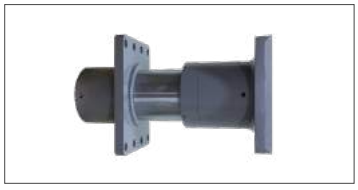
KOBA

BEST SHOCK ABSORBER

Hydrostatic Buffer Endstop Damper

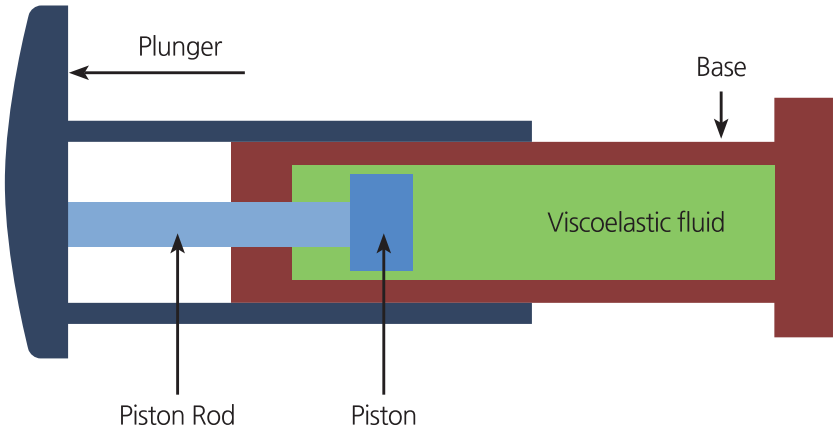
Hydrostatic Buffer

Using high viscosity viscoelastic fluids



Visco Elastic Buffer

It returns by itself by utilizing the unique properties of visco-elastic fluid,
and it can be applied to products that require a spring or buffer depending on the design purpose.
KOBA's Hydrostatic Buffer has been proven to be optimized with the excellent performance and the design for shock absorption and buffering of railway vehicles such as KTX-Sancheon, EMU-250 high-speed train, EMU-150 inter city train, and urban train.



Features

- Fluids with both viscosity and elasticity
- No additional recoil mechanism required
- Compact design
- Maintenance free
- Stability to temperature variations
- High initial preload

Application

- Hydrostatic Buffer
- Oil Damper
- End Stop Buffer

Patents

For coupler

- EMU-250
- EMU (metro)
- EMU-150
- Light Rail

For side Buffer

- EN15551 Standard, Category C buffer
- KTX-Sancheon Side Buffer
- Electric railways / Side Buffer with anti-climbing

Coupler Buffer

EMU-250, EMU-150

01 Features

- Viscoelastic fluid type “Hydrostatic buffer”
- Applied to high speed train and inter city train(150km/h~300km/h)

