

# MIL-C-38999 Series III (Composite)

## ACT Highlights

DEUTSCH ACT SERIES

The Deutsch ACT is a high performance composite connector qualified to MIL-C-38999. What Deutsch Defense/Aerospace does better than anyone else is make wire termination devices for demanding applications. Deutsch utilized its unprecedented achievements in the area of defense/aerospace composite technology, enabling us to design and produce the latest version of MIL-C-38999 connectors.

The superior design of the ACT deliberately took into consideration the connector, its contacts, and the respective strain reliefs to favorably influence intra-system life-cycle performance and costs.

### **Performance**

The total performance of the ACT connector is matched by individual components within the system. For example, the use of composite materials has increased the durability of the connector housing and coupling mechanism to 1500 cycles. Deutsch developed an extended life MIL-C-39029 contact to meet the increased performance requirements of today's systems.

### **Superior corrosion resistance**

The ACT eliminates the largest contributing factor in advanced systems malfunction... corrosion, which is the main cause of mechanical, electrical, and electromagnetic connector degradation. Electromotive force differentials between many dissimilar metals found in connectors and accessories produce galvanic action. The ACT eliminates these dissimilar metals, resulting in an interconnection system that withstands over 2000 hours of salt spray.

### **EMI shielding effectiveness**

Meets and exceeds the requirements of MIL-C-38999, paragraph 3.3.1.

### **Fluid immersion**

Meets all the requirements of MIL-C-38999, paragraph 3.33.

### **Temperature**

The metal surface will not delaminate from the composite material even after extreme temperature excursions. The ACT meets all requirements of MIL-C-38999, paragraph 3.8.

### **Magnetic permeability**

The magnetic permeability of the fully assembled ACT connector is less than  $2.0 \mu$ , meeting all the requirements of MIL-C-38999, paragraph 3.3.4.

### **Materials**

All the materials used in the shell and inserts in the ACT are in accordance with MIL-C-38999, paragraph 3.3. The contacts are in accordance with MIL-C-39029, paragraph 3.3.

### **Finish**

Meets all the requirements of MIL-C-38999, paragraph 3.4.8.

### **Insulation resistance**

Meets all the requirements of MIL-C-38999, paragraph 3.13.

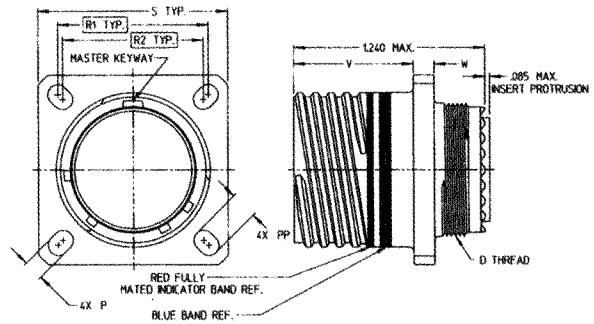
### **Dielectric withstanding voltage**

Meets all the requirements of MIL-C-38999, paragraph 3.14.



