cpm
drainage

- pipes
- manholes
- caissons
- gully pots
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- box culverts

concrete for life

The CPM Group

CPM is a precast concrete business with a difference. Innovation and diversification is the key to our success.

We are a market-leading manufacturer of concrete products with extensive production facilities in Somerset, Staffordshire, Yorkshire and Scotland. This, combined with a network of specialist distributors, enables us to provide our customers with complete UK coverage.

Our business is built on a solid reputation for delivering quality products and providing a first class service. We supply a vast range of sustainable precast products to every sector of the construction industry, fully supported by our experienced technical and engineering teams.

Drainage

CPM is a market leader in the supply, manufacture and design of concrete drainage products. Our solution-based service includes technical assistance and advice on product use and performance. We also offer a design service for special applications, complete with AutoCAD drawings. We work closely with our customers throughout contracts and offer advice on all aspects of drainage. CPM drainage products are manufactured to comply with current national and European standards and specifications.

Concrete for life

Concrete is a highly durable and versatile material which can be used to manufacture a wide range of precast products. All CPM drainage products are designed to last for a minimum of 120 years , and are manufactured to Design Chemical Class 4 resistance.

Sustaining the environment

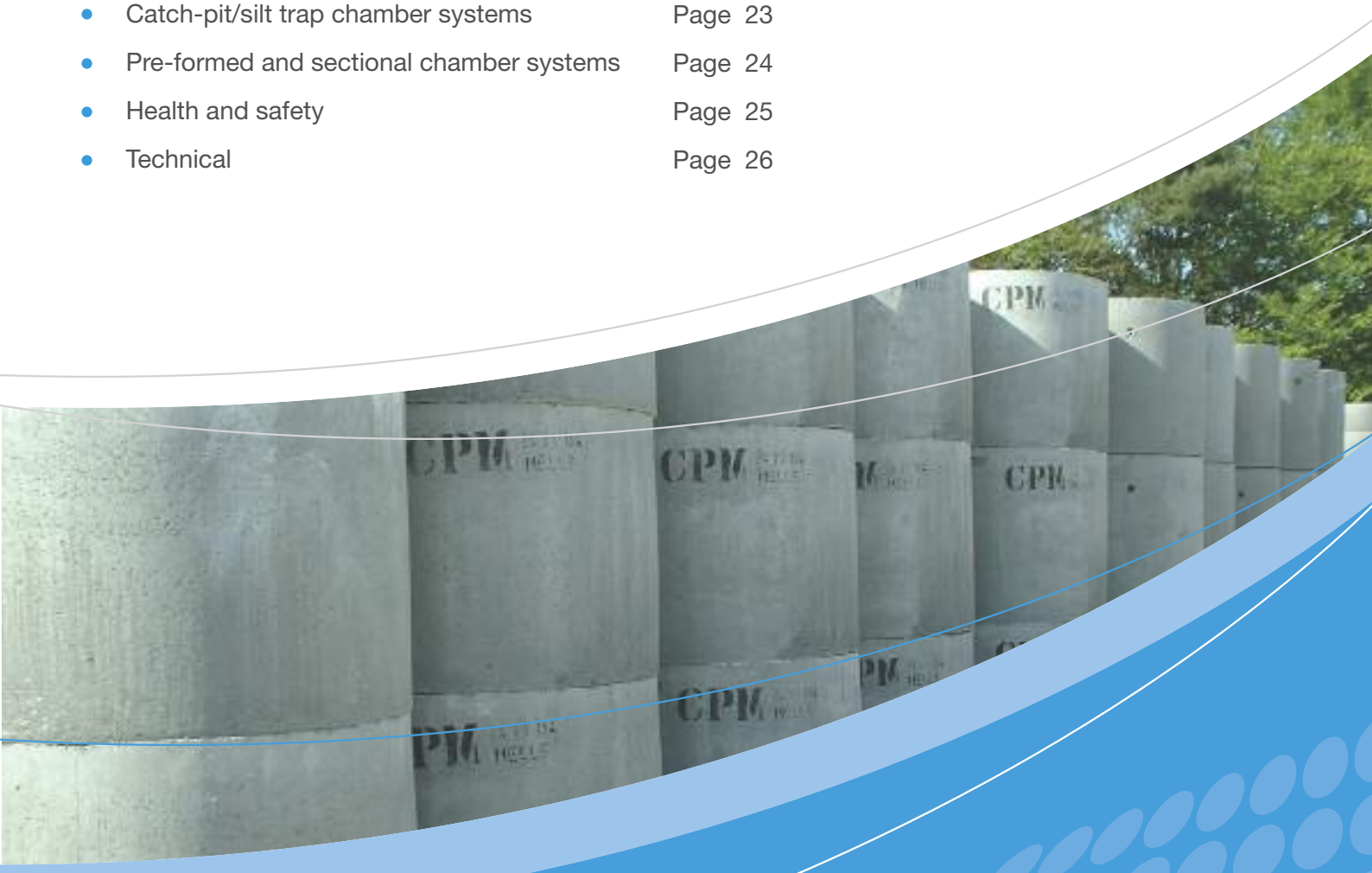
As a leading manufacturer of precast concrete products, we recognise that our activities inevitably impact on the environment. Our aim is to minimise any adverse effects as a result of our manufacturing. The importance of safe, effective and efficient precast concrete solutions have been recognised for over 100 years. However, we are seeking not only to maintain these standards but also to embody environmental principles of sustainability. In using concrete as our core material we are confident that the most environmentally sound material is being used.

Wherever possible we use recycled materials, including aggregates and cement replacements when practical. We also reycyle as much waste materials as possible. Operating from four UK sites enables us to schedule deliveries with shorter vehicle movements, thus reducing our carbon footprint. CPM are continually looking at how it can improve on its environmental impact and have introduced perfect manhole that saves at least 20% on GHG compared to traditional built manholes. In producing this policy, the CPM Group wishes to demonstrate its commitment towards safeguarding the environment.

Off-site solutions

In line with our continuing process of innovation and product development, CPM can now offer a diverse range of off-site solutions. The construction industry's demand for fast, efficient, modular systems has been met with a range of services to provide products which are designed, engineered and manufactured off-site under factory conditions. This results in minimal site installation costs as products are pre-fabricated and assembled to meet construction schedules.

Contents



Flexible Jointed Pipes

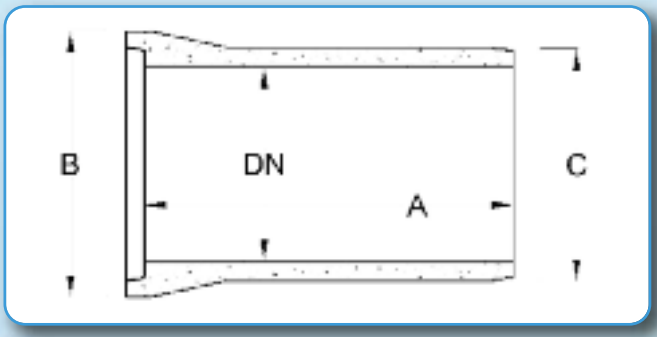
BS EN1916:2002 / BS 5911-1:2002

CPM offer an extensive range of precast concrete flexible jointed pipes from DN 225 to DN 1800 including bends, junctions and fittings.

