2011 Version 2

Easi-Base

FP M'Cann

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Easi-Base

"Gets you out of a hole - Fast"

To see an FP McCann manhole installed in under 1 hour visit:
www.youtube.com/fpmccann

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Introduction

Easi-Base addresses a long-standing problem associated with traditional methods of manhole construction. Labour intensive, in-situ practices typically taking up to 36 hours are eliminated by the fully integrated unit which can be installed and connected in a matter of minutes.

The DN 1200 precast concrete base complete with channels and benching formed into a polypropylene liner is placed on a formation comprising compacted granular material. Pipe connection is made simple with connection bells cast into the base for the specific pipe in use, thus allowing the ground worker to simply push the pipe into the base via the sealed connector. A watertight seal is instantly achieved. Water flows through the unit via a 1% preformed fall in the channel exiting at the outlet point. Conventional methods of constructing the manhole above the base are then followed, with precast concrete chamber rings placed directly on top.

DN 1500 and DN 1800 Easi-Bases are manufactured wholly from concrete. They accommodate concrete, clay, twin-wall and uPVC pipes from DN 300 to DN 750.

Benefits of Easi-Base

- An extremely fast, efficient and economical method of constructing manhole bases on site.
- WRc approved and accepted by main UK Water Authorities
- Significant Health and Safety benefits.
- An immediate watertight structure allowing for other trades to instantly follow on.
- Factory pre-fabrication provides quality finish to channelling and benching and enables accurate combinations and variations for entry/exit pipes.
- Connects with any type of pipe and is compatible with the new DN1200 130mm wide wall chamber ring
- Maintenance of channels and benches aided by clean access for inspection.
- Environmental benefits include both a reduction in excavated materials and imported ready mixed concrete and mortar.
- An 80 year guaranteed system.

WRc APPROVED
PT/274/0808

Easi-Base is a kitemark product, manufactured and tested to BSEN1917:2002

Easi-Base Range

FP McCann supply Easi-Base in 3 main diameters:

- DN1200
- DN1500
- DN1800

Pipe Sizes accommodated by FP McCann Easi-Base Range

Pipe Size (mm)	DN1200 Easi-Base	DN1500 Easi-Base	DN1800 Easi-Base
150	√	√	√
200 *	√	√	√
225	√	√	√
250 *	√	√	√
300	√	√	√
375		√	√
450		√	√
500 *		√	√
525		√	√
600		√	√
675			√
750			√

* (Ireland Only)

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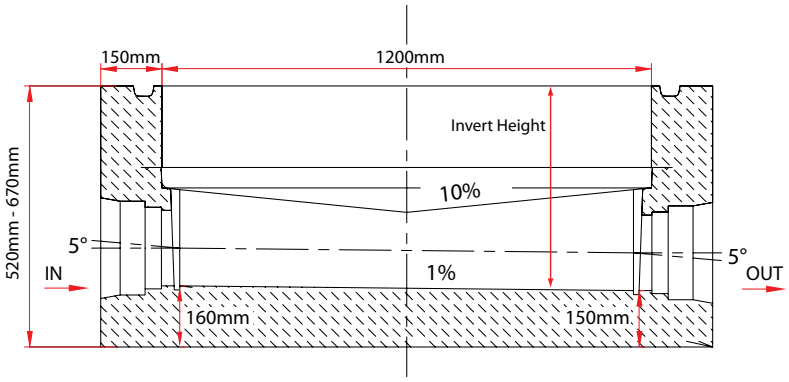
DN 1200 Easi-Base

The unique DN 1200 Easi-Base utilises a polypropylene liner with prefabricated benching and channels. Pipe connection bells are pushed into the inlet and outlet points and the liner is then encased and embedded in concrete to provide its structural strength and integrity. The DN1200 Easi-Base is manufactured as a monolithic precast unit; it utilises the standard manhole tongue and groove joint and is ready for immediate use in combination with either a standard 90mm thick manhole chamber, or the new 130mm thick wide wall chamber ring.

Channel Depth (mm)	Easi-Base Height (mm)	Invert to Base Top (mm)
150	520	370
200	570	420
225	620	470
250	620	470
300	670	520

Unit weights vary between 1.5 tonnes and 2.5 tonnes depending on channel diameters and channel configuration.



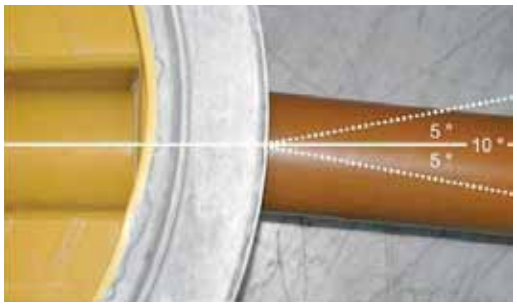
Easi-Base is a system which connects with any type of pipe to include:

- Single Wall uPVC
- Twin wall
- Concrete
- Clay
- Ductile Iron

The DN1200 unit allows connection to channel diameters DN 150 - DN 300. FP McCann have developed a selection of adaptors to increase the range of pipe types accommodated.