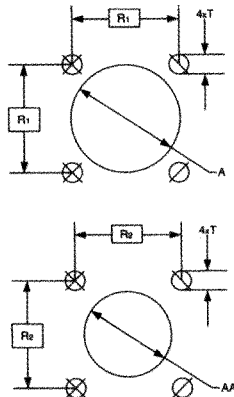
# The Best of MIL-C-38999

## Square flange receptacle\*



MILITARY PART NUMBERS	DEUTSCH PART NO.	SHELL SIZE	D THREAD	P+.004 -.002	PP+.004 -.002	R1	R2	S.010	Y MIN	W MAX.
D38999/20*A****	ACT 90*A****	A (9)	M12X1.0-8g 0.100R	.128	.218	.719	.594	.937	.768	.144
D38999/20*B****	ACT 90*B****	B (11)	M15X1.0-8g 0.100R	.128	.194	.812	.719	1.031	.768	.144
D38999/20*C****	ACT 90*C****	C (13)	M18X1.0-8g 0.100R	.128	.194	.906	.812	1.128	.768	.144
D38999/20*D****	ACT 90*D****	D (15)	M22X1.0-8g 0.100R	.128	.173	.969	.906	1.220	.768	.144
D38999/20*E****	ACT 90*E****	E (17)	M25X1.0-8g 0.100R	.128	.194	1.062	.969	1.311	.768	.144
D38999/20*F****	ACT 90*F****	F (19)	M28X1.0-8g 0.100R	.128	.194	1.156	1.062	1.437	.768	.144
D38999/20*G****	ACT 90*G****	G (21)	M31X1.0-8g 0.100R	.128	.194	1.250	1.156	1.563	.736	.171
D38999/20*H****	ACT 90*H****	H (23)	M34X1.0-8g 0.100R	.154	.242	1.375	1.250	1.689	.736	.171
D38999/20*J****	ACT 90*J****	J (25)	M37X1.0-8g 0.100R	.154	.242	1.500	1.375	1.811	.736	.171

## Mounting cutouts



SHELL SIZE	A DIS. MIN.	AA DIS. MIN.	R1	R2	T DIA. ±.13
A (9)	16.66 (.656)	13.11 (.516)	18.26 (.719)	15.09 (.594)	3.25 (.128)
B (11)	20.22 (.795)	15.88 (.625)	20.62 (.812)	18.26 (.719)	3.25 (.128)
C (13)	23.42 (.922)	19.05 (.750)	23.01 (.906)	20.62 (.812)	3.25 (.128)
D (15)	26.59 (1.047)	23.01 (.906)	24.61 (.969)	23.01 (.906)	3.25 (.128)
E (17)	30.96 (1.219)	25.81 (1.016)	26.97 (1.062)	24.61 (.969)	3.25 (.128)
F (19)	32.94 (1.297)	28.95 (1.141)	29.36 (1.156)	26.97 (1.062)	3.25 (.128)
G (21)	36.12 (1.442)	32.16 (1.266)	31.75 (1.250)	29.36 (1.156)	3.25 (.128)
H (23)	39.29 (1.547)	34.93 (1.375)	34.93 (1.375)	31.75 (1.250)	3.91 (.154)
J (25)	42.47 (1.672)	37.89 (1.485)	38.10 (1.500)	34.93 (1.375)	3.91 (.150)

## Back Panel Mounting

Max (R1) distance between mounting screws

## Front Paneling Mounting

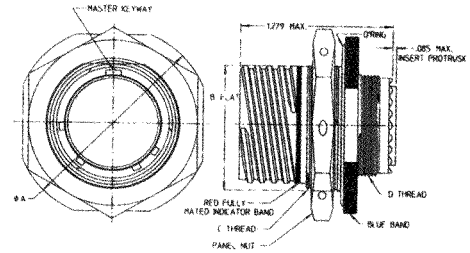
Max (R2) distance between mounting screws

## Notes:

- Dimensions are in millimeters. Inch equivalents are in parentheses (given for general information only).
- R2 dimension may be substituted for mounting screw locations (R1) or front mount cutouts.
- \* QPL listing will be provided on request.



