



**ACE Controls Hydraulic Dampers are maintenance free, self-contained and sealed units.** They are available with body diameters from 15 mm to 40 mm and with stroke lengths of up to 800 mm (40 mm model).

ACE hydraulic dampers are durable and feature single or double acting-designs. The travel speed can be easily adjusted and remains constant throughout the stroke. The single acting version is controllable in one direction only, with free flow in the opposite direction.

Adjustment is easily achieved by pulling out fully and turning the rod until the desired damping speed is attained.

**A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.**

A variety of end fittings are available for ease of operation and installation, and are included.

**These dependable units offer a minimum of 250,000 cycles and are available for QUICK DELIVERY.**

ACE Controls Hydraulic Dampers are the ideal fit for applications in industries such as: defense, medical, packaging, bottling, printing, fitness equipment, transportation, RV, lawn equipment, furniture, amusement and more.

Specific selected applications include: machine guards, drilling and tapping equipment, pick and place operations, swinging loads, tooling fixtures, fire safety doors as well as lids and slides.

***Single & Double Acting***

***End Fittings Included***

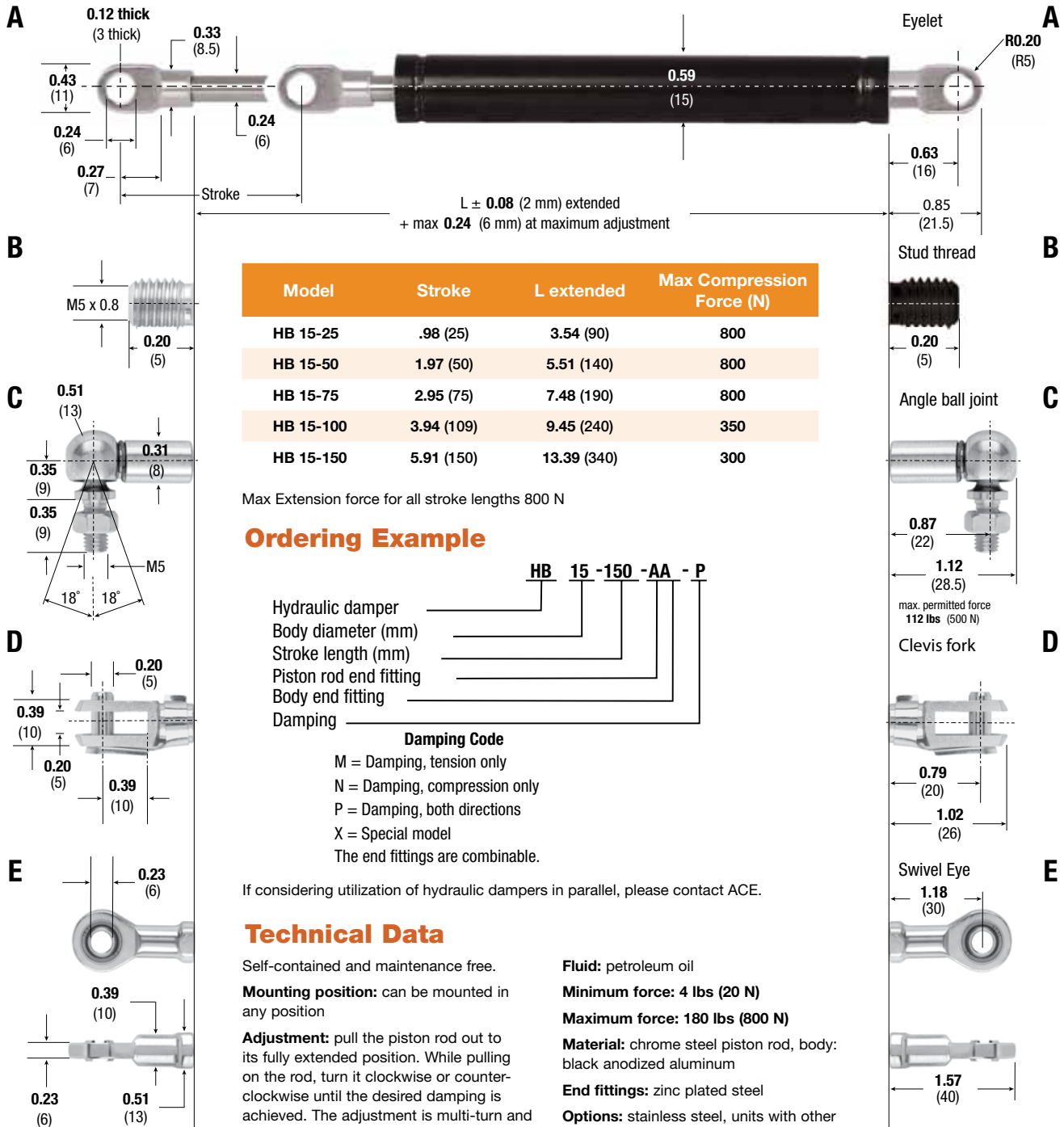
***250,000+ Cycle Life***

***Maintenance Free***

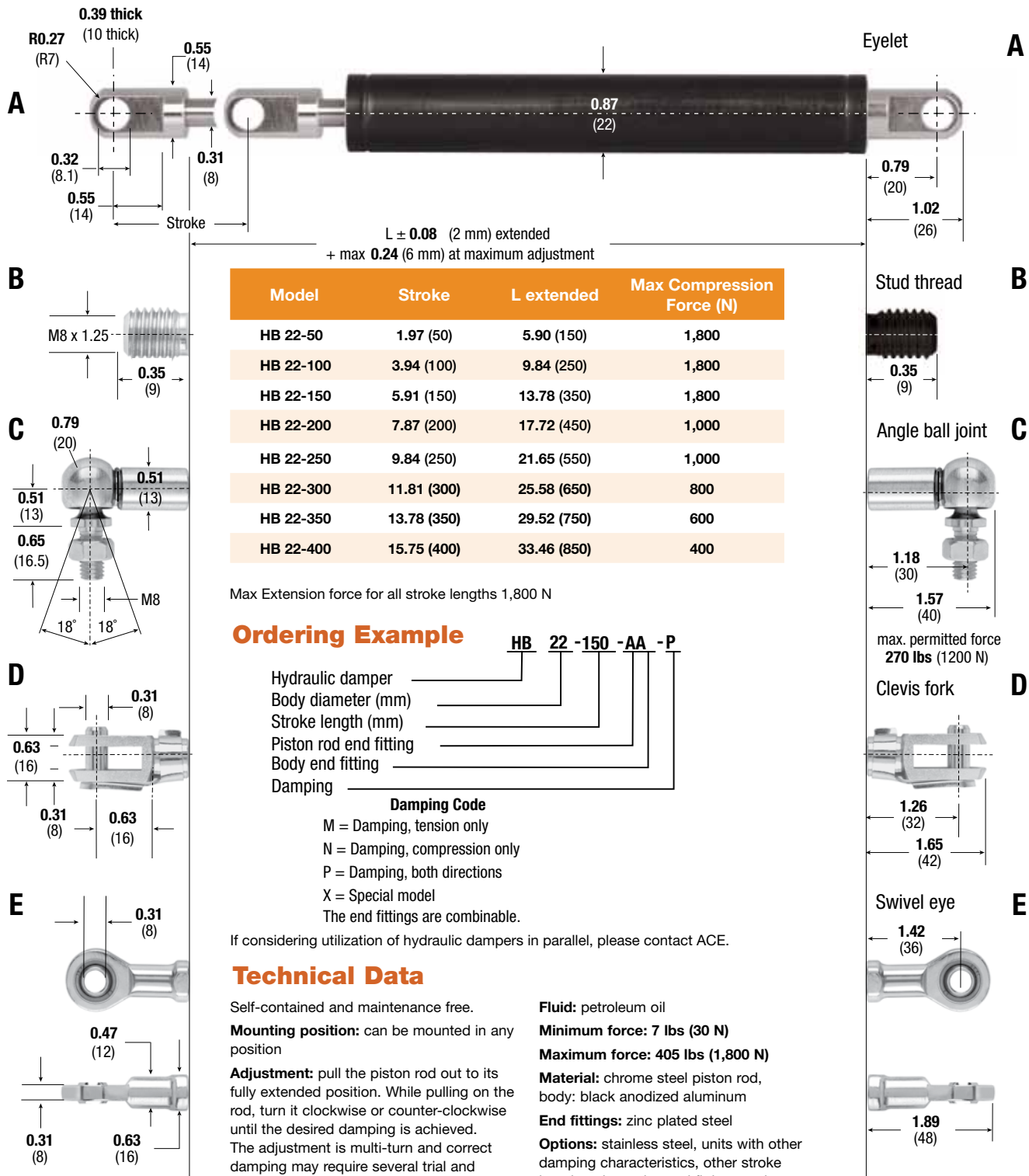
***Easily Adjusted***

***Defense • Packaging • Printing • Medical  
Fitness Equipment • Transportation • RV  
Lawn Equipment • Furniture • Amusement • and More***

Dimensions in inches and (mm)



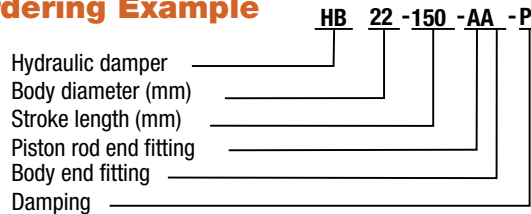
Dimensions in inches and (mm)



Model	Stroke	L extended	Max Compression Force (N)
HB 22-50	1.97 (50)	5.90 (150)	1,800
HB 22-100	3.94 (100)	9.84 (250)	1,800
HB 22-150	5.91 (150)	13.78 (350)	1,800
HB 22-200	7.87 (200)	17.72 (450)	1,000
HB 22-250	9.84 (250)	21.65 (550)	1,000
HB 22-300	11.81 (300)	25.58 (650)	800
HB 22-350	13.78 (350)	29.52 (750)	600
HB 22-400	15.75 (400)	33.46 (850)	400

Max Extension force for all stroke lengths 1,800 N

### Ordering Example



#### Damping Code

- M = Damping, tension only
  - N = Damping, compression only
  - P = Damping, both directions
  - X = Special model
- The end fittings are combinable.

If considering utilization of hydraulic dampers in parallel, please contact ACE.

### Technical Data

Self-contained and maintenance free.

