Enidine One-Shot Emergency Stop

NEW

- Over 95% Energy Absorption With No Rebound
- Low Cost
- Maintenance Free
- Space Saving

Before Impact After Impact

One-Shot Emergency Stop

Shock Absorbers

Solutions in Energy Absorption and Vibration Isolation.

ENIDINE

An IMC Company

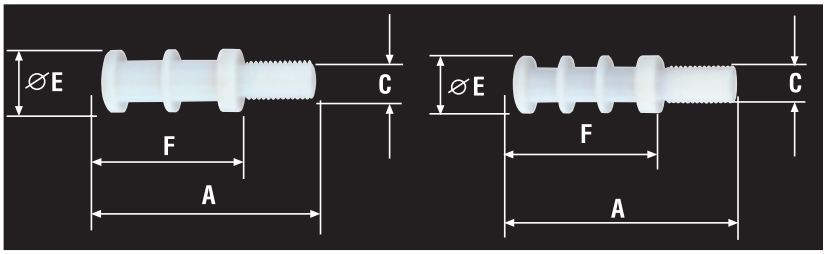
New Enidine One-Shot Emergency Stop

2-Element Design

The 2-Element Design applies to the following models:
OS-08-7, OS-20-450 and OS-30-1800

3-Element Design

The 3-Element Design applies to the following models:
OS-10-18, OS-12-45, OS-12-80 and OS-16-160



New Enidine One-Shot Emergency Stops are specially designed to provide cost-effective energy absorption. Their lightweight inner metal core is surrounded by a corrosion-resistant, high-grade polymer material, allowing for high damping of a wide range of loads and velocities under extreme conditions.

Unlike conventional hydraulic dampers, Enidine One-Shot Emergency Stops will crush upon impact. Once impacted, the product is discarded and easily replaced, at a fraction of the cost of a traditional hydraulic shock absorber.

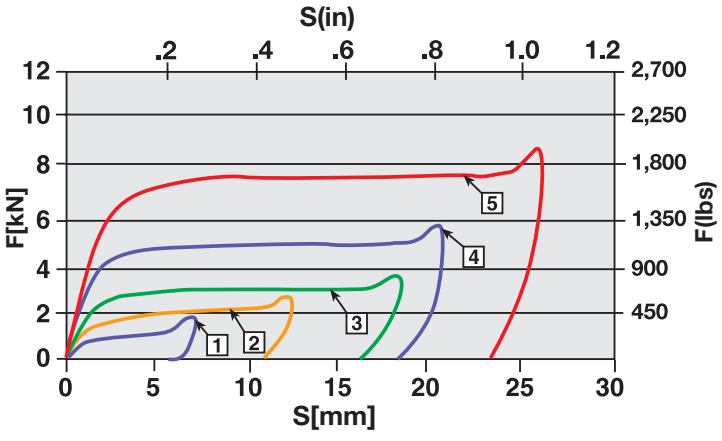
Enidine One-Shot Emergency Stops were primarily developed for use in high-speed servo drive mechanisms, where traditional hydraulic shock absorbers may have been eliminated due to cost concerns, but the need for emergency safety stops remains. The product family is ideal for reducing or eliminating product and equipment damage incurred during machine overrun, replacing ineffective rubber bumpers, springs or reusable plastic shock absorbers.

- **Absorbs over 95% of energy with no rebound**
- **Major cost advantage to comparable technologies**
- **Energy capacities of up to 1800 Nm (15,931 in.-lbs.)**
- **Operates in a temperature range of -25°C to 50°C (–15°F to 120°F)**
- **Compact envelope size**
- **Corrosion and maintenance-free**
- **Minimum ten-year service life**
- **Easy installation and replacement**

