AJH Associates 21 Deanfield Court, Clitheroe	PRECIOUS IDEALS OAKHILL AREA 7		Revision	
	Job No:	3440	Page:	C/01
Section: SUDS drainage scheme attenuation tank size	Prepared By:	TH	Date:	18/01/2019

GENERAL DATA	
site location:	England and Wales
60 min rainfall depth of 5 year return period 'R' *[mm]* =	20
M5-60 to M5-2d rainfall ratio 'r' =	0.40
proposed discharge rate 'v_1' *[litre/s]* =	3.50
proposed discharge rate 'v_2' *[litre/s]* =	10.00
allowance for climate change:	40%

SUMMARY OF CALCULATIONS		
required storage volume for discharge rate 'v_1' =	40.85	m^3
required storage volume for discharge rate 'v_2' =	29.47	m^3

AREA DATA		impermeability *[%]*	effective area *[m^2]*
impermeable area 'A_1' *[m^2]* =	808	100.00	808
landscaping and/or green roof area 'A_2' *[m^2]* =	485	80.00	388
other partially permeable area 'A_3' *[m^2]* =	204	20.00	40.8
AREA DRAINED TO ATTENUATION TANK =	1236.8 m^2		

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v_1

rainfall duration *[min]*	rainfall factor Z1	M5-D rainfalls *[mm]*	M10-D Z2	M10-D rainfalls *[mm]*	M10-D inflow *[m^3]*	M20-D Z2	M20-D rainfalls *[mm]*	M20-D inflow *[m^3]*	M30-D Z2	M30-D rainfalls *[mm]*	M30-D inflow *[m^3]*	outflow from attenuation tank *[m^3]*	required storage *[m^3]*
5	0.37	7.47	1.20	12.59	15.58	1.38	14.47	17.90	1.46	15.24	18.85	1.05	17.80
10	0.52	10.47	1.22	17.90	22.14	1.41	20.70	25.60	1.49	21.88	27.07	2.10	24.97
15	0.63	12.67	1.23	21.82	26.99	1.43	25.29	31.28	1.51	26.77	33.11	3.15	29.96
30	0.80	16.07	1.24	27.89	34.50	1.44	32.44	40.12	1.53	34.42	42.57	6.30	36.27
60	1.00	20.00	1.24	34.72	42.94	1.45	40.60	50.21	1.54	43.21	53.45	12.60	**40.85**
120	1.21	24.13	1.24	41.90	51.82	1.44	48.71	60.25	1.54	51.86	64.15	25.20	38.95
240	1.45	28.93	1.22	49.59	61.33	1.42	57.69	71.35	1.52	61.47	76.03	50.40	25.63
360	1.60	32.07	1.21	54.49	67.40	1.41	63.38	78.39	1.50	67.51	83.49	75.60	7.89
600	1.79	35.87	1.20	60.38	74.67	1.40	70.12	86.73	1.49	74.61	92.28	126.00	0.00
1440	2.24	44.80	1.18	74.03	91.57	1.36	85.35	105.56	1.44	90.58	112.03	302.40	0.00

** Z2 is a growth factor from M5 rainfalls*

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v_2

rainfall duration *[min]*	rainfall factor Z1	M5-D rainfalls *[mm]*	M10-D Z2	M10-D rainfalls *[mm]*	M10-D inflow *[m^3]*	M30-D Z2	M30-D rainfalls *[mm]*	M30-D inflow *[m^3]*	M50-D Z2	M50-D rainfalls *[mm]*	M50-D inflow *[m^3]*	outflow from attenuation tank *[m^3]*	required storage *[m^3]*
5	0.37	7.47	1.20	12.59	15.58	1.46	15.24	18.85	1.60	16.77	20.74	3.00	17.74
10	0.52	10.47	1.22	17.90	22.14	1.49	21.88	27.07	1.65	24.25	29.99	6.00	23.99
15	0.63	12.67	1.23	21.82	26.99	1.51	26.77	33.11	1.68	29.73	36.77	9.00	27.77
30	0.80	16.07	1.24	27.89	34.50	1.53	34.42	42.57	1.71	38.38	47.47	18.00	**29.47**
60	1.00	20.00	1.24	34.72	42.94	1.54	43.21	53.45	1.73	48.44	59.91	36.00	23.91
120	1.21	24.13	1.24	41.90	51.82	1.54	51.86	64.15	1.72	58.17	71.95	72.00	0.00
240	1.45	28.93	1.22	49.59	61.33	1.52	61.47	76.03	1.70	69.03	85.38	144.00	0.00
360	1.60	32.07	1.21	54.49	67.40	1.50	67.51	83.49	1.69	75.76	93.70	216.00	0.00
600	1.79	35.87	1.20	60.38	74.67	1.49	74.61	92.28	1.66	83.60	103.39	360.00	0.00
1440	2.24	44.80	1.18	74.03	91.57	1.44	90.58	112.03	1.61	101.05	124.98	864.00	0.00

** Z2 is a growth factor from M5 rainfalls*

AJH Associates 21 Deanfield Court, Clitheroe	PRECIOUS IDEALS OAKHILL AREA 8		Revision	
	Job No:	3440	Page:	C/01
Section: SUDS drainage scheme attenuation tank size	Prepared By:	TH	Date:	18/01/2019

