

# GJB599 I Series Space Grade Circular Connector

## Brief introduction

- Comply with GJB 599 (MIL-C-38999) I series
- Quick bayonet coupling
- Small size and light weight
- High density of contacts
- EMI / RFI shielding
- Interfacial sealing
- Scoop-proof
- Application: space, aviation and military system
- Thermal vacuum outgassing
- Radiation resistance

## Main technical characteristics

### [Mechanical]

- Shell: Aluminum alloy, stainless steel
- Plating:
  - F class: Electroless nickel plating
  - E class: Stainless steel, passive
- Insulator: Thermosetting plastic
- Grommet and seal: Silicon rubber
- Contact: Gold plated copper alloy, crimped and removal

—Endurance : 500 cycles

—Vibration:

At high temperature, frequency 100~1000Hz power spectral density  $1g^2/HZ$ , the corresponding rms 41.7g;

At ambient temperature, frequency 100~1000HZ, power spectral density  $5g^2/Hz$ , the corresponding rms 49.5g

—Shock: 3ms half sine wave, acceleration 300g

### [Electrical]

—Contact resistance and current rating:

Contact size	Operating Diameter. mm	Contact resistance mΩ	Current rating A
22D#	Φ0.76	≤12	5
20#	Φ1.00	≤5	7.5
16#	Φ1.60	≤2.5	13
12#	Φ2.40	≤1.5	23
10#	Φ3.15	≤1.0	40

—EMI shielding:

Minimum attenuation 85dB at 100MHz ~ 1GHz

Minimum attenuation 50dB at 1GHz ~ 10GHz

—Withstanding voltage: V

Service rating *	M	N	I	II
Sea level	1300	1000	1800	2300
21336m	800	600	1000	1000
30480m	800	600	1000	1000
30480m~100000m	200	150	250	300

\* Different contact layout has different service rating, see the letter in the top right corner for the details.

—Insulation resistance:

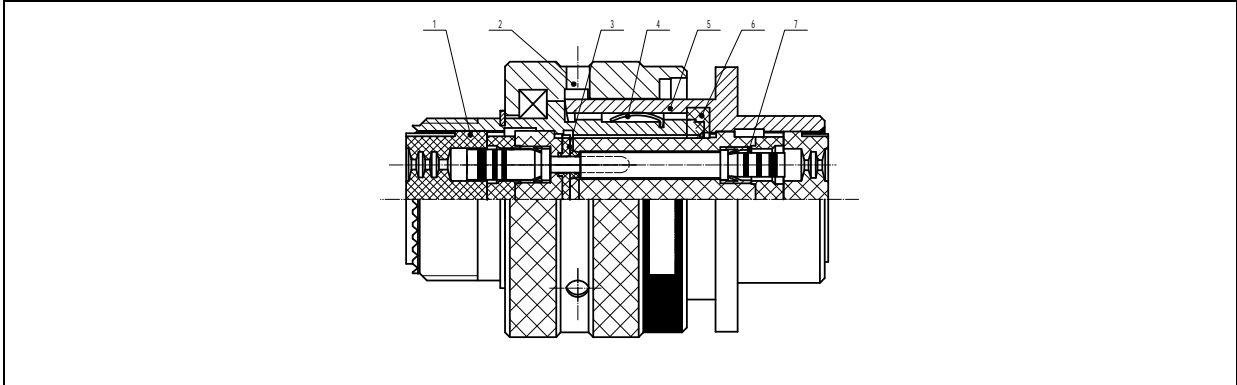
normal  $\geq 5000M\Omega$  humidity  $\geq 100M\Omega$

—Continuity between shells:

F class  $\leq 1.0m\Omega$

[Environmental]

- Operating temperature: -65C ~ +200C
- Salt spray: In accordance with GJB1217, method 1001  
F class 48h
- Relative humidity: 98% at 40C
- Humidity resistance, corrosion resistance, fungus resistance, rain resistance and dust proof
- Thermal vacuum outgassing: non-metallic material weight loss $\leq$ 1.0%, volatile condensable material (VCM) $\leq$ 0.1%;
- Radiation resistance: Cobalt 60y ray radiation source, dose rate is 0.5Gy/s, the total absorption dose $\geq$ 5 $\times$ 10<sup>5</sup>Gy.



