

RJF RB

Ethernet connection system for harsh environment – Industrial Ethernet



IDC Receptacle
CAT 6



PCB Receptacle

RJFRB allows you to use an Ethernet Class D / Cat 5e and Class E / Cat 6 connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments.

With the patented RJStop® system you can use a standard RJ45 cordset in a protective **composite** plug which will protect it from shocks, dust and fluids.

No hazardous on-field cabling and grounding!

Main characteristics

- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field, no tools required
- **Reverse bayonet coupling**
- RJ45 cordset retention in the plug: 70 N in the axis
- Mating cycles: 500 min
- Compatible with cable diameter from 5,5 mm [0.216 in] to 7 mm [0.275 in]

Environmental protection

- Sealing: IP68
- Salt spray > 1000 h
- Fire retardant / Low smoke: UL94 V0 and NFF 16102, DIN 5510-2
- Thermal shock: 5 cycles at - 40°C / +100°C
- Operating temperature: - 40°C / +85°C

Data transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks
 Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801
 Cat6 per TIA/EIA 568B and ClassE per ISO/IEC 11801

Applications

- Telecom equipments
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines
- Motion control

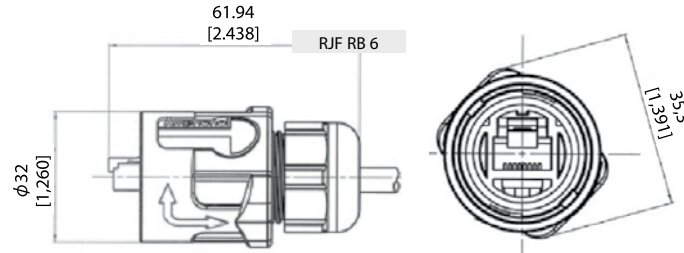
Part number code

	RJF RB	7	1RA
Shell type			
6: composite reverse bayonet plug, plastic gland			
7: composite jam nut receptacle			
Back terminations (for receptacles only)			
1: female RJ45			
1RA: right angle female RJ45			
2: RJ45 Cordset			
3U: IDC cat6 - unshielded			
3F: IDC cat6 - partial shielding			
3S: IDC cat6 - 100% shielded			
5: straight PCB			
Cordset length (for receptacles with "2" back termination only)			
03 100BTX: 0.3m [11.81 inches]			
05 100BTX: 0.5m [19.68 inches]			
10 100BTX: 1m [39.37 inches]			
15 100BTX: 1.5m [59.05 inches]			
Remark: cabling configuration → 100 BTX = 568B (Ethernet specification)			

- Examples:
- Plug: RJF RB 6
 - Receptacle, female RJ45 Back termination: RJF RB 71
 - Receptacle, right angle female RJ45 back termination: RJF RB 71RA
 - Receptacle, 1,5m [59.05"] RJ45 cordset termination: RJF RB 72 15 100BTX

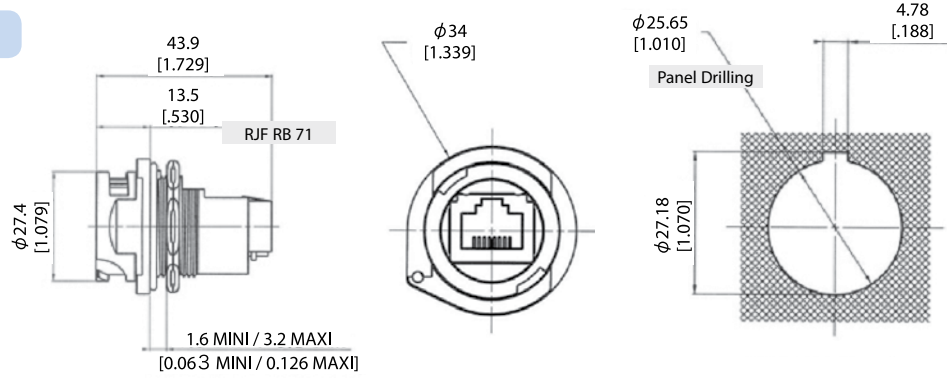
Plug

- Type 6 shell with plastic gland

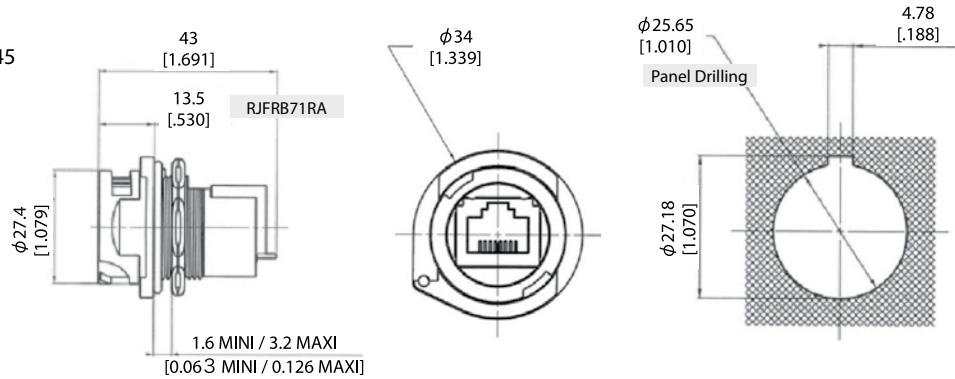


Receptacles

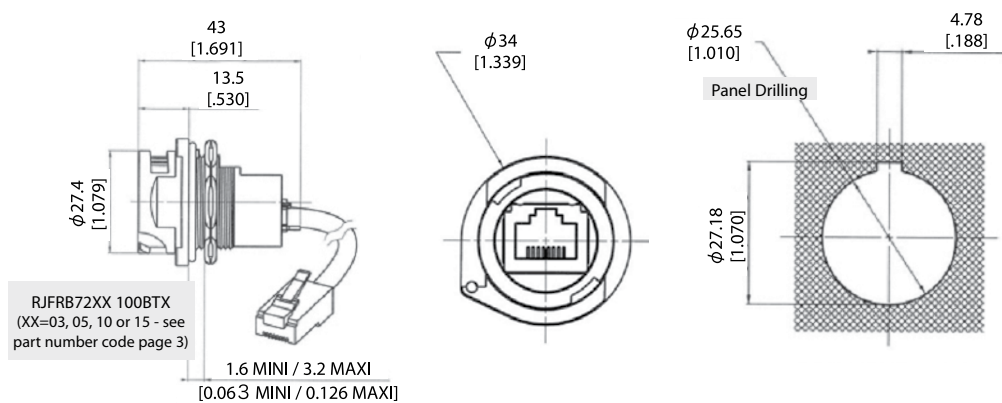
- Type 1: female RJ45 (front mounting)