GENERAL DATA	
site location:	England and Wales
60 min rainfall depth of 5 year return period 'R' *[mm]* =	20
M5-60 to M5-2d rainfall ratio 'r' =	0.40
proposed discharge rate 'v_1' *[litre/s]* =	3.50
proposed discharge rate 'v_2' *[litre/s]* =	10.00
allowance for climate change:	40%

SUMMARY OF CALCULATIONS		
required storage volume for discharge rate 'v_1' =	98.08	m^3
required storage volume for discharge rate 'v_2' =	79.14	m^3

AREA DATA		impermeability *[%]*	effective area *[m^2]*
impermeable area 'A_1' *[m^2]* =	609	100.00	609
landscaping and/or green roof area 'A_2' *[m^2]* =	2112	80.00	1689.6
other partially permeable area 'A_3' *[m^2]* =	392	20.00	78.4
AREA DRAINED TO ATTENUATION TANK =			2377 m^2

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v_1

rainfall duration *[min]*	rainfall factor Z1	M5-D rainfalls *[mm]*	M10-D Z2	M10-D rainfalls *[mm]*	M10-D inflow *[m^3]*	M20-D Z2	M20-D rainfalls *[mm]*	M20-D inflow *[m^3]*	M30-D Z2	M30-D rainfalls *[mm]*	M30-D inflow *[m^3]*	outflow from attenuation tank *[m^3]*	required storage *[m^3]*
5	0.37	7.47	1.20	12.59	29.94	1.38	14.47	34.41	1.46	15.24	36.23	1.05	35.18
10	0.52	10.47	1.22	17.90	42.56	1.41	20.70	49.21	1.49	21.88	52.02	2.10	49.92
15	0.63	12.67	1.23	21.82	51.88	1.43	25.29	60.11	1.51	26.77	63.63	3.15	60.48
30	0.80	16.07	1.24	27.89	66.30	1.44	32.44	77.11	1.53	34.42	81.82	6.30	75.52
60	1.00	20.00	1.24	34.72	82.53	1.45	40.60	96.51	1.54	43.21	102.72	12.60	90.12
120	1.21	24.13	1.24	41.90	99.59	1.44	48.71	115.79	1.54	51.86	123.28	25.20	**98.08**
240	1.45	28.93	1.22	49.59	117.88	1.42	57.69	137.13	1.52	61.47	146.12	50.40	95.72
360	1.60	32.07	1.21	54.49	129.53	1.41	63.38	150.65	1.50	67.51	160.46	75.60	84.86
600	1.79	35.87	1.20	60.38	143.51	1.40	70.12	166.69	1.49	74.61	177.36	126.00	51.36
1440	2.24	44.80	1.18	74.03	175.98	1.36	85.35	202.88	1.44	90.58	215.32	302.40	0.00

** Z2 is a growth factor from M5 rainfalls*

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v_2

rainfall duration *[min]*	rainfall factor Z1	M5-D rainfalls *[mm]*	M10-D Z2	M10-D rainfalls *[mm]*	M10-D inflow *[m^3]*	M30-D Z2	M30-D rainfalls *[mm]*	M30-D inflow *[m^3]*	M50-D Z2	M50-D rainfalls *[mm]*	M50-D inflow *[m^3]*	outflow from attenuation tank *[m^3]*	required storage *[m^3]*
5	0.37	7.47	1.20	12.59	29.94	1.46	15.24	36.23	1.60	16.77	39.87	3.00	36.87
10	0.52	10.47	1.22	17.90	42.56	1.49	21.88	52.02	1.65	24.25	57.63	6.00	51.63
15	0.63	12.67	1.23	21.82	51.88	1.51	26.77	63.63	1.68	29.73	70.68	9.00	61.68
30	0.80	16.07	1.24	27.89	66.30	1.53	34.42	81.82	1.71	38.38	91.24	18.00	73.24
60	1.00	20.00	1.24	34.72	82.53	1.54	43.21	102.72	1.73	48.44	115.14	36.00	**79.14**
120	1.21	24.13	1.24	41.90	99.59	1.54	51.86	123.28	1.72	58.17	138.27	72.00	66.27
240	1.45	28.93	1.22	49.59	117.88	1.52	61.47	146.12	1.70	69.03	164.09	144.00	20.09
360	1.60	32.07	1.21	54.49	129.53	1.50	67.51	160.46	1.69	75.76	180.09	216.00	0.00
600	1.79	35.87	1.20	60.38	143.51	1.49	74.61	177.36	1.66	83.60	198.71	360.00	0.00
1440	2.24	44.80	1.18	74.03	175.98	1.44	90.58	215.32	1.61	101.05	240.21	864.00	0.00

** Z2 is a growth factor from M5 rainfalls*

calculations are based on **CIRIA C697 2007: The SUDS Manual**

AJH Associates 21 Deanfield Court, Clitheroe	PRECIOUS IDEALS OAKHILL AREA 9			
			Revision	
	Job No:	3440	Page:	C/01
Section: SUDS drainage scheme attenuation tank size	Prepared By:	TH	Date:	18/01/2019