1. The fluid immersion and the altitude immersion of the grommet is in accordance with GJB599A;
2. Bayonet coupling mechanism for ensuring quick coupling and anti-rotation;
3. Interfacial sealing; every contact can be sealed
4. Shielding spring: shell is conductive before the electrical connection and EMI and RFI is provided
5. 5 key polarization for blind mating and anti-mismatching
6. Hermetic: Sealing is realized outside the insulator and fluid immersion is ensured;
7. Metal locating spring: The reliability is ensured after the contact is installed in the connector

## Ordering Information

<b>Basic series *</b>	<b>RF</b>	<b>27467</b>	<b>G</b>	<b>17</b>	<b>F</b>	<b>35</b>	<b>P</b>	<b>N</b>
<b>Type</b>	27467- Plug 27466- Wall type square flange front mounting receptacle 27656-Wall type square flange rear mounting receptacle 27468-Jam nut mounting receptacle							
<b>Class</b>	G- Space grade, thread termination, with accessory							
<b>Shell size</b>	09-11-13-15-17-19-21-23-25							
<b>Plating</b>	F- Electroless nickel plating      E- Stainless steel passive							
<b>Insert arrangement</b>	See the insert arrangement of 255 I							
<b>Contact</b>	Crimped      P-pin      S-socket							
<b>Polarization</b>	N—Normal; A/B/C/D—Alternative							

Note: GJB599 and MIL-C-38999 series ordering information are same except their basic series. RF is for GJB599 and MS is for MIL-C-38999. They can be interchangeable

### [Part Number Example]

RF27467G17F35PN

RF series plug, space grade, thread termination, with accessory, 17# shell, electroless nickel plating, 35 insert arrangement, pin contact, N polarization

**Crimped contact, shell polarization outline dimension and accessory are same as those of GJB599 I series electrical connector**

# GJB599 II Series (MIL-C-38999 II Series) Space Grade

## Circular Electrical Connectors

### Brief introduction

- Comply with GJB 599 (MIL-C-38999) II series
- Quick bayonet coupling
- Small size and light weight
- High density of contacts
- EMI / RFI shielding
- Interfacial sealing
- Scoop-proof
- Application: space, aviation and military system
- Thermal vacuum outgassing
- Radiation resistance

### Main technical characteristics

#### [Mechanical]

- Shell: Aluminum alloy, stainless steel
- Plating:
  - F class Electroless nickel plating
  - E class Stainless steel, passive
- Insulator: Thermosetting plastic
- Grommet and sealing ring: Silicon rubber plastic
- Contact: Gold plated copper alloy, crimped

- and removal
- Endurance: 500 cycles
- Vibration:

At high temperature, frequency 100~1000Hz power spectral density  $1g^2/HZ$ , the corresponding rms 41.7g;  
 At ambient temperature, frequency 100~1000HZ, power spectral density  $5g^2/Hz$ , the corresponding rms 49.5g  
 —Shock: 3ms half sine wave, acceleration 300g

#### [Electrical]

- Contact resistance and current rating:

Contact size	Operating Diameter. mm	Contact resistance mΩ	Current rating A
22D#	Φ0.76	≤12	5
20#	Φ1.00	≤5	7.5
16#	Φ1.60	≤2.5	13
12#	Φ2.40	≤1.5	23

Service rating *	M	N	I	II
Sea level	1300	1000	1800	2300
21336m	800	600	1000	1000
30480m	800	600	1000	1000
30480m~100000m	200	150	250	300

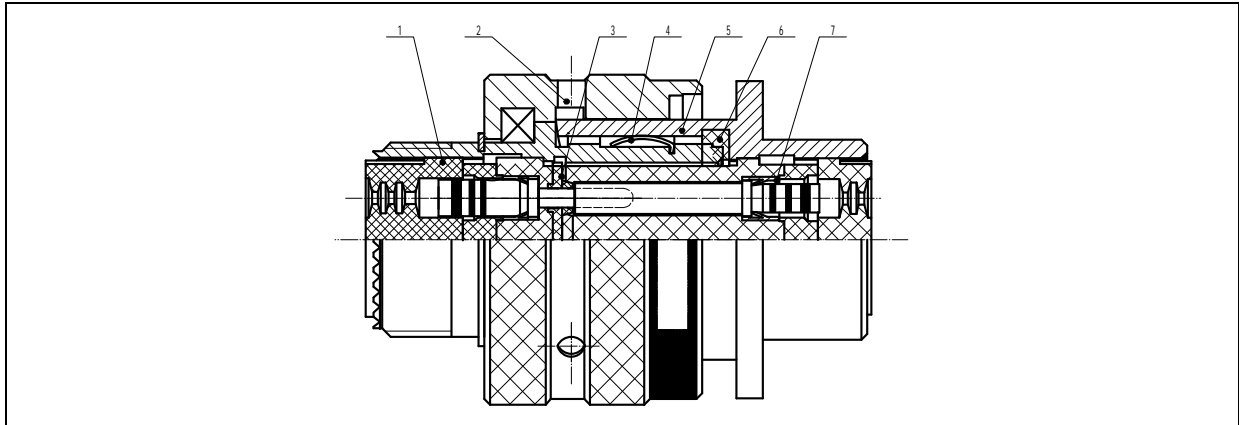
\* Different contact layout has different service rating, see the insert arrangement