- Type 1RA: right angle female RJ45 (front mounting)



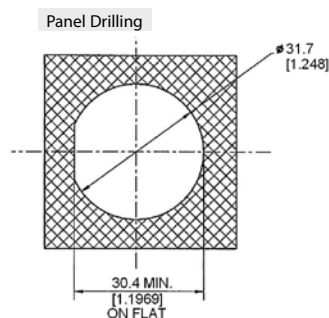
- Type 2: RJ45 cordset (front mounting)



- Type 3: IDC CAT 6 termination (rear mounting)



Unshielded: RJF RB 73U
Partial shielding RJF RB 73F

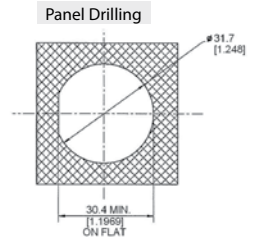
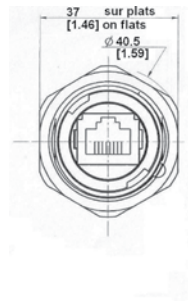
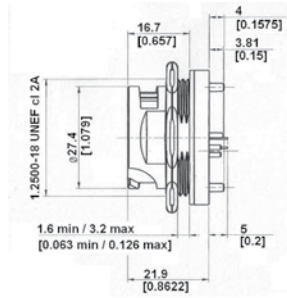


Shielded: RJFRB73S

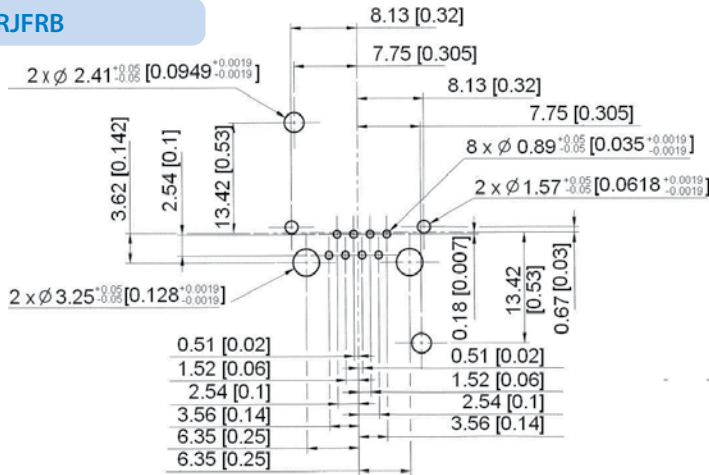
■ Straight PCB termination receptacle:
(rear mounting)



Part number: RJF RB 75



PCB drilling RJFRB



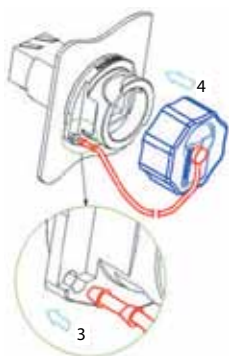
IMPORTANT NOTE
The customer's PCB design will determine the receptacle category.

Assembly instructions

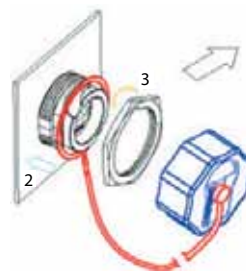


Accessories

■ IP68 Dust caps



RJF RB C7
Cap for receptacles RJFRB71 / 71RA / 72xxx



RJF RB C75
Cap for receptacles RJFRB75 and RJFRB73x

RJF 544

Ethernet connection system for harsh environment – Industrial Ethernet



RJF544 allows you to use an Ethernet Class D / Cat 5e connection for 10 BaseT, 100 Base TX or 1000 BaseT networks in harsh environments.

With the patented RJStop® system you can use a standard RJ45 cordset in a protective **composite** plug which will protect it from shocks, dust and fluids.

No hazardous on-field cabling and grounding !

Applications

- Telecom equipment
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines
- Motion control
- Tele-maintenance

Main characteristics

- Compliant with IEC 60603-7 variante 12
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Sealed against fluids and dust (IP68)
- **Quick push pull coupling**
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min
- Improved EMI Protection
- Compatible with cable diameter from 6 mm [0.236 in] to 13 mm [0.512 in]

Environmental Protection

- Sealing: IP68
- Salt spray > 1000 h
- Fire retardant / Low smoke: UL94 V0 and NFF 16102, DIN 5510-2
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 10 nano s.
- Thermal shock: 5 cycles at - 40°C / +100°C
- Operating temperature: - 40°C / +85°C

Data Transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801



Now available with transversal sealing*
*Seald in unmated condition

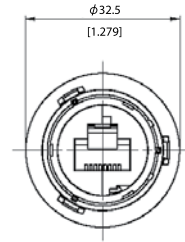
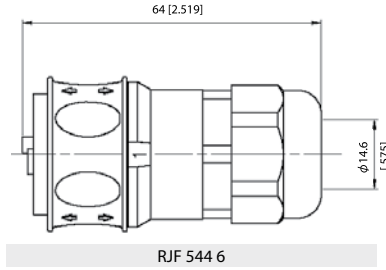
Part number code

	RJF 544	2	2	03 100BTX
Shell type				
6: composite push pull plug, plastic gland				
2: composite square flange receptacle				
2S: composite square flange receptacle transversally sealed				
2M: metallized (Ni) composite square flange receptacle				
2SM: metallized (Ni) composite square flange receptacle transversally sealed				
Back terminations (for receptacles only)				
1: female RJ45				
1RA: right angle female RJ45				
2: RJ45 cordset				
Cordset length (for receptacles with "2" back termination only) - Other lengths are available on demand				
03 100BTX: 0.3 meters [11.81 inches]				
05 100BTX: 0.5 meters [19.68 inches]				
10 100BTX: 1 meter [39.37 inches]				
15 100BTX: 1.5 meters [59.05 inches]				
00: 8 tinned holes at the rear of the PCB to solder the cable				
Remark: cabling configuration → 100 BTX = 568B (Ethernet specification)				