Features

- The DN1200 Easi-Base is made to an internal diameter of 1200mm with tongue and groove joint profile to match standard DN1200 manhole chamber rings.
- Wall thickness is 150mm
- The base has a 150mm floor thickness with the outlet invert at exactly 150mm from ground level
- A 1% fall exists across the channel toward the outlet (1:100)
- A gradient of 1:10 is present at the benching with the run-off toward the channel
- The height of the DN1200 Easi-Base unit varies in accordance with the diameter of the main channel running through the unit. (Please refer to the table above for heights).
- The DN1200 Easi-Base unit has 5° flexibility in the seal at each pipe connection point, this can be achieved both horizontally and vertically. (This is best illustrated in the adjacent diagram).
- Additional connections can be made to a DN1200 Easi-Base unit once installed. This can be achieved either by coring into the existing unit and fitting a connection in the traditional manner or alternatively, by the use of a backdrop into the manhole.



Quality

- Easi-Base is a Kitemark product, manufactured and tested to BSEN 1917:2002
- WRc Tested and Approved
- Easi- Base is accepted for use by all major UK water companies.

WRc APPROVED
PT/274/0808

Easi-Base is a kitemark product, manufactured and tested to BSEN1917:2002

Note: *A copy of the WRc Approval and copies of water company acceptance letters are available through our website or upon request.*

The DN1200 PREDL Liner

Water tight rubber seal

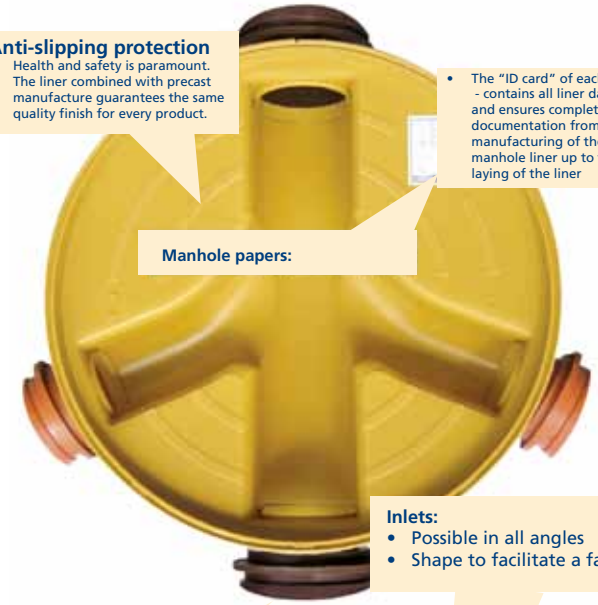
Bell connection (factory fitted)

Water Bar

Anti-slipping protection
- Health and safety is paramount.
- The liner combined with precast manufacture guarantees the same quality finish for every product.

- The "ID card" of each liner - contains all liner data and ensures complete documentation from the manufacturing of the manhole liner up to the laying of the liner

Manhole papers:



PREDL® liners are currently used in Germany, Austria, France, Spain, Portugal, Italy, Norway, Denmark and Poland and have achieved accredited quality standards within Europe.

FP McCann with franchise partner PREDL® are the first in the British Isles to introduce this new technology to manhole construction. There are over 1500 basic forms of the PREDL® manhole liner that can be delivered in more than 100,000 variants.

Inlets:
- Possible in all angles
- Shape to facilitate a favourable flow

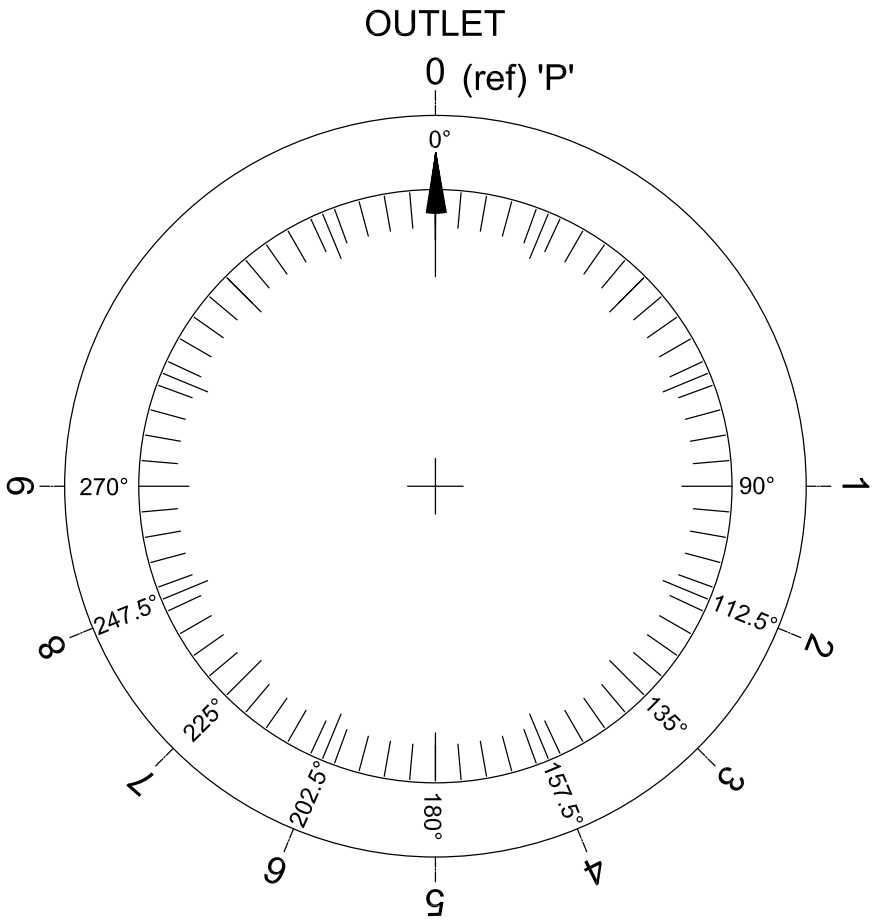
Manhole lining:
- Tight and flexible installation of all commercial types of bells
- Water barrier and silica sand coating to prevent lateral water infiltration