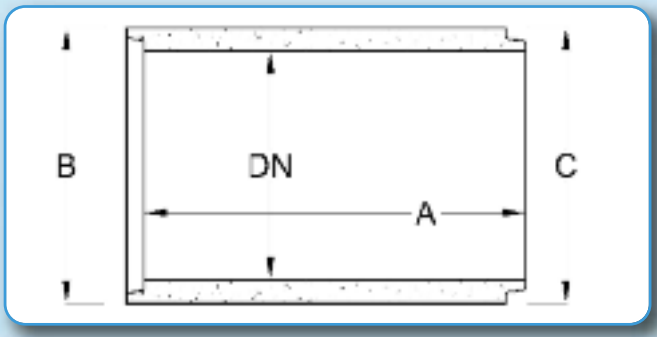
Pipe weights and dimensions BS 5911-1:2002 class 120

Nominal size	A	B	C	Approx weight of pipe	Joint type			Angular deflection
DN	m	mm	mm	kg	'G' ring	Integral	Lamell	degress
225	1.25	380	305	122	●			2.90
300	1.25	497	410	217	●	●		2.40
300	2.00	497	410	334		●		2.40
375	2.50	570	490	510	●	●		1.90
450	2.50	675	575	705	●	●		1.60
525	2.50	760	670	915	●	●		1.40
600	2.50	840	770	1210	●	●		1.20
675	2.50	980	820	1235	●			1.05
750	2.50	1060	910	1440	●	●		0.95
750(u)	2.50	1060	980	1924		●		0.95
825	2.50	1143	985	1620	●			0.90
900	2.50	1235	1080	1920	●	●		0.80
900(u)	2.50	1235	1190	2991		●		0.80
1050	2.50	1455	1260	2590	●	●		0.70
1125+	2.50	1545	1345	3130	●			0.65
1200	2.50	1600	1440	3550	●	●		0.60
1350	2.50	1840	1620	4600	●			0.53
1500*	2.50	1810	1810	5230			●	0.48
1600*	2.50	1920	1920	5702			●	0.44
1800*	2.50	2160	2160	7150			●	0.40

Tabled dimensions are for guidance only. As these may vary, for accurate dimensions and weights contact the Technical Department.



For DN 225 up to DN 1350



For DN 1500 up to DN 1800

Notes:

1. All dimensions are approximate and may change during the lifetime of this catalogue due to the implementation of the Harmonised European Standard.
2. Joint rings and integral seals are normally SBR complying with BS EN 681-1:1996. Other compounds such as Nitrile or EPDM can be supplied but may not be available from stock.
3. * Pipes supplied with an in wall joint – no bell socket (full flexibility at joint maintained).
4. CPM specialised Flexilift system for handling/jointing purposes for pipes DN 1200 to DN 1800 is available on request. (see page 5).
5. Lorries with crane offload facilities are available for pipes up to DN 1200 upon request, although site assistance would be required on certain diameters.
6. When ordering pipes which may have to joint with pipes already on site or previously laid, particularly extensions to contracts, it is important to advise the sales office accordingly in order to eradicate any jointing problems.
7. Flexible jointed concrete pipes can be supplied with perforations.
8. + Non kitemarked.
9. (U) denotes unreinforced
10. CPM lubricant is advised for use on integral seal type pipes. CPM can not guarantee that jointing of pipes with the use of other lubricant will be successful

Polygonal bends and tumbling bays - For full details visit our website www.cpm-group.com

Flexible Jointed Pipes

BS EN1916:2002 / BS 5911-1:2002

Short length and rocker pipes

To allow for any differential settlement between manhole and pipeline, short lengths of either spigot/socket butt pipes should be built into the manhole wall. A rocker pipe should then be laid connecting the short spigot/socket butt pipe to the incoming/outgoing pipe run, thereby incorporating a flexible joint close to the manhole.

Rocker pipes (joint both ends)

Nominal size	Effective length
DN	m
225 - 600	0.60
675 - 750	1.00
825 and above	1.25

Short length pipes (spigot or socket butts)

Nominal size	Effective length
DN	m
225 - 600	0.60
675 - 750	1.00
825 and above	1.25

Junctions

Branches can be made from drainage materials other than concrete and are normally fitted to both full length and short length pipes to suit customer requirements.

Uni junctions

Uni junctions are supplied fitted to rocker pipes in DN300 and full length pipes up to DN 1800.
The uni junction is produced by inserting a rubber gasket to BS EN 681-1:1996 into the main pipe at the factory, providing a watertight seal for the branch connection.

- **Less susceptible to site and transport damage**
- **Able to accommodate a range of pipe materials using adaptors**
- **Angular connections can be made by using bends**

The uni junction is designed to suit 150mm supersleve clay pipes not slimline clay pipes. To connect to plastic pipes, an adaptor coupling from the clay to the plastic pipe will be required. Alternatively for certain plastic pipes an adaptor bush is available. Contact our Sales office for full compatibility details.

Side entry manholes:

Off-Site Solutions

Ideal where traditional manhole construction is not possible.
Fabricated from standard pipes/chamber rings into single unit.
For full details please contact our Technical or Sales Department.

Flexible Jointed Pipes

BS EN1916:2002 / BS 5911-1:2002

Ovoid flexible jointed pipes

CPM offer a range of flexible jointed ovoid pipes for use in both foul and surface water applications. The ovoid pipe is designed, manufactured and tested in accordance with the requirements of the European Standard (Class 150).

The ovoid pipe has better velocity characteristics at low flows than equivalent circular pipes, which provides:

- **Lower operating costs**
- **Better self cleansing velocity and therefore less risk of siltation and blockage**
- **Reduced costs of trench excavation resulting from shallower gradients**

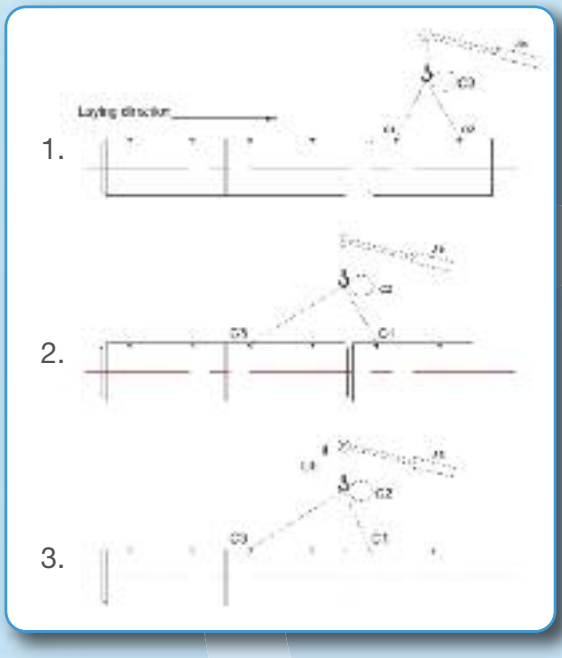
Nominal internal size		Effective length	Approx weight	Handling and jointing
width mm	height mm	mm	kg's	
400	600	1250	880	'C' hook
600	900	2500	2130	Flexilift
800	1200	2500	3300	Flexilift

Handling

1. Avoid damage when handling, especially to ends of concrete pipes, and never drag or roll pipes.

2. Always use correct craneage with purpose built lifting device. If ordered, large diameter pipes incorporate lift pins for which the propriety head link and chain is required (i.e. Flexilift).