- Examples:
- Plug: RJF 544 6
 - Square flange receptacle, female RJ45 back termination: RJF 544 21
 - Metallized square flange receptacle, female RJ45 back termination: RJF 544 2M 1
 - Square flange receptacle, 1,5m [59.05"] 100 BTX cordset termination: RJF 544 22 15 100BTX
 - Square flange receptacle, solder termination: RJF 544 22 00
 - Transversally sealed receptacle female RJ45 back termination: RJF544 2S1

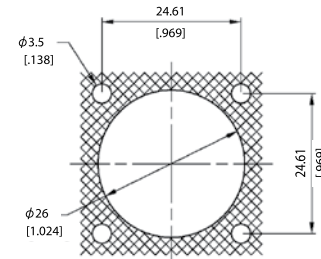
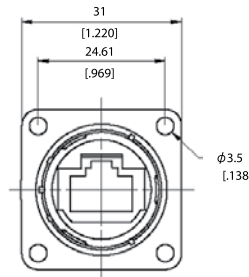
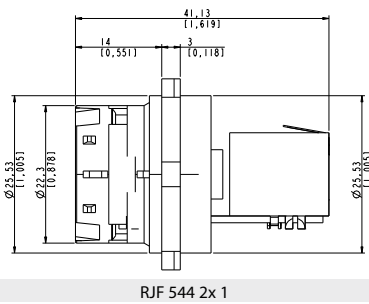
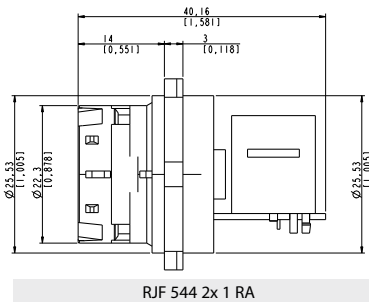
Plug

- Type 6 shell with plastic gland



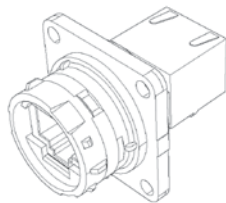
Receptacle

- Type 2S/2M/2SM shell: square flange receptacle with 4 mounting holes

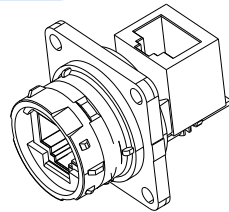


Panel Drilling
 (same as #16 ML-C-5015)

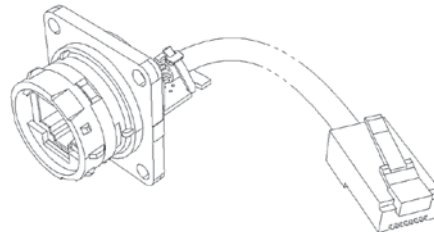
Back terminations



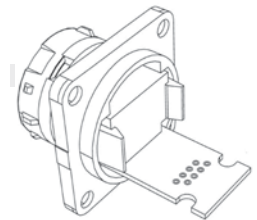
Type1: female RJ45



Type1RA: right angle female RJ45



Type2: RJ45 cordset



Type 2 - 00: solder - 8 tinned holes

Notes: type 2 without RJ45 plug at the end of the cable is also available: consult factory

Accessories

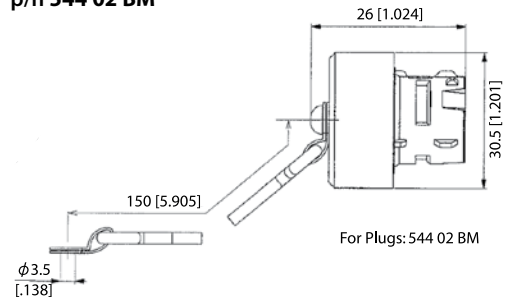
- Rubber IP68 receptacle cap p/n RJF 544BESC



- Panel gasket p/n RJF 544 02JE



- IP68 caps for plug p/n 544 02 BM



- Panel gasket (thickness: 0.6mm [0.039]): p/n RJF 544 02 JE
- Plug Insert removal tool: p/n 5440 OT 02

RJF EZ

Ethernet connection system for harsh environment – Industrial Ethernet



RJFEZ allows you to use an Ethernet Class D / Cat. 5e connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments. With the patented RJStop® system you can use a standard RJ45 cordset in a protective **composite** plug which will protect it from shocks, dust and fluids.

No hazardous on-field cabling and grounding!

Applications

- Telecom equipment
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines
- Motion control
- Tele-maintenance

Main characteristics

- Compliant with IEC 60603-7 variante 13
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- **Quick lever coupling**
- RJ45 cordset retention in the plug: 70 N in the axis
- Mating cycles: 500 min
- Compatible with cable diameter from 5,5 mm [0.216 in] to 7 mm [0.275 in]

Environmental protection

- Sealing: IP68
- Salt spray > 1000 h
- Fire retardant / Low smoke: UL94 V0 and NFF 16102, DIN 5510-2
- Thermal shock: 5 cycles at - 40°C / +100°C
- Operating temperature: - 40°C / +85°C

Data transmission

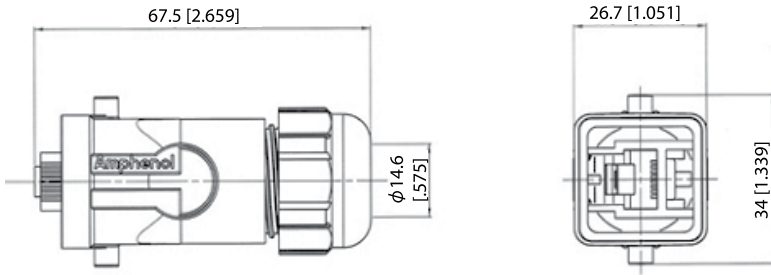
10 BaseT, 100 BaseTX and 1000 BaseT networks
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

