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Challis Water Controls  
Office and Showroom  
Europower House  
Lower Road  
Cookham  
Maidenhead  
Berkshire SL6 9EH  
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## Low mains pressure? Low flow problems?

Too many outlets and not enough flow? Want to pump directly off the mains? Limited space? Limited budget? No room for large expensive pump set and break tank?

Want a low cost solution to poor pressure and poor flow problems?

As water utilities companies across the UK reduce their supply water pressures down to as little as 1 bar a problem that many householders and builders are now facing is reduced dynamic pressure and flows which in some cases can result in complete failure of the supply at times of peak demand.

The Challis Booster system acts as your own mini mains pumping station and reservoir resuscitating your system.

### How Challis Booster Works

As water utilities companies across the UK reduce their supply water pressures down to as little as 1 bar or demand in certain areas outstrips available supply capacity, a problem that many householders and builders are now facing is reduced mains water dynamic pressure and flows which in some cases can result in complete failure of the supply at times of peak demand.

The best way to describe the Challis Booster is like a battery storage system but for water. The Challis Booster system takes high pressurized water from the mains supply at times of low demand and stores it in an accumulator vessel under pressure.

The Accumulator is basically an expansion vessel that is installed open to the incoming mains water supply. It has an internal butyl diaphragm that expands as it fills with water from the mains. It will stop filling when the pressure within the vessel is equal to the available mains pressure. If the mains pressure rises the pressure in the accumulator rises. A double check valve on the mains supply prevents any loss of pressure.

When any taps within the dwelling are opened, the water from the accumulator supplements the water drawn from the mains. The effect of this is stable pressure and flow to all taps with minimal drop off when more than one tap/ outlet are opened simultaneously.

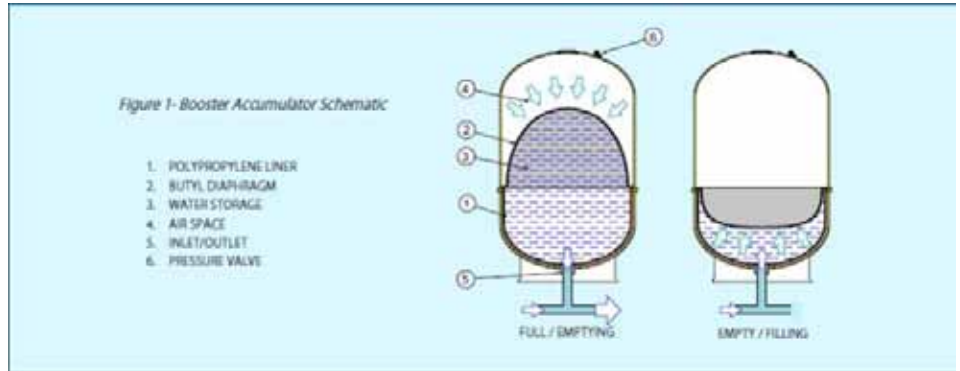
The accumulator has an air space above the diaphragm, the air pressure within this space is important to the efficiency of the Booster system and is set to optimum pressure via a pressure valve on top of the vessel. A Booster system can have one or more accumulators to satisfy demand.

This high pressurized water in the accumulator can then be used at times of high demand to provide plenty of flow and pressure whilst other homes are having to cope with low flow and low pressure.

In real terms The Challis Booster system acts as your own personal mini mains pumping station and reservoir resuscitating your system.

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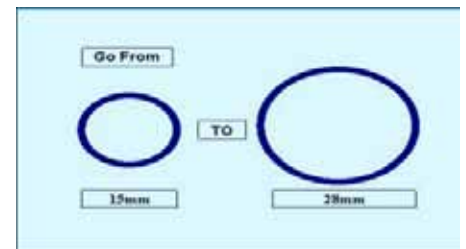
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### LOW Mains water flow rate or volume?