3. Joint rings must be stored away from sunlight, heat or possible contact with any oils. Stack pipes on even ground on timbers to protect sockets and spigots, making sure the bottom row is securely chocked.



Using 'Flexilift' lifting/jointing chains
Available for DN1200 pipes and above

1. Use the equal length chains C1 and C2 for lifting and placing each pipe in the trench.

2. Connect the longer length chain, C3, to the pipe already laid and place the shorter length chain, C2 on the hook provided.

3. The pipe can then be jointed without moving the jib of the crane.

Jointing

1. Correctly position and bed the first pipe. Prepare the bedding for the second pipe and hollow out for incoming spigot to prevent bedding material entering the joint.

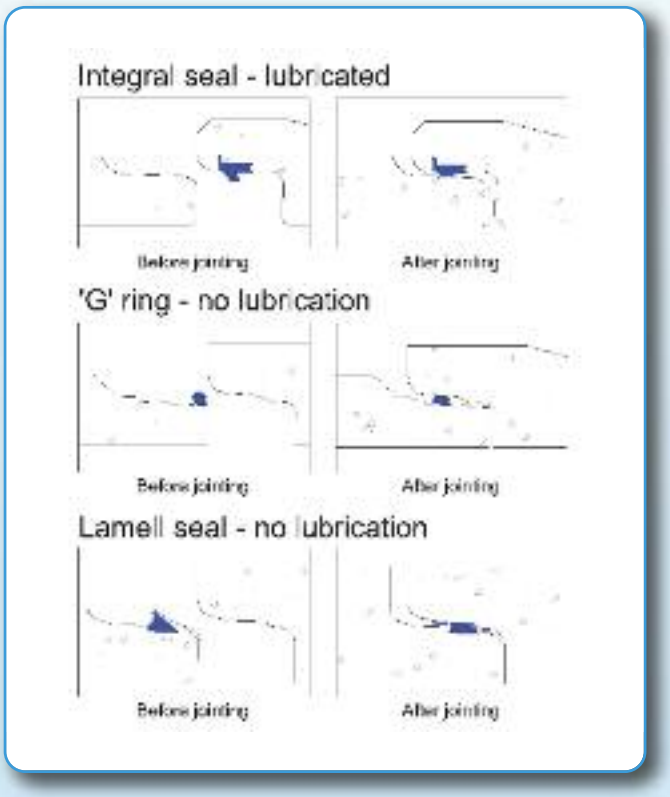
2. Ensure the joint ring is of the correct size and the spigot and socket are clean and undamaged.

3. Ensure the joint ring is not twisted, is correctly located on the spigot and is the right way round.

4. Lubricants must not be used where 'G' and Lamell rings are supplied. Lubrication is required with the 'Integral' joint (use of CPM lubricant is recommended).

5. Ensure the pipe to be jointed is adequately supported. The spigot should be centred carefully in the socket before jointing is completed, making sure bedding material does not enter the joint at any time.

For more detailed information on jointing see CPM Drainage Systems 'Concrete Pipes Installation Manual' www.cpm-group.com



Air Testing

1. The air test is not covered by the European Standard, but a pipe which complies with the standard will usually comply with the air test. Failure to pass the air test will not normally preclude the acceptance of the pipeline if a successful water test can be achieved.

2. Ensure the test equipment is in good condition. Inflatable stoppers are recommended for ease of use.

3. The test should be carried out after every 3 or 4 correctly laid and jointed pipes prior to commencement of backfill.

4. A successful test is achieved if the equipment shows a fall in pressure of no more than 25mm after 5 minutes, having allowed a suitable period for stabilisation.

If the pressure falls sharply and the pipes appear to have failed, the following checks must be made before contacting CPM for assistance:
(a) Check the test equipment is in good condition
(b) Check if the stoppers are leaking — use industrial soap around the edge of the stopper to provide an effective seal if necessary
(c) Check the joint rings are correctly located

Dramatic temperature changes both inside and outside of the pipe could affect the air test. Reference should be made to BS 8005 : Part 1 1987.

If after following the guidance on this advice sheet you still have problems with our product, please contact the supplying works in the first instance, on the following telephone numbers or the Technical Department advice line on 01902 356220.

- Leek Works 01538 380500
- Mells Works 01179 812791
- Pollington Works 01405 860591
- Newmains Works 01698 386922

CPM regrets that failure to follow the advice given may result in any subsequent claims being invalid or in a call out charge being made if CPM technical personnel have to attend on site.

Chamber Rings

Tongue and groove joint	DN	Available depth of section				Approx wall thickness	Approx weight /m - depth
		0.25m	0.50m	0.75m	1.00m		
						mm	kg
	900	●	●	●	●	70	530
	1050	●	●	●	●	80	710
	1200	●	●	●	●	90	912
	1350		●	●	●	95	1080
	1500		●	●	●	105	1330
	1800		●	●	●	115	1760
	2100		●	●	●	125	2140
	2400		●	●	●	140	2740
	2700		●	●	●	150	3400
	3000		●	●	●	165	4140
	3660			●	●	185	5300
	4000			●	●	200	6360

DN 3660, 4000 are not covered by the British Standard, but comply with all the relevant provisions of BS EN 1917 / 5911-3:2010. DN4000 is supplied in 2 halves.

Manhole chamber sections are supplied with three nominal 50mm diameter holes for lifting purposes:

Chamber sections can be supplied:

- **With or without fixed double steps.**
- **With holes or cut outs.**
- **With base cast in.**
- **With or without ladders.**

1. For safety reasons, all chamber sections are loaded and delivered chimney fashion.
2. When offloaded they should never be stored on their side (on the roll), but should always be laid flat.
3. Lorries with crane offload facilities are available for manhole units up to and including DN3000, upon request.
4. Suitable lifting bolts for offloading and handling purposes can be purchased from CPM.
   These come with appropriate test certificate.

Sealant size	12mm x 60mm		12mm x 80mm				12mm x 120mm				12x75mm	12x25mm
Chamber DN (mm)	900	1050	1200	1350	1500	1800	2100	2400	2700	3000	3600/4000	4000 vertical
Sealant length (per joint)	3.5m	4.0m	4.5m	5.0m	5.5m	6.5m	7.5m	8.5m	9.5m	10.5	13.5m/16.5	2.5m
Primer	5 Litres / 100m		5 Litres / 75m				5 Litres / 50m				None required	

Manholes

BS EN1917:2002 / BS 5911-3:2010

Soakaway units

Standard sections can be perforated with 75mm diameter holes for use as soakaways, providing a minimum area of exfiltration of 50,000mm² per metre of nominal diameter per metre of depth.

Chamber section	Standard number of perforations per section		
DN	0.50m deep	0.75m deep	1.00m deep
900	6	9	12
1050	8	12	16
1200	8	12	16
1350	8	12	16
1500	10	15	20
1800	12	18	24
2100	12	18	24
2400	14	21	28
2700	16	24	32
3000	18	27	36
3660	N/A	33	44
4000	N/A	36	48

Rectangular manholes

BS EN1917:2002 / BS 5911-3:2010

CPM Group produce a rectangular manhole unit with a tongue and groove joint to the above standard.