GENERAL DATA	
site location:	England and Wales
60 min rainfall depth of 5 year return period 'R' *[mm]* =	20
M5-60 to M5-2d rainfall ratio 'r' =	0.40
proposed discharge rate 'v_1' *[litre/s]* =	3.50
proposed discharge rate 'v_2' *[litre/s]* =	10.00
allowance for climate change:	40%

SUMMARY OF CALCULATIONS		
required storage volume for discharge rate 'v_1' =	16.06	m^3
required storage volume for discharge rate 'v_2' =	10.31	m^3

AREA DATA		impermeability *[%]*	effective area *[m^2]*
impermeable area 'A_1' *[m^2]* =	420	100.00	420
landscaping and/or green roof area 'A_2' *[m^2]* =	287	80.00	229.6
other partially permeable area 'A_3' *[m^2]* =	0	20.00	0
AREA DRAINED TO ATTENUATION TANK =			649.6 m^2

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v_1

rainfall duration *[min]*	rainfall factor Z1	M5-D rainfalls *[mm]*	M10-D Z2	M10-D rainfalls *[mm]*	M10-D inflow *[m^3]*	M20-D Z2	M20-D rainfalls *[mm]*	M20-D inflow *[m^3]*	M30-D Z2	M30-D rainfalls *[mm]*	M30-D inflow *[m^3]*	outflow from attenuation tank *[m^3]*	required storage *[m^3]*
5	0.37	7.47	1.20	12.59	8.18	1.38	14.47	9.40	1.46	15.24	9.90	1.05	8.85
10	0.52	10.47	1.22	17.90	11.63	1.41	20.70	13.45	1.49	21.88	14.22	2.10	12.12
15	0.63	12.67	1.23	21.82	14.18	1.43	25.29	16.43	1.51	26.77	17.39	3.15	14.24
30	0.80	16.07	1.24	27.89	18.12	1.44	32.44	21.07	1.53	34.42	22.36	6.30	**16.06**
60	1.00	20.00	1.24	34.72	22.55	1.45	40.60	26.37	1.54	43.21	28.07	12.60	15.47
120	1.21	24.13	1.24	41.90	27.22	1.44	48.71	31.64	1.54	51.86	33.69	25.20	8.49
240	1.45	28.93	1.22	49.59	32.21	1.42	57.69	37.48	1.52	61.47	39.93	50.40	0.00
360	1.60	32.07	1.21	54.49	35.40	1.41	63.38	41.17	1.50	67.51	43.85	75.60	0.00
600	1.79	35.87	1.20	60.38	39.22	1.40	70.12	45.55	1.49	74.61	48.47	126.00	0.00
1440	2.24	44.80	1.18	74.03	48.09	1.36	85.35	55.44	1.44	90.58	58.84	302.40	0.00

** Z2 is a growth factor from M5 rainfalls*

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v_2

rainfall duration *[min]*	rainfall factor Z1	M5-D rainfalls *[mm]*	M10-D Z2	M10-D rainfalls *[mm]*	M10-D inflow *[m^3]*	M30-D Z2	M30-D rainfalls *[mm]*	M30-D inflow *[m^3]*	M50-D Z2	M50-D rainfalls *[mm]*	M50-D inflow *[m^3]*	outflow from attenuation tank *[m^3]*	required storage *[m^3]*
5	0.37	7.47	1.20	12.59	8.18	1.46	15.24	9.90	1.60	16.77	10.89	3.00	7.89
10	0.52	10.47	1.22	17.90	11.63	1.49	21.88	14.22	1.65	24.25	15.75	6.00	9.75
15	0.63	12.67	1.23	21.82	14.18	1.51	26.77	17.39	1.68	29.73	19.31	9.00	**10.31**
30	0.80	16.07	1.24	27.89	18.12	1.53	34.42	22.36	1.71	38.38	24.93	18.00	6.93
60	1.00	20.00	1.24	34.72	22.55	1.54	43.21	28.07	1.73	48.44	31.47	36.00	0.00
120	1.21	24.13	1.24	41.90	27.22	1.54	51.86	33.69	1.72	58.17	37.79	72.00	0.00
240	1.45	28.93	1.22	49.59	32.21	1.52	61.47	39.93	1.70	69.03	44.84	144.00	0.00
360	1.60	32.07	1.21	54.49	35.40	1.50	67.51	43.85	1.69	75.76	49.21	216.00	0.00
600	1.79	35.87	1.20	60.38	39.22	1.49	74.61	48.47	1.66	83.60	54.30	360.00	0.00
1440	2.24	44.80	1.18	74.03	48.09	1.44	90.58	58.84	1.61	101.05	65.64	864.00	0.00

** Z2 is a growth factor from M5 rainfalls*

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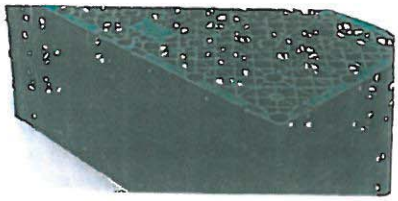
Home (/) > Polystorm Lite



Polystorm Lite

Polystorm Lite has been specifically designed for non-trafficked applications such as landscaped areas, pedestrian or public open spaces. The modular structure receives rainwater collected from the roofs or surface drains ready to release within a set drainage limit, or is wrapped in a permeable geotextile for infiltration.