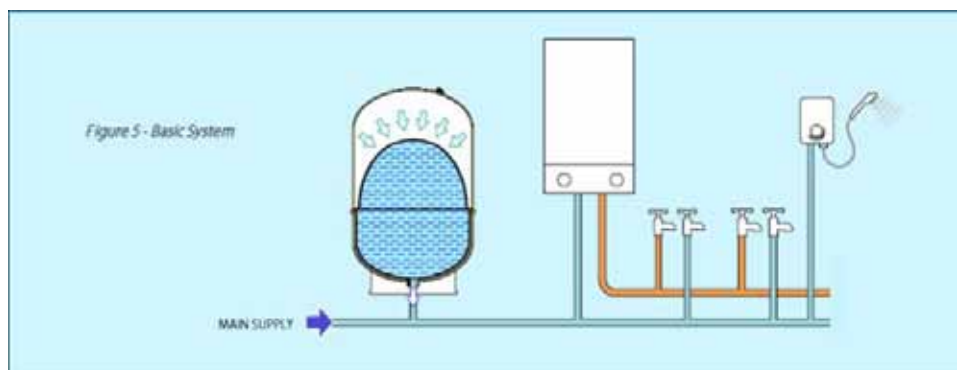
If you were to add a new en suite bathroom or an extension to your property your current mains supply pipework may not physically be able to supply the increased amount of water required. The only solution to this problem is to replace the mains supply pipework with a larger diameter. This option could be very expensive. Our solution is to fit a Challis Booster providing you with your own pumping station and more importantly your own RESERVOIR. With your own pressurized reservoir you can fit a larger diameter pipe to the outlet thus increasing the supply capacity to cope with extra bathrooms easily.

Fitting a CHALLIS BOOSTER system on to an incoming 15mm mains supply in will enable you to fit up to 28mm coming out of the CHALLIS BOOSTER cylinder into the property significantly increasing the flow to all outlets.



### Typical Booster System

Figure 5 shows a basic simple system with accumulator supplementing the cold supply. The system has cold feed to a combi boiler, cold taps, hot taps and mains fed electric shower. All outlets will have stable pressure and flow regardless of how many are in use.

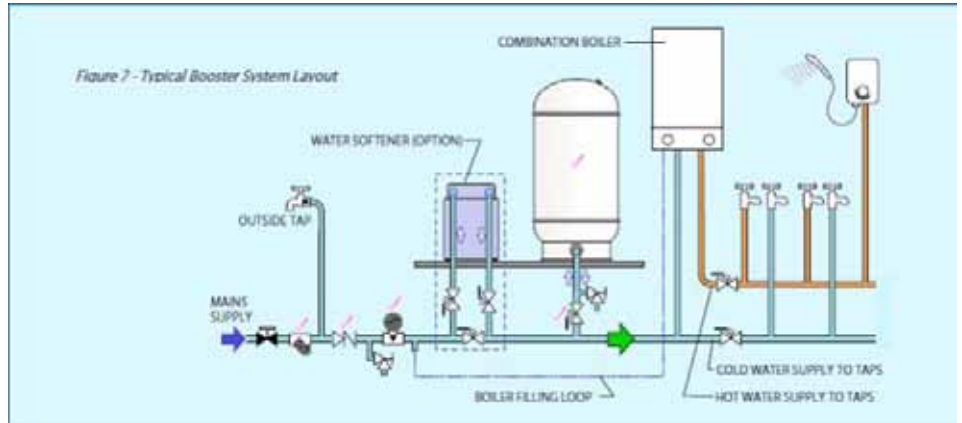




# CHALLIS BOOSTER

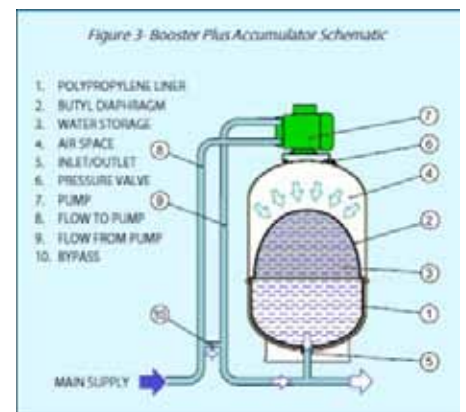
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## How Challis Booster Plus Works

