

# Shock Absorbers and Rate Controls



**ENIDINE**

Shock Absorbers and Rate Controls



ITT Enidine's **New PXR Series** non-adjustable hydraulic shock absorbers can accommodate varying energy conditions. This family of tamperproof shock absorbers provides consistent performance, cycle after cycle. Non-adjustable models are designed to absorb maximum energy within a compact envelope size.

The **PXR Series** was designed using materials that are safe for our environment. Models can accommodate a wide range of operating conditions with varying masses or propelling forces. The **PXR Series** offers a flexible design to accommodate a wide variety of application parameters. Whether your application has a low velocity/high drive force or high velocity/low drive force condition, the **New PXR Series** will deliver the performance that you have come to expect.

## Features and Benefits

- **Extensive non-adjustable product line** offers flexibility in both size and energy absorption capacity to fulfill a wide range of application requirements.
- **RoHS compliant nickel plated steel body.**
- **Jam Nut included** with every shock absorber.
- **ISO quality standards** result in reliable, long-life operation.
- **Button model supplied** with a larger diameter, more durable button than standard.
- **Tamperproof design** ensures repeatable performance.
- **Threaded cylinders provide mounting flexibility** and increase surface area for improved heat dissipation.
- **Wrench flats** promote ease of mounting
- **Capability to mount into pressure chambers** up to 100 psi (7 bar).
- **Integrated positive stopping capabilities**
- **Special materials and finishes** can be designed to meet specific customer requirements
  - Optional fluids and seal packages can expand the standard operating temperature range from (15°F to 180°F) to (-30°F to 210°F)
  - Food grade options available

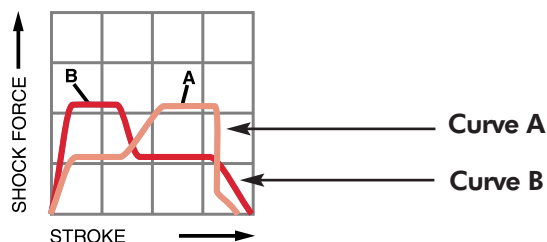
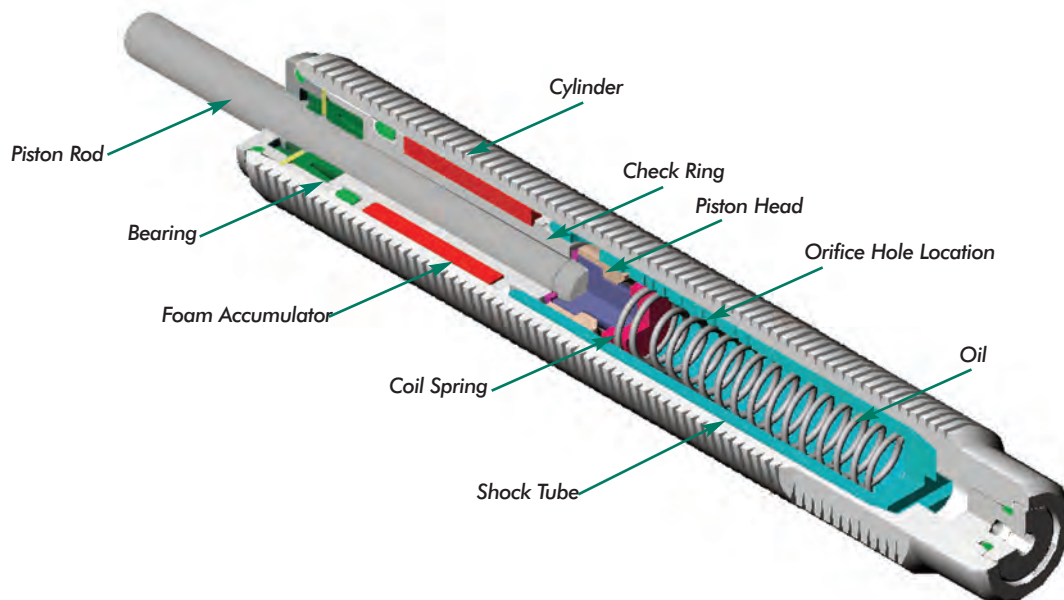
# Non-Adjustable Series Hydraulic Shock Absorbers

PXR Series

Overview

## ITT Enidine Non-Adjustable Multiple Orifice Shock Absorbers

Non-Adjustable Series



**Self-compensating damping** maintains acceptable deceleration with conventional type damping characteristics. Self-compensating shock absorbers operate over a wide range of weights and velocities. These shock absorbers are well suited for high drive force, low velocity applications, and where energy conditions may change. **Curve A** shows the *shock force vs. stroke* curve of a self-compensating shock absorber impacted with a low velocity and high drive force. **Curve B** shows the *shock force vs. stroke* curve of a self-compensating shock absorber impacted with a high velocity and low drive force.

