

Amphenol® 62GB solder connectors

This catalogue to be used in conjunction with Catalogues:
CE-2Pa – 62GB Series Receptacles
CE-2Aa – 62GB Series Accessories

This miniature bayonet lock connector series offers designers important features not found in any other range of connectors. The range has full qualification approval to British Standards Specification BS 9522 FOO 17 and British Defence Specification DEF STAN 59-35 (Part 3) Sec. 7.

62GB Series connectors - developed and manufactured entirely in the United Kingdom by Amphenol Limited. They are the first and only British connectors to have achieved this. A doubly strong position which Amphenol are well geared to handle. The manufacturing facilities of the Whitstable plant have been cited as exemplary in Europe. Certainly the layout is extensive and extremely efficient; safety awards have been attained every time returns have been submitted to the British Safety Council.

62GB Series connectors have been well established with Government authorities on an international scale and users can be found in Sweden, Denmark, Norway, Finland, Germany, Spain, Holland, India, Canada and Italy.

Derating

Connectors must be derated under the following operating conditions:

1. At elevated ambient temperatures, the current ratings are reduced so that total maximum hot spot temperature of 125°C is not exceeded.
2. At high altitudes, revised voltage ratings become effective as shown on page 7.
3. When connectors to different specifications are intermated (e.g. BS 9522 FOO 17 and MIL-C26482), the combination must not be operated under conditions more severe than the less stringent clause of either specification.

Amphenol 62GB connectors are designed to meet the most stringent requirements of both specifications.

Military Specifications

British Standards Specification BS 9522 FOO 17 closely corresponds to the United States Military Specification MIL-C-26482 solder terminations. Certain differences exist between the schedules which can be seen on pages 2 and 3.

Approved gauges are used to check interchangeability of 62GB series with other connectors manufactured to BS 9522 FOO 17 or MIL-C-26482.

Basic Construction

Connector shells are machined from solid aluminium bar stock - not forged or extruded as in competitive designs. Machining has inherent advantages in terms of strength and adaptability. 62GB Series can be supplied in brass or stainless steel, for instance.

The normal shell finish used, which has a high resistance to corrosion, is zinc cobalt olive drab. Other finishes may be supplied to special order, such as cadmium plate which is available by adding deviation (714) to the end of part number.

Inserts are of polychloroprene rubber compounded to an Amphenol specification. Operating temperature range is -55°C to 125°C, and the connectors have gold-plated contacts designed for soldered connections. Configurations for size 20 contacts range between 2 contacts in the size 8 12.7mm (0.5in diameter) shell up to a maximum of 61 contacts in the size 2436.1 mm (1.5in diameter) shell. Intermediate sizes, and contact data for heavier current ratings are shown in the insert availability chart on page 6 and 7.

Hermetic connectors with glass sealed dielectric are manufactured with mild steel shells and nickel iron contacts plated tin over copper.

* Other finishes are available on request.

Protection Against Mis-Mating or Cross-Plugging

In BS 9522 FOO 17 positive shell-to-shell keying is provided with keys and keyways in a choice of either the normal (N) or any of the four preferred alternate positions: B, C, E and F. This prevents mismating between shells of different orientations and overcomes the difficulties associated with rotated inserts and a standard key-keyway orientation. In the latter system, damage to the inserts or contacts can result if excessive force is used to engage non-mating pairs.

Rotated inserts are, however, permissible in BS 9522 FOO 17 connectors if required to mate with or replace units to MIL-C-26482 mounted in existing equipment. Connectors have normal orientations manufactured to BS 9522 FOO 17 or MIL-C-26482 are fully intermateable as also are connectors with inserts in positions W, X, Y or Z.






















