

INCH-POUND

MIL-PRF-64266/16

9 September 2010

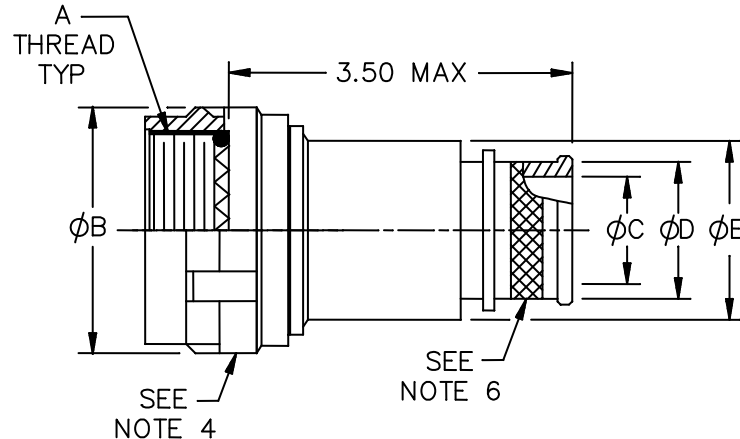
PERFORMANCE SPECIFICATION SHEET

CONNECTORS, FIBER OPTIC, CIRCULAR, PLUG AND RECEPTACLE STYLE,
 MULTIPLE REMOVABLE GENDERLESS TERMINI, SCREW THREADS,
 BACKSHELL, SOLID, SINGLE FIBER CABLES,
 BANDED ADAPTER/CABLE STRAIN RELIEF INTERFACE,
 NONENVIRONMENT RESISTING

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

The requirements for acquiring fiber optic connectors described
 herein shall consist of this specification sheet and MIL-PRF-64266.

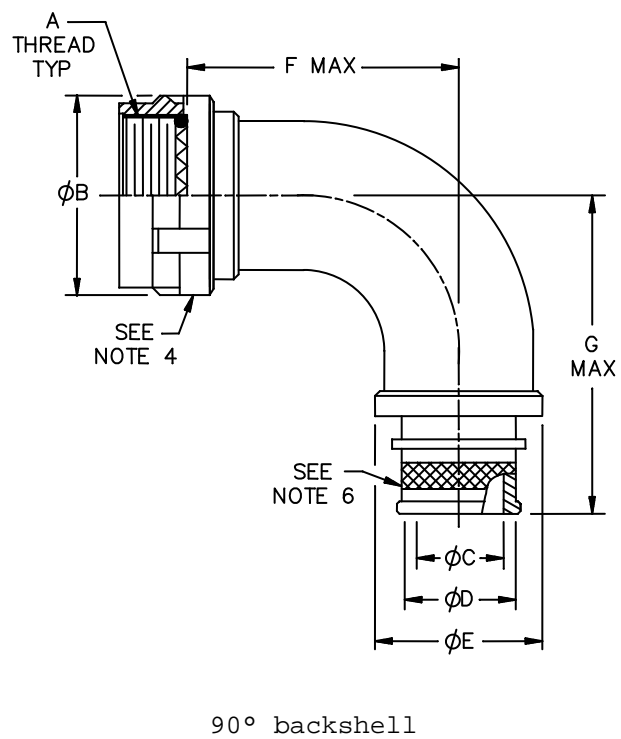
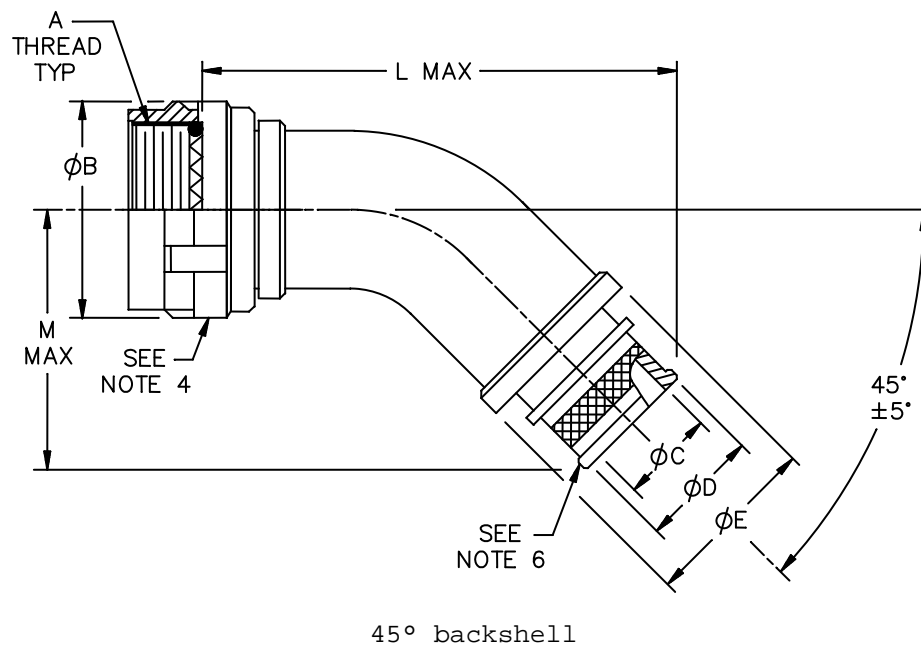
SCOPE. The performance requirements specified herein cover a backshell intended for use with a MIL-PRF-64266 or MIL-DTL-38999 connector plug or receptacle in a fiber optic only application. This backshell is intended for the cable harness configuration in which a bundle of single fiber cables (simplex optical cables) are routed through material, such as cable wrap, to the connector plug or receptacle. This backshell is used for interface with the connector plug or receptacle on one end and contains an interface (platform) to secure the cable wrap with a banding strap on the other end. As an alternative, this platform may be used to secure a cable strain relief (such as heat shrink) to the cable entrance end of the backshell.