Channel:
- Smooth and without any joints, ensures optimum hydraulics, thereby requiring less maintenance and inspections

Bonding bridges:
- Ensure close adhesion with the concrete encasement of the liner

PREDL®

Specifying and Ordering your Easi-Base unit



Combinations and variants in entry pipe diameters and orientations can be chosen from the above "PREDL Clock diagram".

When ordering it is important to remember that the 'P' refers to the position of the outlet leading from the manhole. All other orientations are specified as a reference from the 'P' position; the next reference is then given as the main channel; each inlet is then referenced firstly by largest diameter, then by numerical order.

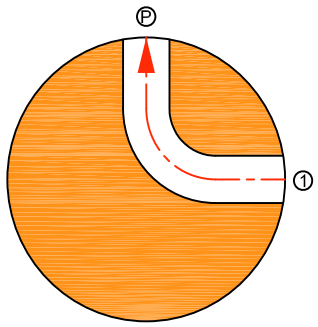
Please see the examples below.

Examples

- P5 is a DN1200 Easi-Base with straight-through inlet at 180° from the outlet position. Note a 1% fall in the channel exists towards the outlet position 'P'.
- P59 refers to a DN1200 Easi-Base with the main channel inlet at 180° from the outlet 'P' position and an additional second inlet at 270°.

Using the PREDL clock reference system, FP McCann ensure the accuracy of each channel connection.

Examples of PREDL Liners Standard Stock



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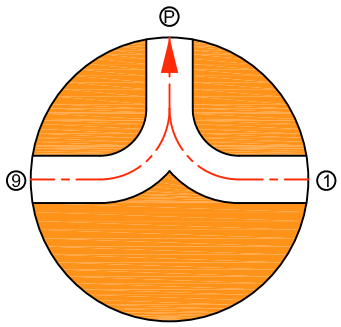

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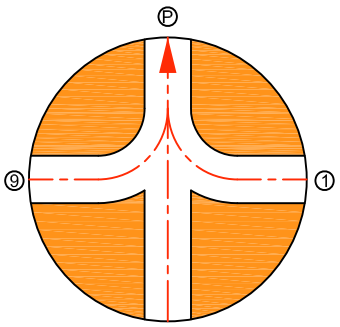

5
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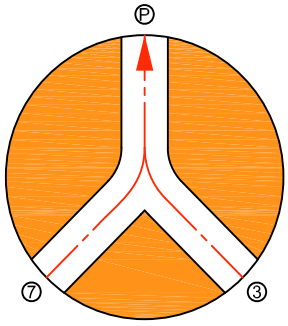

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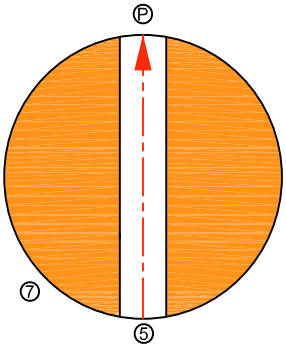

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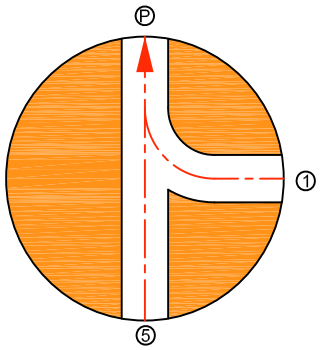

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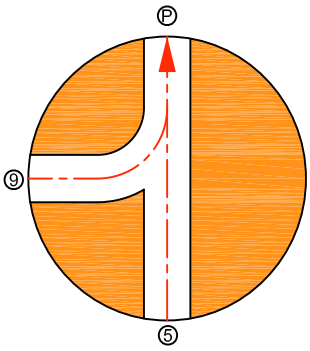

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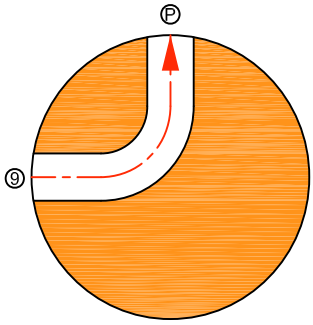