Schedule of Tests Required for Qualification Approval

Tests	Brief Description
Visual Examination	
Dimensions, outline mass(including contacts) Compatability Gauging procedure	
Polarization	
Engaging and separating force, connector	Engagement max: 0,90 Nm (8.0 lbf.in.) to 4,97 Nm (44 lbf.in.) according to shell size. Separation min: 0,22 Nm (2.0 lbf.in.) to 1,58 Nm (14.0 lbf.in.) according to shell size.
Contact Holding Force	0,21 N (0.047 lbf) min.size 20 0,56 N (0.126 lbf)min. size 16
Sealing (air pressure)	Max leakage 28,53 uNm/s (1 cm3/h), 1 bar (14.5 p.s.i.) differential.
Sealing Hermetic	Hermetic receptacles have a max leak of 0.1 micron cubic foot per hour (1 x 10-6Cm3/s)
Contact Resistance	5 milliohms max.
Housing (Shell) Continuity	200 milliohms max. 5 milliohms max. grounding spring styles.
Insulation Resistance	5,000 Megaohms at 500 - 50 V d.c.
Voltage Proof	See page 7. Duration 1 minute
Soldering	As BS 9520: 1974, Clause 1.2.6.6, Method 2.
Bumping	As BS 9520: 1974, Clause 1.2.6.1. 4,000 -10 bumps / 390m / s2 (40 gn).
Vibration	As BS 9520: 1974, Clause 1.2.6.2.1. Procedure A. 10 Hz to 5000 Hz, 0.75 mm / 10 gn.
Shock	As BS 9520: 1974, Clause 1.2.6.3. 981 m/s2 (100 g n).
Acceleration (Steady State)	As BS 9520: 1974, Clause 1.2.6.4. 490 m/s2 (50 gn).
Rapid Change of Temperature	As BS 9520: 1974, Clause 1.2.6.7. -550 C to - 1250 C.
Climatic Sequence	As BS 9520: 1974, Clause 1.2.6.11. Severity 55/125/56.
Flammability	As BS 9520: 1974, Clause 1.2.6.8. Direct flame applied, duration 1 minute.
Damp Heat (Steady State)	As BS 9520: 1974, Clause 1.2.6.14. Severity 56 days.

Schedule of Tests Required for Qualification Approval

Tests	Brief Description
Immersion (at low air pressure)	3 cycles at 30 mins each cycle, total immersion in water at pressure 44 m bar.
Mechanical Endurance	500 operations minimum
High Temperature Endurance	Long term: 1,000 hrs. at 850 C ambient carrying the specified current. Short term: 250 hrs at 1250 C, no current.
Mould Growth	As BS 9520: 1974, Clause 1.2.6.15. 28 days duration.
Salt Mist	As BS 9520: 1974, Clause 1.2.6.16. Severity 1.
Dust	As BS 9520: 1974, Clause 1.2.6.17. Exposure 30 minutes.
Robustness of Terminations	44,5 N (101bf) size 16 22,2 N (5 lbf) size 20
Contact Retention (in insert)	67,0 N (15 lbf) min. size 20 112,0 N (25 lbf) min. size 16
Insert Retention (in shell)	517 KN1m2 (751bf/in2) min.
Test Prod Damage	Moment: 0,056 Nm (0.5 lbf in) size 20 0,225 Nm (2 lbf in) size 16
Impact	Five impacts, drop height 1 m (3ft.3 in.).
Grounding Spring Holding Force Plugs with grounding springs only.	1,17 N (0.263 lbf) to 2,74 N (0.616 lbf) according to size.
Fluid Resistance	Immersion in 4 solvents and 9 fluids including aircraft fuels, lubricating oils and hydraulic fluids.
Compass Safe Distance	As BS 9520: 1974, Clause 1.2.5.11. 127 mm (5.0 in) min.

Insert Availability

8	10	12	14	16	18	20
8-2* 	10-6 	12-10 	14-12† 	16-23* 	18-32 	20-41 
8-3* 	10-7 		14-15 	16-26 		
8-3 3 			14-19 			
8-4* 						
8-98 	10-2 	12-3 	14-5 	16-8 	18-11 	20-16 

NOTES

* This insert arrangement is not included in B.S. spec., but is available and listed in MIL-C-26482.

† Due to the arrangement of contacts in the 14-12 insert arrangement it is classified, for current derating, in the shell size range 18-24.

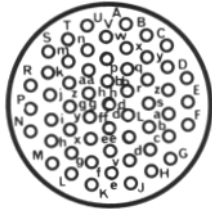
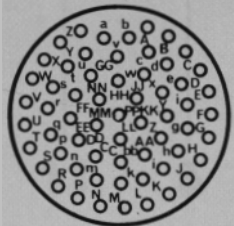
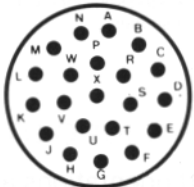
Lettering of inserts shown above corresponds to view of front (mating surface of pin inserts or rear face (cable accessory end) of socket inserts.