Straight backshell

FIGURE 1. Straight, 45 and 90 degree backshell orientations.

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FIGURE 1. Straight, 45 and 90 degree backshell orientations - Continued.

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Shell size	A thread ISO metric	B dia Max		C dia min		D dia max		E dia max	
		inches	mm	inches	mm	inches	mm	inches	mm
11	M15x1.0-6H	1.00	25.4	.31	7.9	.51	13.0	1.38	35.1
13	M18x1.0-6H	1.13	28.7	.38	9.7	.58	14.7	1.38	35.1
15	M22x1.0-6H	1.25	31.8	.50	12.7	.65	16.5	1.38	35.1
17	M25x1.0-6H	1.38	35.1	.50	12.7	.81	20.6	1.56	39.6
19	M28x1.0-6H	1.50	38.1	.63	16.0	.91	23.1	1.56	39.6
21	M31x1.0-6H	1.63	41.4	.69	17.5	1.05	26.7	1.81	46.0
23	M34x1.0-6H	1.75	44.5	.75	19.1	1.18	30.0	1.81	46.0
25	M37x1.0-6H	1.88	47.8	.94	23.9	1.18	30.0	2.12	53.8

Shell Size	F Max		G Max		L Max		M Max	
	inches	mm	inches	mm	inches	mm	Inches	mm
11	2.0	50.8	3.7	94.0	4.0	101.6	2.5	63.5
13	2.1	53.3	3.7	94.0	4.2	106.7	2.6	66.0
15	2.1	53.3	3.8	96.5	4.2	106.7	2.6	66.0
17	2.2	55.9	3.9	99.1	4.2	106.7	2.6	66.0
19	2.2	55.9	3.9	99.1	4.3	109.2	2.7	68.6
21	2.3	58.4	4.0	101.6	4.3	109.2	2.7	68.6
23	2.4	61.0	4.0	101.6	4.4	111.8	2.8	71.1
25	2.4	61.0	4.0	101.6	4.5	114.3	2.8	71.1

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Dimensions apply to plated/finished part.
4. Backshell internal configuration not shown. The backshell interface dimensions shall be in accordance with figure A-6 of MIL-PRF-64266.
5. See table IV herein for relationship of cable entry code to shell size.
6. This interface shall be compatible for use of both a banding strap and heat shrink. Banding strap is one with a .25 inch (6.35 mm) nominal band width and a .375 inch (9.53 mm) maximum buckle (locking mechanism) width. Backshell shall withstand an applied 160 lb linear force around the circumference of the backshell at the band interface surface. The force shall be applied by placing a banding strap onto the backshell using a banding tool.