REF P9

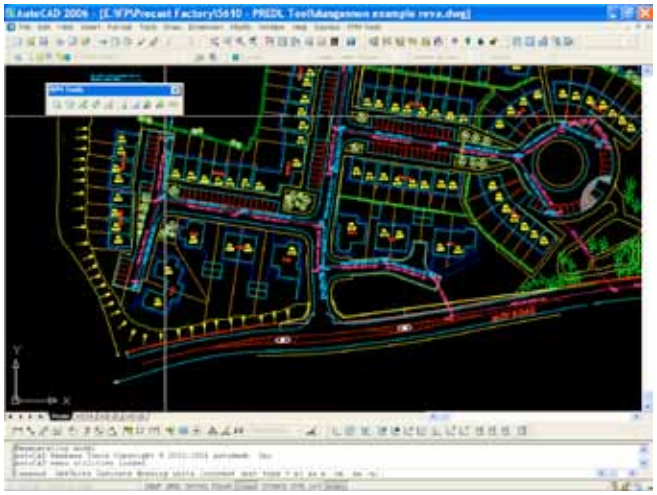
PREDL Main Channel Reducers	
300 - 150	✓
225 - 150	✓

Non-standard reducers available subject to availability upon request

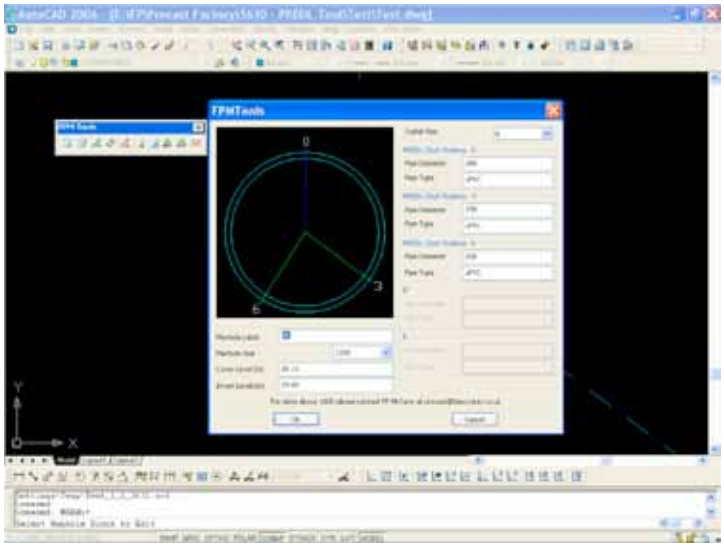
Easi-Base Adaptor and Seals

Part N°	Size	Pipe O/D	Type	Description	Availability
FPM 101	225	250	Adaptor	PVC TW & Ultra Rib	Stock
FPM 102	225	N/A	Adaptor	End cap	Stock
FPM 103	225	263	Adaptor	Clay (Supersleve)	Stock
FPM 104	225/150	N/A	Adaptor	Level Invert Reducer	Stock
FPM 105	225	268	Adaptor	PE Twin Wall	Stock
FPM 106	225	N/A	Seal	Uni bell Seal	Stock
FPM 107	225	263	Seal	Clay Adaptor Seal	Stock
FPM 108	150	170	Adaptor	Ultra Rib	Stock
FPM 109	150	N/A	Adaptor	End Cap	Stock
FPM 110	150	178	Adaptor	Twin Wall PE	Stock
FPM 111	150	178	Adaptor	Clay (Supersleve)	Stock
FPM 112	300	335	Adaptor	Ultra Rib	Stock
FPM 113	150	188	Adaptor	Naylor Densleve	Stock
FPM 114	300	353	Adaptor	Twin Wall	Stock
FPM 115	150	160	Adaptor	Twin Wall PVC	Stock
FPM 116	225	278	Adaptor	Naylor Densleve	Stock

The FPM Auto-CAD toolbar is a set of instructions designed for AutoCAD and aimed mainly at Civil Engineers, Quantity Surveyors and estimators used to produce quick and accurate 'drainage take offs'.
It provides tabular data for the drainage layout, and specifies the relevant FP McCann Easi-Bases automatically.
The FPM Tools toolbar is used to work through the drainage plan in sequence, specifying each manhole in turn. Manhole references, invert levels, cover levels, pipe types and pipe lengths are all recorded. When complete, a table is generated within the actual plan. This table can then be exported as a .csv file and opened in excel or other similar supporting program.

