FEDERAL SUPPLY CLASS
5306

RATIONALE

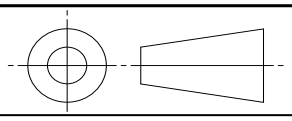
THIS NONCURRENT STANDARD HAS BEEN STABILIZED.

STABILIZED NOTICE

THIS DOCUMENT HAS BEEN DECLARED "STABILIZED" BY THE SAE E-25 GENERAL STANDARDS FOR AEROSPACE AND PROPULSION SYSTEMS COMMITTEE AND WILL NO LONGER BE SUBJECTED TO PERIODIC REVIEWS FOR CURRENCY. USERS ARE RESPONSIBLE FOR VERIFYING REFERENCES AND CONTINUED SUITABILITY OF TECHNICAL REQUIREMENTS. NEWER TECHNOLOGY MAY EXIST.

ISSUED 1987-12 NONCURRENT 1996-11 REAFFIRMED NONCURRENT 2006-05 STABILIZED 2013-03

THIRD ANGLE PROJECTION



CUSTODIAN: E-25

PROCUREMENT SPECIFICATION: NONE

SAE Aerospace
An SAE International Group

METRIC AEROSPACE STANDARD

BOLT-MACHINE, HEX HEAD, DRILLED,
PD SHANK, MJ THREAD, AMS 6322,
CADMIUM PLATE, METRIC

SAE MA3304

REV. B

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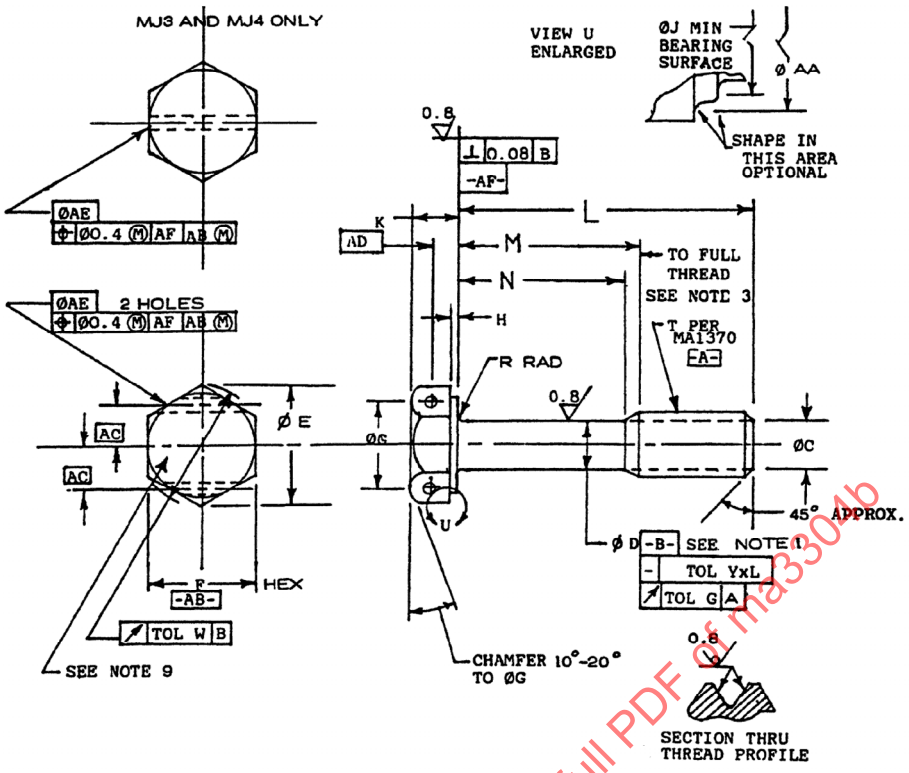

1. FOR PART NUMBERS WHERE DIMENSION N IS EQUAL TO OR LESS THAN ONE TIMES THE NOMINAL DIAMETER OF THE THREAD, THE THREAD PD SHALL REPLACE DATUM B.
2. MATERIAL: ALLOY STEEL PER AMS 6322. (G87400)
3. PROCUREMENT SPECIFICATION: MA3376
4. HARDNESS: 26-32 HRC OR EQUIVALENT.
5. FINISH: CADMIUM PLATE PER AMS 2400. DIMENSIONS ARE AFTER PLATING.
6. MAGNETIC PARTICLE INSPECTION PER AMS 2640. ACCEPTANCE CRITERIA PER MA3376.
7. SURFACE TEXTURE: SYMBOLS PER ANSI Y14.36-1978; REQUIREMENTS PER ANSI B46.1-1985. UNLESS OTHERWISE SPECIFIED SURFACES TO BE 3.2 MICROMETERS Ra.
8. PART NUMBER SHALL INCLUDE THE STANDARD NUMBER AND THE DASH NUMBER TO INDICATE DIAMETER AND LENGTH. EXAMPLE OF PART NUMBER:

   MA3304-030014 - BOLT, MJ3x0.5 THREAD, 14 LONG.
   MA3304-200114 - BOLT, MJ20x1.5 THREAD, 114 LONG.
9. MARK PART NUMBER AND MANUFACTURER'S IDENTIFICATION PER AS 478 CLASS A. FOR MJ3 AND MJ4 MARK ONLY MA3304 AND MANUFACTURERS IDENTIFICATION.
10. DIMENSIONING AND TOLERANCING: ANSI Y14.5M-1982. TOLERANCE GRADES PER ANSI B4.2-1978.
11. ALL DIMENSIONS IN SI MILLIMETERS
12. DO NOT USE UNASSIGNED PART NUMBERS.
13. BREAK EDGES 0.1 - 0.4 UNLESS OTHERWISE SPECIFIED
14. AFTER OCTOBER 1996 PARTS ARE CADMIUM PLATED.

MA, AS AND AMS ARE SAE PUBLICATIONS.
ANSI IS AMERICAN NATIONAL STANDARDS INSTITUTE PUBLICATION.

TABLE I

PART NUMBER SEE NOTE 7	NOM DIA REF	THREAD T	C	K	E MIN	F		G MIN	H
MA3304-030XXX	3	MJ3x0.5-4h6h	1.8 - 2.3	3.1 - 3.4	7.6	6.85 - 7.00		6.5	0.2 - 0.5
MA3304-040XXX	4	MJ4x0.7-4h6h	2.6 - 3.1	3.6 - 3.9	8.7	7.85 - 8.00	h12	7.5	0.2 - 0.5
MA3304-050XXX	5	MJ5x0.8-4h6h	3.0 - 4.0	2.7 - 3.0	9.8	8.78 - 9.00		8.4	0.2 - 0.5
MA3304-060XXX	6	MJ6x1-4h6h	3.7 - 4.7	3.2 - 3.5	12.0	10.73 - 11.00		10.3	0.2 - 0.5
MA3304-070XXX	7	MJ7x1-4h6h	4.7 - 5.7	3.7 - 4.0	13.2	11.73 - 12.00		11.3	0.2 - 0.5
MA3304-080XXX	8	MJ8x1-4h6h	5.7 - 6.7	4.2 - 4.5	15.5	13.73 - 14.00		13.3	0.3 - 0.6
MA3304-100XXX	10	MJ10x1.25-4h6h	7.4 - 8.4	4.7 - 5.0	18.9	16.73 - 17.00		16.3	0.3 - 0.6
MA3304-120XXX	12	MJ12x1.25-4h6h	9.4 - 10.4	5.7 - 6.0	21.1	18.67 - 19.00	h13	18.3	0.3 - 0.6
MA3304-140XXX	14	MJ14x1.5-4h6h	11.1 - 12.1	6.7 - 7.0	24.5	21.67 - 22.00		21.3	0.3 - 0.6
MA3304-160XXX	16	MJ16x1.5-4h6h	13.1 - 14.1	7.7 - 8.0	26.8	23.67 - 24.00		23.3	0.3 - 0.6
MA3304-180XXX	18	MJ18x1.5-4h6h	15.1 - 16.1	8.7 - 9.0	30.2	26.67 - 27.00		26.3	0.3 - 0.6
MA3304-200XXX	20	MJ20x1.5-4h6h	17.1 - 18.1	9.7 - 10.0	33.6	29.67 - 30.00		29.3	0.3 - 0.6