**Mounting position:** can be mounted in any position

**Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved.

The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

**Attention:** dampers have free travel accounting for up to 20% of stroke

**Mechanical stop:** required 1 to 1.5 mm before end of stroke

**Temperature range:** -22° to +176°F (-30° to +80°C), with special seals up to 248°F (120°C)

**Fluid:** petroleum oil

**Minimum force:** 7 lbs (30 N)

**Maximum force:** 405 lbs (1,800 N)

**Material:** chrome steel piston rod, body: black anodized aluminum

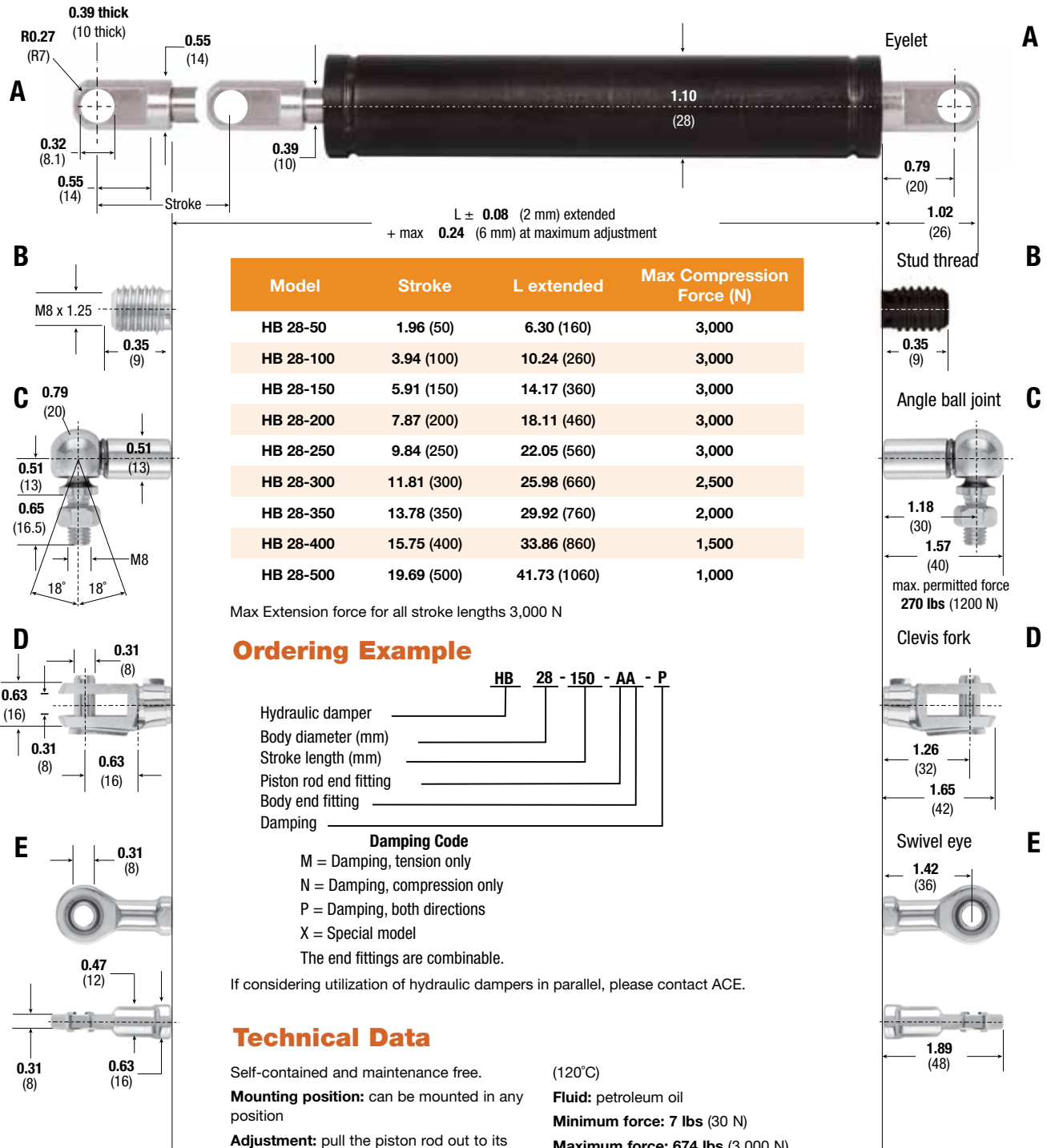
**End fittings:** zinc plated steel

**Options:** stainless steel, units with other damping characteristics, other stroke lengths, alternative end fittings and protective rod sleeves

**Mounting brackets:** A end fitting adapts to mounting brackets GSB-03, GSB-04 and GSB-05. C end fitting, minus threaded stud adapts to GSB-06.

**See page 116 for mounting bracket information**

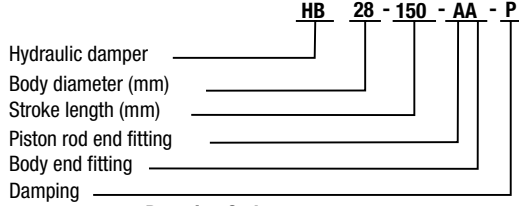
Dimensions in inches and (mm)



Model	Stroke	L extended	Max Compression Force (N)
HB 28-50	1.96 (50)	6.30 (160)	3,000
HB 28-100	3.94 (100)	10.24 (260)	3,000
HB 28-150	5.91 (150)	14.17 (360)	3,000
HB 28-200	7.87 (200)	18.11 (460)	3,000
HB 28-250	9.84 (250)	22.05 (560)	3,000
HB 28-300	11.81 (300)	25.98 (660)	2,500
HB 28-350	13.78 (350)	29.92 (760)	2,000
HB 28-400	15.75 (400)	33.86 (860)	1,500
HB 28-500	19.69 (500)	41.73 (1060)	1,000

Max Extension force for all stroke lengths 3,000 N

### Ordering Example



#### Damping Code

- M = Damping, tension only
  - N = Damping, compression only
  - P = Damping, both directions
  - X = Special model
- The end fittings are combinable.

If considering utilization of hydraulic dampers in parallel, please contact ACE.