Manhole section	Internal dimensions mm	External dimensions mm	Depth mm	Approx weight kg	Palletisation	
					No. per pallet	Approx weight kg
Top for metal cover	Top flange 1200x675 Bottom flange 1200x750	1350 x 900	75	77	5	385
Top for metal cover	Top flange 1200x675 Bottom flange 1200x750	1350 x 900	150	141	4	564
Cover (heavy duty)	600 x 600 access	1350 x 930	150	300	5	1500
Cover (light duty)	600 x 600 access	1366 x 916	90	180	5	750
Chamber	1200 x 750	1350 x 900	150	115	8	920
Chamber	1200 x 750	1350 x 900	225	173	5	865

Note: For rectangular manholes use 12mm x 60mm sealant
*1475 x 1025 available un-kitemarked please refer to sales team

Cover slabs

Chamber DN	Depth	Overall DN	Standard access sizes (mm)					Weight (kg's) 675 [2] access
			600x600	675x675	750x750	750x600	1200x675	
900	150	1060	●	●	X	X	X	130
1050	150	1230	●	●	●	To order*	X	235
1200	150	1400	●	●	●	●	X	355
1350	150	1560	●	●	To order*	●	●	505
1500	170	1730	●	●	To order*	●	●	790
1800	175	2050	●	●	To order*	●	●	1210
2100	180	2370	●	●	To order*	●	●	1745
2400	180	2700	●	●	To order*	●	●	2375
2700	205	3020	●	●	To order*	●	●	3380
3000	225	3350	●	●	To order*	●	●	4590
3660*	275	3960	●	●	To order*	●	●	7760
4000*	275	4500	●	●	To order*	●	●	10040

* Non Kitemarked

Notes:

1. All slabs detailed are Type 2.
2. Weights available on request as they are dependent on the access size.
3. For details of access position, contact the technical department.
4. DN3660 and DN4000 cover slabs can be supplied in 2 or 3 sections dependent on the opening required.
5. All accesses have 75 x 75 corner chamfers.
6. All cover slabs are 'heavy duty' and are suitable for use in main roads.

Landing slabs

Landing slabs to suit DN 1500 chamber sections and above are manufactured with a 900mm circular access.

Reducing slabs

Reducing slabs to suit up to and including DN 4000 chamber sections are generally manufactured with a 900mm, 1050mm or 1200mm circular reducing section.

Reducing slabs are manufactured with a rung fitted

Special cover slabs

A wide range of special cover slabs to customer's specifications can be manufactured to order. Typical examples of special cover slabs supplied are:

- **Slabs up to 18 metre diameter**
- **For pumping stations incorporating davits rebates and surface boxes**
- **Extra heavy duty slabs for airports and ports**
- **Extra large accesses**
- **Slabs designed to comply with Highways Agency Specifications**
- **Multiple accesses**
- **Non-circular slabs**
- **Slabs with customers own reinforcement design**

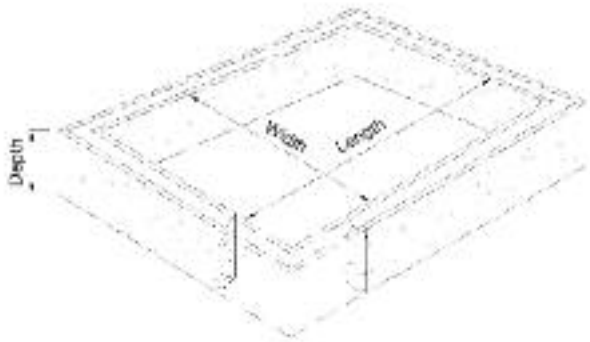
Scottish Water seating slab

Special seating slabs 1125 x 1125 x 150mm thick, to comply with Scottish Water Services Specification available with access sizes 600 x 600, 675 x 675, 675 x 750, and 750 x 750.

House inspection chambers

CPM offers a range of precast concrete inspection chambers in a variety of depths, with tongue and groove joints. Units can be supplied palletised as detailed in the tables on weights and dimensions.
(Also available banded)

The chambers, which are economic and versatile to meet the demands of domestic drainage installation, are easily handled and excavation below ground level is reduced to a minimum.



Chamber Section

Chamber sections weights and dimensions

Internal dimensions of chamber sections	Depth of sections	Wall thickness	Weight of sections
mm	mm	mm	mm
600 x 450 600 x 450 600 x 450	150 225 300	50 50 50	44 58 86
750 x 600 750 x 600 750 x 600	150 225 300	60 60 60	67 100 134
1000 x 675 1000 x 675	150 225	65 65	83 130

Palletisation details	
no per pallet	weight approx
no.	kg
32 20 16	1410 1160 1380
16 10 8	1070 1000 1070
16 10	1330 1300

CPM house inspection chambers can be jointed quickly and easily with bituminous or butyl compounds providing a watertight seal without the use of a concrete surround.

Unit nominal size (mm)	600 x 450	750 x 600	1000 x 675
sealant length (per joint)	2.5m	3.0m	3.5m
sealant size	6mm x 50mm		12mm x 60mm
primer	5 litres per 100m		5 litres per 75m

Top sections for concrete covers weights and dimensions

To suit chamber sections	Overall dimensions	Effective depth of sections	Overall depth of sections	Weight of sections	Palletisation details	
A x B	C x D	E	F	kg	No per pallet	weight kg's
mm	mm	mm	mm			
600 x 450	845 x 680	110	120	46	10	1010
750 x 600	860 x 710	110	120	67	10	1220

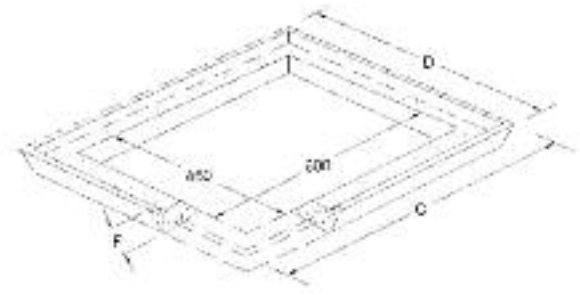
Top sections for metal cover and frame weights and dimensions

To suit chamber sections	Overall dimensions	Effective depth of sections	Overall depth of sections	Weight of sections	Palletisation details	
A x B	C x D	E	F	kg	No per pallet	weight kg's
mm	mm	mm	mm			
600 x 450	825 x 675	60	85	42	20	840
750 x 600	870 x 720	50	60	44	20	880
1000 x 675	1150 x 825	50	60	89	10	890

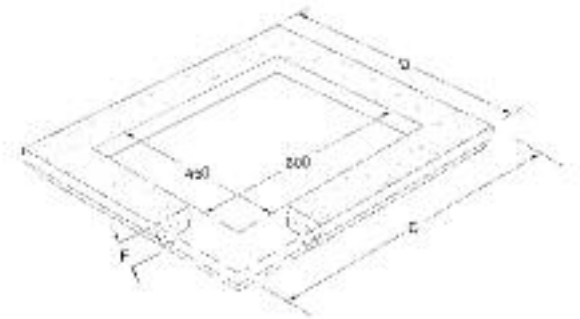
Top sections for 750mm x 600mm and larger chambers act as reducing slabs, enabling standard 600mm x 450mm covers to be fitted irrespective of the size of chambers involved.
To provide concrete top section for 1000mm x 675mm requires:
1. Top section for metal cover and frame 1000mm x 675mm (i.e. reducer).
2. Top section for concrete cover 600mm x 450mm and concrete cover slab.