The design of a multi-orifice shock absorber features a double cylinder arrangement with space between the concentric shock tube and cylinder, and a series of orifice holes drilled down the length of the shock tube wall.

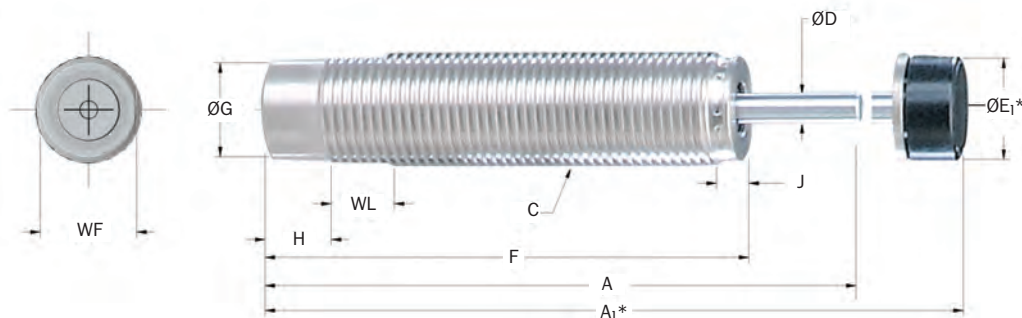
During piston movement, the check ring is seated and oil is forced through the orifices in the shock tube wall, into the closed cellular foam accumulator and behind the piston head.

As the piston head moves it closes off orifice holes, thus reducing the available orifice area in proportion to the velocity. After the load is removed the coil spring pushes the piston rod outward. This unseats the check ring and permits the oil to flow from the accumulator and across the piston head, back into the shock tube. This allows quick repositioning for the next impact.

Multiple orifice shock absorbers can provide progressive or self-compensating damping, depending on the impact conditions.

### Standard

PXR 25 → PXR 100 Series



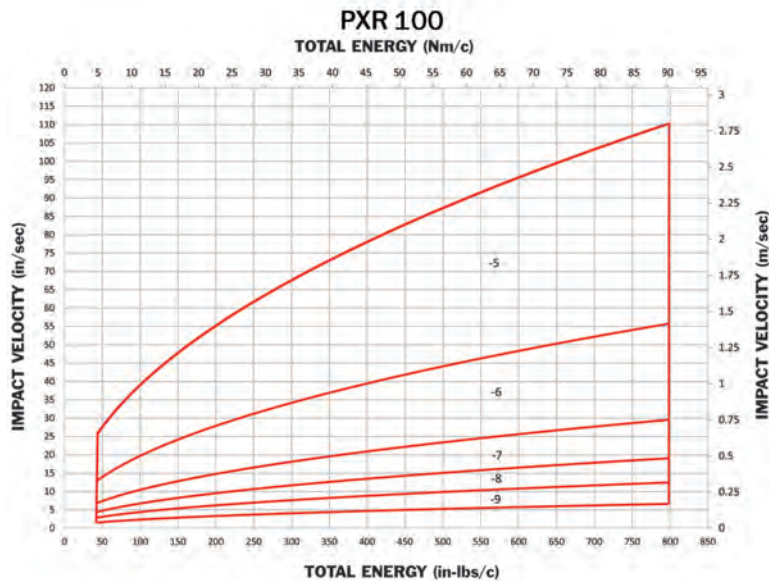
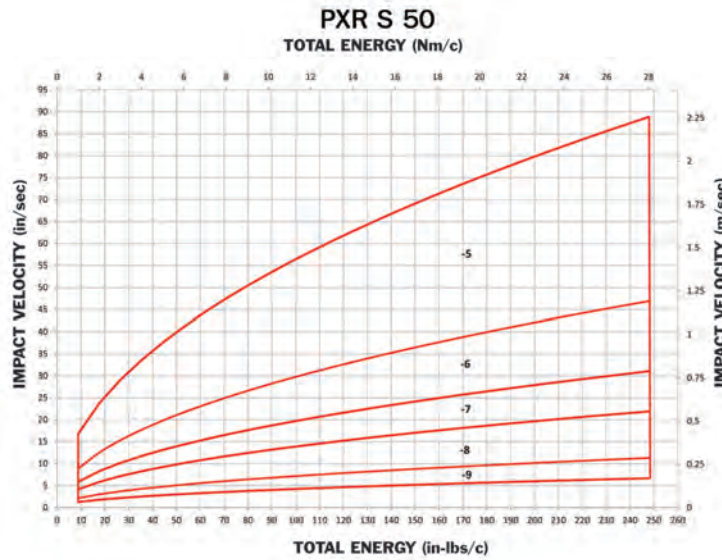
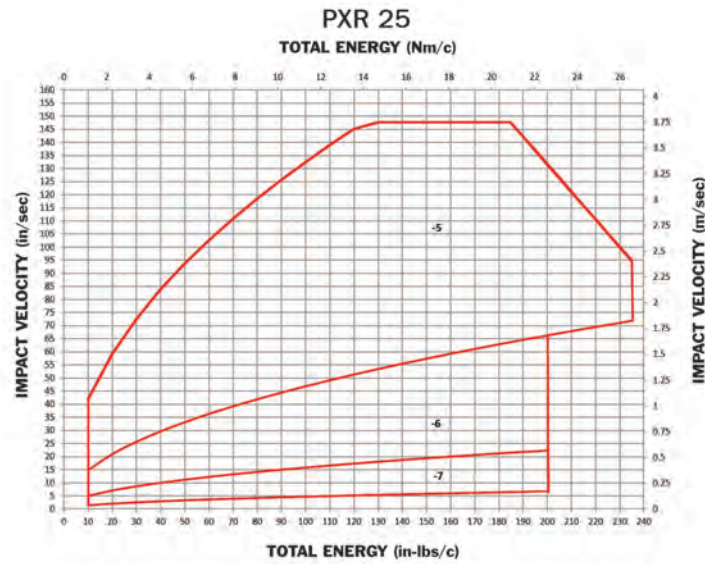
\*Note: A<sub>1</sub> and E<sub>1</sub> apply to button models and urethane striker cap accessory. One Hex Jam Nut included with every shock absorber.