### Technical Data

- Self-contained and maintenance free. (120°C)
- Mounting position:** can be mounted in any position
- Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.
- Attention:** dampers have free travel accounting for up to 20% of stroke
- Mechanical stop:** required 1 to 1.5 mm before end of stroke
- Temperature range:** -22° to +176°F (-30° to +80°C), with special seals up to 248°F
- Fluid:** petroleum oil
- Minimum force:** 7 lbs (30 N)
- Maximum force:** 674 lbs (3,000 N)
- Material:** chrome steel piston rod, body: black anodized aluminum
- End fittings:** zinc plated steel
- Options:** stainless steel, units with other damping characteristics, other stroke lengths, alternative end fittings and protective rod sleeves
- Mounting brackets:** A end fitting adapts to mounting brackets GSB-03, GSB-04 and GSB-05. C end fitting, minus threaded stud adapts to GSB-06.
- See page 116 for mounting bracket information**



Dimensions in inches and (mm)



L ± 0.08 (2 mm) extended  
+ max 0.24 (6 mm) at maximum adjustment

Model	Stroke	L extended	Max Compression Force (N)
HB 40-100	3.94 (100)	10.83 (275)	10,000
HB 40-150	5.91 (150)	14.76 (375)	10,000
HB 40-200	7.87 (200)	18.70 (475)	10,000
HB 40-300	11.81 (300)	26.57 (675)	10,000
HB 40-400	15.75 (400)	34.45 (875)	8,000
HB 40-500	19.69 (500)	42.32 (1075)	6,000
HB 40-600	23.62 (600)	50.20 (1275)	4,000
HB 40-700	27.56 (700)	58.07 (1475)	3,000
HB 40-800	31.50 (800)	65.94 (1675)	3,000

Max Extension force for all stroke lengths 10,000 N

## Ordering Example

Hydraulic damper  
Body diameter (mm)  
Stroke length (mm)  
Piston rod end fitting  
Body end fitting  
Damping

### Damping Code

- M = Damping, tension only
- N = Damping, compression only
- P = Damping, both directions
- X = Special model

The end fittings are combinable.

**HB 40-300-AA-P**

If considering utilization of hydraulic dampers in parallel, please contact ACE.

## Technical Data

Self-contained and maintenance free.

**Mounting position:** can be mounted in any position

**Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

**Attention:** dampers have free travel accounting for up to 20% of stroke

**Mechanical stop:** required 1 to 1.5 mm before end of stroke

**Temperature range:** -22° to +176°F

(-30° to +80°C), with special seals up to 248°F (120°C)

**Fluid:** petroleum oil

**Minimum force:** 7 lbs (30 N)

**Maximum force:** 2,248 lbs (10,000 N)

**Material:** chrome steel piston rod, body: black anodized aluminum

**End fittings:** zinc plated steel

**Options:** stainless steel, units with other damping characteristics, other stroke lengths, alternative end fittings and protective rod sleeves

**Mounting bracket:** A and E end fittings adapt to mounting bracket ME14.

**See page 116 for mounting bracket information**

# HBD 15 - HBD 40 Hydraulic Dampers Without Free Travel

ACE Controls HBD Hydraulic Dampers are maintenance-free, self-contained and sealed units. They are available with body diameters from 0.59 in (15 mm) to 1.57 in (40 mm) and with stroke lengths of up to 31.51 in (800 mm).

**Unlike standard Hydraulic Dampers that include free travel up to 20% of stroke, these dependable units have no free travel and are ideal for applications that require this level of performance.**

Double-acting Hydraulic Dampers are standard. However, a single acting design is available. Adjustment is easily achieved by pulling and turning the rod until the desired damping speed is achieved.

The travel speed is adjustable and remains constant throughout the stroke. The single acting version is controllable in one direction only,

with free-flow in the opposite direction. **A built-in antilock guard allows adjustment to be made at any damping rate without unit lock up.**

**These reliable units offer a minimum of 250,000 cycles and are available for QUICK DELIVERY. A variety of end fittings are available for ease of operation and installation, and are included.**

Typical applications include: process control, machine guards, lids, hatches, fire safety doors, arms for medical equipment, conveyors, swinging loads, machine tools, lift gates, drill feed control, amusement park rides, and more.

