FloPlast PVC-U Rainwater Systems

Outlet at end of Gutter Run

System	Gutter Fixed Level: Gutter Flow (litres/sec) Max flow rate	Gutter Fixed Level: Gutter Flow (litres/sec) BS 12056	Gutter Fixed Level: Roof Area (m^2) Max flow rate	Gutter Fixed Level: Roof Area (m^2) BS 12056	Gutter Fixed at 1:350 fall: Gutter Flow (litres/sec) Max flow rate	Gutter Fixed at 1:350 fall: Gutter Flow (litres/sec) BS 12056	Gutter Fixed at 1:350 fall: Roof Area (m^2) Max flow rate	Gutter Fixed at 1:350 fall: Roof Area (m^2) BS 12056
Half Round 68mm Circular Downpipe	0.92	0.82	44	40	1.17	1.05	56	50
Square Line 65mm Square Downpipe	1.70	1.53	81	73	2.00	1.80	96	86
Hi-Cap 68mm Circular Downpipe	2.05	1.84	98	88	2.56	2.30	123	111
Hi-Cap 80mm Circular Downpipe	2.25	2.02	108	97	2.79	2.51	134	121
Niagara® 65mm Square Downpipe	2.40	2.16	115	104	2.90	2.61	139	125
Niagara® 80mm Circular Downpipe	2.64	2.37	127	114	3.19	2.87	153	138
Xtraflo 110mm Circular Downpipe	4.30	3.87	206	185	6.20	5.58	297	267

Outlet at centre of Gutter Run

System	Gutter Fixed Level: Gutter Flow (litres/sec) Max flow rate	Gutter Fixed Level: Gutter Flow (litres/sec) BS 12056	Gutter Fixed Level: Roof Area (m^2) Max flow rate	Gutter Fixed Level: Roof Area (m^2) BS 12056	Gutter Fixed at 1:350 fall: Gutter Flow (litres/sec) Max flow rate	Gutter Fixed at 1:350 fall: Gutter Flow (litres/sec) BS 12056	Gutter Fixed at 1:350 fall: Roof Area (m^2) Max flow rate	Gutter Fixed at 1:350 fall: Roof Area (m^2) BS 12056
Half Round 68mm Circular Downpipe	1.80	1.62	86	77	2.60	2.34	125	113
Square Line 65mm Square Downpipe	3.41	3.06	163	147	3.95	3.55	189	170
Hi-Cap 68mm Circular Downpipe	3.80	3.42	182	164	5.00	4.05	240	216
Hi-Cap 80mm Circular Downpipe	4.18	3.76	200	180	5.50	4.95	264	238
Niagara® 65mm Square Downpipe	4.50	4.05	216	194	5.30	4.77	254	229
Niagara® 80mm Circular Downpipe	4.95	4.45	237	213	5.83	5.24	279	251
Xtraflo 110mm Circular Downpipe	8.20	7.38	393	354	11.80	10.62	566	509

The flow rates in the columns BS 12056 have been calculated in accordance with BS EN 12056-3: 2000 where 90% of full flow is used as a safety factor (freeboard).

A rainwater system is suitable in terms of performance as long as the carrying capacity of the chosen configuration exceeds the calculated run-off of rainwater from the roof.

Hoppers

Code	Hopper Flow (litres/sec) Max flow rate	Roof Area (m^2) Max Flow rate
RH1/RHS1	1.14	54.5
RH4	2.18	104.5
RH5	2.18	104.5
RHH1	1.66	79.5

Carrying Capacities for Gutter

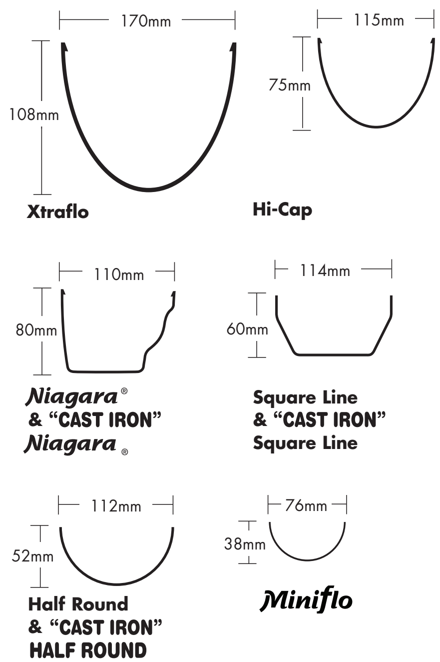
The carrying capacity of gutters varies under differing conditions. The main variables are whether or not the gutter is fitted to a fall and whether the outlet is placed in the centre or at one end of the gutter run.

Gutter flow rates will vary according to the type and configuration of downpipe system being used, however downpipe sizing is not a normal design consideration, as the downpipe systems manufactured by FloPlast have flow capacities approximately ten times greater than the gutter systems they drain.

The carrying capacities in litres per second for gutters, taking into account the major variables, are specified in the performance table on page 26.

Design Data

All gutter dimensions are nominal.



Design Factors

Building Regulations (Approved Document H) requirements.

The provisions to meet the requirements of the Building regulations 2000 (2002) are set out in Approved document H part H3.

An alternative to this requirement, is to follow the relevant recommendations of BS EN12056-3:2000 Roof Drainage, Layout and Calculation.

This document gives very comprehensive information on the calculations/design of systems in a variety of situations, and should be referred to whenever large industrial type installations are envisaged or whenever particularly severe weather conditions are expected.

Pipe Dimensions	Normal Size	Actual OD
Circular	50mm (2½")	50.3mm
	68mm (2½")	68.48mm
	80mm (3")	80.15mm
	110mm (4")	110.2mm
Square	65mm (2½")	65mm

Expansion

Tests have shown that expansion and contraction of gutter occurs during normal usage, and expansion tolerances are allowed for within our fittings.

Tests were conducted between -8°C and +40°C where an expansion of 14.63mm was experienced over a 4 metre length.

These are obvious extremes, and under normal daily temperature fluctuations expansion and contraction will be in the region of 10mm per 4 metre length.