

## Alpheus AS Regulator

### Key Features & Benefits:

- Provides sewer flow control.
- Installed on downstream (outlet) of chamber.
- Maintains flow rate during head variation.
- Aperture can be fully opened from surface.
- Robust construction in either grade 304 or 316L stainless steel.

### How We Create Value:

- Reduces downstream flood risk.
- Optimises capacity of system.
- Minimises upstream storage.
- Enables attenuation systems to be ready for next storm quickly.
- Utilisation of upstream sewer volumes.
- Reduces cost of upstream attenuation.
- Reduces 'drain down time' of attenuation systems.



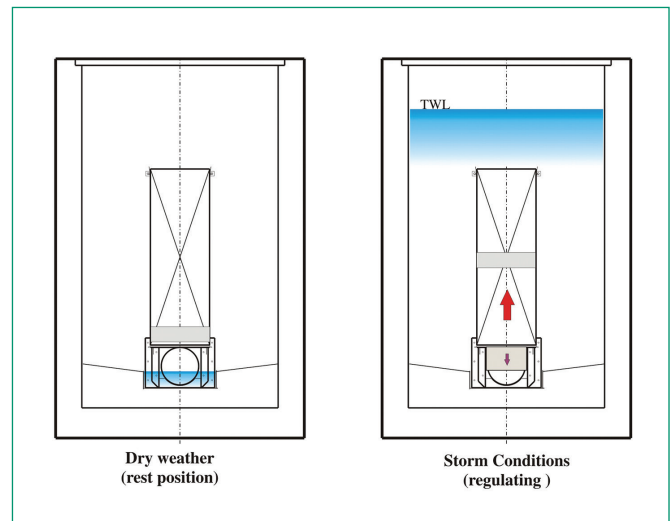
## Alpheus AS Regulator

The Alpheus AS is the standard mechanical regulator. This unit does not require external power sources and is manufactured from high quality stainless steel for a durable life. This unit is installed on the chamber outlet (wet Installation), and can be installed in new construction or retro fitted within existing chambers.

### Operation:

During dry weather the aperture is open and the internal control float is at rest inside the unit.

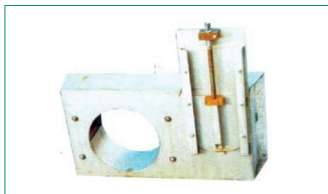
During storm conditions, the water level rises causing the internal float to rise, this in turn transmits this movement to the aperture shutter, which reduces the area of orifice limiting the pass forward flow (PFF) to the designed rate.



### Installation into Circular Chambers:

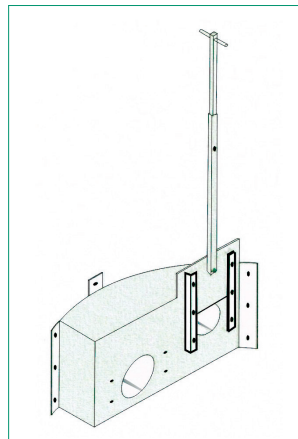
The Alpheus Flow regulator can be installed in circular pre-cast chambers of suitable size. The chamber size will be dependent upon the size of flow control and if a by-pass arrangement is required.

A vertical flat surface is required for the mounting of the flow regulator; this can be provided by either casting a vertical concrete wall within the chamber, or Jacopa can provide a stainless steel adapter plate, manufactured to the curvature of the chamber. These adapter plates can be provided to mount the flow control only, or to include a by-pass penstock. The stainless steel adapter plates can also be manufactured with an emergency overflow at the required level.

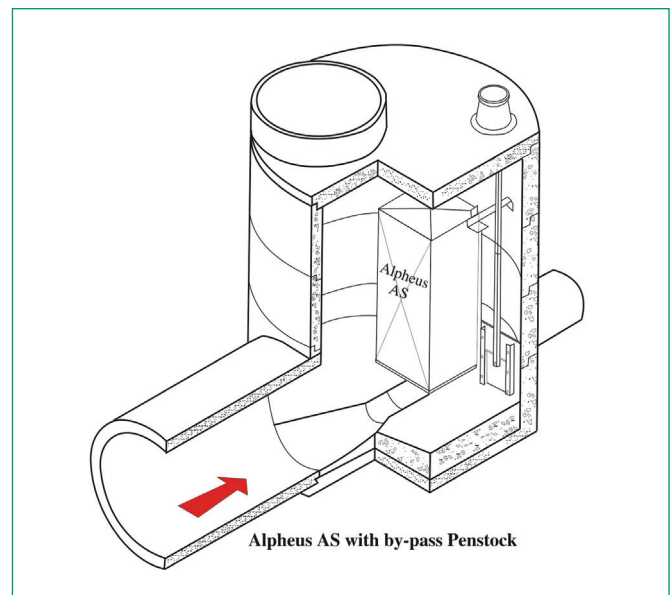


### Typical Manhole Installation:

The Alpheus AS unit is shown installed using an adapter plate incorporating a by-pass penstock.