FIGURE 1. Straight, 45 and 90 degree backshell orientations - Continued.

REQUIREMENTS:

Temperature ranges:

- Operating: -67°F to 329°F (-55°C to 165°C)
 Non-operating: -40°F to 185°F (-40°C to 85°C)
 Storage: -40°F to 185°F (-40°C to 85°C)

Dimensions and configurations: See figure 1 herein and MIL-PRF-64266, figure A-6.

Weight: Weight shall not exceed the specified value in table I for the applicable shell size, cable entry angle and material.

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TABLE I. Backshell weights.

Shell size	Cable entry angle	Composite		Aluminum		Stainless steel	
		lb	Grams	lb	grams	lb	grams
11	straight	.07	31.8	.12	54.4	.34	154.2
	45°,90°	.08	36.3	.15	68.0	.45	204.1
13	straight	.08	36.3	.14	63.5	.40	131.4
	45°,90°	.09	40.3	.16	72.6	.46	208.7
15	straight	.09	40.3	.16	72.6	.46	208.7
	45°,90°	.10	45.4	.18	81.6	.51	231.3
17	straight	.11	49.9	.19	86.2	.55	249.5
	45°,90°	.12	54.4	.23	104.3	.63	285.8
19	straight	.12	54.4	.20	90.7	.60	272.2
	45°,90°	.13	59.0	.23	104.3	.67	303.9
21	straight	.15	68.0	.26	117.9	.75	340.2
	45°,90°	.17	77.1	.31	140.6	.89	403.7
23	straight	.15	68.0	.28	127.0	.78	353.8
	45°,90°	.18	81.6	.32	145.1	.84	381.0
25	straight	.17	77.1	.31	140.6	.89	403.7
	45°,90°	.20	90.7	.35	158.8	1.02	462.7

Fabrication procedure: Standard fabrication procedure (for both the terminus placement/termination onto the end of fiber optic cabling and the assembly of the connector and backshell onto the fiber optic cabling) shall be used. Standard fabrication procedure shall be in accordance with NAVAIR 01-1A-505-4/T.O. 1-1A-14-4/TM 1-1500-323-24-4. A copy of this document can be obtained at web site: <https://jswag.navair.navy.mil>.

Backshell capture mechanism at the cable entry end (for banding strap or strain cable strain relief): A capture adapter/platform, external on and at the cable entry end of the backshell, shall be used to secure either a stainless steel banding strap or a cable strain relief (such as shrink tubing or heat shrink boot) to the backshell.

Requirement for locking mechanism on the backshell coupling nut: The backshell coupling nut shall include a ratchet type locking mechanism (anti-coupling device) to ensure that a backshell mated to a connector maintains full thread engagement (maintains complete coupling). Complete coupling of the mated connector and backshell is achieved by a clockwise rotation of the coupling nut. The anti-coupling mechanism or feature shall be between the backshell coupling nut and the backshell shell only. The locking mechanism shall be sufficient to ensure no backing off of the coupling nut during mechanical shock or vibration.

Wrench flats on composite backshells: Backshell body coupling nuts constructed from composite material shall contain wrench flats or a non-movable hex nut. This wrench flat or hex nut shall be sufficient to permit applying a torque for affixing the backshell to the connector.

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Two pieces of SAE AMS-DTL-23053/5 heat shrink, a minimum of 2 inches in length (before shrinkage), shall be provided with each backshell. One piece of heat shrink shall permit shrinkage directly over the banding platform and cabling exiting the backshell. The other piece of heat shrink shall permit shrinkage over a banding strap affixing cable wrap or braid to the gland nut banding platform.

Identification marking: Applicable. Both initial and after environmental testing.

Backshell-to-connector mating torque: The backshell threads shall withstand the applied torque to mate (affix) the backshell to the connector that is specified in table II with no damage. The backshell shall be mated to a connector mounted in a suitable fixture to prevent movement of the connector during the test. The torque shall be applied to the backshell at a rate of approximately 10 in-lb per second until the specified applied torque is obtained. This torque shall be applied for a minimum of 1 minute.

TABLE II. Backshell-to-connector mating torque.

