

Air Shocker

The air shocker is a pneumatic piston type shock generator. Removes plugging due to bridging or adhesion of bulk material inside a hopper or chute.



XT316 Series



EMC-XT316-01A-UK

XT316 Series

Specifications

Model	XT316-30(B)	XT316-40(B)	XT316-63(B)	XT316-80(B)	XT316-100(B)
Bore size [mm]	30	40	63	80	100
Operating pressure [MPa]	0.4 to 0.6				
Impact energy [kgm] ^{*1}	0.05 to 0.07	0.17 to 0.31	0.45 to 0.75	1.0 to 1.8	2.2 to 4.0
Weight [kg] ^{*2}	2.5	4.4	11.2	15	33.5
Ambient and fluid temperatures [°C]	0 to 60				
Port size	Rc1/8				Rc3/8
Lubrication	Not required (Non-lube)				
Air consumption [L/cycles]	0.33	0.75	1.29	1.91	4

*1 The potential energy when impact is applied by SMC's test equipment is shown.

*2 Total weight including the mounting base and bolts

How to Order

XT316 - 40 B

Air shocker • • Base

Bore size	
30	30 mm
40	40 mm
63	63 mm
80	80 mm
100	100 mm

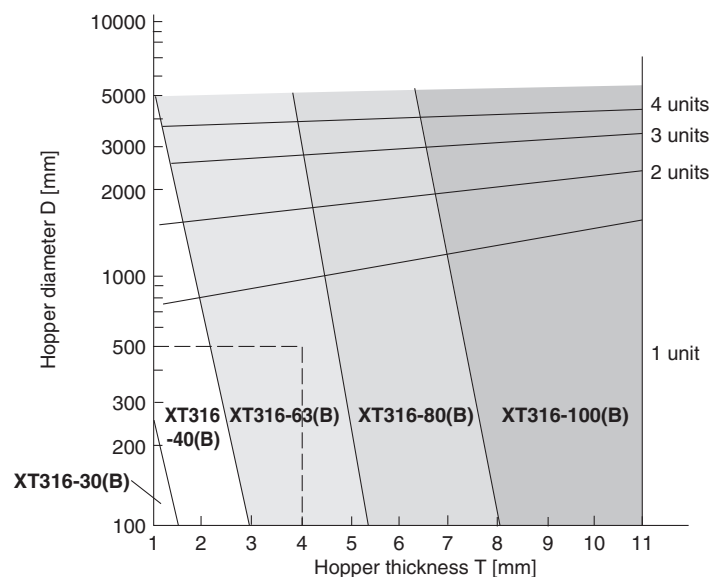
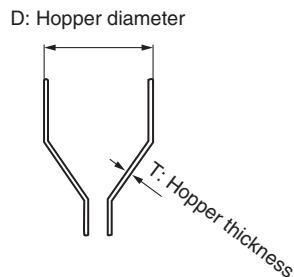
—	Without base
B	With base

Model Selection

Air shocker model selection depends on the type, shape, and size of the machine on which the air shocker is to be mounted as well as the degree of adhesion and clogging. Use the following chart as a guideline to select the model and number of air shockers.

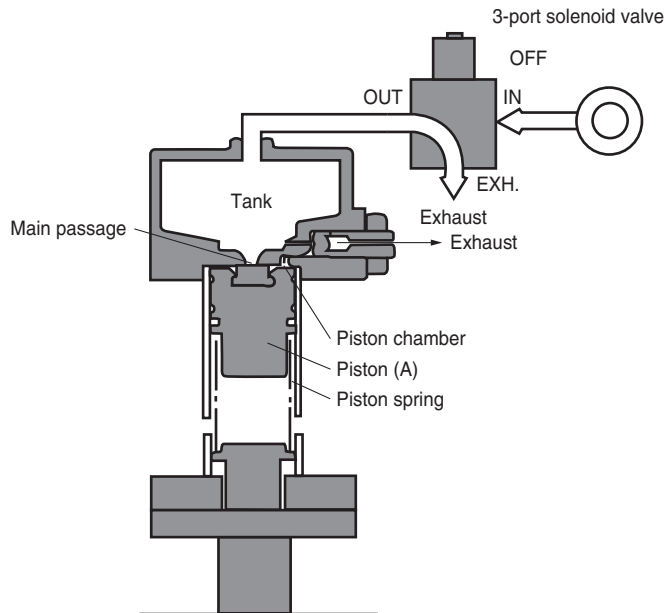
After confirming the effectiveness of the actual machine, add or reduce the number of air shockers accordingly.