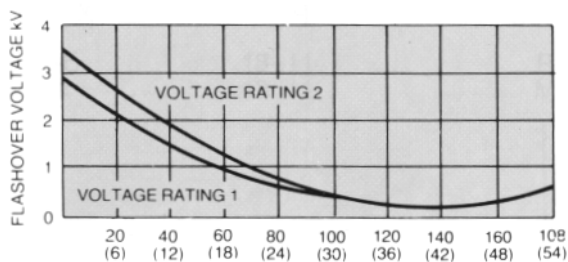
KEY ● No 16 size contacts
○ No 20 size contacts

CURRENT RATING

Maximum current per individual contact (in isolation) at a maximum ambient temperature of 85°C: Size 20 contact 7.5A Size 16 contact 13-0A The performance of 62GB Series connectors at all times exceeds the maximum continuous bunched rating of the appropriate size wire, or cable of equivalent temperature rating. This bunched rating is therefore the determining factor. In the case of mixed loadings, the greatest individual load shall be the bunched loading. In any combination of ambient temperature plus temperature rise due to current flow through the contacts, the maximum connector internal hot spot temperature of 125°C must not be exceeded. That is, when only one contact per connector is loaded.

Insert Availability

		VOLTAGE RATINGS			
22	24	ALTITUDE	D.C. WORKING VOLTAGE	A.C. WORKING VOLTAGE R.M.S.	PROOF VOLTAGE D.C. OR A.C. PEAK
<p>22-55</p> 	<p>24-61</p> 	<p>Rating 1 Sea level</p> <p>300 mb at 20°C 8,500m (27,800 ft)</p> <p>44 mb at 20°C 20,000m (66,000 ft)</p>	700	500	2100
<p>22-21</p>  <p>† Available to special order only</p>		<p>Rating 2 Sea level 300 mb at 20°C 8,500m (27,800 ft) 44 mb at 20°C 20,000m (66,000 ft)</p>	120	850	3000
			650	460	1300
			380	270	760



ALTITUDE-THOUSANDS OF FEET (METRES)
Relationship between flashover voltage and altitude for each voltage rating

VOLTAGE RATINGS

Two categories of voltage rating are specified in BS9522 F0017, F0038 and N0001.

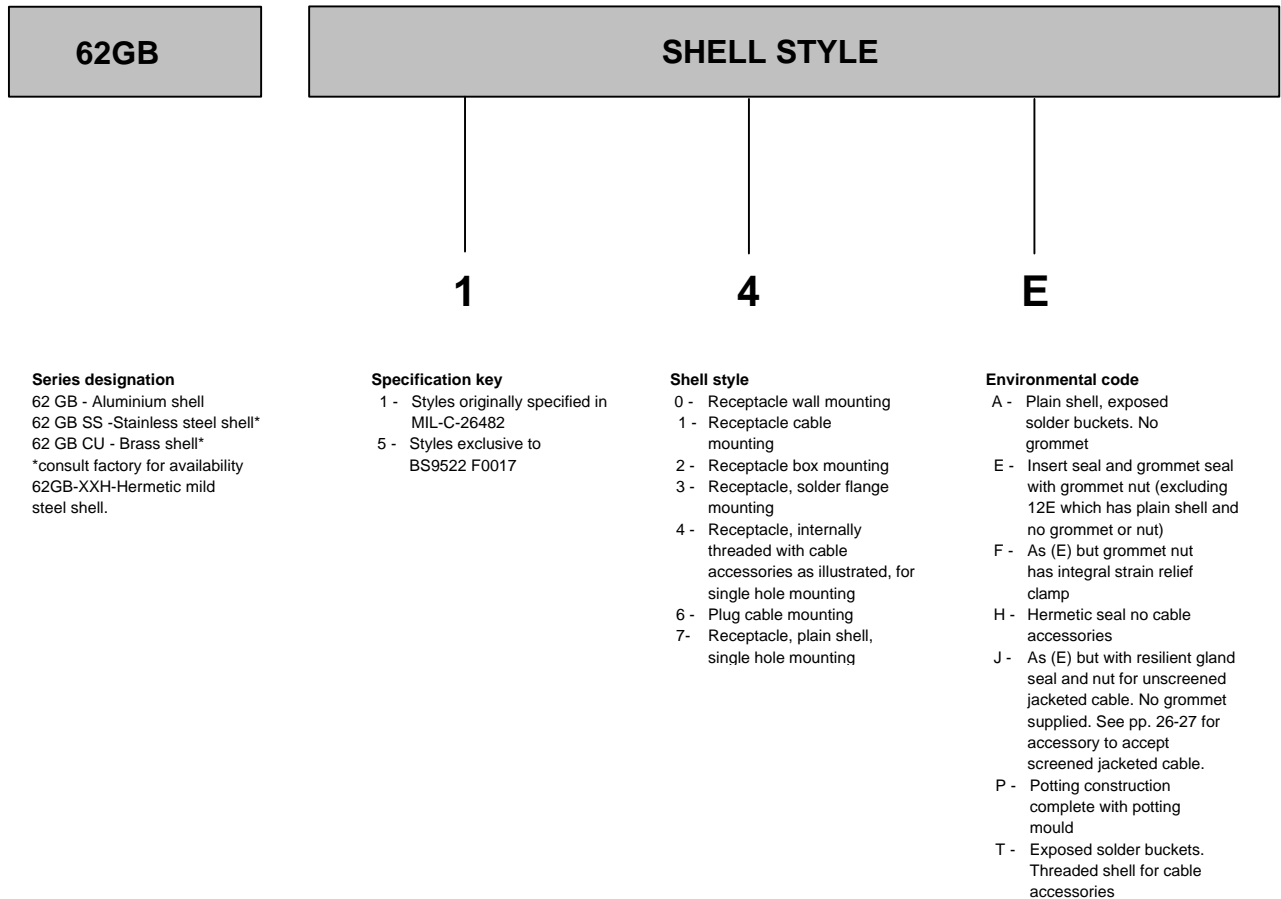
Rating 1 (700V d.c. working at sea-level) Applicable to the high contact density inserts shown in the upper section of the insert availability diagram above.

