

**Mission Success**

Ensign-Bickford Aerospace & Defense Company (EBAD) is dedicated to supporting our customers in the aerospace and defense industry through on-time delivery of innovative products that exceed expectations and assure mission success.

**NEA® Model DF**  
Dead Face (DF) Connector



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EBAD's Dead Face (DF) connectors are reliable in-flight electrical disconnects for satellite and spacecraft separation, missile staging, and umbilical separation. In addition to providing precision separation force, DF connectors provide electrical isolation prior to physical separation.

**Principle of Operation**

The NEA® DF electrical interconnects incorporate standard MIL-DTL-38999 inserts and MIL-C-39029 pin and socket contacts. DF connectors have an internal shuttle that disconnects and isolates electrical signals prior to physical separation at the separation plane, assuring upstream integrity of electrical interfaces, even during harsh environmental conditions after separation.

DF connectors are designed to work in conjunction with EBAD's NEA® ZSF100P connectors at the separation interface. Each mated connector pair is factory calibrated to compensate for connector pin engagement and other retention forces, assuring precise and smooth separation. DF connectors feature a floating shell, eliminating jamming during mating and separation. Blind engagement of the plug and receptacle pairs is possible, since the connectors allow for linear and angular misalignment. Connectors can be mounted from the rear of the panel or bracket, allowing for ease of installation. The back side of the DF connector mates with a MIL-C-38999 Series III plug.

**Applications**

Typical applications include:

- Satellite, spacecraft and payloads
- Stage separation
- Umbilical disconnects
- Panel disconnect assemblies
- Harsh environments

**Key Features**

- Absolute electrical isolation prior to separation at the separation plane
- Zero, positive, or negative separation force
- Mounts from rear of panel or bracket
- Tolerates wide range of linear and angular misalignment permitting blind engagement
- MIL-DTL-38999 insert configurations
- Full range of keying configurations
- Service Class H
- Utilizes MIL-C-39029 pin and socket contacts
- Complete harness and disconnect assemblies available
- DF200 and 201 series mates with our Model ZSF100 connectors

**Model DF Connector Configurations**

Connector Model	Style	Shell Size <sup>1</sup>	Insert Arrangement <sup>1</sup>	Mates With
DF200SS	Receptacle	17	8	ZSF100P <sup>2</sup>
DF200SS, 201SS	Receptacle	25	7, 29, 24, 61, 90	ZSF100P <sup>2</sup>

**Notes:**

<sup>1</sup> Existing shell sizes and insert arrangements shown. Other MIL-DTL-38999 shell size and insert arrangements available.

<sup>2</sup> See data sheet for NEA® Model ZSF100 connectors

**Model DF Technical Specifications**

Parameter	Capability
Separation Force	0 N (0 lbf) (or adjustable to customer spec)
Engagement Force	90 N (20 lbf)
Linear Misalignment	0.76mm (0.03 in) min
Maximum Angular Misalignment	5° cone (half cone)
Qualification Temperature Range <sup>1</sup>	-55°C to +200°C at 10-4 Torr
Short Duration Firewall	1,343°C
Shock <sup>2</sup>	14,200 G peak
Random Vibration <sup>2</sup>	17 Grms, 180 sec per axis
Insulation Resistance	100MΩ min at 1500 VDC
Dielectric Withstanding Voltage	2mA max leakage at 1000 VAC
Shell to Shell Conductivity	10mV drop at 1A
Mass <sup>3</sup>	380 g (0.84 lb)

**Notes:**

<sup>1</sup> The values presented for qualification temperature range are not a measure of the limits of the device.

<sup>2</sup> Shock and random vibration testing performed in the mated and unmated configurations.

<sup>3</sup> Representative of DF200SS, 25-24 insert arrangement with electrical contacts. Contact EBAD for other configurations.