Jam nut receptacle\*

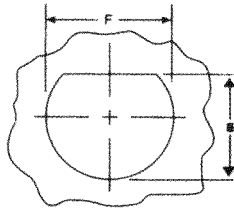


MILITARY PART NUMBERS	DEUTSCH PART NO.	SHELL SIZE	A Ø ±.011	B ±.005	C THREAD	D THREAD
D38999/24*A****	ACT 94*A****	A (9)	1.189	.650	M17X1.0-6g 0.100R	M12X1.0-6g 0.100R
D38999/24*B****	ACT 94*B****	B (11)	1.374	.750	M20X1.0-6g 0.100R	M15X1.0-6g 0.100R
D38999/24*C****	ACT 94*C****	C (13)	1.500	.937	M25X1.0-6g 0.100R	M18X1.0-6g 0.100R
D38999/24*D****	ACT 94*D****	D (15)	1.626	1.061	M28X1.0-6g 0.100R	M22X1.0-6g 0.100R
D38999/24*E****	ACT 94*E****	E (17)	1.752	1.186	M32X1.0-6g 0.100R	M25X1.0-6g 0.100R
D38999/24*F****	ACT 94*F****	F (19)	1.937	1.311	M35X1.0-6g 0.100R	M28X1.0-6g 0.100R
D38999/24*G****	ACT 94*G****	G (21)	2.063	1.436	M38X1.0-6g 0.100R	M31X1.0-6g 0.100R
D38999/24*H****	ACT 94*H****	H (23)	2.189	1.156	M41X1.0-6g 0.100R	M34X1.0-6g 0.100R
D38999/24*J****	ACT 94*J****	J (25)	2.311	1.686	M44X1.0-6g 0.100R	M37X1.0-6g 0.100R

Jam nut mounting

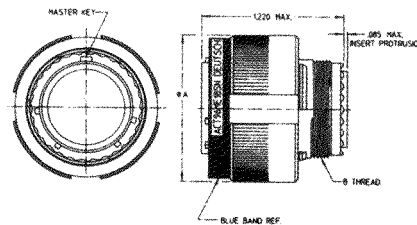
Panel thickness

1.58 - 3.2mm (0.062 - 0.126 in.)



SHELL SIZE	INCH-LBS. TORQUE	E +.00 -.25	F +.25 -.00
A (9)	30/36	17.02 (.670)	17.78 (.700)
B (11)	40/45	19.59 (.771)	20.98 (.825)
C (13)	55/60	24.28 (.955)	25.83 (1.010)
D (15)	70/75	27.56 (1.085)	28.83 (1.135)
E (17)	80/85	30.73 (1.210)	32.01 (1.260)
F (19)	90/95	33.91 (1.335)	35.18 (1.385)
G (21)	100/110	37.08 (1.460)	38.35 (1.510)
H (23)	110/120	40.26 (1.585)	41.53 (1.635)
J (25)	120/130	43.43 (1.710)	44.70 (1.760)

Plug\*



MILITARY PART NUMBERS	DEUTSCH PART NO.	SHELL SIZE	C THREAD	AØ MAX
D38999/26*A****	ACT 96*A****	A (9)	M12X1.0-6g 0.100R	.858
D38999/26*B****	ACT 96*B****	B (11)	M15X1.0-6g 0.100R	.984
D38999/26*C****	ACT 96*C****	C (13)	M18X1.0-6g 0.100R	1.157
D38999/26*D****	ACT 96*D****	D (15)	M22X1.0-6g 0.100R	1.279
D38999/26*E****	ACT 96*E****	E (17)	M25X1.0-6g 0.100R	1.405
D38999/26*F****	ACT 96*F****	F (19)	M28X1.0-6g 0.100R	1.515
D38999/26*G****	ACT 96*G****	G (21)	M31X1.0-6g 0.100R	1.641
D38999/26*H****	ACT 96*H****	H (23)	M34X1.0-6g 0.100R	1.768
D38999/26*J****	ACT 96*J****	J (25)	M37X1.0-6g 0.100R	1.889



This information is for reference only. Consult factory for envelope drawings, updated specifications, and additions to the product line.