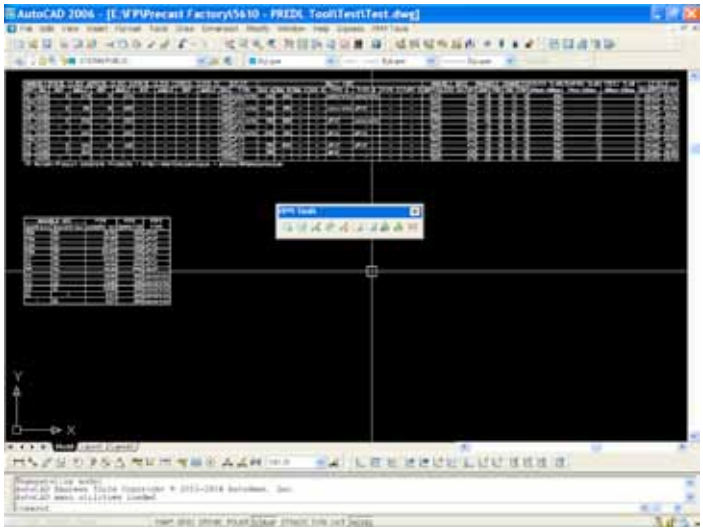


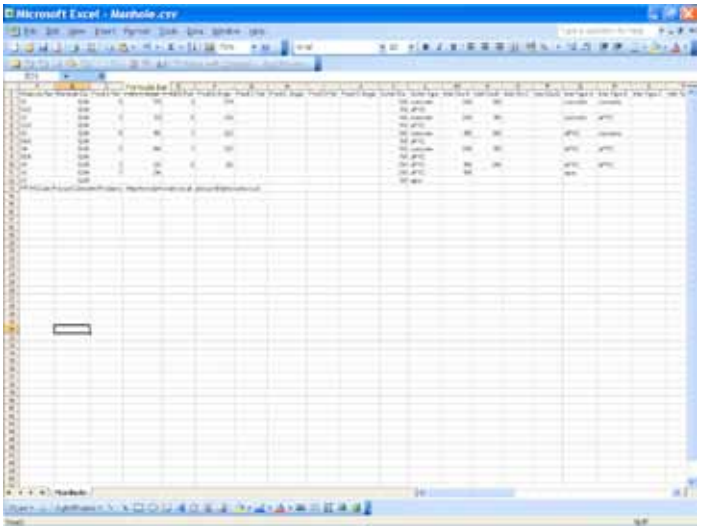
From within AutoCAD, the Manhole Edit tool can be used to assemble the manhole and pipe data at a particular manhole reference within the plan.



The screen shot above shows the drainage table generated within AutoCAD and the exported Excel table ready for the quantity surveyor / buyer /estimator to send out for pricing.

Register and download FPM Tools through our website. Alternatively, contact the sales office directly and a member of the technical team will assist you in getting a copy of the software.





Subscribers to Micro Drainage's WinDes W.12.6 sustainable drainage software, can incorporate Easi-Base into quick and accurate drainage scheduling in accordance with the Predl clock notation.

WinDes®

www.microdrainage.co.uk

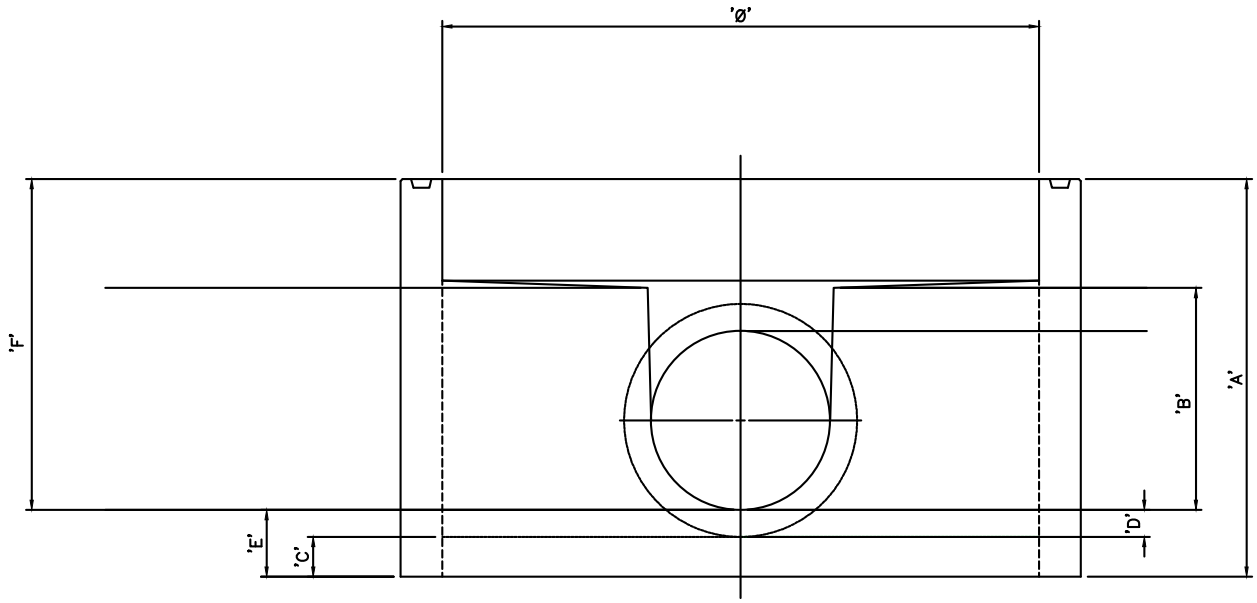
DN1500 and DN1800 Easi-Bases

FP McCann produce Easi-Bases in DN1500 and DN1800 diameters to compliment our existing manhole ranges. DN1500 - DN1800 Easi-Bases are produced as monolithic units utilising standard manhole tongue and groove joints for connection with standard manhole chambers. These units are produced wholly from concrete and provide a variety of connection orientations specified using the Predl Clock System, and accommodate concrete, clay, twinwall and uPVC pipe.

