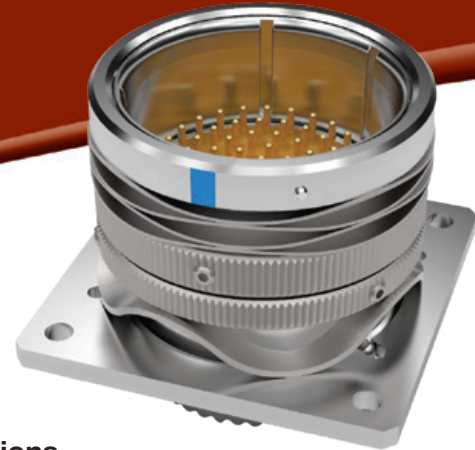


Mission Success

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® Zero Separation Force (ZSF) & In-flight Disconnect (IFD)**

EBAD's Zero Separation Force (ZSF) and In-Flight Disconnects (IFD) connectors are reliable in-flight electrical disconnects for satellite and spacecraft separation, missile staging, and umbilical separation. Connector pairs are designed to provide precision zero, positive or negative separation force, eliminating the need for lanyard pull actuation.

**Principle of Operation**

The NEA® ZSF and IFD electrical interconnects incorporate standard MIL-DTL-38999 inserts and MIL-C-39029 pin and socket contacts.

Each mated connector pair is factory calibrated to compensate for connector pin engagement and other retention forces, assuring precise and smooth separation. ZSF and IFD 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. All of the in-flight disconnects are backshell ready, and if required, can be provided with the overall system.

EBAD has the capability to pair our connectors with our non-explosive Hold Down & Release Mechanisms (HDRM) and other hardware such as brackets, alignment pins, springs, and harnessing to provide low-shock, high reliability stage and umbilical disconnect assemblies.

**Applications**

Typical applications include:

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

**Key Features**

- Zero, positive, or negative separation force
- Mounts from rear of panel or bracket
- Tolerates wide range of linear and angular misalignment permitting blind engagement
- Standard MIL-DTL-38999 inserts
- Full range of keying configurations
- Service Class H
- Utilizes MIL-C-39029 pin and socket contacts
- AS85049 compatible backshell
- Backshell hardware available
- Complete harness and disconnect assemblies available
- ZSF100 series mates with our Model DF200 and 201 dead face connectors

**Model ZSF and IFD Configurations**

Connector Model	Style	Shell Size <sup>1</sup>	Insert Arrangement <sup>1</sup>	Mates With
ZSF100P	Plug	17	8	DF200SS <sup>2</sup>
		25	7,19, 24, 61, 62	DF201SS <sup>2</sup> & ZF202S
ZSF100	Plug	21	11, 16, 35, 41	ZSF200
IFD100	Plug	19	35	IFD200
		25	4, 20	IFD200
ZSF200	Receptacle	21	11, 16, 35, 41	ZSF100
ZSF202S	Receptacle	25	62	ZSF100P
IFD200	Receptacle	19	35	IFD100
		25	4, 20	IFD100

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 DF200 and 201 dead face connectors

**Model ZSF and IFD 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	20° cone
Qualification Temperature Range <sup>1</sup>	-55°C to +200°C
Mass <sup>2</sup>	117 g (0.29 lb)

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 DF200 and 201 dead face connectors

**Model ZSF and IFD Zero Separation Force Connector Mechanical Interface**

The NEA® Zero Separation Force connector and In-Flight Disconnect mechanical interfaces are compliant with MIL-DTL-38999.