Dynamic testing of buffer, TÜV SÜD

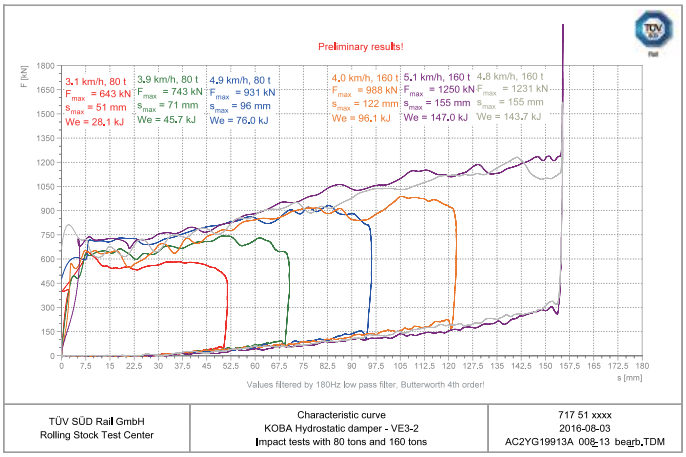
02 Performance Authentications

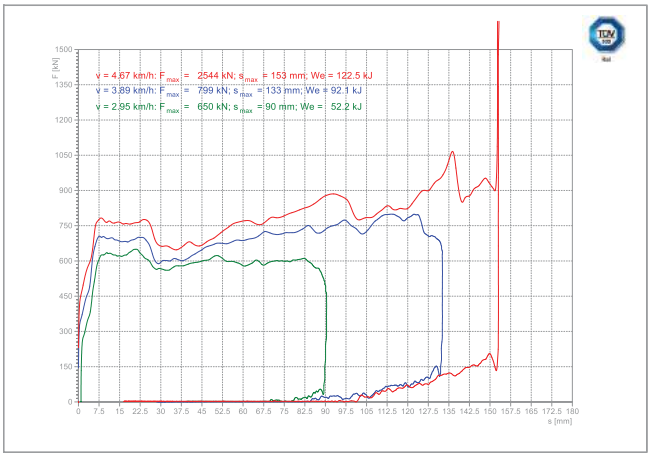
EMU-250

- Stored Energy : 150 kJ
- Max. Shock Force : 1300 kN
- Stroke : 150 mm
- Length : 700 mm

EMU-150

- Stored Energy : 135kJ
- Max. Shock Force : 1000 kN
- Stroke : 150 mm
- Length : 700 mm





160 Ton, 3~6 km/h,TUV

Electric Car (EC, EMU)

01 Features

- Viscoelastic fluid type “Hydrostatic buffer”
- Connector Buffer for urban rail and light rail (70km/h~110km/h)

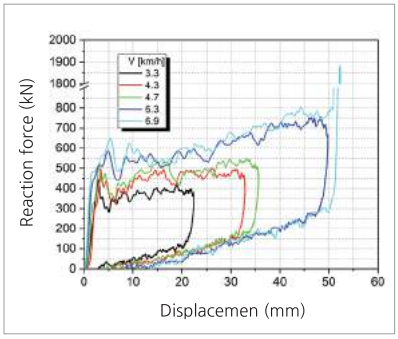
02 Performance Authentications

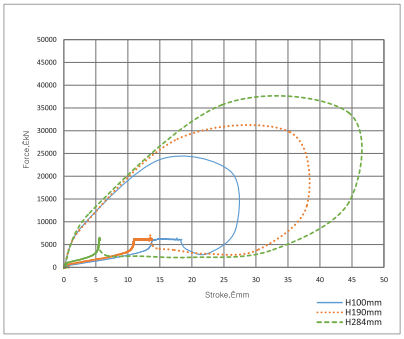
EC

- Stored Energy : 34kJ
- Stroke : 50 mm
- Max. Shock Force : 850 kN
- Length : 415mm

LR

- Stored Energy : 25 kJ
- Stroke : 50 mm
- Max. Shock Force : 600kN
- Length : 465 mm





20 Ton, 3~8 km/h,KRRI

Side Buffer

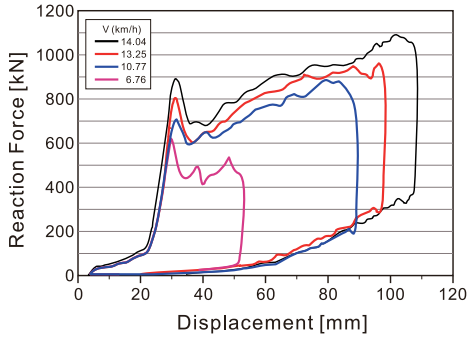
EN15551 Standard Cat.C

01 Features

- Localization development of visco-elastic fluid type “Hydrostatic buffer”
- Side Buffer with visco-elastic fluid by applying PDMS(polydimethylsiloxane) synthesis technology
- EN15551 standard application test with self-returning function, certification completed

02 Performance Authentications

- Stored Energy : 70 kJ
- Max. Shock Force : 1,150 kN
- Stroke : 105 mm
- Length : 620 mm