Concrete cover slabs

Concrete cover slabs are supplied to suit the top sections, and are 695mm x 540mm overall, 60mm thick and weigh 55kg.

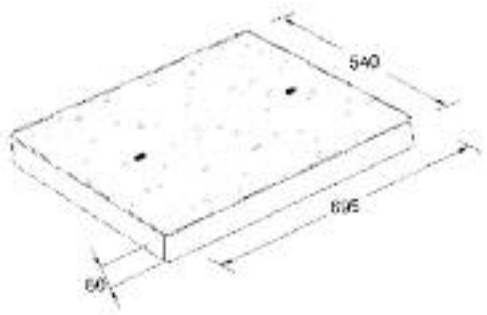


600mm x 450mm top section for concrete cover



600mm x 450mm top section for metal cover

1000mm x 675mm top section for metal cover/reducing slab



600mm x 450mm concrete cover slab

Caisson shaft sinking - Internal tie bar system

CPM offer a range of products specially designed for sinking by the Caisson method.
The Caisson method is now widely used for construction of pumping chambers, wet wells and manholes particularly in difficult ground conditions.

Caisson chamber sections weights and dimensions

Chamber section	Available depth of section m			Wall thickness	Approx weight
DN	0.5	0.75	1.0	mm	kg/m
2000	●	●	●	130	2130
2400	●	●	●	130	2200
2550	●	●	●	140	2900
2740	●	●	●	160	3580
3000	●	●	●	175	4270
3660		●	●	185	5300
4000		●	●	200	6360

Notes:

1. DN4000 chambers are supplied in two half sections, each weighing approximately 3180 kg per metre, for assembly on site.
2. Cutting shoes are generally fitted to the base section providing a 10mm overbreak. Cutting shoes with a larger overbreak can be manufactured on request.
3. When a concrete cutting shoe is requested as an alternative to steel (for use in certain ground conditions), this is done entirely at the client's risk.
4. The DN 3660 and DN 4000 steel cutting shoes are supplied in two sections, and the DN 4000 concrete shoe in four sections (all supplied loose).
5. At least half of the vertical tie bars should be used equally spaced around the shaft at all times. In certain circumstances such as a high water table, deep shafts etc. then all tie bars must be used and the use of secondary sealant may also be advisable. e.g. hydrophilic material.
6. Purpose designed lifting brackets necessary for handling sections are available and can be purchased from CPM – please visit www.cpm-group.com for details.

Caisson cutting shoes

Chamber section	Type of cutting shoe available		Tie bars (max)	Joint type
DN	steel	concrete	No.	
2000	●		8	Flat and groove
2400	●		4 Plates	Tongue and groove
2550	●	●	8	Flat and groove
2740	●	●	8	Flat and groove
3000	●	●	8	Flat and groove
3660	●		10	Tongue and groove
4000	●	●	12	Tongue and groove

Caisson slab weights and dimensions

To suit chamber section	Effective thickness	Overall thickness	Overall diameter	Approx weight
DN	mm	mm	mm	kg
2000	185	200	2260	1906
2400	178	178	2720	2500
2550	185	200	2830	2766
2740	185	200	3060	3166
3000	200	225	3350	4590
3660	260	275	3960	7760
4000	260	275	4500	10040

Caisson shaft sinking - Plate fixing system

Components (DN2400 - DN4000)

1. A nominal 1.0m base shaft ring comprised of a concrete cutting shoe providing a 12 mm overbreak and a standard 0.5 deep shaft unit.
2. Chamber sections in 0.5 and 1.0m depths
3. Jointing plates
4. Butyl resin joint sealant
5. Lifting brackets
6. Landing slab 1.0m deep shaft ring
7. Landing slab in two halves
8 Landing siab support angle cleats
9. Cover slab

The DN4000 caisson units are manufactured in two halves and have a separate steel cutting shoe comprising of components 2 - 9 inclusive as above.

Cutaway view of caisson rings and cutting shoe showing jointing plates

Bolt and jointing plates

Caisson units

Size	Weight of base unit and cutting shoe	Wall thickness	Chamber Wt/m depth
	kg	mm	kg
2400	2440	130	2560
2700	3040	140	3060
3000	3800	160	3810
4000		200	3220 per half ring

Landing slabs

Size	Access size	Thickness	Approx weight
	mm	mm	kg
2700	900	150	2100
3000	900	150	2600
4000	900	165	2680 per half slab
Full or half landing slabs are available.			

Cover slabs

Size	Access size	Weight	
	mm	kg	
2400	*675 x 675	2228	
2700	*675 x 675	3068	
3000	*675 x 675	4242	
4000	900 x 600	9900	

*These sizes are to provide a 600 x 600 or 675 x 675 manhole top access when used in cobination with up to three adjusting units to the required size access and depth make up. Other sizes of access are availble to order.

2 piece adjusting units

Cover frame adjusting units (previously known as seating rings) can be used in place of engineering bricks to adjust the final level of a cover and frame. The use of adjusting units is specified in 'Sewers for Adoption'.

The CPM Group now supply adjusting units in 2 pieces. Units are available with a 600x600 or a 675x675 opening

2 piece adjusting units offer the following benefits

- Each section weighs less than 25kg for easy handling
- No requirement for bricklayers due to ease of installation
- Quicker to install than brickwork
- Kitmarked to BS5911-3
- Laid with staggered joints to give equivalent installed strength

Diameter	Depth	Weight kg's
600 x 600	65	48
675 x 675	65	60
1200 x 675	70	78

1 piece cover frame adjusting units

Cover frame adjusting units are reinforced 65mm deep units which can be used in place of engineering bricks to adjust the ductile or cast iron covers and frames to the required level.

Kitemarked to BS 5911-3

Adjusting units are available for the following access sizes: 600 x 600, 675 x 675, 750 x 600, 1200 x 675*, 750 x 750 600 x 600 - eccentric opening to be used in conjunction with a 750 x 600 cover slab opening.

Diameter	Depth	Weight kg's
600 x 600	65	70
675 x 675	65	65
750 x 600	65	70
750 x 750	65	80

Manhole steps

Polypropylene coated mild steel double steps are fitted to manhole sections when required.

Double steps are fixed vertically in line at 250mm vertical spacing and kitemarked to BS EN1310:2002.

- **Polypropylene coated stainless steel steps are available on request.**
- **Manhole sections fitted with double steps can be used in any depth configuration.**

Double steps in chamber section

Intergrated manhole ladder system
Off-site solutions

The CPM integrated manhole ladder system is innovative product which has been designed to provide safe access and egress to precast concrete manholes, caisson shafts and inspection chambers.