Although Polystorm Lite is designed for non-trafficked applications for surface water rentention (http://www.polypipe.com/civils-and-infrastructure/water-management-solutions/surface-water-retention?s=6&c=700), surface water attenuation (http://www.polypipe.com/civils-and-infrastructure/water-management-solutions/surface-water-attenuation?s=6&c=700) or surface water infiltration (http://www.polypipe.com/civils-and-infrastructure/water-management-solutions/surface-water-infiltration-soakaway) as a soakaway solution. It has a compressive strength if up to 20 tonnes/m², meaning it is able to support general maintenance vehicles such as grass cutters.

Features & Benefits

- Compressive strength of 20 tonnes/m^2
- Ideal for retention, attenuation or soakaway applications with a suitable geomembrane or geotextile
- Designed for landscaped, pedestrian or other non-loaded applications
- BBA approved
- Visual and maintenance access can be achieved when used in conjunction with Polystorm Access & Inspect
- Can be used as part of an intelligently engineered hybrid system with Polystorm, Polystorm-R and Polystorm Xtra
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- 100% recyclable
- 50 years creep limited life expectancy

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TECHNICAL SPECIFICATION OVERVIEW

Element	Value
Product code	PSM2*
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m³
Unit weight	7kg
Unit storage volume	0.19m³ (190 litres)
Void ratio	95%
Vertical compressive strength	Maximum 200kN/m² **
Lateral compressive strength	Maximum 40kN/m² **
Short-term vertical deflection	43kN/m² per mm
Short-term lateral deflection	6.4kN/m² per mm
Maximum burial depths: Non-trafficked	2.5m***

* Each unit includes 4 Clips and 2 Shear Connectors.

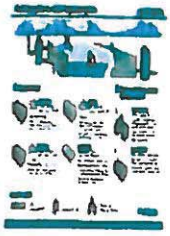
** Compressive strength at yield, maximum recommended value for design purposes.

*** Based on ground conditions being dense sand and gravel with no groundwater present, using the calculation methodology detailed within CIRIA C680 (2008). Where ground conditions differ, please consult our water management solutions Technical Department on +44 (0) 1509 615100.

Downloads

View all (https://www.polypipe.com/literature-search)

An 8 step guide to a total Polystorm system



pdf (6.03 MB)

PUMPSTOR - COMPLETE WASTE WATER AND SURFACE WATER PUMPING SOLUTIONS

- DOMESTIC AND COMMERCIAL SOLUTIONS
- FREE NATIONAL SITE VISIT

Kingspan.
Environmental

Kingspan Klargester have been leading specialists in the design and manufacture of complete off mains solutions for over 50 years, we not only manufacture our own products but also work closely with regulatory authorities and industry bodies to ensure total compliance in every component design and installation practice. Our dedicated technical team has successfully pioneered a complete off-mains solution featuring industry-leading products across the spectrum, from sewage treatment plants to oil/water separators attenuation and packaged pump systems suitable for all building projects.

Our highly qualified professional advisors provide free, expert on site assessment as well as advice on product selection and specification.

WHY CHOOSE A KLARGESTER PUMPSTOR SYSTEM?

State of the art technology. Expert advice at every stage.

Klargester pump systems are known and trusted across the industry for more reasons than one. Installed in thousands of domestic and commercial applications, they provide simple, economical pumping solutions where gravity is not an option. They are used in connection with sewage treatment plants, septic tanks, rainwater harvesting systems and surface water attenuation. They are made with the highest-quality materials and fittings and all are manufactured under the quality procedures of BS ISO 9001:2000 and HS ISO 18001. Require little or no maintenance. And, importantly, comply with Building Regulations Document H1 Foul Drainage and British Standards BS EN752, including options for 24-hour waste storage.

This booklet will give you an overview of the systems available. But to find out more or to arrange a free site visit, please contact us and we'll be happy to help.

100%

compliant with and British Standards building regulations.

200-79,000

litre chambers capacities.

FREE

national site visit - just call 01296 633033, or email helpingyou@klargester.com

COMPREHENSIVE SOLUTIONS FOR EVERY PROJECT

DOMESTIC

From basements to caravans, extensions to courtyards. If your property isn't connected to the sewer, or if it's below the sewer line, our pump systems will take care of all your water, sewage and effluent.

The system size depends on the type of waste you need to manage, your distance from the sewer and the difference in levels. They're easy to install and maintain. And they can be used in properties both on and off the mains. Prior to installation, there is a legal requirement to obtain permission from the appropriate agencies (including connection to a public sewer).

To help you find the right system for your property, our specialist team will visit to carry out a FREE site assessment. Full commissioning and service plans are available pre and post purchase from our service business, Kingspan Environmental Services.

