

## ACCRÉDITED

ISO 9001 Certified Quality System ITAR/DDTC Registered Cage Code: 3G1X9 NAICS: 332813

## Alexandria Metal Finishers



Over 60 Years of Quality Metal Finishing 1962 - 2024

and post-bake

class per ASTM-B-850

\*Types IV, V and VI not available at Alexandria Metal Finishers.

reauirements

Type II

Type III

96 hours 12 hours

| PROCESS   |  | / / /  |   |   |   |  |   
   |  |  |   
   
   |   
  | / /  | / /  |   | / /   | / / /   |  
  | ///   | / / /  
  |  | / /   |   |   |  |   |
|---|--|--|---|---|---|--
---|--|--
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	SPEC	THICKNESS	COMMENTS
   | THUR   | -RI SAT  | FEBI<br>SUN   
   
   | RUARY<br>MON  
  |  |  | R FRI   | SAT   | MARC<br>SUN   |  
  |   |  
  | R FRI  | SAT   | PROCESS   | SPEC  | THICKNESS  | COMMENTS  |
| ANODIZE<br>SULFURIC   | MIL-PRF-8625<br>MIL-A-8625   |  |   |   | 1   | 2  | 3   
   | 4  | 5 6  |   
   
   |   
  |  | 1  | 2   | 3   |   |  
  |   |  
  | 1  | 2   | PASSIVATE<br>Alternate spec to supersede  | ASTM-A-967  |  | Nitric AcidSodium   |
| Color will vary with alloy.<br>Aluminum with low alloying   |  | 0.000070" -<br>0.0010"   | All aluminum alloys, but do not<br>use where solution will entrap.  | 7   | 8   | 9  | 10  
   |  | 12 13  | 4   
   
   | 5   
  | 6 7  | ' 8  | 9   | 10  | 3   |  
  | 56  | <b>3</b> 7   
  | 8  | 9   | QQ-P-35. In addition to passivate<br>using Nitric acid (and Sodium<br>Dichromate), this ASTM also<br>introduces passivation using   | Nitric 1  | 120°-130°F   | (Vol. %) Dichromate<br>(Weight %)<br>20 - 25 2.5 ± 0.5  |
| elements will show practically<br>no color change. Best coating<br>on aluminum for dyeing. Can  | Type II  | 0.0010   |   | 14  | 15  | 16   | 17  
   |  | 19 20  | 11  
   
   | 12  
  | 13 1   |  |   | 17  | 10  |  
  | 12 1  |  
  |  | 16  | Citric acid which at the present<br>time, Alexandria Metal Finishers<br>does not perform.   | Nitric 2  | 20 min.<br>70°-90°F  | 20 - 45 none  |
| be dyed practically any color<br>or shade<br>(Black, blue, red, gold, orange,<br>green, etc.).  | Type IIB   | Light Coating  |   | 21  | 22<br>29  | 23<br>30   | 24<br>31  
   | 25   | 26 27  | 18<br>25  
   
   | <b>19</b><br>26   
  | 20 2<br>27 2   | 1 22<br>8 29   |   | 24  | 17  |  
  | 19 20<br>26 2 <sup>°</sup>  |  
  |  | 23<br>30  |   | Nitric 3  | 30 min.<br>120°-140°F  | 20 - 25 none  | |
| Salt spray requirement is 336<br>hours (5% NaCl solution) per   | Class 1  |  | Non-dyed  |   |   |  |   
   |  |  |   
   
   |   
  |  |  | ,<br>   |   | 31  |  
  |   | / 20   
  |  |   |   | Nitric 4  | 20 min.<br>120°-130°F  | 45 - 55 none  | |
| method B-117 of ASTM.<br>Minimum weight for type II<br>coatings:  | Class 2  |  | Dyed<br>For Class 1, Alexandria's<br>standard practice for sealing is   |   |   |  |   
   |  |  |   
   
   |   
  | / /  |  | / /   | ///   |   | ///  
  | ///   | ///  
  |  |   |   |   | 30 min.  |   |
| Class 1 1,000 Milligrams/sq.ft.   |  |  | "Clear, hot DI water".<br>Dichromate seal may be<br>specified (resulting color will be  | APRIL<br>SUN  | L<br>MON  | TUE  | WED   
   | THUR   | -RI SAT  | MAY<br>SUN  
   
   |   
  | TUE W  | D THU  | R FRI   | SAT   | JUNE     SUN  | MON  
  | TUE WE  | ED THU   
  | R FRI  | SAT   |   | Nitric 5  | As required  | As required to pass test  |
|   |  |  | pale yellow-green).<br>FED-STD-No. 595 may be used<br>as a guide for specifying color   |   | 1   | 2  | 3   
   | 4  | 56   |   
   
   |   
  |  | 2  |   | 4   |   |  
  |   |  
  |  | 1   | RHODIUM   | MIL-R-46085   |  |   |
|   |  |  | (approximate comparison only).  | 7   | 8   | 9<br>16  | 10<br>17  
   | 11 ·<br>18 ·   | 12 13<br>19 20   | 5   
   
   | 6<br>13   
  | 7 8<br>14 1  | 9<br>5 16  | 10  | 11  | 2   | 3  
  | 4 5   | 5 6<br>0 40  
  | 7  | 8   | Metallic and similar to stainless steel in color. Excellent   | Type I  |  | Over Nickel, Silver, Gold, or<br>Platinum   |
| AEROSPACE MATERIAL<br>SPECIFICATIONS (AMS)  |  |  |   | 14<br>21  | 22  | 23   | 24  
   | _  | 26 27  | 12  
   
   | 20  
  | 21 2   |  |   | 18<br>25  | 9   | 10   
  | 11 1:<br>18 1:  | 2 13<br>9 20   
  |  | 15<br>22  | corrosion resistance. Almost as<br>hard as chromium. Very good<br>abrasion resistance. Good<br>solderability. Low contact   | Type II   |  | Over other metals<br>(require Nickel Undercoat)   |
| AMS anodizing specifications are<br>similar to Mil-A-8625. The major<br>differences are in the testing  | AMS-2469   | Hardcoat<br>0.002" ±<br>0.0005"  | Salt Spray test is requirement<br>(when sealed) for 336 hours   | 28  | 29  | 30   |   
   |  |  | 26  
   
   | 27  
  |  | 9 30   |   |   | 23  | 24   
  | 25 2  |  
  |  | 29  | resistance. Thicker coatings are<br>very brittle. Has high reflectivity.<br>Inactive for new design.<br>Provided for reference.   | Class 1   | 0.000002" min.   | Used on Silver for tarnish<br>resistance. applications range  |
| requirements. All AMS specs do<br>not allow production parts to be<br>run until preproduction samples<br>have been approved or waived in  | AMS-2471   | Sulfuric Acid  | 336 hours salt spray test   |   |   |  |   
   |  |  | /   
   
   |   
  |  |  |   |   | 30  |  
  |   |  
  |  |   |   | Class 2   | 0.00001" min.  | from electronic to nose cones<br>wherever wear, corrosion<br>resistance, solderability, and<br>reflectivility are important   |
| writing by purchaser. Coating<br>weight test may be required on a<br>lot basis rather than a monthly  |  | Process - no<br>dye coating  | required and controlled on 6061<br>- T3 aluminum. (Dichromate Sealed)   | JULY  |   |  |   
   | / /  |  | AUG   
   
   |   
  | ///////  |  | ///   |   | SEPTE   | MBED   
  | I   | I  
  |  |   |   | Class 3   | 0.00002" min.  |   |
| basis. Additional and/or specific<br>tests maybe required.<br>*** The AMS 2469-2482   | AMS-2472   | Sulfuric Acid<br>dye Black   | 336 hours salt spray test<br>required and controlled on 6061  | SUN   | MON   | TUE  |   
   | THUR   | -RI SAT  | SUN   
   
   |   
  | TUE W  | D THU  | R FRI   | SAT   | SUN   | MON  
  | TUE WE  | ED THU   
  | R FRI  | SAT   |   | Class 4   | 0.00010" min.  |   |
| in this block are the only<br>finishes not included in our<br>Nadcap scope. All other finishes  |  | ·  | - TŻ aluminum.  | 7   | 1   | 2  | 3   
   | 4  | 5 6  |   
   
   |   
  |  | 1  | 2   | 3   | 1   |  
  | 3 4   | 1 5  
  | 6  | 7   |   | Class 5   | 0.00025" min.  |   |
| and specifications shown are included.  | AMS-2482   | Hardcoat<br>0.002" ±<br>0.0005"  | 336 hours salt spray test<br>required. Coefficient of friction<br>test required.  | 14  | 15  | 9<br>16  | 10<br>17  
   |  | 12 13<br>19 20   | 4   
   
   | 5<br>12   
  | 13 1   | ' 8<br>4 15  | 9<br>5 16   | 10  | 15  |  
  | 10 1 <sup>·</sup><br>17 18  |  
  |  | 14<br>21  | SILVER<br>White matte to very bright in   | QQ-S-365  | 0.0005" min.   | Increasing use in both decorative   |
| CHEMICAL  |  | with Teflon  |   | 21  | 22  | 23   | 24  
   |  | 26 27  | 18  
   
   | 19  
  | 20 2   |  |   | 24  | 22  |  
  | 24 2  |  
  |  | 28  | appearance. Good corrosion<br>resistance, depending on base<br>metal. Will tarnish easily.<br>Hardness varies from about 90   |   | unless otherwise<br>specified for<br>most metals.  | and engineering fields, including<br>electrical and electronics fields.   |
| FILM  | MIL-DTL-5541   |  |   | 28  | 29  | 30   | 31  
   |  |  | 25  
   
   | 26  
  | 27 2   | 8 29   | 30  | 31  | 29  | 30   
  |   |  
  |  |   | Brinnell to about 135 Brinnell<br>depending on process and<br>plating conditions. Solderability   | Type I  | For Fe Alloys,<br>unless otherwise<br>specified, it shall<br>be 0.0005" min.   | Matte<br>Sami Bright  | |
| Coatings for aluminum. Color<br>can vary from colorless to<br>golden - iridescent -brown.   | Class 1 A  | No<br>Dimensional  | Class 1A is used as a corrosion<br>preventative film (if unpainted) or  |   |   |  |   
   |  |  |   
   
   |   
  |  |  |   |   |   |  
  |   |  
  |  |   | is excellent, but decreases with<br>age. Best electrical conductor.<br>Has excellent lubricity and smear<br>characteristics for anti galling  | Type II<br>Type III   | of silver with a<br>total plating<br>thickness of  | Semi-Bright<br>Bright   |
| Materials should conform to<br>MIL-DTL-81706. Coatings shall<br>be continuous, free from  | Class 3  | Change   | to improve adhesion of paint<br>finish systems (if painted).  | ОСТО  |   | //   | //  
   | ////   | ////   |   
   
   |   
  | I  |  |   |   | DECEN   | VBFP   
  |   |  
  |  |   | uses on static seals, bushings,<br>etc. This specification is provided<br>for reference purposes only as it<br>has been canceled. Users may   | Grade A   | 0.001" min.<br>(the balance to<br>be<br>Cu + Ni, but   | Chromate post treatment to<br>improve tarnish resistance* *   |
| powdery areas, breaks,<br>scratches, etc.   | ບເສຣຣ ປ<br>  |  | Class 3 is used as a corrosion<br>preventative film for electrical<br>and electronic applications,<br>where low resistance contacts   | SUN   | MON   | TUE  |   
   |  | RI SAT   | SUN   
   
   |   
  | TUE W  | D THU  | R FRI   | SAT   | SUN   |  
  |   |  
  |  | SAT   | consult ASTM-B-700<br>(see below).  | Grade B   | should not<br>exceed<br>0.0005")   | No Chromate treatment   |
| Type I Yellow or Clear Chromate.<br>Type II Clear (RoHS compliant<br>Hex-free, Cl. 1A or 3)   |  |  | where low resistance contacts<br>are required. Low electrical<br>resistance test not required<br>unless specified.  | E   |   | 1<br>8   | 2<br>9  
   | 3<br>10  | 4 5<br>11 12   | 3   
   
   | 4   
  | 5 6  | ,  | 1   | 2   | 1<br>   | 2  
  | 3 4   | 1 5<br>1 12  
  |  | 7   |   |   |  | * * (Lot test required)   |
| /   |  |  |   | 13  | 14  | 8<br>15  | 9<br>16   
   |  | 11 12<br>18 19   | 10  
   
   | 11  
  |  | 5 /<br>3 14  | 8<br>1 15   | 9<br>16   | 15  | _  
  | 17 18   | 8 19   
  |  | 21  | SILVER<br>This specification covers   | ASTM-B-700  |  | 00.0%   |
|   | MIL-F-495  |  |   | 20  | 21  | 22   | 23  
   |  | 25 26  | 17  
   
   | 18  
  |  | 0 21   |   | 23  | 22  |  
  | 24 2  |  
  |  | 28  | This specification covers<br>requirements for<br>electrodeposited coatings of<br>silver used for engineering  | Type I<br>Type II   |  | 99.9% min.<br>99.0% min.  |
| FINISH (Black)  |  | No   | Used as a base for lacquer,   | 27  | 28  | 29   | 30  
   | 31   |  | 24  
   
   | 25  
  | 26 2   | 7 28   | 8 29  | 30  | 29  | 30   
  | 31  |  
  |  |   | purposes that may be matte,<br>bright, or semibright and are not<br>less than 98% silver purity.  | Type III<br>Grade A   |  | 98.0 % min.<br>Matte  | |
| retardant for copper. Coating<br>has no abrasion resistance.<br>(1) Notice 2.   |  | Dimensional<br>Change  | light oil, or wax. For decorative,<br>optical, and corrosion<br>retardant application.  |   |   |  |   
   |  |  |   
   
   |   
  |  |  |   |   |   |  
  |   |  
  |  |   | Bi yearly analysis of purity of<br>deposited silver required.<br>Tarnish resistance test not  | Grade B   |  | Bright (obtained by the use of<br>Brighteners)  | |
|   |  |  |   |   |   |  |   
   |  |  |   
   
   |   
  |  |  |   |   |   |  
  |   |  
  |  |   | required  | Grade C   |  | Bright (obtained by polishing of<br>Grade A coatings)   |
|   | / /  |  |   |   |   |  |   
   |  |  | <b>A</b>  
   
   |   
  |  | ma   | í ſ   | he  |   | രച്ച   
  |   | mic  
  | shi  | na  |   | Grade D<br>Class N  |  | Semibright (obtained by the use<br>of addition agents)<br>No supplementary tarnish resist   | |
|   |  | / /  |   |   |   |  |   
   | <b>9</b> / <b>9</b>  |  |   
   
   |   
  | <b>HOI</b> GI  |  |   |   |   | Gal  
  |   | <u>ا</u> اا ت  
  |  |   |   | Class S   |  | (Chromate) treatment<br>With supplementary tarnish<br>resist (Chromate) treatment   |
|   |  |  |   |   | PROC  |  |   
   | SPEC   | THICKNES   | <u> </u>  
   
   | COMMENT   
  | rs   |  | PROCES  |   | SPEC  |  
  | KNESS   | COI  
  | MMENTS   |   | Class T not available at  | Class T   | As Specifier !   | (not suitable for food service<br>applications)<br>Supplementary Non-Chromate   |
|   |  |  |   |   | ECTR.<br>NICł   |  | ין ככ   
   | ASTM-B-733   |  |   
   
