

TO ESTABLISH A STANDARD FOR A HIGH STRENGTH BOLT WITH A CLOSE TOLERANCE SHANK MEETING THE REQUIREMENTS OF AS7475.

AS3658

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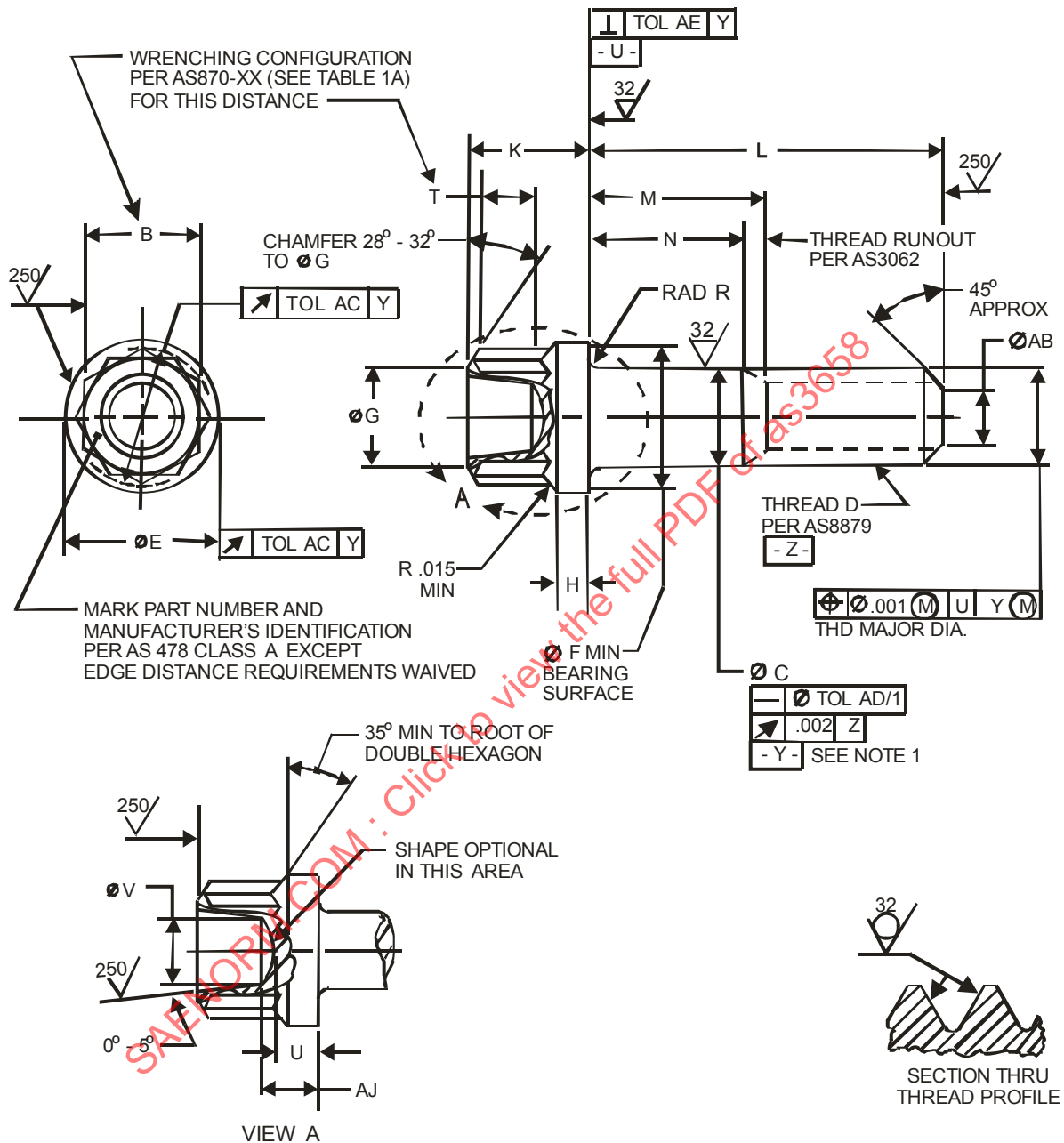
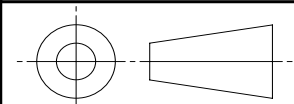


FIGURE 1 - BOLT

### THIRD ANGLE PROJECTION



CUSTODIAN: SAE E-25

PROCUREMENT SPECIFICATION: NONE

**SAE Aerospace**  
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## AEROSPACE STANDARD

BOLT, MACHINE - DOUBLE HEXAGON EXTENDED  
WASHER HEAD, CLOSE TOLERANCE SHANK,  
COBALT-NICKEL ALLOY, UNS R30159, 260 KSI MIN

**AS3658**  
SHEET 1 OF 12

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TABLE 1A - DASH NUMBERS AND DIMENSIONS B - F