- EMI shielding:
  - Minimum attenuation 85dB at 100MHz ~ 1GHz
  - Minimum attenuation 50dB at 1GHz ~ 10GHz
- Withstanding voltage: V

- Insulation resistance:
  - normal ≥5000MΩ humidity ≥100MΩ
- Continuity between shells:
  - F class ≤1.0mΩ

#### [Environmental]

- Operating temperature: -65C~ +200C
- Salt spray: In accordance with GJB1217, method 1001
  - F class 48h
- Relative humidity: 98% at 40C
- Humidity resistance, corrosion resistance, fungus resistance, rain resistance and dust proof
- Thermal vacuum outgassing : non-metallic material weight loss ≤1.0%, volatile condensable material ≤0.1%;
- Radiation resistance: Cobalt 60γ ray radiation source, dose rate is 0.5Gy/s, the total absorption dose ≥5×10<sup>5</sup>Gy.



1. The fluid immersion and the altitude immersion of the grommet is in accordance with GJB599A;
2. Bayonet coupling mechanism for ensuring quick coupling and anti-rotation;
3. Interfacial sealing; every contact can be sealed;
4. Shielding spring; EMI and RFI is provide;
5. 5 key polarization for blind mating and anti-mismatching;
6. Hermetic: Sealing is realized outside the insulator and fluid immersion is ensured;
7. Metal locating spring: The reliability is ensured after the contact is installed in the connector

## Ordering Information

<b>Basic series *</b>	<b>RF</b>	<b>27473</b>	<b>G</b>	<b>17</b>	<b>F</b>	<b>35</b>	<b>P</b>	<b>N</b>
<b>Type</b>	27473- Plug 27484- Shielding plug 27472- Wall type square flange front mounting receptacle 27497- Wall type square flange rear mounting receptacle 27474- Jam nut mounting receptacle							
<b>Class</b>	G- Space grade, thread termination, with accessory							
<b>Shell size</b>	08-10-12-14-16-18-20-22-24							
<b>Plating</b>	F- Space grade, electroless nickel plating E- Stainless steel passive							
<b>Insert arrangement</b>	See the insert arrangement							
<b>Contact</b>	Crimped    P-pin    S-socket							
<b>Polarization</b>	N—Normal; A、B、C、D—Alternative							

Note: GJB599 and MIL-C-38999 series ordering information are same except their basic series. RF is for GJB599 and MS is for MIL-C-38999. They can be interchangeable

### [Part Number Example]

**RF27473G17F35PN**

RF series plug, space grade, thread termination, with accessory, 17# shell, space grade shell, electroless nickel plating, 35 insert arrangement, pin contact, N polarization

Crimped contact, shell polarization outline dimension and accessory are same as those of GJB599 II series electrical connector

# GJB599 III Series (MIL-C-38999 III Series) Space Grade

## Circular Electrical Connectors

### Brief introduction

- Comply with GJB 599 (MIL-C-38999) III series
- Quick bayonet coupling
- Small size and light weight
- High density of contacts
- EMI / RFI shielding
- Interfacial sealing
- Scoop-proof
- Application: space, aviation and military system
- Thermal vacuum outgassing
- Radiation resistance

### Main technical characteristics

#### [Mechanical]

—Shell: Aluminum alloy, stainless steel  
 —Plating:  
   G class Electroless nickel plating  
 —Insulator: Thermosetting plastic  
 —Grommet and seal: Silicon rubber  
 —Contact: Gold plated copper alloy, crimped and removal

—Endurance : 500 cycles

—Vibration:

At high temperature, frequency 100~1000Hz power spectral density 1g<sup>2</sup>/HZ, the corresponding rms 41.7g;

At ambient temperature, frequency 100~1000HZ, power spectral density 5g<sup>2</sup>/Hz, the corresponding rms 49.5g

—Shock: 3ms half sine wave, acceleration 300g

#### [Electrical]

—Contact resistance and current rating:

Contact size	Operating Diameter. mm	Contact resistance mΩ	Current rating A
22D#	Φ0.76	≤12	5
20#	Φ1.00	≤5	7.5
16#	Φ1.60	≤2.5	13
12#	Φ2.40	≤1.5	23
10#	Φ3.15	≤1.0	40

Service rating *	M	N	I	II
Sea level	1300	1000	1800	2300
21336m	800	600	1000	1000
30480m	800	600	1000	1000
30480m~ 100000m	200	150	250	300

\* Different contact layout has different service rating, see the insert arrangement for details.