***Single & Double Acting***

***End Fittings Included***

***250,000+ Cycle Life***

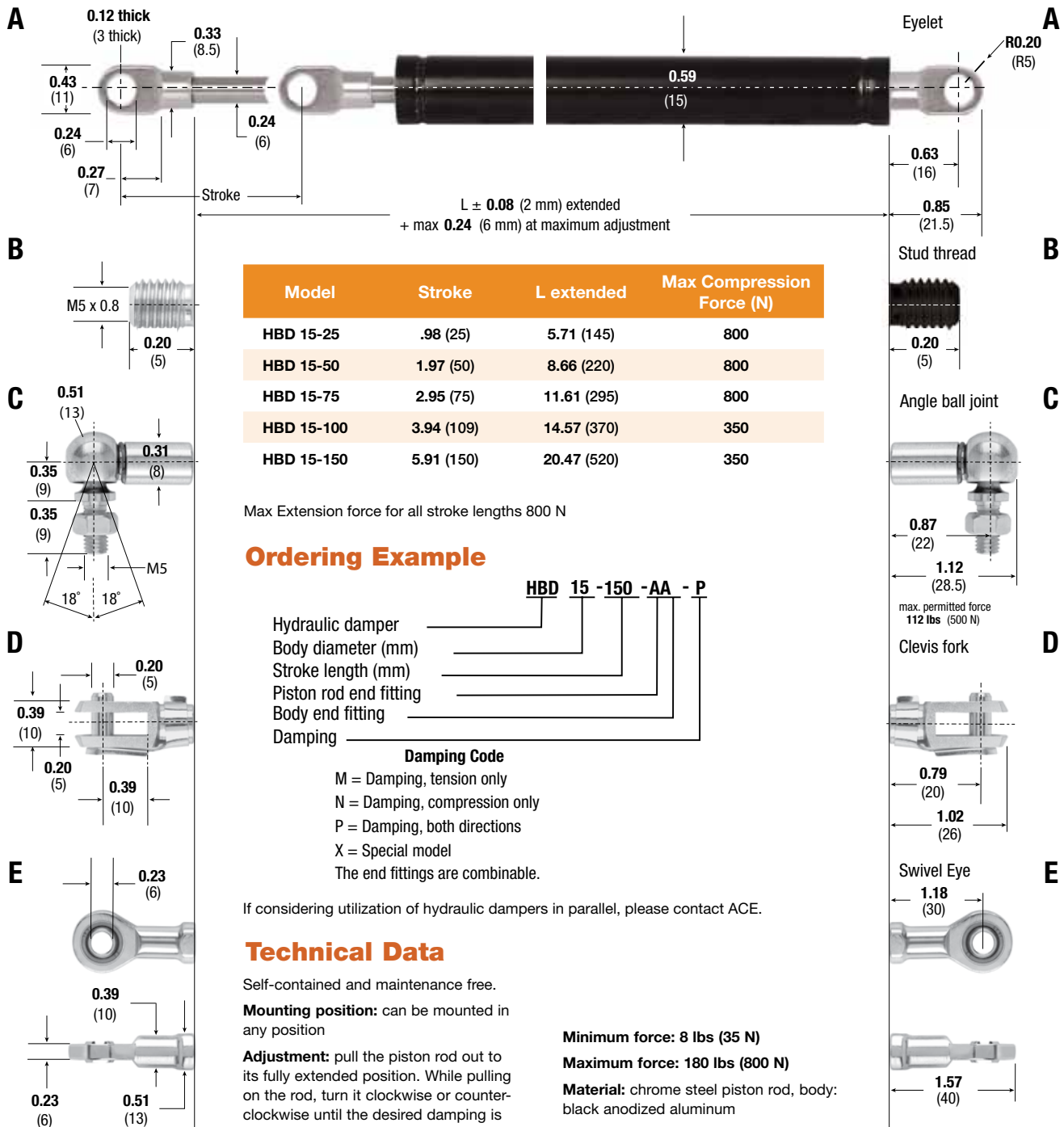
***Maintenance Free***

***Easily Adjusted***



***Medical • Furniture • Wind & Solar Energy •  
Fitness • Transportation • RV • Amusement • and More***

Dimensions in inches and (mm)



Max Extension force for all stroke lengths 800 N

## Ordering Example

HBD 15 -150 -AA - P

Hydraulic damper  
 Body diameter (mm)  
 Stroke length (mm)  
 Piston rod end fitting  
 Body end fitting  
 Damping

### Damping Code

- M = Damping, tension only
  - N = Damping, compression only
  - P = Damping, both directions
  - X = Special model
- The end fittings are combinable.

If considering utilization of hydraulic dampers in parallel, please contact ACE.

## Technical Data

Self-contained and maintenance free.