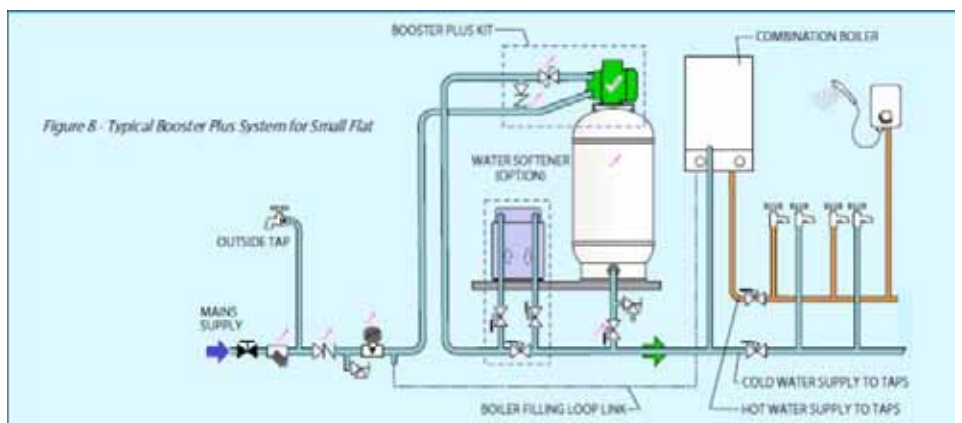
If your mains water pressure is too low to fill the Challis Booster cylinder effectively you can fit a Challis Booster CHARGER. The Booster Plus system incorporates a pump unit mounted on top of the accumulator. The pump control reacts to the water mains pressure so that when the mains pressure is low the pump runs to draw water from the mains. This results in a higher pressure being maintained in the buildings cold water supply than that available from the mains.

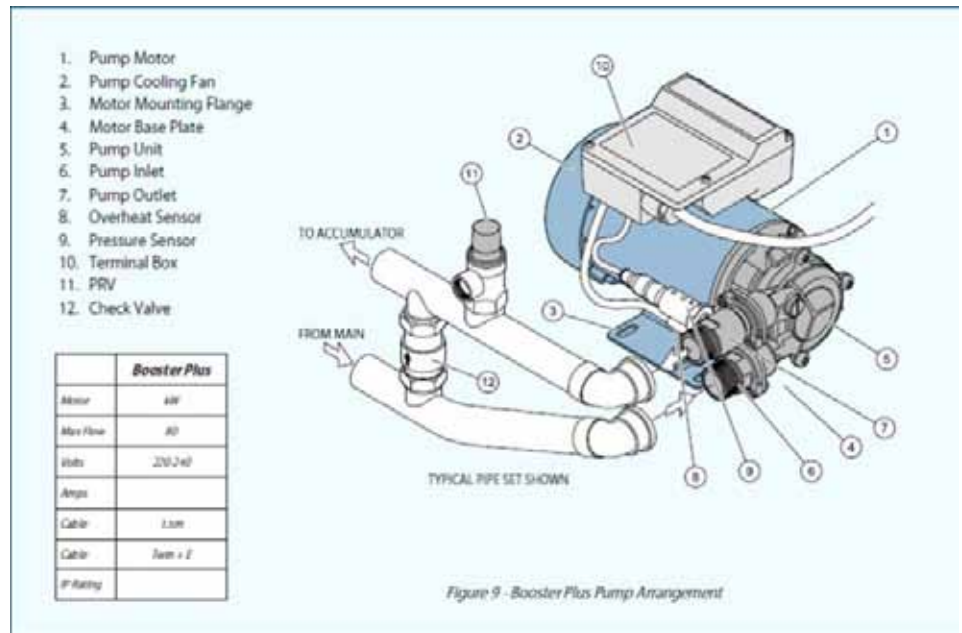


A full bore pump bypass is fitted which enables the incoming water supply to directly fill the accumulator and/or feed the cold supply when ample pressure is available.

Fitting a CWC Booster Plus will enhance the performance of the water services including unvented hot water cylinders, combination boilers, electric showers and mixer showers.

When a Booster Plus system has more than one accumulator only one pump is required, mounted on the first in the set.