**INSERT ARRANGEMENTS**

A-35  
6 SIZE 22D CONTACTS



A-98  
3 SIZE 20 CONTACTS



B-05  
5 SIZE 20 CONTACTS



B-35  
13 SIZE 22D CONTACTS



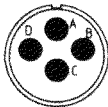
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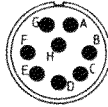
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7 SIZE 20 CONTACTS



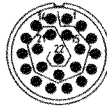
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4 SIZE 16 CONTACTS



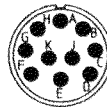
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8 SIZE 20 CONTACTS



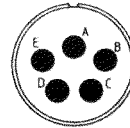
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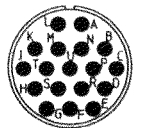
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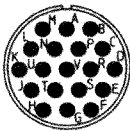
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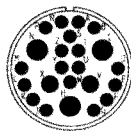
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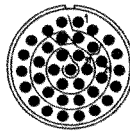
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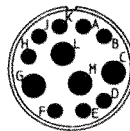
D-23  
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2 SIZE 20 CONTACTS  
18 SIZE 22 CONTACTS



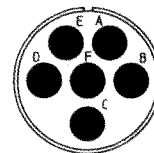
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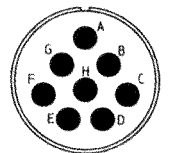
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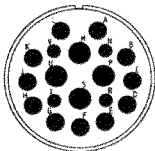
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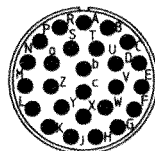
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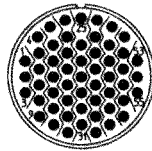
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11 SIZE 20 CONTACTS  
4 SIZE 22 CONTACTS



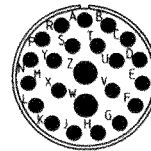
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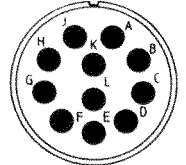
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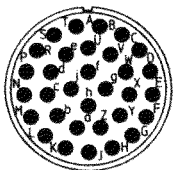
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2 SIZE 16 CONTACTS



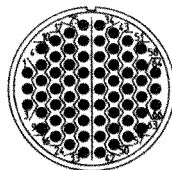
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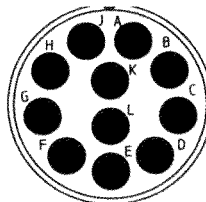
F-32  
32 SIZE 20 CONTACTS



F-35  
66 SIZE 22D CONTACTS



G-11  
11 SIZE 12 CONTACTS

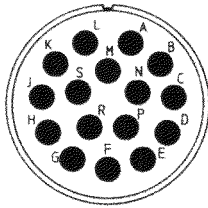


Please consult factory for additional insert arrangements.

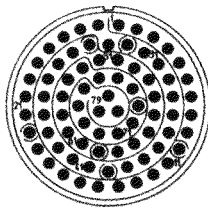


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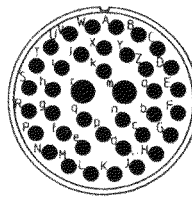
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16 SIZE 16 CONTACTS



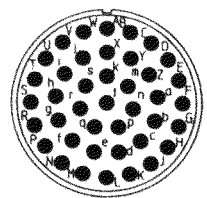
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79 SIZE 22D CONTACTS



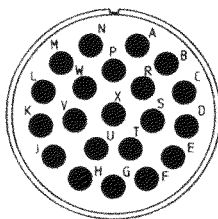
G-39  
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2 SIZE 16 CONTACTS



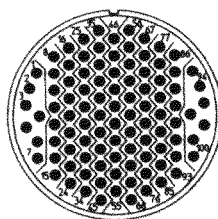
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41 SIZE 20 CONTACTS



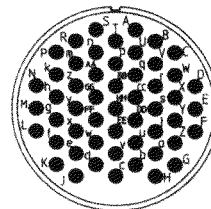
H-21  
21 SIZE 16 CONTACTS



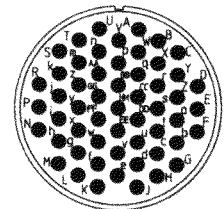
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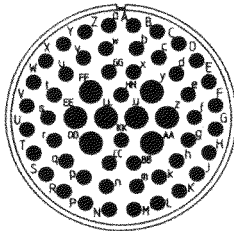
H-53  
53 SIZE 20 CONTACTS



