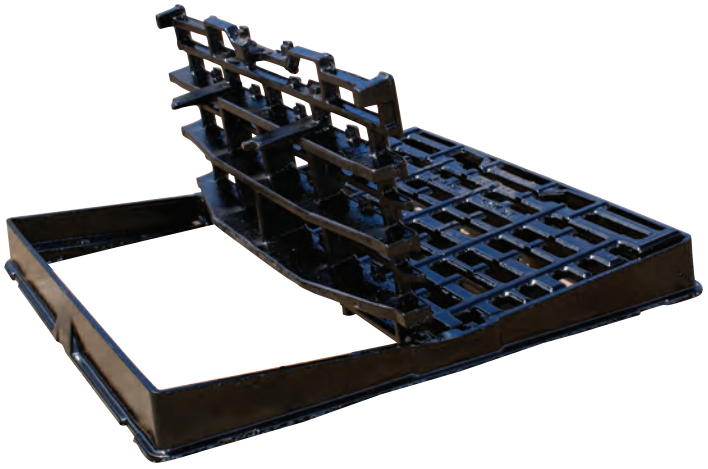
Class G

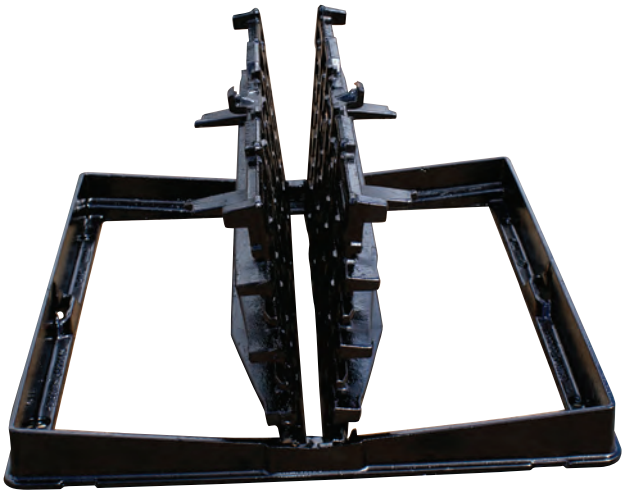
900kN

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

SELF-LOCKING V-GRATE AND FRAME

For v-drains and dished channel drainage.
Ideal for council roadways, carparks and residential subdivisions.





Features

- V-grating with special design bars to provide maximum water drainage
- Self-locking grate into the frame by means of a spring bar (no need for bolts)
- 15° angle of fall
- Bicycle safe design
- Two part hinged grating for 700 and 800 dimensions
- Durable ductile iron casting

Technical Description

Grates and frames are manufactured from spheroidal graphite (SG) or ductile cast iron in accordance with standards ISO 1083 (grade 500-7) and EN 1563. Load classification Class D (210kN AS3996) and C250 of EN124.

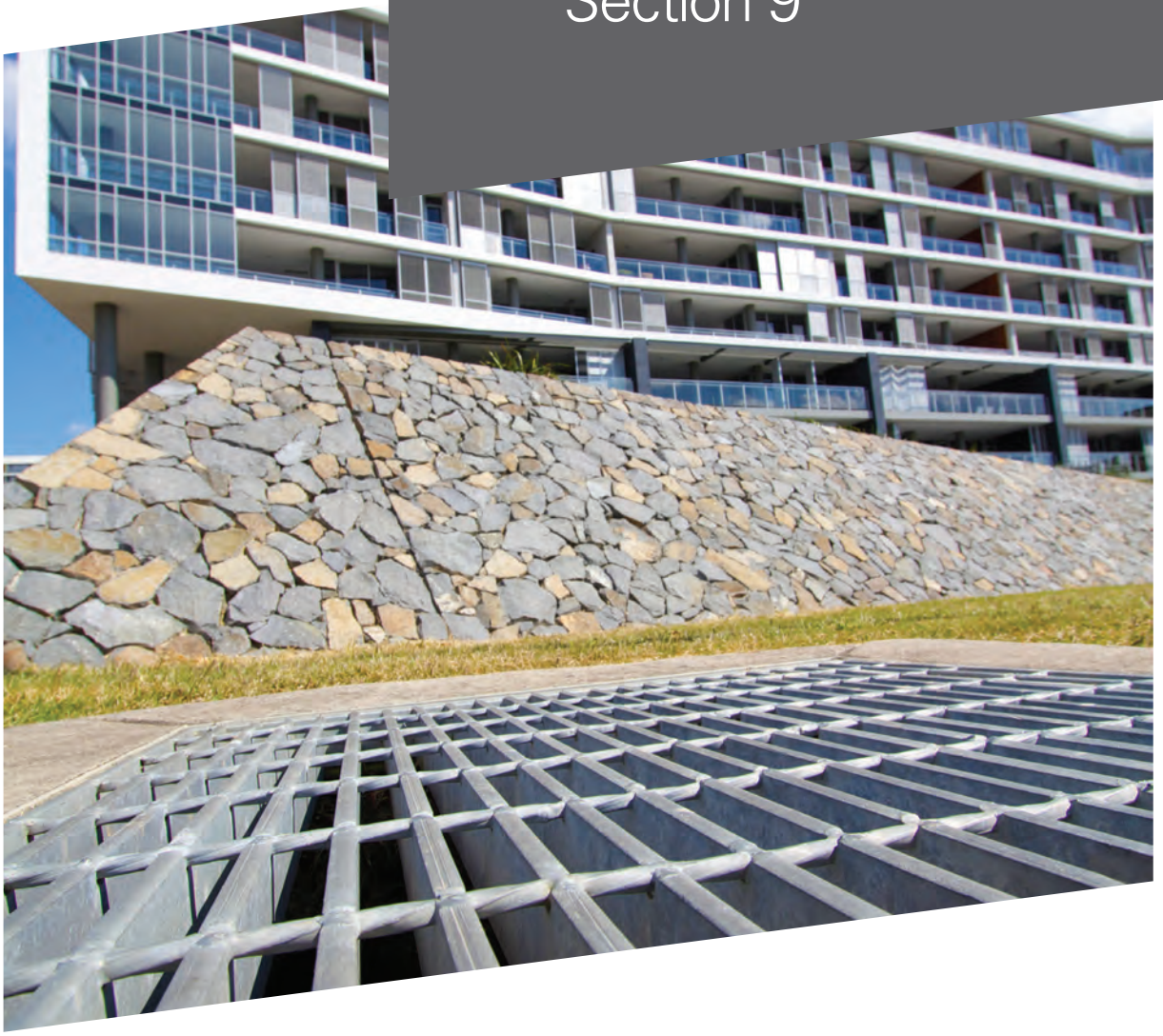
Coating

Non-toxic water based black paint according to BS 3416.

Class D
210kN

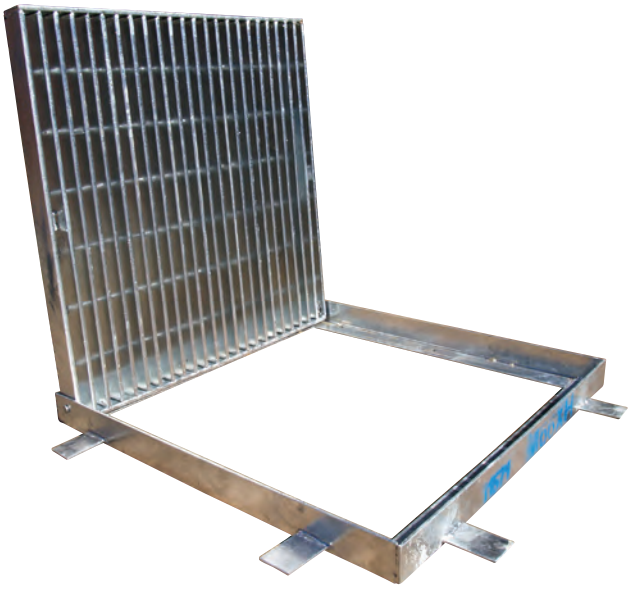
Code	Clear Opening (mm) Width x Length	Grate Size	Frame Overall (mm) Width x Length	Frame Depth	Weight (kg)
C400V	350 x 350	400	450 x 450	60	21
C500V	450 x 450	500	550 x 550	65	32
C600V	550 x 550	600	650 x 650	70	48
C700V	650 x 650	700	750 x 750	75	72
C800V	750 x 750	800	890 x 890	80	98

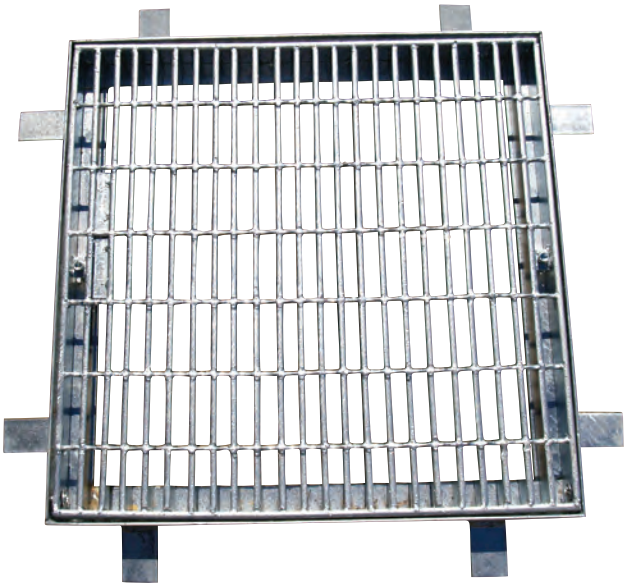
GMS & SS Grates
Section 9



GALVANISED MILD STEEL (GMS) GRATES

GMS Sump Grates and Frames





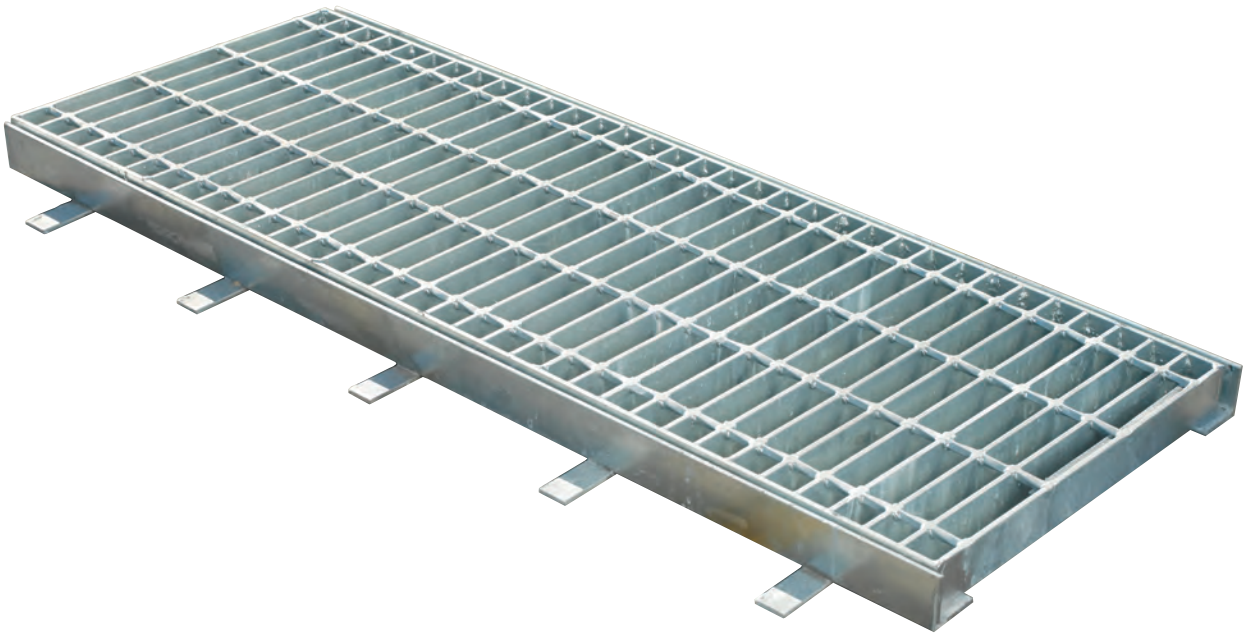
GMS Sump Grate & Frame

Features:
Bicycle safe design;
Grate hinged into frame to reduce theft;
Bolted down grate to limit access;
Twist rod bars.