DN1500 and DN1800 Easi-Bases are a bespoke item manufactured to order.
The following table gives the dimensions associated with each of both DN1500 and DN1800 Easi-Bases to include the overall height of the unit, the invert level for each different pipe diameter and the combination of pipe diameters accommodated. All Easi-Bases are made level to soffit, (i.e. level benching).

DN1500 - DN1800 Easi-Base Dimensions

DN1500 Easi-Base Dimensions					**DN1800 Base Dimensions**	
Main Channel	375	450	525	600	675	750
A. Easi-Base Height	1000	1000	1000	1250	1250	1250
B. Main Channel Depth	475	550	625	700	775	850
C. Base Depth	100	100	100	100	100	100
D. Pipe Wall Thickness	65	70	80	95	113	123
E. Invert to Base	165	170	180	195	213	223
F. Invert Height (For ring calculation)	835	830	820	1055	1037	1027



Easi-Base Weights and Lifting Mechanism Detail

Easi-Base (DN)	Lifting Mechanism	Quantity of Lifters Used per unit	Safe Working Load (S.W.L) per lifter (Tons)	Safe Working Load (S.W.L) for lifters Combined (Tons)	Easi-Base Unit Max. weight (Tons)
1200	M16	3	1.2t	3.6t	2.35t
1500	M30	3	4t	12t	4-8t
1800	M30	3	4t	12t	5-10t

(Please note, weights will vary dependent upon pipe size and number of inlets/outlets)

Easi-Bases are manufactured with cast in lifting sockets. Eye bolts / lifting loops are supplied with each unit and when screwed into the sockets are used to lift. Used with aid of chains this system will avoid damage during handling and also negates the requirement to have any holes penetrating the Easi-Base, thus ensuring absolute water tightness when installing in wet ground.

Construction

The Easi-Base is manufactured with a grooved joint which faces upward, precast concrete manhole chambers using the tongue and groove system are laid directly on top of the Easi-Base unit and constructed as normal.

Easi-Base is manufactured in accordance with BS EN 1917 and BS 5911-3.

To ensure that the Easi-Base and subsequent manhole structure remains vertical, accurate levelling of the formation, and preparation of the manhole foundation is essential.

Bedding and sidefill materials must comply with the requirements of Water Industry Specification BS EN 13242.

Sequence of Operations

1. Excavate to formation level ensuring that sides of excavation are adequately supported.
2. Trim and compact formation.
3. Place suitable bedding material (in accordance with BS EN 13242, as above) over the base of the excavation to a thickness of not less than 150mm. The bedding material should compose of 14mm – 5mm graded aggregate; 10mm nominal single size aggregate; concrete blinding; or as specified by local water authority.
4. Level and compact bedding material. The bedding (if aggregate) should be laid in 3 layers with a whacker plate passed over each layer at least twice to compact.
5. Check that the correct manhole base has been brought to the installation point. Cross reference and check pipe connection orientation with that of the Easi-Base. The movement of Easi-Base on site must be undertaken in a manner that is safe and will not cause any damage to the unit in any way.
6. Place the DN1200 Easi-Base onto the bedded surface with the arrow that is embossed in the liner / embedded in the concrete pointing to the outlet channel / pipeline.
7. When positioned checks levels and ensure that the surface of the unit is level by checking the rim at the top of the base (using appropriate equipment). This will ensure the unit has been installed fit for purpose with a 1% fall in the channel toward the outlet. (Outlet = P position signified by an embossed arrow in the polypropylene liner).

Jointing to Pipeline

The Easi-Base has rubber seals in the polypropylene liner which connect directly to the specified form of pipe (uPVC, clay and twinwall adaptors are available from FP McCann to suit the wide range of plastics in the UK market. Concrete and ductile Iron connections are also available bespoke.
Pipeline connection to the Easi-Base is made using the couplers cast into the wall of the base.

Perform joint as follows:

- Ensure that the rubber seal is in position at the connection port of manhole and pipe;
- Lubricate the connection port on the manhole and pipe using an approved FP McCann pipe lubricant;
- Push the pipe into the connection port until fully inserted;
- Check that the seal is water tight and that the gradient and line of the pipe is acceptable.

To allow for any differential settlement between manhole and pipeline, short rocker pipes should be used, and in the case of uPVC / twinwall / clay a slip collar is then used to connect the Easi-Base to the pipeline.
With concrete and other more rigid forms of pipeline the Easi-Base will be manually positioned at the end of the pipeline to the rocker with another rocker and then the continual pipeline running from the unit.
Additional care must be taken to ensure that the joints are properly made.