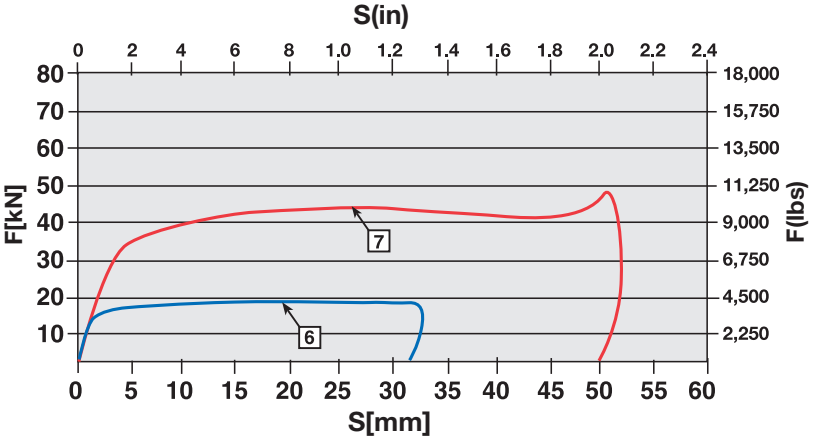
Technical Data

Item	Model	Stroke (S) mm (in)	Maximum Energy Capacity at 20°C (68°F) (E_T) Nm (in-lbs)	Peak Resistance Force at 20°C (68°F) (F_p) kN (lbs)	Dimensions				Weight g (oz)
					A mm (in)	C (Thread Size)	E Ø mm (in)	F mm (in)	
1	OS-08-7	6 (0.24)	7 (62)	1,7 (382)	33,0 (1.30)	M8	11,0 (0.43)	22,0 (0.87)	2 (0.1)
2	OS-10-18	11 (0.43)	18 (159)	2,2 (495)	51,2 (2.02)	M10	12,2 (0.48)	34,5 (1.36)	5 (0.2)
3	OS-12-45	18 (0.71)	45 (398)	3,3 (742)	69,0 (2.72)	M12	16,2 (0.64)	44,6 (1.76)	10 (0.4)
4	OS-12-80	20 (0.79)	80 (708)	5,2 (1,169)	75,0 (2.95)	M12	18,0 (0.71)	49,8 (1.96)	15 (0.5)
5	OS-16-160	26 (1.02)	160 (1,416)	7,7 (1,731)	92,0 (3.62)	M16	24,0 (0.94)	60,3 (2.37)	31 (1.1)
6	OS-20-450	31 (1.22)	450 (3,983)	18,0 (4,046)	106,0 (4.17)	M20	32,0 (1.26)	68,5 (2.70)	66 (2.3)
7	OS-30-1800	50 (1.97)	1800 (15,931)	47,0 (10,566)	170,0 (6.69)	M30	50,0 (1.97)	113,0 (4.45)	247 (8.7)

Force vs. Stroke



Force vs. Stroke

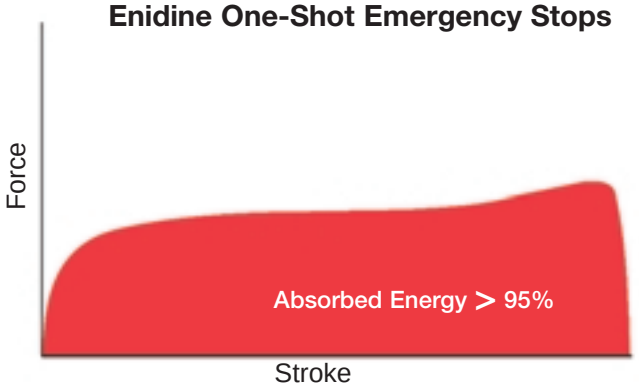


ENIDINE
An IMC Company

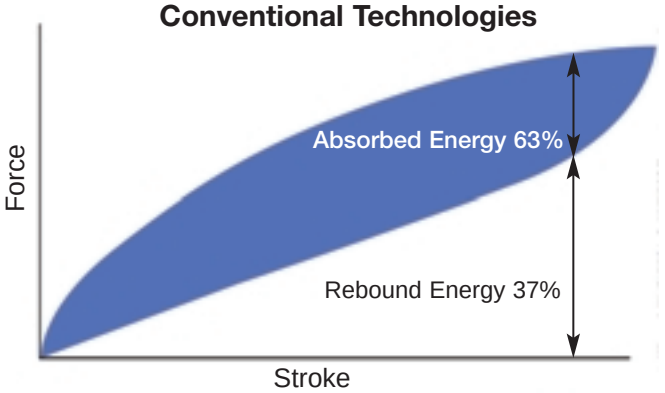
New Enidine One-Shot Emergency Stop

Performance Comparison

Enidine One-Shot Emergency Stops



Conventional Technologies



Compared to conventional technologies such as rubber bumpers or springs, the Enidine One-Shot Emergency Stop provides greater energy absorption and no rebound, making it a highly reliable solution for your mission–critical emergency stop requirements. Enidine One-Shot Emergency Stops can be parallel mounted for greater energy absorption capacity.

Shown: Application photo illustrates small envelope size required of the Enidine One-Shot Emergency Stop Shock Absorber.

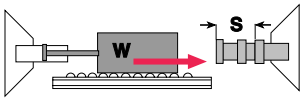
Common Sizing Illustration:

STEP 1 - Define the following parameters:
a. Maximum weight (W) of the load to be stopped.
b. Maximum impact velocity (V) of the load at the shock absorber.
*c. External (propelling) forces such as pneumatic or hydraulic cylinders or electromechanical thrust.

STEP 2 - Refer to common examples below. From the Sizing Guidelines, select the smallest shock absorber with a Maximum Energy Capacity greater than the calculated Kinetic Energy (Ek) – note (S) stroke of shock absorber and Maximum Energy Capacity.