Part number code

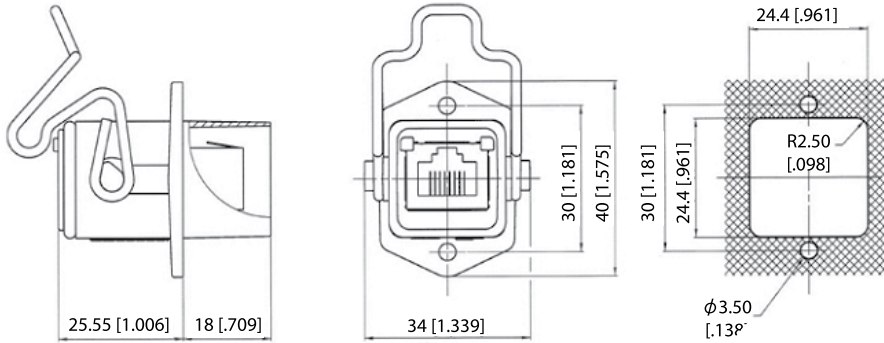
	RJF EZ	2	2	03 100BTX
Shell type				
6: composite lever plug, plastic gland				
2: composite square flange receptacle				
Back terminations (for receptacles only)				
1: female RJ45				
2: RJ45 cordset				
Cordset length (for receptacles with "2" back termination only)				
03 100BTX: 0.3m [11.81 inches]				
05 100BTX: 0.5m [19.68 inches]				
10 100BTX: 1m [39.37 inches]				
15 100BTX: 1.5m [59.05 inches]				
Remark: Cabling configuration → 100 BTX = 568B (Ethernet specification)				

- Examples:
- Plug: RJF EZ 6
 - Receptacle, female RJ45 back termination: RJF EZ 21
 - Receptacle, 1,5m [59.05"] 100 BTX cordset termination: RJF EZ 22 15 100BTX

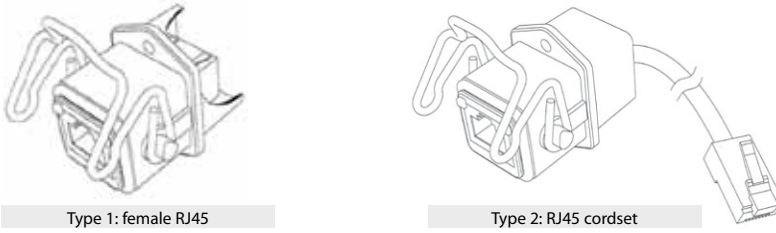
Plug



Receptacles



Back terminations

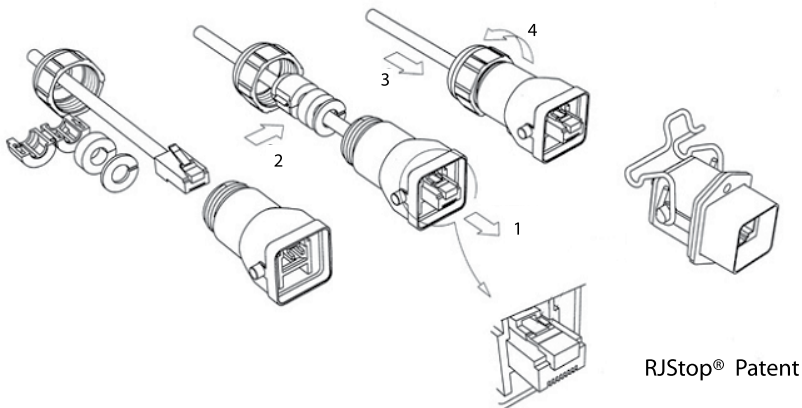


Type 1: female RJ45

Type 2: RJ45 cordset

Notes: type 2 without RJ45 plug at the end of the cable is also available: consult factory

Assembly instructions



RJStop® Patent

Accessories

- IP68 dust caps
For plugs: not available
For receptacles: RJF EZ BE



- Panel gasket
Thickness: 1 mm [.039]
Part No. RJF EZ JE



RJF

Ethernet connection system for harsh environment – Industrial Ethernet



RJF allows you to use an Ethernet Class D / Cat. 5e connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments. With the patented RJStop® system you can use a standard RJ45 cordset in a **metallic** plug which will protect it from shocks, dust and fluids. **No hazardous on-field cabling and grounding!**

Applications

- Robotics
- Industrial process control
- CNC machines
- Special machines
- Oil & Gas
- Motion control
- Data acquisition and transmission in harsh environment
- Tele-maintenance

Data transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

Main characteristics

- Compliant with IEC 60603-7 variante 11
- **Bayonet coupling** ("Audible & Visual" coupling signal)
- **Robust metallic shells based on MIL-DTL-26482 H**
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Mechanical coding / polarization (4 positions)
- Compatible with cable diameter from 6 mm [0.236 in] to 13 mm [0.512 in]
For smaller diameters, please consult us.

Environmental protection

- Sealing: IP68
- Salt spray: 48 h with nickel plating
> 96 h with black coating
< 500 h with olive drab cadmium
- Fire retardant/Low smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10-500Hz, 10g, 3 axes: no discontinuity >10 nano s
- Shocks: IK06 ► weight of 250 g drop from 40cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 43°C, 98% humidity
- Thermal shock: 5 cycles at -40°C / +100°C
- Temperature range: -40°C / +85°C
- Storage temperature:

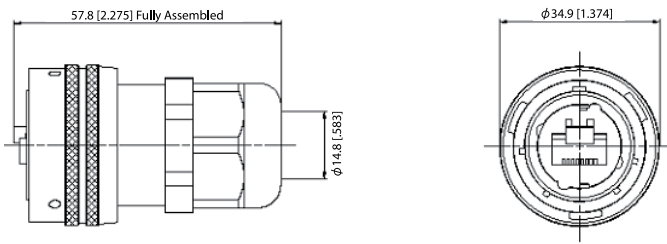
Part number code

	RJF	2	2	B	03 100BTX
Shell type					
6: plug, plastic gland					
6M: plug, metal gland					
2: square flange receptacle					
2PE: square flange receptacle, IP68 backshell, plastic gland					
2PEM: square flange receptacle, IP68 backshell, metal gland					
7: jam nut receptacle					
7PE: jam nut receptacle, IP68 backshell, plastic gland					
7PEM: jam nut receptacle, IP68 backshell, metal gland					
<i>Nota: also available a transversally sealed receptacle (unmated) ► see page 22</i>					
Back terminations (for receptacles only)					
1: female RJ45					
1RA: right angle female RJ45					
2: RJ45 cordset					
Shell finishes					
B: black Coating - ROHS compliant					
N: nickel (note: with this version, the inserts are metallized) - ROHS compliant					
G: olive drab cadmium (note: with this version, the inserts are metallized)					
BZC: aluminium shell - black zinc cobalt plating					
ZC: aluminium shell - green zinc cobalt plating - ROHS compliant					
Cordset length (for receptacles with "2" back termination only) - Other lengths are available on demand					
03 100 BTX: 0.3m [11.81 inches]					00: 8 tinned holes at the rear of the PCB to solder the cable
05 100 BTX: 0.5m [19.68 inches]					OPEN: open cable - with no plug at the end
10 100 BTX: 1m [39.37 inches]					
15 100 BTX: 1.5m [59.05 inches]					
Remark: Cabling configuration → 100 BTX = 568B (Ethernet specification)					