Jointing to Manhole Chamber Sections

Easi-Base sections (as with manhole chambers) are provided with a tongue and groove joint formed within the wall section (groove facing upward). These are sealed with cement / sand mortar or with proprietary non-shrink mastic sealant or as specified by local water authority. As with precast concrete manholes, well jointed Easi-Bases provide an adequate seal under normal conditions. An FP McCann approved sealant should be used at all times, when placing sealing strip into position during installation, the ends of the strips must be overlapped by a minimum of 30mm and cut at an angle of 60 degrees. The cut ends must then be pressed together.
Pipe connections should be made before installation of manhole chamber rings.
Erect the required number of manhole chamber rings (standard components) and seal the joints as appropriate; all in accordance with the design. Check that subsequent rings remain vertical. It is recommended that manhole chamber rings are handled using mechanical grabs and a spreader beam. Alternatively holes are provided in chamber rings for the use of standard lifting pins, or in the case of the wide wall chamber unit, DEHA spherical head anchor points are cast into the side wall. Lifting clutches are supplied with the unit.

Place a reinforced concrete manhole cover slab on top. If required place a corbel slab and then add the appropriate number of adjusting units.
Fit the manhole top for access from the ground.

Reinstatement

Sidefill / in-situ concrete surround to be placed in accordance with the specified requirements of the particular project.
All sidefill material to comply with the requirements of WIS 4-08-02.

Testing

Testing to be carried out in accordance with the specified requirements of the particular project, or as specified by the local water authority.

DN 1200mm Wide Wall Manhole Chamber

A 130mm thick wide wall chamber in combination with the Easi Base unit, provides a sealed watertight manhole system. This robust design means that the requirement for a concrete surround is eliminated.

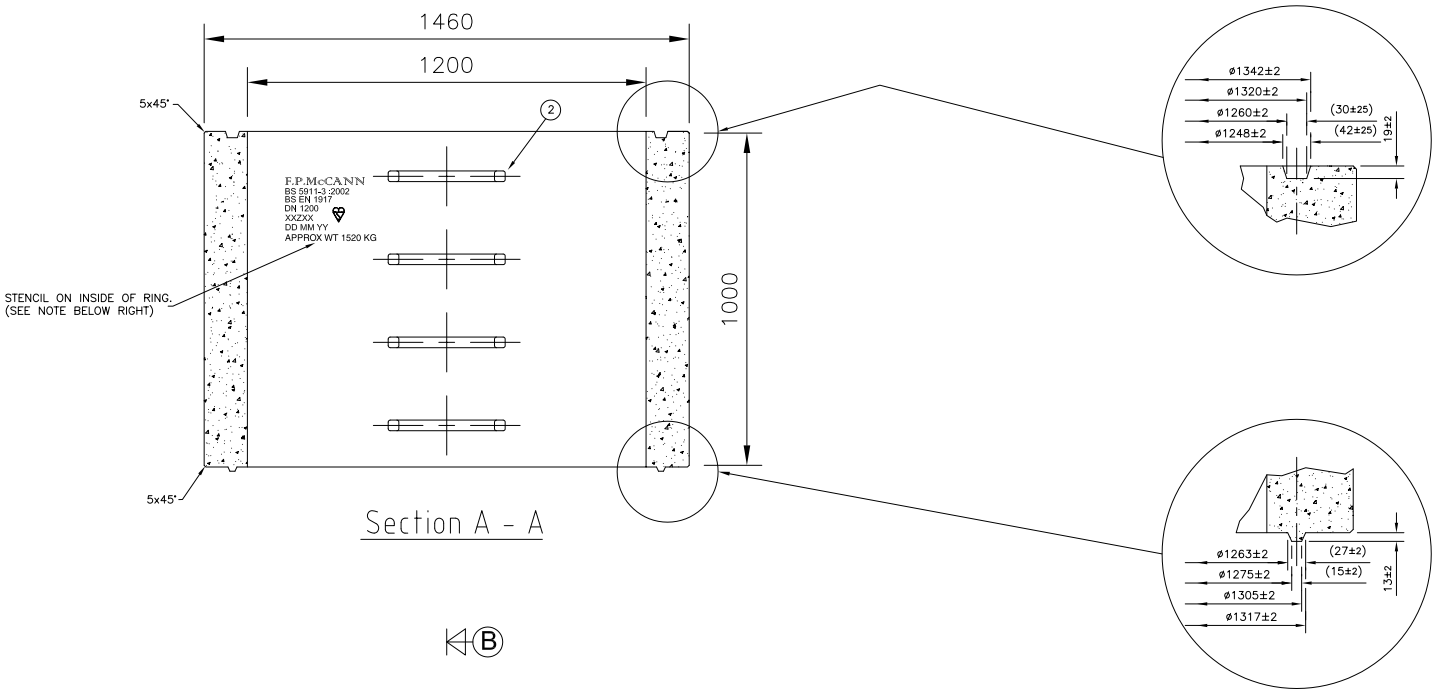
Advantages

- Speedy and easy installation
- Watertight on construction
- Lifting loops built into wall
- Safer lifting system (spherical head lifting system)
- Cost saving - No back fill with concrete

