Torque Values
Electrical Connectors

L-725-3

Amphenol

Revision August 2008

1. Introduction: This publication contains minimum and maximum torque values recommended by Amphenol Corporation, Sidney, New York 13838.

2. Maximum torque values are primarily governed by strength of material used to fabricate threaded components. Maximum values listed in this publication were computed to protect threads and other bearing surfaces which could be damaged by excessive torque.

3. Minimum torque values were computed to assure proper mating of connectors and/or accessories (when threaded areas are properly lubricated). Torque values are shown as follows: Table I for connectors with single start threads, Table III for connectors with double stub threads,Table IV for MIL-DTL-26482 bayonet coupling, and Table V for MIL-DTL-38999 Series I & III connectors.

4. Metal to metal sealing of mated parts should occur where a flat gasket is used for an end seal. In some instances, when a cable accessory or MIL-C-85049/1, /2, /41 and /42 type clamp is used with maximum diameter cable, a metal to metal seating may not occur on the initial tightening. A second tightening is therefore necessary after cable has been allowed to cold flow (approximately 12 hours).

5. Torques values are listed by thread sizes in Table I below and Tables II, III and IV on next page. We recommend reviewing applicable connector catalogs for mating and accessory thread diameters for each connector shell size. Amphenol catalogs are available on-line at www.amphenol-aerospace.com or www.amphenol-industrial.com.

NOTE: See torque value notes (6, 7, 8) following Table I for accessories having three threads or less.

6. The torque values listed in Table I are for UN (Handbook H-28) threads. These values apply to connector's coupling nut, jam nut, cable clamp, backshell or accessories.

7. Column "A" of Table I lists the minimum and maximum values for threads on aluminum die cast parts such as MS or MS Modified connectors.

8. Column "B" of Table I lists the minimum and maximum values for threads on extruded or machined aluminum and steel parts. The torque value for hex mounting nuts on all jam nut receptacles is listed in column "A" of Table I. The hex nuts are machined but the torque value is reduced due to the limited amount of threads. (Continues with NOTES on next page).

TABLE I
TORQUE VALUES

Thread Size	COLUMN "A" Torque for Threads on Die Cast Aluminum Parts				COLUMN "B" Torque for Threads on Extruded or Machined Aluminum and Steel Parts			
	Inch Lbs.		Foot Lbs.		Inch Lbs.		Foot Lbs.	
	MIn.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
0.3125	20	26			70	75		
0.3750	20	26			70	75		
0.4375	20	26			70	75		
0.5000	20	26			70	75		
0.5625	26	32			80	85		
0.6250	26	32			90	95		
0.6875	30	36			100	110	8	9
0.7500	34	40			110	120	9	10
0.8125	40	46			120	130	10	11
0.8750	46	50			140	150	11	12
0.9375	50	55			150	160	12	13
1.0000	55	60			160	170	13	14
1.0625	60	65			190	200	16	17
1.1250	70	75			210	230	18	19
1.1875	75	80			240	260	20	21
1.2500	80	85			260	280	21	23
1.3125	85	90			280	300	24	25
1.375	90	95			300	320	24	25
1.4375	100	110	8	9	300	325	26	28
1.5000	100	110	8	9	325	350	28	30
1.625	110	120	9	10	350	375	28	30
1.750	120	130	10	11	375	400	30	32
1.875	140	150	11	12	400	425	32	34
2.0000	150	160	12	13	425	450	36	38
2.0625	160	170	13	14	450	475	38	40
2.1250	170	180	14	15	475	500	40	42
2.2500	170	180	14	15	500	525	42	44
2.3125	180	190	15	16	525	550	44	46
2.375	190	200	16	17	550	575	46	48
2.500	200	210	17	18	575	600	48	50
2.525	210	220	18	19	600	650	50	55
2.750	220	230	18	19	650	700	55	60
2.875	230	240	19	20	700	750	55	60
3.000	240	250	20	21	750	800	60	65

8.cont.

NOTE: Torque value for all sizes of accessories having three threads, or less and involving a modified major/minor diameter (crest removed) is 30-35 in. lbs. This applies to many PT, JT and LJT accessories.

NOTE: Torque values for accessories having three threads or less, but not having a modified major/minor diameter (crest removed) are as follows:
Shell size 8 through 19; 50 ±5 in. lbs.
Shell size 20 through 25; 100 ±10 in. lbs.

