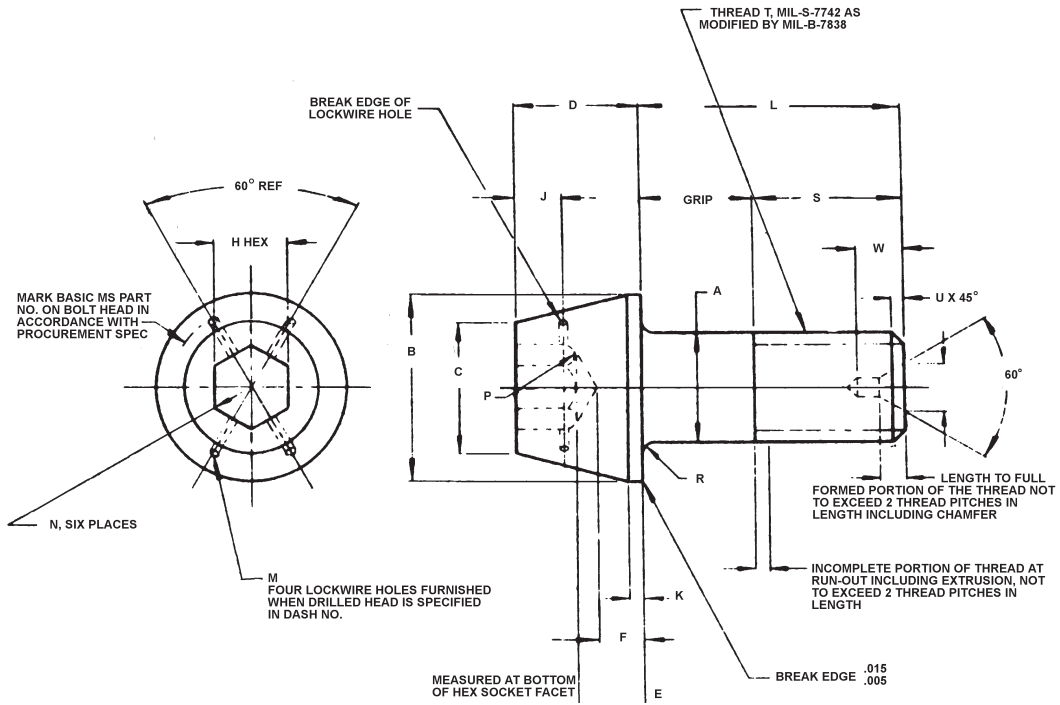


MS20004 - MS20014 Series Specifications

Bolts, Internal Wrenching
 160,000 PSI FTU & 96,000 PSI FSU



Basic MS Part No.	Thread T	A Diameter		B Diameter		C Diameter	D	E	F Min	H Hex		J	K	M Diameter +.005 -.000	N Max Rad
		Max	Min	Max	Min					Max	Min				
20004	1/4-28 UNF-3A	.2492	.2477	.438	.428	.342	.250	.112	.068	.190	.188	.078	.063	.037	.010
20005	5/16-24 UNF-3A	.3117	.3102	.531	.521	.394	.312	.144	.094	.221	.219	.094	.063	.055	.010
20006	3/8-24 UNF-3A	.3742	.3727	.649	.639	.520	.375	.183	.116	.315	.313	.125	.063	.055	.011
20007	7/16-20 UNF-3A	.4367	.4347	.750	.740	.534	.438	.208	.141	.315	.313	.156	.063	.055	.011
20008	1/2-20 UNF-3A	.4991	.4971	.828	.818	.625	.500	.247	.169	.3785	.3755	.172	.063	.055	.011
20009	9/16-18 UNF-3A	.5616	.5596	.938	.928	.723	.562	.279	.190	.441	.438	.203	.094	.055	.011
20010	5/8-18 UNF-3A	.6240	.6220	1.050	1.040	.826	.625	.317	.216	.5035	.5005	.234	.094	.055	.019
20012	3/4-16 UNF-3A	.7488	.7468	1.230	1.220	.921	.750	.385	.273	.566	.563	.281	.094	.055	.022
20014	7/8-14 UNF-3A	.8737	.8707	1.438	1.438	1.083	.875	.450	.327	.6295	.6257	.344	.094	.055	.022

Basic MS Part No.	P Rad		R Rad		S Min Ref.	U ± .016	V Max	W Max	Tensile Strength lb Min	Concentricity		
	Max	Min	Max	Min						X	Y	Z
20004	.020	.010	.041	.031	.475	.031	.187	.250	6,190	.005	.007	.0045
20005	.020	.010	.041	.031	.537	.047	.187	.250	9,820	.006	.008	.0045
20006	.020	.010	.057	.047	.662	.047	.187	.250	15,200	.008	.010	.0045
20007	.020	.010	.057	.047	.767	.047	.187	.250	20,600	.009	.011	.006
20008	.020	.010	.057	.047	.767	.047	.187	.250	27,400	.010	.012	.006
20009	.020	.010	.057	.047	.850	.062	.187	.250	34,800	.011	.014	.006
20010	.020	.010	.073	.063	.912	.062	.187	.250	43,600	.012	.016	.006
20012	.030	.015	.073	.063	1.037	.062	.187	.250	63,200	.015	.018	.006
20014	.030	.015	.073	.063	1.162	.078	.187	.250	86,100	.018	.022	.009