Shell size	Mating torque ± 5 in-lb	
	Composite	Metal
11	50	100
13	50	150
15	50	150
17	50	150
19	50	150
21	100	175
23	100	175
25	100	175

Cable pull-out force: Not applicable.

Cable seal flexing: Not applicable.

Twist: Applicable. A 5 lb weight shall be applied to the entire cable bundle. Perform on a shell size 15 backshell.

External bending moment: Applicable. Applied bending moment shall be as specified in table III

TABLE III. Backshell applied bending moment.

Shell size	Minimum applied bending moment					
	Composite		Aluminum		Stainless steel	
	in-lb	N-m	in-lb	N-m	in-lb	N-m
11	25	2.83	125	14.12	125	14.12
13	25	2.83	275	31.07	275	31.07
15	50	5.65	300	33.90	300	33.90
17	50	5.65	300	33.90	300	33.90
19	50	5.65	300	33.90	300	33.90

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TABLE III. Backshell applied bending moment - Continued.

Shell size	Minimum applied bending moment					
	Composite		Aluminum		Stainless steel	
	in-lb	N-m	in-lb	N-m	in-lb	N-m
21	75	8.47	300	33.90	300	33.90
23	75	8.47	300	33.90	300	33.90
25	100	11.30	300	33.90	300	33.90

Impact: Applicable.

Crush: Applicable.

Water pressure: Not applicable.

Banding strap attachment integrity: No buckling, cracking or other backshell damage (including to plating) shall result from attachment of a banding strap when applied to the conditions of note 7 in figure 1.

Freezing water: Not applicable.

Sand and dust: Applicable.

Electromagnetic effects: Applicable. When not tested as part of the initial qualification, the backshell shall be assembled to a MIL-PRF-64266/1 or MIL-PRF-64266/3 receptacle configured with a non-metallic insert. Electromagnetic effects testing shall be conducted both with and without mating the MIL-PRF-64266/1 or MIL-PRF-64266/3 receptacle to a mating plug connector or dust cover.

Salt spray: Applicable.

Shell-to-shell conductivity: Applicable. Both initial and after salt spray. Perform both initial and after salt spray. For a backshell mated to a connector plug, the voltage drop of the mated connector plug-to-backshell shall be measured from a point on the rear accessory thread of the connector plug to a point on the backshell $1.0 \pm .25$ inch from the innermost backshell threads that mate with the backshell gland nut. For a backshell mated to a connector receptacle, the voltage drop of the mated connector receptacle-to-backshell shall be measured from a point on the flange of the connector receptacle adjacent to the mounting hole to a point on the backshell $1.0 \pm .25$ inch from the innermost backshell threads that mate with the backshell gland nut. When tested as part of the initial qualification, the voltage drop between the connector receptacle and connector plug shall be measured also.

Modified SO₂/salt spray: Applicable.

Altitude immersion: Applicable.

Fluid immersion: Applicable.

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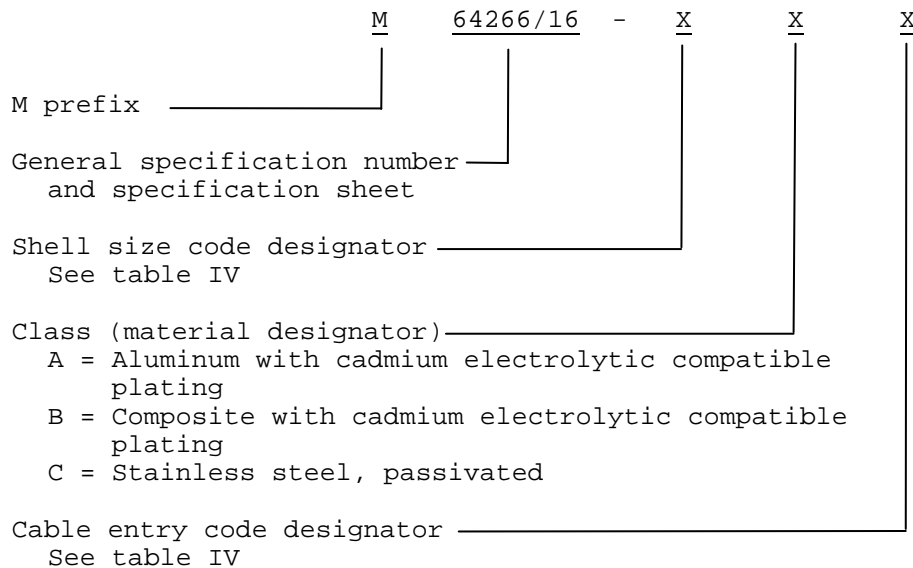
Cleaning procedures: Each shipment of backshells shall include recommended cleaning procedures. The following wording or equivalent is recommended "To clean, use lint free wipe dampened with alcohol and blow dry with air."

