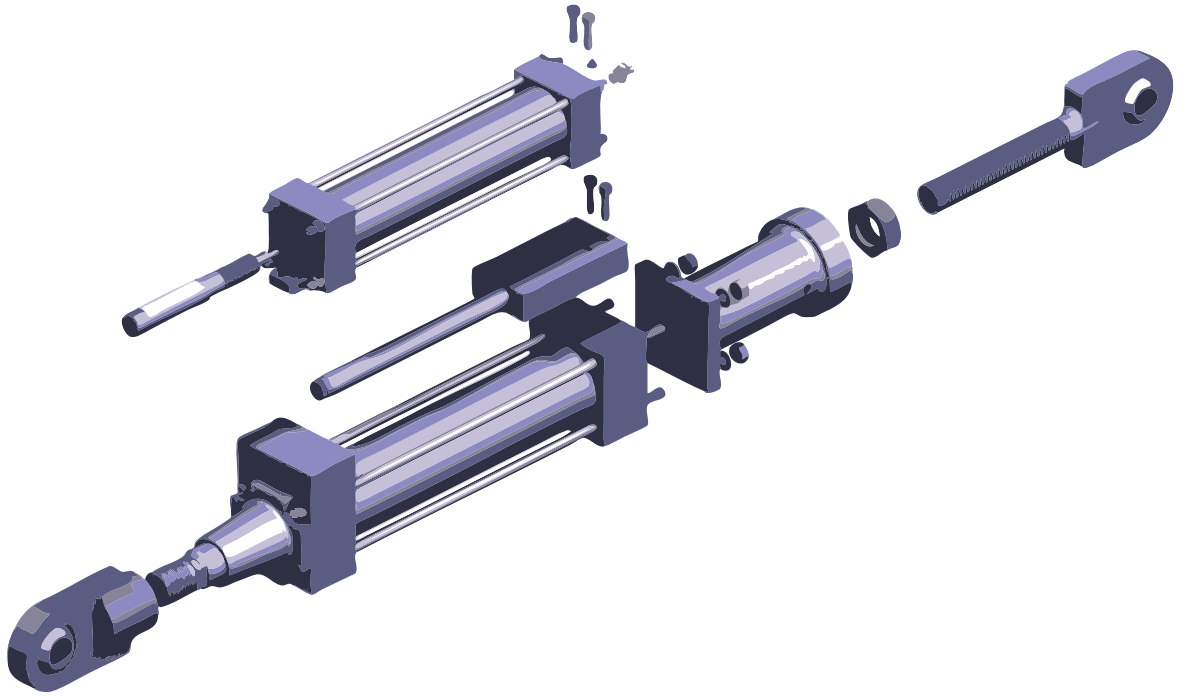
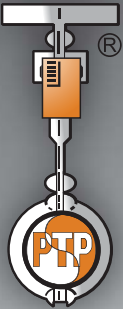


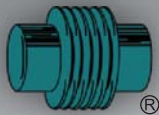
TECHNICAL BULLETIN



ENGINEERED PIPE SUPPORTS HYDRAULIC SNUBBERS



PIPING TECHNOLOGY & PRODUCTS, INC.



U.S. Bellows, Inc.



SWECO FAB



Pipe Shields Inc.



**Anchor/Darling
Enterprises, Inc.**

website: www.pipingtech.com

email: info@pipingtech.com

TECHNICAL BULLETIN

Hydraulic Snubber

Most hydraulic snubbers have a piston which is relatively unconstrained in motion at low displacement rates. At high displacement rates the piston “locks up”, that is, the force required to move the piston increases substantially, usually as a result of the closing of a valve.

Some of its feature includes:

- External pressurized hydraulic reservoir for positioning flexibility in any spatial orientation.
- Allows free thermal movement of piping under normal operations.
- Restrains shock loading, both in tension and compression.
- System’s movement is controlled by a flow control device.