- Examples:
- Nickel plug: RJF 6 N
 - Black square flange receptacle, female RJ45 back termination: RJF 2 1 B
 - Olive drab cadmium jam nut receptacle, 1.5m [59.05"] 100 BTX cordset termination: RJF 7 2 G 15 100BTX
 - Black in line square flange receptacle, 30cm [11.81"] 100BTX cordset termination: RJF 2PE 2 B 03 100BTX
 - Nickel jam nut receptacle, solder termination: RJF 72 N 00

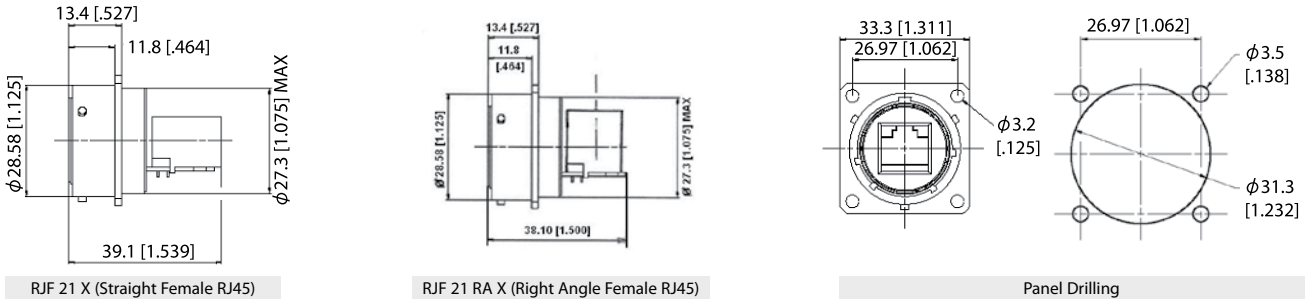
Plug

- Shell type 6 with plastic or metal gland

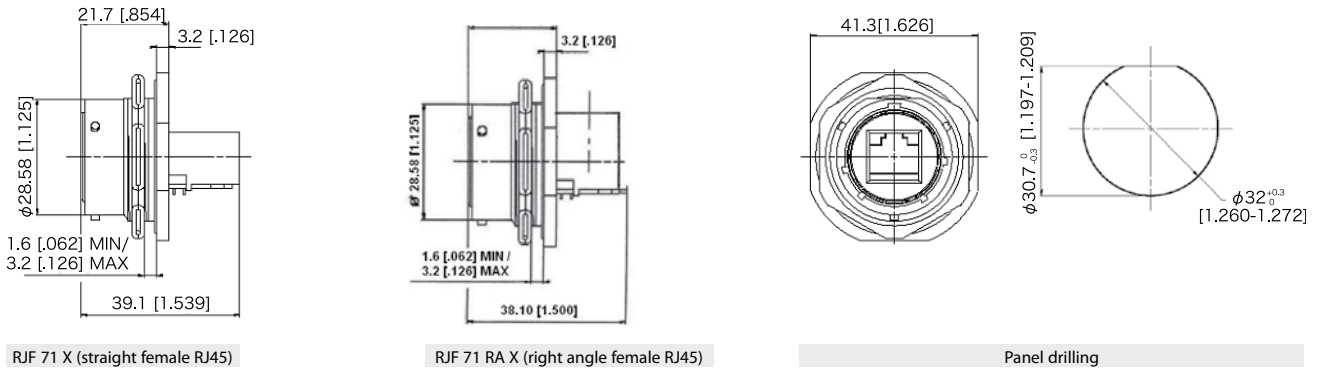


Receptacles

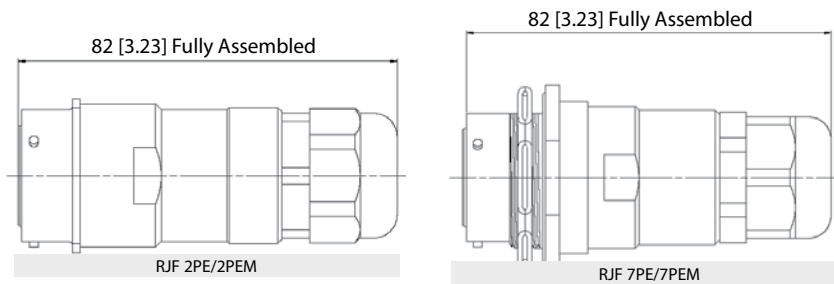
- Square flange receptacle • 4 mounting holes: shell type 2



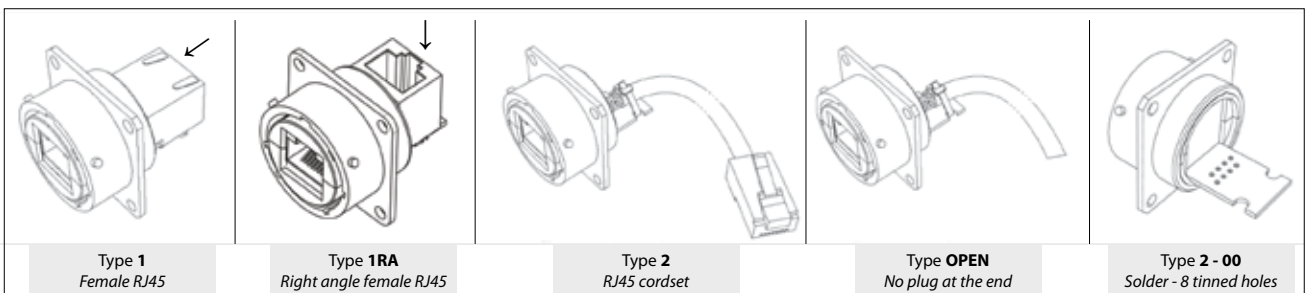
- Jam nut receptacle • Hexagonal nut mounting: shell type 7



- Receptacles with IP68 backshell : shell type 2PE and 7PE with plastic or metal gland