## Benefits

- Pumps directly off the incoming mains supply.
- Reduced space requirement
- Reduced running costs
- Reduced installation costs
- No requirement for expensive break tank & pump set
- Dramatically boosts flow and pressure to every outlet
- Constant flow & pressure even at times of high demand
- Modular system storage units can be sized & placed near to outlets or around property easily increasing capacity to meet any increase in demand
- No maintenance
- Quick recovery time
- Your properties own reservoir and pumping station independent of mains supply
- Improves the performance of unvented cylinders, combi-boilers, showers etc
- Sealed system no anti Legionella tank cleaning required
- No overflow required
- If demand changes units can be added or removed to suit
- Only cuts in when mains pressure is insufficient
- Energy saving bypass kit available not every litre pumped
- Acts as water hammer shock arrestor
- Quick fit choice of steel or ultra light cylinders for quick & easy installation
- Cost effective, simple to install without building disruption
- Complete with quality in-line mains kit in various sizes
- WRAS approved and water regulations compliant
- Reliability & dependability
- 5 year no touch guarantee
- Available with water conservation showers & taps doubles available capacity
- Eco friendly
- Quiet operation
- Dry run & temperature cut off

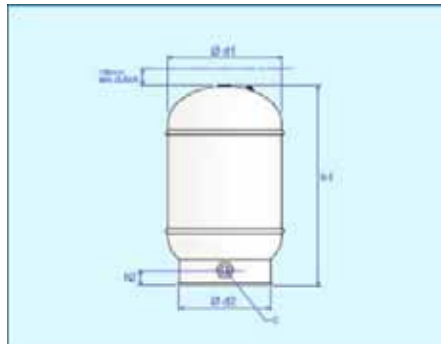


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## Accumulator Specification Challis Boost



| Unit  | Vol<br>litres | h1<br>mm | h2<br>mm | ød1<br>mm | ød2<br>mm | c<br>BSP | Weight<br>Empty<br>kg | Max*<br>Weight<br>kg |
|-------|---------------|----------|----------|-----------|-----------|----------|-----------------------|----------------------|
| CB60  | 60            | 570      | 48       | 410       | 325       | 1"       | 13                    | 75                   |
| CB80  | 80            | 750      | 48       | 410       | 325       | 1"       | 16                    | 100                  |
| CB100 | 100           | 890      | 48       | 410       | 325       | 1"       | 19                    | 120                  |
| CB130 | 130           | 1100     | 48       | 410       | 325       | 1"       | 23                    | 155                  |
| CB170 | 170           | 940      | 56       | 535       | 430       | 1¼"      | 30                    | 200                  |
| CB240 | 240           | 1210     | 56       | 535       | 430       | 1¼"      | 37                    | 280                  |
| CB310 | 310           | 1500     | 56       | 535       | 430       | 1¼"      | 46                    | 380                  |
| CB450 | 450           | 1530     | 56       | 535       | 430       | 1¼"      | 70                    | 525                  |

Note: \*Max Weight should be used for floor loading calculations.

### Challis Booster UNIT

| Product<br>Code | Recommended application |         |                 | Demand<br>Characteristic |
|-----------------|-------------------------|---------|-----------------|--------------------------|
|                 | Bedrooms                | Baths   | Showers         |                          |
| CB60            | 1 Bed                   | 1 Bath  |                 | Low demand               |
| CB80            | 1 Bed                   | 1 Bath  |                 | Medium demand            |
| CB100           | 1 Bed                   | 1 Bath  |                 | High demand              |
| CB130           | 1-2 Bed                 | 1 Bath  | En Suite shower | Low demand               |
| CB170           | 1-2 Bed                 | 1 Bath  | En Suite shower | Medium demand            |
| CB240           | 1-2 Bed                 | 1 Bath  | En Suite shower | High demand              |
| CB310           | 2-3 Bed                 | 1 Bath  | 1 shower        | Medium demand            |
| CB450           | 3/4 Bed house           | 2 Baths | 2 showers       | Medium demand            |

n.b: for higher demand a second accumulator can be added  
For commercial application multiple accumulators may be added to meet peak demand requirement.



