Enidine's Heavy Industry (HI) Series buffers safely protect heavy machinery and equipment during the transfer of materials and movement of products. The large-bore, high-capacity buffers are individually designed to decelerate moving loads under various conditions and in compliance with industry mandated safety standards. Control of bridge cranes, trolley platforms, large container transfer and transportation safety stops are typical installations. Industry-proven design technologies, coupled with the experience of a globally installed product base, ensure deliverable performance that exceeds customer expectations.

The oversize bore area results in optimal energy absorption capabilities and increased internal safety factors. State-of-the-art testing facilities ensure integrity of design and product performance.

Features and Benefits

- *Compact design smoothly and safely decelerates large energy capacity loads up to 500 kNm per cycle with standard stroke lengths.*
- *Engineered to meet OSHA, AISE, CMMA and other safety specifications such as DIN and FEM.*
- *Nitrogen-charged return system allows for soft deceleration and positive return in a maintenance-free package.*
- *Wide variety of optional configurations including protective bellows and safety cables.*
- *Available in custom-orificed non-adjustable models.*
- *Incorporating optional fluids and seal packages available to expand standard operating temperature range from (-20°C to 80°C) to (-30°C to 80°C).*
- *Surface treatment (Sea water resistant)*
  Housing: gray color-three part epoxy
  Piston Rod: hard-chrome plated steel
- *Special epoxy painting and rod materials are available for use in highly corrosive environments.*

HI Series buffer models can decelerate loads with varying velocities from 0,15 m/sec to 5,0 m/sec.

All models are custom-orificed for specific application requirements.

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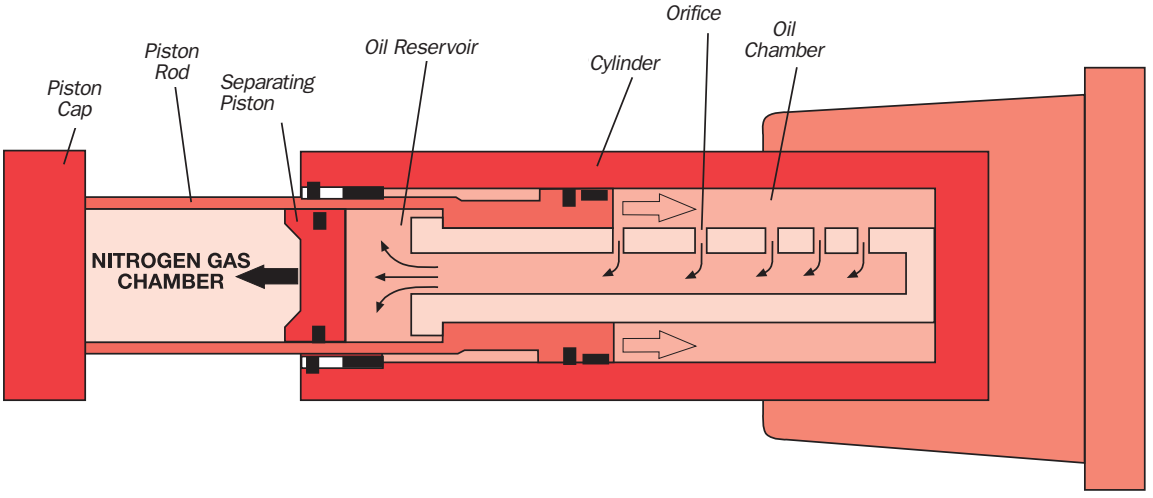
Heavy Industry (HI) Series Buffers

Enidine's Heavy Industry Series (HI) buffers safely protect heavy machinery and equipment during the transfer of materials and movement of products. The large-bore, high-capacity buffers are individually designed to decelerate moving loads under various conditions and in compliance with industry mandated safety standards. Control of bridge cranes, trolley platforms, large container transfer and transportation safety stops are typical installation examples. Industry-proven design technologies, coupled with the experience of a globally installed product base, ensure deliverable performance that exceeds customer expectations.

Prior to HI Series buffer manufacture, computer-simulated response curves are generated to model actual conditions, verify product performance, confirm damping characteristics and generate unique custom-orificed designs that accommodate multi-condition or specific damping requirements.

Characteristics of the HI Series include a nitrogen-charged return system that allows for soft deceleration and positive return in a maintenance-free package. The oversize bore area results in optimal energy absorption capabilities and increased internal safety factors. State-of-the-art testing facilities ensure integrity of design and product performance.