Rating 2 (1200V d.c. working at sea-level) Applicable to the inserts shown in the lower section of the insert availability diagram.

Altitude derating. Information on voltage derating for operation at altitudes above sea-level can be obtained from the flashover voltage altitude curves on the left.

Ordering 62GB Series Connectors

To obtain the specific connector required write down the connector number from the typical example below. Only inserts shown in the availability chart on p. 10&11 can be specified. All connectors are delivered with protective dust covers



HOW TO ORDER FROM MS CONNECTOR NUMBERS

Connector numbers in the AMPHENOL and MS numbering systems. Only alternative insert orientations are specified in MIL-C-26482 which does not include alternative key/keyway orientations.

MS31	-	14	E	18 -11	P	X
62GB	-	14	E	18 -11	P	X

Ordering 62GB Series Connectors

INSERT ARRANGEMENT

18

11

P

B

(044)

Shell size (in sixteenths of an inch) 8, 10, 12, 14, 16
18,20,22,24

Number of contacts
2, 3, 4, 5, 6, 7, 8, 10, 11, 12,
16, 19, 21, 23, 26, 32, 41, 55,
61
* consult factory for availability

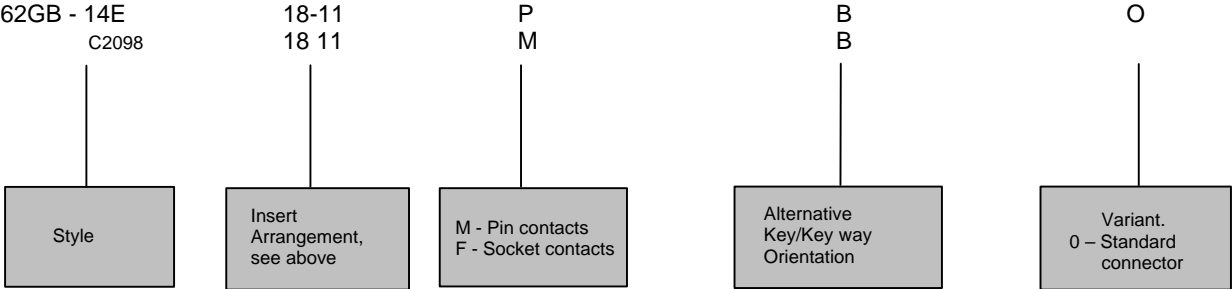
Contact Style
P - Pins
S - Sockets For hermetic connectors. P3 denotes pin contacts with solder bucket terminations. (Standard range). P2 denotes pin contacts with flattened and pierced terminations. (Special order).