PART NUMBER SEE NOTE 7	NOM DIA REF	J MIN	D	P	R	W	Y	AA MAX	AC	AD	AE H13
MA3304-030XXX	3	6.4	2.52 - 2.78	0.10	0.2 - 0.4	0.15	0.0030	7.25	-	1.55	1.00 - 1.14
MA3304-040XXX	4	7.4	3.39 - 3.65	0.12	0.2 - 0.4	0.20	0.0030	8.25	-	1.80	1.00 - 1.14
MA3304-050XXX	5	8.3	4.32 - 4.58	0.12	0.3 - 0.5	0.25	0.0030	9.25	3.70	1.35	1.00 - 1.14
MA3304-060XXX	6	10.2	5.19 - 5.45	0.12	0.5 - 0.7	0.30	0.0030	11.25	4.50	1.60	1.40 - 1.54
MA3304-070XXX	7	11.2	6.19 - 6.45	0.15	0.5 - 0.7	0.35	0.0030	12.25	4.95	1.85	1.40 - 1.54
MA3304-080XXX	8	13.2	7.19 - 7.45	0.15	0.5 - 0.7	0.40	0.0030	14.25	5.80	2.10	1.40 - 1.54
MA3304-100XXX	10	16.0	9.02 - 9.28	0.15	0.6 - 0.8	0.50	0.0025	17.25	7.10	2.35	1.60 - 1.74
MA3304-120XXX	12	18.0	11.02 - 11.28	0.18	0.6 - 0.9	0.60	0.0025	19.25	7.90	2.85	1.60 - 1.74
MA3304-140XXX	14	21.0	12.85 - 13.11	0.18	0.8 - 1.1	0.70	0.0025	22.25	9.20	3.35	1.60 - 1.74
MA3304-160XXX	16	23.0	14.85 - 15.11	0.18	0.8 - 1.1	0.75	0.0025	24.25	10.05	3.85	1.60 - 1.74
MA3304-180XXX	18	26.0	16.85 - 17.11	0.18	1.0 - 1.3	0.75	0.0025	27.25	11.30	4.35	1.60 - 1.74
MA3304-200XXX	20	29.0	18.85 - 19.11	0.21	1.0 - 1.3	0.75	0.0025	30.25	12.60	4.85	1.60 - 1.74

TABLE II

L LENGTH	MJ3x0.5-4h6h DASH NO. SEE NOTE	MJ3x0.5-4h6h M MAX	MJ3x0.5-4h6h N MIN	MJ3x0.5-4h6h APPROX MASS kg/100	MJ4x0.7-4h6h DASH NO. SEE NOTE	MJ4x0.7-4h6h M MAX	MJ4x0.7-4h6h N MIN	MJ4x0.7-4h6h APPROX MASS kg/100
3.7 - 4.3	030004	1.4	0.4	0.111	-	-	-	-
5.7 - 6.3	030006	1.4	0.4	0.119	040006	1.8	0.4	0.189
7.7 - 8.3	030008	1.4	0.4	0.126	040008	1.8	0.4	0.203
9.7 - 10.3	030010	1.4	0.4	0.135	040010	1.8	0.4	0.218
11.7 - 12.3	030012	1.4	0.4	0.144	040012	1.8	0.4	0.232
13.7 - 14.3	030014	2.0	0.4	0.153	040014	1.8	0.4	0.247
15.7 - 16.3	030016	4.0	1.5	0.161	040016	2.0	0.4	0.261
17.7 - 18.3	030018	6.0	3.5	0.170	040018	4.0	1.1	0.276
19.7 - 20.3	030020	8.0	5.5	0.179	040020	6.0	3.1	0.291
21.7 - 22.3	030022	10.0	7.5	0.188	040022	8.0	5.1	0.305
23.7 - 24.3	030024	12.0	9.5	0.196	040024	10.0	7.1	0.320
25.7 - 26.3	030026	14.0	11.5	0.205	040026	12.0	9.1	0.334
27.7 - 28.3	030028	16.0	13.5	0.214	040028	14.0	11.1	0.349
29.7 - 30.3	030030	18.0	15.5	0.223	040030	16.0	13.1	0.364
31.7 - 32.3	030032	20.0	17.5	0.231	040032	18.0	15.1	0.378
33.7 - 34.3	030034	22.0	19.5	0.240	040034	20.0	17.1	0.393
35.7 - 36.3	030036	24.0	21.5	0.249	040036	22.0	19.1	0.407
37.7 - 38.3	030038	26.0	23.5	0.250	040038	24.0	21.1	0.422
39.7 - 40.3	030040	28.0	25.5	0.266	040040	26.0	23.1	0.436
41.7 - 42.3	030042	30.0	27.5	0.275	040042	28.0	25.1	0.451
43.7 - 44.3	-	-	-	-	040044	30.0	27.1	0.466
45.7 - 46.3	-	-	-	-	040046	32.0	29.1	0.480
47.7 - 48.3	-	-	-	-	040048	34.0	31.1	0.495
49.7 - 50.3	-	-	-	-	040050	36.0	33.1	0.509
51.7 - 52.3	-	-	-	-	040052	38.0	35.1	0.524
53.7 - 54.3	-	-	-	-	040054	40.0	37.1	0.539
55.7 - 56.3	-	-	-	-	040056	42.0	39.1	0.553