| DASH NO. | NOMINAL THREAD D          |                     | B              |              | C             | E             | F MIN |
|----------|---------------------------|---------------------|----------------|--------------|---------------|---------------|-------|
|          | DESIGNATION               | MODIFIED MAJOR DIA. | AS870 DASH NO. | NOMINAL SIZE |               |               |       |
| -3       | .1900 - 32 UNJF - 3A MOD  | .1840 - .1875       | -08            | .2500        | .1885 - .1895 | .365 - .385   | .335  |
| -4       | .2500 - 28 UNJF - 3A MOD  | .2435 - .2475       | -10            | .3125        | .2485 - .2495 | .455 - .475   | .425  |
| -5       | .3125 - 24 UNJF - 3A MOD  | .3053 - .3100       | -12            | .3750        | .3110 - .3120 | .570 - .590   | .540  |
| -6       | .3750 - 24 UNJF - 4AMOD   | .3678 - .3725       | -14            | .4375        | .3735 - .3745 | .686 - .706   | .656  |
| -7       | .4375 - 20 UNJF - 3A MOD  | .4294 - .4350       | -16            | .5000        | .4360 - .4370 | .802 - .822   | .772  |
| -8       | .5000 - 20 UNJF - 3A MOD  | .4919 - .4975       | -18            | .5625        | .4985 - .4995 | .917 - .937   | .887  |
| -9       | .5625 - 18 UNJF - 3A MOD  | .5538 - .5600       | -20            | .6250        | .5610 - .5620 | 1.032 - 1.052 | 1.002 |
| -10      | .6250 - 18 UNJF - 3A MOD  | .6163 - .6225       | -22            | .6875        | .6235 - .6245 | 1.148 - 1.168 | 1.118 |
| -12      | .7500 - 16 UNJF - 3A MOD  | .7406 - .7475       | -26            | .8125        | .7485 - .7495 | 1.379 - 1.399 | 1.349 |
| -14      | .8750 - 14 UNJF - 3A MOD  | .8647 - .8725       | -30            | .9375        | .8735 - .8745 | 1.610 - 1.630 | 1.580 |
| -16      | 1.0000 - 12 UNJF - 3A MOD | .9886 - .9975       | -34            | 1.0625       | .9985 - .9995 | 1.841 - 1.861 | 1.811 |

TABLE 1B - DASH NUMBERS AND DIMENSIONS G - AB &amp; AJ

| DASH NO. | G             | H MIN | K           | R           | T MIN | U           | V           | AB          | AJ MAX |
|----------|---------------|-------|-------------|-------------|-------|-------------|-------------|-------------|--------|
| -3       | .240 - .260   | .020  | .248 - .268 | .015 - .025 | .122  | .114 - .134 | .090 - .110 | .130 - .150 | .154   |
| -4       | .302 - .322   | .026  | .293 - .313 | .020 - .030 | .144  | .150 - .170 | .140 - .160 | .184 - .204 | .199   |
| -5       | .365 - .385   | .035  | .354 - .374 | .026 - .036 | .166  | .188 - .208 | .196 - .216 | .239 - .259 | .247   |
| -6       | .428 - .448   | .044  | .405 - .425 | .033 - .043 | .188  | .225 - .245 | .250 - .270 | .301 - .321 | .294   |
| -7       | .490 - .510   | .053  | .462 - .482 | .039 - .049 | .210  | .262 - .282 | .300 - .320 | .354 - .374 | .340   |
| -8       | .552 - .572   | .062  | .510 - .530 | .045 - .055 | .232  | .300 - .320 | .360 - .380 | .416 - .436 | .389   |
| -9       | .615 - .635   | .071  | .558 - .578 | .051 - .061 | .254  | .338 - .358 | .430 - .450 | .472 - .492 | .440   |
| -10      | .677 - .697   | .080  | .635 - .655 | .058 - .068 | .336  | .375 - .395 | .490 - .510 | .534 - .554 | .488   |
| -12      | .802 - .822   | .098  | .735 - .755 | .070 - .080 | .371  | .450 - .470 | .560 - .580 | .650 - .670 | .576   |
| -14      | .927 - .947   | .116  | .875 - .895 | .083 - .093 | .442  | .525 - .545 | .640 - .660 | .764 - .784 | .665   |
| -16      | 1.052 - 1.072 | .134  | .975 - .995 | .095 - .105 | .512  | .600 - .620 | .730 - .750 | .874 - .894 | .756   |

TABLE 1C - DASH NUMBERS, AND GEOMETRIC TOLERANCES

| DASH NO. | AC   | AD    | AE   |
|----------|------|-------|------|
| -3       | .006 | .001  | .003 |
| -4       | .007 | .001  | .003 |
| -5       | .008 | .001  | .003 |
| -6       | .010 | .0008 | .003 |
| -7       | .010 | .0008 | .003 |
| -8       | .012 | .0006 | .003 |
| -9       | .013 | .0006 | .003 |
| -10      | .016 | .0006 | .003 |
| -12      | .017 | .0006 | .003 |
| -14      | .022 | .0006 | .005 |
| -16      | .025 | .0006 | .005 |

NOTES:

1. FOR PARTS WITH A MINIMUM GRIP LENGTH (DIM 'N') EQUAL TO OR LESS THAN 1.5D THE THREAD PD (DATUM -Z-) SHALL REPLACE DATUM -Y-.
2. MATERIAL: COBALT-NICKEL ALLOY PER AMS 5842 (UNS R30159).
3. PROCUREMENT SPECIFICATION: AS7475.
4. FLUORESCENT PENETRANT INSPECTION PER ASTM E 1417.
5. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M. REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, SURFACES TO BE 125  $\mu$ in Ra.
6. BREAK SHARP EDGES .003 TO .015, UNLESS OTHERWISE SPECIFIED.
7. DIMENSIONS IN INCHES.
8. DIMENSIONING AND TOLERANCING PER ANSI Y14.5-1982 (ASME PUBLICATION).
9. DO NOT USE UNASSIGNED PART NUMBERS.
10. THE PART NUMBER SHALL CONSIST OF THE BASIC PART NUMBER, FIRST DASH NUMBER DESIGNATING THE NOMINAL DIAMETER AND THE SECOND DASH NUMBER DESIGNATING THE MINIMUM GRIP IN SIXTEENTHS (.0625) OF AN INCH.

EXAMPLE OF COMPLETE PART NUMBER: -

**AS3658 - 4 - 14**

BASIC PART NUMBER -----  
NOMINAL DIAMETER = .2500 INCHES ----- MINIMUM GRIP = .8750 INCHES

11. THE CHANGE BAR ( I ) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES, HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT.