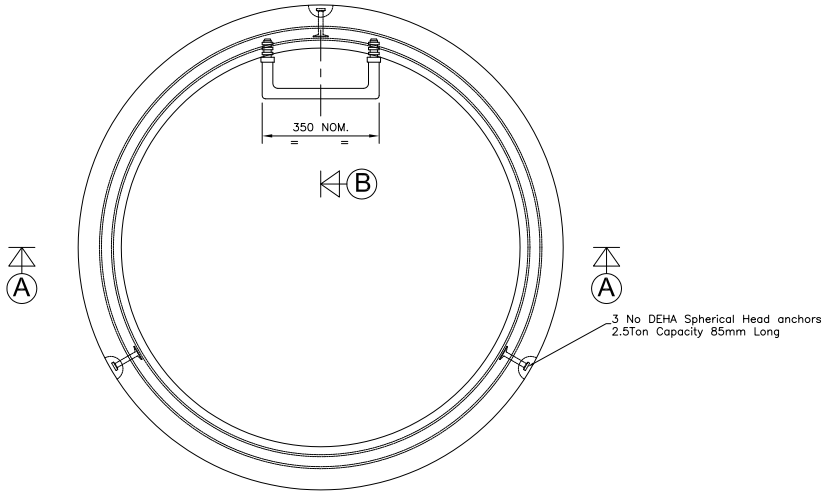
	Available Depth of Section								
Nominal Size (DN)	1000mm	750mm	500mm	250mm	Wall Thickness mm	Barrel Diameter mm	Approx Weight Kg. (p/meter)	Approx. Products per load Qty.(meter)	DEHA Lifting Anchors Qty/dia
1200	√	√	√	√	130	1460	1520	16	3x45mm dia

*** DN 1500 & 1800 in development**

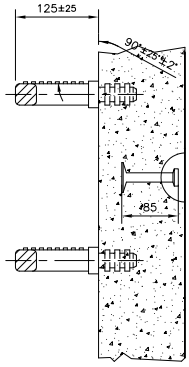
F P McCann wide wall manholes have been designed with a tongue and groove dimension to accommodate the use of bituminous sealant. An F P McCann approved sealant should be used at all times. The sealant requirement for wide wall manholes is 12mm x 120mm x 6m. When placing sealing strip into position during installation, the ends of the strips must be overlapped by a minimum of 30mm and cut at an angle of 60 degree. The cut ends must then be pressed together. Full installation guidelines can be provided upon request or can be found at www.fpmccann.co.uk



Section A - A



Plan View



Enlarged
Section B-B

	Available Depth of Section											
Nominal Size (DN)	1000mm	750mm	500mm	250mm	Wall Thickness mm	Barrel Diameter mm	Approx Weight Kg. (p/meter)	Approx. Products per load Qty.(meter)	Lifting Point Qty/dia (p/Unit)	36mm Lifting Pin 0.75 t SWL	42mm Lifting Pin 3.5 t SWL	3 leg Lifting Chain SWL 3.1t	4 leg Lifting Chain SWL 6.7 t
1200	√	√	√	√	130	1460	1520	16	3x45mm dia	Lifting clutches. F P McCann supply recommended and approved lifting clutches.		√	

Frequently Asked Questions

Q: What if the Easi-Base gets on site and the pipes don't align exactly?

A: 5 degrees deviation exists in the seal in all directions to include horizontal shifts. (FP McCann will offer an exchange where it is deemed appropriate).

Q: Is the liner separate?

A: No - it is cast into the base at manufacture and cannot be taken apart, nor can it be supplied separately for insertion into a manhole at a later date.

Q: Will the polypropylene liner wear through?

A: No - In Germany where the liner was originally developed, all manhole construction must last 50 years by specification; FP McCann offers an 80 year guarantee on Easi-Base. In addition if we look at the tilt test for abrasion we can see the result across 200,000 cycles where the average abrasion only wears 0.06mm into the liner. (Contact FP McCann Technical Department for more information)

Q: If a drop exists between a manhole and pipeline greater than 1%, can the liner be used?

A: Yes, note: 5° can be achieved vertically at the seal in either direction, plus a bend or backdrop can also be used directly and although the flow may be reduced, the liner will still operate perfectly.

Q: Is the Easi-Base quick to install?

A: Easi-Base can be installed in as little as 30 minutes and avoids prolonged road closures or excavations as the whole process can be completed at once. It is also health and safety conscious, as ground workers don't have to work long periods in a manhole chamber.

Q: What pipe types can connect to Easi- Base?

A: Most pipe variations including, Single and Twin wall uPVC, Twin wall PP/PE and Clay pipes will connect to the Easi-Base manhole by using a suitable adaptor readily available from FP McCann.

Q: Do I need a bed for my Easi-Base Manhole?

A: Your Easi-Base needs to be installed level to take advantage of the built in features with regard to the benching and the 1% drop in the channel across the diameter of the unit. The bedding material should compose of 14mm - 5mm graded aggregate; concrete blinding; or as specified by local water authority.

Q: Do I still have to use rocker pipes with the Easi-Base?

A: Yes, Rocker and stub pipes should still be used in line with 'Sewers for Adoption' or as specified by the local water authority.

McEasi-Base

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WRc APPROVED

Easi-Base is a kitemark product, manufactured and tested to BSEN1917:2002

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