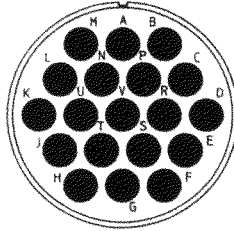
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55 SIZE 20 CONTACTS



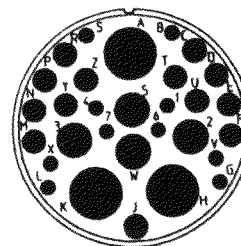
J-04  
8 SIZE 16 CONTACTS  
48 SIZE 20 CONTACTS



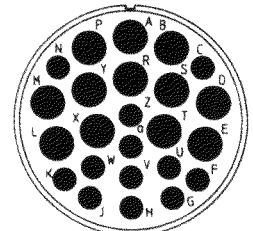
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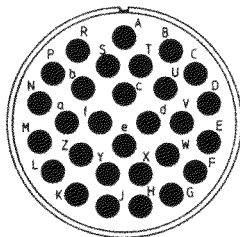
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13 SIZE 16 CONTACTS  
10 SIZE 20 CONTACTS



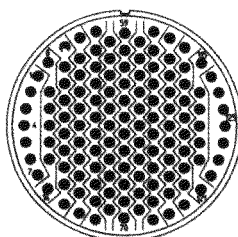
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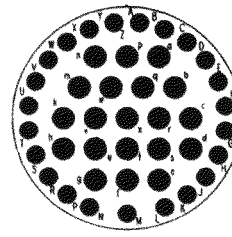
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29 SIZE 16 CONTACTS



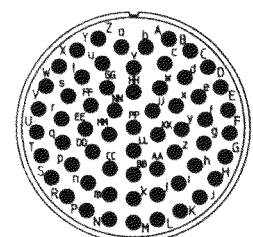
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128 SIZE 22D CONTACTS



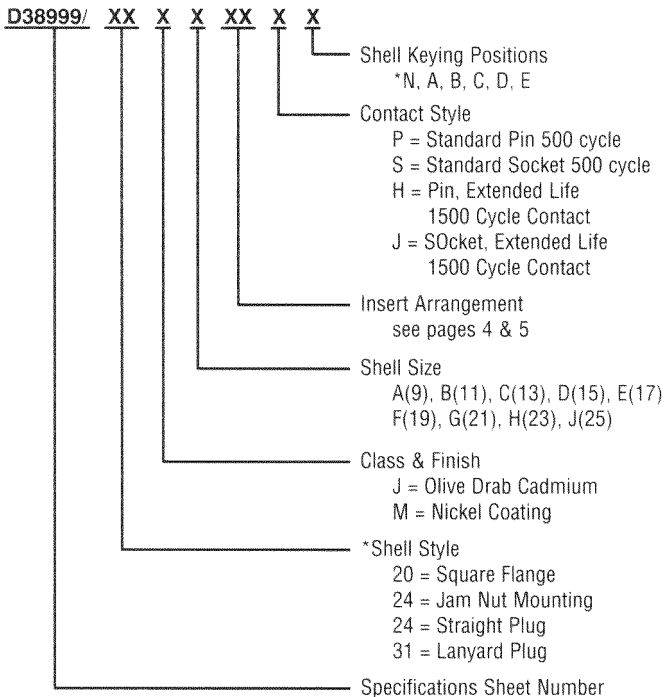
J-43  
20 SIZE 16 CONTACTS  
23 SIZE 20 CONTACTS