AS AND AMS ARE SAE INTERNATIONAL PUBLICATIONS.  
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|                                                                   |                                                                                                                                |                                |  |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|
| <b>SAE</b> Aerospace<br><small>An SAE International Group</small> | <b>AEROSPACE STANDARD</b>                                                                                                      | <b>AS3658</b><br>SHEET 3 OF 12 |  |
|                                                                   | BOLT, MACHINE - DOUBLE HEXAGON EXTENDED<br>WASHER HEAD, CLOSE TOLERANCE SHANK,<br>COBALT-NICKEL ALLOY, UNS R30159, 260 KSI MIN |                                |  |

TABLE 2 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .1900 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-3-02 | .125         | .198  | .610 - .630   | .986                | AS3658-3-18 | 1.125        | 1.198 | 1.610 - 1.630 | 1.842               |
| AS3658-3-03 | .188         | .261  | .673 - .693   | 1.040               | AS3658-3-19 | 1.188        | 1.260 | 1.672 - 1.692 | 1.895               |
| AS3658-3-04 | .250         | .322  | .734 - .754   | 1.093               | AS3658-3-20 | 1.250        | 1.322 | 1.734 - 1.754 | 1.948               |
| AS3658-3-05 | .312         | .385  | .797 - .817   | 1.146               | AS3658-3-21 | 1.312        | 1.384 | 1.796 - 1.816 | 2.002               |
| AS3658-3-06 | .375         | .448  | .860 - .880   | 1.200               | AS3658-3-22 | 1.375        | 1.448 | 1.860 - 1.880 | 2.056               |
| AS3658-3-07 | .438         | .510  | .922 - .942   | 1.253               | AS3658-3-23 | 1.438        | 1.510 | 1.922 - 1.942 | 2.109               |
| AS3658-3-08 | .500         | .572  | .984 - 1.004  | 1.306               | AS3658-3-24 | 1.500        | 1.572 | 1.984 - 2.004 | 2.162               |
| AS3658-3-09 | .562         | .634  | 1.046 - 1.066 | 1.360               | AS3658-3-25 | 1.562        | 1.634 | 2.046 - 2.066 | 2.216               |
| AS3658-3-10 | .625         | .698  | 1.110 - 1.130 | 1.414               | AS3658-3-26 | 1.625        | 1.698 | 2.110 - 2.130 | 2.270               |
| AS3658-3-11 | .688         | .760  | 1.172 - 1.192 | 1.467               | AS3658-3-27 | 1.688        | 1.760 | 2.172 - 2.192 | 2.323               |
| AS3658-3-12 | .750         | .822  | 1.234 - 1.254 | 1.520               | AS3658-3-28 | 1.750        | 1.822 | 2.234 - 2.254 | 2.376               |
| AS3658-3-13 | .812         | .884  | 1.296 - 1.316 | 1.574               | AS3658-3-29 | 1.812        | 1.884 | 2.296 - 2.316 | 2.430               |
| AS3658-3-14 | .875         | .948  | 1.360 - 1.380 | 1.628               | AS3658-3-30 | 1.875        | 1.948 | 2.360 - 2.380 | 2.484               |
| AS3658-3-15 | .938         | 1.010 | 1.422 - 1.442 | 1.681               | AS3658-3-31 | 1.938        | 2.010 | 2.422 - 2.442 | 2.538               |
| AS3658-3-16 | 1.000        | 1.072 | 1.484 - 1.504 | 1.734               | AS3658-3-32 | 2.000        | 2.072 | 2.484 - 2.504 | 2.591               |
| AS3658-3-17 | 1.062        | 1.134 | 1.546 - 1.566 | 1.788               |             |              |       |               |                     |

TABLE 3 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .2500 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-4-02 | .125         | .206  | .715 - .735   | 1.920               | AS3658-4-18 | 1.125        | 1.206 | 1.715 - 1.735 | 3.404               |
| AS3658-4-03 | .188         | .269  | .778 - .798   | 2.013               | AS3658-4-19 | 1.188        | 1.269 | 1.778 - 1.798 | 3.496               |
| AS3658-4-04 | .250         | .331  | .840 - .860   | 2.106               | AS3658-4-20 | 1.250        | 1.331 | 1.840 - 1.860 | 3.589               |
| AS3658-4-05 | .312         | .393  | .902 - .922   | 2.198               | AS3658-4-21 | 1.312        | 1.393 | 1.902 - 1.922 | 3.682               |
| AS3658-4-06 | .375         | .456  | .965 - .985   | 2.291               | AS3658-4-22 | 1.375        | 1.456 | 1.965 - 1.985 | 3.774               |
| AS3658-4-07 | .438         | .519  | 1.028 - 1.048 | 2.384               | AS3658-4-23 | 1.438        | 1.519 | 2.028 - 2.048 | 3.867               |
| AS3658-4-08 | .500         | .581  | 1.090 - 1.110 | 2.476               | AS3658-4-24 | 1.500        | 1.581 | 2.090 - 2.110 | 3.960               |
| AS3658-4-09 | .562         | .643  | 1.152 - 1.172 | 2.569               | AS3658-4-25 | 1.562        | 1.643 | 2.152 - 2.172 | 4.052               |
| AS3658-4-10 | .625         | .706  | 1.215 - 1.235 | 2.662               | AS3658-4-26 | 1.625        | 1.706 | 2.215 - 2.235 | 4.145               |
| AS3658-4-11 | .688         | .769  | 1.278 - 1.298 | 2.755               | AS3658-4-27 | 1.688        | 1.769 | 2.278 - 2.298 | 4.238               |
| AS3658-4-12 | .750         | .831  | 1.340 - 1.360 | 2.847               | AS3658-4-28 | 1.750        | 1.831 | 2.340 - 2.360 | 4.331               |
| AS3658-4-13 | .812         | .893  | 1.402 - 1.422 | 2.940               | AS3658-4-29 | 1.812        | 1.893 | 2.402 - 2.422 | 4.423               |
| AS3658-4-14 | .875         | .955  | 1.465 - 1.485 | 3.032               | AS3658-4-30 | 1.875        | 1.956 | 2.465 - 2.485 | 4.516               |
| AS3658-4-15 | .938         | 1.019 | 1.528 - 1.548 | 3.125               | AS3658-4-31 | 1.938        | 1.019 | 2.528 - 2.548 | 4.609               |
| AS3658-4-16 | 1.000        | 1.081 | 1.590 - 1.610 | 3.218               | AS3658-4-32 | 2.000        | 2.081 | 2.590 - 2.610 | 4.702               |
| AS3658-4-17 | 1.062        | 1.143 | 1.652 - 1.672 | 3.311               |             |              |       |               |                     |

