

Injection die casting of Aluminum has become one of the most popular and efficient methods used in mass production today. Unfortunately, the nature of this process promotes the migration of silicon particles to the surface of these castings. These silicon particles make it difficult to produce a uniform anodized coating of more than .0004". This silicon also interferes with producing uniform conversion coatings. As a result, corrosion protection and aesthetically pleasing finishes are difficult to achieve.

### Pioneer Metal Finishing has developed a family of finishes for Aluminum Die Casts

Our dedicated team of Research and Development experts has developed a diverse portfolio of finishes capable of satisfying a broad range of aluminum die cast finishing needs. The finishes include:

**\*Chromate Conversion** - Pioneer Metal Finishing offers Type I (containing hexavalent chromium) and Type II (containing no hexavalent chromium) options as cost effective solutions that achieve adequate corrosion protection. These processes promote the adhesion of subsequent organic finishes and adhesives.



Type I Yellow Chromate

**Conventional Anodize and Hardcoat Anodize** - Low cost solutions that offer minimum corrosion protection with increased wear protection over chromate. These finishes also provide an excellent base for promoting the adhesion of subsequent organic finishes and adhesives.



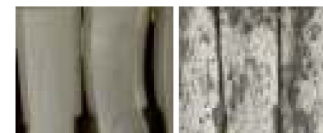
Anodize on Die Cast

**Conventional Anodize and Hardcoat Anodize with ARP** - Low cost solutions that offer the benefits of anodize with enhanced aesthetic appeal due to ARP-Acid Etch. ARP chemically removes the silicon rich surface of the die-casting which helps produce a more uniform chromate or anodized finish. This process also promotes a deeper black anodized coating.



Black Anodize + ARP on Die Cast

**NEW CastGuard™** - Introducing Pioneer Metal Finishing's newly developed finish specifically designed for die cast aluminum. CastGuard's cutting edge technology offers supreme corrosion protection at an affordable price. This process promotes the adhesion of subsequent organic finishes and adhesives.



CastGuard™ after 2000 salt spray hours

Anodize after 2000 salt spray hours

**EnduraGuard™** - Offers unmatched corrosion protection in addition to an unparalleled, rich, shiny black finish. Fights filiform corrosion, and guards against acid and alkaline attacks. EnduraGuard is the elite aluminum die cast finish offered at Pioneer Metal Finishing.



Pioneer Metal Finishing's EnduraGuard™

\*All Pioneer Metal Finishing processes meet the ELV, RoHS, and WEEE directives with the exception of Type I chromate conversion, which contains Hexavalent chromium.

### Die Cast Aluminum Salt Spray Results

Process	Salt Spray Failure	Aesthetic Rating
Yellow Chromate (Type I)	< 100 Hours	1
Pioneer ELV Conversion Coating (Type II)	< 100 Hours	1
Type II Anodize	< 48 Hours	2
Type III Hard Anodize + ARP	< 48 Hours	3
CastGuard™	> 2000 Hours	2
EnduraGuard™	> 3500 Hours	5

- Tested per A.S.T.M. B-117
- Test Results verified with 3 tests
- Test results may vary depending upon alloys and processes

- Failure determined as noticeable white corrosion
- Testing done on 380 Die Cast Aluminum