TABLE II (CONTINUED)

L LENGTH	MJ5x0.8-4h6h DASH NO. SEE NOTE	M MAX	N MIN	APPROX MASS kg/100	MJ6x1-4h6h DASH NO. SEE NOTE	M MAX	N MIN	APPROX MASS kg/100
7.7 - 8.3	050008	2.1	0.5	0.259	-	-	-	-
9.7 - 10.3	050010	2.1	0.5	0.282	060010	2.7	0.7	0.429
11.7 - 12.3	050012	2.1	0.5	0.305	060012	2.7	0.7	0.463
13.7 - 14.3	050014	3.1	0.5	0.329	060014	2.7	0.7	0.497
15.7 - 16.3	050016	2.1	0.5	0.352	060016	2.7	0.7	0.531
17.7 - 18.3	050018	2.1	0.5	0.375	060018	2.7	0.7	0.565
19.7 - 20.3	050020	4.0	0.9	0.399	060020	2.7	0.7	0.599
21.7 - 22.3	050022	6.0	2.9	0.422	060022	4.0	0.7	0.632
23.7 - 24.3	050024	8.0	4.9	0.445	060024	6.0	2.5	0.667
25.7 - 26.3	050026	10.0	6.9	0.468	060026	8.0	4.5	0.701
27.7 - 28.3	050028	12.0	8.9	0.492	060028	10.0	6.5	0.735
29.7 - 30.3	050030	14.0	10.9	0.515	060030	12.0	8.5	0.769
31.7 - 32.3	050032	16.0	12.9	0.539	060032	14.0	10.5	0.803
33.7 - 34.3	050034	18.0	14.9	0.562	060034	16.0	12.5	0.837
35.7 - 36.3	050036	20.0	16.9	0.585	060036	18.0	14.5	0.871
37.7 - 38.3	050038	22.0	18.9	0.608	060038	20.0	16.5	0.905
39.7 - 40.3	050040	24.0	20.9	0.632	060040	22.0	18.5	0.939
41.7 - 42.3	050042	26.0	22.9	0.655	060042	24.0	20.5	0.973
43.7 - 44.3	050044	28.0	24.9	0.678	060044	26.0	22.5	1.007
45.7 - 46.3	050046	30.0	26.9	0.702	060046	28.0	24.5	1.041
47.7 - 48.3	050048	32.0	28.9	0.725	060048	30.0	26.5	1.075
49.7 - 50.3	050050	34.0	30.9	0.748	060050	32.0	28.5	1.109
51.7 - 52.3	050052	36.0	32.9	0.772	060052	34.0	30.5	1.143
53.7 - 54.3	050054	38.0	34.9	0.795	060054	36.0	32.5	1.177
55.7 - 56.3	050056	40.0	36.9	0.818	060056	38.0	34.5	1.211
57.7 - 58.3	050058	42.0	38.9	0.842	060058	40.0	36.5	1.245
59.7 - 60.3	050060	44.0	40.9	0.865	060060	42.0	38.5	1.279
63.7 - 64.3	050064	48.0	44.9	0.912	060064	46.0	42.5	1.347
67.7 - 68.3	050068	52.0	48.9	0.958	060068	50.0	46.5	1.415
71.7 - 72.3	-	-	-	-	060072	54.0	50.5	1.483
75.7 - 76.3	-	-	-	-	060076	58.0	54.5	1.551
79.7 - 80.3	-	-	-	-	060080	62.0	58.5	1.619
83.7 - 84.3	-	-	-	-	060084	66.0	62.5	1.687

TABLE II (CONTINUED)