J-61  
61 SIZE 20 CONTACTS



# Military Composite Connector Part Numbers



# Protective Covers:

**D38999 Series III  
Threaded**

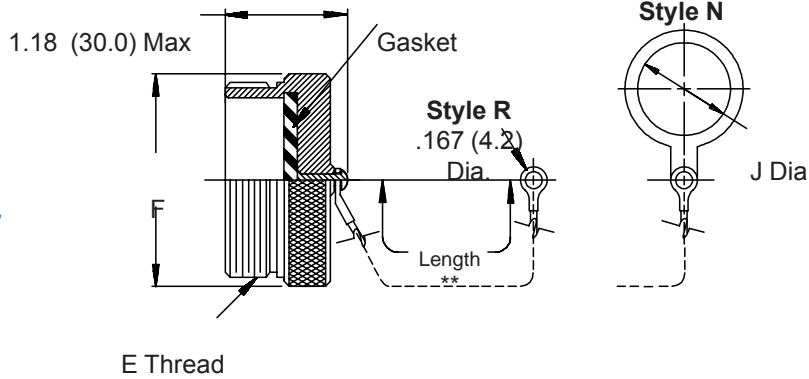
**D38999/32 W 15 R**

Basic Part No. \_\_\_\_\_  
 D38999/32 = Plug Cover  
 D38999/33 = Receptacle Cover

Attachment Style (R or N)  
 Shell Size

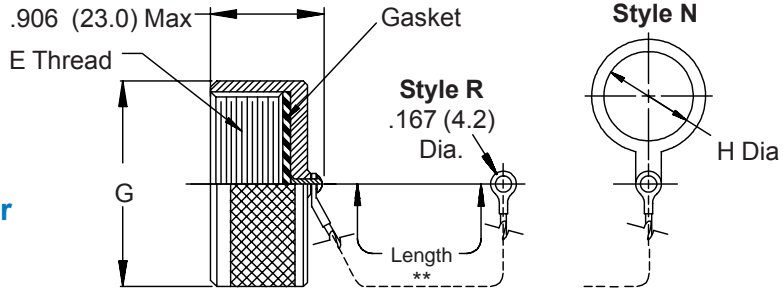
Material and Finish \_\_\_\_\_  
 W = Aluminum, 500 Hour Cadmium Olive Drab  
 J = Composite, Cadmium Olive Drab  
 M = Composite, Electroless Nickel

**D38999/32  
Plug Cover**



\*\* Rope Length  
 5.000 (127.0)  
 +.50 (+13.0)  
 -.25 (-7.0)

**D38999/33  
Receptacle Cover**



**TABLE I**

Shell Size	E Thread	F Max	G Max	H Min	J Min
9	.6250-0.1P-0.3L-TS	.906 (23.0)	.906 (23.0)	.694 (17.6)	.512 (13.0)
11	.7500-0.1P-0.3L-TS	1.024 (26.0)	1.102 (28.0)	.865 (22.0)	.709 (18.0)
13	.8750-0.1P-0.3L-TS	1.220 (31.0)	1.220 (31.0)	.989 (25.1)	.787 (20.0)
15	1.0000-0.1P-0.3L-TS	1.300 (33.0)	1.260 (32.0)	1.178 (29.9)	.906 (23.0)
17	1.1875-0.1P-0.3L-TS	1.457 (37.0)	1.457 (37.0)	1.260 (32.0)	1.024 (26.0)
19	1.2500-0.1P-0.3L-TS	1.575 (40.0)	1.535 (39.0)	1.428 (36.3)	1.142 (29.0)
21	1.3750-0.1P-0.3L-TS	1.732 (44.0)	1.654 (42.0)	1.506 (38.3)	1.260 (32.0)
23	1.5000-0.1P-0.3L-TS	1.811 (46.0)	1.772 (45.0)	1.678 (42.6)	1.339 (34.0)
25	1.6250-0.1P-0.3L-TS	1.969 (50.0)	1.929 (49.0)	1.750 (44.5)	1.535 (39.0)

1. For complete dimensions see applicable Military Specification.
2. Metric dimensions (mm) are indicated in parentheses.