Class/Duty	Code	Clear Opening (mm)	Grate Size (mm)	Load Bar (mm)	Frame Size (mm)	Angle Size (mm)	Mass (kg)
A/Light	M33L	300 x 300	335 x 335	20 x 5	350 x 350	25 x 25 x 5	9
A/Light	M44L	450 x 450	485 x 485	25 x 5	510 x 510	30 x 30 x 5	14
A/Light	M66L	610 x 610	645 x 645	25 x 5	670 x 670	30 x 30 x 5	21
A/Light	M96L	910 x 610	945 x 645	25 x 5	970 x 670	30 x 30 x 5	30
A/Light	M99L	910 x 910	945 x 945	32 x 5	990 x 990	40 x 40 x 5	55
A/Light	M1212L	1200 x 1200	1240 x 1240	32 x 5	1260 x 1260	40 x 40 x 5	132
B/Heavy	M33H	300 x 300	345 x 345	25 x 5	360 x 360	30 x 30 x 5	9
B/Heavy	M44H	450 x 450	515 x 515	32 x 5	530 x 530	40 x 40 x 5	20
B/Heavy	M66H	610 x 610	705 x 705	50 x 5	720 x 720	55 x 55 x 5	50
B/Heavy	M96H	910 x 610	1005 x 705	50 x 5	1020 x 720	55 x 55 x 5	65
B/Heavy	M99H	910 x 910	1005 x 1005	50 x 5	1020 x 1020	55 x 55 x 5	89
B/Heavy	M1212H	1200 x 1200	1260 x 1260	50 x 5	1280 x 1280	55 x 55 x 5	151
D/Extra Heavy	M44XH	450 x 450	513 x 513	31 x 10	530 x 530	40 x 40 x 5	40
D/Extra Heavy	M66XH	610 x 610	700 x 700	50 x 10	720 x 720	55 x 55 x 5	96
D/Extra Heavy	M96XH	910 x 610	1000 x 700	50 x 10	1020 x 720	55 x 55 x 5	130
D/Extra Heavy	M99XH	910 x 910	1000 x 1000	50 x 10	1020 x 1020	55 x 55 x 5	178
D/Extra Heavy	M1212XH	1200 x 1200	1260 x 1260	50 x 10	1280 x 1280	55 x 55 x 5	300

GALVANISED MILD STEEL (GMS) GRATES

GMS Trench Grates and Frames



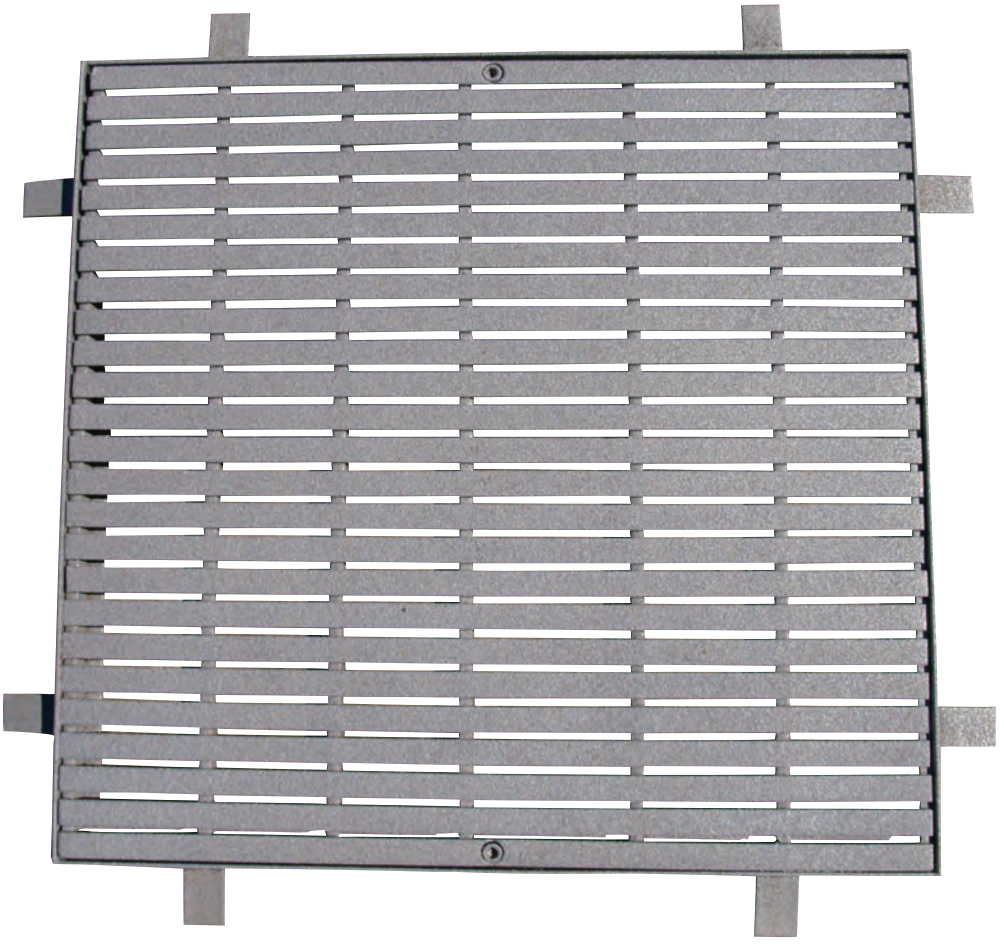
GMS Trench Grate & Frame

Features:
All have transverse load bars;
NB: For areas subject to forklift and heavy vehicle loading, ductile iron is the recommended option;
1m grate sections and 2m frames;
Bolted down grate.

Class/Duty	Code	Clear Opening (mm)	Grate Size (mm)	Load Bar (mm)	Frame Size (mm)	Angle Size (mm)	Mass (kg)
A/Light	GTG15L	150	995 x 185	20 x 5	1000 x 200	25 x 25 x 5	15
A/Light	GTG25L	250	995 x 270	25 x 5	1000 x 285	30 x 30 x 5	19
A/Light	GTG30L	300	995 x 345	25 x 5	1000 x 360	30 x 30 x 5	30
A/Light	GTG45L	450	995 x 485	25 x 5	1000 x 510	30 x 30 x 5	40
A/Light	GTG60L	610	995 x 645	25 x 5	1000 x 670	30 x 30 x 5	50
A/Light	GTG90L	910	995 x 945	32 x 5	1000 x 990	40 x 40 x 5	60
B/Heavy	GTG15H	150	995 x 210	32 x 5	1000 x 230	40 x 40 x 5	17
B/Heavy	GTG25H	250	995 x 315	32 x 5	1000 x 330	40 x 40 x 5	21
B/Heavy	GTG30H	300	995 x 370	40 x 5	1000 x 390	45 x 45 x 5	34
B/Heavy	GTG45H	450	995 x 515	32 x 5	1000 x 530	40 x 40 x 5	55
B/Heavy	GTG60H	610	995 x 705	50 x 5	1000 x 720	55 x 55 x 5	70
B/Heavy	GTG90H	910	995 x 1005	50 x 5	1000 x 1020	55 x 55 x 5	90
D/Extra Heavy	GTG15XH	150	995 x 210	32 x 10	1000 x 230	40 x 40 x 5	35
D/Extra Heavy	GTG25XH	250	995 x 315	32 x 10	1000 x 330	40 x 40 x 5	45
D/Extra Heavy	GTG30XH	300	995 x 370	40 x 10	1000 x 390	45 x 45 x 5	70

HEELPROOF™ GRATES

Pedestrian Safe Sump Grates and Frames



Pedestrian Safe Sump Grate & Frame

Features:
HEELPROOF™ design with less than 9mm appertures;
Anti-skid coating (independently tested);
Colour options available (consult your EJ rep);
Bolts down for security.

Class/Duty	Code	Clear Opening (mm)	Grate Size (mm)	Load Bar (mm)	Frame Size (mm)	Angle Size (mm)	Mass (kg)
A/Light	M33L-HP	300 x 300	335 x 335	20 x 5	350 x 350	25 x 25 x 5	9
A/Light	M44L-HP	450 x 450	485 x 485	25 x 5	510 x 510	30 x 30 x 5	14
A/Light	M66L-HP	610 x 610	645 x 645	25 x 5	670 x 670	30 x 30 x 5	21
A/Light	M96L-HP	910 x 610	945 x 645	25 x 5	970 x 670	30 x 30 x 5	30
A/Light	M99L-HP	910 x 910	945 x 945	32 x 5	990 x 990	40 x 40 x 5	55
D/Extra Heavy	M44H-HP	450 x 450	500 x 500	31 x 10	530 x 530	40 x 40 x 5	40
D/Extra Heavy	M66H-HP	610 x 610	700 x 700	50 x 10	720 x 720	55 x 55 x 5	96
D/Extra Heavy	M96H-HP	910 x 610	1000 x 700	50 x 10	1020 x 720	55 x 55 x 5	130
D/Extra Heavy	M99H-HP	910 x 910	1000 x 1000	50 x 10	1020 x 1020	55 x 55 x 5	178

HEELPROOF™ GRATES

Pedestrian Safe Trench Grates and Frames

Pedestrian Safe Trench Grate & Frame

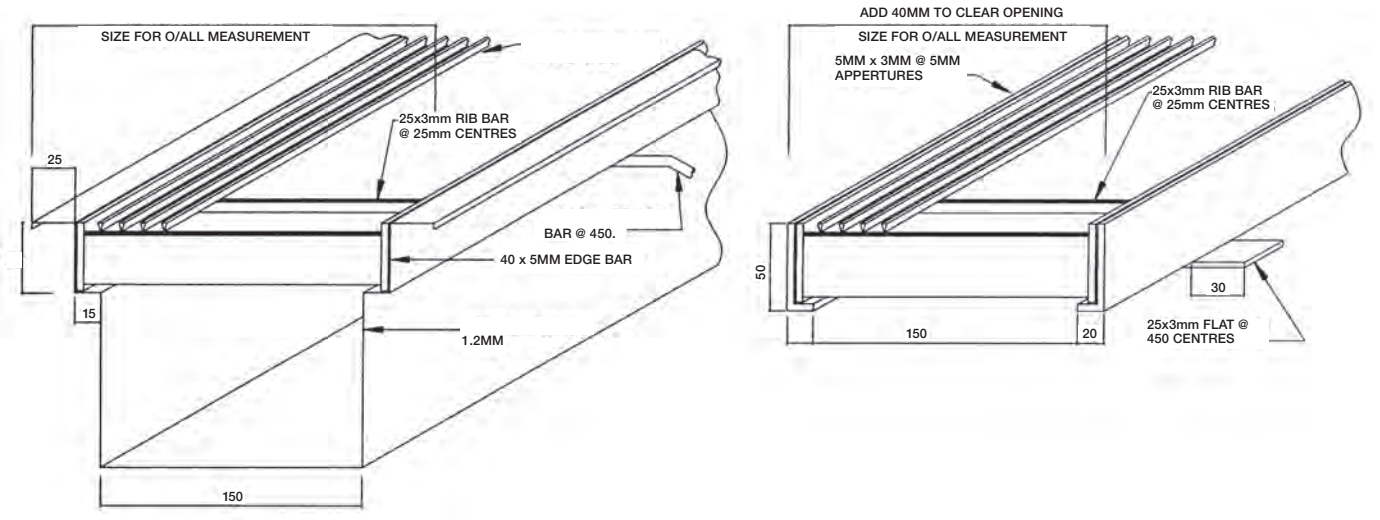
Features:
HEELPROOF™ design with less than 9mm appertures;
Anti-skid coating (independently tested);
Colour options available (consult your EJ rep);
Bolts down for security.

Class/Duty	Code	Clear Opening (mm)	Grate Size (mm)	Load Bar (mm)	Frame Size (mm)	Angle Size (mm)	Mass (kg)
A/Light	GTG15L-HP	150	995 x 185	20 x 5	1000 x 200	25 x 25 x 5	15
A/Light	GTG25L-HP	250	995 x 270	25 x 5	1000 x 285	30 x 30 x 5	19
A/Light	GTG30L-HP	300	995 x 345	25 x 5	1000 x 360	30 x 30 x 5	30
D/Extra Heavy	GTG15H-HP	150	995 x 205	32 x 10	1000 x 225	40 x 40 x 5	35
D/Extra Heavy	GTG25H-HP	250	995 x 280	32 x 10	1000 x 330	40 x 40 x 5	45
D/Extra Heavy	GTG30H-HP	300	995 x 375	40 x 10	1000 x 390	45 x 45 x 5	70

STAINLESS STEEL (SS) GRATES

Grade 304* SS Grates | Sump Grates

*Grade 316 available on request.



Sump Grate & Frame 3mm gap heel safe

Class/Duty	Code	Clear Opening Dim 'A'	Grate Size Dim 'B'	Load Bar Dim 'E'	Frame Size Dim 'D'	Angle Size Dim 'G'	Mass (kg)
A/L	S33L	300 x 300	335 x 335	20 x 5	350 x 350	25 x 25 x 5	9
A/L	S44L	450 x 450	485 x 485	35 x 5	510 x 510	40 x 40 x 5	14
A/L	S66L	600 x 600	645 x 645	35 x 5	670 x 670	40 x 40 x 5	21
B/H	S33H	300 x 300	365 x 365	35 x 5	360 x 360	40 x 40 x 5	9
B/H	S44H	450 x 450	515 x 515	35 x 5	530 x 530	40 x 40 x 5	20
B/H	S66H	600 x 600	705 x 705	35 x 5	720 x 720	40 x 40 x 5	50

