

## BRAIDED FLEXIBLE HOSE ASSEMBLIES FOR PLUMBING & HEATING – AN UNDERSTANDING & EXPECTATIONS



### HISTORY

Braided flexible hose assemblies have been in use for decades and are frequently used in domestic and commercial applications in plumbing and heating to name just two areas of use. Common domestic uses include fitment under sinks and basins, supply to toilet cisterns, baths and on hard piping to compensate for miss-alignment or to allow for movement. In commercial applications the braided flexible hoses are used for applications such as connection of fan coils, chilled ceiling units and for general expansion of hard piped systems. Other applications are possible subject to the hose specification and performance meeting the requirements of the system.

### CONSTRUCTION



The construction of a typical braided flexible hose assembly is generally based around a liner or tube, with an outer wire reinforcement. The purpose of the liner is to provide a suitable method and material for conveyance of the medium from point A to point B. The liner is normally unreinforced and not capable of withstanding the operating pressure of the system in to which it is installed. The strength and pressure capability for the assembly is provided by the external reinforcement which is normally made up of multiple strands of stainless steel wire braids. There are no international standards that cover the actual construction with regards to all of the materials of a hose assembly for domestic applications however the liners can be covered by various bodies such as WRAS, DVGW etc for potable water applications, whilst the BSRIA BG4-2004 Standard is an optional standard that is recognised and applicable to some hoses used in the commercial sector.

### RESISTANCE



The stainless steel braid whilst offering some protection to external factors is not impervious to everything despite the common misconception that stainless steel resists all. In reality all grades of stainless steel will suffer from corrosion if it is subjected to contamination with the speed and extent of corrosion depending on the grade of stainless steel and the actual contaminant. Stainless steel, which is steel with chromium added, is called “stainless” because it resists reaction with oxygen. Thus, it will not “rust” the way steel does when exposed to air. However, it will react with other chemicals. Chlorine is one of those chemicals. Chlorine dissolves in atmospheric water (humidity) and forms hydrochloric acid, which is highly corrosive. The hydrochloric acid reacts with the stainless steel, breaching the surface of the stainless steel. Other chemicals such as flux, cleaning agents etc are also likely to attack the stainless steel. Prolonged exposure is likely to result in a failure of the hose assembly as the wire braids corrode and subsequently fail. Sources for the introduction of these chemicals can be from the initial installation or commissioning, to the operating and cleaning methods used during the operational life of the hose assembly. All necessary precautions should be taken to avoid their introduction and contamination of the hose.



### LIFE SPAN

With all hoses there are many variables that will have a bearing on the life of the product and it is difficult to define accurately how long a hose will last but typically a life of five to ten years should not be uncommon but that will depend on the environment and conditions in which it is operating so regular inspections should be carried out for signs of damage or corrosion. If there is any suspicion that the hose is not as it should be it is advisable to replace it immediately. To ensure that a hose assembly's life span and operating ability is not impeded it is important to ensure that it is fitted correctly and that it is not under any stress or subject to abrasion (rubbing). In cases where hose have been fitted incorrectly any warranty will be null and void.

### DIFFERENCES

Despite their similar appearance there are fundamental differences between the domestic and commercial types of hoses which if used incorrectly could result in failure. Generally the domestic hoses are manufactured to a price and are of a lower quality than those used in commercial applications, but still meet the performance requirements required in a domestic application. Ensure that the correct type of hose is used for an application if in doubt seek advice.

Please note that different manufacturer's products are likely to vary in performance and build standards.