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# Safety Breakaway Couplings

## Introduction

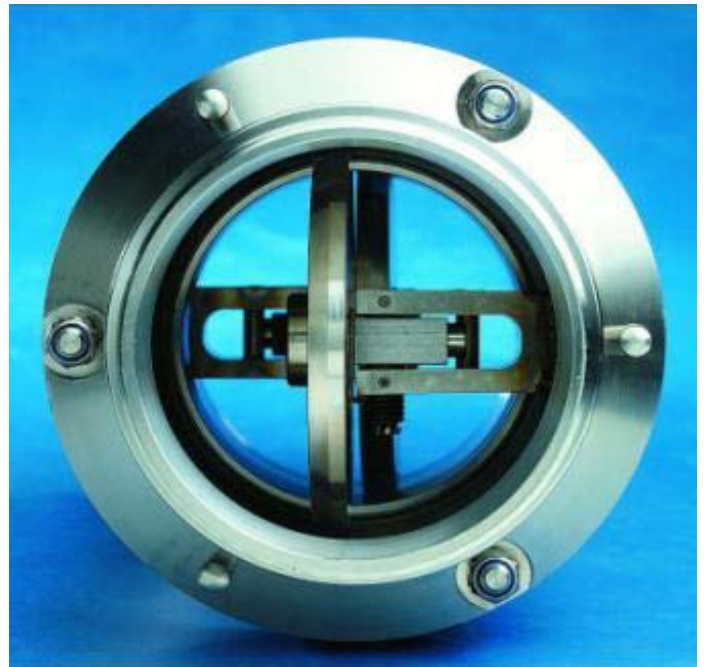
Welcome to KLA W

Klaw Products is a global leader in the design, manufacture and supply of Breakaway Couplings.

Providing high end products for the safe transfer of hazardous and non-hazardous materials, our clients include leading edge global corporates in the oil, gas and petrochemical industries.

With applications that include road tankers, rail cars, ship to shore and ship to rig, KLA W products protect loading/unloading systems from costly damage and significantly reduce expensive down time.

Our products ensure the safe transfer of liquids, gases and powders, whilst minimising pollution and environment impact



The Safe Solution for you and the environment



## Safety Breakaway Couplings

Industrial



Utilised in all product transfer, installations, the Industrial Breakaway Coupling is specifically designed to be able to activate under a bending moment. With an applied force at an angle of 90 degrees to the plane of the coupling.

Typically installed into loading arm and hose assemblies, where at least one side of the coupling is attached to a rigid and fixed point.

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## Safety Breakaway Couplings

### Collar Release (ERC)



On this range of couplings, the Breakstuds utilised on Industrial Model are replaced by a collar release mechanism.

This arrangement is typically used on loading arm assemblies, where tensile loads being exerted onto the arm are minimised.

The collar is released via a cable, pneumatic or hydraulic system, which activates at a predetermined point during over extension of the arm.

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## Safety Breakaway Couplings

Marine



Our Marine Breakaway Couplings are designed specifically to be installed within a hose string, where the coupling would have a length of hose attached to both sides.

The coupling incorporates the same internal mechanism as our industrial range, but has additional external features that provide increased resistance to bending moments and torsional forces which may be exerted upon the coupling and therefore preventing premature activation.

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## Safety Breakaway Couplings

Cryogenic



KLAW Products have successfully developed a coupling design that operates at cryogenic temperatures, down to  $-196^{\circ}\text{C}$ .

Typically these couplings would be utilized for media such as LNG and other Cryogenic media (Oxygen, Ethylene, Propylene, Ethan etc..)

KLAW Cryogenic Coupling are available as Breakstud or Collar Release versions.