   |   
  |  |  |   |   | MIL-A-8625  | 5  
  | oifi - 1  | loot - 1   
  | melle  | andire  | Alexandria Metal Finishers  | Class T   | As Specified<br>(ref. Table 3.1)   | Supplementary Non-Chromate<br>Tarnish Resist.   |
|   |  |  |   | deposit   | % phosphor<br>it. More stri<br>etailed than   | rinaent. sp  |   
   |  | Range from<br>0.0002" -  | purchase  
   
   | ecification red<br>r to well defir  
  | ne the   | black de   | ll vary from liq<br>pending on al<br>s. Can be dye<br>epending on t<br>PENETRATES   | oy and<br>d in darker   | Type III  | drawin<br>spe  
  | g. If not or<br>cified se   | n process us<br>erviceability o<br>re required, o  
  | m alloys depe<br>ed. Where m<br>or special pro<br>consult meta   | naximum<br>operties<br>II   | SULFAMATE<br>NICKEL   | MIL-P-27418   |  |   |
|   |  | 2  | So .  | AMS-24<br>Orderin   | 2404 & AMS<br>ing data mus  | <b>NS-2405</b> .<br>ust be com   | nplete.   
   |  | 0.0024"  | "type", "c<br>condition"<br>method",  
   
   | lass", "servic<br>", "compositic<br>etc. on order   
  | e<br>on", "test<br>ring  | the surfa<br>THICKNE   | epending on t<br>PENETRATES<br>much as bui<br>ace. The term<br>ESS includes   | ooth the  |   | thickne<br>be O.   
  | ess shall fir<br>002" - co<br>0004" br  | nisher for bes<br>Datings (over<br>reak down sh  
  | st alloy choic<br>.004") will t<br>harp edges. 1   | e. Thick<br>end to<br>Typical   | The plating conforming to this specification is intended to   | See Comments  | Unless<br>otherwise  | The nickel plating shall have columnar crystalline structure  |
|   | X  |  |   | as titar<br>custom  | g on special<br>anium, etc. r<br>mer to supp<br>ntical materi   | requires<br>ply test cou   | upons   
   |  |  | document<br>would have  
   
   | ts. Porosity to<br>ve to be waive<br>rrently offered  
  | esting<br>ed as it   | build- up<br>Provides<br>coating.<br>vary with   | and penetrat<br>very hard ce<br>Abrasion res<br>h alloy and thi   | ion.<br>ramic type<br>stance will<br>ckness of  |   |  
  | JUU4 ar<br>w<br>et  | pplications: h<br>ear surfaces   
  | nydraulic cylir<br>s, actuating c<br>sed as an ele   | nders,<br>ams,  | facilitate the formation of a seal<br>between two metalic surfaces.<br>PLATING HARDNESS. Not to   |   | otherwise<br>specified:<br>0.0020" ±<br>0.0003" on all   | columnar crystalline structure<br>before annealing.<br>Unless otherwise specified, the  | |
|   |  | ¥\$` ]   |   | for plat  | tical materi<br>ating adhesic<br>CTROP(   | sion tests.  |   
   | NO MIL SPEC  |  |   
   
   |   
  |  | coating.<br>propertie<br>is good,<br>hard and  | Good dielectr<br>es. Corrosion<br>but recomme<br>odize in 5% di   | ic<br>resistance<br>nd seal<br>chromate   |   | Co<br>great  
  | pper "F<br>er than in   | lash" hard a stead of con  
  | anodize may b<br>iventional and  | odize for   | exceed 150 Knoop hardness<br>(500 gm. load) after annealing.<br>(or 300 Knoop before annealing)<br>inact. Notice 3.   |   | surfaces that<br>can be touched<br>by 0.0625"  | bath shall be chloride free.<br>Certification to this spec is<br>available only when specific   |
|   | / /  | ///  |   | Process<br>or dimi  | ss electrolyt<br>ninishes scra<br>nwanted sha   | ytically rem<br>ratches, bu  | noves<br>Jrrs   
   |  | Typical<br>material  |   
   
   | mensional rec<br>per surface.   
  | duction of   | solution<br>corrosion<br>Where e   | where increa<br>n resistance i<br>extreme abras<br>ce is required   | sed<br>s required.<br>ion   |   | greato<br>8%, s  
  | r Silicon   co<br>er than   m<br>hall not   w   | orrosion resis<br>ore economi<br>ith other har   
  | stance and n<br>ical in conjun<br>rd anodized a  | nay be<br>ction<br>reas.  |   |   | Dia. Ball.   | waivers / clarifications /<br>deviations are received from the<br>customer (i.e. hardness,  |
|   |  |  |   | most 3<br>alloys.<br>mirror-  | nwanted sha<br>300 series s<br>Finishes fro<br>-bright are j<br>olling time, t  | s stainless s<br>rom satin to<br>produced l  | steel<br>to<br>by   
   |  | removal:<br>0.0002"  | Process is  
   
   | s not recomn<br>rance surface   
  |  |  | ce is required<br>some softenin   |   |   | Custo<br>specify   
  | omer to te<br>type of is  | eflon impregn  
  | dize is availat<br>nation also. If<br>ard anodize s  | f Class 1   |   |   |  | thickness, bath, composition,<br>etc.)  |
| COPPER<br>Copper in color and matte to a  | MIL-C-14550  | Unless otherwise   |   | or both   |   | •  | -   
   | VIIL-G-45204   |  |   
   
   |   
  |  | Mil-Std-1  | g will be per<br>105E unless<br>se specified  |   | Class 1   |  
  |   |  
  | n-sealed unles   | ss  | <b>TIN</b><br>Color is gray-white in a plated   | MIL-T-10727   | As Specified on  | Alexandria Metal Finishers  |
| very shiny finish. Good corrosion<br>resistance when used as<br>undercoat. A number of copper<br>processes are available, each  | Class O  | specified:<br>0.001 - 0.005"   |   |   |   |  | 1 .   
   | VIIL-G-452114  |  |   
   
   |   
  |  |  |   |   | 0   |  
  | st  | pecified   
  |  |   | Color is gray-white in a plated condition. Has very high luster in  |   | 1 · · · · · · · · · · · · · · · · · · ·  | Alexandria Metal Finisners<br>provides both "Bright" and<br>Matte finishes. If not specified,   |
| <ul><li>design for a specific purpose:</li><li>Brightness: To eliminate the need for buffing</li></ul>  | Class 1  |  | For heat treatment stop-off   | on prop   | , to orange o<br>prietary pro   | color depe   | ending<br>d.  
   |  | Unless otherwis<br>specified:  |   
   
   |   
  |  |  |   |   | Class 2   |  
  | st  |  
  |  | /   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet  |   | drawing.<br>Thickness guide<br>(not part of  | bright will be generally provided.  |
| High speed: For electroforming  | 00   | 0.001" min.  | For heat treatment stop-off<br>For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board  | on prop<br>Will rar<br>finish d<br>Good co<br>has hig   | oprietary pro<br>ange from m<br>depending o<br>corrosion re<br>oh tarnish r   | e color depe<br>rocess used<br>matte to br<br>on basis mo<br>resistance,<br>resistance,  | ending<br>d.<br>right<br>netal.<br>and  
   | Type I<br>Type II  |  | 99.7% ga<br>99.0% ga  
   
   | old min.  
  |  |  | NICKE   |   | Class 2   |  
  |   | pecified<br>yed  
  |  |   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications   | Туре І  | drawing.<br>Thickness guide  | Electrodeposited. Use   |
| gram. To prevent  | Class 2  | 0.0005" min.   | For carburizing and decarburizing shield, also plated   | on prop<br>Will rar<br>finish d<br>Good co<br>has hig<br>Provide<br>resistaa<br>conduct   | oprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex  | a color depe<br>rocess usec<br>matte to br<br>on basis mo<br>resistance,<br>resistance,<br>ontact<br>is a good   | ending<br>d.<br>right<br>netal.<br>and  
   | Туре І   |  | 99.7% ga<br>99.0% ga<br>99.9% ga  
   
   | old min.  
  | ах.  | There is<br>any need<br>deposite<br>bright, d  | a nickel finish<br>d. Nickel can l<br>d soft or hard<br>lepending on l  | i for almost<br>be<br>I - dull or<br>brocess  |   |  
  | N<br>SF<br>D<br>V<br>te<br>gi   | oecified<br>yed<br>OTE: All ste<br>ensile streng<br>reater shall   
  | eel parts hav<br>gth of 220,0<br>not be nicke  | ring a<br>DOO or<br>el plated   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate  | Type I  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:   |   |
| Fine grain: To prevent<br>casehardening<br>Please note: This specification is<br>provided for reference only, as it   | Class 2<br>Class 3<br>Class 4  |  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and   | on prop<br>Will rar<br>finish d<br>Good ca<br>has hig<br>Provide<br>resistar<br>conduct<br>soldera  | pprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>nediate nicke  | e color depe<br>rocess used<br>matte to bu<br>ron basis mo<br>resistance,<br>resistance,<br>resistance.<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is  | ending<br>d.<br>right<br>netal.<br>and<br>  
   | Type I<br>Type II<br>Type III<br>Class 00  | specified:<br>0.00002" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A S<br>1. Grade B S   
   
   | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo  
  | qu   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>Can be s  | a nickel finish<br>d. Nickel can<br>d soft or hard<br>lepending on<br>d conditions e<br>Thus, hardnes<br>om 150 - 500<br>similar to stai  | n for almost<br>be<br>I - dull or<br>process<br>mployed in<br>ss can<br>) Vickers.<br>hless steel   | AMS-QQ-N-2  | 90   
  | N<br>St<br>D<br>V<br>V<br>te<br>gr<br>W<br>pr   | oecified<br>yed<br>OTE: All ste<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age   
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.   | ring a<br>DOO or<br>el plated<br>of   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).   | Туре І  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.   |
|   | Class 3  | 0.0005" min.<br>0.0002" min  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent   | on prop<br>Will rar<br>finish d<br>Good cc<br>has hig<br>Provide<br>resistan<br>conduct<br>soldera<br>Unless<br>interme<br>require<br>or copp<br>to the g   | pprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>ed an coppe<br>per plated s<br>gold plating  | e color depe<br>rocess used<br>matte to br<br>ron basis mo<br>resistance,<br>resistance,<br>resistance,<br>ontact<br>is a good<br>excellent<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.   | ending<br>d.<br>right<br>netal.<br>and<br><br>an<br>loys<br>prior   
   | Type I<br>Type II<br>Type III  | specified:   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A 9<br>. Grade B 9<br>. Grade C 7   
   
   | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn  
  | р<br>100р  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function   | a nickel finish<br>J. Nickel can l<br>d soft or hard<br>lepending on j<br>d conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>n resistance<br>of thickness.   | a for almost<br>be<br>I - dull or<br>process<br>mployed in<br>ss can<br>) Vickers.<br>hless steel<br>lull grey or<br>ce) color.<br>is a<br>Has a low  | AMS-QQ-N-25<br>Class 1<br>Grade A   | 90   
  | N<br>SF<br>D<br>N<br>te<br>gr<br>W<br>p<br>v<br>F(<br>6" min. V<br>2" min. U  | OTE: All ste<br>or corrosion<br>Vith typical C<br>ndercoating  
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the   | ring a<br>DOO or<br>al plated<br>of<br>opper<br>a nickel  | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by   | Type I  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing  |
| Please note: This specification is provided for reference only, as it   | Class 3  | 0.0005" min.<br>0.0002" min  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent   | on prop<br>Will rar<br>finish d<br>Good ca<br>has hig<br>Provide<br>resistar<br>conduct<br>soldera<br>Unless<br>interme<br>require<br>or copp<br>to the g<br>Please<br>provide  | pprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>ed on coppe<br>por plated s<br>gold plating<br>e note: This<br>ed for refer<br>een superse   | e color depe<br>rocess used<br>matte to br<br>on basis mu<br>resistance,<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>oer base allo<br>surfaces p<br>ng.<br>s specificati<br>rence only   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior   
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O   | specified:<br>0.00002" mir<br>0.00003" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A 9<br>. Grade B 9<br>. Grade C 7<br>. Grade D a<br>. Type I (Gr  
   
   | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn  
  | pp<br>noop<br>noop<br>C)   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficien<br>Is magne<br>having a   | a nickel finish<br>d. Nickel can<br>desoft or hard<br>lepending on d<br>d conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>n resistance  | a for almost<br>be<br>l - dull or<br>process<br>mployed in<br>as can<br>) Vickers.<br>hless steel<br>lull grey or<br>te) color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade D<br>Grade E   | 90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000   
  | N<br>SF<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D   | OTE: All ste<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>or steel & zir   
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met   | ring a<br>DOO or<br>el plated<br>of<br>pper<br>a nickel<br>kness is<br>Grade C<br>cals, and   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes  | Type I  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).   | Class 3<br>Class 4   | 0.0005" min.<br>0.0002" min  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).  | on prop<br>Will rar<br>finish d<br>Good ca<br>has hig<br>Provide<br>resista<br>conduct<br>soldera<br>Unless<br>interme<br>require<br>or copp<br>to the g<br>Please<br>provide<br>has beg  | pprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for refer<br>een superse   | e color depe<br>rocess used<br>matte to br<br>on basis mu<br>resistance,<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>oer base allo<br>surfaces p<br>ng.<br>s specificati<br>rence only   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior   
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class 0<br>Class 1<br>Class 2<br>Class 3<br>Class 4   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00010" mir<br>0.00020" mir<br>0.00030" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A 9<br>Grade B 9<br>Grade C 4<br>Grade C 4<br>Grade C 4<br>Grade C 4<br>Grade C 4<br>Grade C 4<br>Grade D 4   
   
  | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)   | р<br>поор<br>noop<br>C)<br>D)   
  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fre<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficiel<br>Is magna<br>having a<br>greater  | a nickel finish<br>d. Nickel can<br>lepending on l<br>d conditions e<br>Thus, hardnes<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>n resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of  | a for almost<br>be<br>l - dull or<br>process<br>mployed in<br>as can<br>) Vickers.<br>hless steel<br>lull grey or<br>ca) color.<br>s a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade D  | 90<br>90<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000   |
N<br>SF<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D   | OTE: All ste<br>ansile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>ot specified,<br>or steel & zir<br>rade D for C  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0  | ring a<br>DOO or<br>el plated<br>of<br>poper<br>a nickel<br>kness is<br>Grade C<br>cals, and<br>a metals.   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at   
   | Type I<br>Type II   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case  |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br><b>COPPER</b><br>Alternate spec, to supersede  | Class 3<br>Class 4   | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise   | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).  | on prop<br>Will rar<br>finish d<br>Good ca<br>has hig<br>Provide<br>resista<br>conduct<br>soldera<br>Unless<br>interme<br>require<br>or copp<br>to the g<br>Please<br>provide<br>has beg  | pprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for refer<br>een superse   | e color depe<br>rocess used<br>matte to br<br>on basis mu<br>resistance,<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>oer base allo<br>surfaces p<br>ng.<br>s specificati<br>rence only   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior   
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3  | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00010" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A S<br>Grade B S<br>Grade C 2<br>Grade D a<br>Grade D a   
   
   | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or   
  | noop<br>noop<br>· C)<br>D)<br>hers<br>Grade C  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fre<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficiel<br>Is magna<br>having a<br>greater  | a nickel finish<br>d. Nickel can<br>lepending on j<br>d conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>n resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou  | a for almost<br>be<br>J - dull or<br>process<br>mployed in<br>ss can<br>) Vickers.<br>hless steel<br>lull grey or<br>ce) color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum   | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade D<br>Grade C<br>Grade F<br>Grade F<br>Grade G  |
90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.00000<br>0.0000<br>0.0000<br>0.00000<br>0.0000<br>0.0000<br>0.00000000                                       | N<br>SF<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D<br>D   | OTE: All ste<br>ansile streng<br>reater shall<br>ithout speci-<br>rocuring age<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>ot specified,<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria   
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio  | ring a<br>DOO or<br>el plated<br>of<br>nickel<br>kness is<br>Grade C<br>als, and<br>metals.<br>ons.   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at   |   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0002 -<br>0.0006"   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550  | Class 3<br>Class 4<br>AMS-2418   | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).  | on prop<br>Will rar<br>finish d<br>Good ca<br>has hig<br>Provide<br>resista<br>conduct<br>soldera<br>Unless<br>interme<br>require<br>or copp<br>to the g<br>Please<br>provide<br>has beg  | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise e<br>don coppe<br>per plated s<br>gold plating<br>e note: This e<br>ed for refere<br>een supersed<br>below).   | e color depe<br>rocess usec<br>matte to br<br>on basis m<br>resistance,<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.<br>s specificati<br>erence only<br>eded   | ending<br>d.<br>right<br>and<br>an<br>loys<br>prior<br>cion is<br>as it   
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class 0<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5  | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00010" mir<br>0.00020" mir<br>0.00030" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A S<br>Grade B S<br>Grade C 2<br>Grade D a<br>Grade D a   
   
   | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisi<br>Grade A & G   
  | noop<br>noop<br>· C)<br>D)<br>hers<br>Grade C  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fre<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficiel<br>Is magna<br>having a<br>greater  | a nickel finish<br>d. Nickel can<br>legending on d<br>d conditions e<br>Thus, hardnes<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>n resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos   | a for almost<br>be<br>J - dull or<br>process<br>mployed in<br>ss can<br>) Vickers.<br>hless steel<br>lull grey or<br>ce) color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum   | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade D<br>Grade C<br>Grade F<br>Grade F<br>Grade G  |
90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.000000  | N         SF           D'         SF           D'         SF           D'         SF           D'         SF           D'         SF           S'         SF  | OTE: All ste<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>vith typical C<br>ndercoating<br>late. For Cla<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati   
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base  | ring a<br>DOO or<br>el plated<br>of<br>e nickel<br>kness is<br>Grade C<br>als, and<br>e metals.<br>ons.   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).   | Type II<br>ASTM-B-545<br>Class A  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br><b>COPPER</b><br>Alternate spec, to supersede  | Class 3<br>Class 4   | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).  | on prop<br>Will rar<br>finish d<br>Good ci<br>has hig<br>Provide<br>resistan<br>conduct<br>soldera<br>Unless<br>interme<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be   | pprietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for refer<br>een superse   | e color depe<br>rocess used<br>matte to br<br>resistance,<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>ber base allo<br>surfaces p<br>ng.<br>s specificati<br>erence only a<br>eded   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior<br>cion is<br>as it   
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class 0<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00010" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A S<br>Grade B S<br>Grade C 2<br>Grade D a<br>Grade D a<br>Type II (Gr<br>D<br>A Type III (Gr<br>D<br>A Alexandria<br>performs<br>only. Other<br>request.   
   
   | old min.<br>old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisi<br>Grade A & G   
  | noop<br>noop<br>· C)<br>D)<br>hers<br>Grade C  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficien<br>Is magne<br>having a<br>greater i<br>375°+ 2   | a nickel finish<br>d. Nickel can l<br>depending on l<br>dconditions e<br>Thus, hardne:<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou  | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>ss can<br>Vickers.<br>hless steel<br>ull grey or<br>te) color.<br>s a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2   |
90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.000000   | N<br>SF<br>D<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C  | OTE: All ste<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>vith typical C<br>ndercoating<br>late. For Cla<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati   
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>nc base met<br>Copper base<br>ing applicatio<br>a Metal Finis<br>s specificatio<br>ing only gen  | ring a<br>DOO or<br>el plated<br>of<br>e nickel<br>kness is<br>Grade C<br>als, and<br>e metals.<br>ons.   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br><b>TIN</b><br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn   | Type II<br>ASTM-B-545   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not  | Class 3<br>Class 4<br>AMS-2418<br>AMS-C-26074  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -  | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).<br>Copper flash about 0.0001"<br>Preproduction approval required<br>or must be waived in writing.<br>Customer to specify the the Rc<br>hardness of steel and if it is<br>greater than RC40, whether the  | on prop<br>Will rar<br>finish d<br>Good ci<br>has hig<br>Provide<br>resistan<br>conduct<br>soldera<br>Unless<br>interma<br>equire<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be   | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex<br>ability.<br>s otherwise<br>ed on coppe<br>oper plated s<br>gold plating<br>e note: This<br>ed for reference<br>and for reference<br>below).  | e color deperocess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>ber base allo<br>surfaces p<br>ng.<br>s specification<br>eded   | ending<br>d.<br>right<br>hetal.<br>and<br>bys<br>prior<br>cion is<br>as it<br>to<br>to<br>5204<br>test  
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>ASTM-B-488   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00010" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir<br>0.00150" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A 9<br>Grade B 9<br>Grade C 4<br>Grade C 4  
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo   | noop<br>noop<br>· C)<br>D)<br>hers<br>Grade C  
   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fra<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficient<br>Is magne<br>having a<br>greater i<br>375°+ 2  | a nickel finish<br>d. Nickel can la<br>depending on la<br>conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>NICKE  | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>Vickers.<br>hless steel<br>ull grey or<br>te) color.<br>s a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-QQ-P-3                                    | 90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.000000   |
N<br>SF<br>D<br>D<br>N<br>SF<br>D<br>N<br>SF<br>D<br>N<br>N<br>SF<br>D<br>N<br>N<br>SF<br>N<br>N<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF<br>SF  | OTE: All ste<br>ansile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>ot specified,<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"  | ring a<br>DOO or<br>al plated<br>of<br>poper<br>a nickel<br>kness is<br>Grade C<br>cals, and<br>metals.<br>ons.   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br><b>TIN</b><br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050". ontional   
   | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used   | Class 3<br>Class 4<br>AMS-2418<br>AMS-C-26074  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"   | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).<br>Copper flash about 0.0001"<br>Preproduction approval required<br>or must be waived in writing.<br>Customer to specify the the Rc<br>bardness of steel and if it is  | on prop<br>Will rar<br>finish d<br>Good ci<br>has hig<br>Provide<br>resistan<br>conduct<br>soldera<br>Unless<br>interme<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>See be<br>Alterna<br>superse<br>Very co<br>except<br>(If chos<br>660°F t   | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>tability.<br>s otherwise<br>ed on coppe<br>oper plated s<br>gold plating<br>e note: This<br>ed for reference<br>and for reference<br>below).  | color deperences used<br>matte to br<br>on basis ma<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>ber base allo<br>surfaces p<br>ng.<br>s specification<br>eded  | ending<br>d.<br>right<br>netal.<br>and<br>bys<br>prior<br>dion is<br>as it<br>solution<br>is as it  
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00020" mir<br>0.00050" mir<br>0.00050" mir<br>0.00150" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A 9<br>Grade B 9<br>Grade C 4<br>Grade D a<br>Grade D a   
   
  | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo   | noop<br>noop<br>· C)<br>D)<br>hers<br>Grade C   
  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magne<br>having a<br>greater is<br>375°+ 2  | a nickel finish<br>d. Nickel can l<br>depending on l<br>d conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>NICKE<br>ASSIVA<br>ss designed to<br>metals from t<br>ess and corrot<br>t steels and t<br>tendency of si<br>Does not chan<br>nce of the baa<br>purifies surfa  | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>nless steel<br>lull grey or<br>te) color.<br>s a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>   | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade D<br>Grade E<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403   | 90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.000000   | N<br>SF<br>D<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C                          
   | OTE: All ste<br>ansile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>ot specified,<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing only gen<br>er 0.0005"  | ring a<br>DOO or<br>al plated<br>of<br>poper<br>a nickel<br>kness is<br>Grade C<br>cals, and<br>metals.<br>ons.   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br><b>TIN</b><br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least.  
  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0001" min.<br>0.0002" min.<br>0.00022" min.  | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CLECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly  | Class 3<br>Class 4<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 2   | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.  | Alternas<br>superse<br>Very co<br>except<br>(Note: 3<br>(Note: 3  | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise f<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for referen-<br>sen supersed<br>below).  | color deperdences used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.<br>s specification<br>surfaces only<br>eded   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior<br>cion is<br>as it<br>s.<br>f<br>to<br>to<br>5204<br>test<br>-<br>end<br>ed.<br>ctive  
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>ASTM-B-488   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00020" mir<br>0.00050" mir<br>0.00050" mir<br>0.00150" mir   | 99.7% go<br>99.0% go<br>99.9% go<br>Grade A 9<br>Grade B 9<br>Grade C 4<br>Grade D a<br>Grade D a<br>Grade D a<br>Type II (Gr<br>Type II (Gr<br>Alexandria<br>performs<br>only. Other<br>request.   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A & G<br>Grade A & G<br>er grades quo<br>old min.  
  | pp<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magne<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>foreign n<br>of stainla<br>resistant<br>natural t<br>oxidize. I<br>appearant<br>Process<br>thereford<br>resistant   | a nickel finish<br>d. Nickel can la<br>depending on la<br>conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>NICKE<br>ASSIVA<br>ss designed to<br>metals from t<br>ess and corrot<br>t steels and t<br>tendency of st<br>Does not chan<br>nce of the bas<br>purifies surfa<br>e, improves c<br>ce.<br>or purchase   | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>te) color.<br>s a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>   | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade E<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403   |
90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.000000   | Signal State  | IOTE: All ste<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>/ith typical 0<br>ndercoating<br>late. For Cla<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>dedium temp<br>odium dichro<br>ow temperat<br>4 hour high<br>equired. Salt  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>n protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be (<br>nc base met<br>Copper base<br>ing application<br>ing application<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.   | ring a<br>DOO or<br>el plated<br>of<br>oper<br>e nickel<br>kness is<br>Grade C<br>als, and<br>metals.<br>ons.<br>ons.<br>ons.<br>hers<br>on for<br>erally | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for
reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.00050", optional<br>co-denosited lead in the range  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br>0.0006"<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0006" min.<br>0.00012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the  | Class 3<br>Class 4<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve  | Alternas<br>superse<br>Very co<br>except<br>(Note: 3<br>(Note: 3  | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise f<br>ed on coppe<br>oper plated s<br>gold plating<br>e note: This<br>ed for referen-<br>sen supersed<br>below).   | color deperdences used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.<br>s specification<br>surfaces only<br>eded   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior<br>cion is<br>as it<br>s.<br>f<br>to<br>to<br>5204<br>test<br>-<br>end<br>ed.<br>ctive  
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>ASTM-B-488<br>Type I<br>Type II<br>Type II<br>Type III<br>Code A<br>Code B<br>Code C   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir   | 99.7% gc         99.0% gc         99.9% gc         99.9% gc         Grade A S         Grade C 4         Grade D a         Grade D a         Grade D a         Grade D a         Alexandria         performs         Onl, Alexandria         performs         Onl, Other         Performs         99.7% gc         99.0% gc         99.9% gc         99.9% gc         90 HK(25         91-129 H         130 - 200  
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A & G<br>grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr)  
  | noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficien<br>s magne<br>having a<br>greater i<br>375°+ 2<br>P<br>A process<br>foreign n<br>of stainle<br>resistant<br>process<br>Process<br>Drawing<br>documer<br>stainless   | a nickel finish<br>d. Nickel can l<br>depending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>in resistance<br>of thickness.<br>It of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br><b>NICKE</b><br>ASSIVA<br>as designed to<br>netals from t<br>ess and corrot<br>t steels and t<br>tendency of si<br>Does not chan<br>nce of the bas<br>purifies surfa<br>e, improves c<br>ce.  | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade E<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403   |
90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.000000   | Signal State  | IOTE: All ste<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>/ith typical 0<br>ndercoating<br>late. For Cla<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>dedium temp<br>odium dichro<br>ow temperat<br>4 hour high<br>equired. Salt  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be (<br>nc base met<br>Copper base<br>ing application<br>ing application<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>pecified, in a   | ring a<br>DOO or<br>el plated<br>of<br>oper<br>e nickel<br>kness is<br>Grade C<br>als, and<br>metals.<br>ons.<br>ons.<br>ons.<br>hers<br>on for<br>erally | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for
reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.00050", optional<br>co-denosited lead in the range  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br>0.0006"<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0006" min.<br>0.00012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.         Aluminum alloy, heat treatable, processed to improve adhesion  | Alternas<br>superse<br>Very co<br>except<br>(Note: 3<br>(Note: 3  | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise f<br>ed on coppe<br>oper plated s<br>gold plating<br>e note: This<br>ed for referen-<br>sen supersed<br>below).   | color deperdences used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.<br>s specification<br>surfaces only<br>eded   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior<br>cion is<br>as it<br>s.<br>f<br>to<br>to<br>5204<br>test<br>-<br>end<br>ed.<br>ctive  
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>ASTM-B-488<br>ASTM-B-488   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir   | 99.7% gd         99.0% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade C 4         Grade C 4         Grade D 4         Type I (Gr         Type II (Gr         Alexandria         performs         Only Other         Performs         99.7% gd         99.0% gd         99.0% gd         99.9% gd         90 HK(25)         91-129 H         130 - 200         200 min I   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.  
  | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating,<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater in<br>375°+ 2<br>P<br>A process<br>foreign natural to<br>oxidize. I<br>appearant<br>Process<br>therefore<br>resistant<br>natural to<br>oxidize. I<br>Drawing<br>document<br>stainless<br>(Cancelle                            | a nickel finish<br>d. Nickel can<br>depending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>NICKE<br>ASSIVA<br>as designed to<br>netals from t<br>tess and corroc<br>t steels and t<br>tendency of si<br>Does not chan<br>nee of the bas<br>purifies surfa<br>e, improves c<br>ce.<br>or purchase<br>natation should<br>a steel alloy.<br>ed Feb. 2005  | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>ss can<br>) Vickers.<br>hless steel<br>lull grey or<br>te) color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade E<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403   |
90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.00000<br>0.0000<br>0.0000<br>0.00000<br>0.00000<br>0.00000<br>0.00000000   | Signal State  | loTE: All ste<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>/ith typical 0<br>ndercoating<br>late. For Cla<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>dedium temp<br>odium dichro<br>ow temperat<br>4 hour high<br>equired. Salt  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be (<br>nc base met<br>Copper base<br>ing application<br>ing application<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>pecified, in a   | ring a<br>DOO or<br>el plated<br>of<br>oper<br>e nickel<br>kness is<br>Grade C<br>als, and<br>metals.<br>ons.<br>ons.<br>ons.<br>hers<br>on for<br>erally | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for
reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002 min.<br>0.0002 min.<br>0.0002 min.<br>0.0002" min.<br>0.00032" min.<br>0.00032" min.<br>0.0006" min.<br>0.00012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.   | Alternas<br>superse<br>Very co<br>except<br>(Note: 3<br>(Note: 3  | prietary pro<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise f<br>ed on coppe<br>oper plated s<br>gold plating<br>e note: This<br>ed for referen-<br>sen supersed<br>below).   | color deperdences used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.<br>s specification<br>surfaces only<br>eded   | ending<br>d.<br>right<br>netal.<br>and<br>s.<br>an<br>loys<br>prior<br>cion is<br>as it<br>s.<br>f<br>to<br>to<br>5204<br>test<br>-<br>end<br>ed.<br>ctive  
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 5<br>Class 6<br>ASTM-B-488<br>Type I<br>Type II<br>Type II<br>Code A<br>Code B<br>Code C   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir<br>Unless otherwis<br>specified:<br>Purity<br>Hardness  | 99.7% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade D 4         Type I (Gr         Grade D 4   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finish<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>Shall be specifie<br>nicrometers<br>0, 0.75, 1.00 .<br>Metal Finisher:   
  | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>coefficieu<br>Is magne<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>appearau<br>Process<br>therefore<br>resistant<br>Drawing<br>documer<br>Cancelle<br>Drawing<br>documer<br>Cancelle                                      | a nickel finish<br>d. Nickel can<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>in resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br><b>NICKE</b><br><b>ASSIV</b><br>as designed to<br>testa and corror<br>t steels and t<br>tendency of st<br>Does not chan<br>nce of the bas<br>purifies surfa<br>e, improves c<br>ce.<br>or purchase<br>natation should<br>a steel alloy.<br>e spec. for<br>t-P-35.<br>point, Alexand   | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade E<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>Type II<br>Type IV                           |
90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 | N SI  | IOTE: All stee<br>ensile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>/ith typical C<br>ndercoating<br>late. For Cla<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>dot specified,<br>or steel & zir<br>rade D for C<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>ow temperat<br>4 hour high<br>equired. Salt<br>equired, if sp<br>o high humid   
  | gth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be (<br>nc base met<br>Copper base<br>ing application<br>ing application<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>pecified, in a   | h<br>h<br>st<br>may be<br>addition  | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br>0.0006"<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A   | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:   | For carburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.  | Alternas<br>superse<br>Very co<br>except<br>(Note: 3<br>(Note: 3  | Compatible tar<br>sed of the million of | color deperdences used<br>matte to basis ma<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base allo<br>surfaces p<br>ng.<br>s specification<br>eded  | and ing d. right netal. and s.  | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>ASTM-B-488<br>ASTM-B-488<br>Type I<br>Type II<br>Type II<br>Type II<br>Code A<br>Code B<br>Code C<br>Code D<br>Class  
  | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir<br>0.00150" mir<br>Hardness<br>Hardness<br>Thickness  | 99.7% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade C 4         Grade C 4         Grade D a         Type I (Gr         Join Type II (Gr         Alexandria         performs         Only Other         Performs         99.7% gd         99.7% gd         99.7% gd         99.7% gd         99.7% gd         99.9% gd         99.9% gd         90 HK(25)         91-129 H         130 - 200         200 min I         Thickness a         Minimum ir         0.25, 0.50         Alexandria         Grade A &   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>shall be specifie<br>n micrometers<br>0, 0.75, 1.00 .   | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as<br>  
   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can l<br>desoft or hard<br>lepending on j<br>d conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>in resistance<br>of thickness.<br>nt of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br><b>NICKE</b><br><b>ASSIV</b><br>as designed to<br>metals from t<br>ess and corro<br>t steels and t<br>tendency of si<br>Does not chai<br>nce of the bas<br>purifies surfa<br>e, improves c<br>ce.<br>or purchase<br>netation should<br>s steel alloy.<br>ed Feb. 2005  | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade E<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>Type II<br>Type IV                           | 90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.002<br>(unless o<br>speir<br>33<br>No dim<br>cha<br>"Types"<br>relaxe<br>AMSO  | N SI   
  | IOTE: All ste<br>ansile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>dor engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>dow temperat<br>4 hour high<br>equired, if sp<br>o high humid<br>ifferences fr<br>I. 1: Special<br>I. 2: Testing   | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>pecified, in a<br>dity test.   | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.00050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>Either a matte or luster is<br>acceptable. Has excellent<br>solderability. 0.0002" copper<br>nate comperender copper<br>provided is the sevent of the se | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002 min.<br>0.0002 min.<br>0.0002 min.<br>0.0002"
min.<br>0.00032" min.<br>0.00032" min.<br>0.0006" min.<br>0.00012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel   |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-2418<br>Class 1<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade B<br>Grade C  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade A. Cu. Ni. Co alloys will be Grade A.   | Alterna<br>Alterna<br>MIL-G-4   | Consistent of the spector of the spe    | color deperdencess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specified,<br>kel plate is<br>ber base allo<br>surfaces p<br>ng.<br>s specification<br>eded   | ending<br>d.<br>right<br>hetal.<br>and<br>bys<br>prior<br>dion is<br>as it<br>for to<br>5204<br>test<br>end<br>ed.<br>ctive<br>that<br>for to<br>for to | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 5<br>Class 6<br>ASTM-B-488<br>Type I<br>Type II<br>Type II<br>Code A<br>Code B<br>Code C  
  | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00030" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir<br>0.00150" mir<br>Hardness<br>Hardness<br>Thickness  | <ul> <li>99.7% gd</li> <li>99.0% gd</li> <li>99.9% gd</li> <li>99.9% gd</li> <li>Grade A S</li> <li>Grade C A</li> <li>Grade D a</li> <li>Type II (Gr</li> <li>Type II (Gr</li> <li>Type III (Gr</li> <li>Alexandria<br/>performs<br/>only. Other<br/>request.</li> </ul>   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or l<br>Grade A only)<br>a Metal Finisi<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>5gr) max.<br>HK (25gr) N/<br>Shall be specifie<br>n micrometers<br>0, 0.75, 1.00.   | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as<br>  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of
thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 | A Market State Stat   | IOTE: All ste<br>ansile streng<br>reater shall<br>ithout speci<br>rocuring age<br>or corrosion<br>Vith typical C<br>ndercoating<br>late. For Cla<br>or engineerin<br>Alexandria<br>applies this<br>undercoati<br>under<br>doium temp<br>odium dichro<br>ow temperat<br>4 hour high<br>equired. Salt<br>equired, if sp<br>o high humid<br>ifferences fr<br>I. 1: Special<br>I. 2: Testing<br>Cl. 2 is "gene<br>then class is  
  | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-Q0<br>I Sampling for<br>is only 1 po<br>erally" defau<br>s not specifie                  | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>Either a matte or luster is<br>acceptable. Has excellent<br>solderability. 0.0002" copper   | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002 min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00032" min.<br>0.0006" min.<br>0.0006" min.<br>0.00012" min.<br>0.00012" min.<br>0.00012" min.                        | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel   |
| Please note: This specification is<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Atternate spec. to supersede<br>MIL-C-14550<br>CECETEROLESS<br>NICCEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade B<br>Grade C  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0005" min.<br>0.0005" min.   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade A.  | Alterna<br>(Note: 3<br>Conduct<br>Alterna<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>orange<br>proprie<br>MIL-G-4<br>Orange<br>proprie<br>MIL-G-4<br>Orange<br>proprie<br>MIL-G-4<br>Orange<br>proprie<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4<br>Orange<br>MIL-G-4 | COOL<br>Consistency pro-<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish ri-<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>S otherwise a<br>rediate nicke<br>ed on copper<br>per plated s<br>gold plating<br>a note: This<br>ed for refere-<br>teen supersed<br>anote: This<br>ed for refere-<br>teen supersed<br>below).<br>COOL<br>ate gold spec-<br>sede MIL-G-4<br>compatible ta<br>t that adhes<br>is Sampling for<br>g will be high<br>GOOL<br>ate spec to<br>45204. Yel<br>e color depe<br>etary proces<br>from matte   | color depervess used<br>matte to br<br>ron basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base alle<br>surfaces p<br>ng.<br>s specification<br>strence only<br>eded   | anding<br>d.<br>right<br>hetal.<br>and<br>bys<br>prior<br>dion is<br>as it<br>as it<br>as it<br>as it<br>as it<br>as it<br>b<br>for to<br>5204<br>test<br>c<br>ctive<br>that<br>b<br>finish   
   | Type I<br>Type II<br>Type III<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>ASTM-B-488<br>ASTM-B-488<br>Type I<br>Type II<br>Type II<br>Type II<br>Code A<br>Code B<br>Code C<br>Code D<br>Class   | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.00000" mir         0.00000" mir         0.00000" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         0.00150" mir         Hardness         Purity         Hardness         Thickness         Unless otherwis         Unless otherwis  | <ul> <li>99.7% gd</li> <li>99.0% gd</li> <li>99.9% gd</li> <li>99.9% gd</li> <li>Grade A S</li> <li>Grade C A</li> <li>Grade D a</li> <li>Type II (Gr</li> <li>Type II (Gr</li> <li>Type III (Gr</li> <li>Alexandria<br/>performs<br/>only. Other<br/>request.</li> </ul>   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>Shall be specifie<br>n micrometers<br>0, 0.75, 1.00 -<br>Metal Finishers<br>Grade C only. (<br>oted upon reque   
  | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as<br>  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade E<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      |
90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 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II<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Circular<br>Cir  | International applies this undercoating applies the class is a signal that applies the class is a signal that applies the class is a signal to the  | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-Q0<br>I Sampling for<br>is only 1 po<br>erally" defau<br>s not specifie                  | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on
steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>Either a matte or luster is<br>acceptable. Has excellent<br>solderability. 0.0002" copper<br>plate generally required on<br>copper base alloys. No<br>undercoating required on steel  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002 min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00032" min.<br>0.0006" min.<br>0.00012" min.<br>0.00012" min.<br>0.00012" min.<br>0.00012" min.                       | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Flow brightening not currently<br>available at Alexandria Metal<br>Finishers.  |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade A<br>Grade B<br>Grade C   | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0005" min.<br>0.0005" min.   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade A. Cu. Ni. Co alloys will be Grade A.   | Alterna<br>(Note: 3<br>660°F f<br>testing<br>of MII-C<br>Alterna<br>(Note: 3<br>testing<br>of MII-C   | COOL<br>Consistency pro-<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish ri-<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>S otherwise a<br>source on copper-<br>per plated signal<br>e note: This<br>ed for refere-<br>teen supersed<br>e note: This<br>e of or refere-<br>teen supersed<br>below).<br>COOL<br>ate gold spec-<br>sede MIL-G-4<br>compatible to<br>that adhes<br>is Sampling for<br>g will be high-<br>G-45204).<br>COOL<br>ate spec to<br>45204. Yel<br>e color depe<br>e tary proces<br>from matter<br>ding on the<br>corosion re<br>gh tarnish ri<br>les a low cor  | color depervess used<br>matte to basis ma<br>resistance,<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base alle<br>surfaces p<br>ng.<br>s specification<br>eded  | ending<br>d.<br>right<br>hetal.<br>and<br>bys<br>prior<br>dion is<br>as it<br>for to<br>5204<br>test<br>end<br>end<br>end<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to   