80 Ton, 5 km/h, KRRI

Dynamic testing of Category C buffer, KRRI

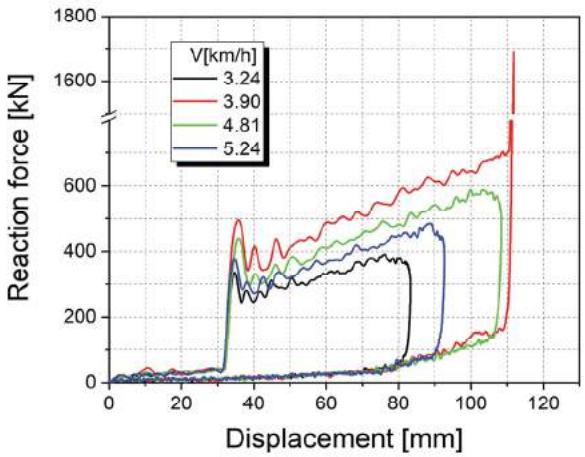
KTX-Sancheon

01 Features

- Viscoelastic fluid type “Hydrostatic buffer, capsule”
- Applied to high speed train(KTX-Sancheon, 300Km/h)

02 Performance Authentications

- Stored Energy : 50 kJ
- Max. Shock Force : 750 kN
- Stroke : 110 mm
- Length : 553 mm



40 Ton, 3 km/h, KRRI

Dynamic testing of KTX-Sancheon side buffer, KRRI

Side Buffer with anti-climbing

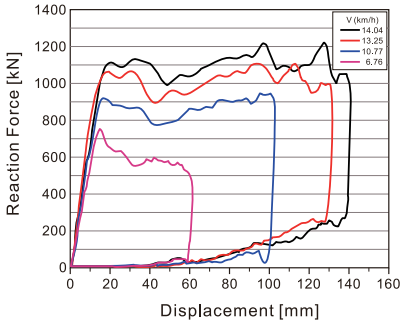
01 Features

- Viscoelastic fluid type “Hydrostatic side buffer”
- Application development of visco-elastic fluid buffer design and manufacturing technology to the side buffer for electric multiple units
- Possessing the Anti-climbing and returning functions in case of collision

Dynamic testing of Electric railway buffer, KRRI

02 Performance Authentications

- Stored Energy : 130 kJ
- Max. Shock Force : 1,000 kN
- Stroke : 150 mm
- Length : 448 mm
- Reversible type



20 Ton, 14 km/h, KRRI

End Stop Buffer

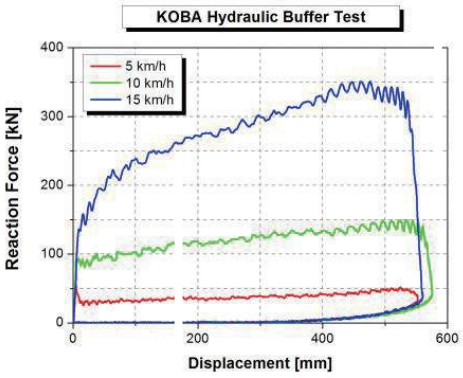
End Stop Buffer

01 Features

- A hydraulic buffer that safely stops the train by absorbing the kinetic energy of the train which is out of the stop position at the end of the railway

02 Performance Authentications

- Hydraulic buffer
- Max. shock force : 450 kN
- Stored energy : Max. 200kJ
- Stroke : 600 mm



Dynamic testing of Hydraulic buffer, KRRI (5, 10, 15 km/h)

Dynamic test, KRRI

Daegu subway

Gangjin-Boseong Station

Pantograph Damper / Hatch Gas · Liquid Spring

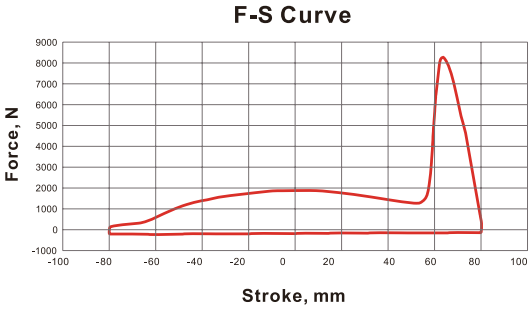
Pantograph Damper

01 Features

- A damper that is installed on the pantograph of railroad vehicles to absorb the impact of train running between the overhead wire and the collector head
- Proven safety and durability against shock and vibration by horizontal mounting