Rungs are pre-fitted into the chamber to provide a installation which is quick, cost effective, reliable and safer than conventional ladders.

The system has WRC approval and meets the essential requirements of existing and new design codes in terms of dimensions and performance.

Ease of Installation

- The Ladder Rungs are pre-fitted at 250mm centres into the chamber section, leaving only the Stringer, Locating Bracket & End Caps to fit.
- Minimal access to a confined space to fit ladder stringers
- No lifting, drilling or temporary access required to chamber

Flexibility

- The incorporation of the Ladder Rung in the manhole automatically takes account of the variation in depth to design
- No bespoke ladder needs to be surveyed, ordered or manufactured
- No equipment hire compared to fitting traditional galvanised steel ladder

Safety

- The polypropylene polymer encapsulation gives high visibility and no sharp edges
- The rung has a tread pattern to give good slip resistance
- The stringer has a circular cross section designed to give a secure hand grip unlike a conventional ladder which is normally too large to safely hold on to.

Quality

- Ladder Rungs are Kitemarked to BS EN 13101.
- The Ladder Rungs are reinforced with high tensile steel tube.
- The ancillary fitting brackets are made from stainless steel Grade 304 or 316.

Durability

- The chemical resistance of polypropylene can be considered equivalent to Grade 316 stainless steel

Strength

- Ladder rungs pre-fitted to ensure factory controlled performance

Product Standards

The system has been designed and manufactured in accordance with the requirements specified in the following:
- BS EN 13101:2002 Steps for underground man entry chambers.
- BS EN 14396: 2004 Fixed ladders for manholes

the perfect manhole system

.....everything flows!

- bespoke manhole system
- monolithic base unit
- no requirement for a concrete surround
- watertight
- fast installation
- perfect hydraulics
- safer construction
- minimum 120 year design life
- kitemarked product
- over 20% savings on GHG emissions compared with traditional construction

perfect watertight joint

perfect hydraulics

perfect monolithic base

Manufactured and tested to BSEN 1917:2002

Manhole design and construction has remained unchanged for many years.

After an extensive research programme CPM introduce the **Perfect manhole system,** to meet the challenges of modern day construction. This CPM off-site solution comprises of a monolithic precast concrete manhole base available pre-benched in any configuration within just days of requisition, and in addition, sealed chamber rings with a thicker wall, rubber joint and sealed cover slab.

This unique system of products combine to form the **Perfect manhole,** designed and manufactured from high quality durable concrete with a minimum 120 year design life that does not need a concrete surround unless specifically required.

Detailed literature is available on request or online at www.cpm-group.com

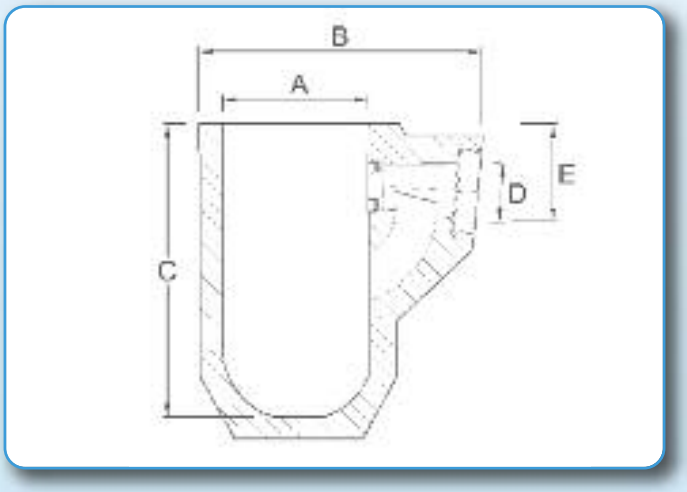
Road gullies

BS 5911-6:2010

Gullies are produced monolithically from fully automated machines, providing a strong robust unit, needing no concrete surround and not subject to floatation.

For quick and efficient offloading, an attachment is available which can be quickly fitted to a standard forklift truck, or suitable mechanical off-loader. The attachment enables concrete gullies to be handled and offloaded in pairs.

Precast concrete road gullies can be supplied with adaptors for connection to clay or plastic pipes.



Gully weights and dimensions

Nominal i/dia (mm)	Nominal wall thickness	Width (mm)	Effective depth (mm)	Capacity (litres)	Weight per unit	Outlet i/dia (mm)	Approximate measurement (mm)	No. per full 23.5 tonne load
A	mm	B	C		kg	D	E	
300*	35	600	450	14	120	150	250	195
300*	35	600	600	23	151	150	250	155
375	55	698	750	50	188	150	250	125
375	55	698	900	69	216	150	250	108
450	55	780	750	70	223	150	250	105
450	55	780	900	95	255	150	250	92
450	55	780	1050	120	287	150	250	81

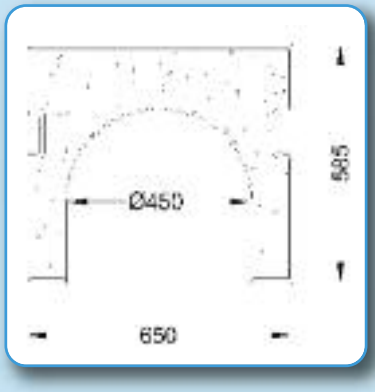
*Not kitemarked

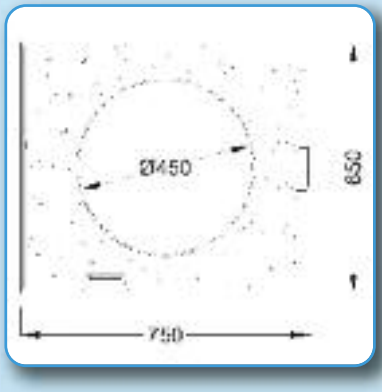
Gully cover slabs

Gully cover slabs are available in both square and ‘U’ shaped, with handling recesses for lifting brackets.

Slab	Dimensions 100mm thick	Kg’s
Square	750 x 650	80
U	585 x 650	50

65mm thick version also available





Box culverts

Design chemical class dc-4 resistance

CPM box culverts are specified and used regularly for culverting highways, storm and foul sewers, sea outfalls, tunnels and subways, underpasses, stream crossings, vertical chambers and in modified form as channels with removable slabs or as portals.

In addition they may be used as tanks for attenuation of storm or foul water.

Box culverts provide high flow capacities even where the gradient is low or headroom is restricted. They are individually designed to cater for a wide range of external loading conditions from shallow to deep fill.

Please refer to www.cpm-group.com for bedding, laying and jointing information.

