International

# battlefield


ET SERIES

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# 1 Introduction

Battlefield International's ET series are high-performance, lightweight ball latching quick disconnects (QDs) that were created as successors to our legendary EnduroLink couplings. Battlefield specializes in creating COTS parts and solutions tailored exactly to customer specifications. Battlefield International is driven to provide customers with the highest quality parts. This includes extensive testing and conformance to quality standards listed in AS9100.

## 1.1 Applications

Our ET series was developed for the unmanned aerospace industry where our lightweight design and highly optimized performance have met and exceeded the requirements of our customers in the field. Battlefield International uses the strong relationships with its customers to turn real application feedback into new products and industry solutions.


## 1.2 Features

ET series QDs balance a compact, lightweight body with superior flow performance and ease of use. Our signature knurled locking sleeve making it easy to connect and disconnect by hand while our green indication band visually and physically removes risk of unintentional disconnection. The ET series valve design creates minimal air inclusion during connection.

A wide range of available colour keying and custom marking options mitigate risks of crossed fluid lines.

# 2 Performance

## 2.1 Operating Pressure

Table 1 shows the pressure ratings of the ET Series QDs.

| Pressure Ratings of ET Series QDs [psig] | | | |
|---|---|---|---|
| | **Operating** | **Proof** | **Burst** |
| **ET** | 160 | 240 | 400 |
| **ET SS** | 500 | 750 | 1250 |

*Table 1, Pressure Ratings of ET series in Aluminum and Stainless Steel*

Burst pressure is defined as the pressure at which the QD will experience yielding without failure.

## 2.2 Qualification Testing

Battlefield International's ET series QDs are tested to exceed AS1709 specifications in junction with Battlefield's internal testing standard; BFS-2.

Highlights of these qualification tests include extreme temperature functioning (-40°C to 135°C), leakage, vibration, endurance, stiction, repeat proof pressure and burst pressure.

## 2.3 Vacuum Ratings

Table 2 shows the vacuum pressure ratings for disconnected halves of the ET series.

| Vacuum Pressure Rating [psig] | | | |
|---|---|---|---|
| **Body Size** | **03** | **04** | **06** |
| Coupler | 49.0 | 39.4 | 26.4 |
| Plug | 34.9 | 34.6 | 22.5 |

*Table 2, Vacuum Pressure Ratings*

## 2.4 Pressure Drop Curves

Figure 1 illustrates the pressure drop behavior of the ET series with water at 20°C across available sizes. The resulting flow coefficients are listed in Table 3. Pressure drop curves can be generated in a timely manner for a wide range of fluids and at different temperatures.

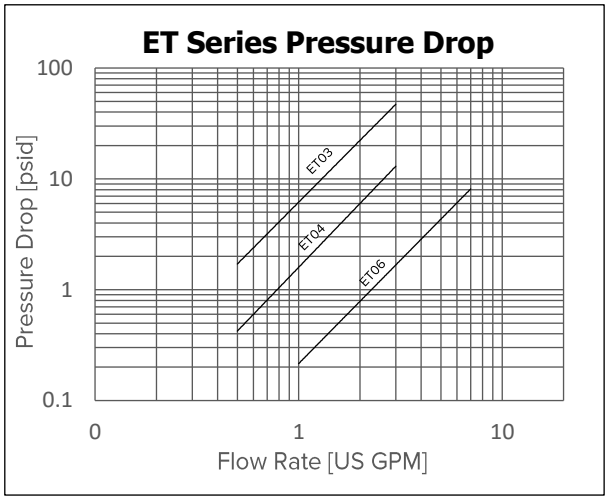


*Figure 1, Average Bi-Directional Pressure Drop of ET Series Sizes*

| Flow Coefficient (Cv) | | | |
|---|---|---|---|
| **Body Size** | **03** | **04** | **06** |
| Rated Flow [US GPM] | 0.65 | 1.2 | 3.5 |
| ET Series Cv | 0.36 | 0.73 | 2.14 |

*Table 3, Flow Coefficients of ET Series, Calculated with Water at Rated Flow*

# 3 Technical Information

## 3.1 Dimensions

Figure 2 illustrates the basic dimensions used to evaluate the ET space claim. These dimensions are referenced in Table 4 across all sizes.