Orientation
(Omit if normal orientation)
Keys/Keyways: A', B, C, D', E, F, (see p. 31)
Inserts: W,X,Y,Z.(see p56/57)
*Inactive for new designs

Deviations
(044) Rough grip heavy duty coupling ring.
(046) Box mounting plug.
(214) Fitted with extension back shell and strain relief clamp without grommet on F types only
(218) Lever coupling ring
(219) Contacts for flexible punted wrung (57A and 12E only)
(639) Bright cadmium plated shells
(345) Contacts for flexible punted wiring 12H,13H 17H only
(276) Hermetics with gold plated contacts.
(608) Black anodise.
(416) Electroless nickel
(714) Cadmium plate olive drab

HOW TO ORDER FROM B.S. CONNECTOR NUMBERS

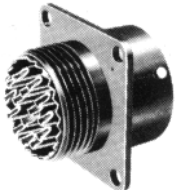
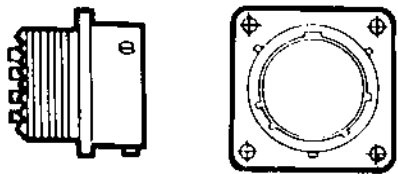
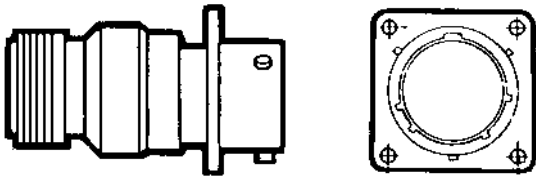
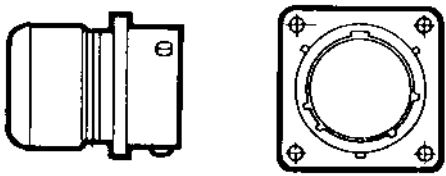
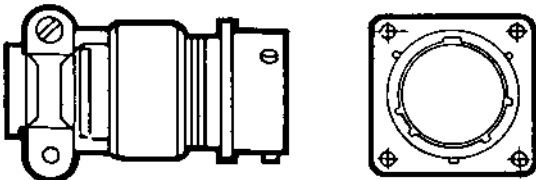
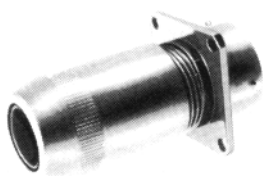
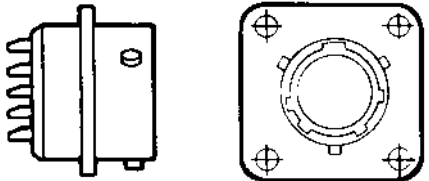
Select the connector style by reference to BS9522 F0017 using the code below for identification. Note that the B.S. Specification includes only certain connectors from the table of styles as shown on pp. 8 & 9. Alternative key/keyway orientations are preferred in the BS9522 F0017 Specification to prevent mis-mating. However, rotated inserts are permissible where connectors are required to mate with or replace items to MIL-C-26482 on existing equipment.



Box Mounting Receptacles

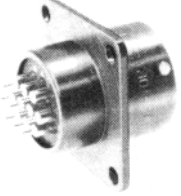
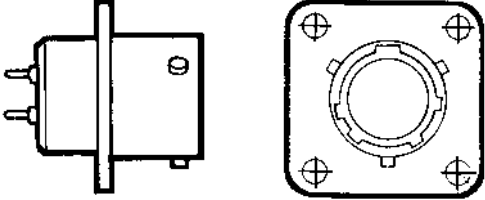
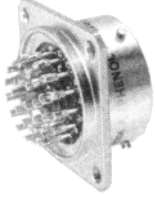
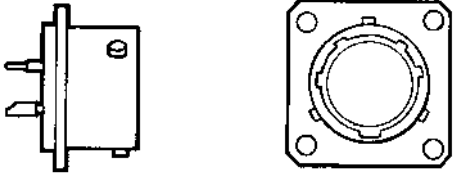
Table of Styles

Page No.

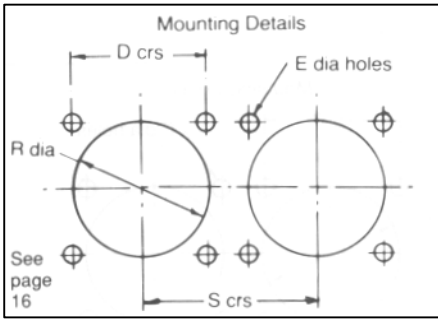
62GB-50T			15
62GB-10A			15
62GB-10E			16
62GB-10F			16
62GB-10J			17
62GB-10P			17
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Box Mounting Receptacles Table of Styles

