



Metals Galvanic Compatibility Chart

Leader Tech Copper Beryllium gaskets are non-porous, non-hygroscopic, and have a smooth surface. Properly applied, wiping gaskets are inherently self-cleaning and resist oxidation given the absence of moisture. Compression-only gaskets usually have high-pressure contacts, which bind the two surfaces and resist oxidation. However, given enough time, temperature, and other environmental effects all of the metals we use will corrode.

In the presence of oxygen, metals oxidize. Other atmospheric effects and thermal cycling accelerates this process. When moisture is present, these oxidized salts form electrolytes between the two dissimilar metals and become a simple battery. As currents flow from the cathode to the anode, voltage potentials develop. The voltage amplitude is directly proportional to currents flowing across the junction of the two metals. These currents accelerate corrosion of the metals.

Using Mil-STD 1250, the galvanic potential should not exceed .25 volts. This specification is critical for salt spray or other harsh environments. In commercial applications, many engineers allow up to .5 volts in controlled environments. To reduce the effects of galvanic conditions, we suggest using the following chart to select the correct metals and plating surfaces.

Cathode	Anode										
	Magnesium	Zinc	Aluminum	Cadmium	Tin	Iron, Steel	Chromium	Brass	Copper, Bronze	Nickel, Monel	Stainless Steel
Zinc	0.50										
Aluminum	0.83	0.33									
Cadmium	0.80	0.30	0.02								
Tin	1.10	0.60	0.28	0.30							
Iron, Steel	0.90	0.40	0.08	0.10	0.20						
Chromium	1.15	0.65	0.33	0.35	0.05	0.25					
Brass	1.35	0.85	0.53	0.55	0.25	0.45	0.20				
Copper, Bronze	1.35	0.85	0.53	0.55	0.25	0.45	0.20				
Nickel, Monel	1.45	0.95	0.63	0.65	0.35	0.55	0.30	0.10	0.10		
Stainless Steel	1.40	0.90	0.58	0.60	0.30	0.50	0.25	0.05	0.05	0.05	
Silver	1.60	1.10	0.78	0.80	0.50	0.70	0.45	0.25	0.25	0.15	0.20

1. For units which will be subjected to salt spray or salt water, metal should be chosen where the potential difference is less than 0.25V.
2. Where it is possible the unit will be subjected to high humidity that is not salt laden, then the potential difference should not exceed 0.45V.