   | Type I<br>Type II<br>Type II<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>Class 6<br>Class 6<br>Class 6<br>Class 6<br>Class 6<br>Class 1<br>Class 2<br>Class 2<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>Class 6<br>Class 6<br>Class 1<br>Class 5<br>Class 6<br>Class 5<br>Class 6<br>Class 1<br>Class 5<br>Class 1<br>Class 5<br>Class 1<br>Class 5<br>Class 1<br>Class 5<br>Class 5<br>Class 5<br>Class 6<br>Class 1<br>Class 5<br>Class 1<br>Class 5<br>Class 6<br>Class 1<br>Class 1<br>Class 5<br>Class 1<br>Class 5<br>Class 5<br>Class 1<br>Class 5<br>Class 1<br>Class 5<br>Class 5<br>Class 5<br>Class 6<br>Class 1<br>Class 5<br>Class 5<br>Class 5<br>Class 1<br>Class 5<br>Class 1<br>Class 1<br>Class 1<br>Class 5<br>Class 1<br>Class 1<br>Clas 1 | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00010" mir<br>0.00020" mir<br>0.00050" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir<br>Hardness<br>Purity<br>Hardness<br>Thickness<br>1<br>Unless otherwis<br>specified:<br>1<br>Unless otherwis  | 99.7% gd         99.0% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade C 4         Grade D a         Type I (Gr         Type II (Gr         Alexandria         performs         99.7% gd         99.7% gd         99.7% gd         99.7% gd         99.9% gd         90 HK(25)         91-129 H         130 - 200         200 min I         Thickness a         Grade A &         grades qua         Performs         90.9% gd         90.9% gd         90.9% gd         90.9% gd         99.0% gd         99.0% gd         99.0% gd         99.0% gd         99.0% gd         99.0% gd         99.9% gd   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finish<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>Shall be specifie<br>nicrometers<br>0, 0.75, 1.00 .<br>Metal Finisher:<br>Grade C only.<br>oted upon reque<br>old min.  | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as<br>such as<br>such as  
   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 | eensional<br>ange<br>tion of<br>'is more<br>ad than<br>Qu-P-35<br>pe
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For Cla<br>or engineering<br>applies this<br>undercoati<br>applies this<br>undercoati<br>indercoati<br>or engineering<br>Alexandria<br>applies this<br>undercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>inderco | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-G0<br>I Sampling for<br>g is only 1 po<br>erally" defau<br>s not specific<br>iodic basis | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).  
  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002 min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00032" min.<br>0.0006" min.<br>0.0006" min.<br>0.00012" min.<br>0.00012" min.<br>0.00012" min.                        | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Flow brightening not currently<br>available at Alexandria Metal<br>Finishers.  |
| Please note: This specification is<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade B<br>Grade C  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0005" min.<br>0.0005" min.   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade A. Cu. Ni. Co alloys will be Grade A.   | Alterna<br>(Note: 3<br>conduct)<br>Soldera<br>Unless<br>interme<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>Very co<br>except<br>(If chos<br>660°F<br>test ma<br>(Note: 3<br>testing<br>of MII-0   | Corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise a<br>ediate nicke<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for refere-<br>and for refere-<br>and for refere-<br>and for refere-<br>and for refere-<br>below).<br>COO<br>ate gold spection<br>that adhes<br>for 30 minu-<br>any also be s<br>for 30 minu-<br>any also be s<br>a sampling for<br>g will be high<br>G-45204).<br>COO<br>ate spec to<br>45204. Yel<br>e color depe<br>gh tarnish r<br>les a low cor<br>ance and is a<br>ctor. Has ex-<br>ding on the<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance and is a<br>ctor. Has ex-<br>ding on the<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance and is a<br>ctor. Has ex-<br>ding on the<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance and is a<br>ctor. Has ex-<br>ted, an inter  | color depervess used<br>matte to br<br>on basis mu-<br>resistance.<br>ontact<br>is a good<br>excellent<br>e specified,<br>kel plate is<br>per base alle<br>surfaces p<br>ng.<br>s specification<br>eded  | and ing d. right hetal. and s.  
   | Type I<br>Type II<br>Type II<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 4<br>Class 5<br>Class 6<br>Class 6<br>ASTM-B-488<br>ASTM-B-488<br>Code 1<br>Type II<br>Type II<br>Code A<br>Code B<br>Code C<br>Code D<br>Class  | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.00000" mir         0.00000" mir         0.00000" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         0.00150" mir         Hardness         Purity         Hardness         Thickness         Unless otherwis         Unless otherwis  | 99.7% gd         99.0% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade D a         Type I (Gr         Type II (Gr         Alexandria         performs         ON Alexandria         99.7% gd         99.7% gd         99.7% gd         99.7% gd         99.9% gd         90 HK(25)         91-129 H         130 - 200         200 min I         Thickness a         Grade A &         grade A &         99.7% gd         99.9% gd         90.7% gd         99.9% gd  
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kn<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>0 HK (25gr) N/<br>Shall be specific<br>n micrometers<br>0, 0.75, 1.00 .<br>Metal Finishers<br>0, 0.75, 1.00 .<br>Metal Finishers<br>0, 0.75, 1.00 .<br>Metal Finishers<br>0, 0.75, 1.00 .<br>Metal Finishers<br>0, 0.75, 1.00 .   | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as<br>  
   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 | eensional<br>ange<br>tion of<br>'is more<br>ad than<br>Qu-P-35<br>pe
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For Cla<br>or engineering<br>applies this<br>undercoati<br>applies this<br>undercoati<br>indercoati<br>or engineering<br>Alexandria<br>applies this<br>undercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>inderco | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-G0<br>I Sampling for<br>g is only 1 po<br>erally" defau<br>s not specific<br>iodic basis | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).  
  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002 min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00032" min.<br>0.0006" min.<br>0.0006" min.<br>0.00012" min.<br>0.00012" min.<br>0.00012" min.                        | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Flow brightening not currently<br>available at Alexandria Metal<br>Finishers.  |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Atternate spec. to supersede<br>MIL-C-14550<br><b>ELECTROLESS</b><br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.<br><b>ELECTROLESS</b><br>NUCKEL<br>No definition of phosphorous<br>content in the EN deposit. No<br>"Grade" designation.<br>Plating on special metals such<br>as titanium, etc. requires<br>customer to supply test coupons  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-C-26074<br>(MIL-C-26074)<br>Class 1<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade B<br>Grade C  | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0010" min.<br>0.0005" min.<br>0.0015" min.<br>0.0015" min.   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade B. Ferrous alloys will be Grade C.         Note: Unless a specific class is   | Alterna<br>(Note: 3<br>conduct)<br>Please<br>provide<br>reguire<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>Very co<br>except<br>(If chos<br>660°F<br>test ma<br>(Note: 3<br>testing<br>of MII-G<br>Alterna<br>superse<br>Very co<br>except<br>(If chos<br>Secorf<br>test ma<br>(Note: 3<br>testing<br>of MII-G  | Corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise a<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for referen-<br>een supersed<br>below).  | color depervess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specification<br>serve base allo<br>surfaces p<br>ng.<br>specification<br>eded   | and<br>and<br>bys<br>prior<br>as it<br>as it<br>as it<br>bys<br>prior<br>bas<br>base<br>to<br>bas<br>base<br>wise<br>base<br>wise<br>base<br>base<br>base   
   | Type I<br>Type II<br>Type II<br>Class OO<br>Class 0<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 5<br>Class 6<br>Class 6<br>ASTM-B-488<br>ASTM-B-488<br>Code 1<br>Code 1<br>Code 1<br>Code 2<br>Code 1<br>Code 1<br>Code 1<br>Code 2<br>Code 1<br>Class<br>Class 1   | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.00020" mir         0.00030" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         Hardness         Purity         Hardness         Thickness         Unless otherwis         specified:         Q.00002" mir         0.00002" mir         0.00002" mir         0.00002" mir         0.00002" mir         0.00002" mir  | 99.7% gd         99.0% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade C 4         Grade D a         Type II (Gr         Alexandria         performs         99.7% gd  
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>0 HK (25gr) N/<br>1 K (25gr) N/<br>shall be specifie<br>n micrometers<br>0, 0.75, 1.00<br>HK (25gr) N/<br>Status<br>0, 0.75, 0.00<br>HK (25gr) N/<br>Status<br>0, 0.75, 0.00<br>H | ap<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>A @AMF<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br><br>other<br>est.<br>ax.<br>p<br>noop  
   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 | eensional<br>ange<br>tion of<br>'is more<br>ad than<br>Qu-P-35<br>pe
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For Cla<br>or engineering<br>applies this<br>undercoati<br>applies this<br>undercoati<br>indercoati<br>or engineering<br>Alexandria<br>applies this<br>undercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>inderco | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-G0<br>I Sampling for<br>g is only 1 po<br>erally" defau<br>s not specific<br>iodic basis | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br><b>Either</b> a matte or luster is<br>aceptable. Has excellent<br>solderability. 0.0002" copper<br>plate generally required on<br>supstrates unless
specified.<br><b>The MIL-P-81728</b> specification<br>has been superseded by the<br>AMS-P-81728 specification.<br><b>ZINC</b>   | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728<br>Standard<br>composition<br>60/40 Sn-Pb<br>0ptional<br>composition<br>90/10 Sn-Pb<br>95/5 Sn-Pb  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00012" min.<br>0.00012" min.<br>0.00012" min.  | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Flow brightening not currently<br>available at Alexandria Metal<br>Finishers.<br>50% - 70% Tin, remainder is<br>Lead<br>Nominal 88% - 97% Tin,<br>remainder is Lead  |
| Please note: This specification is<br>provided for reference only, as it<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br><b>ELECTROLESS</b><br>Similar to stainless steel in<br>color. Plates uniformly in<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hor. Alternate and the specify the<br>phosphorous content in the EN<br>deposit provided by electroless process).<br>This specify the phosphorous<br>content in the EN deposit. No<br>"Grade" designation.<br>Plating on special metals such<br>as titanium, etc. requires | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-24074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade A<br>Grade B<br>Grade C<br>For plating on tit<br>customer to sup<br>coupons for add | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0010" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.   | For carburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade B. Ferrous alloys will be Grade B. Ferrous alloys will be Grade C.         Note: Unless a specific class is specified; Class 1 shall be supplied.         Except for hydrogen embrittlement relief, no postplating thermal treatment.         Thermal treatment at 450°F (232°C) or above to harden the deposit,   | Alterna<br>(Note: 3<br>conduct)<br>Please<br>provide<br>reguire<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>Very co<br>except<br>(If chos<br>660°F<br>test ma<br>(Note: 3<br>testing<br>of MII-G<br>Alterna<br>superse<br>Very co<br>except<br>(If chos<br>Secorf<br>test ma<br>(Note: 3<br>testing<br>of MII-G  | Corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise a<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This a<br>ed for reference<br>and the supersection<br>of compatible to<br>that adhes<br>sede MIL-G-4<br>compatible to<br>that adhes<br>sede MIL-G-4<br>compatible to<br>that adhes<br>for 30 minu-<br>nay also be s<br>a sampling for<br>G-45204. Yel<br>e color depe<br>etary process<br>from matted<br>ding on the<br>salow cor<br>ance and is<br>actor. Has ex-<br>ability. Unlex-<br>is, an inter<br>s required or<br>or cooper p   | color depervess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specification<br>serve base allo<br>surfaces p<br>ng.<br>specification<br>eded   | and<br>and<br>bys<br>prior<br>as it<br>as it<br>as it<br>bys<br>prior<br>bas<br>base<br>to<br>bas<br>base<br>wise<br>base<br>wise<br>base<br>base<br>base   | Type I<br>Type II<br>Type II<br>Class OO<br>Class O<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 5<br>Class 6<br>ASTM-B-488<br>ASTM-B-488<br>ASTM-B-488<br>Code D<br>Code D<br>Code D<br>Class<br>Class<br>I<br>L-DTL-45204  | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.00020" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00000" mir         0.00002" mir                       | 99.7% gd         99.0% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade C 4         Grade D a         Type II (Gr         Harrow Construction         Alexandria         performs         ON Alexandria         99.7% gd         99.7% gd <td>old min.<br/>90 Knoop ma<br/>91-129 Knoo<br/>130 - 200 Kn<br/>above 200 Kn<br/>rades A, B or<br/>rade B, C or<br/>Grade A only)<br/>a Metal Finisl<br/>Grade A &amp; G<br/>er grades quo<br/>old min.<br/>old min.<br/>old min.<br/>5gr) max.<br/>HK (25gr) N/<br/>0 HK (25gr) N/<br/>10 HK (25gr) M/<br/>10 HK</td> <td>app<br/>noop<br/>noop<br/>C)<br/>D)<br/>hers<br/>Grade C<br/>oted upon<br/>// @AMF<br/>// @AMF<br/>// @AMF<br/>ed as<br/>such as<br/>such</td> <td>There is<br/>any need<br/>deposite<br/>bright, d<br/>used and<br/>plating.<br/>range fro<br/>Can be s<br/>in color,<br/>light gree<br/>Corrosio<br/>function<br/>coefficient<br/>Is magnet<br/>having a<br/>greater is<br/>375°+ 2<br/>P<br/>A process<br/>therefore<br/>resistant<br/>natural t<br/>oxidize. I<br/>appearan<br/>Process<br/>therefore<br/>resistant<br/>atherefore<br/>stainless<br/>(Cancelle<br/>Drawing<br/>documer<br/>stainless<br/>(Cancelle</td> <td>a nickel finish<br/>d. Nickel can<br/>de soft or hard<br/>lepending on j<br/>d. conditions e<br/>Thus, hardnee<br/>om 150 - 500<br/>similar to stai<br/>or can be a c<br/>y (almost whi<br/>or resistance<br/>of thickness.<br/>Int of thermal<br/>etic. All steel<br/>hardness of<br/>require a pos<br/>5°F for 3 hou<br/>S°F for</td> <td>to for almost<br/>be<br/>d - dull or<br/>process<br/>mployed in<br/>scan<br/>) Vickers.<br/>hless steel<br/>lull grey or<br/>tel color.<br/>is a<br/>Has a low<br/>expansion.<br/>parts<br/>Rc- 40 or<br/>t bake at<br/>rs minimum<br/><b>L</b><br/><b>L</b><br/><b>L</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b></td> <td>AMS-QQ-N-23<br/>Class 1<br/>Grade A<br/>Grade B<br/>Grade C<br/>Grade C<br/>Grade F<br/>Grade F<br/>Grade G<br/>Class 2<br/>AMS-2403<br/>AMS-2403<br/>AMS-2403<br/>AMS-2403<br/>SAE-AMS-27</td> <td>90<br/>90<br/><br/>0.001<br/>0.001<br/>0.001<br/>0.001<br/>0.001<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000</td> 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<td>IOTE: All steensile streng<br/>reater shall<br/>ithout specified<br/>or corrosion<br/>/ith typical C<br/>ndercoating<br/>late. For Cla<br/>or engineering<br/>applies this<br/>undercoati<br/>applies this<br/>undercoati<br/>indercoati<br/>or engineering<br/>Alexandria<br/>applies this<br/>undercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>inderco</td> <td>yth of 220,0<br/>not be nicke<br/>ific approval<br/>ency.<br/>In protection.<br/>0.0002" cop<br/>prior to the<br/>ass 1, if thic<br/>, it shall be 0<br/>nc base met<br/>Copper base<br/>ing applicatio<br/>ing applicatio<br/>ing only gen<br/>er 0.0005"<br/>perature wit<br/>omate.<br/>ture.<br/>humidity test<br/>t spray test<br/>pecified, in a<br/>dity test.<br/>rom AMS-G0<br/>I Sampling for<br/>g is only 1 po<br/>erally" defau<br/>s not specific<br/>iodic basis</td> <td>h<br/>st<br/>may be<br/>addition</td> <td>fused condition. Soft, but is very<br/>ductile. Corrosion resistance is<br/>good. (Coated item should meet<br/>24 hour 5% salt spray<br/>requirement). Solderability is<br/>excellent. Tin is not good for low<br/>temperature applications<br/>(changes structure and loses<br/>adhesion when exposed to<br/>temperature below -40°C). Plate<br/>directly on steel substance (no<br/>undercoating for steel unless<br/>otherwise specified).<br/>Please Note: This specification is<br/>provided for reference purposes<br/>only as it has been superseded by<br/>ASTM-B-339 (not available at<br/>Alexandria Metal Finishers).<br/>ASTM requires purchaser to<br/>supply information: base<br/>metal, underplating, test<br/>requirements, test methods,<br/>etc. In general, copper alloys<br/>orbital lawe a copper undercoating<br/>of at least 0.0001" or nickel<br/>undercoating of at least<br/>0.000050", optional<br/>co-deposited lead in the range<br/>of 2-12% may be specified<br/><b>Ether a matte or luster is<br/>acceptable.</b> Has excellent<br/>solderability. 0.0002" copper<br/>plate generally required on steel<br/>substrates unless specified.<br/>The MIL-P-81728 specification<br/>has been superseded by the<br/>AMS-P-81728 specification.<br/><b>Ether a bright or dull finish is<br/>acceptable.</b> Bright zinc plating<br/>closely resembles bright<br/>chromium. However, bright zinc</td> <td>Type II<br/>ASTM-B-545<br/>Class A<br/>Class B<br/>Class C<br/>Class D<br/>Class E<br/>Type Matte<br/>Type Bright<br/>Type Flow<br/>Brightened<br/>AMS-P-81728<br/>AMS-P-81728<br/>AMS-P-81728<br/>Chass B<br/>Class C<br/>Class D<br/>Class C<br/>C<br/>Class D<br/>Class C<br/>C<br/>Class D<br/>C<br/>Class D<br/>C<br/>Class D<br/>C<br/>C<br/>D<br/>C<br/>C<br/>D<br/>C<br/>D<br/>C<br/>D<br/>C<br/>D<br/>C<br/>D<br/>C<br/>D<br/>C<br/>D<br/>C</td> <td>drawing.<br/>Thickness guide<br/>(not part of<br/>spec.)<br/>As follows:<br/>0.0001-<br/>0.00025"<br/>0.0002 -<br/>0.0003 min<br/>0.0002 -<br/>0.0006"<br/><br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.0001" min.<br/>0.0012" min.</td> <td>Electrodeposited. Use<br/>ASTM-B-545 as guideline.<br/>Flash for soldering<br/>To prevent galling and seizing<br/>Where corrosion resistance is<br/>important<br/>To prevent formation of case<br/>hardening during nitriding.<br/>Hot dipped (not currently<br/>available at Alexandria Metal<br/>Finishers)<br/>0.0004" min. for steel<br/>0.0008" min. for steel<br/>0.0008" min. for steel<br/>Flow brightening not currently<br/>available at Alexandria Metal<br/>Finishers.<br/>50% - 70% Tin, remainder is<br/>Lead<br/>Nominal 88% - 97% Tin,<br/>remainder is Lead</td> | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kn<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>10 HK (25gr) M/<br>10 HK  | app<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>// @AMF<br>// @AMF<br>// @AMF<br>ed as<br>such  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 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Soft, but is very<br>ductile. Corrosion resistance is<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>orbital lawe a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br><b>Ether a matte or luster is<br/>acceptable.</b> Has excellent<br>solderability. 0.0002" copper<br>plate generally required on steel<br>substrates unless specified.<br>The MIL-P-81728 specification<br>has been superseded by the<br>AMS-P-81728 specification.<br><b>Ether a bright or dull finish is<br/>acceptable.</b> Bright zinc plating<br>closely resembles bright<br>chromium. However, bright zinc   | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728<br>AMS-P-81728<br>Chass B<br>Class C<br>Class D<br>Class C<br>C<br>Class D<br>Class C<br>C<br>Class D<br>C<br>Class D<br>C<br>Class D<br>C<br>C<br>D<br>C<br>C<br>D<br>C<br>D<br>C<br>D<br>C<br>D<br>C<br>D<br>C<br>D<br>C<br>D<br>C | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0001" min.<br>0.0012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Flow brightening not currently<br>available at Alexandria Metal<br>Finishers.<br>50% - 70% Tin, remainder is<br>Lead<br>Nominal 88% - 97% Tin,<br>remainder is Lead  |
| Please note: This specification is<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>orcesses and cavities (does not<br>build up on edges). Corrosion<br>recesses not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.<br>No definition of phosphorous<br>content in the EN deposit. No<br>"Grade" designation.<br>Plating on special metals such<br>as titanium, etc. requires<br>customer to supply test coupons<br>of identical material to be used<br>for plating adhesion tests.  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-24074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade A<br>Grade B<br>Grade C<br>For plating on tit<br>customer to sup<br>coupons for adh | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0010" min.<br>0.0005" min.<br>0.0005" min.<br>0.0005" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min. | For carburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade B. Ferrous alloys will be Grade C.         Note: Unless a specific class is specified, Class 1 shall be supplied.         Except for hydrogen embrittlement relief, no postplating thermal treatment.  | Alterna<br>(Note: 3<br>conduct)<br>Please<br>provide<br>reguire<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>Very co<br>except<br>(If chos<br>660°F<br>test ma<br>(Note: 3<br>testing<br>of MII-G<br>Alterna<br>superse<br>Very co<br>except<br>(If chos<br>Secorf<br>test ma<br>(Note: 3<br>testing<br>of MII-G  | Corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise a<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This a<br>ed for reference<br>and the supersection<br>of compatible to<br>that adhes<br>sede MIL-G-4<br>compatible to<br>that adhes<br>sede MIL-G-4<br>compatible to<br>that adhes<br>for 30 minu-<br>nay also be s<br>a sampling for<br>G-45204. Yel<br>e color depe<br>etary process<br>from matted<br>ding on the<br>salow cor<br>ance and is<br>actor. Has ex-<br>ability. Unlex-<br>is, an inter<br>s required or<br>or cooper p   | color depervess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specification<br>serve base allo<br>surfaces p<br>ng.<br>specification<br>eded   | and<br>and<br>bys<br>prior<br>as it<br>as it<br>as it<br>bys<br>prior<br>bas<br>base<br>to<br>bas<br>base<br>wise<br>base<br>wise<br>base<br>base<br>base   
   | Type I<br>Type II<br>Type II<br>Class OO<br>Class 0<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 5<br>Class 6<br>Class 6<br>ASTM-B-488<br>ASTM-B-488<br>ASTM-B-488<br>Code D<br>Code D<br>Class<br>Class<br>Class 1<br>Code B<br>Code C<br>Code D<br>Class<br>Class 1<br>Class 2<br>Class 1<br>Class 2<br>Class 2   | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.00020" mir         0.00030" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.000150" mir         0.000150" mir         0.000150" mir         0.0000150" mir         0.00002" mir         0.00002" mir         0.00002" mir         0.00003" mir         0.00003" mir         0.00003" mir         0.00003" mir         0.00003" mir                                       | 99.7% gd         99.0% gd         99.0% gd         99.9% gd         Grade A S         Grade C 4         Grade C 4         Grade C 4         Grade D a         Type II (Gr         Harrow Type III (Gr         Harrow Type  
   
  | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kn<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>0 HK (25gr) N/<br>1K (25gr) N/<br>Shall be specific<br>nmicrometers<br>0, 0.75, 1.00 .<br>Metal Finishers<br>50, 0.75, 1.00 .<br>Metal Finishers<br>50, 0.75, 1.00 .<br>Metal Finishers<br>0, 0.75, 0.00 .<br>Metal Finishers<br>0, 0.75, 0.00 .<br>Metal Finishers<br>0, 0.75, 0.00 .<br>Metal Finishers<br>0, 0.75, 0.75, 0.00 .<br>Metal Finishers<br>0, 0.75, 0.75, 0.00 .  | app<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>   
  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 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  | IOTE: All steensile streng<br>reater shall<br>ithout specified<br>or corrosion<br>/ith typical C<br>ndercoating<br>late. For Cla<br>or engineering<br>applies this<br>undercoati<br>applies this<br>undercoati<br>indercoati<br>or engineering<br>Alexandria<br>applies this<br>undercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>inderco | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-G0<br>I Sampling for<br>g is only 1 po<br>erally" defau<br>s not specific<br>iodic basis | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-545 (see below) and<br>ASTM-B-545 (see below) and<br>ASTM-B-359 (not available at<br>Alexandria Metal Finishers).  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728<br>Composition<br>60/40 Sn-Pb<br>Optional<br>composition<br>90/10 Sn-Pb<br>0710 Sn-Pb  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0004"<br>0.0002 -<br>0.0006"<br><br>0.0006"<br>min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0012" min.<br>0.0012" min.<br>0.0012" min.<br>0.0005" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Elow brightening not currently<br>available at Alexandria Metal<br>Finishers.<br>50% - 70% Tin, remainder is<br>Lead<br>Nominal 88% - 97% Tin,<br>remainder is Lead  |
| Please note: This specification is<br>has been superseded by<br>AMS-2418 (See below).<br>COOPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.<br>No definition of phosphorous<br>content in the EN deposit. No:<br>"Grade" designation.<br>Plating on special metals such<br>as titanium, etc. requires<br>customer to supply test coupons<br>of identical material to be used<br>for plating adhesion tests.   | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-24074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade A<br>Grade B<br>Grade C<br>For plating on tit<br>customer to sup<br>coupons for add | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0010" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.   | For carburizing and<br>decarburizing shield, also plated<br>through printed circuit board<br>As an undercoat for nickel and<br>other platings.<br>to prevent basis metal<br>migration into tin (prevent<br>poisoning solderability).<br>Copper flash about 0.0001"<br>Preproduction approval required<br>or must be waived in writing.<br>Customer to specify the the Rc<br>hardness of steel and if it is<br>greater than RC40, whether the<br>steel is carburized.<br>As Coated<br>Steel and other base metals<br>heat treatable to improve<br>hardness.<br>Aluminum alloy, heat treatable,<br>processed to improve adhesion<br>of nickel deposit.<br>Aluminum alloy, heat treatable,<br>processed to improve adhesion<br>of nickel deposit.<br>Unless otherwise specified:<br>Aluminum alloys will be Grade A.<br>Cu, Ni, Co alloys will be Grade B.<br>Ferrous alloys will be Grade C.<br>Note: Unless a specific class is<br>specified, Class 1 shall be supplied.<br>Except for hydrogen embrittlement<br>treatment.<br>Thermal treatment at 450°F (232°C)<br>or above to harden the deposit,<br>hardness to 800 HK min.<br>Thermal treatment at 375°F (191°C)  | Alterna<br>(Note: 3<br>conduct)<br>Please<br>provide<br>reguire<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>Very co<br>except<br>(If chos<br>660°F<br>test ma<br>(Note: 3<br>testing<br>of MII-G<br>Alterna<br>superse<br>Very co<br>except<br>(If chos<br>Secorf<br>test ma<br>(Note: 3<br>testing<br>of MII-G  | Corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>s otherwise a<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This a<br>ed for reference<br>and the supersection<br>of compatible to<br>that adhes<br>sede MIL-G-4<br>compatible to<br>that adhes<br>sede MIL-G-4<br>compatible to<br>that adhes<br>for 30 minu-<br>nay also be s<br>a sampling for<br>G-45204. Yel<br>e color depe<br>etary process<br>from matted<br>ding on the<br>salow cor<br>ance and is<br>actor. Has ex-<br>ability. Unlex-<br>is, an inter<br>s required or<br>or cooper p   | color depervess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specification<br>serve base allo<br>surfaces p<br>ng.<br>specification<br>eded   | and<br>and<br>bys<br>prior<br>as it<br>as it<br>as it<br>bys<br>prior<br>bas<br>base<br>MI<br>base<br>MI<br>base<br>MI  
   | Type I<br>Type II<br>Type II<br>Class OO<br>Class 0<br>Class 1<br>Class 2<br>Class 3<br>Class 5<br>Class 6<br>Class 6<br>Class 6<br>Class 6<br>Class 6<br>Code D<br>Class<br>Code D<br>Class<br>Code D<br>Class<br>Class 1<br>Code C<br>Code D<br>Class<br>Class 1<br>Class 1<br>Class 2<br>Class 1  | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.000020" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00002" mir         0.00002" mir         0.00002" mir         0.00002" mir         0.00003" mir         0.00003" mir         0.00003" mir         0.00003" mir         0.00003" mir   | <ul> <li>99.7% gd</li> <li>99.0% gd</li> <li>99.0% gd</li> <li>99.9% gd</li> <li>Grade A S</li> <li>Grade C 2</li> <li>Grade C 2</li> <li>Grade C 2</li> <li>Grade C 4</li> <li>Grade C 4</li> <li>Type II (Gr</li> <li>Type II (Gr</li> <li>Alexandria<br/>performs<br/>only. Other<br/>request.</li> <li>99.7% gd</li> <li>99.7% gd</li> <li>99.7% gd</li> <li>99.7% gd</li> <li>99.9% gd</li> <li>90 HK(23)</li> <li>91-129 H</li> <li>130 - 200</li> <li>200 min</li> <li>Thickness a<br/>monte and a second a second</li></ul>   
   
  | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>0 HK (25gr) N/<br>Shall be specifie<br>noi: or 5, 1.00 -<br>HK (25gr) N/<br>0 HK (25gr) N/<br>of HK (25gr) N/<br>of HK (25gr) N/<br>shall be specifie<br>noi: or 5, 1.00 -<br>Metal Finishers<br>Grade C only. (<br>oted upon reque<br>old min.<br>old min.   | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>obed upon<br>////////////////////////////////////  
  | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 90<br>90<br><br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000 | eensional<br>ange<br>tion of<br>'is more<br>ad than<br>Qu-P-35<br>pe
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For Cla<br>or engineering<br>applies this<br>undercoati<br>applies this<br>undercoati<br>indercoati<br>or engineering<br>Alexandria<br>applies this<br>undercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>indercoati<br>inderco | yth of 220,0<br>not be nicke<br>ific approval<br>ency.<br>In protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>, it shall be 0<br>nc base met<br>Copper base<br>ing applicatio<br>ing applicatio<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>t spray test<br>pecified, in a<br>dity test.<br>rom AMS-G0<br>I Sampling for<br>g is only 1 po<br>erally" defau<br>s not specific<br>iodic basis | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>D.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified.<br>The MIL-P-81728 specification<br>has been superseded by the<br>AMS-P-81728 specification.<br>AMS-P-81728 specification<br>in
the superseded by the<br>AMS-P-81728 specification<br>cospet base alloys. No<br>undercoating required on steel<br>substrates unless specified.  | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728<br>AMS-P-81728<br>Composition<br>60/40 Sn-Pb<br>Optional<br>composition<br>90/10 Sn-Pb<br>or<br>95/5 Sn-Pb   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0001" min.<br>0.0012" min.   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>Elow brightening not currently<br>available at Alexandria Metal<br>Finishers.<br>50% - 70% Tin, remainder is<br>Lead<br>Nominal 88% - 97% Tin,<br>remainder is Lead  |
| Please note: This specification is<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless mot<br>build pon edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.<br><b>ELECTROLESS</b><br>NICKEL<br>No definition of phosphorous<br>content in the EN deposit. No<br>"Grade" designation.<br>Plating on special metals such<br>as titanium, etc. requires<br>customer to supply test coupons<br>of identical material to be used<br>for plating adhesion tests.   | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-24074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade A<br>Grade B<br>Grade C<br>For plating on tit<br>customer to sup<br>coupons for add | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0010" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.   | For carburizing and decarburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloys will be Grade A. Cu, Ni, Co alloys will be Grade B. Ferrous alloys will be Grade B. Ferrous alloys will be Grade C.         Note: Unless a specific class is specified, Class 1 shall be supplied.         Except for hydrogen embrittlement relief, no postplating thermal treatment.         Thermal treatment at 375°F (191°C) to improve adhesion for non heattreatable allowing thermal treatment.   | Alterna<br>Soldera<br>Very co<br>except<br>(If chos<br>660°F f<br>test ma<br>(Note: 3<br>testing<br>of MII-0<br>Alterna<br>Superse<br>Very co<br>except<br>a test ma<br>(Note: 3<br>testing<br>of MII-0<br>Alterna<br>superse<br>Very co<br>except<br>a test ma<br>(Note: 3<br>testing<br>of MII-0<br>Alterna<br>conduct<br>soldera   | COOL<br>Consistence<br>Southerwise<br>a low corresion re-<br>gh tarnish ri-<br>les a low corresion re-<br>gh tarnish ri-<br>southerwise<br>a correstance<br>a correstance<br>a note: This<br>ed for referen-<br>below).<br>COOL<br>ate gold spec-<br>southerwise<br>a note: This<br>ed for referen-<br>below).<br>COOL<br>ate gold spec-<br>for 30 minu-<br>hay also be se<br>for 30 minu-<br>hay also be se<br>for 30 minu-<br>hay also be se<br>for 30 minu-<br>ay also be se<br>for 45204).<br>COOL<br>ate spec to<br>45204. Yell<br>e color depe-<br>gh tarnish ri-<br>les a low cor-<br>ance and is a<br>ctor. Has ex-<br>ability. Uniter<br>is required o<br>or copper p<br>to the gold p   | color depervess used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specification<br>serve base allo<br>surfaces p<br>ng.<br>specification<br>eded   | and<br>and<br>bys<br>prior<br>as it<br>as it<br>as it<br>bys<br>prior<br>bas<br>base<br>MI<br>base<br>MI<br>base<br>MI  
   | Type I         Type II         Type II         Class OO         Class 1         Class 2         Class 3         Class 5         Class 6         ASTM-B-4888         Type II         Type II         Type II         Type II         Code A         Code ID         Class         Code ID         Class         Code ID         Class         Code ID         Class         Class         Code ID         Class         Class   | specified:<br>0.00002" mir<br>0.00003" mir<br>0.00005" mir<br>0.00020" mir<br>0.00050" mir<br>0.00050" mir<br>0.00150" mir<br>0.00150" mir<br>Hardness<br>Hardness<br>Unless otherwis<br>specified:<br>Unless otherwis<br>specified:<br>Unless otherwis<br>mir<br>0.00002" mir<br>0.00002" mir<br>0.00003" mir<br>0.00003" mir<br>0.00003" mir<br>0.00005" mir<br>0.00005" mir<br>0.00005" mir<br>0.00005" mir<br>0.00005" mir   | <ul> <li>99.7% gd</li> <li>99.0% gd</li> <li>99.9% gd</li> <li>99.9% gd</li> <li>Grade A S</li> <li>Grade C A</li> <li>Alexandria</li> <li>genforms</li> <li>99.7% gd</li> <li>99.9% gd</li> <li>90 HK(28)</li> <li>91-129 H</li> <li>130 - 200</li> <li>200 min</li> <li>Thickness a</li> <li>Grade A &amp;</li> <li>grades qd</li> <li>Grade A S</li> <li>Grade A S<!--</td--><td>old min.<br/>90 Knoop ma<br/>91-129 Knoo<br/>130 - 200 Kn<br/>above 200 Kn<br/>rades A, B or<br/>rade B, C or<br/>Grade A only)<br/>a Metal Finisl<br/>Grade A &amp; G<br/>er grades quo<br/>old min.<br/>old min.<br/>old min.<br/>5gr) max.<br/>HK (25gr) N/<br/>0 HK (25gr) N/<br/>0 HK (25gr) N/<br/>1 K (25gr) N/<br/>0 HK (25gr) N/<br/>1 K (25gr) N/<br/>1 K</td><td>pp<br/>noop<br/>noop<br/>C)<br/>D)<br/>hers<br/>Grade C<br/>obed upon<br/>/A @AMF<br/>/A @AMF<br/>ed as<br/>such as<br/>such as<br/>such as<br/>such as<br/>such as<br/>other<br/>est.<br/>//<br/>p<br/>noop<br/>noop<br/>noop<br/>noop<br/>slect<br/>of specified,<br/>imple per<br/>d).<br/>'s performs<br/>other</td><td>There is<br/>any need<br/>deposite<br/>bright, d<br/>used and<br/>plating.<br/>range fro<br/>Can be s<br/>in color,<br/>light gree<br/>Corrosio<br/>function<br/>coefficient<br/>Is magnet<br/>having a<br/>greater is<br/>375°+ 2<br/>P<br/>A process<br/>therefore<br/>resistant<br/>natural t<br/>oxidize. I<br/>appearan<br/>Process<br/>therefore<br/>resistant<br/>atherefore<br/>stainless<br/>(Cancelle<br/>Drawing<br/>documer<br/>stainless<br/>(Cancelle</td><td>a nickel finish<br/>d. Nickel can<br/>de soft or hard<br/>lepending on j<br/>d. conditions e<br/>Thus, hardnee<br/>om 150 - 500<br/>similar to stai<br/>or can be a c<br/>y (almost whi<br/>or resistance<br/>of thickness.<br/>Int of thermal<br/>etic. All steel<br/>hardness of<br/>require a pos<br/>5°F for 3 hou<br/>S°F for</td><td>to for almost<br/>be<br/>d - dull or<br/>process<br/>mployed in<br/>scan<br/>) Vickers.<br/>hless steel<br/>lull grey or<br/>tel color.<br/>is a<br/>Has a low<br/>expansion.<br/>parts<br/>Rc- 40 or<br/>t bake at<br/>rs minimum<br/><b>L</b><br/><b>L</b><br/><b>L</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b><br/><b>C</b></td><td>AMS-QQ-N-23<br/>Class 1<br/>Grade A<br/>Grade B<br/>Grade C<br/>Grade C<br/>Grade F<br/>Grade F<br/>Grade G<br/>Class
2<br/>AMS-2403<br/>AMS-2403<br/>AMS-2403<br/>AMS-2403<br/>SAE-AMS-27</td><td>90<br/>90<br/><br/>0.001<br/>0.001<br/>0.001<br/>0.001<br/>0.001<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000<br/>0.0000</td><td>eensional<br/>ange<br/>tion of<br/>'is more<br/>ad than<br/>Qu-P-35<br/>pe 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All steensile streng<br/>reater shall<br/>ithout specified<br/>or corrosion<br/>/ith typical C<br/>ndercoating<br/>late. For Cla<br/>or engineering<br/>applies this<br/>undercoati<br/>applies this<br/>undercoati<br/>indercoati<br/>or engineering<br/>Alexandria<br/>applies this<br/>undercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>indercoati<br/>inderco</td><td>yth of 220,0<br/>not be nicke<br/>ific approval<br/>ency.<br/>In protection.<br/>0.0002" cop<br/>prior to the<br/>ass 1, if thic<br/>, it shall be 0<br/>nc base met<br/>Copper base<br/>ing applicatio<br/>ing applicatio<br/>ing only gen<br/>er 0.0005"<br/>perature wit<br/>omate.<br/>ture.<br/>humidity test<br/>t spray test<br/>pecified, in a<br/>dity test.<br/>rom AMS-G0<br/>I Sampling for<br/>g is only 1 po<br/>erally" defau<br/>s not specific<br/>iodic basis</td><td>h<br/>st<br/>may be<br/>addition</td><td>fused condition. Soft, but is very<br/>good. (Coated item should meet<br/>24 hour 5% salt spray<br/>requirement). Solderability is<br/>excellent. Tin is not good for low<br/>temperature applications<br/>(changes structure and loses<br/>adhesion when exposed to<br/>temperature below -40°C). Plate<br/>directly on steel substance (no<br/>undercoating for steel unless<br/>otherwise specified).<br/>Please Note: This specification is<br/>provided for reference purposes<br/>only as it has been superseded by<br/>ASTM-B-545 (see below) and<br/>ASTM-B-339 (not available at<br/>Alexandria Metal Finishers).<br/>ASTM requires purchaser to<br/>supply information: base<br/>metal, underplating, test<br/>requirements, test methods,<br/>etc. In
general, copper alloys<br/>containing more than 5% Zn<br/>shall have a copper undercoating<br/>of at least 0.0001" or nickel<br/>undercoating of at least<br/>0.000050", optional<br/>co-deposited lead in the range<br/>of 2-12% may be specified<br/>DO00050", optional<br/>co-deposited lead in the range<br/>of 2-12% may be specified<br/>Either a matte or luster is<br/>asolderability. 0.0002" coper<br/>plate generally required on steel<br/>substrates unless specified.<br/>The MIL-P-81728 specification<br/>has been superseded by the<br/>AMS-P-81728 specification.<br/>Either a bright or dull finish is<br/>acceptable. Has accellent<br/>cosely resembles bright<br/>chosely resembles bright<br/>corronium. However, bright zinc<br/>does not have the permanence<br/>of surface appearance. Zinc<br/>costed steel will not rust even<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On<br/>when exposed by scratches<br/>because of the saccrificial<br/>protection of the zinc. On</td><td>Type II<br/>ASTM-B-545<br/>Class A<br/>Class B<br/>Class C<br/>Class D<br/>Class E<br/>Type Matte<br/>Type Bright<br/>Type Flow<br/>Brightened<br/>AMS-P-81728<br/>AMS-P-81728<br/>AMS-P-81728<br/>Standard<br/>composition<br/>60/40 Sn-Pb<br/>0ptional<br/>composition<br/>90/10 Sn-Pb<br/>0r<br/>95/5 Sn-Pb<br/>35/5 Sn-Pb</td><td>drawing.<br/>Thickness guide<br/>(not part of<br/>spec.)<br/>As follows:<br/>0.0001-<br/>0.00025"<br/>0.0002 -<br/>0.0004"<br/>0.0002 -<br/>0.0006"<br/><br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.0012" min.<br/>0.0012" min.<br/>0.0012" min.<br/>0.0005"<br/></td><td>Electrodeposited. Use<br/>ASTM-B-545 as guideline.<br/>Flash for soldering<br/>To prevent galling and seizing<br/>Where corrosion resistance is<br/>important.<br/>To prevent formation of case<br/>hardening during nitriding.<br/>Hot dipped (not currently<br/>available at Alexandria Metal<br/>Finishers)<br/>0.0004" min. for steel<br/>0.0008" min. for steel<br/>0.0008" min. for steel<br/>0.0008" min. for steel<br/>50% - 70% Tin, remainder is<br/>Lead<br/>Nominal 88% - 97% Tin,<br/>remainder is Lead<br/>The primary use of chromate<br/>finishes on zinc is to retard or<br/>prevent formation of white<br/>corrosion products on zinc<br/>surfaces.<br/>The primary purpose of phosphate<br/>coating on zinc is to previde a<br/>paint base. We currently offer</td></li></ul>   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kn<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/<br>0 HK (25gr) N/<br>0 HK (25gr) N/<br>1 K (25gr) N/<br>0 HK (25gr) N/<br>1 K  | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>obed upon<br>/A @AMF<br>/A @AMF<br>ed as<br>such as<br>such as<br>such as<br>such as<br>such as<br>other<br>est.<br>//<br>p<br>noop<br>noop<br>noop<br>noop<br>slect<br>of specified,<br>imple per<br>d).<br>'s performs<br>other   | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gree<br>Corrosio<br>function<br>coefficient<br>Is magnet<br>having a<br>greater is<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>appearan<br>Process<br>therefore<br>resistant<br>atherefore<br>stainless<br>(Cancelle<br>Drawing<br>documer<br>stainless<br>(Cancelle | a nickel finish<br>d. Nickel can<br>de soft or hard<br>lepending on j<br>d. conditions e<br>Thus, hardnee<br>om 150 - 500<br>similar to stai<br>or can be a c<br>y (almost whi<br>or resistance<br>of thickness.<br>Int of thermal<br>etic. All steel<br>hardness of<br>require a pos<br>5°F for 3 hou<br>S°F for | to for almost<br>be<br>d - dull or<br>process<br>mployed in<br>scan<br>) Vickers.<br>hless steel<br>lull grey or<br>tel color.<br>is a<br>Has a low<br>expansion.<br>parts<br>Rc- 40 or<br>t bake at<br>rs minimum<br><b>L</b><br><b>L</b><br><b>L</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b><br><b>C</b>  
   | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>AMS-2403<br>SAE-AMS-27                      | 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Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information: base<br>metal, underplating, test<br>requirements, test methods,<br>etc. In general, copper alloys<br>containing more than 5% Zn<br>shall have a copper undercoating<br>of at least 0.0001" or nickel<br>undercoating of at least<br>0.000050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>DO00050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>Either a matte or luster is<br>asolderability. 0.0002" coper<br>plate generally required on steel<br>substrates unless specified.<br>The MIL-P-81728 specification<br>has been superseded by the<br>AMS-P-81728 specification.<br>Either a bright or dull finish is<br>acceptable. Has accellent<br>cosely resembles bright<br>chosely resembles bright<br>corronium. However, bright zinc<br>does not have the permanence<br>of surface appearance. Zinc<br>costed steel will not rust even<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On<br>when exposed by scratches<br>because of the saccrificial<br>protection of the zinc. On     | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728<br>AMS-P-81728<br>Standard<br>composition<br>60/40 Sn-Pb<br>0ptional<br>composition<br>90/10 Sn-Pb<br>0r<br>95/5 Sn-Pb<br>35/5 Sn-Pb   | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.00025"<br>0.0002 -<br>0.0004"<br>0.0002 -<br>0.0006"<br><br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0012" min.<br>0.0012" min.<br>0.0012" min.<br>0.0005"<br>   | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important.<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>50% - 70% Tin, remainder is<br>Lead<br>Nominal 88% - 97% Tin,<br>remainder is Lead<br>The primary use of chromate<br>finishes on zinc is to retard or<br>prevent formation of white<br>corrosion products on zinc<br>surfaces.<br>The primary purpose of phosphate<br>coating on zinc is to previde a<br>paint base. We currently offer |
| Please note: This specification is<br>has been superseded by<br>AMS-2418 (See below).<br>COPPER<br>Alternate spec. to supersede<br>MIL-C-14550<br>CELECTROLESS<br>NICKEL<br>Similar to stainless steel in<br>color. Plates uniformly in<br>recesses and cavities (does not<br>build up on edges). Corrosion<br>resistance is good for coating<br>over 0.001" thickness.<br>Electroless nickel is used<br>extensively in salvage of<br>mismachined parts. Also, for<br>inside dimensions and irregular<br>shapes (where assembly<br>tolerances need uniformity<br>provided by electroless process).<br>This spec does not specify the<br>phosphorous content in the EN<br>deposit provided it passes 100<br>hours salt test at 1.0 mil for AL<br>and 1.5 mil for steel.<br>Microsectioning to determine<br>coating thickness may be<br>required under this spec when<br>thickness is over 1 mil and<br>non-destructive test method is<br>not available.<br>No definition of phosphorous<br>content in the EN deposit. No<br>"Grade" designation.<br>Plating on special metals such<br>as titanium, etc. requires<br>customer to supply test coupons<br>of identical material to be used<br>for plating adhesion tests.<br>Specs require the EN to pass 48<br>hours salt spray test for steel<br>(at 1.0 mil min.)<br>Specifications require no<br>production parts<br>unless preproduction samples<br>have been approved or waived in<br>writing by purchaser. EN deposit<br>my be hardened by heating at<br>750° F for steel, but only  | Class 3<br>Class 4<br>AMS-2418<br>AMS-2418<br>AMS-24074<br>(MIL-C-26074)<br>Class 1<br>Class 2<br>Class 3<br>Class 3<br>Class 4<br>Grade A<br>Grade A<br>Grade B<br>Grade C<br>For plating on tit<br>customer to sup<br>coupons for add            | 0.0005" min.<br>0.0002" min<br>0.0001" min.<br>Unless<br>otherwise<br>specified:<br>0.0005" -<br>0.0007"<br>Unless otherwise<br>specified:<br>0.0005" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.<br>0.0015" min.   | For carburizing shield, also plated through printed circuit board         As an undercoat for nickel and other platings. <ul> <li>to prevent basis metal migration into tin (prevent poisoning solderability).</li> </ul> Copper flash about 0.0001"         Preproduction approval required or must be waived in writing.         Customer to specify the the Rc hardness of steel and if it is greater than RC40, whether the steel is carburized.         As Coated         Steel and other base metals heat treatable to improve hardness.         Aluminum alloy, heat treatable, processed to improve adhesion of nickel deposit.         Unless otherwise specified:         Aluminum alloy swill be Grade A. Cu, Ni, Co alloys will be Grade B. Ferrous alloys will be Grade C.         Note: Unless a specific class is specified, Class 1 shall be supplied.         Except for hydrogen embrittlement relief, no postplating thermal treatment.         Thermal treatment at 375°F (191°C) to improve adhesion for non heat-treatable alon for heat-treatable alon for heat-treatable alon for heat-treatable alon for non heat-treatable alon for heat-treatable alon for heat-treatable alon for heat-treatabl | Alterna<br>(Note: 3<br>conduct)<br>Please<br>provide<br>require<br>or copp<br>to the g<br>Please<br>provide<br>has bee<br>(See be<br>Very co<br>except<br>(If chos<br>G60°F<br>test ma<br>(Note: 3<br>conduct)<br>Alterna<br>gof Mil-G  | Corrosion registary pro-<br>ange from m<br>depending o<br>corrosion re<br>gh tarnish r<br>les a low cor<br>ance, and is<br>ctor. Has ex-<br>ability.<br>So therwise f<br>ed on coppe<br>per plated s<br>gold plating<br>e note: This<br>ed for reference<br>and the supersed<br>below).<br>COO<br>ate gold spect<br>sede MIL-G-4<br>compatible to<br>t that adhes<br>is sampling for<br>g will be high<br>G-45204. Yel<br>e color depe<br>etary process<br>from matte<br>ding on the<br>sed an inter<br>or copper p<br>to the gold p  | color deperverse used<br>matte to br<br>on basis mu-<br>resistance,<br>ontact<br>is a good<br>excellent<br>a specification<br>server base allo<br>server base allo<br>server base allo<br>server base allo<br>server control<br>rence only<br>eded<br><b>ILD</b><br>pecification<br>45204.<br>to MIL-G-45<br>esion bake t<br>a @ 570°F<br>nutes. A be<br>substituted<br>for destruct<br>gher than the<br>substituted<br>for destruct<br>gher than the<br>essistance a<br>resistance a<br>resistance a<br>resistance.<br>ontact<br>a goldent<br>ess of herwar-<br>resistance.<br>ontact<br>a goldent<br>ess of herwar-<br>resistance.<br>ontact<br>a goldent<br>ess of herwar-<br>plated sufficient<br>plating. | anding<br>d. right<br>netal.<br>and<br>bys<br>prior<br>ion is<br>as it<br>in to<br>5204<br>test<br>end<br>ed.<br>ctive<br>that<br>i<br>finish<br>tal.<br>an<br>i<br>finish<br>tal.<br>s.<br>vise<br>faces   
   | Type I         Type II         Type II         Class OO         Class 1         Class 2         Class 3         Class 5         Class 6         ASTM-B-4888         Type II         Type II         Type II         Code A         Code B         Code C         Code ID         Class 0         Class 1         Code B         Code C         Code ID         Class 1         Class 2         Class 3         Code B         Code C         Code C         Code C         Code S         Class 1         Class 4         Class 1         Class 2         Class 3         Class 4         Class 5         Class 6  | specified:         0.00002" mir         0.00003" mir         0.00005" mir         0.00020" mir         0.00050" mir         0.00050" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00150" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.00050" mir         0.000010" mir         0.00002" mir         0.00005" mir         0.00005" mir | <ul> <li>99.7% gc</li> <li>99.0% gc</li> <li>99.9% gc</li> <li>99.9% gc</li> <li>Grade A S</li> <li>Grade C 2</li> <li>Grade D a</li> <li>Type II (Gr</li> <li>Type II (Gr</li> <li>Type III (Gr</li> <li>Alexandria<br/>performs<br/>only. Other<br/>request.</li> <li>99.7% gc</li> <li>99.7% gc</li> <li>99.9% gc</li> <li>90.HK(2S</li> <li>91-129 H</li> <li>130 - 200</li> <li>200 min I</li> <li>Thickness s</li> <li>grades quo</li> <li>99.7% gc</li> <li>99.9% gc</li> <li>90.HK(2S</li> <li>91-129 H</li> <li>130 - 200</li> <li>200 min I</li> <li>Thickness s</li> <li>Grade A S</li> <li>grades quo</li> <li>99.9% gc</li> <li>91.129 H</li> <li>130 - 200</li> <li>200 min I</li> <li>Thickness s</li> <li>Grade A S</li> <li>grades quo</li> <li>Alexandria</li> <li>Grade A S</li> <li>Grade C 2</li> <li>Grade C 4</li> <li>Alternately</li> <li>Specify a di<br/>(Such as per<br/>Alexandria</li> <li>Grade A S</li> <li>Grade C 4</li> <li>Alternately</li> <li>Specify a di<br/>(Such as per<br/>Alexandria</li> <li>Grade A S</li> <li>Grade A S</li> <li>Grade C 4</li> <li>Mil-Grade A S</li> <li>Grade A S</li> <li>Grade A S</li> <li>Grade C 4</li> <li>Mil-Grade A S</li> <li>Grade C 4</li> <li>Alternately</li> <li>Specify a di<br/>(Such as per<br/>Alexandria</li> <li>Grade A S</li> <li>Grade A S</li> </ul>   
   
