



- Lightweight
- Small Envelope
- Low Spillage



# Blind-Mate Quick Disconnect Couplings for Electronics Liquid Cooling

## Eaton's Aeroquip Technologies Respond to Emerging Avionics Technology

Eaton's Aeroquip blind-mate quick disconnect couplings are utilized in advanced liquid cooled electronics and avionics thermal management systems. These couplings are used between removable cold plates and fixed manifolds to allow for quick leak free removal and replacement of both evaporative and liquid flow through systems. Eaton's blind-mate couplings provide unequalled performance in pressure drop, radial misalignment, and envelope. In addition, these couplings incorporate a patented integral thermal relief feature that prevents pressure buildup when the liquid cooling module is disconnected. Eaton's blind-mate couplings have been in service for over 30 years on demanding applications like the F-22, F-18, shipboard radars, and they are being used on the latest F-35 and Boeing 787.

## Reliability

Each coupling has been tested at Eaton's state-of-the-art facility. These tests have been designed to simulate all possible working conditions to certify the superior performance of the couplings. Eaton's blind-mate couplings have been tested to meet or exceed SAE AS5072 for modular style couplings. These requirements include:

- Ability to operate within a temperature range of  $-65^{\circ}\text{F}$  to  $+160^{\circ}\text{F}$  ( $-54^{\circ}\text{C}$  to  $+71^{\circ}\text{C}$ )
- Capable of enduring 1000 connect/disconnect cycles without evidence of malfunction, leakage or damage
- Standard operating pressure of 150 psi, proof pressure of 225 psi, and burst pressure of 375 psi. Ability to tolerate proof and burst pressure without rupture or loss of fluid.



## Design Features

- Ultra-low spillage during disconnection
- Integral thermal relief valve
- Minimal air inclusion during connection
- Small Envelope
- Lightweight (Aluminum)
- Accommodates large radial misalignment
- Optional end configurations available upon request — contact Eaton

A reduced envelope coupling that utilizes a special installation tool is available upon request. Please contact Eaton engineering.

## Applicable Fluids

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Ethylene Glycol Water

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Propylene Glycol Water

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Polyalphaolefin (PAO)  
per MIL-C-87252

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For additional fluids, please contact Eaton Engineering

**Temperature Range:**  $-65^{\circ}\text{F}$  to  $160^{\circ}\text{F}$  ( $-54^{\circ}\text{C}$  to  $71^{\circ}\text{C}$ )

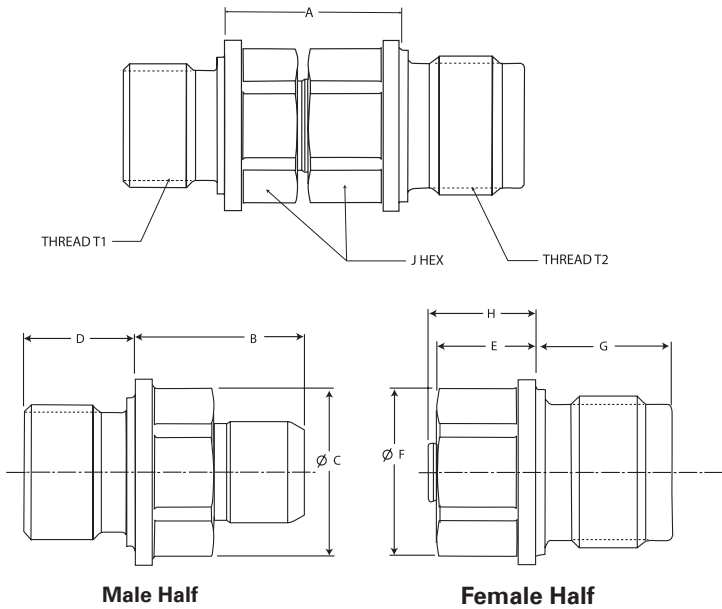


Eaton's Blind-Mate Quick Disconnect Couplings were chosen for the Lockheed Martin F-22 and F-35's avionics.