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## Accumulator Specification Challis Booster Plus



| Unit   | Vol<br>litres | h1<br>mm | h2<br>mm | h3<br>mm | ød1<br>mm | ød2<br>mm | c<br>BSP | Weight<br>Empty<br>kg | Max*<br>Weight<br>kg |
|--------|---------------|----------|----------|----------|-----------|-----------|----------|-----------------------|----------------------|
| CB+60  | 60            | 570      | 48       | 740      | 410       | 325       | 1"       | 13                    | 75                   |
| CB+80  | 80            | 750      | 48       | 920      | 410       | 325       | 1"       | 16                    | 100                  |
| CB+100 | 100           | 890      | 48       | 1060     | 410       | 325       | 1"       | 19                    | 120                  |
| CB+130 | 130           | 1100     | 48       | 1270     | 410       | 325       | 1"       | 23                    | 155                  |
| CB+170 | 170           | 940      | 56       | 1110     | 535       | 430       | 1¼"      | 30                    | 200                  |
| CB+240 | 240           | 1210     | 56       | 1180     | 535       | 430       | 1¼"      | 37                    | 280                  |
| CB+310 | 310           | 1500     | 56       | 1670     | 535       | 430       | 1¼"      | 46                    | 380                  |
| CB+450 | 450           | 1530     | 56       | 1700     | 535       | 430       | 1¼"      | 70                    | 525                  |

Note: \*Max Weight should be used for floor loading calculations.

### Challis Booster PLUS UNIT

| Product<br>Code | Recommended application |         |                 | Demand<br>Characteristic |
|-----------------|-------------------------|---------|-----------------|--------------------------|
|                 | Bedrooms                | Baths   | Showers         |                          |
| CB+60           | 1 Bed                   | 1 Bath  |                 | Low demand               |
| CB+80           | 1 Bed                   | 1 Bath  |                 | Medium demand            |
| CB+100          | 1 Bed                   | 1 Bath  |                 | High demand              |
| CB+130          | 1-2 Bed                 | 1 Bath  | En Suite shower | Low demand               |
| CB+170          | 1-2 Bed                 | 1 Bath  | En Suite shower | Medium demand            |
| CB+240          | 1-2 Bed                 | 1 Bath  | En Suite shower | High demand              |
| CB+310          | 2-3 Bed                 | 1 Bath  | 1 shower        | Medium demand            |
| CB+450          | 3/4 Bed house           | 2 Baths | 2 showers       | Medium demand            |

n.b: for higher demand a second accumulator can be added  
These are only recommendations and should be used as a guide only as pressure, flow, usage and demand all effect the sizing of accumulator requirement.



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## Accumulator Features

- Patented CAD2 diaphragm technology
- NSF Standard 61, CE/PD, WRAS, ACS, ISO-9001, Gost approved
- Stainless steel water connection
- Condensation reducing design
- Two part polyurethane, epoxy primed paint finish
- Leak free air valve cap sealed with closed cell foam
- Finish: two part polyurethane over epoxy undercoat
- Maximum working temperature 90°C
- Maximum working pressure 10 bar

## Systems Available

### Booster Pack

|              |      |      |       |       |       |       |       |       |
|--------------|------|------|-------|-------|-------|-------|-------|-------|
| Booster Pack | CB60 | CB80 | CB100 | CB130 | CB170 | CB240 | CB310 | CB450 |
| Accumulator  | CB60 | CB80 | CB100 | CB130 | CB170 | CB240 | CB310 | CB450 |

### Booster Fittings Pack

| Fittings Kit               | CB22           | CB28            |
|----------------------------|----------------|-----------------|
| Basic Size                 | 22 mm / 1" BSP | 28 mm / 1¼" BSP |
| Y Line Strainer            | Qty 1          | Qty 1           |
| Check Valve                | Qty 1          | Qty 1           |
| Pressure Reducing Valve    | Qty 1          | Qty 1           |
| Full Bore Isolation Valves | Qty 2          | Qty 2           |

### Booster Plus Fittings Pack

| Fittings Kit               | CB22+          | CB28+           |
|----------------------------|----------------|-----------------|
| Basic Size                 | 22 mm / 1" BSP | 28 mm / 1¼" BSP |
| Y Line Strainer            | Qty 1          | Qty 1           |
| Check Valve                | Qty 1          | Qty 1           |
| Pressure Reducing Valve    | Qty 1          | Qty 1           |
| Full Bore Isolation Valves | Qty 2          | Qty 2           |
| Pump Set                   | Qty 1          | Qty 1           |
| Pump Base Plate            | Qty 1          | Qty 1           |