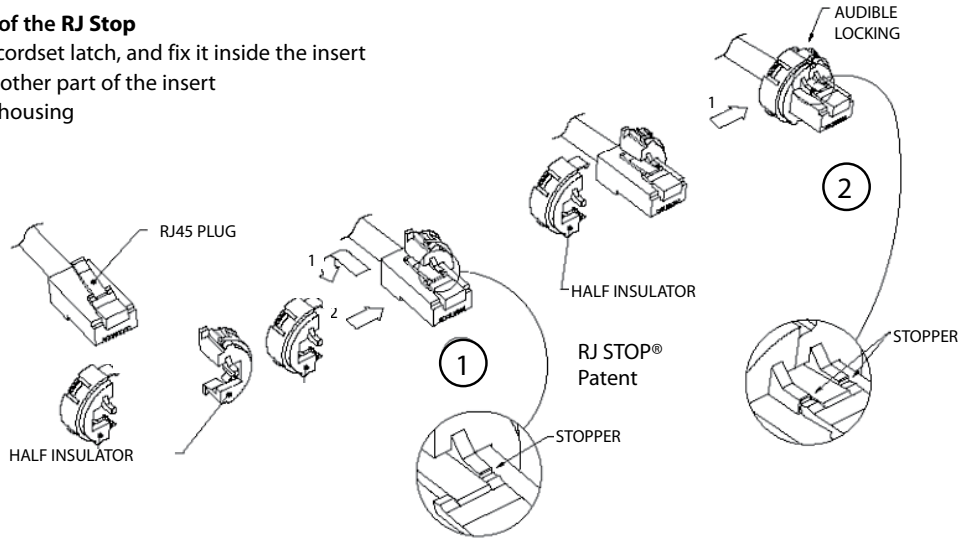
Back terminations



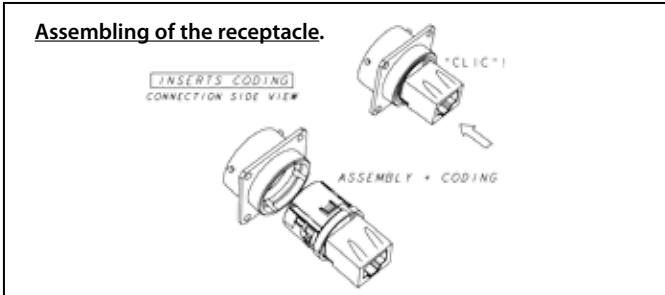
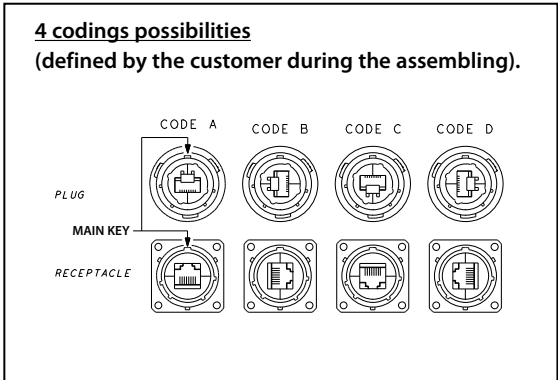
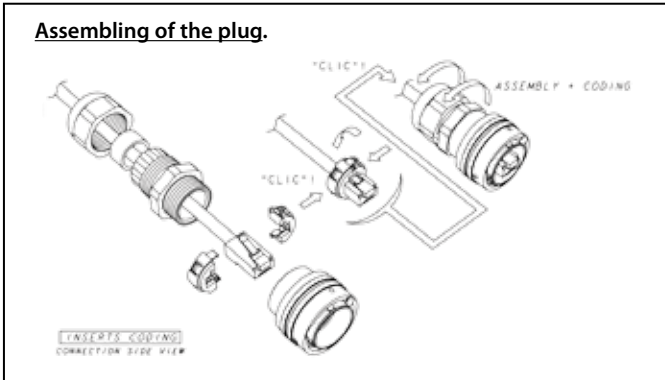
Universal: can be used with all standard RJ45 Cat.5e cordset brands.

Assembly instructions of the RJ Stop

1. Push down the RJ45 cordset latch, and fix it inside the insert
2. Press in and click the other part of the insert
3. Insert in the metallic housing



Easy and safe - No field cabling tools required



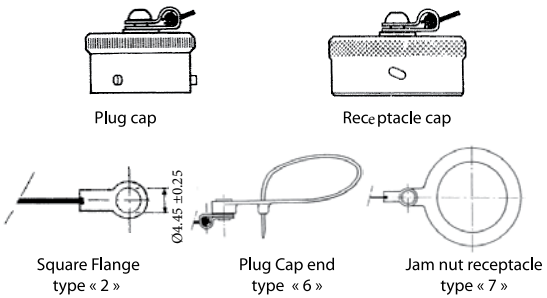
IMPORTANT NOTE: to remove the insert, use the
 ■ Insert removal tool for receptacle and plug
 P/N: RJF ODE



Accessories

■ **Metallic cap**

	RJFC	2	G
Connector type			
6: plug			
2: square Flange Receptacle			
7: jam Nut Receptacle			
Shell material & finish			
B: black coating - ROHS compliant			
N: aluminium shell - nickel plating - ROHS compliant			
G: aluminium shell - olive drab cadmium plating			



- Panel gasket for square flange 2 »thickness - 0,6 mm
P/N: JE 18

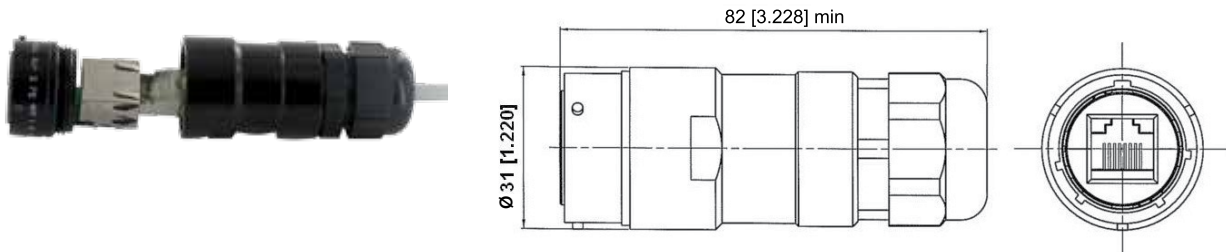


RJF

Special receptacles: cable mount inline & PC tails

Inline cable mount receptacles

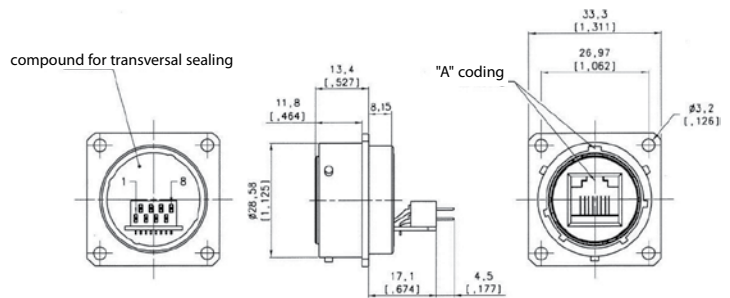
Inline receptacles allow you to make cable extensions in the field by using them with rugged RJ Field series plugs.