PUMPSTOR COMPACT PUMPS

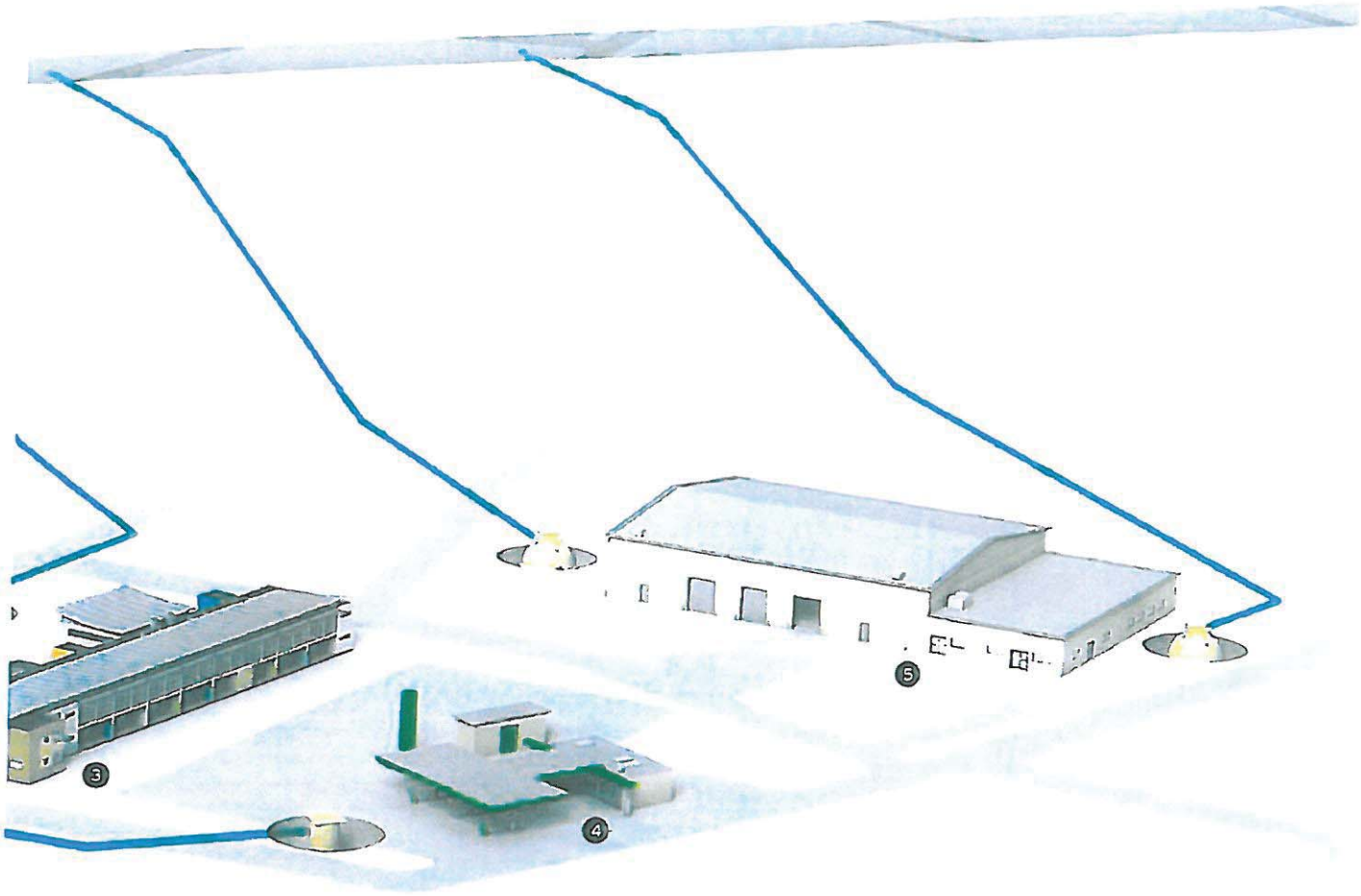
- Outbuildings
- House extensions
- Site offices (portacabins)
- Pool houses
- Small holiday lets and caravans
- Cellar/basement drainage
- Courtyards and lightwells
- Small commercial washdowns

See page 5 for details

PUMPSTOR DOMESTIC RANGE

- Domestic properties
- Small commercial offices
- Remote classrooms
- Roof and surface water

See page 6 for details



1. Housing development
2. Single domestic dwelling
3. School
4. Petrol forecourt
5. Office/Factory

COMMERCIAL

Whether you run a pub, shop or hotel, our range of commercial pump systems makes it easy to manage your sewage and waste water. Safely and efficiently.

The system size depends on the type of waste you need to manage, your distance from the sewer and the difference in levels. They require less cranage and shallower excavations than concrete pumping systems and there is no need for anyone to enter the tank during excavation and installation. Prior to installation, there is a legal requirement to obtain permission from the appropriate agencies (including connection to a public sewer).

To help you find the right system for your development or premises, our specialist team will carry out a FREE full site assessment. Full commissioning and service plans are available pre and post purchase from our service business, Kingspan Environmental Services.