   | old min.<br>90 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kn<br>rades A, B or<br>rade B, C or<br>Grade A only)<br>a Metal Finisl<br>Grade A & G<br>er grades quo<br>old min.<br>old min.<br>old min.<br>5gr) max.<br>HK (25gr) N/2<br>0 HK (25gr) N/2<br>0 HK (25gr) N/2<br>14K (25gr) N/2<br>0 HK (25gr) N/2<br>14K (25gr) N/2<br>0 HK (25gr) N/2<br>14K (25gr) N/2<br>0 HK (25gr) N/2<br>150 Knoop ma<br>91-129 Knoo<br>130 - 200 Kn<br>above 200 Kr<br>is required to e<br>0 Level from I to<br>916 Min.<br>130 - 200 Kr<br>above 200 Kr<br>is required to e<br>0 Level from I to<br>916 Miner no<br>0 Knoop ma<br>91-129 Knoo<br>130 - 200 Kr<br>above 200 Kr<br>is required to e<br>0 Level from I to<br>916 Miner no<br>0 Knoop ma<br>91-129 Knoo<br>130 - 200 Kr<br>above 200 Kr<br>is required to e<br>0 Level from I to<br>916 Miner no<br>0 Knoop ma<br>91-129 Knoo<br>130 - 200 Kr<br>above 200 Kr<br>is required to e<br>0 Level from I to<br>916 Miner no<br>0 Knoop ma<br>91-129 Knoo<br>130 - 200 Kr<br>is required to e<br>130 - 200 Kr<br>above 200 Kr<br>is required to e<br>130 - 200 Kr   
  | pp<br>noop<br>noop<br>C)<br>D)<br>hers<br>Grade C<br>oted upon<br>// @ AMF<br>// @ AMF<br>ed as<br>such | There is<br>any need<br>deposite<br>bright, d<br>used and<br>plating.<br>range fro<br>Can be s<br>in color,<br>light gre<br>Corrosio<br>function<br>greater in<br>375°+ 2<br>P<br>A process<br>therefore<br>resistant<br>natural t<br>oxidize. I<br>Drawing<br>documer<br>stainless<br>(Cancelle<br>P<br>Alternatic<br>AMS-Op<br>Finishers<br>(nitric), 1  | a nickel finish<br>di soft or hard<br>de soft or hard<br>and soft or soft<br>or can be a co<br>y (almost whi<br>in resistance)<br>of thickness.<br>It of thermal<br>etic. All steel<br>hardness of<br>require a posi-<br>tic soft of the<br>soft of the bas<br>purifies surfa-<br>e, improves co<br>ce.<br>Or purchase<br>natals from t<br>tendency of su<br>Does not char<br>nee of the bas<br>purifies surfa-<br>e, improves co<br>steel alloy.<br>ASSIVA<br>e spec. for<br>to purchase<br>natals promit<br>steel alloy.<br>ASSIVA<br>e spec. for<br>to purchase many<br>type 2 and 6  | A for almost<br>of dull or<br>process<br>mployed in<br>Social<br>Vickers.<br>helss steel<br>ull grey or<br>the surface<br>to a do or<br>the surface<br>to premove<br>the surface<br>to promote<br>and the surface<br>to ge the<br>semetal.<br>ce and<br>orrosion<br>order<br>specify<br>the<br>thod 1<br>Secient<br>of the surface<br>to a surface<br>t | AMS-QQ-N-23<br>Class 1<br>Grade A<br>Grade B<br>Grade C<br>Grade C<br>Grade F<br>Grade G<br>Class 2<br>AMS-2403<br>AMS-2403<br>AMS-QQ-P-3<br>Type II<br>Type IV<br>SAE-AMS-27<br>Type 2<br>Type 6 | 90<br>90<br>90<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.001<br>0.002<br>(unless o<br>speir<br>3<br>As spe<br>drav<br>35<br>No dim<br>cha<br>35<br>00<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | N         P <td< td=""><td>Internet of the second of the</td><td>protection.<br/>0.0002" cop<br/>prior to the<br/>ass 1, if thic<br/>it shall be 0<br/>nc base met<br/>Copper base<br/>ing application<br/>a Metal Finis<br/>a specification<br/>ing only gen<br/>er 0.0005"<br/>perature wit<br/>omate.<br/>ture.<br/>humidity test<br/>pecified, in a<br/>dity test.<br/>rom AMS-00<br/>I Sampling for<br/>iodic basis<br/>originally for</td><td>h<br/>st<br/>may be<br/>addition</td><td>fused condition. Soft, but is very<br/>good. (Coated item should meet<br/>24 hour 5% salt spray<br/>requirement). Solderability is<br/>excellent. Tin is not good for low<br/>temperature applications<br/>(changes structure and loses<br/>adhesion when exposed to<br/>temperature below -40°C). Plate<br/>directly on steel substance (no<br/>undercoating for steel unless<br/>otherwise specified).<br/>Please Note: This specification is<br/>provided for reference purposes<br/>only as it has been superseded by<br/>ASTM-B-545 (see below) and<br/>ASTM-B-339 (not available at<br/>Alexandria Metal Finishers).<br/>ASTM requires purchaser to<br/>supply information; base<br/>metal east 0.0001" on ickel<br/>undercoating of at least<br/>0.00050", optional<br/>co-deposited lead in the range<br/>of 2-12% may be specified<br/>The MIL-P-81728 specification<br/>has been superseded by the<br/>AMS-P-81728 specification.<br/>The MIL-P-81728 specification<br/>has been superseded by the<br/>AMS-P-81728 specification.<br/>Either a bright or dull finish is<br/>acceptable. Bright sinc platic<br/>outdercoating required on steel<br/>substrates unless specified<br/>The MIL-P-81728 specification<br/>has been superseded by the<br/>AMS-P-81728 specification.</td><td>Type II<br/>ASTM-B-545<br/>Class A<br/>Class B<br/>Class C<br/>Class D<br/>Class E<br/>Type Matte<br/>Type Bright<br/>Type Flow<br/>Brightened<br/>AMS-P-81728<br/>AMS-P-81728<br/>AMS-P-81728<br/>AMS-P-81728<br/>AMS-P-81728<br/>Fe/Zn25 SC4<br/>(very severe)<br/>Fe/Zn25 SC4<br/>(very severe)<br/>Fe/Zn12 SC3<br/>(severe)<br/>Fe/Zn5 SC1<br/>(mild)</td><td>drawing.<br/>Thickness guide<br/>(not part of<br/>spec.)<br/>As follows:<br/>0.0001-<br/>0.0002 -<br/>0.0003 min<br/>0.0002 -<br/>0.0006"<br/><br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.0002" min.<br/>0.00032" min.<br/>0.0012" min.<br/>0.0012" min.<br/>0.00030" min.<br/>0.00050" min.<br/>0.00050" min.<br/>0.00050" min.<br/>0.00020" min.</td><td>Electrodeposited. Use<br/>ASTM-B-545 as guideline.<br/>Flash for soldering<br/>To prevent galling and seizing<br/>Where corrosion resistance is<br/>important<br/>To prevent formation of case<br/>hardening during nitriding.<br/>Hot dipped (not
currently<br/>available at Alexandria Metal<br/>Finishers)<br/>0.0004" min. for steel<br/>0.0008" min. for steel<br/>0.0008" min. for steel<br/>0.0008" min. for steel<br/>50% - 70% Tin, remainder is<br/>Lead<br/>Nominal 88% - 97% Tin,<br/>remainder is Lead<br/>The primary use of chromate<br/>finishes on zinc is to retard or<br/>prevent formation of white<br/>corrosion products on zinc<br/>surfaces.<br/>The primary purpose of phosphate<br/>coating on zinc is to provide a<br/>paint bare.</td></td<> | Internet of the second of the   | protection.<br>0.0002" cop<br>prior to the<br>ass 1, if thic<br>it shall be 0<br>nc base met<br>Copper base<br>ing application<br>a Metal Finis<br>a specification<br>ing only gen<br>er 0.0005"<br>perature wit<br>omate.<br>ture.<br>humidity test<br>pecified, in a<br>dity test.<br>rom AMS-00<br>I Sampling for<br>iodic basis<br>originally for  | h<br>st<br>may be<br>addition   | fused condition. Soft, but is very<br>good. (Coated item should meet<br>24 hour 5% salt spray<br>requirement). Solderability is<br>excellent. Tin is not good for low<br>temperature applications<br>(changes structure and loses<br>adhesion when exposed to<br>temperature below -40°C). Plate<br>directly on steel substance (no<br>undercoating for steel unless<br>otherwise specified).<br>Please Note: This specification is<br>provided for reference purposes<br>only as it has been superseded by<br>ASTM-B-545 (see below) and<br>ASTM-B-339 (not available at<br>Alexandria Metal Finishers).<br>ASTM requires purchaser to<br>supply information; base<br>metal east 0.0001" on ickel<br>undercoating of at least<br>0.00050", optional<br>co-deposited lead in the range<br>of 2-12% may be specified<br>The MIL-P-81728 specification<br>has been superseded by the<br>AMS-P-81728 specification.<br>The MIL-P-81728 specification<br>has been superseded by the<br>AMS-P-81728 specification.<br>Either a bright or dull finish is<br>acceptable. Bright sinc platic<br>outdercoating required on steel<br>substrates unless specified<br>The MIL-P-81728 specification<br>has been superseded by the<br>AMS-P-81728 specification.   | Type II<br>ASTM-B-545<br>Class A<br>Class B<br>Class C<br>Class D<br>Class E<br>Type Matte<br>Type Bright<br>Type Flow<br>Brightened<br>AMS-P-81728<br>AMS-P-81728<br>AMS-P-81728<br>AMS-P-81728<br>AMS-P-81728<br>Fe/Zn25 SC4<br>(very severe)<br>Fe/Zn25 SC4<br>(very severe)<br>Fe/Zn12 SC3<br>(severe)<br>Fe/Zn5 SC1<br>(mild)  | drawing.<br>Thickness guide<br>(not part of<br>spec.)<br>As follows:<br>0.0001-<br>0.0002 -<br>0.0003 min<br>0.0002 -<br>0.0006"<br><br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.0002" min.<br>0.00032" min.<br>0.0012" min.<br>0.0012" min.<br>0.00030" min.<br>0.00050" min.<br>0.00050" min.<br>0.00050" min.<br>0.00020" min. | Electrodeposited. Use<br>ASTM-B-545 as guideline.<br>Flash for soldering<br>To prevent galling and seizing<br>Where corrosion resistance is<br>important<br>To prevent formation of case<br>hardening during nitriding.<br>Hot dipped (not currently<br>available at Alexandria Metal<br>Finishers)<br>0.0004" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>0.0008" min. for steel<br>50% - 70% Tin, remainder is<br>Lead<br>Nominal 88% - 97% Tin,<br>remainder is Lead<br>The primary use of chromate<br>finishes on zinc is to retard or<br>prevent formation of white<br>corrosion products on zinc<br>surfaces.<br>The primary purpose of phosphate<br>coating on zinc is to provide a<br>paint bare.                     |

9418 Gunston Cove Rd, Lorton, Va 22079-2314 Phone: (703) 643-1636 | Fax: (703) 690-6731 Email: Sales@alexandriametalfinishers.com www.alexandriametalfinishers.com