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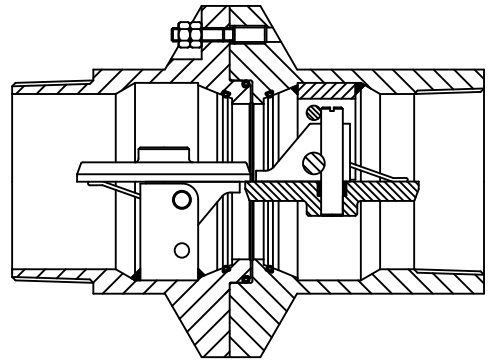
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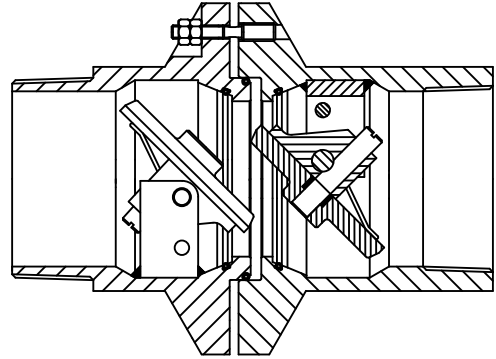
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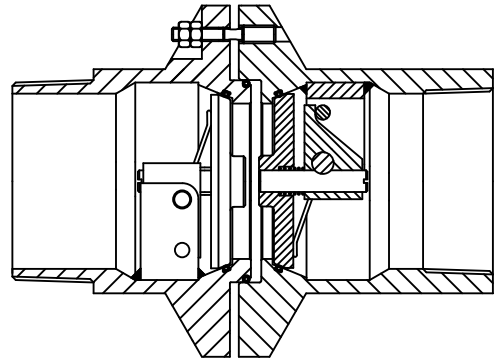
Take two poppets lay them on their sides like flaps. They lock each other, offering minimum head loss until the coupling parts.



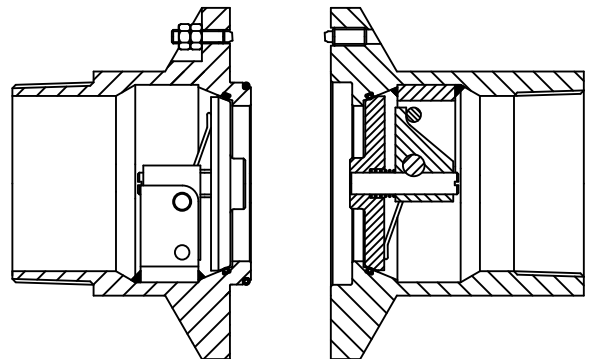
The flaps are released and allow the bias springs to rotate through a controlled arc...



... until they have moved through 90, where they snap onto their seats prior to the coupling fully parting.



With 100% shut-off achieved, the two halves of the coupling then part completely.



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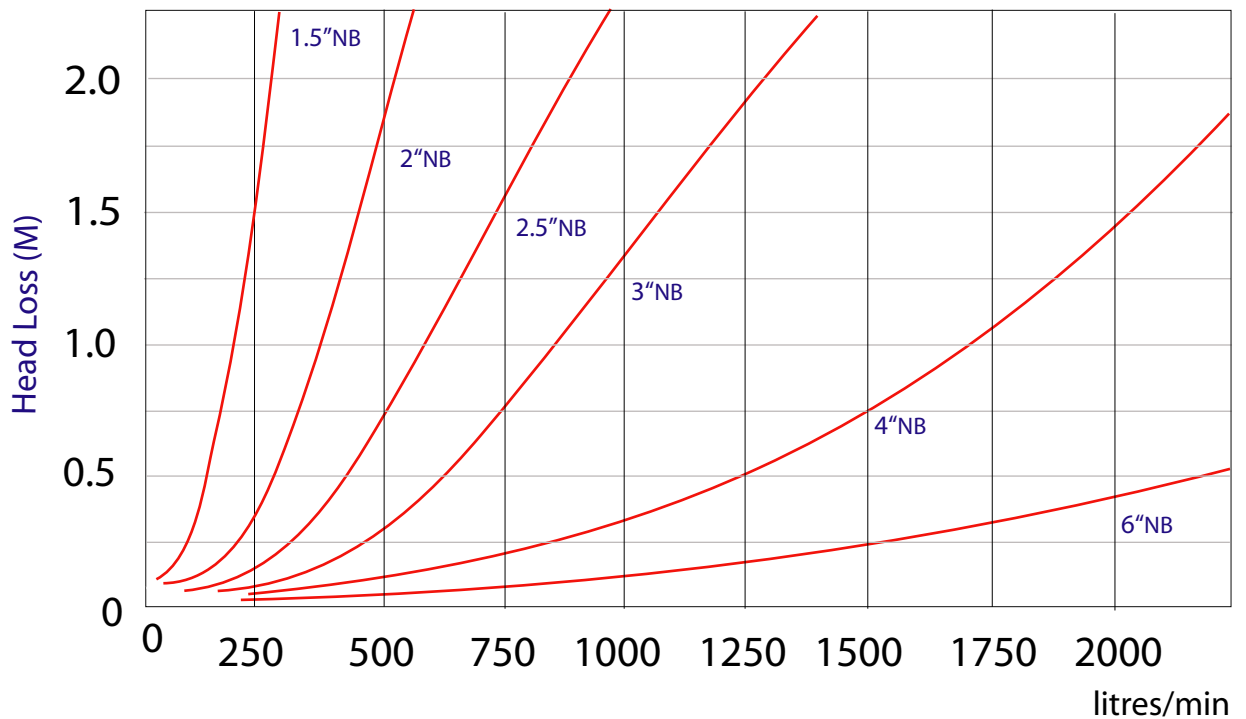
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# Safety Breakaway Couplings