PUMPSTOR COMMERCIAL RANGE

- Housing developments
- Large commercial developments
- Industrial developments
- Caravan/camping sites
- Schools
- Hotels and restaurants
- Nursing homes
- Surface water run-off
- Attenuated water

See pages 9 and 10 for details

UP TO 1000 METRES

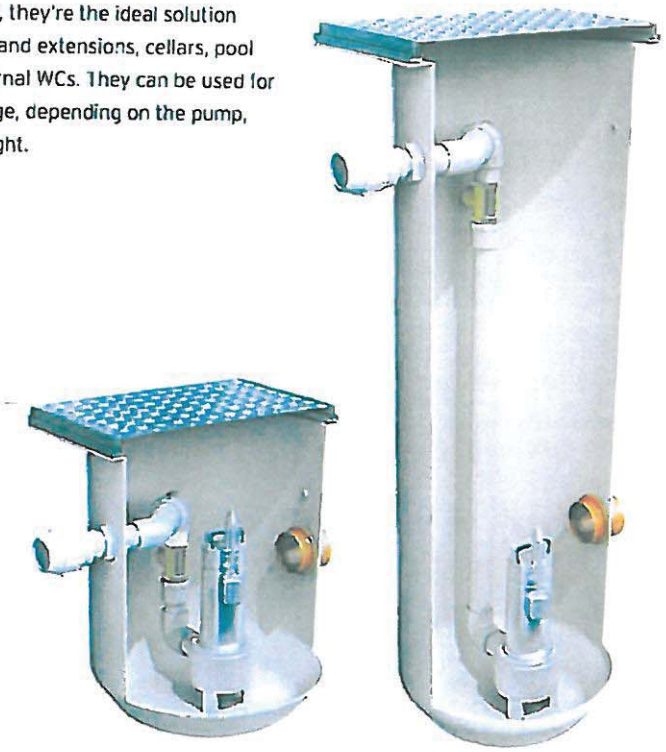
of pumping distance with our domestic systems.

All our domestic pump systems are suitable for pumping waste water effluent and sewage in accordance with BS 756-2. They're also designed in line with Building Regulations for Foul Drainage. So the system size depends on the type of waste you need to manage, your distance from the sewer and the difference in levels.

To help you select the right system, our pump experts will visit carry out a FREE site assessment. Installation is simple and full commissioning and service plans are available from our service business, Kingspan Environmental Services.

PUMPSTOR COMPACT PUMP SYSTEMS

Our proven range now includes a series of compact pump systems. Quick to install and easy to maintain, they're the ideal solution for outbuildings and extensions, cellars, pool houses and external WCs. They can be used for effluent or sewage, depending on the pump, distance and height.



Chamber Size (mm)	Capacity (ltrs)	Tank Material	Control Panel	Alarm	Pump Type
610 x 700	200	GRP	N/A	Optional	Single
560 x 1,650	400	GRP	N/A	Optional	Single

DESIGN AND FEATURES

Both compact systems consist of a GRP chamber fitted with a high quality pump, float switch, non-return valves, pedestrian duty cover and frame.

FEATURES

- Non-return valves and outlet pipe compression coupling as standard
- 3 pump options; effluent low head, effluent high head and sewage vortex
- Service and maintenance plans available to prolong the life of the pump systems
- Complete pre-fabricated solution ready for installation
- Fully automatic

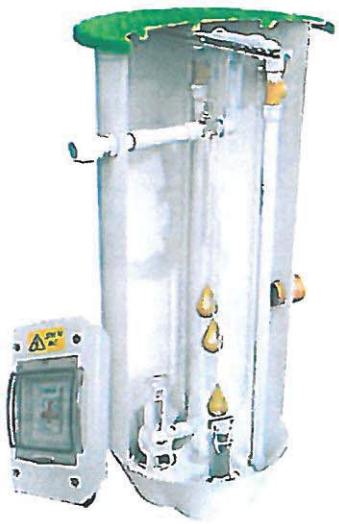
KEY FACTORS TO SIZE YOUR SYSTEM

- Application: domestic, residential or commercial?
- Material application: sewage, effluent or surface water?
- Inlet depth? (below ground level)
- Pumping distance and lift?
- Electrical supply?

Please contact Kingspan Klargester's pump team on 01296 633033 email info@klargester.com or download our Package Pump Enquiry Form from our website www.klargester.com/products/pump-stations.htm

PUMPSTOR DOMESTIC & DOMESTIC+

Our domestic pumping stations are ideal for [illegible] properties without the space, cost or time to install the more traditional gravity drainage. They provide a reliable and safe solution for foul, sewage, surface water and effluent. Appropriate for [illegible] storage requirements.



DOMESTIC

DOMESTIC+

DOMESTIC

Chamber Size (mm)	Capacity (litres)	Tank Material	Control Panel	Alarm	Pump Type
900 x 2,080	1,250	GRP	Included	Optional	Single/Twin
900 x 2,580	1,600	GRP	Included	Optional	Single/Twin

DOMESTIC+

Chamber Size (mm)	Capacity (litres)	Tank Material	Control Panel	Alarm	Pump Type
1,000 x 2,500	1,450	Polyethylene	Included	Standard	Single/Twin
1,000 x 2,500	2,200	Polyethylene	Included	Standard	Single/Twin

DESIGN AND FEATURES

Our domestic pumping stations are manufactured in [illegible] polyethylene [illegible] and have been designed to [illegible] and ease of installation. [illegible] and effluent pumping systems.