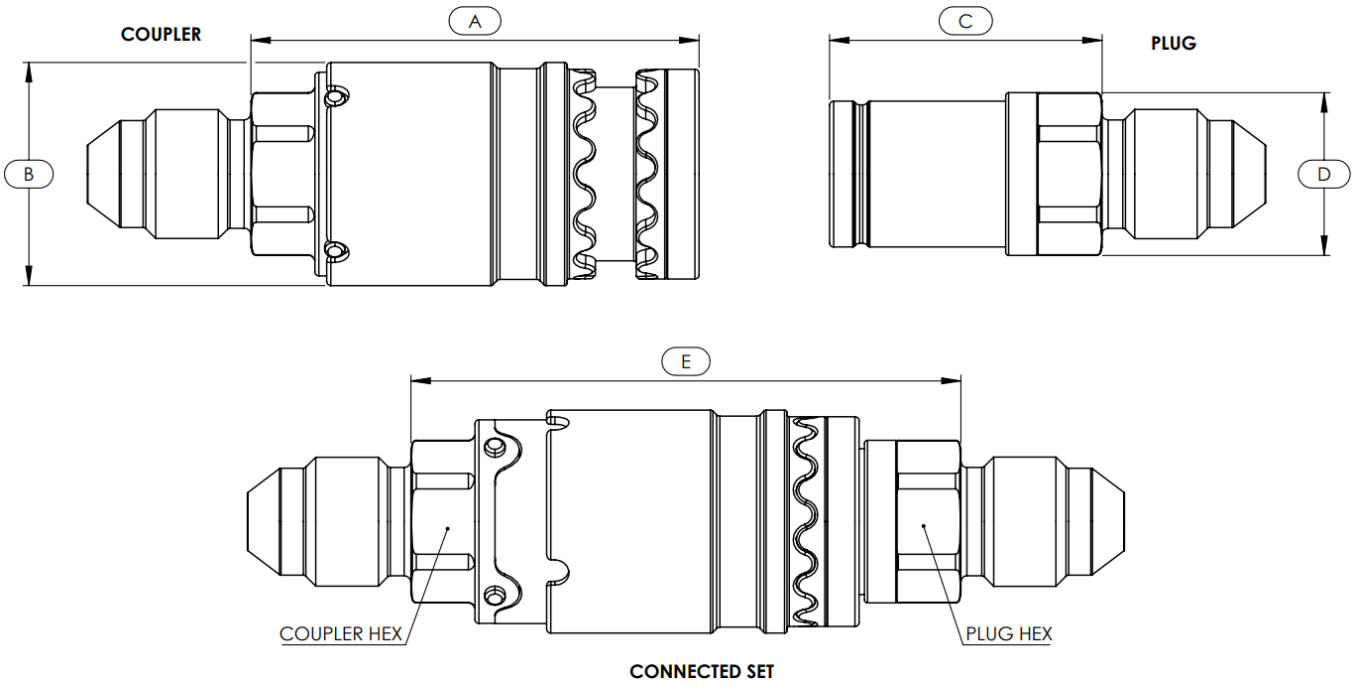


*Figure 2, ET Series Referenced Dimensions*

| ET Series Dimensions [in] | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Body Size** | **Coupler** | | | **Connected Set** | **Plug** | | |
| | A | ØB | Hex Flats | E | C | ØD | Hex Flats |
| **03** | 1.11 | 0.55 | 0.375 | (1.36) | 0.674 | 0.41 | 0.375 |
| **04** | 1.51 | 0.749 | 0.5 | (1.85) | 0.92 | 0.546 | 0.5 |
| **06** | 2.1 | 1.11 | 0.75 | (2.41) | 1.11 | 0.89 | 0.8125 |

*Table 4, ET Series Dimensions*

## 3.2 End Connects

ET series QDs can be paired with a wide variety of end connect configurations. This makes them a viable option for many unique applications. End connect geometry can be customized for the required application where space claim length and diameter are critical.

Battlefield has the capability to produce an extensive range of end connect combinations. These include different end connect specifications, dash sizes, jump sizes, lengths, and bulkhead configurations.