The by-pass penstock is commonly required on units fitted within the foul sewer systems, and is used to reduce the water level in case maintenance of the unit is required.



## Alpheus AS Regulator

### Design Flow:

The size of the standard AS flow regulator is calculated from the table below:-

It is recommended that a minimum size of 200 mm diameter is required for use in foul systems.

### Adjustment of Flow:

The AS unit is designed for the specific design point required; however, if necessary the unit can be adjusted by  $\pm 20\%$  by internal adjustment of

Nominal Size DN	Maximum Head m	Flow		S.W.	Foul
		From l/s	To l/s		
100	4	2	10	Yes	No
150	4	7	26	Yes	No
200	4	10	48	Yes	Yes
250	4	20	82	Yes	Yes
300	4	35	128	Yes	Yes
350	4	60	185	Yes	Yes
400	4	80	256	Yes	Yes
450	4	140	340	Yes	Yes
500	4	210	438	Yes	Yes
550	4	300	550	Yes	Yes
600	4	370	680	Yes	Yes
650	4	450	820	Yes	Yes
700	4	540	980	Yes	Yes
750	4	650	1170	Yes	Yes
800	4	760	1370	Yes	Yes
850	4	890	1590	Yes	Yes
900	4	1020	1830	Yes	Yes
950	4	1170	2090	Yes	Yes
1000	4	1330	2400	Yes	Yes

the connecting rod. For Example a flow regulator manufactured for 50 l/s can be adjusted between 40 and 60 l/s by this method.

If an adjustment is required outside of this internal modification, then a new control cam can be supplied and installed.

The following information is required for replacement cam:

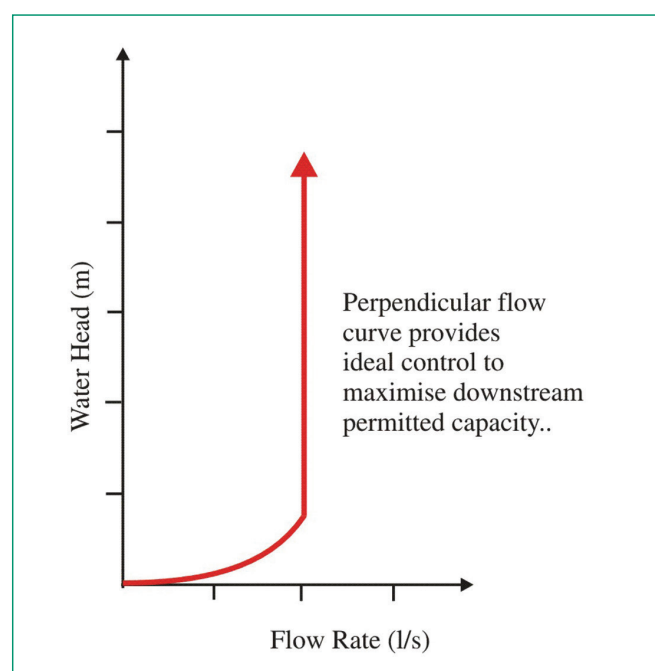
1. Serial Number of unit.
2. New design flow.
3. Maximum head of water to be controlled.

### Flow Characteristics:

The Alpheus AS unit is mostly supplied to provide a constant Pass Forward Flow (PFF) downstream. This maximises the downstream permissible capacity and minimises upstream retention; both volume and retention time.

This gives a head discharge detail as shown in **Fig 1**.

However, in some instances, it can be desirable to allow the debris from the **first flush** to pass by the flow control before limiting the PFF.