Concrete box culvert sizes

*Available from stock

	Internal dimensions (m)			Effective cross sectional area	Flow rate at Fall 1:1000-m /s	Nominal Weight of Standard Units (Tonnes)
Type	Width	Height	Length			
MC10.03	1.00	0.30	2/3	0.285	0.40	2.38
MC10.05*	1.00	0.50	2.0	0.490	0.58	2.77
MC10.07	1.00	0.75	2.0	0.740	1.01	3.14
MC12.05	1.25	0.50	2.0	0.590	0.74	3.24
MC12.07*	1.25	0.75	2.0	0.900	1.32	3.61
MC13.05	1.38	0.50	2.0	0.650	0.84	3.42
MC13.06	1.38	0.63	2.0	0.830	1.17	3.61
MC13.07	1.38	0.75	2.0	1.000	1.52	3.80
MC13.10	1.38	1.00	2.0	1.340	2.25	4.17
MC15.07	1.50	0.75	2.0	1.070	1.62	4.12
MC15.10*	1.50	1.00	2.0	1.440	2.44	4.49
MC15.12	1.50	1.25	2.0	1.82	3.31	4.86
MC16.15	1.50	1.50	2.0	2.190	4.20	5.24
MC17.07*	1.75	0.75	2.0	1.250	2.03	4.49
MC17.10	1.75	1.00	2.0	1.690	3.06	4.86
MC17.12	1.75	1.25	2.0	2.130	4.15	5.24
MC17.15	1.75	1.50	2.0	2.565	5.28	5.63
MC18.10	1.875	1.00	2.0	1.815	3.37	5.09
MC20.10*	2.00	1.00	2.0	1.940	3.69	5.79
MC20.12	2.00	1.25	2.0	2.440	5.03	6.17
MC20.15	2.00	1.50	2.0	2.940	6.42	6.54
MC20.20	2.00	2.00	2.0	3.940	9.31	7.20
MC22.12	2.25	1.25	2.0	2.753	5.94	6.60
MC22.15	2.25	1.50	2.0	3.315	7.60	6.98
MC22.17	2.25	1.75	2.0	3.878	9.31	7.35
MC24.07A	2.40	0.75	1.5	1.740	3.13	6.05
MC24.10A	2.40	1.00	1.5	2.340	4.75	6.43
MC24.12A	2.40	1.20	1.5	2.820	6.14	6.73
MC24.15A	2.40	1.50	1.5	3.540	8.33	7.17
MC24.18A	2.40	1.80	1.5	4.260	10.60	7.62
MC24.21A	2.40	2.10	1.5	4.980	12.94	8.07
MC25.10	2.50	1.00	2.0	2.440	5.03	8.78
MC25.15*	2.50	1.50	1.5	3.690	8.82	7.33
MC25.17	2.50	1.75	1.5	4.315	10.83	7.70
MC27.07A	2.70	0.75	1.5	1.97	3.66	7.37
MC27.10A	2.70	1.00	1.5	2.640	5.57	7.79
MC27.12A	2.70	1.20	1.5	3.180	7.22	8.13
MC27.15A	2.70	1.50	1.5	3.990	9.82	8.63
MC27.18A	2.70	1.80	1.5	4.800	12.54	9.14
MC27.21A	2.70	2.10	1.5	5.610	15.34	9.64
MC27.12	2.75	1.25	1.5	3.377	7.84	8.34
MC27.15	2.75	1.50	1.5	4.065	10.08	8.71
MC27.17	2.75	1.75	1.5	4.753	12.40	9.16
MC27.20	2.75	2.00	1.5	5.440	14.78	9.60
MC30.07A	3.00	0.75	1.5	2.19	4.2	7.93
MC30.10A	3.00	1.00	1.5	2.940	6.41	8.35
MC30.12A	3.00	1.20	1.5	3.540	8.33	8.69
MC30.15A	3.00	1.50	1.5	4.440	11.36	9.19
MC30.18A	3.00	1.80	1.5	5.340	14.54	9.70
MC30.21A	3.00	2.10	1.5	6.240	17.82	10.20
MC30.20	3.00	2.00	1.0	5.940	16.72	7.54
MC30.25	3.00	2.50	1.0	7.440	22.33	8.08
MC30.27	3.00	2.75	1.0	8.190	25.19	8.43
MC33.07A	3.30	0.75	1.5	2.42	4.75	8.49
MC33.10A	3.30	1.00	1.5	3.240	7.27	8.91
MC33.12A	3.30	1.20	1.5	3.900	9.45	9.25
MC33.15A	3.30	1.50	1.5	4.890	12.93	9.75
MC33.18A	3.30	1.80	1.5	5.880	16.59	10.26
MC33.21A	3.30	2.10	1.5	6.87	20.38	10.76
MC35.15	3.50	1.50	1.0	5.190	14.00	7.73
MC36.07A	3.60	0.75	1.5	2.64	5.3	9.05
MC36.10A	3.60	1.00	1.5	3.540	8.14	9.47
MC36.12A	3.60	1.20	1.5	4.260	10.60	9.81
MC36.15A	3.60	1.50	1.5	5.340	14.54	10.31
MC36.18A	3.60	1.80	1.5	6.420	18.69	10.82
MC36.21A	3.60	2.10	1.5	7.500	23.00	11.32
MC40.25	4.00	2.50	1.0	9.940	33.53	9.97

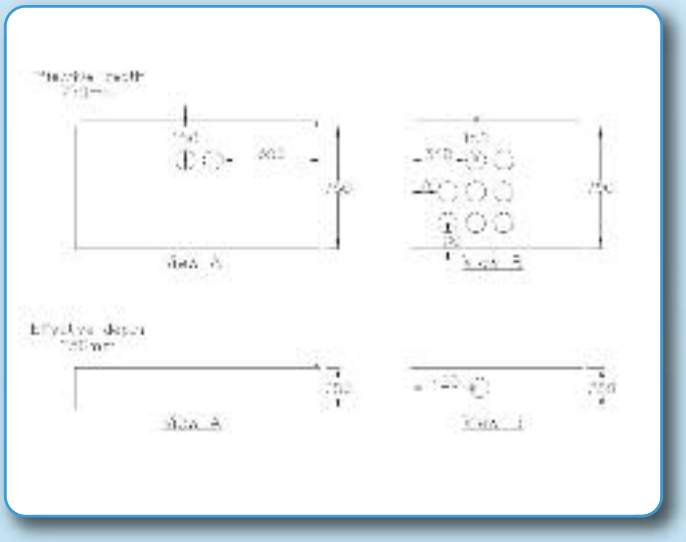
Communication boxes

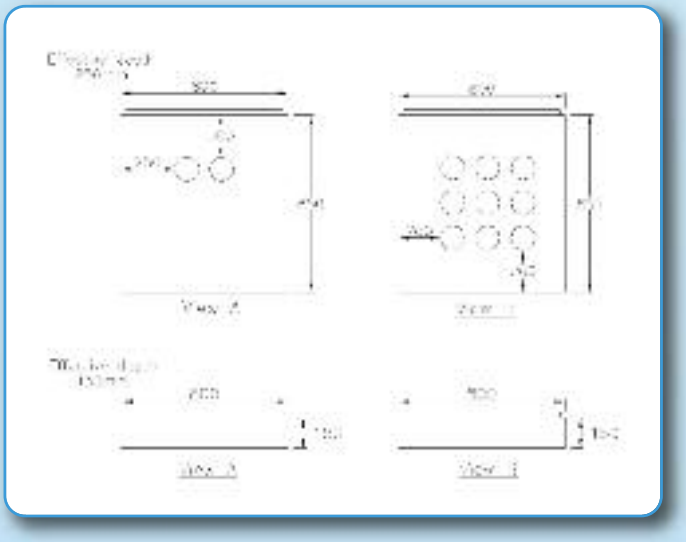
CPM offer a range of precast communication boxes complying with the requirements of The Highway Construction Details Installation Drawings for Ducted Cables Types A and B.