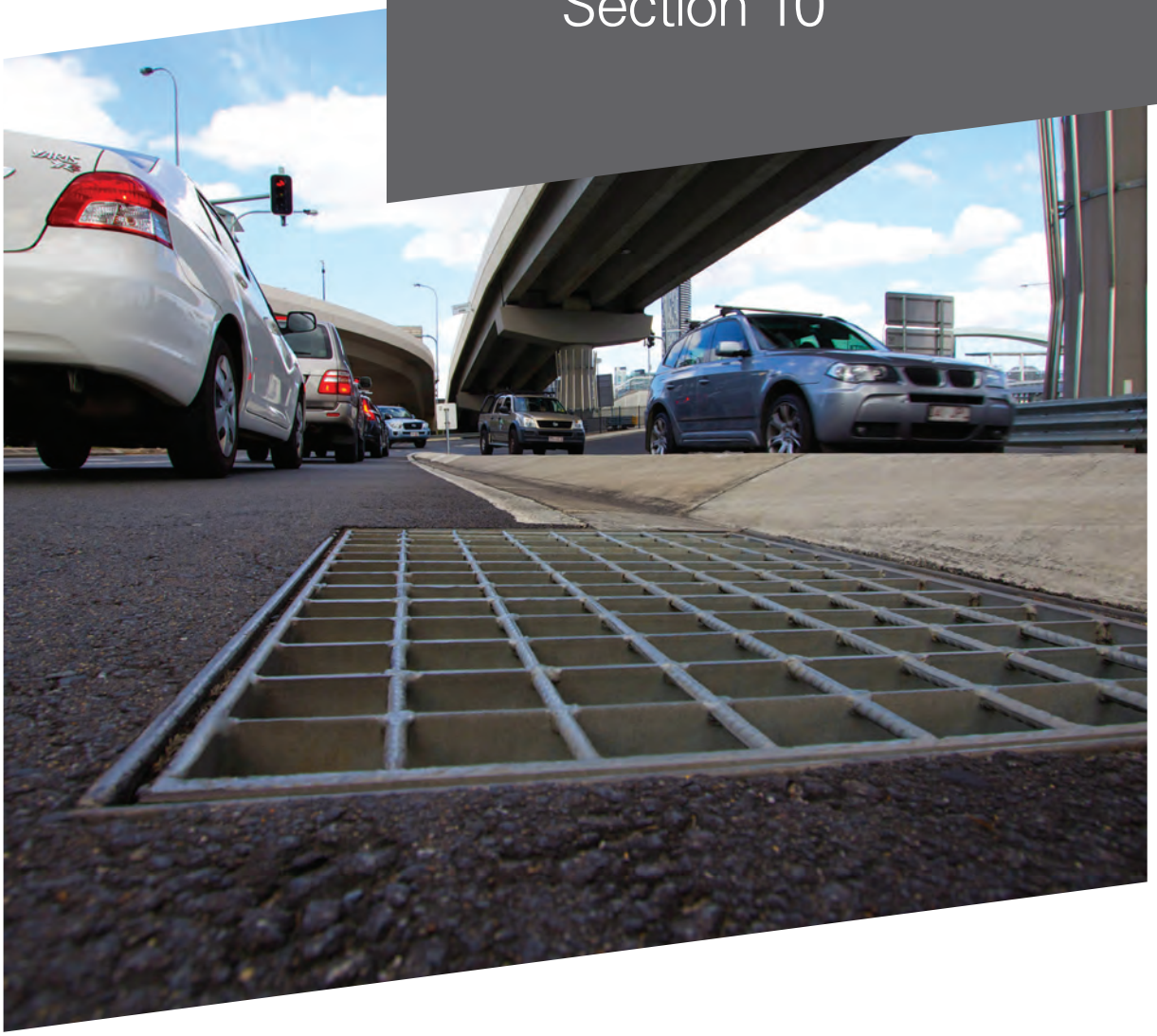
STAINLESS STEEL (SS) GRATES

Grade 304* SS Grates | Trench Grates

Trench Grate & Frame (Optional SS trough available for all sizes - add TR to code)

Class/Duty	Code	Clear Opening Dim 'A'	Grate Size Dim 'B'	Load Bar Dim 'E'	Frame Size Dim 'D'	Angle Size Dim 'G'	Mass (kg)
A/L	STG10L	100	1000 x 135	20 x 5	1000 x 150	25 x 25 x 5	15
A/L	STG15L	150	1000 x 185	20 x 5	1000 x 200	25 x 25 x 5	15
A/L	STG20L	200	1000 x 235	20 x 5	1000 x 250	25 x 25 x 5	19
A/L	STG22L	225	1000 x 250	20 x 5	1000 x 270	25 x 25 x 5	19
A/L	STG25L	250	1000 x 270	20 x 5	1000 x 285	25 x 25 x 5	19
A/L	STG30L	300	1000 x 345	20 x 5	1000 x 360	25 x 25 x 5	30
B/H	STG10H	100	1000 x 135	35 x 5	1000 x 150	40 x 40 x 5	17
B/H	STG15H	150	1000 x 185	35 x 5	1000 x 200	40 x 40 x 5	17
B/H	STG20H	200	1000 x 235	35 x 5	1000 x 250	40 x 40 x 5	21
B/H	STG22H	225	1000 x 250	35 x 5	1000 x 270	40 x 40 x 5	21
B/H	STG25H	250	1000 x 270	35 x 5	1000 x 285	40 x 40 x 5	21
B/H	STG30H	300	1000 x 345	35 x 5	1000 x 360	40 x 40 x 5	34

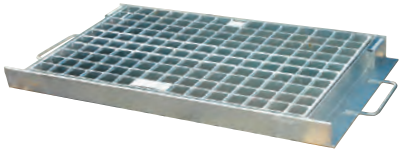
Road Gully Grates
Section 10



ROAD GULLY GRATES

Road Gully Grates and Frames

GC96D



Features:

- 900 x 600mm clear opening
- Class D loadings
- Bicycle safe design

Currently used by QTMR, Gold Coast, Redland and Logan Shires

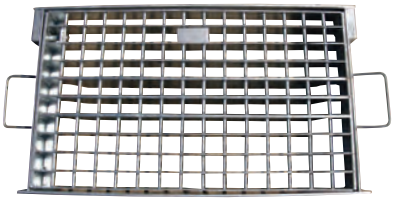
NSW W5

Features:

- 900 x 400mm clear opening
- Class D loadings
- Bicycle safe design
- Side hinged

Currently used in Sydney, Northern Rivers NSW and Tweed Shire.

BCC Type A



Features:

- 900 x 600mm clear opening
- Class D loadings
- Bicycle safe design

Currently used in Brisbane and Townsville.

ROAD GULLY GRATES

Road Gully Grates and Frames

MRD Type J

Features:

- 900 x 600mm clear opening
- Field inlet to MRD 1309/1310

Currently used by QTMR.

MRD Type J - ON LEGS

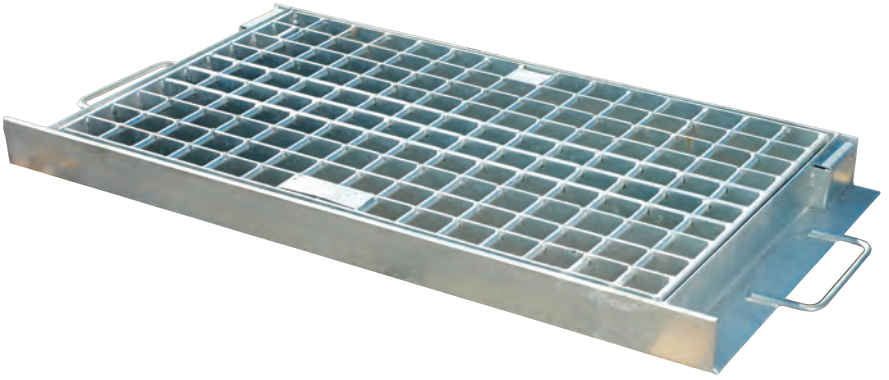
Features:

- 900 x 600mm clear opening
- Field inlet to MRD 1309/1310

Currently used by QTMR in surcharge areas.

ROAD GULLY GRATES

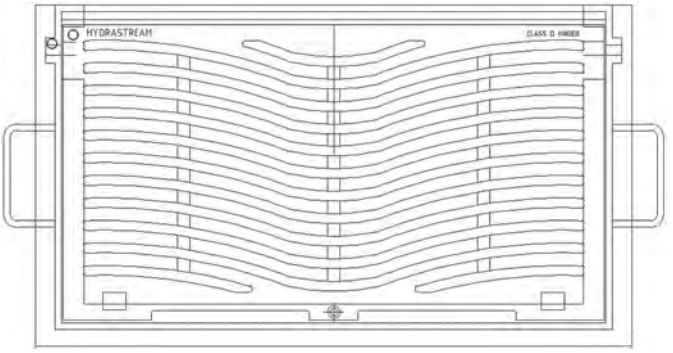
Ductile Iron, Galv Mild & Drainway



Class D
210kN

Galv Mild Steel

Code	Clear Opening (mm) Width x Length	Overall Grate Size	Overall Frame Size	Grate Depth	Frame Depth	Region of Usage	Mass (kg)
BCC Type A	900 x 600	918 x 642	1250 x 676	75	90	Brisbane	110
GC96D	900 x 600	975 x 585	1180 x 620	75	80	Gold Coast, Redlands, Logan, Pine Rivers, Rockhampton, Cairns, Townsville	81
Type J	900 x 600	1040 x 740	1050 x 750	100	110	QLD MRD	260
NSW94D	900 x 405	990 x 400	1225 x 462	65	70	Sydney, Northern Rivers NSW	65



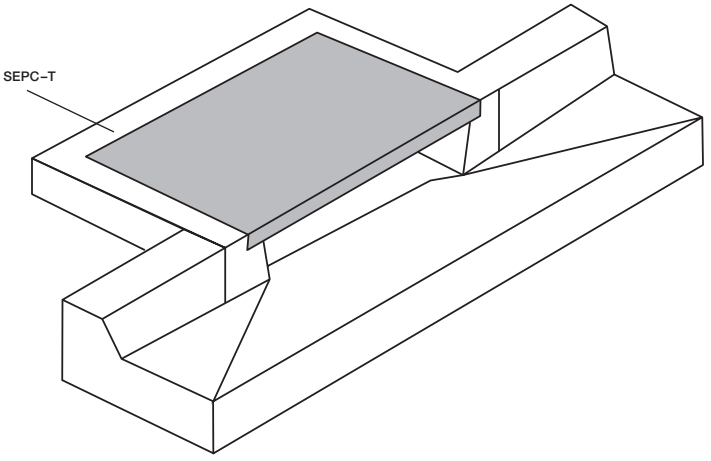
Class D
210kN

Ductile Iron

Code	Clear Opening (mm) Width x Length	Overall Grate Size	Overall Frame Size	Grate Depth	Frame Depth	Region of Usage
Hydrastream 84	780 x 445	850 x 457	930 x 530	80	100	Hydro-fluted Grate
Hydrastream 96	900 x 600	970 x 612	1050 x 685	80	100	Hydro-fluted Grate
Drainway D600G	600 x 600	660 x 640	800 x 700	85	100	Drainway Grate (Fluted)
Drainway D600A	600 x 600	660 x 640	800 x 700	85	100	Drainway Cover (Solid)

ROAD GULLY GRATES

Ductile Iron, Galv Mild & Drainway



Class B
80kN

Side Entry Pit Covers

Code	Clear Opening (mm) Width x Length	Overall Cover Size	Cover Depth	Style	Mass (kg)
SEPC-T	900 x 600	1012 x 660	50	Straight	50
SEPC-SM	900 x 600	1012 x 800	50	Roll Over	76

IGUAZU GULLY GRATE AND LINTEL

For main road kerb and channel drainage.
Ideal for highways, council roadways and residential subdivisions.

Features

- Newly released ductile iron (DI) lintel system – provides an attractive integrated look.
- Gully grate and frame also available without the DI lintel for use with existing precast lintels.
- Removable trash-guard barrier.
- Hydraulically efficient tri-directional grating bar design.
- Exceeds the Class D (210kN) load rating to AS3996.
- Grate securely locked in the closed position with a flexible front bar (no need for bolts).
- Grating opens to 110° to the kerb and is removable from the frame vertically.
- Bicycle safe design.

IGUAZU GCA 1000
CLASS D 210kN | AS 3996

Class D
210kN

Ductile Iron Casting

Code	Clear Opening (mm) Width x Length	Overall Frame (mm) Width x Length	Overall Frame & Lintel (mm) Width x Length	Frame Depth	Lintel Height	Weight (kg)
IGUAZU GCA 1000	990 x 600	990 x 600	1115 x 600	75	275	133
SLIMLINE GCA 850	795 x 220	925 x 445	925 x 545	75	220	74

TEMPOPLUS A/T

For main road kerb and channel drainage.
Ideal for bridges, tunnels, anti-ponding areas, highways, council roadways and residential subdivisions.

Features

- Newly released ductile iron (DI) hinged kerb gully grating & frame.
- Adjustable height lintel system to better match kerb profiles in either straight back or lay-back designs.
- Full access through opening the grate and the lintel cover.
- Integrated trash-guard barrier.
- Hydraulically efficient tri-directional grating bar design.
- Grate and cover securely locked in the closed position with a flexible side bar (no need for bolts).
- Grate and cover open to 100° to the kerb and block at 90° for safety and removable from the frame vertically.
- Bicycle safe design.
- 4 x anchoring holes to fix the frame to your pit or formwork.

Class D
210kN

Ductile Iron Casting

Code	Clear Opening (mm) Width x Length	Overall Frame & Lintel (mm) Width x Length	Lintel Height (min)	Lintel Height Adjustment	Weight (kg)
TEMPOPLUS A (Lay-back)	500 x 680	800 x 683	145	80	79
TEMPOPLUS T (Straight)	500 x 680	800 x 688	185	150	89

TEMPO 500 A/T

For main road kerb and channel drainage.
Ideal for bridges, tunnels, anti-ponding areas, highways, council roadways and residential subdivisions.

TEMPO 500 T (Straight-back)
CLASS D 210kN | AS 3996

Features

- Newly released ductile iron (DI) hinged kerb gully and top.
- Available in either straight back or lay-back designs.
- Full access through opening the grate and the lintel cover.
- Integrated trash-guard barrier.
- Hydraulically efficient tri-directional grating bar design.
- Grate and cover securely locked in the closed position with a flexible side bar (no need for bolts).
- Grate and cover open to 100° to the kerb and block at 90° for safety and removable from the frame vertically.
- Bicycle safe design.
- 4 x anchoring holes to fix the frame to your pit or formwork.

Class D
210kN

Ductile Iron Casting

Code	Clear Opening Size (mm) Width x Length	Overall Frame & Lintel (mm) Width x Length	Lintel Height	Weight (kg)
TEMPO 500 A (Lay-back)	500 x 370	610 x 620	125	44
TEMPO 500 T (Straight)	500 x 370	610 x 620	205	49

HYDRASTREAM

For main road kerb and channel drainage.
Ideal for bridges, tunnels, highways, council roadways and residential subdivisions.

Features

- High intake 'hydro-fluted' grating bar design.
- Aust. Standard lifting holes for ease of opening.
- Grate securely locked in the closed position with a stainless steel bolt.
- Grate opens to 110° to the kerb and blocks at 90° for safety and removable from the frame vertically.
- Bicycle safe design.
- 2 x anchoring handles for ease of handling and concrete encasement.