TABLE 4 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .3125 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-5-03 | .188         | .281  | .896 - .916   | 3.606               | AS3658-5-22 | 1.375        | 1.468 | 2.083 - 2.103 | 6.357               |
| AS3658-5-04 | .250         | .343  | .958 - .978   | 3.751               | AS3658-5-23 | 1.438        | 1.531 | 2.146 - 2.166 | 6.502               |
| AS3658-5-05 | .312         | .405  | 1.020 - 1.040 | 3.896               | AS3658-5-24 | 1.500        | 1.593 | 2.208 - 2.228 | 6.647               |
| AS3658-5-06 | .375         | .468  | 1.083 - 1.103 | 4.040               | AS3658-5-25 | 1.562        | 1.655 | 2.270 - 2.290 | 6.792               |
| AS3658-5-07 | .438         | .531  | 1.146 - 1.166 | 4.185               | AS3658-5-26 | 1.625        | 1.718 | 2.333 - 2.353 | 6.936               |
| AS3658-5-08 | .500         | .593  | 1.208 - 1.228 | 4.330               | AS3658-5-27 | 1.688        | 1.781 | 2.396 - 2.416 | 7.081               |
| AS3658-5-09 | .562         | .655  | 1.270 - 1.290 | 4.475               | AS3658-5-28 | 1.750        | 1.843 | 2.458 - 2.478 | 7.226               |
| AS3658-5-10 | .625         | .718  | 1.333 - 1.353 | 4.620               | AS3658-5-29 | 1.812        | 1.905 | 2.520 - 2.540 | 7.371               |
| AS3658-5-11 | .688         | .781  | 1.396 - 1.416 | 4.764               | AS3658-5-30 | 1.875        | 1.968 | 2.583 - 2.603 | 7.516               |
| AS3658-5-12 | .750         | .843  | 1.458 - 1.478 | 4.909               | AS3658-5-31 | 1.938        | 2.031 | 2.646 - 2.666 | 7.660               |
| AS3658-5-13 | .812         | .905  | 1.520 - 1.540 | 5.054               | AS3658-5-32 | 2.000        | 2.093 | 2.708 - 2.728 | 7.805               |
| AS3658-5-14 | .875         | .968  | 1.583 - 1.603 | 5.199               | AS3658-5-33 | 2.062        | 2.155 | 2.770 - 2.790 | 7.950               |
| AS3658-5-15 | .938         | 1.031 | 1.646 - 1.666 | 5.344               | AS3658-5-34 | 2.125        | 2.218 | 2.833 - 2.853 | 8.095               |
| AS3658-5-16 | 1.000        | 1.093 | 1.708 - 1.728 | 5.488               | AS3658-5-35 | 2.188        | 2.281 | 2.896 - 2.916 | 8.240               |
| AS3658-5-17 | 1.062        | 1.155 | 1.770 - 1.790 | 5.633               | AS3658-5-36 | 2.250        | 2.343 | 2.958 - 2.978 | 8.384               |
| AS3658-5-18 | 1.125        | 1.218 | 1.833 - 1.853 | 5.778               | AS3658-5-37 | 2.312        | 2.405 | 3.020 - 3.040 | 8.529               |
| AS3658-5-19 | 1.188        | 1.281 | 1.896 - 1.916 | 5.923               | AS3658-5-38 | 2.375        | 2.468 | 3.083 - 3.103 | 8.674               |
| AS3658-5-20 | 1.250        | 1.343 | 1.958 - 1.978 | 6.068               | AS3658-5-39 | 2.438        | 2.531 | 3.146 - 3.166 | 8.819               |
| AS3658-5-21 | 1.312        | 1.405 | 2.020 - 2.040 | 6.212               | AS3658-5-40 | 2.500        | 2.593 | 3.208 - 3.228 | 8.964               |