L LENGTH	MJ7x1-4h6h DASH NO. SEE NOTE	M MAX	N MIN	APPROX MASS kg/100	MJ8x1-4h6h DASH NO. SEE NOTE	M MAX	N MIN	APPROX MASS kg/100
9.7 - 10.3	070010	2.7	0.7	0.571	080010	2.7	0.7	0.830
11.7 - 12.3	070012	2.7	0.7	0.642	080012	2.7	0.7	0.894
13.7 - 14.3	070014	2.7	0.7	0.666	080014	2.7	0.7	0.958
15.7 - 16.3	070016	2.7	0.7	0.713	080016	2.7	0.7	1.023
17.7 - 18.3	070018	2.7	0.7	0.761	080018	2.7	0.7	1.087
19.7 - 20.3	070020	2.7	0.7	0.809	080020	2.7	0.7	1.151
21.7 - 22.3	070022	2.7	0.7	0.856	080022	2.7	0.7	1.215
23.7 - 24.3	070024	4.0	0.7	0.904	080024	2.7	0.7	1.279
25.7 - 26.3	070026	6.0	2.5	0.952	080026	4.0	0.7	1.343
27.7 - 28.3	070028	8.0	4.5	0.999	080028	6.0	2.5	1.407
29.7 - 30.3	070030	10.0	6.5	1.047	080030	8.0	4.5	1.472
31.7 - 32.3	070032	12.0	8.5	1.095	080032	10.0	6.5	1.536
33.7 - 34.3	070034	14.0	10.5	1.142	080034	12.0	8.5	1.600
35.7 - 36.3	070034	16.0	12.5	1.190	080036	14.0	10.5	1.664
37.7 - 38.3	070038	18.0	14.5	1.237	080038	16.0	12.5	1.670
39.7 - 40.3	070040	20.0	16.5	1.285	080040	18.0	14.5	1.792
41.7 - 42.3	070042	22.0	18.5	1.333	080042	20.0	16.5	1.857
43.7 - 44.3	070044	24.0	20.5	1.380	080044	22.0	18.5	1.920
45.7 - 46.3	070046	26.0	22.5	1.428	080046	24.0	20.5	1.985
47.7 - 48.3	070048	28.0	24.5	1.476	080048	26.0	22.5	2.049
49.7 - 50.3	070050	30.0	26.5	1.523	080050	28.0	24.5	2.113
51.7 - 52.3	070052	32.0	28.5	1.571	080052	30.0	26.5	2.177
53.7 - 54.3	070054	34.0	30.5	1.618	080054	32.0	28.5	2.241
55.7 - 56.3	070056	36.0	32.5	1.555	080056	34.0	30.5	2.306
57.7 - 58.3	070058	38.0	34.5	1.714	080058	36.0	32.5	2.370
59.7 - 60.3	070060	40.0	36.5	1.761	080060	38.0	34.5	2.434
63.7 - 64.3	070064	44.0	40.5	1.857	080064	42.0	38.5	2.562
67.7 - 68.3	070068	48.0	44.5	1.952	080068	46.0	42.5	2.691
71.7 - 72.3	070072	52.0	48.5	2.047	080072	50.0	46.5	2.819
75.7 - 76.3	070076	56.0	52.5	2.142	080076	54.0	50.5	2.947
79.7 - 80.3	070080	60.0	56.5	2.238	080080	58.0	54.5	3.075
83.7 - 84.3	070084	64.0	60.5	2.333	080084	62.0	58.5	3.204
87.7 - 88.3	070088	68.0	64.5	2.428	080088	66.0	62.5	3.332
91.7 - 92.3	070092	72.0	68.5	2.523	080092	70.0	66.5	3.460
95.7 - 96.3	070096	76.0	72.5	2.619	080096	74.0	70.5	3.589
99.7 - 100.3	-	-	-	-	080100	78.0	74.5	3.717
103.7 - 104.3	-	-	-	-	080104	82.0	78.5	3.845
107.7 - 108.3	-	-	-	-	080108	86.0	82.5	3.974
111.7 - 112.3	-	-	-	-	080112	90.0	86.5	4.102

TABLE II (CONTINUED)