Class D
210kN

Ductile Iron Casting

Code	Clear Opening Size (mm) Width x Length	Overall Frame (mm) Width x Length	Frame Depth	Weight (kg)
HYDRASTREAM 84	780 x 445	930 x 530	100	100
HYDRASTREAM 96	900 x 600	1050 x 685	100	148


STATE
ONE
WAY
HYPE

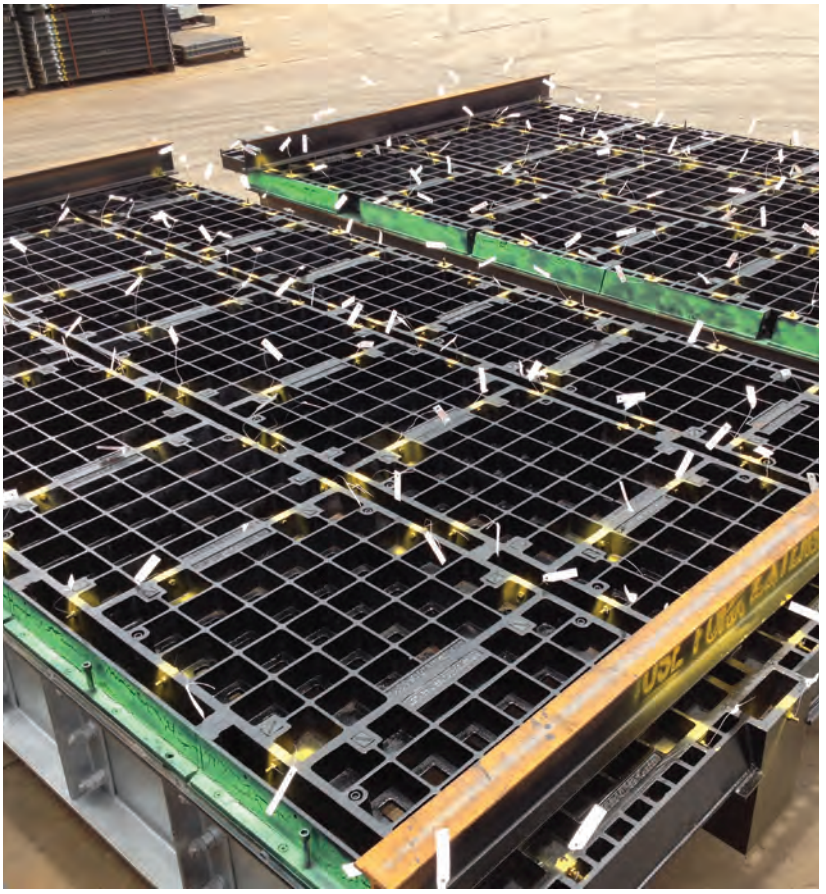
Multipart Covers
Section 11

MULTIPARTS

30 years of building multiparts delivers unparalleled expertise and highest quality product – and that's the EJ way.

Multiparts are custom made by our experienced team. Features include:

- Beams are ultra-strong, Registered Engineer Certified designs applicable to the AS3996 Class rating and span of opening;
- Independently rated lifting shackle anchors on the removable beams;
- Galvanised, fully removable beams;
- Patented joist rails (Innovation Patent 2012101337);
- Cast iron beam location boxes for durability;
- Fully assembled in our Australian factories for correct quality fit and finish;
- Delivered in transportable sections, significantly reducing assembly time on site;
- Delivered with transport beams and travel bolts to ensure the product remains straight and level during transportation and lifting;
- Site rebate drawings available to assist with pit design and construction.

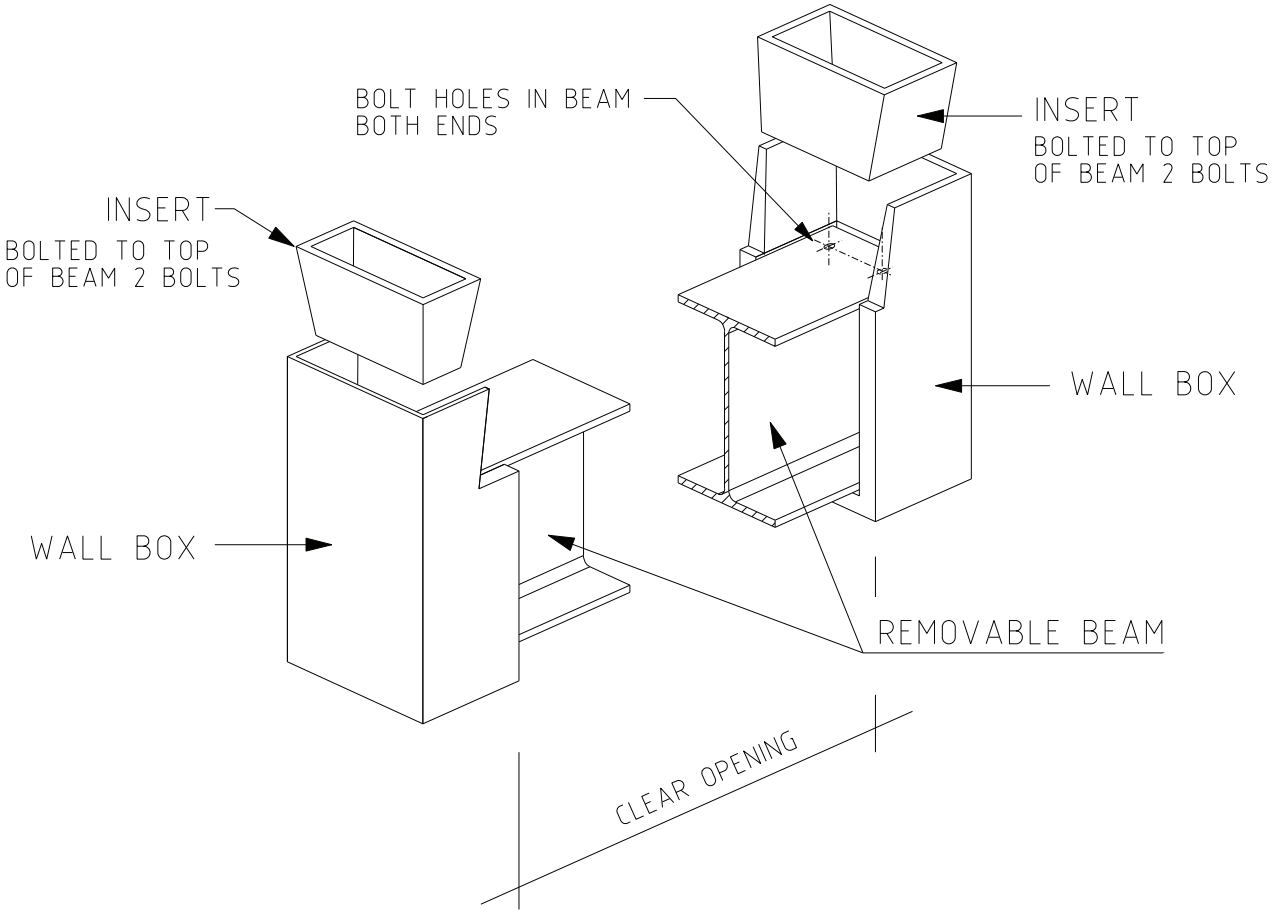


Options include:

- Inspection openings for valve spindles of inspection/measuring points 100mm, 150mm, 225mm;
- Decorative edges in brass or stainless steel;
- Bolt downs for high security;
- Identification marker plates.

MULTIPART COVERS
Engineer Certified Beams

Above: This extra large EJ multipart is installed over the underground Canal Saint-Martin, Paris (pictured right).



MULTIPART COVERS

Infill & Solid

WIDTH CLEAR OPENING (MM)

LENGTH CLEAR OPENING (MM)

	1310	1450	1610	2020	2150	2320	2470	2730	2880	3030	3180	3330	3440	3590	3740	3890	4040	4100	4150	4300	4450	4600	4750	4900	5050
1095			4				6x					8x													
1120	4			6x				8x					10					12y							
1245	4	4	4	6x	6x	6x	6x	8x	8x	8x	8x	8x	10	10	10	10	10	12y	10	12y	12y	12y	12y	12y	12y
1295	4			6x				8x					10					12y							
1395			4				6x					8x							10						12y
1420	4			6x				8x					10					12y							
1440			6				9					12													
1515	6			9				12																	
1545			4				6x					8x							10						12y
1590			6				9					12													
1595	4			6x				8x					10					12y							
1640	6			9				12																	
1740			6				9					12													
1765	6			9				12																	
1815	6							12																	
1890	6	6	6	9	9	9	9	12	12	12	12	12													
1935		8					12																		
1940	6			9				12																	
2035	8			12x																					
2040			6				9			12															
2065	6			9				12																	
2085			8				12x																		
2115	6			9																					
2160	8			12x																					
2190			6				9			12		12													
2240	6			9				12		12															
2235			8				12x																		
2285				12x																					
2335				12x																					
2340			6				9					12													
2385			8	12x			12x																		
2410	8			12x																					
2415	6			9				12																	
2460	8			12x																					
2535	8	8	8	12x	12x	12x	12x																		
2585	8			12x																					
2635	8			12x																					
2685			8				12x																		
2710				12x																					
2760	8			12x																					
2835			8				12x																		
2885				12x																					
2935	8			12x																					
2985			8				12x																		
3060				12x																					
3135			8				12x																		
3235				12x																					

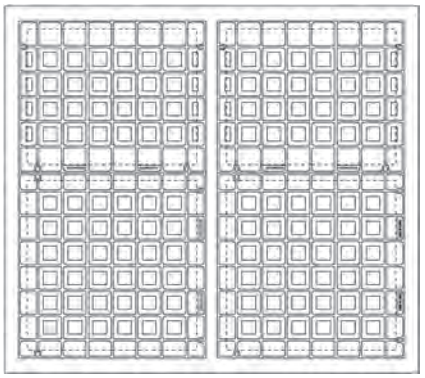
Class B **80kN**

LEGEND	
4	4 PART
6	6 PART (SINGLE BEAM)
6x	6 PART (TWO BEAM)
8	8 PART (SINGLE BEAM)
8x	8 PART (THREE BEAM)
9	9 PART (TWO BEAM)
10	10 PART (FOUR BEAM)
12	12 PART (THREE BEAM)
12x	12 PART (TWO BEAM)
12y	12 PART (FIVE BEAM)

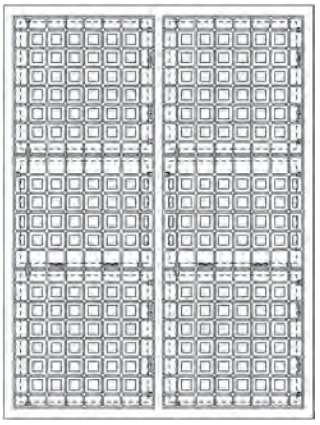
HOW TO SPECIFY: MB W.L = MULTIPART CLASS B WIDTH LENGTH

MULTIPART COVERS ILLUSTRATION DIRECTORY

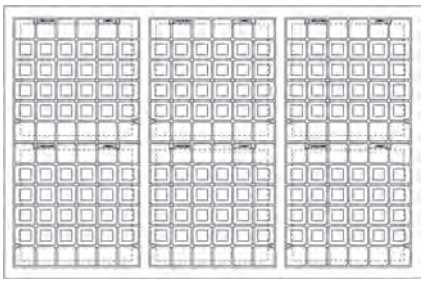
Infill & Solid



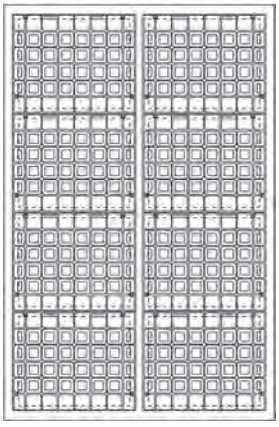
4 PART



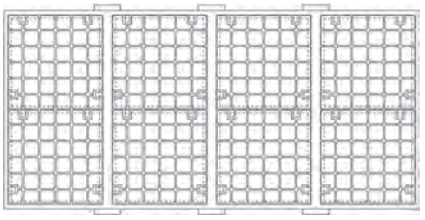
6 PART 1 BEAM



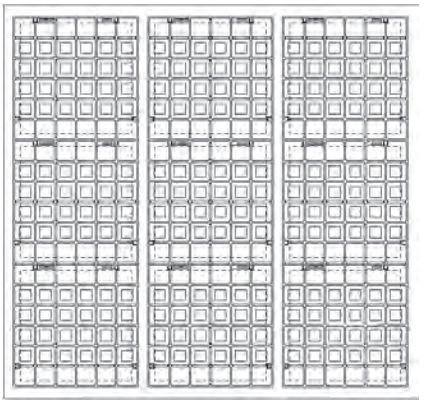
6 PART 2 BEAMS



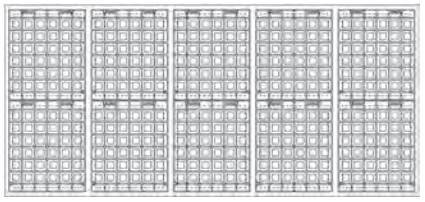
8 PART 1 BEAM



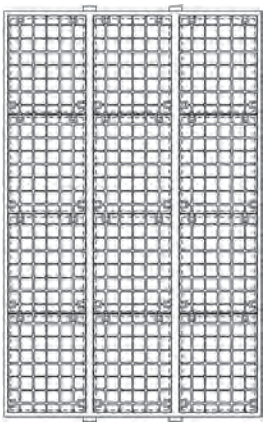
8 PART 3 BEAMS



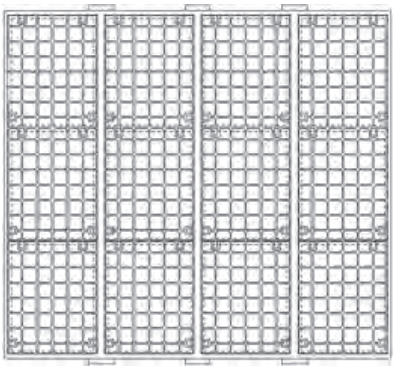
9 PART 2 BEAMS



10 PART 4 BEAMS



12 PART 2 BEAMS



12 PART 3 BEAMS

MULTIPART COVERS

Infill & Solid

WIDTH CLEAR OPENING (MM)