TABLE 5 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .3750 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-6-03 | .188         | .281  | .983 - 1.003  | 5.698               | AS3658-6-22 | 1.375        | 1.468 | 2.170 - 2.190 | 9.659               |
| AS3658-6-04 | .250         | .343  | 1.045 - 1.065 | 5.906               | AS3658-6-23 | 1.438        | 1.531 | 2.233 - 2.253 | 9.868               |
| AS3658-6-05 | .312         | .405  | 1.107 - 1.127 | 6.115               | AS3658-6-24 | 1.500        | 1.593 | 2.295 - 2.315 | 10.076              |
| AS3658-6-06 | .375         | .468  | 1.170 - 1.190 | 6.323               | AS3658-6-25 | 1.562        | 1.655 | 2.357 - 2.377 | 10.285              |
| AS3658-6-07 | .438         | .531  | 1.233 - 1.253 | 6.532               | AS3658-6-26 | 1.625        | 1.718 | 2.420 - 2.440 | 10.493              |
| AS3658-6-08 | .500         | .593  | 1.295 - 1.315 | 6.740               | AS3658-6-27 | 1.688        | 1.781 | 2.483 - 2.503 | 10.702              |
| AS3658-6-09 | .562         | .655  | 1.357 - 1.377 | 6.949               | AS3658-6-28 | 1.750        | 1.843 | 2.545 - 2.565 | 10.910              |
| AS3658-6-10 | .625         | .718  | 1.420 - 1.440 | 7.157               | AS3658-6-29 | 1.812        | 1.905 | 2.607 - 2.627 | 11.118              |
| AS3658-6-11 | .688         | .781  | 1.483 - 1.503 | 7.366               | AS3658-6-30 | 1.875        | 1.968 | 2.670 - 2.690 | 11.327              |
| AS3658-6-12 | .750         | .843  | 1.545 - 1.565 | 7.574               | AS3658-6-31 | 1.938        | 2.031 | 2.733 - 2.753 | 11.536              |
| AS3658-6-13 | .812         | .905  | 1.607 - 1.627 | 7.783               | AS3658-6-32 | 2.000        | 2.093 | 2.795 - 2.815 | 11.744              |
| AS3658-6-14 | .875         | .968  | 1.670 - 1.690 | 7.991               | AS3658-6-33 | 2.062        | 2.155 | 2.857 - 2.877 | 11.952              |
| AS3658-6-15 | .938         | 1.031 | 1.733 - 1.753 | 8.200               | AS3658-6-34 | 2.125        | 2.218 | 2.920 - 2.940 | 12.161              |
| AS3658-6-16 | 1.000        | 1.093 | 1.795 - 1.815 | 8.408               | AS3658-6-35 | 2.188        | 2.281 | 2.983 - 3.003 | 12.370              |
| AS3658-6-17 | 1.062        | 1.155 | 1.857 - 1.877 | 8.617               | AS3658-6-36 | 2.250        | 2.343 | 3.045 - 3.065 | 12.578              |
| AS3658-6-18 | 1.125        | 1.218 | 1.920 - 1.940 | 8.825               | AS3658-6-37 | 2.312        | 2.405 | 3.107 - 3.127 | 12.786              |
| AS3658-6-19 | 1.188        | 1.281 | 1.983 - 2.003 | 9.034               | AS3658-6-38 | 2.375        | 2.468 | 3.170 - 3.190 | 12.995              |
| AS3658-6-20 | 1.250        | 1.343 | 2.045 - 2.065 | 9.242               | AS3658-6-39 | 2.438        | 2.531 | 3.233 - 3.253 | 13.204              |
| AS3658-6-21 | 1.312        | 1.405 | 2.107 - 2.127 | 9.451               | AS3658-6-40 | 2.500        | 2.593 | 3.295 - 3.315 | 13.412              |

TABLE 6 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .4375 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-7-03 | .188         | .298  | 1.112 - 1.132 | 8.822               | AS3658-7-26 | 16.25        | 1.735 | 2.549 - 2.569 | 15.347              |
| AS3658-7-04 | .250         | .360  | 1.174 - 1.194 | 9.106               | AS3658-7-27 | 1.688        | 1.798 | 2.612 - 2.632 | 15.631              |
| AS3658-7-05 | .312         | .422  | 1.236 - 1.256 | 9.390               | AS3658-7-28 | 1.750        | 1.860 | 2.674 - 2.694 | 15.915              |
| AS3658-7-06 | .375         | .485  | 1.299 - 1.319 | 9.674               | AS3658-7-29 | 1.812        | 1.922 | 2.736 - 2.756 | 16.199              |
| AS3658-7-07 | .438         | .548  | 1.362 - 1.382 | 9.957               | AS3658-7-30 | 1.875        | 1.985 | 2.799 - 2.819 | 16.482              |
| AS3658-7-08 | .500         | .610  | 1.424 - 1.444 | 10.241              | AS3658-7-31 | 1.938        | 2.048 | 2.862 - 2.882 | 16.766              |
| AS3658-7-09 | .562         | .672  | 1.486 - 1.506 | 10.525              | AS3658-7-32 | 2.000        | 2.110 | 2.924 - 2.944 | 17.050              |
| AS3658-7-10 | .625         | .735  | 1.549 - 1.569 | 10.808              | AS3658-7-33 | 2.062        | 2.172 | 2.986 - 3.006 | 17.333              |
| AS3658-7-11 | .688         | .798  | 1.612 - 1.632 | 11.092              | AS3658-7-34 | 2.125        | 2.235 | 3.049 - 3.069 | 17.617              |
| AS3658-7-12 | .750         | .860  | 1.674 - 1.694 | 11.376              | AS3658-7-35 | 2.188        | 2.298 | 3.112 - 3.132 | 17.901              |
| AS3658-7-13 | .812         | .922  | 1.736 - 1.756 | 11.660              | AS3658-7-36 | 2.250        | 2.360 | 3.174 - 3.194 | 18.184              |
| AS3658-7-14 | .875         | .985  | 1.799 - 1.819 | 11.943              | AS3658-7-37 | 2.312        | 2.422 | 3.236 - 3.256 | 18.468              |
| AS3658-7-15 | .938         | 1.048 | 1.862 - 1.882 | 12.227              | AS3658-7-38 | 2.375        | 2.485 | 3.299 - 3.319 | 18.752              |
| AS3658-7-16 | 1.000        | 1.110 | 1.924 - 1.944 | 12.511              | AS3658-7-39 | 2.438        | 2.548 | 3.362 - 3.382 | 19.036              |
| AS3658-7-17 | 1.062        | 1.172 | 1.986 - 2.006 | 12.794              | AS3658-7-40 | 2.500        | 2.610 | 3.424 - 3.444 | 19.319              |
| AS3658-7-18 | 1.125        | 1.235 | 2.049 - 2.069 | 13.078              | AS3658-7-41 | 2.562        | 2.672 | 3.486 - 3.506 | 19.603              |
| AS3658-7-19 | 1.188        | 1.298 | 2.112 - 2.132 | 13.362              | AS3658-7-42 | 2.625        | 2.735 | 3.549 - 3.569 | 19.887              |
| AS3658-7-20 | 1.250        | 1.360 | 2.174 - 2.194 | 13.645              | AS3658-7-43 | 2.688        | 2.798 | 3.612 - 3.632 | 20.170              |
| AS3658-7-21 | 1.312        | 1.422 | 2.236 - 2.256 | 13.929              | AS3658-7-44 | 2.750        | 2.860 | 3.674 - 3.694 | 20.454              |
| AS3658-7-22 | 1.375        | 1.485 | 2.299 - 2.319 | 14.213              | AS3658-7-45 | 2.812        | 2.922 | 3.736 - 3.756 | 20.738              |
| AS3658-7-23 | 1.438        | 1.548 | 2.362 - 2.382 | 14.496              | AS3658-7-46 | 2.875        | 2.985 | 3.799 - 3.819 | 21.021              |
| AS3658-7-24 | 1.500        | 1.610 | 2.424 - 2.444 | 14.780              | AS3658-7-47 | 2.938        | 3.048 | 3.862 - 3.882 | 21.305              |
| AS3658-7-25 | 1.562        | 1.672 | 2.486 - 2.506 | 15.064              | AS3658-7-48 | 3.000        | 3.110 | 3.924 - 3.944 | 21.589              |