Design Overview

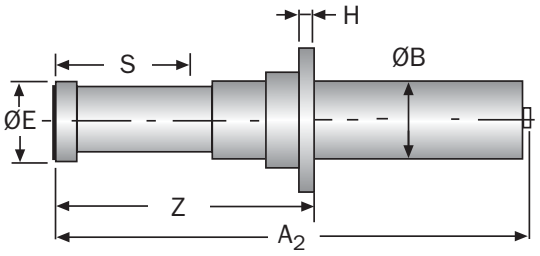
The HI Series buffer design incorporates the proven damping system of multiple orifice patterns drilled down the shock tube length, for precise deceleration profiles, coupled with a nitrogen return system for controlled extension of the piston rod to its original position.

During piston movement, oil is forced through the orifice pattern into the oil reservoir chamber. This controlled movement of a piston head by decreasing the orifice area results in precise decay of impact velocity and safe deceleration of the moving load. The oil volume evacuated from the high pressure chamber moves the separating piston, compensating for the oil differential within the unit.

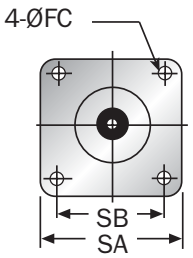
Extension of the piston rod for the next impact is accomplished by the force created from the compressed nitrogen chamber, which acts as both a oil volume compensator, and return force mechanism. The pressure created pushes the fluid back into the oil chamber and creates a force to reposition the piston rod to the fully extended position, ready for the next impact sequence. The nitrogen return system enables the HI Series to be designed for the maximum energy absorption within the smallest envelope size.

HI Series

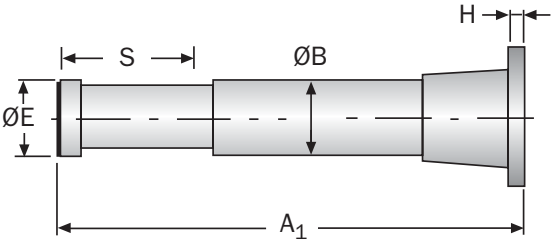
HI 100 x 50 → HI 120 x 1000



FF (Flange Front)



Mounting Flange

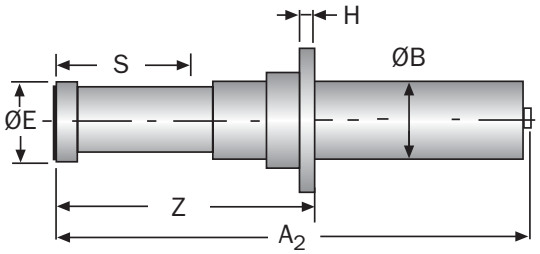


FR (Flange Rear)

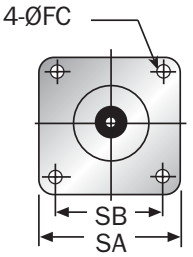
Model	S Stroke (mm)	Max. Energy/cycle (kNm)	Max. Shock Force (kN)	Return Force		Weight (kg)	A_1	A_2	Z	H	ØB	SA	SB	ØFC	Rec. BOLT SIZE	ØE
				Extension (kN)	Compression (kN)											
HI 100 x 50	50	10	250	1,65	18,0	16	302	301	175	20	100	150	120	18	M16	99
HI 100 x 100	100	20	250	1,65	18,0	22	479	473	245	20	100	150	120	18	M16	99
HI 100 x 150	150	30	250	1,65	18,0	28	618	612	300	20	100	150	120	18	M16	99
HI 100 x 200	200	40	250	1,65	18,0	32	756	750	390	20	100	150	120	18	M16	99
HI 100 x 500	500	94	235	1,65	18,0	52	–	1 616	890	20	100	150	120	18	M16	99
HI 100 x 600	600	112	230	1,65	18,0	58	–	1 888	1 040	20	100	150	120	18	M16	99
HI 100 x 800	800	132	205	1,65	18,0	69	–	2 426	1 345	20	100	150	120	18	M16	99
HI 120 x 100	100	32	400	2,8	50,0	34	471	467	270	20	120	220	170	26	M24	119
HI 120 x 150	150	48	400	2,8	50,0	39	597	593	330	20	120	220	170	26	M24	119
HI 120 x 200	200	64	400	2,8	50,0	43	724	720	390	20	120	220	170	26	M24	119
HI 120 x 300	300	94	400	2,8	50,0	53	973	969	520	20	120	220	170	26	M24	119
HI 120 x 400	400	125	400	2,8	50,0	87	1 225	1 221	680	25	120	220	170	26	M24	119
HI 120 x 600	600	188	400	2,8	50,0	105	–	1 725	915	25	120	220	170	26	M24	119
HI 120 x 800	800	225	350	2,8	50,0	100	–	2 332	1 290	25	120	220	170	26	M24	119
HI 120 x 1000	1 000	260	325	2,8	50,0	116	–	2 836	1 560	25	120	220	170	26	M24	119

All dimensions in millimeters.