FEATURES

- Quick [illegible]
- [illegible] pipework
- [illegible]
- Easy access [illegible]
- Pumps and [illegible] pipework [illegible] Pumpstor system

PUMPSTOR DOMESTIC

- [illegible]
- Optional [illegible]

PUMPSTOR DOMESTIC+

- [illegible]
- Optional [illegible]
- Visual and audible [illegible] as standard

KEY FACTORS TO SIZE YOUR SYSTEM

- [illegible] connected
- [illegible] effluent or foul water)
- [illegible]
- Pump [illegible]
- [illegible]

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URBAN DOMESTIC CASE STUDY

A COMPLEX SEWAGE AND SURFACE WATER SYSTEM FOR A NEW BLOCK OF FLATS

When Solid Links Ltd were asked to design a sewage system for a new block of flats in London, they immediately turned to Klargester. Although the site was close to the sewer, the layout meant they couldn't rely on gravity to remove waste and they also needed to dispose of roof water.
After considering the architecture of the block, the team realised there wouldn't be room for one large pump system to dispose - and potentially store - the whole building's waste and water. So they created a complex three connection system.

The first two would be installed in habit wells and would take care of sewage. The third would be smaller, solely for rainwater not requiring 24 hour storage. Solid Links fitted the systems very early in the project's build, meaning they were all up and running long before the new residents moved in.

3

separate systems forming an efficient, robust solution.

8

high end flats.

2,400

litres of total site storage.

EMERGENCY 24 HOUR

storage with Pumpstor Commercial pump systems.

What could happen if your power supply failed and the pump stopped working? Building Regulation requirements means preparing for such an eventuality is no longer an afterthought - it's essential. Our Pumpstor high capacity series has the ability to hold waste for 24 hours. So you can comply with guidelines, safe in the knowledge that your premises are protected from overflow in an emergency.

To make sure you have the right system for your premises, our Klargester team will carry out a FREE site assessment and advise on the design and structure. Full commissioning and service plans are available, from our service business, Kingspan Environmental Services.

PUMPSTOR COMMERCIAL PUMP SYSTEMS

Our Pumpstor commercial pumping systems are ideal for developments and premises where an above ground installation. The tanks are a GRP solution for treated effluent plants, surface water and septic tanks. Tanks and pumps come in a range of sizes and configurations and to comply with Building Regulations the tanks provide a 24 hour storage capacity for foul waste.

Also available to our specification and quote your own alternative pump/tank combination. We can also offer a wide range of bespoke pre-fabricated water systems available.

Vertical Chamber Size (mm)	Capacity Up To (ltrs)	Tank Material	Control Panel	Alarm	Pump Type
1,250 Dia	4,200	GRP	Included	Standard	Single/Twin
1,800 Dia	9,500	GRP	Included	Standard	Single/Twin
2,600 Dia	21,000	GRP	Included	Standard	Single/Twin

DESIGN AND FEATURES

[illegible]

FEATURES

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

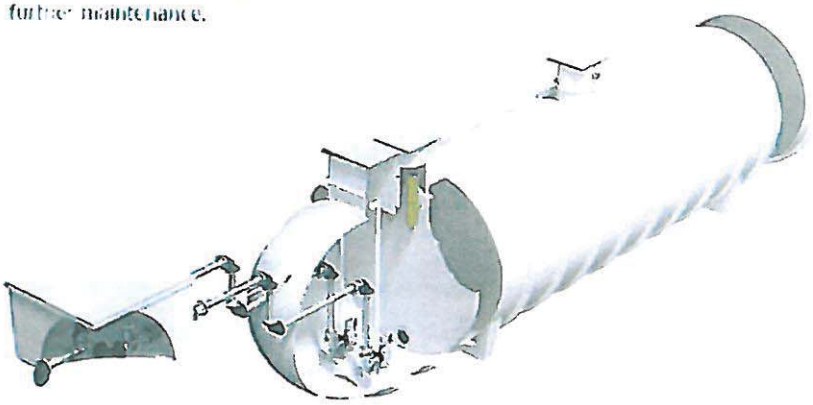
KEY FACTORS TO SIZE YOUR SYSTEM

- Application: domestic, residential or commercial?
- Mains application: sewage, effluent or surface water?
- Inlet invert (below ground level)
- Pump discharge distance and head
- Electricals supply

Please contact Kingspan Klargester's pump team on 01296 633033 email info@klargester.com or download our Package Pump Enquiry Form from our website www.klargester.com/products/pump-stations.htm

PUMPSTOR HORIZONTAL COMMERCIAL PUMP SYSTEMS

In the event of a power failure, Pumpstor Commercial responds instantly, by pausing liquids and solids intake to retain manifold and storage waste for [illegible] time power is restored. The pumps will work normally again without further maintenance.