Standard Sizes of PT&P Hydraulic Snubbers

Bore (in.)	Rod Diameter (in.)	Max Recom. Loads (lbs)
1.50	1	4396
2.00	1.00	7069
2.50	1.75	12370
3.25	2.00	20400
4.00	2.50	30483
5.00	2.00	49480
6.00	2.50	70097
8.00	3.50	121933

Application:

For use on piping systems or equipment when restrained thermal movement must be allowed, but which must be restrained during impulsive or cyclic disturbance. The unit is not effective against low amplitude, high frequency movement. Preferred usage, with standard settings, to prevent destructive results due to earthquakes, flow transients, or wind load. Special settings are available to absorb the continuous thrust resulting from safety valve blow-off or pipe rupture. For the most effective operation of the unit, please specify the mounting position, vertical or horizontal.

Size Range:

PT&P offers seven sizes with cylinder bores of 1 1/2 to 8 inches. These units have a normal load range of 3,000 lbs to 110,000 lbs. All are made to include reservoirs in 6, 10, 15, or 20 inch strokes, except the 1 1/2 inch size. The 1 1/2 inch size is offered in 6 & 10 inch strokes only. Snubbers, as they are sometime referred to, are available with remote reservoirs.

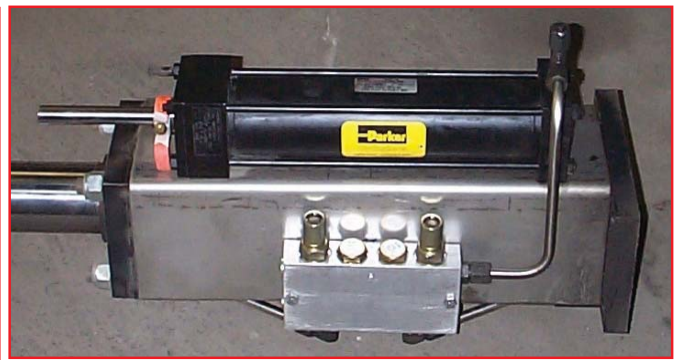
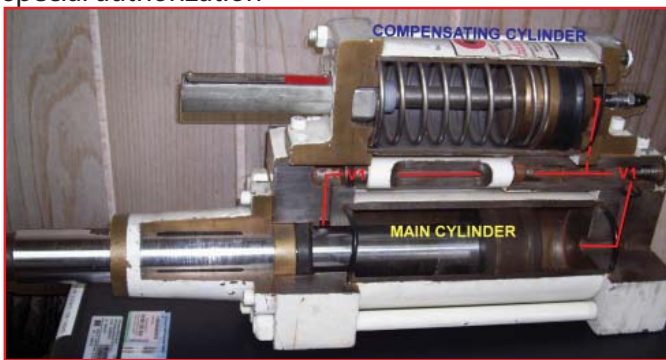
Ordering:

Please specify figure no., cylinder size, stroke, load, cold, and hot pistons settings, and piston end option. If clamp is required, please specify nominal pipe size, or special O.D. and clamp material. Specification or description of any additional optional features or special settings is required.

Dimensions

Cylinder Size	Stroke In.	A	B Min.	C Min.	C Max.	Max. Recom. Normal Load (Lbs)
1 1/2	5	2 1/6	1 5/8	15 1/2	20 1/2	300
	10			19 1/2	29 1/2	1250
2 1/2	5	2 1/2	2 1/4	15 7/8	20 7/8	12500
	10			19 1/2	29 1/2	
3 1/4	5	3 1/4	3	17 5/8	22 5/8	21000
	10			22 5/8	32 5/8	
4	5	4	3 3/4	19 1/2	24 1/2	23000
	10			24 1/2	34 1/2	
5	5	5 1/8	4 1/2	21	26	50000
	10			26	36	
6	5	5 3/4	5 1/2	23 5/8	28 5/8	72000
	10			28 5/8	38 5/8	
8	5	7 1/4	6	28 7/8	33 7/8	128000
	10			33 7/8	43 7/8	

*Loads must not be applied outside a 10° included angle cone of action to the pipe clamp axis w/o special authorization