02 Performance Authentications

- Damper for pantograph
- 9,400 N (@0.1m/s, Sine wave)
- Application : high speed trains

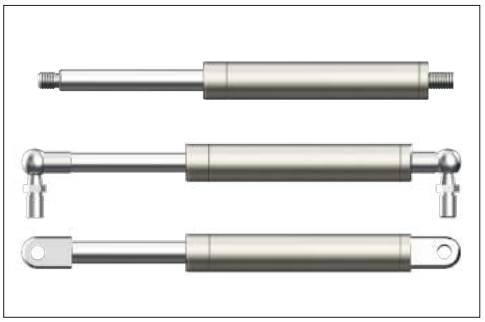


Performance test results, JIAT

Hatch Gas · Liquid Spring

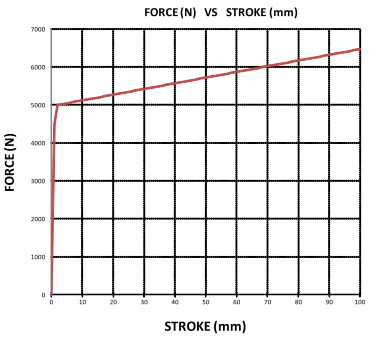
01 Features

- Hatch drive spring installed on the front of railroad vehicles
- Proven environmental resistance and durability
- Temperature : -40℃ ~ +70℃
- Humidity : 95% • Vibration and shock : Type 1 Class A
- Max. shock force : 5,000 N • Stroke : 500 mm



02 Performance Authentications

- Max. shock force : 5,000 N • Stroke : 600 mm



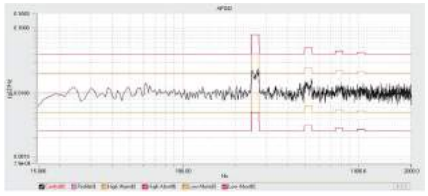
KOBA
BEST SHOCK ABSORBER

Buffer for special of Equipment

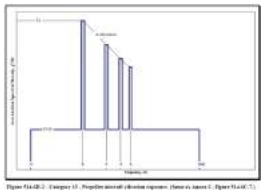
Unmanned Aerial Vehicle

01 Features

- Hydraulic buffer for landing gear of medium-sized unmanned aerial vehicles
- Applied to US Defense Standard (MIL-STD-810G), proven environmental performance
  - High temperature (80℃) Low temperature (-40℃), rain, sand dust, salt spray, vibration



Vibration Test Data _ Transverse (X)



Prppedler aircraft vibration test

Safety Curtain Equipment

01 Features

- Driven type buffer and damper for fire protection system in large concert halls
- Retaining customized design technology for various performance venue environments
- Performance test for the linear buffer elevator and rotary damper fire protection screen

Application

World Leading Technology Hydraulic Buffer

- Steel mill line
- Container crane
- Railroad buffers
- Elevator buffers
- Amusement Park
- Stacker crane
- Piling broker

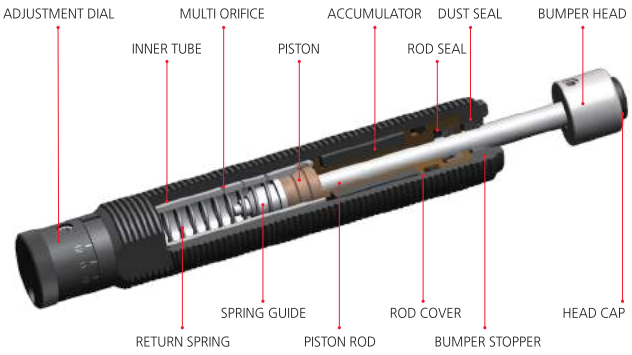
Shock Absorber KMA Series

KMA

Model Size									
M10	M12	M14	M20	M16	M25	M27	M30	M33	M36

Features

- As an adjustable type model, it is possible to be controlled by the 12-step fine-tuning from 0˚ to 300˚ according to the ₩ collision speed.
- By increasing the cross-sectional area of the piston, t he energy absorption capacity has increased compared to the existing products, and the effective weight range has also been widened.
- As it is made of one body type that makes it solid, it solves piston shooting trouble so called bottom-out problem.
- Velocity ranges : 0.3~5.0m/s, Low Velocity(LV) 0.08~1.3m/s
- Temperature ranges : Standard (-10~80℃), Special (-40~120℃)