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Box Mounting Receptacles



62GB-12E
BS9522 - F0017 - C2097
MIL-C-26482 MS3112E

Shell Size	A max	8 ± 0.005 (± 0.13)	C max sq.	D TP sq.	E ± 0.010 (± 0.254)	F ± 0.005 (± 0.13)	G dia. max.	L	V dia. max.
08	0.978 24.84	0.062 1.58	0.817 20.75	0.594 15.09	0.120 3.05	0.445 11.3	0.434 11.02	0.800 20.32	0.473 12.02
10	0.978 24.84	0.062 1.58	0.942 23.93	0.719 18.26	0.120 3.05	0.445 11.3	0.558 14.17	0.800 20.32	0.590 14.99
12	0.978 24.84	0.062 1.58	1.036 26.32	0.812 20.63	0.120 3.05	0.445 11.3	0.683 17.35	0.800 20.32	0.750 19.05
14	0.978 24.84	0.062 1.58	1.130 28.70	0.906 23.10	0.120 3.05	0.445 11.3	0.808 20.52	0.800 20.32	0.875 22.23
16	0.978 24.84	0.062 1.58	1.223 31.07	0.969 24.61	0.120 3.05	0.445 11.3	0.933 23.70	0.800 20.32	1.000 25.4
18	0.978 24.84	0.062 1.58	1.317 33.45	1.062 26.58	0.120 3.05	0.445 11.3	1.057 26.85	0.800 20.32	1.125 28.58
20	1.048 26.62	0.080 2.03	1.442 36.63	1.156 29.36	0.120 3.05	0.555 14.10	1.182 30.02	0.875 22.23	1.250 31.75
22	1.048 26.62	0.080 2.03	1.567 39.80	1.250 31.75	0.120 3.05	0.555 14.10	1.307 33.20	0.875 22.23	1.375 34.93
24	1.048 26.62	0.080 2.03	1.692 42.98	1.375 34.93	0.147 3.74	0.590 14.99	1.432 36.37	0.875 22.23	1.500 38.1



62GB-12E (219)
BS9522 - F0017 - C2262

4-hole flange mounting with plain shell with film wire terminations

Shell Size	A max	B ± 0.005 (± 0.13)	C max sq.	D TP sq.	E dia 0.010	F ± 0.005 (± 0.13)	G dia. Max	J ± 0.020 (± 0.51)	K min max.	L max min	Y dia max.	Z	
08	0.982 24.95	0.062 1.58	0.817 20.75	0.594 15.09	0.120 3.05	0.445 11.3	0.434 11.02	0.089 2.26	0.030 0.76	0.198 5.03	0.166 4.22	0.473 12.02	0.800 20.32
10	0.982 24.95	0.062 1.58	0.942 23.93	0.719 18.26	0.120 3.05	0.445 11.3	0.558 14.17	0.089 2.26	0.030 0.76	0.198 5.03	0.166 4.22	0.590 14.99	0.800 20.32
12	0.982 24.95	0.062 1.58	1.036 26.32	0.812 20.63	0.120 3.05	0.445 11.3	0.683 17.35	0.089 2.26	0.030 0.76	0.198 5.03	0.166 4.22	0.750 19.05	0.800 20.32
14	0.982 24.95	0.062 1.58	1.130 28.70	0.906 23.10	0.120 3.05	0.445 11.3	0.808 20.52	0.089 2.26	0.030 0.76	0.198 5.03	0.166 4.22	0.875 22.23	0.800 20.32
16	0.982 24.95	0.062 1.58	1.223 31.07	0.969 24.61	0.120 3.05	0.445 11.3	0.933 23.70	0.089 2.26	0.030 0.76	0.198 5.03	0.166 4.22	1.000 25.4	0.800 20.32
18	0.982 24.95	0.062 1.58	1.317 33.45	1.062 26.58	0.120 3.05	0.445 11.3	1.057 26.85	0.089 2.26	0.030 0.76	0.198 5.03	0.166 4.22	1.125 28.58	0.800 20.32
20	1.057 26.85	0.080 2.03	1.442 36.63	1.156 29.36	0.120 3.05	0.555 14.10	1.182 30.02	0.076 1.93	0.030 0.76	0.185 4.70	0.153 3.89	1.250 31.75	0.875 22.23
22	1.057 26.85	0.080 2.03	1.567 39.80	1.250 31.75	0.120 3.05	0.555 14.10	1.307 33.20	0.076 1.93	0.030 0.76	0.185 4.70	0.153 3.89	1.375 34.93	0.875 22.23
24	1.057 26.85	0.080 2.03	1.692 42.98	1.375 34.93	0.147 3.74	0.590 14.99	1.432 36.37	0.076 1.93	0.030 0.76	0.185 4.70	0.153 3.89	1.500 38.1	0.875 22.23