TABLE 7 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .5000 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-8-04 | .250         | .360  | 1.262 - 1.282 | 11.871              | AS3658-8-31 | 1.938        | 2.048 | 2.950 - 2.970 | 21.877              |
| AS3658-8-05 | .312         | .422  | 1.324 - 1.344 | 12.241              | AS3658-8-32 | 2.000        | 2.110 | 3.012 - 3.032 | 22.247              |
| AS3658-8-06 | .375         | .485  | 1.387 - 1.407 | 12.612              | AS3658-8-33 | 2.062        | 2.172 | 3.074 - 3.094 | 22.618              |
| AS3658-8-07 | .438         | .548  | 1.450 - 1.470 | 12.982              | AS3658-8-34 | 2.125        | 2.235 | 3.137 - 3.157 | 22.994              |
| AS3658-8-08 | .500         | .610  | 1.512 - 1.532 | 13.353              | AS3658-8-35 | 2.188        | 2.298 | 3.200 - 3.220 | 23.365              |
| AS3658-8-09 | .562         | .672  | 1.574 - 1.594 | 13.724              | AS3658-8-36 | 2.250        | 2.360 | 3.262 - 3.282 | 23.735              |
| AS3658-8-10 | .625         | .735  | 1.637 - 1.657 | 14.094              | AS3658-8-37 | 2.312        | 2.422 | 3.324 - 3.344 | 24.106              |
| AS3658-8-11 | .688         | .798  | 1.700 - 1.720 | 14.465              | AS3658-8-38 | 2.375        | 2.485 | 3.387 - 3.407 | 24.476              |
| AS3658-8-12 | .750         | .860  | 1.762 - 1.782 | 14.835              | AS3658-8-39 | 2.438        | 2.548 | 3.450 - 3.470 | 24.847              |
| AS3658-8-13 | .812         | .922  | 1.824 - 1.844 | 15.206              | AS3658-8-40 | 2.500        | 2.610 | 3.512 - 3.532 | 25.218              |
| AS3658-8-14 | .875         | .985  | 1.887 - 1.907 | 15.577              | AS3658-8-41 | 2.562        | 2.672 | 3.574 - 3.594 | 25.588              |
| AS3658-8-15 | .938         | 1.048 | 1.950 - 1.970 | 15.947              | AS3658-8-42 | 2.625        | 2.735 | 3.637 - 3.657 | 25.959              |
| AS3658-8-16 | 1.000        | 1.110 | 2.012 - 2.032 | 16.318              | AS3658-8-43 | 2.688        | 2.798 | 3.700 - 3.720 | 26.329              |
| AS3658-8-17 | 1.062        | 1.172 | 2.074 - 2.094 | 16.688              | AS3658-8-44 | 2.750        | 2.860 | 3.762 - 3.782 | 26.700              |
| AS3658-8-18 | 1.125        | 1.235 | 2.137 - 2.157 | 17.059              | AS3658-8-45 | 2.812        | 2.922 | 3.824 - 3.844 | 27.071              |
| AS3658-8-19 | 1.188        | 1.298 | 2.200 - 2.220 | 17.430              | AS3658-8-46 | 2.875        | 2.985 | 3.887 - 3.907 | 27.441              |
| AS3658-8-20 | 1.250        | 1.360 | 2.262 - 2.282 | 17.800              | AS3658-8-47 | 2.938        | 3.048 | 3.950 - 3.970 | 27.812              |
| AS3658-8-21 | 1.312        | 1.422 | 2.324 - 2.344 | 18.171              | AS3658-8-48 | 3.000        | 3.110 | 4.012 - 4.032 | 28.182              |
| AS3658-8-22 | 1.375        | 1.485 | 2.387 - 2.407 | 18.541              | AS3658-8-49 | 3.062        | 3.172 | 4.074 - 4.094 | 28.553              |
| AS3658-8-23 | 1.438        | 1.548 | 2.450 - 2.470 | 18.912              | AS3658-8-50 | 3.125        | 3.235 | 4.137 - 4.157 | 28.924              |
| AS3658-8-24 | 1.500        | 1.610 | 2.512 - 2.532 | 19.283              | AS3658-8-51 | 3.188        | 3.298 | 4.200 - 4.220 | 29.294              |
| AS3658-8-25 | 1.562        | 1.672 | 2.574 - 2.594 | 19.653              | AS3658-8-52 | 3.250        | 3.360 | 4.262 - 4.282 | 29.665              |
| AS3658-8-26 | 1.625        | 1.735 | 2.637 - 2.657 | 20.024              | AS3658-8-53 | 3.312        | 3.422 | 4.324 - 4.344 | 30.035              |
| AS3658-8-27 | 1.688        | 1.798 | 2.700 - 2.720 | 20.394              | AS3658-8-54 | 3.375        | 3.485 | 4.387 - 4.407 | 30.406              |
| AS3658-8-28 | 1.750        | 1.860 | 2.762 - 2.782 | 20.765              | AS3658-8-55 | 3.438        | 3.548 | 4.450 - 4.470 | 30.777              |
| AS3658-8-29 | 1.812        | 1.922 | 2.824 - 2.844 | 21.136              | AS3658-8-56 | 3.500        | 3.610 | 4.512 - 4.532 | 31.148              |
| AS3658-8-30 | 1.875        | 1.985 | 2.887 - 2.907 | 21.506              |             |              |       |               |                     |