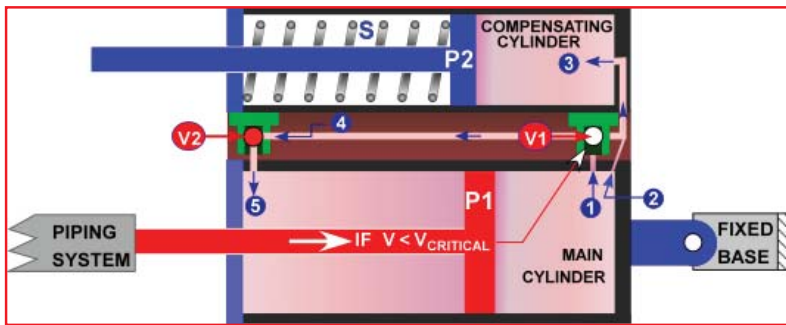
PT&P
Piping Technology & Products, Inc.

email: info@pipingtech.com
website: www.pipingtech.com

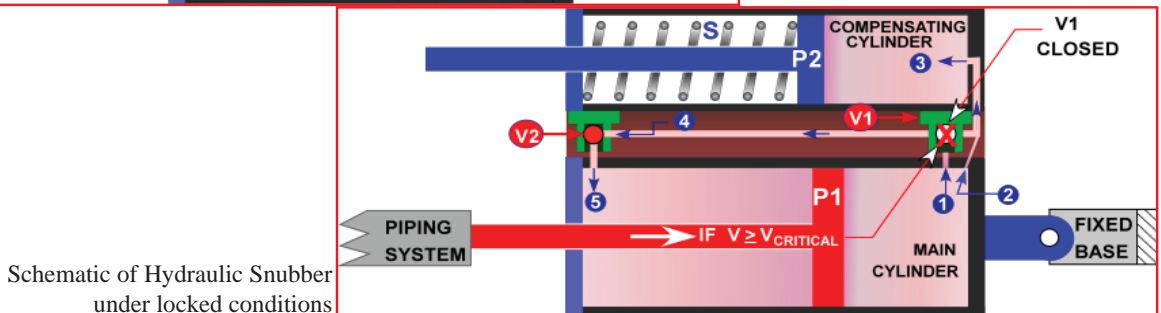
TECHNICAL BULLETIN

Dimensions

Pipe Size	1 1/2	2 1/2	3 1/4	4	5	6	8
3/4	2 7/16						
1	2 9/16						
1 1/4	2 11/16						
1 1/2	4 1/8						
2	5 1/8	5 1/16	6 3/8	6 3/8			
2 1/2	5 3/8	6 1/2	7	7 1/2	8 1/8		
3	5 15/16	7	7	7 1/2	8 3/8		
4	6 1/2	7	7 1/4	7 1/4	8 3/8		
5	7	7	7 3/4	7 3/4	9 1/8		
6	8 9/16	8 9/16	9 1/4	9 1/4	10	11	
8	9 9/16	9 9/16	10 1/8	10 1/8	11 1/4	12	
10	10 7/16	10 7/16	11 3/8	11 3/8	12 3/4	14 1/4	15
12		11 7/16	12 9/16	12 9/16	13 7/8	15	15 3/4
14		12 11/18	13 1/2	13 1/2	14 1/2	15	16 1/2
16		13 11/16	14 7/8	14 7/8	15 1/4	16	17 1/2
18		14 11/16	15 1/2	15 1/4	16 3/4	16 3/4	18 1/2
20		15 7/8	15 7/8	16 1/2			
24		17 7/8	17 7/8	19 5/16	20	22	22
30		23 3/8	23 3/8	23 3/4	24 1/4	25	26 1/4
36		28 3/4	28 3/4	28 3/4	30 3/4	32 3/4	32 3/4



Schematic of Hydraulic Snubber under normal conditions



Schematic of Hydraulic Snubber under locked conditions

Hydraulic Snubber Test Machine:

The Hydraulic Snubber test machine is mainly used to perform testing for hydraulic snubbers, it has a similar test bed to the STADAS machine, however, it is not computer controlled. It is adequate to perform all the tests normally required for hydraulic snubbers, such as quality control and periodic tests that are sometimes required as part of plant maintenance programs. Mechanical snubbers can also be tested on this machine, but due to the complication of the process, mechanical snubbers testing is usually performed on the STADAS machine.