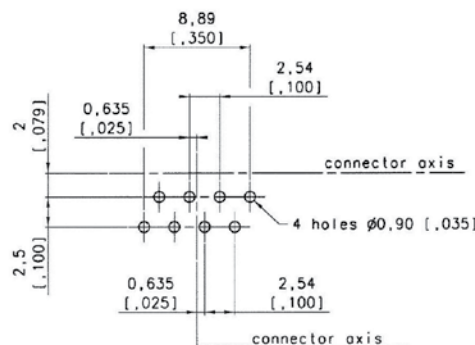
Part number	Plating	Plastic gland	Metallic gland
	Black coating - ROHS compliant	RJF2PEWF1B	RJF2PEMWF1B
Nickel - ROHS compliant	RJF2PEWF1N	RJF2PEMWF1N	
Olive drab cadmium	RJF2PEWF1G	RJF2PEMWF1G	

PC tails receptacles

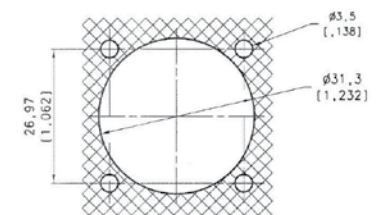
These receptacles can be soldered directly on your PCB. A compound insures a transversal sealing and good performance in high vibration environments. They can be connected with rugged RJField series plugs.



PCB LAYOUT - SOLDER FACE VIEW

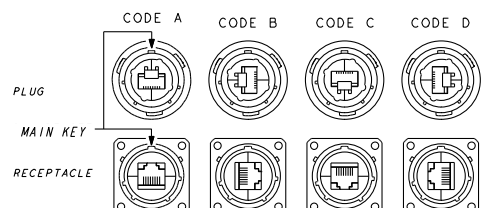


Panel Drilling



Part number	Plating	Part number
	Black coating - ROHS compliant	RJF 2S X 5B
Nickel - ROHS compliant	RJF 2S X 5N	
Olive drab cadmium	RJF 2S X 5G	

X to be replaced by the letter of the coding position you need (A, B, C, or D) ▶



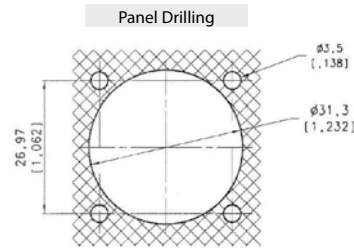
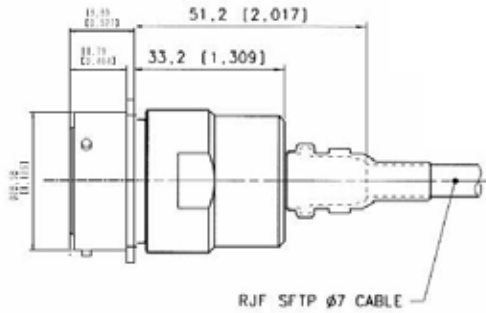


RJF

Receptacles & plugs with 360° EMI backshell

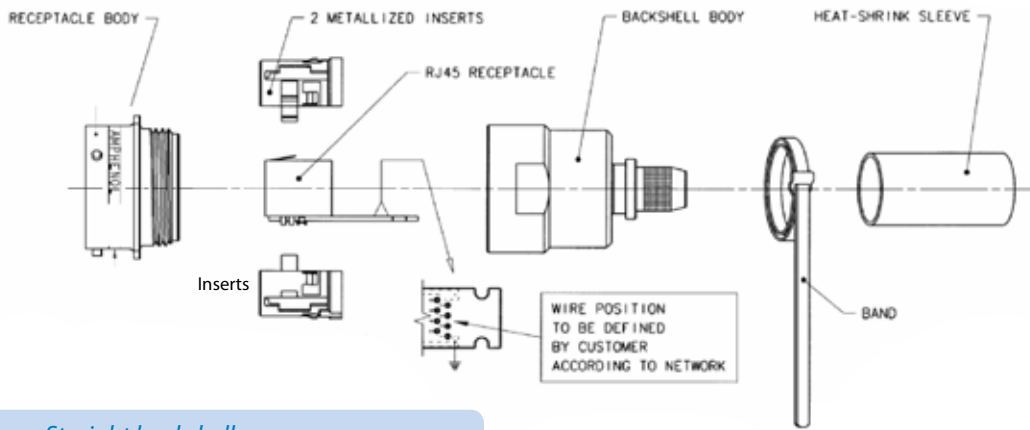
RJF series receptacles and plugs with EMI backshells provide a solution with 360° shielding: same protection than the one proposed by standard MIL-DTL-26482H connectors. With those solutions we recommend using our reinforced and double shielded Cat5E, Cat6, or Cat6A cable ► see pages 41-42-43.

Square flange receptacle - Straight backshell

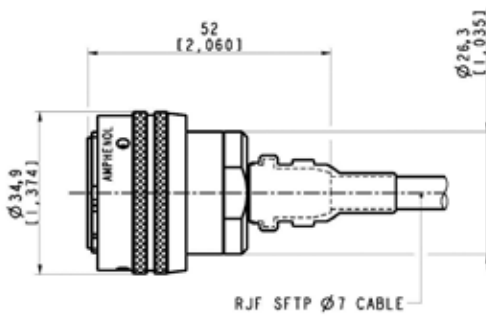


Part number	Plating	Part number
	Nickel - ROHS compliant	Kit30439NI
	Olive drab cadmium	Kit30439

Kit30439 & Kit30439NI include:



Plug - Straight backshell



Part number	Plating	Part number
	Nickel - ROHS compliant	Kit30394NI
	Olive drab cadmium	Kit30394

Kit30394 & Kit30394NI include:



RJF

Environmentally sealed receptacles, transversally sealed receptacles



In some applications, a transversal sealing for the receptacle is a « must ». This will prevent fluids and dust from going through the receptacle when plug or cap are not mated to the receptacle.