TABLE 8 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .5625 NOMINAL DIAMETER BOLTS

| PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 | PART NUMBER | N MIN (GRIP) | M MAX | L             | APPROX. MASS LB/100 |
|-------------|--------------|-------|---------------|---------------------|-------------|--------------|-------|---------------|---------------------|
| AS3658-9-04 | .250         | .371  | 1.378 - 1.398 | 17.240              | AS3658-9-31 | 1.938        | 2.059 | 3.066 - 3.086 | 29.906              |
| AS0513-9-05 | .312         | .433  | 1.440 - 1.460 | 17.709              | AS3658-9-32 | 2.000        | 2.121 | 3.128 - 3.148 | 30.375              |
| AS3606-9-06 | .375         | .496  | 1.503 - 1.523 | 18.178              | AS3658-9-33 | 2.062        | 2.183 | 3.190 - 3.210 | 30.844              |
| AS3658-9-07 | .438         | .559  | 1.566 - 1.586 | 18.647              | AS3658-9-34 | 2.125        | 2.246 | 3.253 - 3.273 | 31.313              |
| AS3658-9-08 | .500         | .621  | 1.628 - 1.648 | 19.116              | AS3658-9-35 | 2.188        | 2.309 | 3.316 - 3.336 | 31.782              |
| AS3658-9-09 | .562         | .683  | 1.690 - 1.710 | 19.585              | AS3658-9-36 | 2.250        | 2.371 | 3.378 - 3.398 | 32.251              |
| AS3658-9-10 | .625         | .746  | 1.753 - 1.773 | 20.055              | AS3658-9-37 | 2.312        | 2.433 | 3.440 - 3.460 | 32.720              |
| AS3658-9-11 | .688         | .809  | 1.816 - 1.836 | 20.524              | AS3658-9-38 | 2.375        | 2.496 | 3.503 - 3.523 | 33.189              |
| AS3658-9-12 | .750         | .871  | 1.878 - 1.898 | 20.993              | AS3658-9-39 | 2.438        | 2.599 | 3.566 - 3.586 | 33.659              |
| AS3658-9-13 | .812         | .933  | 1.940 - 1.960 | 21.462              | AS3658-9-40 | 2.500        | 2.621 | 3.628 - 3.648 | 34.128              |
| AS3658-9-14 | .875         | .996  | 2.003 - 2.023 | 21.931              | AS3658-9-41 | 2.562        | 2.683 | 3.690 - 3.710 | 34.597              |
| AS3658-9-15 | .938         | 1.059 | 2.066 - 2.086 | 22.400              | AS3658-9-42 | 2.625        | 2.746 | 3.753 - 3.773 | 35.066              |
| AS3658-9-16 | 1.000        | 1.121 | 2.128 - 2.148 | 22.869              | AS3658-9-43 | 2.688        | 2.809 | 3.816 - 3.836 | 35.534              |
| AS3658-9-17 | 1.062        | 1.183 | 2.190 - 2.210 | 23.338              | AS3658-9-44 | 2.750        | 2.871 | 3.878 - 3.898 | 36.004              |
| AS3658-9-18 | 1.125        | 1.246 | 2.253 - 2.273 | 23.807              | AS3658-9-45 | 2.812        | 2.933 | 3.940 - 3.960 | 36.473              |
| AS3658-9-19 | 1.188        | 1.309 | 2.316 - 2.336 | 24.276              | AS3658-9-46 | 2.875        | 2.996 | 4.003 - 4.023 | 36.942              |
| AS3658-9-20 | 1.250        | 1.371 | 2.378 - 2.398 | 24.746              | AS3658-9-47 | 2.938        | 3.059 | 4.066 - 4.086 | 37.411              |
| AS3658-9-21 | 1.312        | 1.433 | 2.440 - 2.460 | 25.215              | AS3658-9-48 | 3.000        | 3.121 | 4.128 - 4.148 | 37.880              |
| AS3658-9-22 | 1.375        | 1.496 | 2.503 - 2.523 | 25.684              | AS3658-9-49 | 3.062        | 3.183 | 4.190 - 4.210 | 38.350              |
| AS3658-9-23 | 1.438        | 1.559 | 2.566 - 2.586 | 26.153              | AS3658-9-50 | 3.125        | 3.246 | 4.253 - 4.273 | 38.819              |
| AS3658-9-24 | 1.500        | 1.621 | 2.628 - 2.648 | 26.622              | AS3658-9-51 | 3.188        | 3.309 | 4.316 - 4.336 | 39.288              |
| AS3658-9-25 | 1.562        | 1.683 | 2.690 - 2.710 | 27.091              | AS3658-9-52 | 3.250        | 3.371 | 4.378 - 4.398 | 39.757              |
| AS3658-9-26 | 1.625        | 1.746 | 2.753 - 2.773 | 27.560              | AS3658-9-53 | 3.312        | 3.433 | 4.440 - 4.460 | 40.226              |
| AS3658-9-27 | 1.688        | 1.809 | 2.816 - 2.836 | 28.029              | AS3658-9-54 | 3.375        | 3.496 | 4.503 - 4.523 | 40.695              |
| AS3658-9-28 | 1.750        | 1.871 | 2.878 - 2.898 | 28.498              | AS3658-9-55 | 3.438        | 3.559 | 4.566 - 4.586 | 41.164              |
| AS3658-9-29 | 1.812        | 1.933 | 2.940 - 2.960 | 28.968              | AS3658-9-56 | 3.500        | 3.621 | 4.628 - 4.648 | 41.633              |
| AS3658-9-30 | 1.875        | 1.996 | 3.003 - 3.023 | 29.437              |             |              |       |               |                     |