Qualification by similarity:

Non environmental backshells: If a connector backshell that is environmental resisting and of a specified shell size is qualified to MIL-PRF-64266/13, and connector backshells of the same shell size and same cable entry end configuration in this specification sheet that are not environmental resisting meet the visual and mechanical size, weight, identification marking, workmanship, screw thread and the backshell and backshell accessory attachment inspections, then the connector backshells of the same shell size and same cable entry end configuration that are not environmental resisting is qualified.

Marking:

Part or Identification Number (PIN): Marked on coupling ring of the backshell.



PIN example: M64266/16CAA

TABLE IV. PIN code designators.

Shell size	Shell size code	Cable entry code 1/	Cable entry angle	Connector type	# of insert cavity
11	B	A	Straight	M64266	2
	B	B	45°	M64266	2
	B	C	90°	M64266	2
11	B	L	Straight	M64266	4
	B	M	45°	M64266	4
	B	N	90°	M64266	4

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TABLE IV. PIN code designators - Continued.

Shell size	Shell size code	Cable entry code 1/	Cable entry angle	Connector type	# of insert cavity
11	B	D	Straight	M38999	2
	B	E	45°	M38999	2
	B	F	90°	M38999	2
13	C	A	Straight	M64266	6
	C	B	45°	M64266	6
	C	C	90°	M64266	6
13	C	D	Straight	M38999	4
	C	E	45°	M38999	4
	C	F	90°	M38999	4
15	D	A	Straight	M64266	10
	D	B	45°	M64266	10
	D	C	90°	M64266	10
15	D	L	Straight	M64266	8
	D	M	45°	M64266	8
	D	N	90°	M64266	8
15	D	D	Straight	M38999	5
	D	E	45°	M38999	5
	D	F	90°	M38999	5
17	E	D	Straight	M38999	8
	E	E	45°	M38999	8
	E	F	90°	M38999	8
19	F	D	Straight	M38999	11
	F	E	45°	M38999	11
	F	F	90°	M38999	11
21	G	D	Straight	M38999	16
	G	E	45°	M38999	16
	G	F	90°	M38999	16
23	H	A	Straight	M64266	36
	H	B	45°	M64266	36
	H	C	90°	M64266	36
23	H	D	Straight	M38999	21
	H	E	45°	M38999	21
	H	F	90°	M38999	21
25	J	D	Straight	M38999	37
	J	E	45°	M38999	37
	J	F	90°	M38999	37
25	J	G	Straight	M38999	29
	J	J	45°	M38999	29
	J	K	90°	M38999	29

1/ Cable entry code based on cable entry angle, connector type and number of cavities in the connector insert.

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Mating counterpart: Backshell mates with MIL-PRF-64266/1 wall mounting receptacle, MIL-PRF-64266/2 plug, and MIL-PRF-64266/3 jamnut mounting receptacle.

Installation and removal tools: Adjustable or 1.25 inches (31.8 mm) open end wrench, strap wrench, and scissors.

Referenced documents: In addition to MIL-PRF-64266, this specification sheet references the following documents:

MIL-DTL-38999
MIL-PRF-64266/1
MIL-PRF-64266/2
MIL-PRF-64266/3
MIL-PRF-64266/13
NAVAIR 01-1A-505-4/T.O. 1-1A-14-4/TM 1-1500-323-24-4
SAE AMS-DTL-23053/5

Custodians:

Army - CR
Navy - AS
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 6060-2009-006)

Review activities:

Army - TE
Navy - SH
Air Force - 13, 19, 93, 99
MISC - DI
MISC - MDA

Civil agencies:

GSA - FAS
NASA - NA

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