Catalog No./ Model	(S) Stroke in. (mm)	(E <sub>T</sub> ) Max. in.-lbs./cycle (Nm/cycle)	(E <sub>T</sub> E) Emergency Max. in.-lbs./cycle (Nm/cycle)	(E <sub>T</sub> C) Max. in.-lbs./hour (Nm/h)	(F <sub>P</sub> ) Max. Reaction Force lbs. (N)	Nominal Coil Spring Force		(F <sub>D</sub> ) Max. Propelling Force lbs. (N)	Model Weight oz. (g)
						Extended lbs. (N)	Compressed lbs. (N)		
PXR 25 (B)	0.63 (16,0)	265 (30,0)	500 (56)	389,000 (44 000)	625 (2 800)	1.0 (4,5)	2.5 (11,0)	200 (890)	2.4 (68)
PXR S 50 (B)	0.50 (12,7)	285 (32,0)	560 (63)	440,000 (49 720)	850 (3 750)	1.5 (6,0)	3.5 (15,0)	360 (1 600)	3.0 (69)
PXR 100 (B)	1.00 (25,0)	930 (105,0)	2210 (250)	681,500 (77 000)	1,250 (5 500)	3.0 (13,0)	6.0 (27,0)	500 (2 200)	10.5 (297)

\*Notes: Maximum energy rating for emergency use only. Estimated cycle life of 1-5 cycles if used at maximum emergency rating.

Catalog No./ Model	Damping Constant	A in. (mm)	A <sub>1</sub> in. (mm)	C in. (mm)	D in. (mm)	E <sub>1</sub> in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	WF in. (mm)	WL in. (mm)
PXR 25 IF (B)	-5,-6,-7			½ - 20 UNF							.44	
PXR 25 MF (B)	-5,-6,-7	3.84	4.22	M14 x 1,0	.16	.44	3.20	.43	.30	.04	(12,0)	.50
PXR 25 IC (B)	-5,-6,-7			¾ - 18 UNF	(4,0)	(11,2)	(81,3)	(10,9)	(7,6)	(1,0)	.50	(12,7)
PXR 25 MC (B)	-5,-6,-7			M14 x 1,5							(12,0)	
PXR S 50 IF (B)	-5,-6,-7,-8,-9	3.46	3.93	¾ - 16 UNF	.19	.66	2.93	.64	.30	.04	.69	.50
PXR S 50 MC (B)	-5,-6,-7,-8,-9	(87,9)	(99,9)	M20 x 1,5	(4,8)	(16,8)	(74,4)	(16,3)	(7,6)	(1,0)	(18,0)	(12,7)
PXR 100 IF (B)	-5,-6,-7,-8,-9			1-12 UNF								
PXR 100 MF (B)	-5,-6,-7,-8,-9	5.07	5.57	M25 x 1,5	.25	.88	4.04	.87	.50	.18	.88	.50
PXR 100 MC (B)	-5,-6,-7,-8,-9	(128,8)	(141,5)	M27 x 3,0	(6,4)	(22,2)	(102,6)	(22,0)	(12,7)	(4,4)	(22,8)	(12,7)