STEP 3 - Validate/modify initial selection from Step 2. From the Technical Data Chart, select the smallest shock absorber with a "Maximum Energy Capacity" greater than the calculated total impact energy(E_T).For rotary applications, please consult factory. For additional sizing guidelines, please, fax, phone or e-mail application data to Enidine. See back cover for Enidine locations or visit our website at: www.enidine.com for a list of distributors.

Horizontal Application –
Moving Load with Propelling Force



One-Shot
Emergency Stop
Shock Absorber

Imperial Calculation–

STEP 1: Application data:
(W) Weight = 40 lbs.
(V) Velocity = 150 in/sec.
(d) Cylinder bore dia. = 1.50 in.
(P) Operating pressure = 80 psi

STEP 2: Calculate kinetic energy:

$$E_K = \frac{W}{772} \times V^2$$

$$E_K = \frac{40}{772} \times 150^2$$

E_K = 1166 in-lbs.
Assume Model OS-16-160 is adequate.

STEP 3: Calculate work energy:
F_D = .7854 x d^2 x P
F_D = .7854 x 1.50^2 x 80
F_D = 141 lbs.
E_W = F_D x S
E_W = 141 x 1.02 = 144 in-lbs.

STEP 4: Calculate total energy:
E_T = E_K + E_W
E_T = 1166 + 144 = 1,310 in-lbs/c
*OS-16-160 is valid.

Metric Calculation–

STEP 1: Application data:
(W) Weight = 18,2 Kg
(V) Velocity = 3,8 m/sec
(d) Cylinder bore dia. = 38 mm
(P) Operating pressure = 5,4 bars

STEP 2: Calculate kinetic energy:

$$E_K = \frac{W}{2} \times V^2$$

$$E_K = \frac{18,2}{2} \times 3,8^2$$

E_K= 131 Nm
Assume Model OS-16-160 is adequate.

STEP 3: Calculate work energy:
F_D = 0,0785 x d^2 x P
F_D = 0,0785 x $3,8^2$ x 5,4
F_D = 615 N
E_W = F_D x S
E_W = 615 x 0,038 = 16 Nm

STEP 4: Calculate total energy:
E_T = E_K + E_W
E_T = 131 + 16 = 147 Nm
*OS-16-160 is valid.

Installation and Maintenance Instructions:

- Fully thread into mounting hole, apply Loctite 243 or equivalent (to avoid loosening due to vibration) and torque "hand tight." Do not use tools.
- Maintain a free clearance behind the One-Shot Emergency Stop of 5 mm (0.2 in.)
- Minor impacts may be absorbed without visibly deforming the One-Shot Emergency Stop.

To ensure full emergency stop capability, the One-Shot Emergency Stop must be immediately replaced after impact.
Remove used One-Shot Emergency Stop shock absorber and discard in ordinary refuse.

ENIDINE
An IMC Company

Enidine Incorporated
7 Centre Drive
Orchard Park, New York 14127 • USA
Phone: 716-662-1900
Fax: 716-662-1909
www.enidine.com

Subsidiaries and Affiliates:

Enidine West
184 Technology Dr., Suite 201
Irvine, California 92618 • USA
Phone: 949-727-9112
Fax: 949-727-9107
www.enidine.com

Enidine GmbH
Rheinauenstr, 5
79415 Bad Bellingen
Rheinweiler • Germany
Phone: 49 7635 8101 0
Fax: 49 7635 8101 99
www.enidine.de

Enidine Co. Ltd.
398, Cigasaki-Cho, Tsuzuki-Ku
Yokohama-Shi, Kanagawa 224-0031
Japan
Phone: 81 45 947 1671
Fax: 81 45 945 3967
www.enidine.co.jp

Enidine Corporativo De Mexico, S.A. de C.V.
Av. Patria 3124-A
Col El Sauz
Guadalajara, CP
Jalisco • Mexico 45080
Phone: 52 3 646-8100
Fax: 52 3 646-6755
www.enidine.com.mx

Enidine U.K. Ltd.
Patrick Gregory Road
Wolverhampton
West Midlands, WV11 3DZ
United Kingdom
Phone: 44 1902 304000
Fax: 44 1902 305676
www.enidine.co.uk

ENIDINE PRODUCTS

Shock Absorbers • Rate Controls • Air Springs
Elastomeric Isolators • Wire Rope Isolators • Compact Wire Rope Isolators
UltraLOC™ Seat Recline Controls • Gas Spring Replacements • Seismic Isolation Products

CHECK OUT www.enidine.com OUR WEB SITE



Solutions in Energy Absorption and Vibration Isolation.

CGOSMAMB 12/01 5M

ENIDINE
An IMC Company