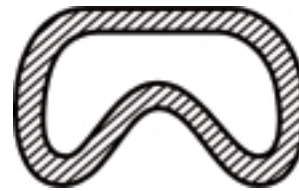


**NEW**

# Clevaflex K/D Series

## High Performance Impact Tubes



Maximum Performance  
Minimum Space

### Features:

- Specifically designed to provide the highest energy absorption in the least amount of space
- The complex shape allows the impact load to be distributed across more support area
- K/D Series tubes have a flat surface for ease of installation
- Tubes are not susceptible to deterioration from heat or aging
- Manufactured from recyclable materials
- Patent pending

### Standard Sizes:

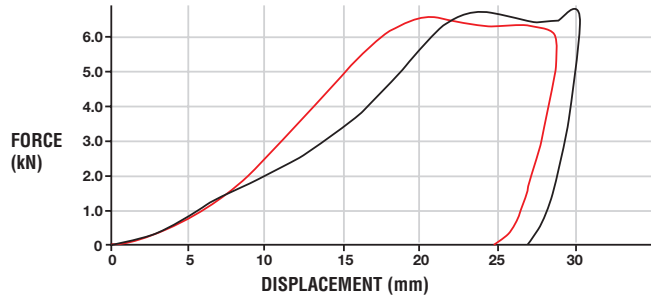
- 11 x 20 mm
- 12 x 20 mm
- 13 x 20 mm
- 14 x 25 mm
- 15 x 25 mm
- 16 x 25 mm
- 19 x 30 mm
- 20 x 30 mm
- 21 x 30 mm

### Standard Materials:

- P-A-P Paper-Aluminum-Paper
- P-A/A-P Paper-Aluminum/Aluminum-Paper
- P-S-P Paper-Steel-Paper
- P-S/S-P Paper-Steel/Steel-Paper
- P-S/S/S-P Paper-Steel/Steel/Steel-Paper

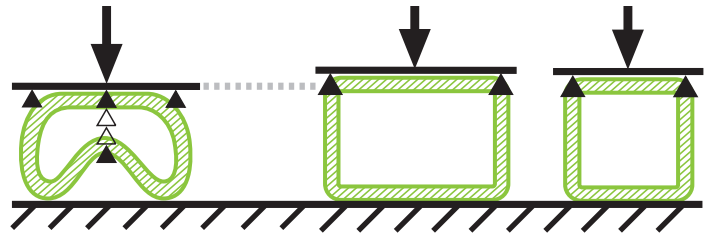
Other sizes and materials are available to meet specific application requirements.

### K/D Performance Test Example:



■ Square Tube (15 mm) HIC (d) = 816  
 ■ Clevaflex K/D Tube (15 mm) HIC (d) = 767

In the example above, tests were conducted with a 10lb headform at 15 mph. Improved performance with the complex K/D shape is demonstrated by steeper slopes, and lower, longer peak forces.



### K/D Design Concept:

An impact tube is best viewed as a supported beam designed to absorb an applied load. With conventional tubes there are only two supports carrying the load. The further apart they are, the weaker the beam. With the Clevaflex K/D design, a middle support beam is added to create a complex shape that delivers higher performance in less space.

Additional test results regarding other sizes, shapes and material combinations are available on request.



Clevaflex Impact Tubes are performance tested by an independent, A2LA accredited facility.

# Clevaflex



# Clevaflex EMS Impact Tubes

High Performance  
Energy Management Solutions



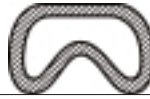
**R - Round**



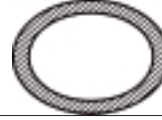
**D - Shape**



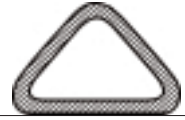
**K - Kidney**



**K/D - Kidney D**



**O - Oval**



**T - Triangle**

## Standard Specifications:

**Diameters:** 1/2 - 4 inches (13mm - 102mm)

**Profile Size:** Height and width per customer specifications

**Lengths:** Cut-to-length per customer specifications

**Corrugations:** (S) Stretched 10-14 per inch  
(C) Compressed 15-24 per inch

## Material Combinations:

The material combinations listed below are the most commonly used in manufacturing.

Type	Description
P-A-P	Paper-Aluminum-Paper
P-A/A-P	Paper-Aluminum/Aluminum-Paper
P-S-P	Paper-Steel-Paper
P-S/S-P	Paper-Steel/Steel-Paper
P-S/S/S-P	Paper-Steel/Steel/Steel-Paper

Other sizes, shapes and materials available upon request.



Our Dynamic Impact Test System was designed and built by MGA Research to perform testing related to FMVSS201 standards. The equipment is housed at Stork-Herron Testing Laboratories an independent, A2LA accredited facility. Stork-Herron's technicians conduct all impact product testing.

## Only Clevaflex EMS Impact Tubes offer you such a wide range of designs with these important features:

- Light weight and easy to install
- Provides superior performance in limited space
- Absorbs and translates energy throughout deformation
- Functions in a wide temperature range
- Meets FMVSS302 for flammability
- Ideal for head liners, side rails, A/B/C pillars, knee bolsters, door panels
- Component and development testing
- Custom shapes



## Design Kit:

The Clevaflex Design Kit contains a wide variety of impact tube shapes and sizes in different material combinations. If you're looking for energy management solutions to impact problems, this is a must have design tool. Call 216-941-6505 today to receive your free design kit.

# Clevaflex



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