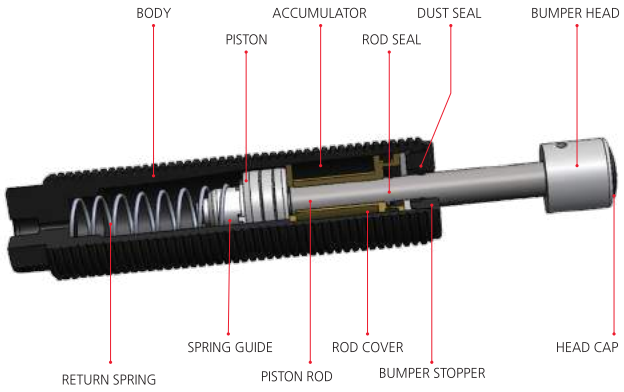
Shock Absorber KMS Series

KMS

Model Size									
M4	M5	M6	M8	M10	M12	M14	M20	M25	M36

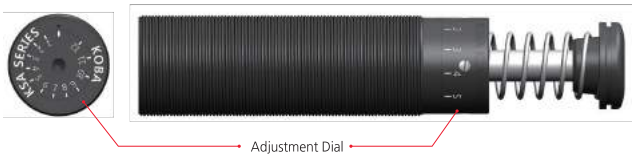
Features

- As a self compensating type model, the energy absorption capacity is increased by more than 2 times compared to the existing products.
- The energy per hour has upgraded with the increase of the oil amount and the effective weight range has also widened.
- As it is made of one body type that makes it solid, it solves piston shooting trouble so called bottom-out problem.
- Velocity ranges : 0.3~5.0m/s
- Temperature ranges : Standard (-10~80℃), Special (-40~120℃)



Shock Absorber KSA Series

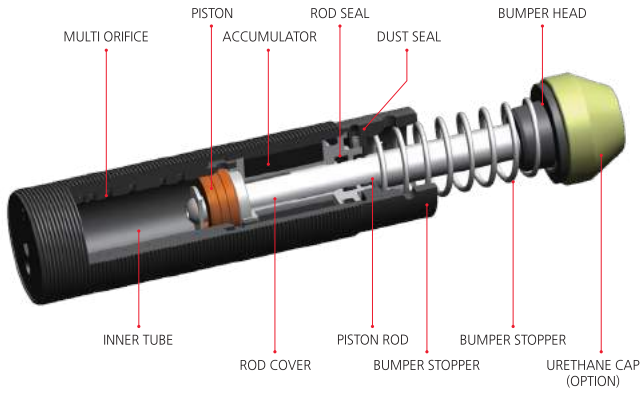
KSA



Model Size		
M45	M64	M85

Features

- As an adjustable type model, it is possible to be controlled by the 12-step fine-tuning from 0° to 300° according to the collision speed.
- Adjustment is easy in various installation environments by adopting front and rear adjustment dials.
- As it is made of one body type that makes it solid, it solves piston shooting trouble so called bottom-out problem.
- It is a product with the maximized buffering capacity which is for the medium and large sized products.
- Velocity ranges : 0.3~5.0m/s
- Temperature ranges : -10~80℃