LENGTH CLEAR OPENING (MM)

	1330	1480	1630	2060	2210	2360	2510	2790	2940	3090	3240	3390	3520	3670	3820	3970	4120	4270
1135	4			6x				8x					10					
1270	4	4	4	6x	6x	6x	6x	8x	8x	8x	8x	8x	10	10	10	10	10	10
1285	4			6x				8x					10					
1420	4		4	6x	6x	6x	6x	8x	8x	8x	8x	8x	10	10	10	10	10	10
1535	6							12										
1570	4		4	6x	6x	6x	6x	8x	8x	8x	8x	8x	10					10
1670	6			9				12										
1805	6		4	9				12										
1820	6			9				12										
1940	6	6	6	9	9	9	9	12	12	12	12	12						
1955	6			9				12										
2070	8			12x														
2090	6		6	9	9	9	9	12	12	12	12	12						
2105	6			9				12										
2205	8			12x														
2240	6		6	9	9	9	9	12	12	12	12	12						
2340	8			12x														
2355	8			12x														
2390	6		6	9	9	9	9	12	12	12	12	12						
2475	8			12x														
2490	8			12x														
2610	8	8	8	12x	12x	12x	12x											
2625	8			12x														
2640	8			12x														
2760			8	12x	12x	12x	12x											
2775	8																	
2910	8		8		12x	12x	12x											
2925	8			12x														
3060	8		8	12x	12x	12x	12x											
3210	8		8	12x	12x	12x	12x											

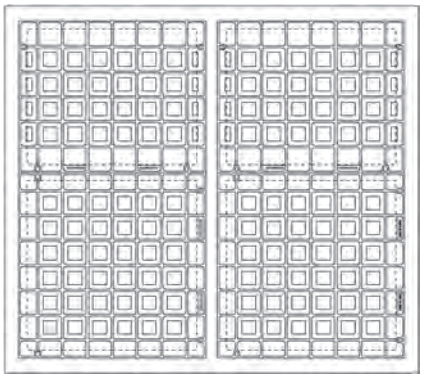
Class D **210kN**

LEGEND	
4	4 PART
6	6 PART (SINGLE BEAM)
6x	6 PART (TWO BEAM)
8	8 PART (SINGLE BEAM)
8x	8 PART (THREE BEAM)
9	9 PART (TWO BEAM)
10	10 PART (FOUR BEAM)
12	12 PART (THREE BEAM)
12x	12 PART (TWO BEAM)

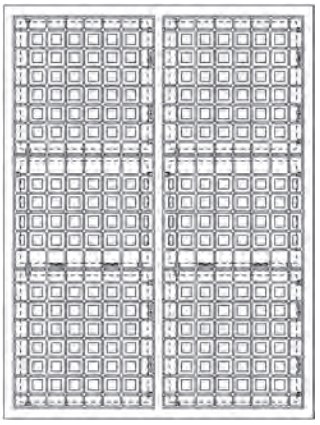
HOW TO SPECIFY: MD W.L = MULTIPART CLASS D WIDTH LENGTH

MULTIPART COVERS ILLUSTRATION DIRECTORY

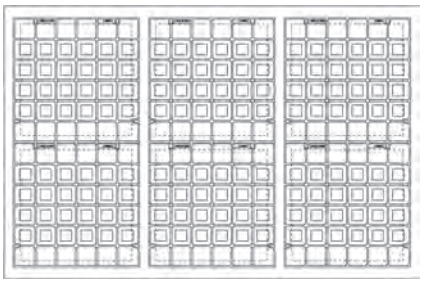
Infill & Solid



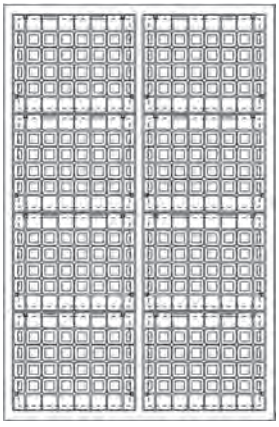
4 PART



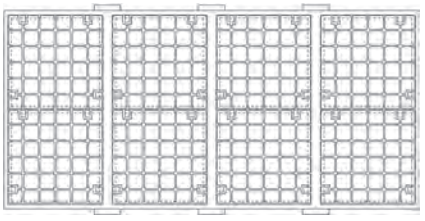
6 PART 1 BEAM



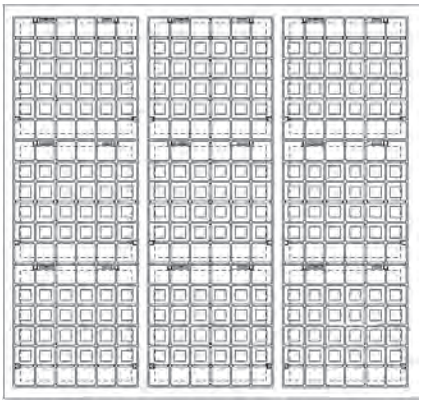
6 PART 2 BEAMS



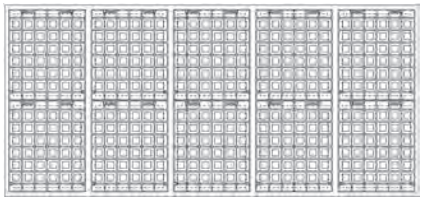
8 PART 1 BEAM



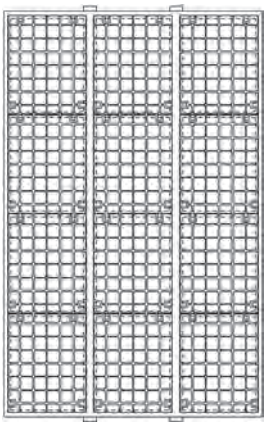
8 PART 3 BEAMS



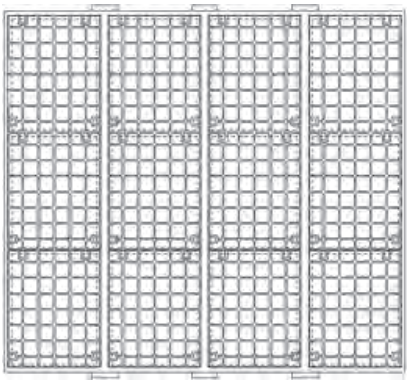
9 PART 2 BEAMS



10 PART 4 BEAMS



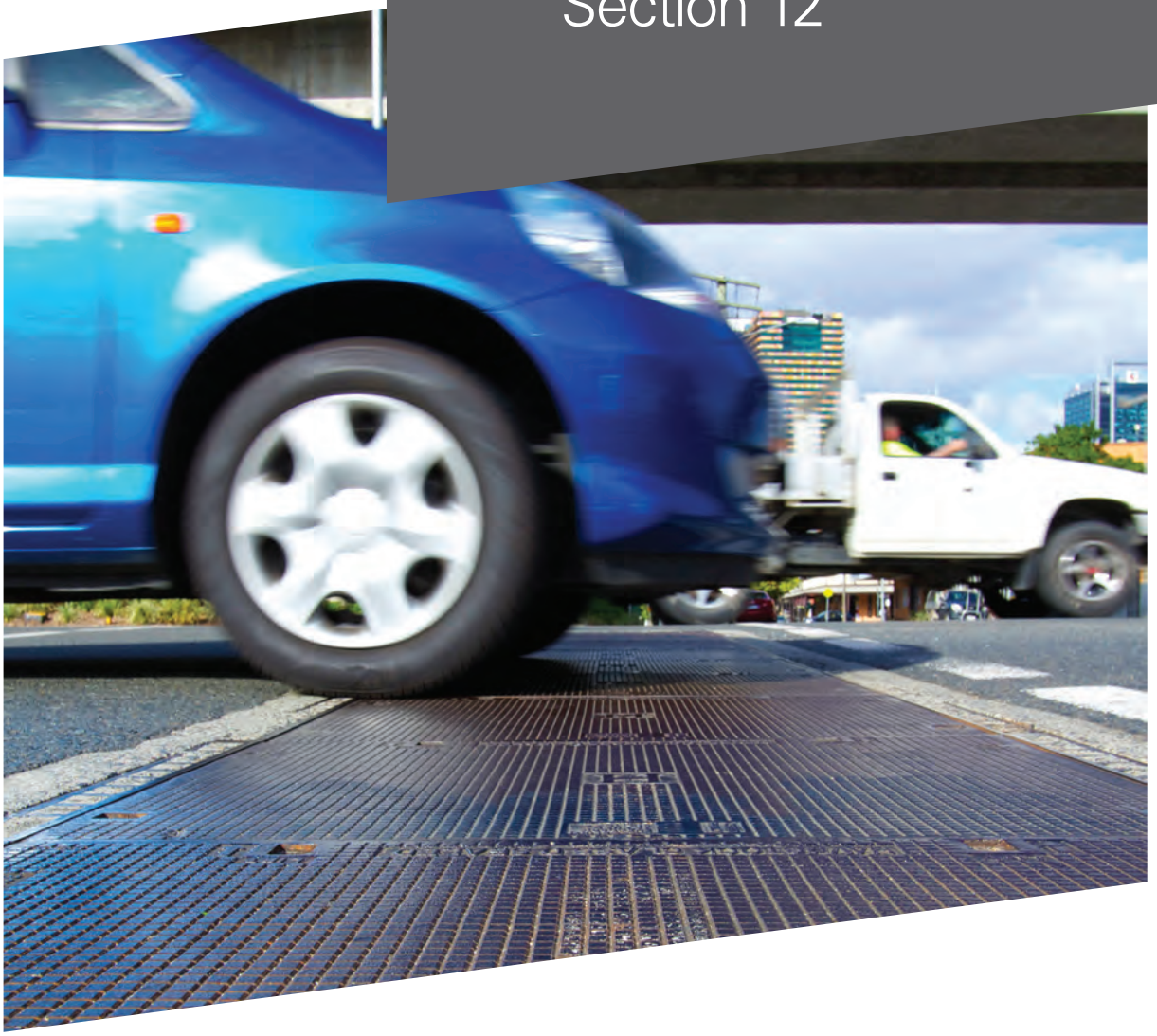
12 PART 2 BEAMS



12 PART 3 BEAMS


Gyoza Bar ANN

Trench Covers
Section 12



TRENCH COVERS

Concrete Infill & Solid Top

Class B Concrete Infill

80kN

Code	Clear Opening (mm) Width	Clear Opening (mm) Length	Overall Cover Width	Overall Frame Width	Cover Depth	Frame Depth
B100	300	Length in spec. by client or consulting engineer.	348	440	38	55
B101	450		498	590	38	55
B102	600		648	740	38	55
B103	750		798	890	38	55
B104	900		948	1040	38	55
B105	915		963	1055	38	55
B106	1200		1260	1380	60	75

Class B Solid Top

80kN

Code	Clear Opening (mm) Width	Clear Opening (mm) Length	Overall Cover Width	Overall Frame Width	Cover Depth	Frame Depth
LB100	300	Length in spec. by client or consulting engineer.	348	440	38	55
LB101	450		498	590	38	55
LB102	600		648	740	38	55
LB103	750		798	890	38	55
LB104	900		948	1040	38	55
LB105	915		963	1055	38	55

TRENCH COVERS

Concrete Infill & Solid Top

Class D Concrete Infill

210kN

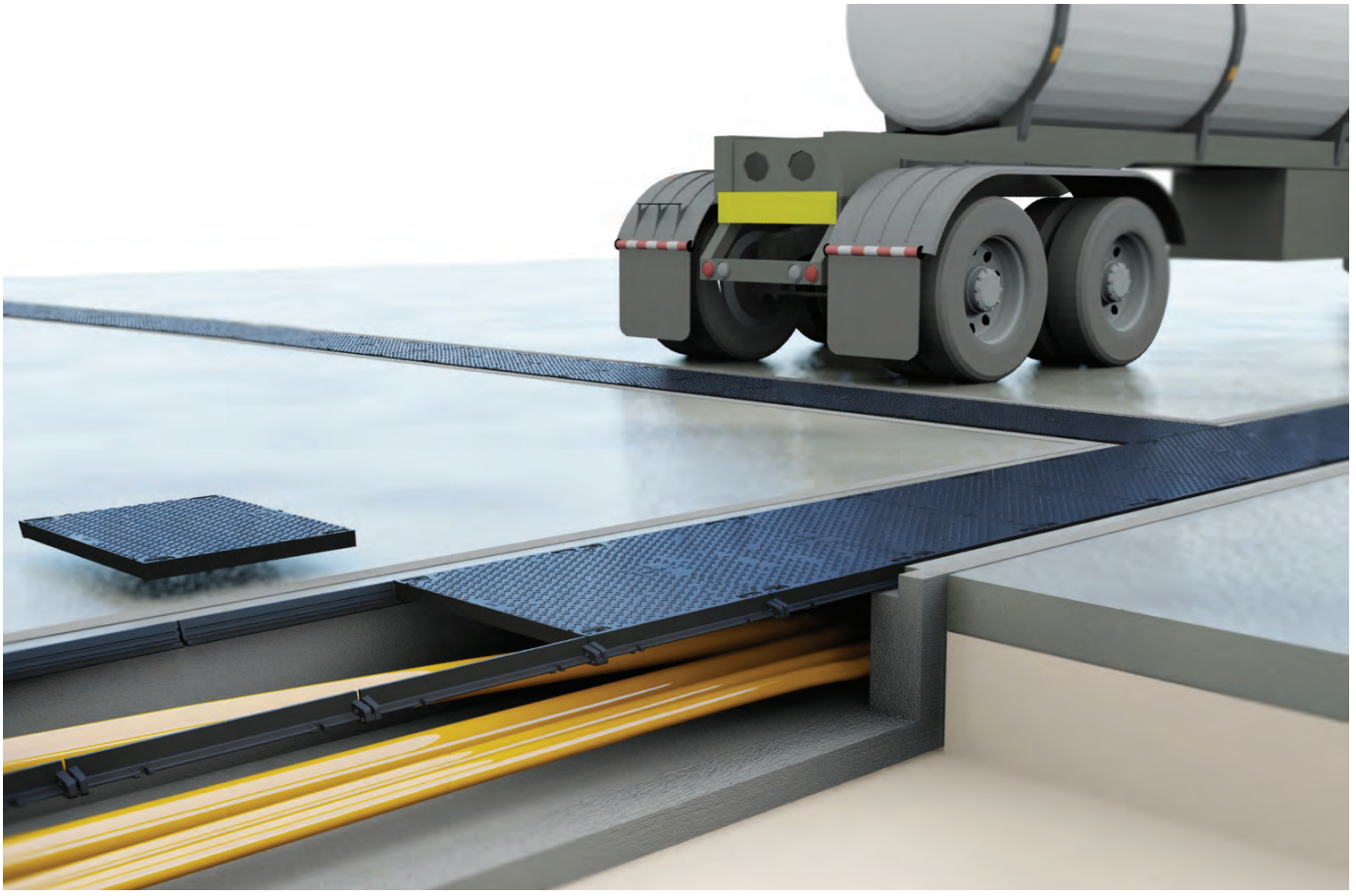
Code	Clear Opening (mm) Width	Clear Opening (mm) Length	Overall Cover Width	Overall Frame Width	Cover Depth	Frame Depth
D101	450	Length in spec. by client or consulting engineer.	530	662	73	100
D102	600		680	812	73	100
D103	750		830	962	73	100
D104	915		995	1127	73	100
D105	1067		1147	1279	73	100
D106	1200		1300	1436	100	125