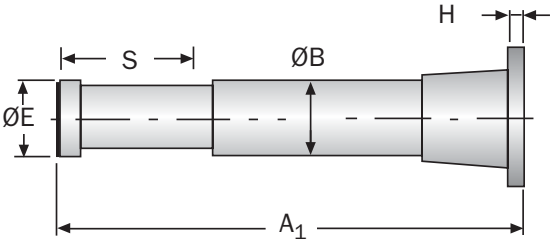
HI 130 x 250 → HI 150 x 1000



FF (Flange Front)



Mounting Flange



FR (Flange Rear)

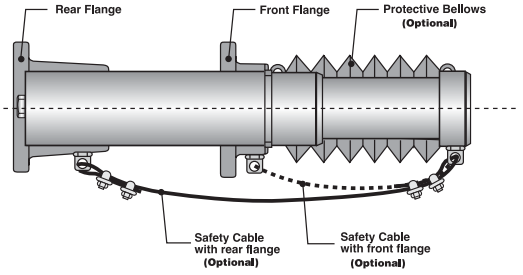
Model	S Stroke (mm)	Max. Energy/cycle (kNm)	Max. Shock Force (kN)	Return Force		Weight (kg)	A_1	A_2	Z	H	ØB	SA	SB	ØFC	Rec. BOLT SIZE	ØE
				Extension (kN)	Compression (kN)											
HI 130 x 250	250	100	500	3,2	64,0	72,0	897	893	545	25,0	130,0	270,0	210,0	18,0	M24	129,0
HI 130 x 300	300	120	500	3,2	64,0	79,0	1 029	1 025	605	25,0	130,0	270,0	210,0	18,0	M24	129,0
HI 130 x 400	400	160	500	3,2	64,0	90,0	1 293	1 289	735	25,0	130,0	270,0	210,0	18,0	M24	129,0
HI 130 x 600	600	209	435	3,2	64,0	119,0	–	1 917	1 060	25,0	130,0	270,0	210,0	26,0	M24	129,0
HI 130 x 800	800	270	420	3,2	64,0	140,0	–	2 445	1 350	25,0	130,0	270,0	210,0	26,0	M24	129,0
HI 150 x 115	115	62	670	5,0	96,0	56,0	517	513	320	20,0	150,0	270,0	210,0	26,0	M24	149,0
HI 150 x 150	150	82	670	5,0	96,0	59,0	606	602	355	20,0	150,0	270,0	210,0	26,0	M24	149,0
HI 150 x 400	400	220	670	5,0	96,0	98,0	1 249	1 245	710	25,0	150,0	270,0	210,0	26,0	M24	149,0
HI 150 x 500	500	275	670	5,0	96,0	110,0	–	1 498	770	25,0	150,0	270,0	210,0	26,0	M24	149,0
HI 150 x 600	600	300	670	5,0	96,0	120,0	–	1 752	875	25,0	150,0	270,0	210,0	26,0	M24	149,0
HI 150 x 800	800	448	700	5,0	96,0	165,0	–	2 306	1 240	35,0	150,0	270,0	210,0	26,0	M24	149,0
HI 150 x 1000	1 000	510	635	5,0	96,0	180,0	–	2 880	1 595	35,0	150,0	270,0	210,0	26,0	M24	149,0

All dimensions in millimeters.

HI SERIES

HI Series Ordering Information

Mounting bracket flange:
Standard: Rear or Front mount



Example:

4
Select quantity

HI 120 x 100
Select HI Series model from Engineering Data Chart

FR
Select mounting method
- FF (Flange Front)
- FR (Flange Rear)

B
Additional Options
- B Protective Bellows
- C Safety cable

APPLICATION DATA
Required for all models:
- Vertical/Horizontal Motion
- Weight
- Impact Velocity
- Propelling Force (if any)
- Cycles/Hour
- Temperature/Environment
- Applicable Standards