**Mounting position:** can be mounted in any position

**Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

**Mechanical stop:** required 1 to 1.5 mm before end of stroke

**Temperature range:** -22° to +176° F (-30° to +80°C), with special seals up to 248° F (120° C)

**Fluid:** petroleum oil

**Minimum force:** 8 lbs (35 N)

**Maximum force:** 180 lbs (800 N)

**Material:** chrome steel piston rod, body: black anodized aluminum

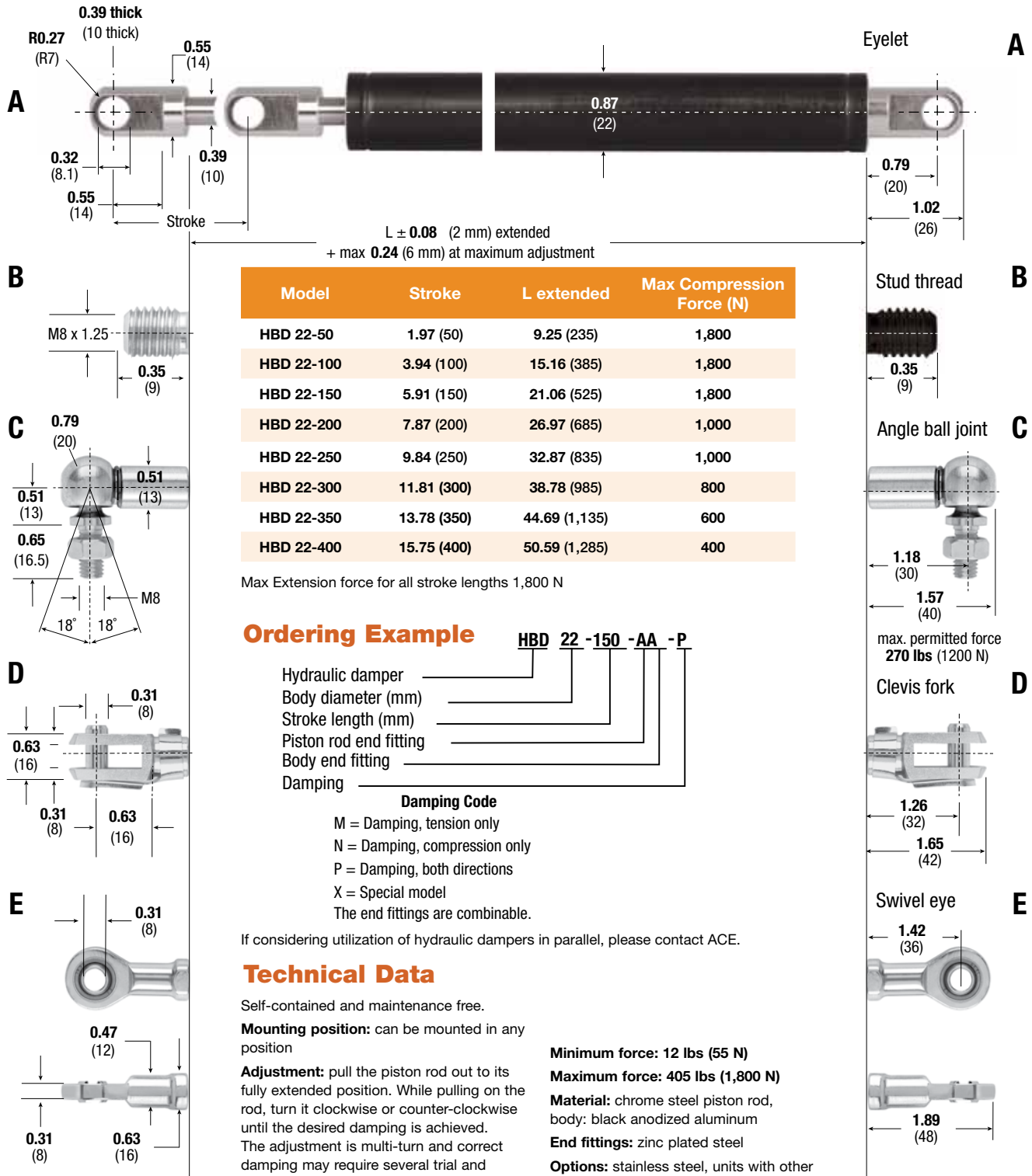
**End fittings:** zinc plated steel

**Options:** stainless steel, units with other damping characteristics, other stroke lengths and alternative end fittings

**Mounting brackets:** A & E end fittings adapt to mounting bracket GSB-01. C end fitting, minus threaded stud adapts to GSB-02.

**See page 116 for mounting bracket information**

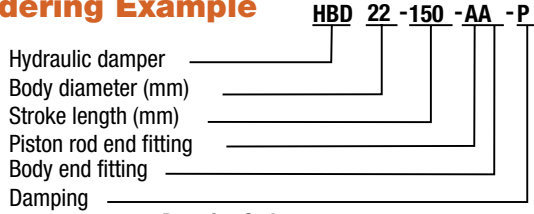
Dimensions in inches and (mm)



Model	Stroke	L extended	Max Compression Force (N)
HBD 22-50	1.97 (50)	9.25 (235)	1,800
HBD 22-100	3.94 (100)	15.16 (385)	1,800
HBD 22-150	5.91 (150)	21.06 (525)	1,800
HBD 22-200	7.87 (200)	26.97 (685)	1,000
HBD 22-250	9.84 (250)	32.87 (835)	1,000
HBD 22-300	11.81 (300)	38.78 (985)	800