9. TABLE II provides Hex Nut/Coupling Torque values for MIL-DTL-38999 Series III connectors, plus rear accessory metric threads torque values. These torques apply for aluminum, steel and composite.

10. CONNECTORS WITH DOUBLE STUB THREADS (TABLE III) (MIL-STD-1373) Minimum torque values in Table III will assure main joint sealing for connectors, such as QWL and QWLD Series, incorporating double stub threads (MIL-STD-1373).

11. CONNECTORS WITH BAYONET COUPLING (TABLE IV) Miniature, MIL-DTL-26482 connectors, including those with special coaxial arrangements will meet the coupling and uncoupling forces of specification MIL-DTL-26482. Before mating, receptacles must be suitably mounted. Coupling nuts on plugs must be properly lubricated.

12. CONNECTORS WITH BAYONET COUPLING (TABLE V) Subminature, MIL-DTL-38999 Series I (LJT) & Series II (JT) connectors, including those with special coaxial arrangements will meet the coupling and uncoupling forces of specification MIL-DTL-38999, Series I and Series II. Before mating, receptacles must be suitably mounted. Coupling nuts on plugs must be properly lubricated.

13. Maximum engagement and minimum disengagement forces applied to the coupling ring shall be within the limits specified in Table IV for Miniature 26482 connectors and Table V for Subminiature MIL-DTL-38999 Series I & II.

TABLE II
TORQUE VALUES FOR MIL-DTL-38999 SERIES III CONNECTORS

Shell Size	Accessory Thread Dimension (Metric)	Composite				Aluminum, Steel			
		Torque Access. Thd. Inch Lbs.		Torque Hex Nut Thd.. Inch Lbs.		Torque Access Thd. Inch Lbs.		Torque Hex Nut Thd. Inch Lbs.	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
9	M12X1-6g	30	36	30	36	70	75	30	36
11	M15X1-6g	40	46	40	46	80	85	40	46
13	M18X1-6g	55	60	55	60	100	110	55	60
15	M22X1-6g	70	75	70	75	140	150	70	75
17	M25X1-6g	80	85	80	85	160	170	80	85
19	M28X1-6g	90	95	90	95	210	230	90	95
21	M31X1-6g	100	110	100	110	260	280	100	110
23	M34X1-6g	110	120	110	120	280	300	110	120
25	M37X1-6g	120	130	120	130	300	325	120	130

TABLE III
TORQUE VALUES FOR DOUBLE STUB THREADS
MAIN JOINT SEALING*

Thread Size	Torque Inch Lbs.		Torque Inch Lbs.	
	Min.	Max.	Min.	Max.
0.875	150	170	12	14
1.000	170	190	14	16
1.125	230	260	19	21
1.250	280	300	23	25
1.375	325	350	26	28
1.500	350	400	30	32
1.750	400	425	32	36
2.000	425	450	38	42
2.250	500	600	44	48
2.500	600	700	50	55
2.750	700	800	60	65
3.000	800	850	65	70

* Table of values applies except for those series mentioned in NOTE below.

NOTE Die cast single key of the AN double stub thread (65- & 66- Series Connectors) requires using Column “A” of Table I for torque values. The small single key of the PC double stub thread connectors requires using Column “B” of Table I for torque values.

TABLE IV
TORQUE VALUES FOR
MIL-DTL-26482 BAYONET COUPLING CONNECTORS

Shell Size	Max. Engagement Inch Lbs.	Min. Engagement Inch Lbs.
8	8	1
10	12	1
12	16	2
14	20	4
16	24	4
18	28	4
20	32	6
22	36	7
24	44	7

TABLE V
TORQUE VALUES FOR
MIL-DTL-38999 SERIES I & II
BAYONET COUPLING
CONNECTORS

Shell Size	Max. Engagement Inch Lbs.	Min. Engagement Inch Lbs.
8/9	8	2
10/11	12	2
12/13	16	2
14	20	4
15	20	3
16	24	4
17	24	3
18	28	5
19	28	3
20	32	6
21	32	5
22	36	7
23	36	5
24	36	7
25	40	5

For more information contact:

Amphenol Corporation
40-60 Delaware Ave., Sidney, NY 13838
www.amphenol-aerospace.com/service instructions