L LENGTH	MJ10x1.25-4h6h DASH NO. SEE NOTE	M MAX	N MIN	APPROX MASS kg/100	MJ12x1.25-4h6h DASH NO. SEE NOTE	M MAX	N MIN	APPROX MASS kg/100
13.7 - 14.3	100014	3.3	0.8	1.542		-	-	-
15.7 - 16.3	100016	3.3	0.8	1.640	120016	3.4	0.9	2.432
17.7 - 18.3	100018	3.3	0.8	1.741	120018	3.4	0.9	2.581
19.7 - 20.3	100020	3.3	0.8	1.841	120020	3.4	0.9	2.729
21.7 - 22.3	100022	3.3	0.8	1.941	120022	3.4	0.9	2.878
23.7 - 24.3	100024	3.3	0.8	2.041	120024	3.4	0.9	3.027
25.7 - 26.3	100026	3.3	0.8	2.141	120026	3.4	0.9	3.176
27.7 - 28.3	100028	3.3	0.8	2.241	120028	3.4	0.9	3.324
29.7 - 30.3	100030	4.0	0.8	2.342	120030	3.4	0.9	3.473
31.7 - 32.3	100032	6.0	2.0	2.442	120032	3.4	0.9	3.622
33.7 - 34.3	100034	8.0	4.0	2.542	120034	4.0	0.9	3.770
35.7 - 37.3	100036	10.0	6.0	2.642	120036	6.0	2.0	3.919
37.7 - 38.3	100038	12.0	8.0	2.742	120038	8.0	4.0	4.068
39.7 - 40.3	100040	14.0	10.0	2.842	120040	10.0	6.0	4.217
41.7 - 42.3	100042	16.0	12.0	2.942	120042	12.0	8.0	4.366
43.7 - 44.3	100044	18.0	14.0	3.042	120044	14.0	10.0	4.515
45.7 - 46.3	100046	20.0	16.0	3.143	120046	16.0	12.0	4.664
47.7 - 48.3	100048	22.0	18.0	3.243	120048	18.0	14.0	4.813
49.7 - 50.3	100050	24.0	20.0	3.343	120050	20.0	16.0	4.961
51.7 - 52.3	100052	26.0	22.0	3.443	120052	22.0	18.0	5.110
53.7 - 54.3	100054	28.0	24.0	3.543	120054	24.0	20.0	5.259
55.7 - 56.3	100056	30.0	26.0	3.643	120056	26.0	22.0	5.407
57.7 - 58.3	100058	32.0	28.0	3.743	120058	28.0	24.0	5.556
59.7 - 60.3	100060	34.0	30.0	3.843	120060	30.0	26.0	5.705
63.7 - 64.3	100064	38.0	34.0	4.043	120064	34.0	30.0	6.002
67.7 - 68.3	100068	42.0	38.0	4.244	120068	38.0	34.0	6.300
71.7 - 72.3	100072	46.0	42.0	4.444	120072	42.0	38.0	6.597
75.7 - 76.3	100076	50.0	46.0	4.644	120076	46.0	42.0	6.895
79.7 - 80.3	100080	54.0	50.0	4.845	120080	50.0	46.0	7.192
83.7 - 84.3	100084	58.0	54.0	5.045	120084	54.0	50.0	7.489
87.7 - 88.3	100088	60.0	58.0	5.245	120088	58.0	54.0	7.787
91.7 - 92.3	100092	66.0	62.0	5.445	120092	62.0	58.0	8.084
95.7 - 96.3	100096	70.0	66.0	5.646	120096	66.0	62.0	8.382
99.7 - 100.3	100100	74.0	70.0	5.846	120100	70.0	66.0	8.679
103.7 - 104.3	100104	78.0	74.0	6.046	120104	74.0	70.0	8.977
107.7 - 108.3	100108	82.0	78.0	6.246	120108	78.0	74.0	9.274
111.7 - 112.3	100112	86.0	82.0	6.446	120112	82.0	78.0	9.572
115.7 - 116.3	100115	90.0	86.0	6.647	120116	86.0	82.0	9.869
119.7 - 120.3	100120	94.0	90.0	6.847	120120	90.0	86.0	10.166
123.7 - 124.3	100124	98.0	94.0	7.047	120124	94.0	90.0	10.464
127.7 - 128.3	100128	102.0	98.0	7.247	120128	98.0	94.0	10.761
131.7 - 132.3	100132	106.0	102.0	7.448	120132	102.0	98.0	11.059
135.7 - 136.3	100136	110.0	106.0	7.648	120136	106.0	102.0	11.356
139.7 - 140.3	100140	114.0	110.0	7.848	120140	110.0	106.0	11.654
143.7 - 144.3	-	-	-	-	120144	114.0	110.0	11.951
147.7 - 148.3	-	-	-	-	120148	118.0	114.0	12.249
151.7 - 152.3	-	-	-	-	120152	122.0	118.0	12.546
155.7 - 156.3	-	-	-	-	120156	126.0	122.0	12.843
159.7 - 160.3	-	-	-	-	120160	130.0	126.0	13.141
163.7 - 164.3	-	-	-	-	120164	134.0	130.0	13.438
167.7 - 168.3	-	-	-	-	120168	138.0	134.0	13.736