HBD 22-350	13.78 (350)	44.69 (1,135)	600
HBD 22-400	15.75 (400)	50.59 (1,285)	400

Max Extension force for all stroke lengths 1,800 N

### Ordering Example



#### Damping Code

- M = Damping, tension only
  - N = Damping, compression only
  - P = Damping, both directions
  - X = Special model
- The end fittings are combinable.

If considering utilization of hydraulic dampers in parallel, please contact ACE.

### Technical Data

Self-contained and maintenance free.

**Mounting position:** can be mounted in any position

**Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved.

The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

**Mechanical stop:** required 1 to 1.5 mm before end of stroke

**Temperature range:** -22° to +176°F (-30° to +80°C), with special seals up to 248°F (120°C)

**Fluid:** petroleum oil

**Minimum force:** 12 lbs (55 N)

**Maximum force:** 405 lbs (1,800 N)

**Material:** chrome steel piston rod, body: black anodized aluminum

**End fittings:** zinc plated steel

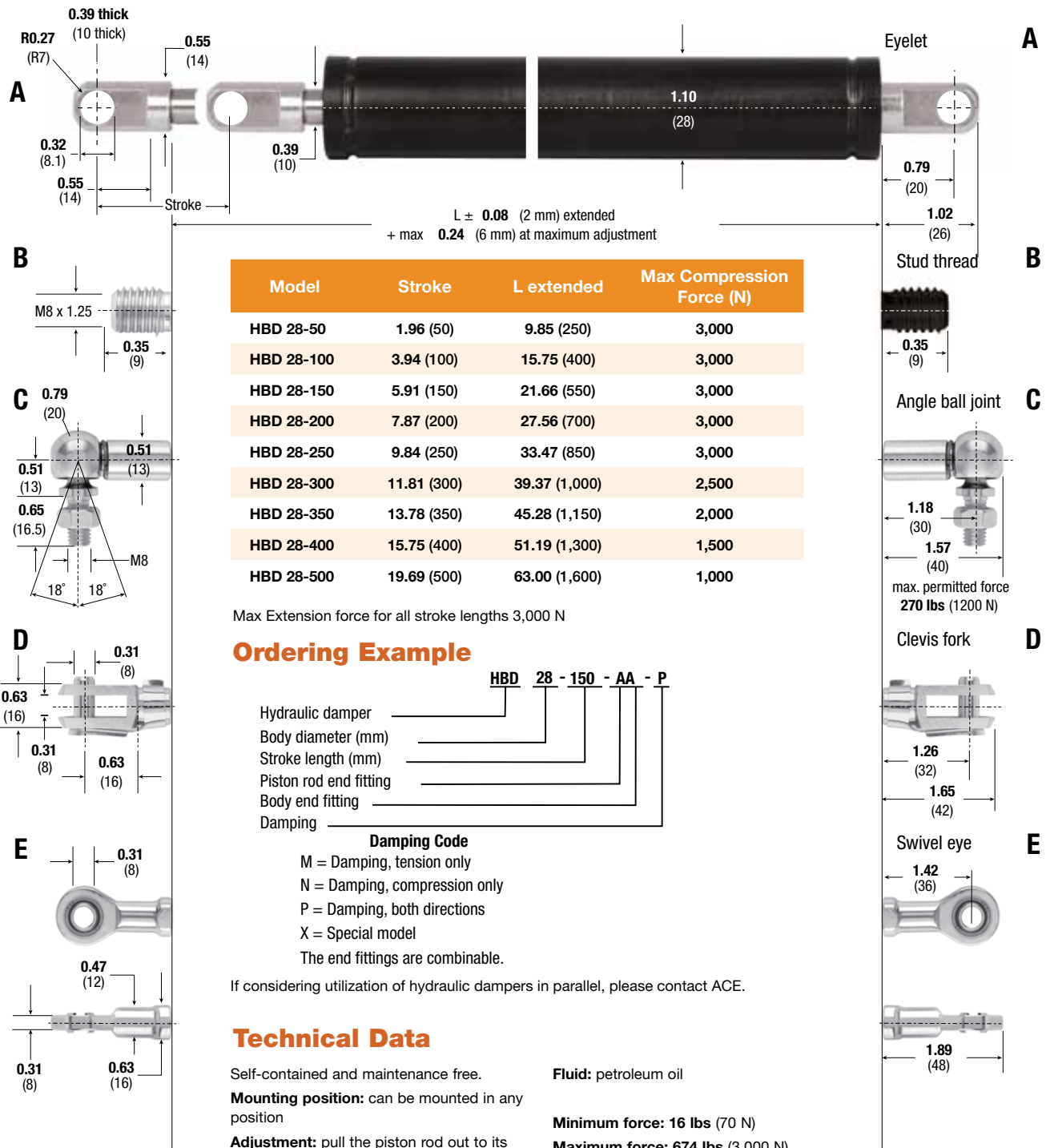
**Options:** stainless steel, units with other damping characteristics, other stroke lengths, alternative end fittings and protective rod sleeves