Notes: 1. See page 60 for damping constant curves.

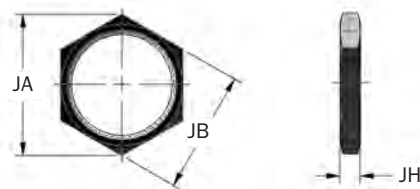


Note: Minimum impact velocity for PXR models is 4 in./sec. (0,1 m/sec).

PXR 25 → PXR 100 Series

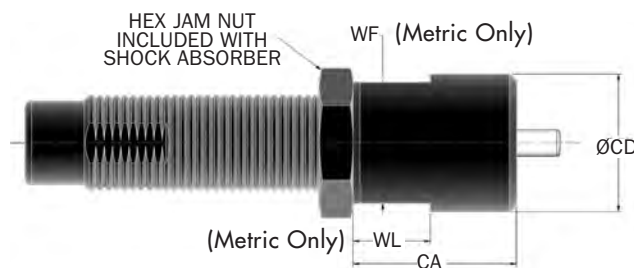
### Jam Nut (JN)

\*Note: One Hex Jam Nut included with every shock absorber.



Catalog No./ Model	PXR Series Part Number	Model (Ref)	JA in. (mm)	JB in. (mm)	JH in. (mm)	Weight (mass) oz. (g)
JN 1/2 - 20	J123842166	PXR 25 IF (B)	0.72	0.63	.12	0.1
JN M14 x 1	J223842035	PXR 25 MF (B)	(19,7)	(17,0)	(4,0)	(3)
JN 9/16 - 18	J123842034	PXR 25 IC (B)	1.01	0.88	.31	0.6
JN M14 x 1,5	J223842165	PXR 25 MC (B)	(19,7)	(17,0)	(4,0)	(3)
JN 3/4 - 16	J123844034	PXR S 50 IF (B)	1.08	0.94	.18	0.3
JN M20 x 1,5	J223844035	PXR S 50 MC (B)	(27,7)	(24,0)	(4,6)	(7)
JN 1-12	J123846034	PXR 100 IF (B)	1.30	1.13	.18	0.5
JN M25 x 1,5	J223846035	PXR 100 MF (B)	(37,0)	(32,0)	(4,6)	(15)
JN M27 x 3	J124059034	PXR 100 MC (B)	(37,0)	(32,0)	(4,6)	(15)

### Stop Collar (SC)



Catalog No./ Model	PXR Series Part Number	Model (Ref)	CA in. (mm)	CD in. (mm)	WF in. (mm)	WL in. (mm)	Weight (mass) oz. (g)
SC 1/2 - 20	M923842057	PXR 25 IF (B)	1.00	0.75	—	—	1.0
SC M14 x 1	M923842058	PXR 25 MF (B)	(25,4)	(21,0)	(19,0)	(12,0)	(38)
SC 9/16 - 18	M923842199	PXR 25 IC (B)	1.00	0.69	—	—	1.0
SC M14 x 1,5	M923842171	PXR 25 MC (B)	(25,4)	(21,0)	(19,0)	(12,0)	(38)
SC 3/4 - 16	M923844057	PXR S 50 IF (B)	1.50	1.00	—	—	2.0
SC M20 x 1,5	M924057058	PXR S 50 MC (B)	(38,0)	(25,0)	(22,0)	(12,0)	(63)
SC 1-12	M923846057	PXR 100 IF (B)	1.75	1.50	—	—	8.0
SC M25 x 1,5	M923846171	PXR 100 MF (B)	(44,5)	(38,0)	(32,0)	(15,0)	(215)
SC M27 x 3	M923846170	PXR 100 MC (B)	(44,5)	(38,0)	(32,0)	(15,0)	(215)