For full specification contact our Technical or Sales Department

Dimensions and weights

Chamber Section	Effective depth	Dimensions (mm)		Weight
	mm	Internal	External	kg's
Type A base	260	1250 x 800	1560 x 1100	803
Type B base	200	600 x 550	850 x 850	285
Type A base	750	1300 x 850	1500 x 1050	742
	250	1300 x 850	1500 x 1050	298
Type B chamber	850	600 x 600	800 x 800	425
	150	600 x 600	800 x 800	100
Type A cover slab	150	1200 x 600 access	1750 x 1300	510





Type A **Chamber elevations** **Type B**

Demarcation Chambers

BS EN1917:2002 / BS 5911-4:2002

Demarcation (non-man entry) chamber – Off-site solutions

CPM Demarcation chambers have been developed in response to changes detailed in Sewers for Adoption, 6th edition.
The precast concrete units provide access for maintenance work to lateral drains or non-man entry manholes.

The 450mm diameter demarcation chamber consists of the following components:

- 500mm depth base unit complete with an integral base and benching for 150mm ID clay pipes (can be adapted down to suit 100mm ID pipes) and are pre-fitted with push-fit seals to ensure watertight connections.
- Raiser sections are supplied in 1metre lengths or cut to length.
- Polo Cover Slab with a 450mm ID diameter opening is used to seat the cover and frame.
- A 350mm ID diameter polo cover slab access restrictor is available for safety reasons on chambers with a greater depth than 1.2 metres.
- The chamber is supplied with a number of different cover and frame options:

  35KN Polypropylene 450mm diameter
  B125 BS-EN124 450mm diameter
  D400 BS-EN 124 450mm square

Catch-pit/silt trap chamber systems
Off-Site Solutions

The CPM catch pit/silt trap chamber system has been developed to dispense with the need to construct an in-situ manhole on site.

Chambers are readily available and can be installed in hours, saving days in construction time.

Design options from 900mm to 3000mm manholes, either 750mm or 1000mm deep and 1500mm and 2100mm one piece chambers, 1000mm to 2500mm deep.

System benefits

- Chamber bases are Kitemarked
- Reinforced water-tight cast-in bases
- 1050mm unit weigh less than 1tonne
- Range of cored or pre-formed holes/cut-outs for inlet/outlet holes complete with seals
- Bespoke design to suit customer requirements
- Standard tongue and groove joints
- Reduced construction time on site
- Inherent structural strength of concrete
- Greatly reduced installation time on site
- No or minimal on-site fabrications, or need for concrete surround.

Pre-formed and sectional chamber systems

Off-Site Solutions

CPM one piece pre-formed and sectional chambers can be installed in hours.

They avoid the need to spend days constructing in-situ manholes on site and greatly reduce Health and Safety risks.

The range includes:

- 450mm non-man entry manholes
- 1200mm base options
- 1500mm and 2100mm one-piece chambers
- 2000mm and 3660mm sectional chamber system

System benefits

- Available from 450mm to 3660mm
- Pre-benched bases or catch-pit systems
- Reinforced cast-in bases
- Cored or preformed holes/cut-outs for inlet/outlet holes up to 1800mm pipes
- Range of one-piece chambers
- Inherent structural strength of concrete
- Greatly reduced installation time on site
- No or minimal on-site fabrications
- Wet-cast
- Dimensional accuracy
- Improved health and safety
- AutoCAD drawings can be provided

Health and Safety

1. Identification of substance

Substance
Precast concrete products, typically pipes, manhole components and ancillary precast products.

2. Composition

Precast concrete products are composed of cementitious material, aggregates which may contain silica and additives. Some products may contain steel reinforcing.

3. Hazards identification

The products supplied are of an inert nature and inherently non hazardous to health. However, cutting and surface treatment can create dust and flying fragments. The dust created could contain particles of a respirable size, which may contain silica.

4. First aid measures

Airborne dust
Inhalation:
Removal from exposure to fresh air.
Skin contact:
Wash with water
Eye contact:
Immediately irrigate with copious amounts of water and seek medical attention.
Ingestion:
Remove from exposure to fresh air.

5. Accident release measures

Methods of cleaning
Vacuum system. Water spraying to prevent airborne dust. Where possible avoid dry sweeping, which creates dust. Damp down surfaces.

6. Handling and storage

Stack pipes on even ground on timbers to protect their sockets and spigots.

The bottom row must be securely chocked at both ends using suitable timber wedges. Never exceed the recommended heights for stacking pipes.

Chamber rings should never be stored on its side ("on the roll") but should always be laid flat. This is particularly important with shallow depth sections, which are easily toppled even if chocked on firm, level ground.

Never drag or roll products – always use correct craneage with purpose built lifting device.

ALL lifting operations should comply with the Lifting Operations and Lifting Regulations 1998, and the Provision and Use of Work Equipment Regulations 1998. The client/contractor will assume ALL responsibility for site lifting operations involving CPM products, including safe use and return of any lifting equipment supplied by CPM Group. Where available, the use of manufacturer installed lifting facilities is recommended.

7. Personal protection

Respiratory protection:
to HSE approved standard.
Hand protection:
abrasion resistant gloves.
Eye protection:
to HSE approved standard for dust goggles.
Skin protection:
overalls
Foot protection:
to BSEN 345 Safety Footwear.

8. Physical and chemical properties

Odourless shaped components of precast concrete. Other chemical properties not applicable.

9. Toxicological information

Airborne dust health effects
On eyes: may cause transient irritation.
On skin: unlikely to cause harm on brief or occasional contact.
By Inhalation:
Inhalation of large quantities of respirable silica may lead to progressive lung damage.
This may cause permanent disability and, in extreme cases, may be fatal.
By ingestion: unlikely to cause harm
Others: none known

10. Regulatory information

Hazard label data:
This product is NOT classified as dangerous for supply in the UK.
Statutory instruments:
Health & Safety at Work, etc. Act 1974

Technical Information

Product compliance

- All products unless indicated are manufactured to comply with current National Standards and specifications
- All products are manufactured to comply with BRE Special Digest 1: 2005 ‘Concrete in Aggressive Ground’.

Technical expertise

- Product drawings available in AutoCAD.
- Design advice to aid identification of potential cost savings/performance
- Advice on product use and performance
- Technical submissions for clients/specifiers for product approval.
- Hydraulic designs
- Design service for special products.
- Installation advice.
- Updates and briefings available on future changes to specifications and European Standards.
- Continual development introducing innovative products.

Product availability and delivery

- The widest product range, nationwide coverage and comprehensive stockholding to allow deliveries at short notice
- Extensive builders’ merchant network.

Contract administration and finance

- Commitment to the ‘partnering’ concept through experience gained in operating long-term framework agreements, contracts with water companies, national contractors and builders’ merchants.
- Dedicated office and field sales personnel who can be assigned to key contracts.
- Procedures for rapid dispute resolution.
- Internet and external e-mail links to facilitate quick communications.

Training

- CPD style training and presentation on product range
- Experienced staff available for on-site training and general advice.

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CPM Group Ltd, 101 Main Street, Newmains, Wishaw,
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