The sealed solution (version "S") has a compound at the rear of the receptacle as shown on the examples below. This feature is available both in RJF and RJF TV shells (please consult the relevant data sheet for product details and accessories).

In addition, the Sealed RJF TV has been successfully tested in very high vibration corresponding to airplane applications.

Applications

- Outdoor equipment
- Airplanes equipment
- Tactical radios
- Shelters
- Rugged computers
- Data acquisition and transmission in harsh environments

Data transmission

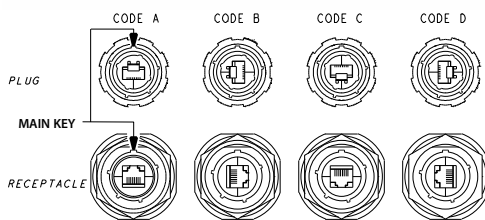
10 BaseT, 100 BaseTX and 1000 BaseT networks
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

Main characteristics

- Same as the RJF and RJF TV series... a complete IP68 sealing of the receptacle (even with no plug or no protective cap mated) is added.
- Outside dimensions are the same as the standard RJF and RJF TV series.
- Vibrations: the compounded versions of the RJF TV have been tested in vibration following the NAS 1599 Aeronautic specification (Ambient temperature):
5 - 3000 Hz, 20g, 2,5 mm [.1 inch] double amplitude, 3 axes, 12 hours
Note: this specification exceeds MIL-C-26500 requirements.

IMPORTANT NOTE

Due to the compound, the coding of the connector must be done in the factory : use the codes A, B, C or D in the part number: see below.



Example :
RJFTV 2S A2 G 15 100BTX

Part number code

Series	RJF	7S	A	2	G	03 100BTX
RJF: MIL-DTL-26482 H bayonet						
Shell type						
2S: sealed square flange receptacle						
7S: sealed jam nut receptacle						
Coding						
A,B,C,D						
Back terminations (for receptacles only)						
1: female RJ45						
1RA: right angle female RJ45						
2: RJ45 Cordset						
Shell material & finish						
B: aluminium shell - black coating - ROHS compliant						
N: aluminium shell - nickel plating - ROHS compliant						
G: aluminium shell - olive drab cadmium plating						
Note: for nickel and olive drab cadmium plating, receptacle inserts are metallized.						
Cordset length (For Receptacles with "2" Back Termination only) - Other lengths are available on demand						
03 100 BTX: 0.3m [11.81 inches]						
05 100 BTX: 0.5m [19.68 inches]						
10 100 BTX: 1m [39.37 inches]						
15 100 BTX: 1.5m [59.05 inches]						
OPEN: open cable - with no plug at the end						

Remark: cabling configuration: 100 BTX = 568B (Ethernet specification)

- Examples:
- bayonet, sealed jam nut receptacle, A coding, with female RJ45 back termination, olive drab cadmium plating: **RJF 7SA 1 G**
 - bayonet, sealed square flange receptacle, A coding, with female RJ45 back termination, black plating: **RJF 2SA 1 B**
 - bayonet, sealed jam nut receptacle, A coding, 1.5m [59.05"] 100 BTX cordset, olive drab cadmium plating: **RJF 7SA 2 G15 100BTX**

RJF

Hermetic receptacles



In some applications, a transversal hermiticity for the receptacle is a « must ». This will prevent gas from going through the receptacle when plug or cap are not mated to the receptacle. The hermetic solution (version "H") has a compound at the rear of the receptacle as shown on the examples below. This feature is available both in RJF and RJF TV shells (please consult the relevant data sheet for product details and accessories). Helium leakage is less than 1.10^{-6} cm³ per second [0.1 micron cubic ft per hour] at one bar [15 psi] pressure differential.

- Applications**
- Outdoor equipment
 - Airplanes equipment
 - Tactical radios
 - Shelters
 - Rugged computers
 - Data acquisition and transmission in harsh environments

Data Transmission
10 BaseT, 100 BaseTX and 1000 BaseT networks
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

- Main characteristics**
- Same as the RJF and RJF TV series ... a complete IP68 sealing of the receptacle (even with no plug or no protective cap mated) is added.
 - Outside dimensions are the same as the standard RJF and RJF TV series.
 - Vibrations: the compounded versions of the RJF TV have been tested in vibration following the NAS 1599 Aeronautic specification (Ambient temperature):
5 - 3000 Hz, 20g, 2,5 mm [.1 inch] double amplitude, 3 axes, 12 hours
Note: this specification exceeds MIL-C-26500 requirements.

IMPORTANT NOTE

Due to the compound, the coding of the connector must be done in the factory: use the codes A, B, C or D in the part number: **see below.**

PLUG

MAIN KEY

RECEPTACLE

CODE A

CODE B

CODE C

CODE D

Example :
RJFTV 2H A2 N 15 100BTX

Part number code

Series	RJF	7H	A	2	G	03 100BTX
RJF: MIL-DTL-26482 H bayonet						
Shell type						
2H: transversally sealed and hermetic square flange receptacle						
7H: transversally sealed and hermetic jam nut receptacle						
Coding						
A,B,C,D						
Back terminations (for receptacles only)						
1: female RJ45						
1RA: right angle female RJ45						
2: RJ45 Cordset						
Shell material & finish						
B: aluminium shell - black coating - ROHS compliant						
N: aluminium shell - nickel plating - ROHS compliant						
G: aluminium shell - olive drab cadmium plating						
Nota: for nickel and olive drab cadmium plating, receptacle inserts are metallized.						
Cordset length (for receptacles with "2" back termination only) - Other lengths are available on demand						
03 100 BTX: 0.3m [11.81 inches]						
05 100 BTX: 0.5m [19.68 inches]						
10 100 BTX: 1m [39.37 inches]						
15 100 BTX: 1.5m [59.05 inches]						
OPEN: open cable - with no plug at the end						
Remark: cabling configuration: 100 BTX = 568B (Ethernet specification)						

- Examples:**
- bayonet, sealed jam nut receptacle, A coding, with female RJ45 Back termination, olive drab cadmium plating: **RJF 7HA 1 G**
 - bayonet, sealed square flange receptacle, A coding, with female RJ45 back termination, black plating: **RJF 2HA 1 B**
 - bayonet, sealed jam nut receptacle, A coding, 1.5m [59.05"] 100 BTX cordset, olive drab cadmium plating: **RJF 7HA 2 G15 100BTX**