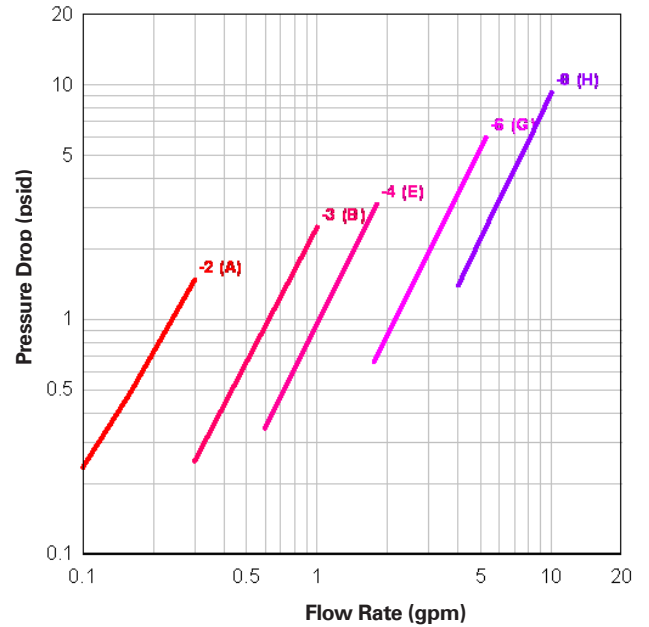


Eaton's Blind-Mate Quick Disconnect Couplings were chosen for the Boeing 787's power equipment cooling system.

# Blind-Mate Quick Disconnect Couplings for Electronics Liquid Cooling



**Modular Coupling Pressure Drop Curves  
EGW @ 72° F (22°C)**



## Coupling Dimensions

Dash Size	"A" DIM		"B" DIM	"C" DIM	"D" DIM	"E" DIM	"F" DIM	"G" DIM	"H" DIM	"J" DIM
	Min (inches/mm)	Max (inches/mm)	(inches/mm)	(inches/mm)	(inches/mm)	(inches/mm)	(inches/mm)	(inches/mm)	(inches/mm)	(inches/mm)
-2	0.603/15.3	0.639/16.2	0.436/11	0.481/12.2	0.375/9.5	0.344/8.7	0.481/12.2	0.357/9	0.433/10.9	0.437/11
-3	0.669/16.9	0.701/17.8	0.624/15.8	0.686/17.4	0.408/10.3	0.365/9.2	0.686/17.4	0.500/12.7	0.396/10	0.562/14.2
-4	1.129/28.6	1.151/29.2	0.876/22.2	0.825/20.9	0.472/11.9	0.655/16.6	0.825/20.9	0.500/12.7	0.643/16.3	0.750/19
-6	1.259/31.9	1.316/33.4	0.981/24.9	0.962/24.4	0.559/14.1	0.769/19.5	1.031/26.2	0.500/12.7	0.812/20.6	0.875/22.2
-8	1.632/41.4	1.686/42.8	1.358/34.4	1.238/31.4	0.440/11.1	0.802/20.3	1.238/31.4	0.480/12.1	0.886/21.9	1.125/28.5

## Installation Data

Dash Size	Tube Size (in/mm)	T1	Installation Torque		T2	Installation Torque
			Male Half (in-lb)	Female Half (in-lb)		Female Half (in-lb)
-2	0.125/3.17	.3125-24UNJF-3A	10.0± 5.0		.375-24UNJF-3A	12.0± 5.0
-3	0.188/4.77	.500-28UNEF-3A	20.0± 5.0		.5625-24UNEF-3A	25.0± 5.0
-4	0.250/6.35	.5625-18UNJF-3A	40.0± 5.0		.6250-18UNJF-3A	45.0± 5.0
-6	0.375/9.52	.750-16UNJF-3A	74.0± 10.0		.8125-16UNJ-3A	92.0± 10.0
-8	0.500/12.7	.750-16UNJF-3A	122.0± 10.0		1.000-12UNJF-3A	162.0± 10.0

## Part Numbers

Dash Size	Fluid: PAO per MIL-C-87252		Fluid: Ethylene & Propylene Glycol & Water	
	Male Half	Female Half	Male Half	Female Half
-2	AE75748A	AE75747A	AE76305A	AE76306A
-3	AE75748B	AE75747B	AE76305B	AE76306B
-4	AE75748E	AE75747E	AE76305E	AE76306E
-6	AE75748G	AE75747G	AE76305G	AE76306G
-8	AE75748H	AE75747H	AE76305H	AE76306H

## Blind Mate Coupling Weights

Dash Size	Male Half (Lbs/Kg)	Female Half (Lbs/kg)
-2	0.008/.003	0.010/.005
-3	0.013/.005	0.021/.009
-4	0.030/.013	0.039/.017
-6	0.048/.021	0.071/.032
-8	0.078/.035	0.110/.049

\*Weights are a dry calculated weight

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