CMF

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SPECIFICATION ANODIZING AND FINISHING

LET'S ALL SPEAK THE SAME HARDCOAT LANGUAGE

At Certified Metal Finshing Inc, we believe the best customer is an educated customer. This sheet helps to clearly present some basic facts about Hardcoat Anodizing (MIL-A-8625 Type III). This process is also referred to as Hardcoating or Hard Anodize.

- Hardcoat is not plating! Hardcoat is not sulfuric anodize.
- Hardcoat penetrates the base metal as much as it builds up on the surface and the term thickness includes both the buildup and the penetration. BUILDUP PER SURFACE + PENETRATION = THICKNESS
- An example of this: Hardcoating a shaft .002 THICK will increase the diameter by only .002. Plating the same shaft would increase the diameter .004 since plating is 100% BUILDUP.
- Be positive before you machine your parts that you are allowing for the hardcoat BUILDUP PER SURFACE and not plating BUILDUP. If you have any questions, call us immediately. It is easier to correct the problem at the beginning!
- Hardcoat can be maintained to +/- .0002 thick.
- Allowing a tolerance on coating BUILDUP means that you must machine closer than blueprint dimensions. Example: A shaft diameter which is to finish at 1.5 +/- .001 and is to be hardcoated .002 +/- .0002 thick (.001 +/- .0001 BUILDUP per surface), your planning should call out to be machined to 1.498 +/- .0008. The part will then be to finished dimensions after hardcoating.
- When a "V" thread is to be cut allow for hardcoating, the formula is Buildup multiplied by 4. This will equal the pitch diameter change. A typical example is: Desired P.D. = .405/.4091 (7/16 N.F. Internal Thread) Coating thickness .002 +/- .0002 (.001 +/- .0001 buildup). Minimum buildup is .0009 x 4 = .0036 P.D. change; Maximum buildup is .0011 x 4 = .0044 P.D. change. Machine P.D. to .4094/.4127
- Hardcoat is not compatible with anodize and parts may be damaged if they are anodized after hardcoating. When there is a requirement for hardcoat and any other type of chemical processing, such as iridite, alodine or anodize, contact our Planning Department for recommendation. Many manufacturing companies are now using the flash hardcoat (.0002/.0004) instead of other anodic processes in order to save time, money and possible damage.
- Difficulties can arise if an order of parts is manufactured from different alloys and this fact is not made known to the processor. Each alloy has different rate of coat formation. When different alloys are processed at the same time, different thicknesses of oxide are formed on the different alloys. This could result in an "out

of tolerance" condition on some of the parts. It is imperative that the alloys always be designated. The processor will always coat to the specifications furnished with the order. It is the responsibility of the manufacturer to make sure the correct information for processing accompanies the work.

- This diagram helps to explain the relationship between penetration and build-up