Class D Solid Top

210kN

Code	Clear Opening (mm) Width	Clear Opening (mm) Length	Overall Cover Width	Overall Frame Width	Cover Depth	Frame Depth
LD101	450	Length in spec. by client or consulting engineer.	530	662	73	100
LD102	600		680	812	73	100
LD103	750		830	962	73	100
LD104	915		995	1127	73	100

TRENCH COVERS
Concrete Infill



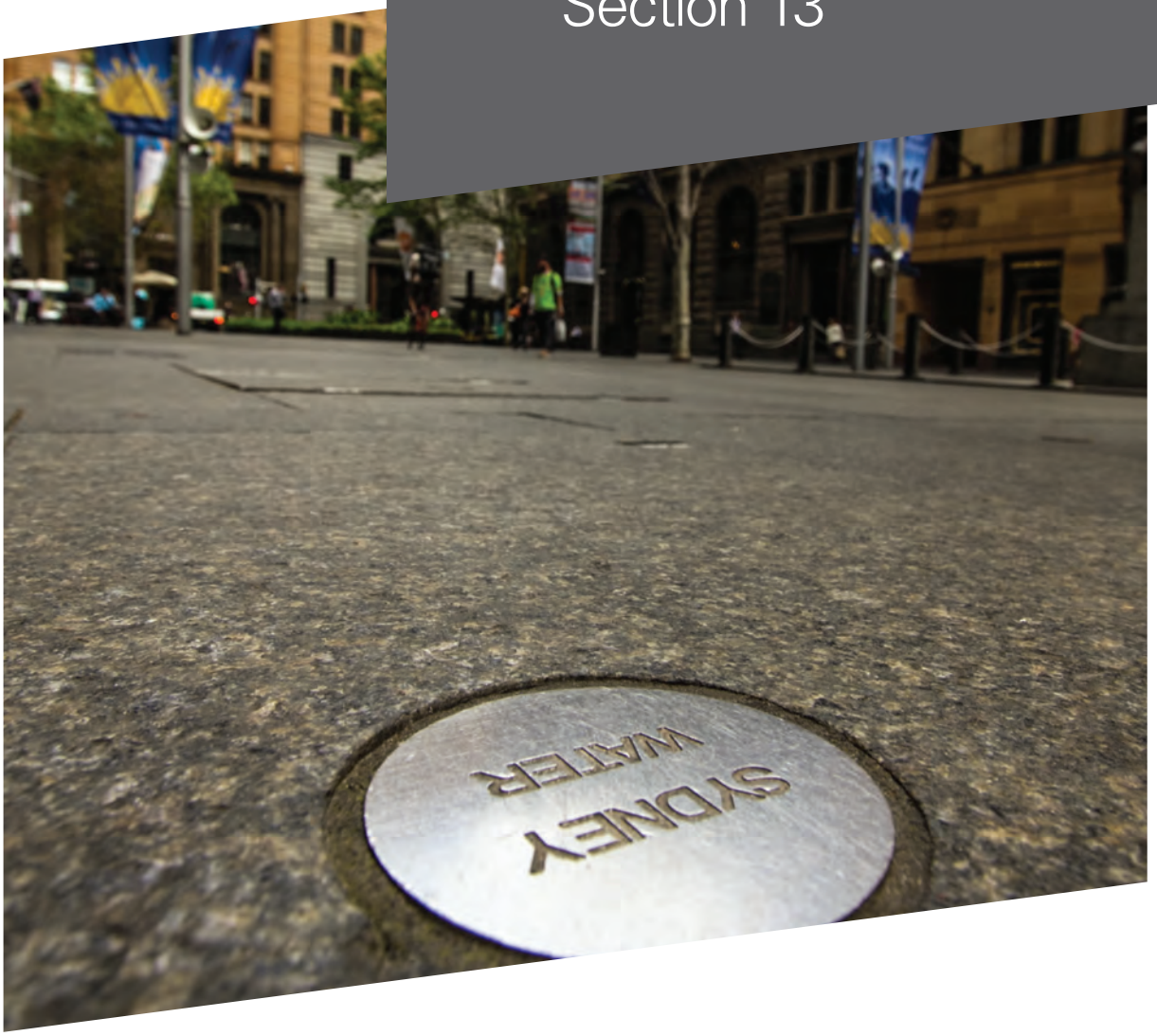
Class E
400kN
Concrete Infill

Code	Clear Opening (mm) Width	Clear Opening (mm) Length	Overall Cover Width	Overall Frame Width	Cover Depth	Frame Depth
E101	450	Length in spec. by client or consulting engineer.	530	662	73	100
E102	600		680	812	73	100
E103	750		830	962	73	100
E104	915		995	1127	73	100

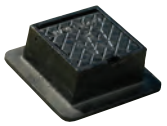
Class G
900kN
Concrete Infill

Code	Clear Opening (mm) Width	Clear Opening (mm) Length	Overall Cover Width	Overall Frame Width	Cover Depth	Frame Depth
G101	450	Length in spec. by client or consulting engineer.	550	686	100	125
G102	600		700	836	100	125
G103	750		850	986	100	125
G104	915		1015	1151	100	125

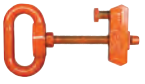
Municipal Products
Section 13



MUNICIPAL PRODUCTS

Boxes & Lids	Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Size	Overall Frame Size	Cover Depth	Frame Depth	Markings
	HM101	102mm Path Box	100 x 100	Class B	110 x 110	150 x 150	8	80	W
	HM102	229mm x 152mm Water Box	225 x 150	Class B	235 x 160	275 x 200	8	80	Plain
	HM103	250mm Hose Tap Box	250 x 200	Class B	250 x 200	400 x 350	15	120	Water, Gas, Fire
	HM103D	250mm Hose Tap Box	250 x 200	Class D	250 x 200	400 x 350	15	120	Water, Gas, Fire
	HM104	300mm Hose Tap Box	345 x 300	Class B	345 x 296	500 x 450	15	120	Water, Gas, Fire
	HM105	FH Box	230 x 180	Class D	230 x 180	320 x 310	35	220	FH, SV, CJ
	HM106	Valve Box	95	Class D	105	322	20	225	W, V

Inspection Openings	Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Size	Overall Frame Size	Cover Depth	Frame Depth	Markings
	HM201	102mm Peep Eye	100	Class B	108	156	8	50	S
	HM202	152mm Peep Eye	150	Class B	160	214	8	60	S
	HM203	225 Flushing Point	225	Class B	225	270	28	100	Plain
	HM203D	225 Flushing Point	225	Class D	225	270	28	100	Plain/ SEWER
	HM203V	225 Flushing Point		Class B					VENTED

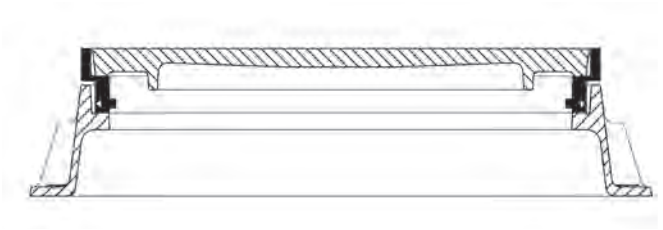
Misc.	Code	Description
	HM401	Short Handle Lifting Key
	HM402	Long Handle Lifting Key
	HM403	TACS Wheeled Lifter
	HM404	XL750 Wheeled Lifter
	HM406	Lifting Key Pack
	HM407-225	225mm Plastic Step Iron
	HM407-375	375mm Plastic Step Iron

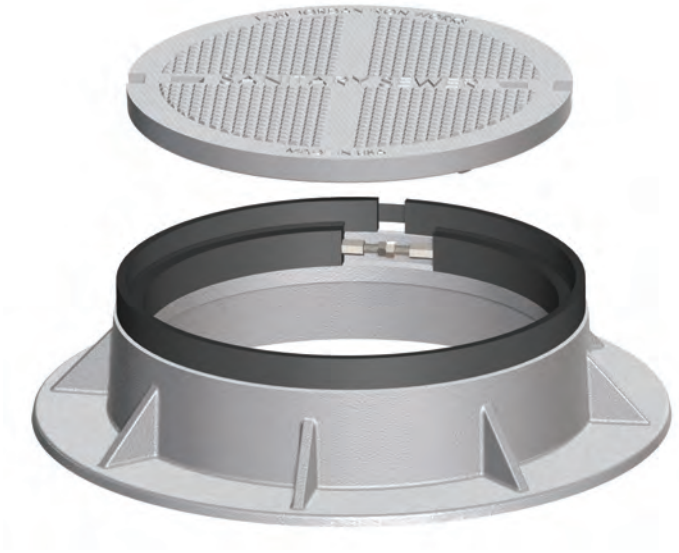
Telstra Covers	Code	Description
	HM501	Telstra Type A (2 Part)
	HM502	Telstra Type B (4 Part)
	HM503	Telstra Type C (6 Part)

Manhole Sealing Grease	Code	Description
	HM408	4kg Manhole Sealing Grease
	HM409	20kg Manhole Sealing Grease

MUNICIPAL PRODUCTS

Circular Covers | Steel Rising Rings





Steel Rising Rings provided by EJ will allow you to easily raise manhole covers to the new road level on your resurfacing projects.

Steel Rising Rings are manufactured and assembled in the USA from North American A36 steel and have been load tested to assure reliable strength and long-lasting durability.

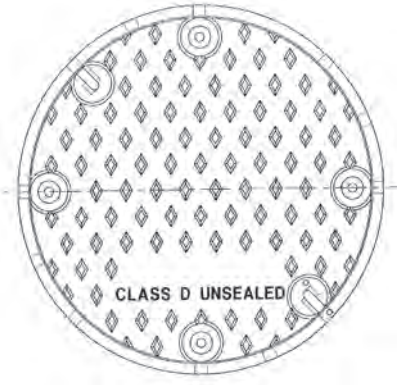
The EJ adjustable version (M2 ADJ Riser) includes a stainless steel adjustable stud with positive lock that adjusts the diameter to suit various makes of manhole frames. This riser includes allen head set screws that lock the riser to the manhole frame.