**Mounting brackets:** A end fitting adapts to mounting brackets GSB-03, GSB-04 and GSB-05. C end fitting, minus threaded stud adapts to GSB-06.

**See page 116 for mounting bracket information**

# Hydraulic Dampers Without Free Travel HBD 28

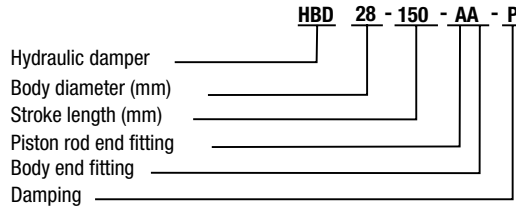
Dimensions in inches and (mm)



Model	Stroke	L extended	Max Compression Force (N)
HBD 28-50	1.96 (50)	9.85 (250)	3,000
HBD 28-100	3.94 (100)	15.75 (400)	3,000
HBD 28-150	5.91 (150)	21.66 (550)	3,000
HBD 28-200	7.87 (200)	27.56 (700)	3,000
HBD 28-250	9.84 (250)	33.47 (850)	3,000
HBD 28-300	11.81 (300)	39.37 (1,000)	2,500
HBD 28-350	13.78 (350)	45.28 (1,150)	2,000
HBD 28-400	15.75 (400)	51.19 (1,300)	1,500
HBD 28-500	19.69 (500)	63.00 (1,600)	1,000

Max Extension force for all stroke lengths 3,000 N

## Ordering Example



### Damping Code

- M = Damping, tension only
  - N = Damping, compression only
  - P = Damping, both directions
  - X = Special model
- The end fittings are combinable.

If considering utilization of hydraulic dampers in parallel, please contact ACE.

## Technical Data

Self-contained and maintenance free.

Fluid: petroleum oil

**Mounting position:** can be mounted in any position

**Minimum force:** 16 lbs (70 N)

**Maximum force:** 674 lbs (3,000 N)

**Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved.

**Material:** chrome steel piston rod, body: black anodized aluminum

The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

**End fittings:** zinc plated steel

**Options:** stainless steel, units with other damping characteristics, other stroke lengths, alternative end fittings and protective rod sleeves

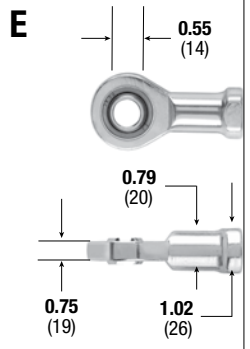
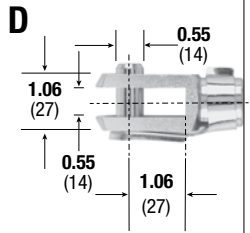
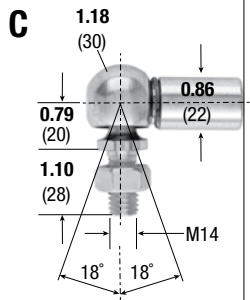
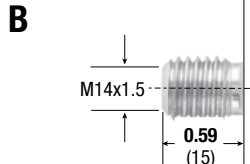
**Mechanical stop:** required 1 to 1.5 mm before end of stroke

**Mounting brackets:** A end fitting adapts to mounting brackets GSB-03, GSB-04 and GSB-05. C end fitting, minus threaded stud adapts to GSB-06.

**Temperature range:** -22° to +176°F (-30° to +80°C), with special seals up to 248°F (120°C)

**See page 116 for mounting bracket information**

Dimensions in inches and (mm)

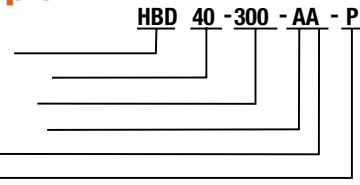


Model	Stroke	L extended	Max Compression Force (N)
HBD 40-100	3.94 (100)	16.93 (430)	10,000
HBD 40-150	5.91 (150)	22.83 (580)	10,000
HBD 40-200	7.87 (200)	28.74 (730)	10,000
HBD 40-300	11.81 (300)	40.55 (1,030)	10,000
HBD 40-400	15.75 (400)	52.36 (1,330)	8,000
HBD 40-500	19.69 (500)	64.17 (1,630)	6,000
HBD 40-600	23.62 (600)	75.98 (1,930)	4,000
HBD 40-700	27.56 (700)	87.80 (2,230)	3,000
HBD 40-800	31.50 (800)	99.61 (2,530)	2,000

Max Extension force for all stroke lengths 10,000 N

### Ordering Example

Hydraulic damper  
Body diameter (mm)  
Stroke length (mm)  
Piston rod end fitting  
Body end fitting  
Damping



#### Damping Code

- M = Damping, tension only
  - N = Damping, compression only
  - P = Damping, both directions
  - X = Special model
- The end fittings are combinable.