—EMI shielding:

Minimum attenuation 85dB at 100MHz ~ 1GHz  
 Minimum attenuation 65dB at 1GHz ~ 10GHz

—Insulation resistance:

normal ≥5000MΩ humidity ≥100MΩ

—Continuity between shells:

F class ≤1.0mΩ

—Withstanding voltage: V

#### [Environmental]

—Operating temperature: -65C ~ +200C

—Salt spray: In accordance with GJB1217, method 1001

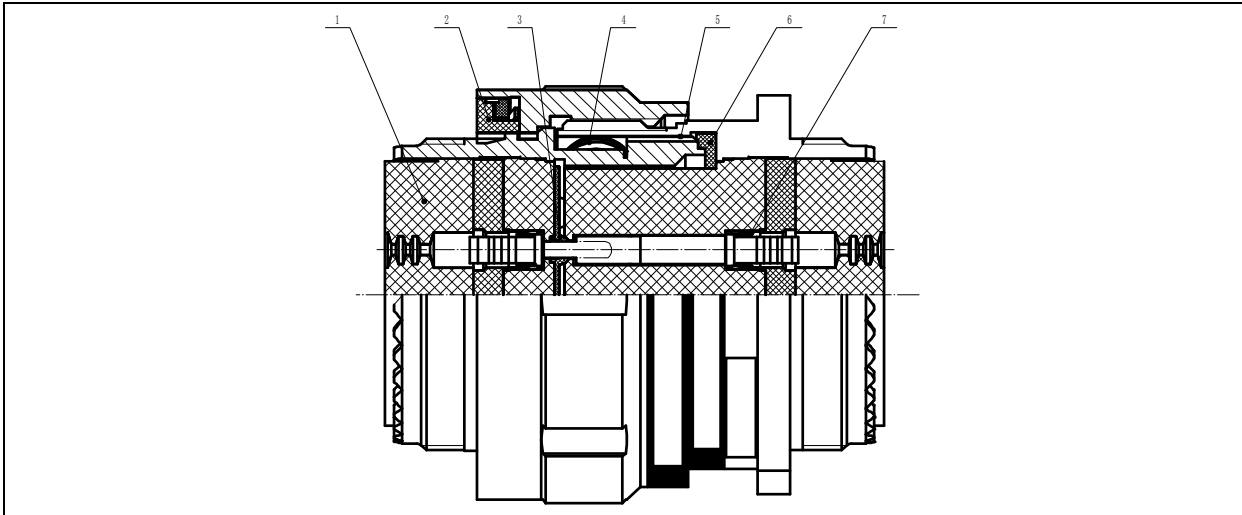
F class 48h

—Relative humidity: 98% at 40C

—humidity resistance, corrosion resistance, fungus resistance, rain resistance and dust proof

—Thermal vacuum outgassing: non-metallic material weight loss ≤1.0%, volatile condensable material ≤0.1%;

—Radiation resistance: Cobalt 60γ ray radiation source, dose rate is 0.5Gy/s, the total absorption dose ≥5×10<sup>5</sup>Gy.



1. The fluid immersion and the altitude immersion of the grommet is in accordance with GJB599A;
2. Anti-decoupling mechanism: The ration between mating force and the decoupling force is 1: 2;
3. Interfacial sealing; every contact can be sealed;
4. Shielding spring: shell is conductive before the electrical connection and EMI and RFI is provided;
5. 5 keyways polarization for blind mating and anti-mismatching;
6. Hermetic: Sealing is realized outside the insulator and fluid immersion is ensured;
7. Metal locating spring: The reliability is ensured after the contact is installed in the connector

## Ordering Information

<b>Basic series *</b>	<b>R255/</b>	<b>20</b>	<b>G</b>	<b>B</b>	<b>35</b>	<b>P</b>	<b>N</b>			
<b>Type</b>	20- Square flange receptacle 24- Jam nut receptacle 26-RFI shielding plug									
<b>Plating</b>	G—Space grade, electroless nickel plating									
<b>Shell size Index No.</b>	A to J	<u>09</u> A	<u>11</u> B	<u>13</u> C	<u>15</u> D	<u>17</u> E	<u>19</u> F	<u>21</u> G	<u>23</u> H	<u>25</u> J
<b>Insert arrangement</b>	See the insert arrangement									
<b>Contact</b>	P – Pin S – Socket									
<b>Polarization</b>	N –Normal A/B/C/D/E –Alternative									

Note: GJB599 and MIL-C-38999 series ordering information are same except their basic series. R255 is for GJB599 and D38999 is for MIL-C-38999. They can be interchangeable

### [Part Number Example]

R255/20GB35PN

R255 series square flange receptacle, space grade shell plating, electroless nickel plating, B code shell, 35 insert arrangement, pin contact, N polarization

**Crimped contact, shell polarization outline dimension and accessory are same as those of GJB599 III series electrical connector**