MATERIAL: Alloy steel; see procurement spec.
FINISH: Cadmium plate, QQ-P-416, Type II, Class 3
HARDNESS: Rockwell C34 to C40

DIMENSIONS ARE AFTER PLATING AND IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS ± .010, ANGLES ± 1°

MS20004 - MS20014 (Length \pm .015)

Dash No.	Grip \pm .010	MS20004 1/4	MS20005 5/16	MS20006 3/8	MS20007 7/16	MS20008 1/2	MS20009 9/16	MS20010 5/8	MS20012 3/4	MS20014 7/8
4 6	.250 .375	.750 .875	.938	1.062	-	-	-	-	-	-
8 10	.500 .625	1.000 1.125	1.062 1.188	1.888 1.312	1.312 1.438	1.312 1.438	1.500	1.562	-	-
12 14	.750 .875	1.250 1.375	1.312 1.438	1.438 1.562	1.562 1.688	1.562 1.688	1.625 1.750	1.688 1.812	1.812 1.938	2.062
16 18	1.000 1.125	1.500 1.625	1.562 1.688	1.688 1.812	1.812 1.938	1.812 1.938	1.875 2.000	1.938 2.062	2.062 2.188	2.188 2.312
20 22	1.250 1.375	1.750 1.875	1.812 1.938	1.938 2.062	2.062 2.188	2.062 2.188	2.125 2.250	2.188 2.312	2.312 2.438	2.438 2.562
24 26	1.500 1.625	2.000 2.125	2.062 2.188	2.188 2.312	2.312 2.438	2.312 2.438	2.375 2.500	2.438 2.562	2.562 2.688	2.688 2.812
28 30	1.750 1.875	2.250 2.375	2.312 2.438	2.438 2.562	2.562 2.688	2.562 2.688	2.625 2.750	2.688 2.812	2.812 2.938	2.938 3.062
32 34	2.000 2.125	2.500 2.625	2.562 2.688	2.688 2.812	2.812 2.938	2.812 2.938	2.875 3.000	2.938 3.062	3.062 3.188	3.188 3.312
36 38	2.250 2.375	2.750 2.875	2.812 2.938	2.938 3.062	3.062 3.188	3.062 3.188	3.125 3.250	3.188 3.312	3.312 3.438	3.438 3.562
40 42	2.500 2.625	3.000 3.125	3.062 3.188	3.188 3.312	3.312 3.438	3.312 3.438	3.375 3.500	3.438 3.562	3.562 3.688	3.688 3.812
44 46	2.750 2.875	3.250 3.375	3.312 3.438	3.438 3.562	3.562 3.688	3.562 3.688	3.625 3.750	3.688 3.812	3.812 3.938	3.938 4.062
48 50	3.000 3.125	3.500 3.625	3.562 3.688	3.688 3.812	3.812 3.938	3.812 3.938	3.875 4.000	3.938 4.062	4.062 4.188	4.188 4.312
52 54	3.250 3.375	3.750 3.875	3.812 3.938	3.938 4.062	4.062 4.188	4.062 4.188	4.125 4.250	4.188 4.312	4.312 4.438	4.438 4.562
56 58	3.500 3.625	4.000 4.125	4.062 4.188	4.188 4.312	4.312 4.438	4.312 4.438	4.375 4.500	4.438 4.562	4.562 4.688	4.688 4.812
60 62	3.750 3.875	4.250 4.375	4.312 4.438	4.438 4.562	4.562 4.688	4.562 4.688	4.625 4.750	4.688 4.812	4.812 4.938	4.938 5.062
64 66	4.000 4.125	4.500 4.625	4.562 4.688	4.688 4.812	4.812 4.938	4.812 4.938	4.875 5.000	4.938 5.062	5.062 5.188	5.188 5.312
68 70	4.250 4.375	4.750 4.875	4.812 4.938	4.938 5.062	5.062 5.188	5.062 5.188	5.125 5.250	5.188 5.312	5.312 5.438	5.438 5.562
72 74	4.500 4.625	5.000 5.125	5.062 5.188	5.188 5.312	5.312 5.438	5.312 5.438	5.375 5.500	5.438 5.562	5.562 5.688	5.688 5.812
76 78	4.750 4.875	5.250 5.375	5.312 5.438	5.438 5.562	5.562 5.688	5.562 5.688	5.625 5.750	5.688 5.812	5.812 5.938	5.938 6.062
80 82	5.000 5.125	5.500 5.625	5.562 5.688	5.688 5.812	5.812 5.938	5.812 5.938	5.875 6.000	5.938 6.062	6.062 6.188	6.188 6.312
84 86	5.250 5.375	5.750 5.875	5.812 5.938	5.938 6.062	6.062 6.188	6.062 6.188	6.125 6.250	6.188 6.312	6.312 6.438	6.438 6.562
88 90	5.500 5.625	6.000 6.125	6.062 6.188	6.188 6.312	6.312 6.438	6.312 6.438	6.375 6.500	6.438 6.562	6.562 6.688	6.688 6.812