

UNDERSTANDING CERAMIC DISC MIXERS AND WATER PRESSURES

There are 3 main types of plumbing configurations in Australia.

1. Instantaneous Hot Water Systems. - Mains cold water to an instant heating unit produce a flow pressure averaging 100kpa.
2. Unequal pressure (very common in SA). – Often called “low pressure” or “gravity fed”. This system will have a low pressure copper hot water cylinder normally in the ceiling which delivers between approx 60 – 100kpa water pressure. The cold will be ex the mains. The absolute minimum working pressure for ceramic disc sink and basin mixers with a 40mm diameter cartridge is 7.6m or 7.5psi / 50kpa. Extractable spray mixers and concealed shower mixers require greater pressure again for acceptable flow rates. Generally ceramic disc mixers will perform poorly on unequal pressure systems. Typically there will be little or no hot water output, as the higher cold pressure over-rides the low hot supply. In extreme cases cold water will push its way through the hot system to the header tank. It should be noted that all installations of concealed shower mixers on unequal systems should be fitted to a single function fixed shower rose. The new WELS reduced flow rates will affect flows.
3. Mains equal pressure - Water storage systems (Hot Water Units, rural pump units). This accounts for 80% of Australian installations. The hot water is supplied through either a gas or electric fired mains cylinder and the resulting hot and cold pressures will operate at approximately daytime “peak” pressure of 450 - 600kpa (“Mains Pressure”). These systems attached to water boards at night time, “off peak”, can increase pressure 20 – 40% depending on the locality. Equal mains pressure systems are typical throughout all states. Ceramic disc mixers are generally designed to perform well on this type of system. The complete range of European sourced tapware will work in these installations.

DR Brass – Components in Australian / New Zealand Tapware

- a. It should be noted that the high mineral content of domestic water supply in Australia will corrode any non Australian Standard imported high copper brass component. This is why the AS/NZS 3718 Standard specifies the use of DZR alloy (DR Brass) on certain flow through parts. A symptom of “brass rot” is water leakage from hidden spout joins or tap bodies. All required Brewers tapware contemporary is made from DR brass.

In-Line Mixer Tap Filters

- b. In installations, in-line filters may be necessary on the water supply lines to prevent grit damaging ceramic discs. Damaged ceramic discs will cause mixers to drip and not be covered by warranties. Brewers offer stop taps (isolating taps) with in-line filters fitted – product code: IT.

Water Pressures on Showers, Mixers and Tapware

- c. For new installations and large refits to existing homes, Australian Standards (AS/NZS 3500:2003 Clause 3.3, 3.4) and the Plumbing code of Australia now demands that the maximum water pressure from any outlet to be no more than 500kpa, therefore it is necessary to fit pressure limiting valves.
- d. Older homes depending on the plumbing configuration operate at pressures as detailed below and therefore can operate at various pressures.

Important operating notes:

- e. **Showers**
Some showers with nominal flow rates of less than 7.5 litres per minute (lpm) may not provide an effective shower when used with gravity fed heated water services, or where pressures at the outlet is less than 150kpa. Recommended water pressure is from 150kpa – 500kpa for non massage function showers and 400kpa – 600kpa for massage function showers. Max operating temperature is 60°C. Brewers shower therapy showers are fitted with a WELS compliant max flow regulator. This flow rate may not be suitable for use with gravity fed hot water heaters, low pressure supply networks or some instantaneous hot water heaters.

The maximum water pressure required to operate each showertherapy shower is detailed in each page of our shower brochure.

f. Mixers

As a general rule the absolute minimum working pressure for ceramic disc sink and basin mixers with a 40mm diameter cartridge's 7.5psi / 50kpa. Most Brewer ceramic disc mixers are factory tested to 1000kpa (150psi). For best performance and longer life we recommend 100 – 650kpa (15psi). On high pressure systems where the pressure exceeds the above recommendation – limiting valves must be installed. If the daytime water pressure ("peak" pressure) is tested to be around 600kpa on existing installations, a pressure limiting valve must be installed as night time ("off peak") pressure may double.

Please note, Brewer EI mixers which cover sink, basin and vegie-spray styles are tested and rated to 2000kpa and recommended to operate at 1500kpa, as special high pressure ceramic disc cartridges are fitted.

g. Tapware

Jumper valve operated tapware and ceramic disc tapware operate with a minimum working pressure of 50kpa and maximum working pressure of 1000kpa. For best performance and longer life, we recommend 100 – 650kpa, just like our mixers.