

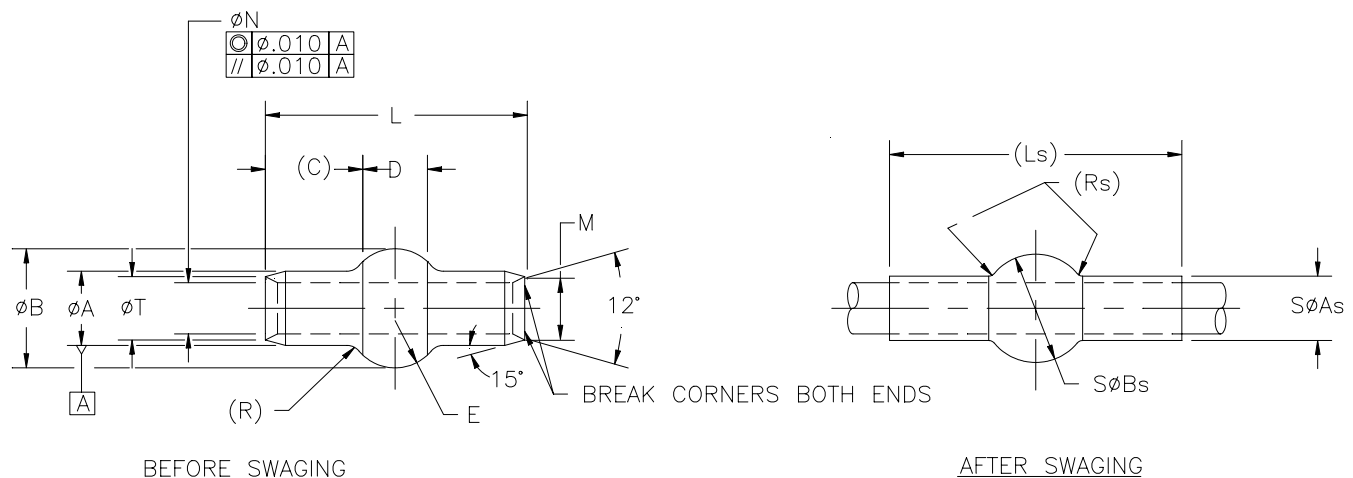
**INCH-POUND**

MS20663F  
w/AMENDMENT 1  
3 January 2011  
SUPERSEDING  
MS20663F  
5 November 2001

**DETAIL SPECIFICATION SHEET****BALL END, WIRE ROPE, SWAGING, DOUBLE SHANK**

This specification sheet is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet, MIL-DTL-781, and QPL-781.



**FIGURE 1. Ball end, wire rope, swaging, double shank.**

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TABLE I. Dash numbers and dimensions.

Dash number	Wire rope diameter		Minimum breaking strength 1/ lbs.	ØA		ØAs		ØB		SØBs spherical		C reference
	Nominal	Minimum										
-2	1/16	.062	480	.127	+ .000 - .004	.112	+ .000	.207	+ .000 - .004	.190	+ .000	.125
-3	3/32	.093	920	.163		.143	- .003	.277		.253	- .003	.188
-4	1/8	.125	2,000	.218		.190		.345		.315		.250
-5	5/32	.156	2,800	.254		.222	+ .000 - .004	.419		.379	+ .000 - .004	.313
-6	3/16	.187	4,200	.293	+ .000 - .005	.255	+ .000	.487	+ .000 - .005	.442	+ .000	.375
-7	7/32	.218	5,600	.347		.302	- .005	.555		.505	- .005	.438
-8	1/4	.250	7,000	.401		.348		.624		.567		.500
-9	9/32	.281	8,000	.439		.382	+ .000	.694		.632	+ .000	.562
-10	5/16	.312	9,800	.475		.413	- .007	.763		.694	- .007	.625

TABLE I. Dash numbers and dimensions - Continued.