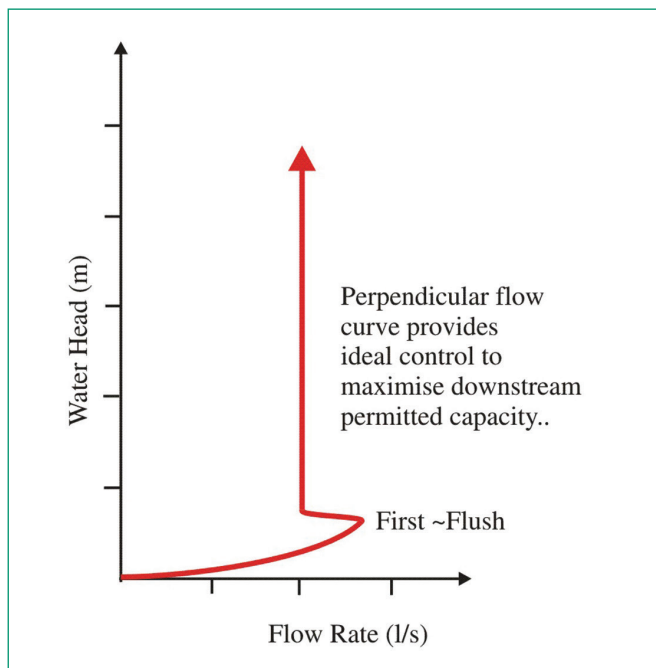


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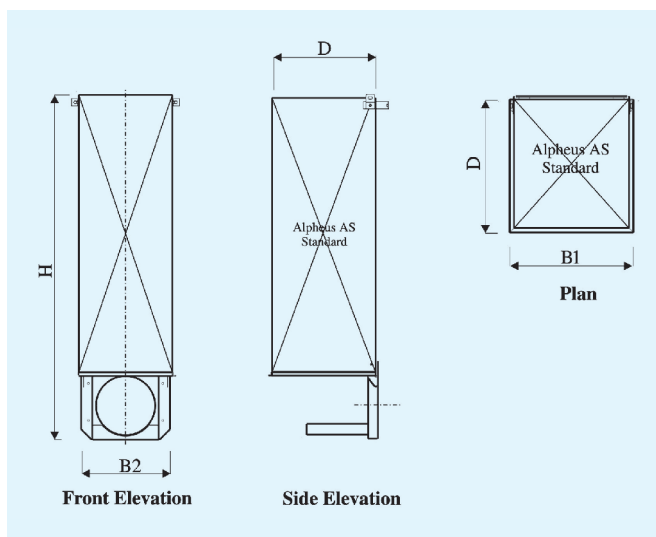
This is particularly the case where the sewer gradient is slack and is contributing to debris sedimentation within the approach sewer, or the PFF required during a storm event is relatively low (10 to 20 l/s).

In this case the aperture is kept open until the downstream sewer reaches full bore, then the internal float starts to rise, and the control commences. This provides a head / discharge detail as follows in **Fig 2**.

First Flush ability allows the immediate rush of debris to pass forward before the regulator takes over control. This can be particularly useful at CSO chambers to enable gross solids to pass forward before the system surcharges and overflows.



### Dimensions of Standard AS units:



Nominal Size DN	H Standard Model mm	Width		D mm	Weight Kg
		B 1 mm	B 2 mm		
100	1230	690	442	414	65
150	1280	880	442	414	65
200	1330	990	442	414	65
250	1580	1140	492	488	90
300	1830	1290	542	563	110
350	2080	1440	592	637	140
400	2330	1590	682	733	180
450	2580	1740	732	807	220
500	2830	1890	782	883	260
550	3080	2040	872	978	300
600	3330	2190	922	1053	350
650	3580	2340	974	1162	400
700	3730	2490	1024	1237	450
750	3780	2640	1074	1312	500
800	3830	2790	1124	1387	550
850	3880	2940	1174	1462	630
900	3930	3090	1224	1537	680
950	3980	3240	1274	1612	730
1000	4030	3390	1324	1687	780



## Alpheus AS Regulator (Low Head)

Nominal Size DN	Maximum Head m	Flow		S.W.	Foul
		From l/s	To l/s		
100	1.5	2	10	Yes	No
150	1.5	7	26	Yes	No
200	1.5	10	48	Yes	Yes
250	2	20	82	Yes	Yes
300	2	35	128	Yes	Yes
350	2	60	185	Yes	Yes
400	2	80	256	Yes	Yes
450	2	140	340	Yes	Yes
500	2	210	438	Yes	Yes
550	2	300	550	Yes	Yes
600	2	370	680	Yes	Yes
650	2	450	820	Yes	Yes
700	2	540	980	Yes	Yes
750	2	650	1170	Yes	Yes
800	2	760	1370	Yes	Yes
850	2	890	1590	Yes	Yes
900	2	1020	1830	Yes	Yes
950	2	1170	2090	Yes	Yes
1000	2	1330	2400	Yes	Yes

Where the depth of chamber is shallow, a 'Low Head' version of the AS regulator is available. This is a comparable range to the 'Standard', but the controlling head is reduced to a maximum of 2 m.