Chamber Size (mm)	Capacity Up To (litres)	Tank Material	Control Panel	Alarm	Pump Type
2,600 Dia	79,000	GRP	Included	Standard	Single/Twin

DESIGN AND FEATURES

[illegible]

FEATURES

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

INSTALLATION & OPERATION

- [illegible]
- [illegible]
- [illegible]
- [illegible]

KEY FACTORS TO SIZE YOUR SYSTEM

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

Please contact Kingspan Klargester's pump team on 01296 633033 email info@klargester.com or download our Package Pump Enquiry Form from our website www.klargester.com/products/pump-stations.htm

COMMERCIAL CASE STUDY

HELPING A GREENHOUSE DEVELOPMENT MANAGE ITS WATER

Thanet Earth in Kent is the UK's largest and most technically complex greenhouse development. Norfolk based Bingham Hall Associates (BHA) were commissioned to manage the development's water, and they asked us to help find a solution.

After much consultation with Klargester specialists, BHA designed a system using four Klargester vertical pump stations. They also specified a 79,000 litre Pumpster tank linked to two inter-connecting 65,000 litre tanks, meaning waste could be stored for 24 hours in an emergency.

We delivered the tanks to the site all ready for installation, saving time and money in comparison with concrete chambers. All BHA had to do was connect the pumping station to the sewer - through over 2.5km of piping - and the system was ready to go.

67ha

development with seven glasshouses, an on-site pack house and a visitors centre.

210,000

litres of waste water can now be stored for 24 hours.

"We chose Kingspan Klargester pumps and storage chambers as they provided a cost effective and simple means of achieving the large storage volumes required for the waste water system. Furthermore... Kingspan Environmental's technical engineering expertise is excellent, so they were able to provide valuable advice to support the project."

Andrew Bingham, Principal at BHA

SERVICE CONTINUES

A SERVICE PLAN WILL ENSURE THE SMOOTH RUNNING OF YOUR PUMP STATION YEAR AFTER YEAR

Our service doesn't stop once the installation checklist is signed off. Whether our product is domestic or commercial, we know it's a key piece of equipment in your home. We've established a system to operate and maintain it, ensuring it continues to run as efficiently as possible. Preventative maintenance is essential to ensuring that your pump station operates effectively with the minimum amount of hassle.

With a Service Plan you can:

- **Relax:** we look after it so you don't have to
- **Save money:** experience fewer breakdowns with planned maintenance
- **Be priority:** for repair or upgrade
- **Reduce:** the call-out charge

98%

of call-outs resolved on the first visit.

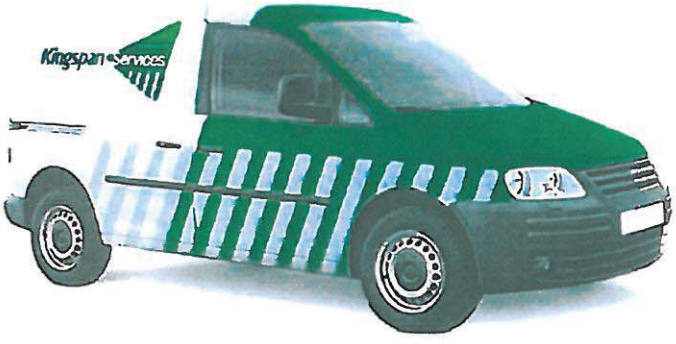
FREE

Love2Shop vouchers for homeowners when they recommend up to 5 friends.

24/7

call-out, national coverage for commercial customers.

Contact the service team for further information:
UK 0844 846 0500
IRL 048 3025 4077
info@kingspanenvservice.com



TOTALLY INTEGRATED ENVIRONMENTAL SOLUTIONS

Kingspan Environmental has been at the forefront of innovation for more than fifty years. Thought leaders in sustainability for the built environment, our 'gold standard' products feature in the world's most sustainable buildings and are tried and tested in more than 60 countries. And because we design and manufacture our own world class components, delivery is quick and reliable.

Design integrity is backed by exemplary service. Our professional designers tailor systems to any site specification while our technical experts study building plans to create a 'best-fit' solution which maximises effectiveness and meets the latest environmental standards and building codes.
Our bespoke systems are installed quickly, run easily, and are covered by market-leading warranties while on-the-road support, sales teams and accredited installers give local help and advice when you need it.

In our unique one stop shop for sustainable building, products fall into three easy to browse categories.

Kingspan Environmental

WATER MANAGEMENT SOLUTIONS
Our pioneering brands Klargester for waste water and storm water attenuation and Kingspan Water for rainwater harvesting offer a full suite of proven and sound drainage water management technologies. Kingspan Klargester's portfolio includes treatment and effluent disposal solutions

- Sewage treatment plants
- Grease separators
- Rainwater harvesting
- Stormwater attenuation
- Pump stations

RENEWABLE ENERGY SOLUTIONS
Inspired thinking is at the heart of our renewable energy offer. High performance wind turbines, solar thermal tubes and panels, hot water system energy pumps capture, store and transform natural energy from the sun, air and wind to reliable and highly efficient heating and cooling for water and buildings.

ENVIRONMENTAL MANAGEMENT SOLUTIONS
Our high performance environmental containers and the functionality of plastics technology, while our award winning tele-metry solutions offer ultra-flexible level measurement gauges and integrated energy management systems. As well as remarkable products we offer world class consultancy and environmental services, whether it's a Kingspan system or not.

Kingspan Klargester is part of
Kingspan Environmental.

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