Code : M2 ADJ Riser

Rise : 60mm

To Suit : LA60D series 600mm dia clear opening covers and frames

MUNICIPAL PRODUCTS



Local Govt Covers

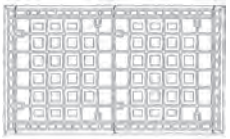
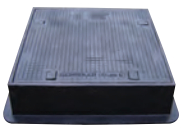
Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Size	Overall Frame Size	Cover Depth	Frame Depth	Markings
HM301	L/D Inspection Chamber Cover	525 x 375	Class A	575 x 425	635 x 465	37	45	Plain
HM302	H/D Inspection Chamber Cover	610 x 460	Class B	682 x 532	730 x 580	43	55	Plain
HM304	DLG Rect H/D Cover	690 x 456	Class D	765 x 535	860 x 640	45	58	Sewer
HM309	DLG 80008 Bolt Down Cover	535	Class D	686	736	54	165	Plain

WA State Products
Section 14

WA STATE PRODUCTS

Boxes & Lids	Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Size	Overall Frame Size	Cover Depth	Frame Depth	Markings
	MB250	250mm Hose Tap Box	250 x 200	Class B	250 x 200	400 x 350	15	120	Water, Gas, Fire
	MB250D	250mm Hose Tap Box	250 x 200	Class D	250 x 200	400 x 350	15	120	Water, Gas, Fire
	MB350	300mm Hose Tap Box	345 x 300	Class B	345 x 296	500 x 450	15	120	Water, Gas, Fire
	MB250-165	250mm Box with Quick Fit 165mm Outlet	250 x 200	Class B	250 x 200	400 x 350	15	120	Water, Gas, Fire
	MB250-255	250mm Box with Quick Fit 255mm Outlet	250 x 200	Class B	250 x 200	400 x 350	15	120	Water, Gas, Fire

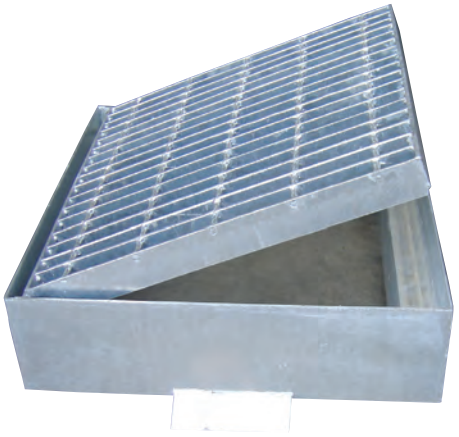
Maintenance Shaft Covers	Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Size	Overall Frame Size	Cover Depth	Frame Depth	Markings
	TC40BL	MS Cover & Frame	375	Class B	430	815	50	325	Sewer
	TC40DL	MS Cover & Frame	375	Class D	450	930	70	325	Sewer

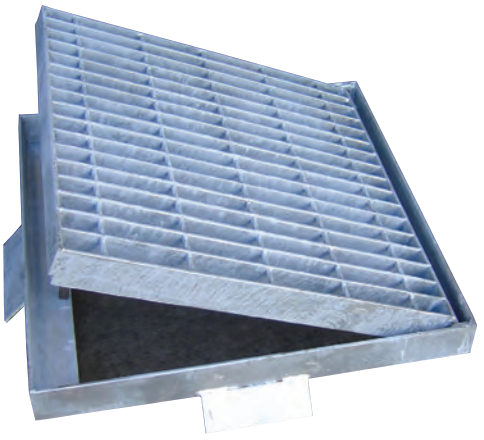
Covers & Frames	Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Cover Size	Overall Frame Size	Cover Depth	Frame Depth	Markings
	D202BD	Bolt Down Water Board 2 Part Infill Covers	600 x 1000	D	680 x 1070	812 x 1212	73	100	WAWA logo
	LD202BD	Bolt Down Water Board 2 Part Solid Covers	600 x 1000	D	680 x 1070	812 x 1212	73	100	WAWA logo
	LA44C-HF	One Piece High Frame & Solid Cover	450 x 450	C	420 x 420	505 x 505	40	120	Plain
	LA66C-HF	One Piece High Frame & Solid Cover	600 x 600	C	650 x 650	730 x 730	40	120	Plain

WA STATE PRODUCTS

Cast Grates & Frames

Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Grate Size	Overall Frame Size	Grate Depth	Frame Depth
G60D-HF	High Frame Circ Grate & Frame	600	D	650	730	60	125
G60D-LF	Low Frame Circ Grate & Frame	600	D	650	730	60	75
G60G-HF	High Frame Circ Grate & Frame	600	G	650	730		125
G44C HF	One Piece High Frame & Grate	425 x 425	C	420 x 420	505 x 505	40	120
G66C HF	One Piece High Frame & Grate	600 x 600	C	650 x 650	605 x 605	40	120

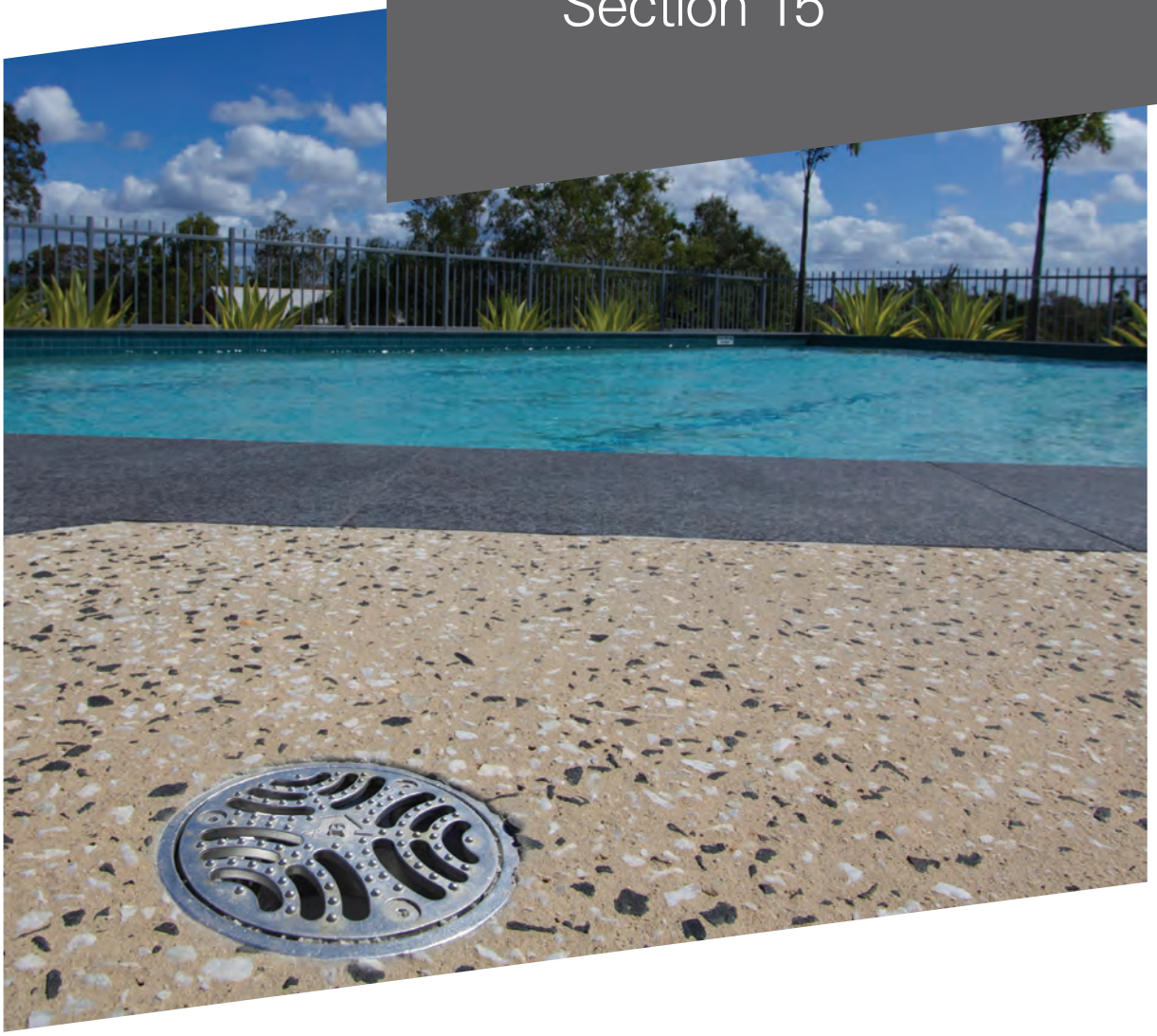




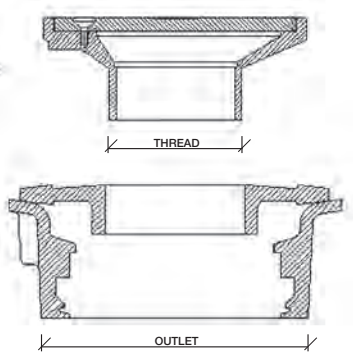
Galv Grates & Frames

Code	Description	Clear Opening (mm)	AS3996 Load Rating	Overall Grate Size	Overall Frame Size	Grate Depth	Frame Depth
MSG 5443 HF	High Frame Hinged Field Inlet	435 x 435	C	505 x 505	545 x 545	50	150
MSG 5443 LF	Low Frame Hinged Field Inlet	435 x 435	C	505 x 505	545 x 545	50	55
MSG-7645C WA	Hinged Sump Grate & Frame	720 x 445	C	720 x 500	760 x 545	65	75
MSG-8245-SEG	Hinged Side Entry Grate	715 x 425	C	790 x 425	820 x 455	65	75
MSG-1020.610	Chequer Plate Cover		C	1010 x 610		50	
WA MRD	Main Roads Grate & Frame	920 x 425	D	1100 x 565	1140 x 605	50	90

Roof & Floor Drains
Section 15



SHORT BODY
Floor Drains



50mm Cast Iron and Plastic Vertical Short Body

Body Type	Outlet (mm)	Top Style	Top Size (mm)	Cast Body Code	Plastic Body Code
Short	50	Circular	100	F1050/T100C	P1050/T100C
Short	50	Square	100 x 100	F1050/T100S	P1050/T100S
Short	50	Vinyl Circular	100	F1050/T100V	P1050/T100V

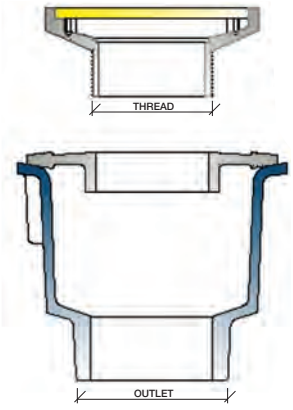
100mm Cast Iron and Plastic Vertical Short Body

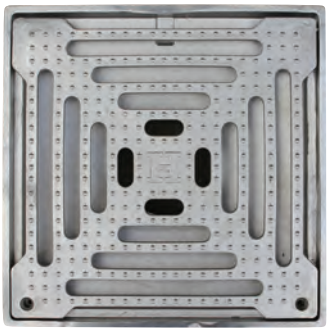
Body Type	Outlet (mm)	Top Style	Top Size (mm)	Cast Body Code	Plastic Body Code
Short	100	Circular	150	F3100/T150C	P3100/T150C
Short	100	Circular	200	F3100/T200C	P3100/T200C
Short	100	Circular	300	F3100/T300C	P3100/T300C
Short	100	Square	150 x 150	F3100/T150S	P3100/T150S
Short	100	Square	200 x 200	F3100/T200S	P3100/T200S
Short	100	Square	300 x 300	F3100/T300S	P3100/T300S
Short	100	Vinyl Circular	150	F3100/T150V	P3100/T150V
Short	100	Vinyl Circular	200	F3100/T200V	P3100/T200V

150mm Cast Iron and Plastic Vertical Short Body

Body Type	Outlet (mm)	Top Style	Top Size (mm)	Cast Body Code	Plastic Body Code
Short	150	Circular	200	F3150/T200C	P3150/T200C
Short	150	Circular	300	F3150/T300C	P3150/T300C
Short	150	Square	200 x 200	F3150/T200S	P3150/T200S
Short	150	Square	300 x 300	F3150/T300S	P3150/T300S
Short	150	Vinyl Circular	200	F3150/T200V	P3150/T200V

DEEP BODY
Floor Drains





100mm Vertical Deep Body

Available with:
Primary stainless steel strainer basket
Primary stainless steel strainer bucket
Secondary stainless steel strainer plates

Body Type	Outlet (mm)	Top Style	Top Size (mm)	Code
Deep	100	Circular	150	F4100/T150C
Deep	100	Circular	200	F4100/T200C
Deep	100	Circular	300	F4100/T300C
Deep	100	Square	150 x 150	F4100/T150S
Deep	100	Square	200 x 200	F4100/T200S
Deep	100	Square	300 x 300	F4100/T300S
Deep	100	Vinyl Circular	150	F4100/T150V
Deep	100	Vinyl Circular	200	F4100/T200V

150mm Vertical Deep Body

Available with:
Primary stainless steel strainer basket
Primary stainless steel strainer bucket
Secondary stainless steel strainer plates

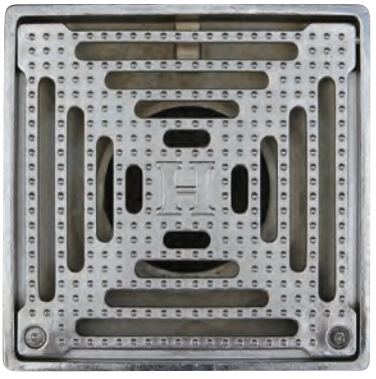
Body Type	Outlet (mm)	Top Style	Top Size (mm)	Code
Deep	150	Circular	200	F4150/T200C
Deep	150	Circular	300	F4150/T300C
Deep	150	Square	200 x 200	F4150/T200S
Deep	150	Square	300 x 300	F4150/T300S
Deep	150	Vinyl Circular	200	F4150/T200V

ROOF DRAINS AND SLIP-IN TOPS




Roof Drains

Body Type	Outlet (mm)	Top Style	Top Size (mm)	Cast Iron Code	Aluminium Code
R2	100	Flat	250	R2100F	AR2100F
R2	100	Dome	250	R2100D	AR2100D
R2	150	Flat	250	R2150D	AR2150D
R2	150	Dome	250	R2150F	AR2150F

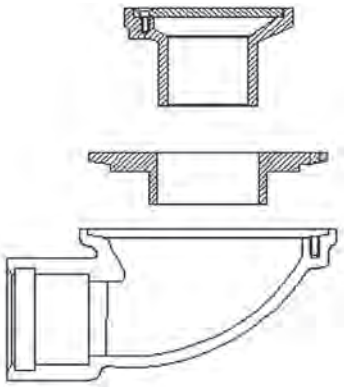



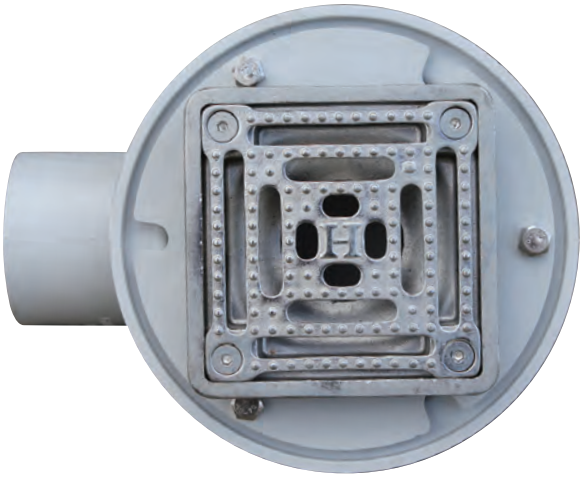
Slip-in Tops

Top Style	Outlet (mm)	Top Size (mm)	Code
Circular	50	100	S100C/50
Circular	100	150	S150C/100
Circular	100	200	S200C/100
Circular	150	200	S200C/150
Square	50	100 x 100	S100S/50
Square	100	150 x 150	S150S/100
Square	100	200 x 200	S200S/100
Square	150	200 x 200	S200S/150
Vinyl Circular	50	100	S100V/50
Vinyl Circular	100	150	S150V/100
Vinyl Circular	100	200	S200V/100
Vinyl Circular	150	200	S200V/150

90 DEGREE BODY

Floor Drains





90 Degree Cast Iron Horizontal Bodies

Body Type	Outlet (mm)	Top Style	Top Size (mm)	Total Code
90 deg F19	50	Circular	100	F19050/T100C
90 deg F19	50	Square	100 x 100	F19050/T100S
90 deg F19	50	Vinyl Circular	100	F19050/T100V

90 Degree Plastic Horizontal Bodies

Body Type	Outlet (mm)	Top Style	Top Size (mm)	Total Code
90 deg P19	50	Circular	100	P19050/T100C
90 deg P19	50	Square	100 x 100	P19050/T100S
90 deg P19	50	Vinyl Circular	100	P19050/T100V


TICKETS SOLD HERE
WHALE WATCHING
TICKETS HERE
ATTRACTIONS COMBO from $99
SOLD HERE
TARONGA ZOO
2

Additional Solutions and Information Section 16

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.

