

### Introduction

Standard **sprinkler heads** are manufactured from brass. While brass is considered suitable for interior use and will normally give long and trouble-free service it is less suitable for external use or where the atmosphere may be corrosive, contains salt, ammonia, chloride vapours or cleaning solutions. Sprinklers can be chrome plated or painted to any customer specific colour - RAL. However these finishes are intended for cosmetic appearance only and should **not** be used to protect against corrosion.



Standard **water spray nozzles** are generally manufactured from DZR (**d**e**z**incification **r**esistant) brass (see specific data sheets for detailed specification), with the exception of those nozzles which are based on standard sprinkler frames; these are made from plain brass. DZR-brass is essentially a leaded arsenical (As) brass with a duplex structure formulated to inhibit the selective dissolution of zinc caused by contact with various types of water, including sea water.



### Chrome Plating

Chrome plating of a sprinkler head frame and deflector is mainly for cosmetic appearance, but also provides some protection against corrosion.

### Powder Coat Painting

The painting of sprinkler head frames and deflectors is purely for cosmetic appearance and offers no significant protection against corrosion.

### Electroless Nickel Plating (ENP)

ENP is considered a good protection for sprinkler frames or water spray nozzles which may be exposed to mildly corrosive atmospheres such as salt-laden air near the sea. The ENP coating is applied by chemical reduction to provide plating thickness uniformity to the sprinkler frame, to the deflector and to the components of the bulb seat.

### Nedox Plating

A resin-based treatment for sprinkler frames, components and water spray nozzles. Nedox is considered as good as stainless steel when heads or nozzles are exposed to corrosive atmospheres, particularly salt laden air on coastal or off shore applications.

### Tin Nickel Plating (SnNi)

Is an electrodepositing coating (65% Sn / 35% Ni), that can be applied to copper/brass base material to improve corrosion and wear resistance (750 HV hardness). Appearance and corrosion resistance properties similar to stainless steel.

### **Nickel Aluminium Bronze (NAB)**

NAB is considered among the top range of corrosion resistant copper alloys. This alloy provides superior strength and resistance to ammonia stress corrosion cracking. Is immune to chloride stress cracking and has good resistance to biofouling. Ideal for cryogenic applications.

Applications: Off shore Oil/Gas and Petrochemical – pipework, valves, nozzles and pumps in seawater pumping systems, particularly for fire-fighting equipment.

### **Stainless Steel - SS316**

This corrosive resistant stainless steel is generally used where corrosion resistance is particularly important. On sprinkler heads SS316 should be used for the frame, the deflector the load screw and the bulb seat components. Most water spray nozzles are available in SS316. Typical applications are atmospheres laden with ammonia, chloride vapors (salt), certain food processes (e.g. cheese), micro chip processor manufacturing and industrial processes using certain cleaning solutions.

### **Stainless Steel - SMO254**

One of the highest grades of corrosion resistant steel available, SMO 254 is used for sprinkler heads and water spray nozzles for use off shore and in corrosive atmospheres.

### **Titanium**

Titanium metal is generally considered to be the ultimate in corrosion resistance. Sprinkler heads (including the deflector, the load screw and the bulb seat components) and water spray nozzles made from Titanium, offer better corrosion protection than the best stainless steels. While it is expensive, Titanium is considered mandatory for some extreme off shore applications and chosen as the long-term cheaper solution compared to cheaper products with shorter lifetime.