Example) Suppose the diameter and thickness of the hopper are 500 mm and 4 mm, respectively. According to the intersection of the lines representing the diameter and thickness, one XT316-63(B) should be selected.



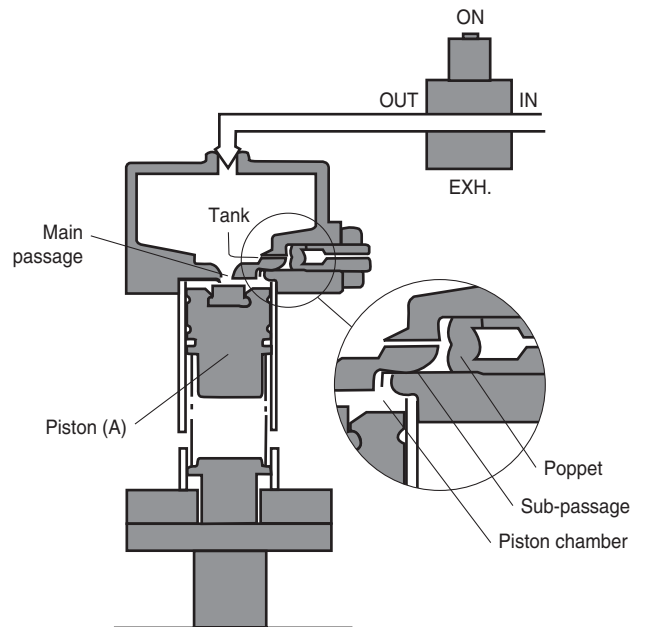
Construction and Working Principle

1. Initial condition



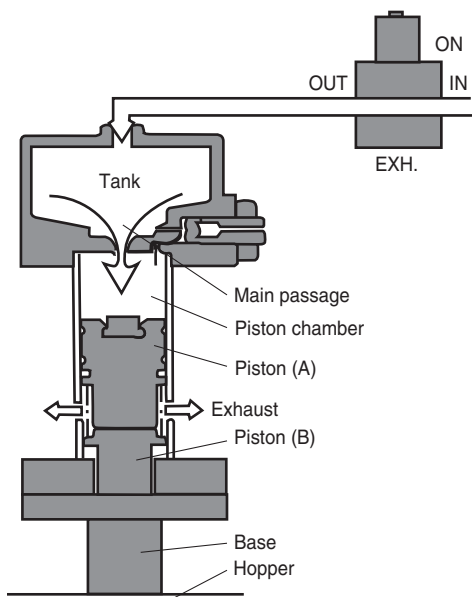
When the 3-port solenoid valve remains OFF, the tank and piston chamber are under atmospheric pressure, piston (A) is locked by a spring, and thus the main passage is closed.

2. Piston begins to move



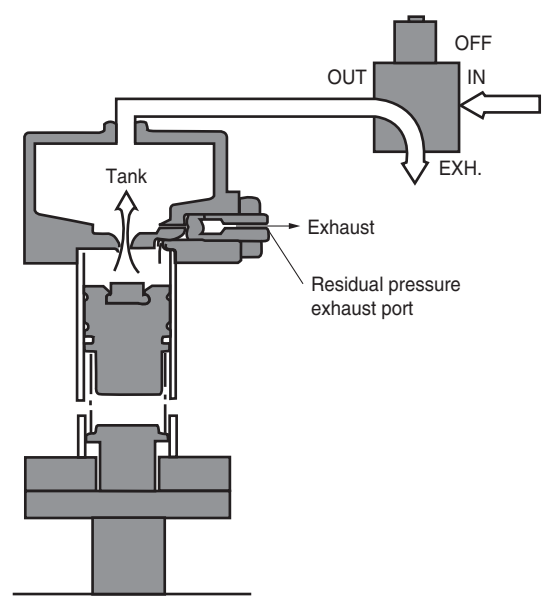
When the 3-port solenoid valve remains ON, air flows into the tank. When the pressure reaches the specified value, the poppet opens, the air passes through the sub-passage and flows into the piston chamber to move piston (A), and thus the main passage opens.

3. Impact



A large quantity of air accumulated in the tank flows through the main passage into the piston chamber. Then piston (A) moves at high speed to strike against piston (B), and thus vibration is transmitted through the base to the hopper.

4. Return



When the 3-port solenoid valve is turned OFF, the air inside the tank and cylinder is exhausted through the exhaust port of the solenoid valve and residual pressure exhaust port. Then piston (A) and poppet return to their initial condition.