METER BOXES

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

EJ offers an assortment of meter boxes, covers, and rings to fit your application. Our broad meter 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 meter boxes
- Round meter boxes
- Rectangular meter boxes
- Meter pits
- Meter lids
- Meter box cover accessories including security locking

Meter 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.

Major Projects

Projects	Country	Location
Airport Projects		
AMERICAS	United States of America	**Arizona** Phoenix Sky Harbor Intl. (PHX) Tucson Intl. (TUS) **California** John Wayne (SNA) Los Angeles Intl. (LAX) San Jose Intl. (SJC) Santa Maria Public (SMX) **Colorado** Denver Intl. (DEN) **Delaware** New Castle County (ILG) **Florida** Jacksonville Intl. (JAX) Miami Intl. (MIA) Sarasota-Bradenton (SRQ) **Georgia** Hartsfield-Jackson Atlanta Intl. (ATL) Savannah Airport (SAV) **Illinois** Chicago O'Hare Intl. (ORD) **Indiana** Indianapolis Intl. (IND) **Iowa** Fort Dodge Regional (FOD) **Kentucky** Cincinnati/Northern Kentucky Intl. (CVG) **Maryland** Baltimore/Washington Intl. (BWI) **Massachusetts** General Edward Lawrence Logan Intl. (BOS) **Michigan** Detroit Metropolitan (DTW) **Minnesota** Minneapolis-Saint Paul Intl. (MSP) **Nevada** Las Vegas-McCarran Intl. (LAS) Reno-Tahoe Intl. (RNO) **Ohio** Cleveland Hopkins (CLE) **Pennsylvania** Philadelphia Intl. (PHL) Pittsburgh Intl. (PIT) **Tennessee** Memphis Intl. (MEM) **Texas** Dallas-Fort Worth Intl. (DFW) George Bush Intercontinental (IAH) Scholes Intl. at Galveston (GLS) William P. Hobby (HOU) **Virginia** Ronald Reagan Washington National (DCA) Washington Dulles Intl. (IAD) **Washington** Sea-Tac Intl. (SEA) Spokane Intl. (GEG) **Wisconsin** 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)
EUROPE, MIDDLE EAST AND AFRICA (EMEA)	United Kingdom	Manchester Runway II (MAN), London Heathrow (LHR)
	Spain	Madrid Barajas Intl. (MAD)
	France	Charles de Gaulle Intl. (CDG)
	Ireland	Dublin (DUB), Shannon (SNN)
	Germany	Frankfurt am Main Intl. (FRA), Stuttgart (STR), Franz Josef Strauss Intl. (MUC)
	Greece	Eleftherios Venizelos Intl. (ATH)
	Italy	Linate (LIN), Malpensa Intl. (MXP)
	Poland	Warsaw Chopin (WAW)
	Egypt	Cairo Intl. (CAI)
	United Arab Emirates	Dubai Intl. (DXB)
	South Africa	OR Tambo Intl. (JNB)
ASIA-PACIFIC	Australia	Sydney Intl. (SYD), Melbourne Intl. (MEL), Brisbane Intl. (BNE), Cairns Intl. (CNS), RAAF Base Amberley, Qantas Maintenance Hangars (BNE), Qantas Freight Facility (SYD)
	China	Beijing Capital Intl. (PEK)
	Guam	Antonio B. Won Pat Intl. (GUM)
	New Zealand	Christchurch Intl. (CHC)
	Papua New Guinea	Jackson Airfield (POM)
	Singapore	Singapore Changi Intl. (SIN)

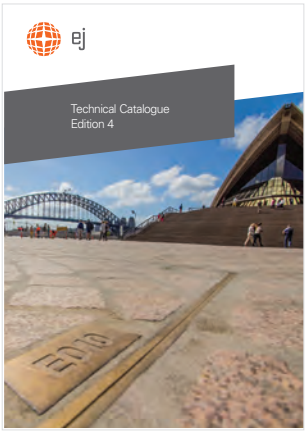
Note: This list is not inclusive of all projects. Project references available upon request.

Major Projects (continued)

Projects	Country	Location
Port Projects		
AMERICAS	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
EUROPE, MIDDLE EAST AND AFRICA (EMEA)	United Kingdom	DML Devonport Royal Dockyard, Portsmouth Naval Base HMS Warrior Portsmouth
	France	Dunkerque - Rouen
	Germany	Bremenhaven, Kiel, Frankfort
	Spain	Valencia
ASIA-PACIFIC	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 Lyttelton (CHC)
Large Project		
AMERICAS	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
EUROPE, MIDDLE EAST AND AFRICA (EMEA)	United Kingdom	Wembley Stadium, Channel Tunnel
	France	Disneyland Paris, TGV Train Stations
	Spain	Bilbao Exhibition Centre
ASIA-PACIFIC	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

Note: This list is not inclusive of all projects. Project references available upon request.

Product Catalogue Range

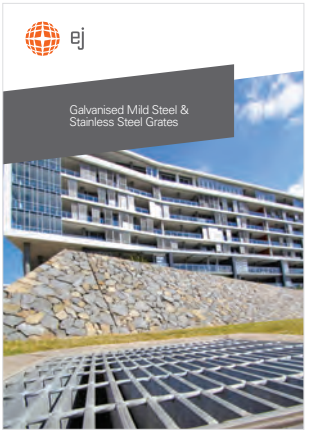


Technical Catalogue (A4&A5)

Airports & Ports
Infrastructure Access Solutions

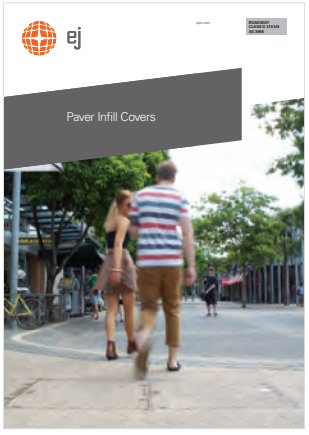
Channel, Grate & Pit Systems

Aluminium Access Hatch Solutions



GMS & SS Grates

Roof & Floor Drains



Paver Infill Covers

Gully Grate Systems

V-Grate Range

Installation Guide
Section 17

Installation Guide

Important Information

All access covers and frames are individually manufactured making each cover unique to its frame. Covers and frames can not be inter-changed and covers must be assembled into frame during installation. Where frames are installed without covers being assembled, out of square conditions will effect the re-installation of the cover and the gas tightness of the finished product. This will void product warranty. After installation, covers and frames shall be smeared with grease on the mating surfaces. EJ does not take any responsibility for the integrity of the product in service where it has not been installed as described in this document. Inadequate installation will void the product warranty.

Installation of Access Covers & Grates – General

The actual installation of cast iron and mild steel access covers and grates is relative to the specific use of the product.

Light Duty Applications

Light Duty Applications - Class A & B - can be either cast in-situ or a rebate left in the base work and the product built in later using non-shrink grout.

Heavy Duty Applications

Product subjected to heavy loads - Class D & E - it is necessary that the product is cast into the base concrete.

- Care should also be taken to ensure that concrete is vibrated, particularly under the frame and that concrete both under the frame and inside the cellular frame structure reaches the same Mpa as the base concrete.
- Clear opening of the pit **must not be larger** than the frame opening.

Extra Heavy Duty Applications

Product subject to extra heavy duty loadings - Class F & G - the frame of the product must be built into the base concrete and the base concrete must include sufficient reinforcing under and around the frame and in some cases reinforcing must be attached to the frame (i.e. case of high back pressure head).

Class D, E, F and G Units, can be used with precast rebates only where high levels of supervision are provided and ensure that:

- Rebate fully supports frame.
- Concrete or grout bedding and back fill is of sufficient Mpa to **fully support the frame** under high load and impact conditions.

Covers with Precast Pits

Where product is to be used in conjunction with precast pits, the same general action must be taken and in terms of heavy duty application, bedding concrete must be of the same strength as the precast pit and include all necessary reinforcement.

Installation Bolts

Brass Edged, Two & Three Part Covers and Frames, Greasetrap Lidsets and Multi-part Covers, are supplied with **a system of installation bolts and cover numbering**. These bolts are tagged for easy identification and are used to hold the covers and frames together during transport and assist with installation. These bolts must be removed before the product is concreted into final position.

Full Frame Support

As the manufacturer of the cast iron product, we advise that whilst our product is tested to AS3996 in terms of design load, the frames are designed to be fully encased in concrete of sufficient Mpa to hold the loads indicated.

Four Step System

The installation of a unit is crucial to the future life of the product.

Step 1 - Preparation

Ensure the class of product suits the traffic application.

- Prepare internal boxing so it is internal to the frame.
- Clear opening of the pit must not be larger than the frame opening.

Step 2 - Position Cover in Frame

Covers and frames are unique and must not be interchanged.

- Clean all cover and frame matching surfaces to ensure they are free of dirt.
- Cover and frame edges must be level.
- Installation bolts (pre-tagged) must be identified and removed just prior to infilling the covers.
- Ensure frame is flat and level with the finished surface level required.
- Ensure frame is in square around the cover and that the cover does not rock.
- Fit plastic plugs into keyholes.

Step 3 - Pour Concrete

Concrete must FULLY support the frame all the way to the inside edge of the frame.

- Concrete must be of at least 32mpa.
- Ensure all concrete is free of voids.
- Ensure that concrete is vibrated, particularly under the frame and that concrete both under the frame and inside the cellular frame structure reaches the same Mpa as the base concrete.
- Screed off excess concrete to a neat finish (cover ribs and edges should be visible).
- Allow to cure before attempting to remove cover as early movement may distort the frame and jeopardize the gastight seal and the frame remaining in square.

Step 4 - Strip & Seal

- After curing period, remove cover.
- Strip out formwork.
- Ensure concrete FULLY supports the frame and is free from all voids.
- Clean and apply heavy grease to all mating surfaces before returning cover to its original position.

Brass Edge Installation

Brass edged units are supplied with closed level frames and an installation bolt which is fitted to ensure the unit is secure for transportation and is installed correctly on site.

Install the cover and frame so that the top edge of the brass edge is at the same height as the finished flooring.

Installation Guide

Concrete or grout the cover and frame into position and allow the compound to cure. **Do not** fill the lid at this stage. Once the compound has cured remove the installation bolt and then fill the cover. The cover may now be removed when necessary. When replaced into the frame, the complete unit will be gas-tight.

Remember

- Installation bolts **must be removed** before filling the cover or else you will not be able to remove the cover.
- Covers must not be removed from the frame prior to installation.
- The units must be treated with respect on site.
- Do not mix covers and frames.
- Do not leave the brass edges exposed before finishing the flooring.
- Pack around the brass to protect them from excavators and heavy tools.
- Once installed into position, all surfaces should be cleaned and heavy grease applied to the mating surfaces before returning the covers to their original position.

Installation of Grease Trap Lids

It is important to install grease trap lids so that the unit is gas-tight when complete. This is achieved with the following recommended installation method.

Option 1 - Lid fitted directly to the top of the tank or riser.

This method can only be used with full width lids that sit on or past the precast walls of the trap. Allow 50mm for grouting into the precast rebate.

Option 2 - Cast into a concrete collar which in turn sits on top of the tank or riser.

This method is used on covers which are less than the full width of the trap. Concrete collar to be made to the following specifications:

- Collar to 100mm all around larger than the lid.
- Class B lids - collar must be 100mm deeper than the frame.
- Class D lids - collar must be 150mm deeper than the frame and must have 12R deformed bar reinforcing at 150mm centres.

Installation Steps

- All lids are manufactured in our Geebung factory and during production are fitted with **installation bolts**.
- Installation bolts are identified by way of an attached white tag with the words **"Remove bolt before filling lid."**
- These bolts hold the covers together and in line as well as holding the lid secure for transportation to site.

Install the lid and/or collar to the tank, making sure the lid is laying flat and square to the tank – do not remove installation bolts or covers at this stage.

Important – Ensure the frame is fully supported underneath with concrete. Concrete or grout the frame into position and allow to cure – do not fill the lids yet. After curing, **remove** installation bolts and fill the covers with concrete. At least 32 Mpa concrete should be used for the lid to realise its full strength potential.

Remember

Lids must be installed flat and straight and should be full width or fitted with a concrete collar. Installation bolts **must not** be removed until the frame has been concreted into position and the concrete cured. Installation bolts **must be** removed prior to filling the covers or else the lids will be permanently fixed to the frame.

Once the covers have been filled, all surfaces should be cleaned and heavy grease applied to the mating surfaces before returning the covers to their original position.

Notes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