If considering utilization of hydraulic dampers in parallel, please contact ACE.

### Technical Data

Self-contained and maintenance free.

**Mounting position:** can be mounted in any position

**Adjustment:** pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

**Mechanical stop:** required 1 to 1.5 mm before end of stroke

**Temperature range:** -22° to +176°F (-30° to +80°C), with special seals up to 248°F (120°C)

**Fluid:** petroleum oil

**Minimum force:** 18 lbs (80 N)

**Maximum force:** 2,248 lbs (10,000 N)

**Material:** chrome steel piston rod, body: black anodized aluminum

**End fittings:** zinc plated steel

**Options:** stainless steel, units with other damping characteristics, other stroke lengths, alternative end fittings and protective rod sleeves

**Mounting bracket:** A and E end fittings adapt to mounting bracket ME14.

**See page 116 for mounting bracket information**

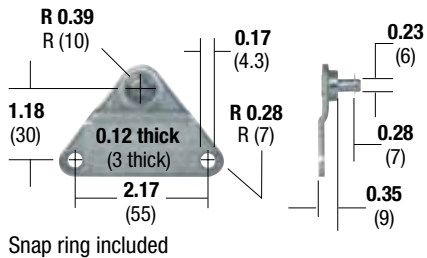
# Mounting Brackets for Gas Springs & Hydraulic Dampers

Dimensions in inches and (mm)

Material: zinc plated steel

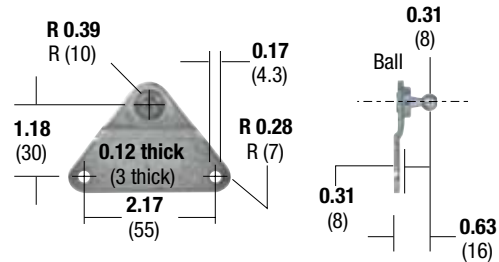
## GSB-01

max. force **112 lbs** (500 N)



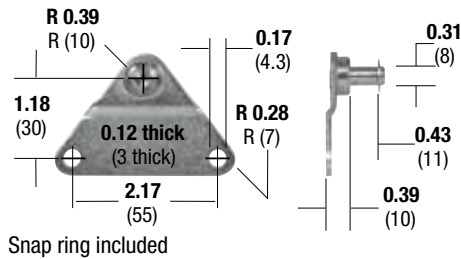
## GSB-02

max. force **112 lbs** (500 N)



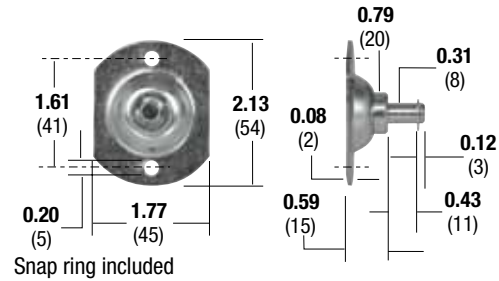
## GSB-03

max. force **270 lbs** (1200 N)



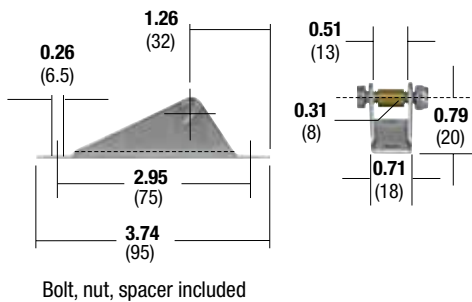
## GSB-04

max. force **270 lbs** (1200 N)



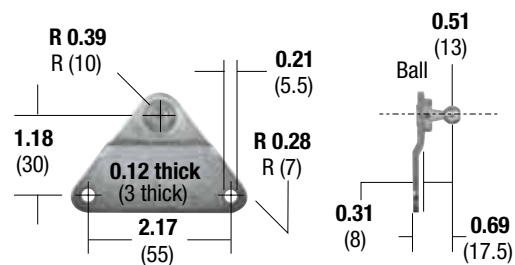
## GSB-05

max. force **405 lbs** (1800 N)



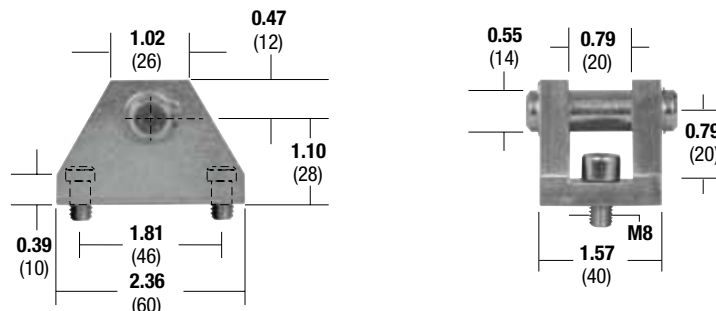
## GSB-06

max. force **270 lbs** (1200 N)



## ME14

max. force **2,248 lbs** (10,000 N)



See individual model pages for specific information on the correct end fittings for each mounting bracket.

**Mounting brackets are identical to those on page 105.**