## Flow Diagram

## Flow Rate Characteristics



For Nominal Bores over 6" please contact us

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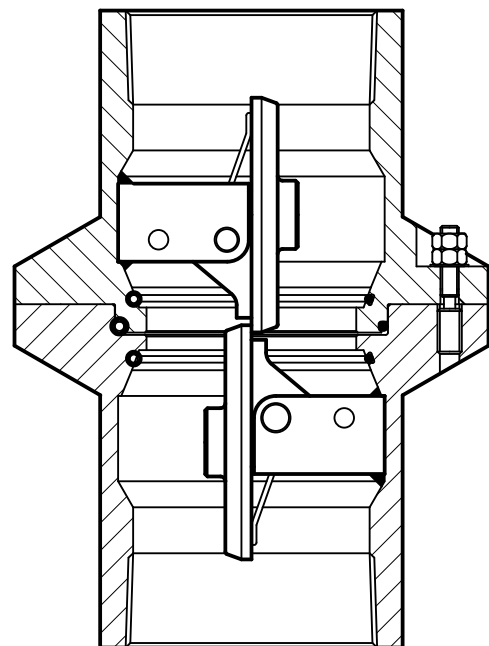
### Quality & Safety By Design

When considering the Breakaway Coupling options available to you, it is important to be confident in the design principles of the coupling.

#### Quality By Design

Our original FLIP-FLAP design not only provides minimum head loss through the unit, but also ensures that under no circumstances can the seal between the two coupling body halves open to atmosphere, before the internal flap valves have been released & provided a 100% shut off. This design feature eliminates the potentially hazardous scenario called 'Partial Break'.

'Partial Break' is when the coupling has been partially parted but not fully, due to the applied force being prematurely removed (perhaps due to an operator beginning to move the vehicle and then releasing they have not disconnected, thus stopping). With some designs of breakaway coupling it could be possible for a 'Partial Break' and an uncontrollable spillage of media to occur. This can not happen with the KLAW design of coupling.



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## Safety Breakaway Couplings

Product Testing - Your assurance of quality



### Testing

- Temperature - from cryogenic to elevated  
( minus 196 degrees C to + 275 degrees C)
- Activation - testing of working mechanisms under operating conditions.
- Material - mechanical and chemical
- Pressure - hydrostatic or nitrogen

### PED

Where necessary all products are produced in compliance with the Pressure Equipment Regulations (Pressure Equipment Directive 97 /23/EC). As standard all units are supplied with 3.1.B mill material certificates for all pressure retaining components. In addition every unit produced is pressure tested in accordance with the intended operating conditions and supplied with a pressure test certificate.

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## Safety Breakaway Couplings

### Specifications

#### Size Range

Standard nominal bores

1.5", 2", 2.5", 3", 4", 5", 6", 8", 10", 12"

#### End Connections

Threaded male or female tapered or parallel flanged.

Weld prepared ends non-standard configurations are also available on request.

#### Breakload Settings

Coupling breakloads can be designed to any application criteria.

#### Pressure Ratings

Standard range up to 40BAR design pressure - higher ratings available.

#### Materials

Stainless Steel

Carbon Steel

Aluminium

Other materials available on request

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