Dash number	D reference		E radius reference	L ±.0075	Ls reference	M +.010 -.000	ØN		R radius reference	Rs radius reference	ØT +.000 -.010
-2	.114	+ .000 - .003	.0825	.3620	.390	.079	.073	+ .004 - .000	.028	.014	.109
-3	.152	+ .000 - .004	.110	.5250	.578	.114	.104		.037	.019	.141
-4	.1895	+ .000 - .005	.137	.6880	.765	.152	.139		.046	.023	.188
-5	.2270		.165	.8500	.953	.185	.169		.056	.028	.219
-6	.2640		.192	1.0120	1.140	.221	.201		.065	.033	.250
-7	.3025		.220	1.1750	1.328	2/	.233	+ .005 - .000	.075	.038	.297
-8	.3395		.247	1.3370	1.515		.264		.084	.042	.344
-9	.3775		.275	1.4970	1.719		.297		.094	.046	.375
-10	.4145		.302	1.6640	1.875		.328		.103	.046	.406

1/ To achieve the minimum breaking strength, for the terminal test only, a galvanized carbon steel wire rope shall be used.

2/ No tapered bellmouth on -7, -8, -9, -10.

3/ Reference dimensions are for design purposes only and are not an inspection requirement.

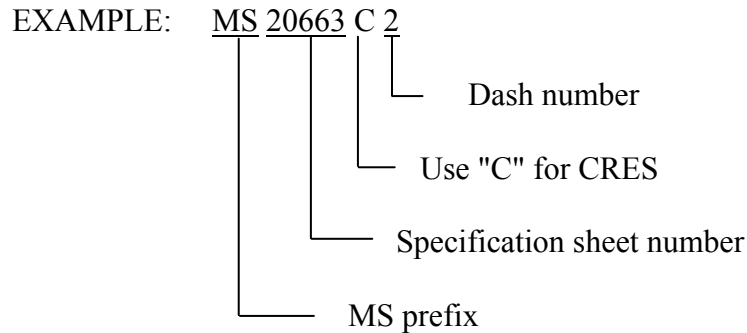
#### REQUIREMENTS:

1. Material: Material shall be in accordance with MIL-DTL-781.
2. Finish: Finish shall be in accordance with MIL-DTL-781.
3. Swage: Swage shall be in accordance with MIL-DTL-6117.
4. Tolerances: Unless otherwise specified, tolerances: decimals  $\pm 0.010$ , angles  $\pm 3^\circ$ .

#### NOTES:

1. The part or identifying number (PIN) shall consist of the letters MS, the specification sheet number, the letter "C" for corrosion resistant steel (CRES), and a dash number taken from table I.

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2. Dimensions are in inches.
3. Interpret drawing in accordance with ASME Y14.5.
4. Remove burrs and sharp edges. (See MIL-DTL-781.)
5. Interchangeability relationship: MS20663 and AN663 parts identified by the same dash number are universally, functionally and dimensionally interchangeable.
6. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence.
7. Unless otherwise specified, issues of reference documents are those in effect at the time of solicitation.
8. MS20663 supersedes AN663.
9. Corrosion resistant steel parts can be universally substituted for carbon and alloy steel parts in accordance with table II. Carbon and alloy steel parts cannot be substituted for corrosion resistant steel parts.

TABLE II. Substitution table.

MS PART NUMBER	
Corrosion resistant steel	Carbon steel, cadmium plated
MS20663C2	MS20663-2
MS20663C3	MS20663-3
MS20663C4	MS20663-4
MS20663C5	MS20663-5
MS20663C6	MS20663-6
MS20663C7	MS20663-7
MS20663C8	MS20663-8
MS20663C9	MS20663-9
MS20663C10	MS20663-10

10. Carbon and alloy steel parts are inactive for new design.

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AMENDMENT NOTATIONS: The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Custodians:

Army - CR4  
Navy - AS  
Air Force - 99  
DLA - GS

Preparing Activity:

DLA - GS5

(Project 1640-2010-001)

Review Activities:

Army - MD  
Navy - MC  
Air Force - 71

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST database at <https://assist.daps.dla.mil/>.