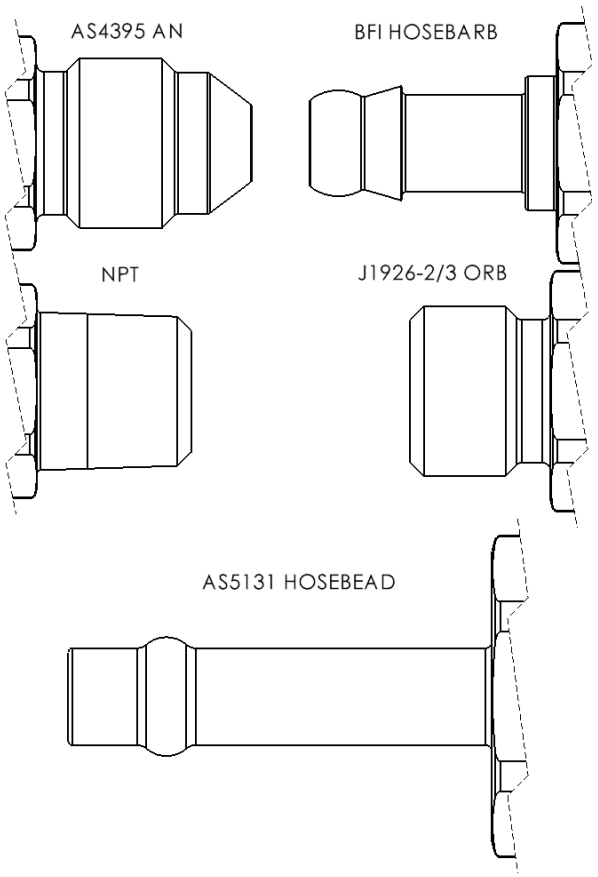


*Figure 3, Examples of Common Standard End Connect Configurations*

An additional layer to the end connect customization is the approach angle. While most suppliers offer 45° and 90° angled ends. Battlefield prides itself in the ability to provide customers with end connects that will fit any non-standard angles they may require. Examples shown in Figure 4.

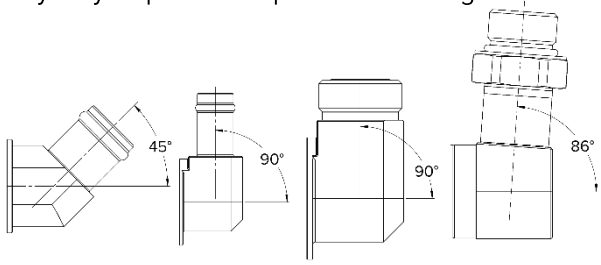


*Figure 4, Custom and Standard End Connect Angle Capabilities*

## 3.3 Mass Information

Standard masses can be referenced in Table 5. Masses will vary with modifications.

| Mass with Standard AN End Connects [g] | | | | |
|---|---|---|---|---|
| **Body Size** | **ET Series** | | **ET SS Series** | |
| | Coupler | Plug | Coupler | Plug |
| **03** | 9.06 | 5.15 | 22.24 | 9.73 |
| **04** | 21.89 | 11.13 | 53.6 | 19.73 |
| **06** | 57.82 | 27.96 | 139.94 | 46.82 |

*Table 5, Mass with AN End Connects*

## 3.4 Materials

| Standard Materials | |
|---|---|
| **ET Series** | |
| Coupler | Aluminum |
| Plug | Aluminum/Stainless Steel |
| **ET SS Series** | |
| Coupler | Stainless Steel |
| Plug | Stainless Steel |

*Table 6, ET Series Materials*

Alternative materials are available on request. Material substitutions may result in a different operating pressure or flow performance.

Available seal materials include NBR, HNBR, FVMQ, FKM, EPDM. Selection of seal material is dependant on the desired fluid media and operating temperature range. Speciality seals are available upon request.

# 4 Customization

## 4.1 Dust Caps

Dust caps are available for the ET series to prevent contamination of the components when in the disconnected state. Dust caps can be connected with a lanyard to their respective QD, so they are never lost as shown in Figure 5.


*Figure 5, ET Coupler and Plug with Dustcaps*

## 4.2 Visual Keying

ET sets can be produced with a wide range of colour bands on both mating halves to offer quick visual identification of specific fluid lines. Our most common keying options are shown in Figure 6. Other colours may be available upon request.

In addition, Battlefield is equipped to laser custom graphics for each unique quick disconnect.

*Figure 6, ET Mating Sets with Colour Keying Options*

## 4.3 Custom Applications

Customers often approach us with custom requests for their application. Battlefield prides itself on our ability to quickly deliver a personalised design that will fit your application exactly to your specifications and requirements through collaboration.


*Figure 7, Flush Face Plug and Lanyard Release Designs*

# 5 Contact


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