Shock Absorber KHA Series

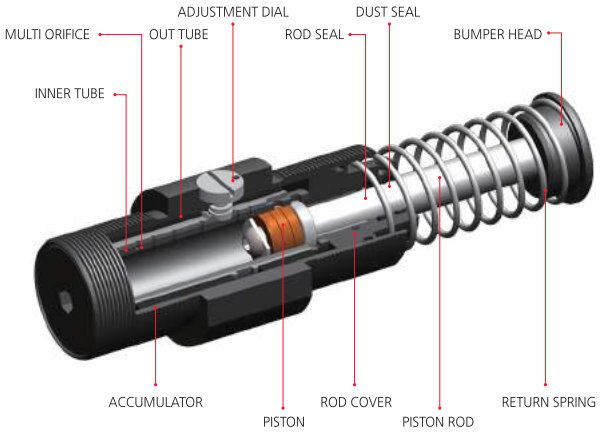
KHA

Adjustment Dial

Model Size			
M42	M64	M85	M115

Features

- As an adjustable type model, the adjustment dial is rotated from 0° to 180° from the left to the right to freely adjust the buffering range according to the impact speed.
- As for the medium and large sizes, it is mainly applied where a large buffer capacity is needed.
- Velocity ranges : 0.3~5.0m/s, Low Velocity(LV) 0.08~1.3m/s
- Temperature ranges : Standard (-10~80℃), Special (-40~120℃)



Hydraulic Buffer KHS & KHG Series

KHS

Features

- As a self compensating type model, high deceleration efficiencies have achieved by optimal multi-orifices design and production according to the user requirements.
- As a large-capacity product, it is suitable for applying to emergency or production lines which require repetitive movements.
- Temperature ranges : Standard (-10~80℃), Special (-30~100℃)

KHG

Features

- As a self compensating type model, a variety of product lines are prepared by the different capacities.
- As a large-capacity product, it applies to the products with high absorption energy compared to its size.
- It is optimized for large-capacity applications through the interaction of the oil pressure and the nitrogen gas in the event of a collision.
- Temperature ranges : -10~80℃

Hydraulic Buffer KCSC & Visco-Elastic Buffer KES Series

KCSC

Features

- As a gas return type, because it has low peak and low recoil force it operates with minimum resistance during normal operation and safely decelerates in case of emergency.
- Standard impact velocity : 3.8m/s
- Max number of uses : 60cycle/h
- Temperature ranges : Standard (-10~80℃), Special (-30~100℃)

KES

Features

- Products developed by the principle of static-dynamic compression of visco-elastic fluids.
- The simple and solid structure realizes a large damping force in spite of its comparably small size.
- No separate return devices are required and uniform damping performance is maintained under the wide temperature range.
- Standard impact velocity : 5m/s
- Temperature ranges : -40℃~80℃

Visco-Elastic Buffer KVD Series **&**
Hydro Check KHC Series

KVD

Features

- Products developed by the static compression principle of visco-elastic fluids.
- The simple and robust structure realizes a large damping force in spite of the small size.
- With spring and shock absorber functions in one structure, no return device is required.
- Maintains uniform damping performance over a wide temperature range.
- Impact velocity : 0.02~5m/s
- Temperature ranges : Standard (-20~80℃), Special (-40~120℃)

KHC

Features

- Possible for controlling the precise moving speed and the position.
- Various products are prepared by the length of stroke.
- Fine control is possible by the adjustment knob in 300° range.
- Applicable to auto feed drilling, grinder, cutting, etc.
- Temperature ranges : Standard (-10~80℃), Special (-30~100℃)

Rate Control KRC Series **&**
Gas Spring KG/KGP/KGL Series

KRC

Features

- Possible to control the speed of the two-way and one-way tension/compression operation of the conveying equipments.
- Fine control is possible by the adjustment dial range from 0 to 12 steps under the users' environmental conditions.
- Impact velocity : 0.6m/s
- Max number of uses : 60cycle/h
- Temperature ranges : Standard (-10~80℃), Special (-30~100℃)

KG/KGP/KGL

Features

- Compression, tension, and free lock type with a spring using nitrogen gas.
- Applied when you want to move a large object with minimal force by pushing or pulling.
- Mainly applied when opening and closing machinery covers or container covers.
- Temperature ranges : Standard (-10~60℃), Special (-30~100℃)

BEST ENGINEERED
FOR ENERGY ABSORPTION

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