TABLE 9 - PART NUMBER AND SHANK LENGTH DIMENSIONS FOR .6250 NOMINAL DIAMETER BOLTS

| PART<br>NUMBER | N<br>MIN<br>(GRIP) | M<br>MAX | L             | APPROX.<br>MASS<br>LB/100 | PART<br>NUMBER | N<br>MIN<br>(GRIP) | M<br>MAX | L             | APPROX.<br>MASS<br>LB/100 |
|----------------|--------------------|----------|---------------|---------------------------|----------------|--------------------|----------|---------------|---------------------------|
| AS3658-10-05   | .312               | .433     | 1.527 - 1.547 | 23.860                    | AS3658-10-31   | 1.938              | 2.059    | 3.153 - 3.173 | 38.916                    |
| AS3658-10-06   | .375               | .496     | 1.590 - 1.610 | 24.439                    | AS3658-10-32   | 2.000              | 2.121    | 3.215 - 3.235 | 39.495                    |
| AS3658-10-07   | .438               | .559     | 1.653 - 1.673 | 25.018                    | AS3658-10-33   | 2.062              | 2.183    | 3.277 - 3.297 | 40.074                    |
| AS3658-10-08   | .500               | .621     | 1.715 - 1.735 | 25.597                    | AS3658-10-34   | 2.125              | 2.246    | 3.340 - 3.360 | 40.653                    |
| AS3658-10-09   | .562               | .683     | 1.777 - 1.797 | 26.176                    | AS3658-10-35   | 2.188              | 2.309    | 3.403 - 3.423 | 41.232                    |
| AS3658-10-10   | .625               | .746     | 1.840 - 1.860 | 26.755                    | AS3658-10-36   | 2.250              | 2.371    | 3.465 - 3.485 | 41.812                    |
| AS3658-10-11   | .688               | .809     | 1.903 - 1.923 | 27.331                    | AS3658-10-37   | 2.312              | 2.433    | 3.527 - 3.547 | 42.391                    |
| AS3658-10-12   | .750               | .871     | 1.965 - 1.985 | 27.914                    | AS3658-10-38   | 2.375              | 2.496    | 3.590 - 3.610 | 42.970                    |
| AS3658-10-13   | .812               | .933     | 2.027 - 2.047 | 28.493                    | AS3658-10-39   | 2.438              | 2.599    | 3.653 - 3.673 | 43.549                    |
| AS3658-10-14   | .875               | .996     | 2.090 - 2.110 | 29.072                    | AS3658-10-40   | 2.500              | 2.621    | 3.715 - 3.735 | 44.128                    |
| AS3658-10-15   | .938               | 1.059    | 2.153 - 2.173 | 29.651                    | AS3658-10-41   | 2.562              | 2.683    | 3.777 - 3.797 | 44.707                    |
| AS3658-10-16   | 1.000              | 1.121    | 2.215 - 2.235 | 30.230                    | AS3658-10-42   | 2.625              | 2.746    | 3.840 - 3.860 | 45.286                    |
| AS3658-10-17   | 1.062              | 1.183    | 2.277 - 2.297 | 30.809                    | AS3658-10-43   | 2.688              | 2.809    | 3.903 - 3.923 | 45.865                    |
| AS3658-10-18   | 1.125              | 1.246    | 2.340 - 2.360 | 31.388                    | AS3658-10-44   | 2.750              | 2.871    | 3.965 - 3.985 | 46.444                    |
| AS3658-10-19   | 1.188              | 1.309    | 2.403 - 2.423 | 31.967                    | AS3658-10-45   | 2.812              | 2.933    | 4.027 - 4.047 | 47.024                    |
| AS3658-10-20   | 1.250              | 1.371    | 2.465 - 2.485 | 32.546                    | AS3658-10-46   | 2.875              | 2.996    | 4.090 - 4.110 | 47.603                    |
| AS3658-10-21   | 1.312              | 1.433    | 2.527 - 2.547 | 33.125                    | AS3658-10-47   | 2.938              | 3.059    | 4.153 - 4.173 | 48.182                    |
| AS3658-10-22   | 1.375              | 1.496    | 2.590 - 2.610 | 33.704                    | AS3658-10-48   | 3.000              | 3.121    | 4.215 - 4.235 | 48.761                    |
| AS3658-10-23   | 1.438              | 1.559    | 2.653 - 2.673 | 34.283                    | AS3658-10-49   | 3.062              | 3.183    | 4.277 - 4.297 | 49.340                    |
| AS3658-10-24   | 1.500              | 1.621    | 2.715 - 2.735 | 34.862                    | AS3658-10-50   | 3.125              | 3.246    | 4.340 - 4.360 | 49.919                    |
| AS3658-10-25   | 1.562              | 1.683    | 2.777 - 2.797 | 35.442                    | AS3658-10-51   | 3.188              | 3.309    | 4.403 - 4.423 | 50.498                    |
| AS3658-10-26   | 1.625              | 1.746    | 2.840 - 2.860 | 36.021                    | AS3658-10-52   | 3.250              | 3.371    | 4.465 - 4.485 | 51.077                    |
| AS3658-10-27   | 1.688              | 1.809    | 2.903 - 2.923 | 36.600                    | AS3658-10-53   | 3.312              | 3.433    | 4.527 - 4.547 | 51.656                    |
| AS3658-10-28   | 1.750              | 1.871    | 2.965 - 2.985 | 37.179                    | AS3658-10-54   | 3.375              | 3.496    | 4.590 - 4.610 | 52.235                    |
| AS3658-10-29   | 1.812              | 1.933    | 3.027 - 3.047 | 37.758                    | AS3658-10-55   | 3.438              | 3.559    | 4.653 - 4.673 | 52.814                    |
| AS3658-10-30   | 1.875              | 1.996    | 3.090 - 3.110 | 38.337                    | AS3658-10-56   | 3.500              | 3.621    | 4.715 - 4.735 | 53.384                    |