



Series 33BP

Sizes 50mm to 250mm

High Performance Combination Air Release & Vacuum Breaker Valve with Anti-Slam



- Automatically Protects Pipelines
- Easily Serviced Without Removal from Pipeline
- Pressure Sensitive Closing Orifice
- Corrosion Resistant Internal Parts
- Engineered For Lasting Service

Designed to protect pipelines from air lock and vacuum collapse, the Cla-Val Model 33BP Air Release and Vacuum Breaker Valve eliminates air and prevents vacuum formations in pipelines. A large venting orifice and large float clearances freely exhaust or admits air during pipeline filling or draining.

During normal pipeline operation, air accumulation and buoyancy cause the float ball to lower or lift. As the water level lowers inside the valve, small amounts of accumulated air are released through the small orifice. Once air is released, the patented float poppet system closes drip tight.

Valve servicing is simple because the entire float poppet system, can be replaced without removal of the valve body from the pipeline.

Typical Applications

- Water Transmission Pipeline High Points
- Water Treatment Plant Piping High Points
- Vertical Turbine Pump Discharge

Installation

Series 33BP Air Release and Vacuum Breaker Valves are typically installed at high points in pipelines for air release, or at anticipated pipeline vacuum occurrence locations. Install Series 33BP at regular intervals (approximately 1/2 mile) along uniform grade line pipe. Mount the unit in the vertical position on top of the pipeline, and include an isolation/shutoff valve.

Series 33BP is often installed upstream of check valves in pump discharges to vent air during start-up and to allow air reentry when the pump stops.

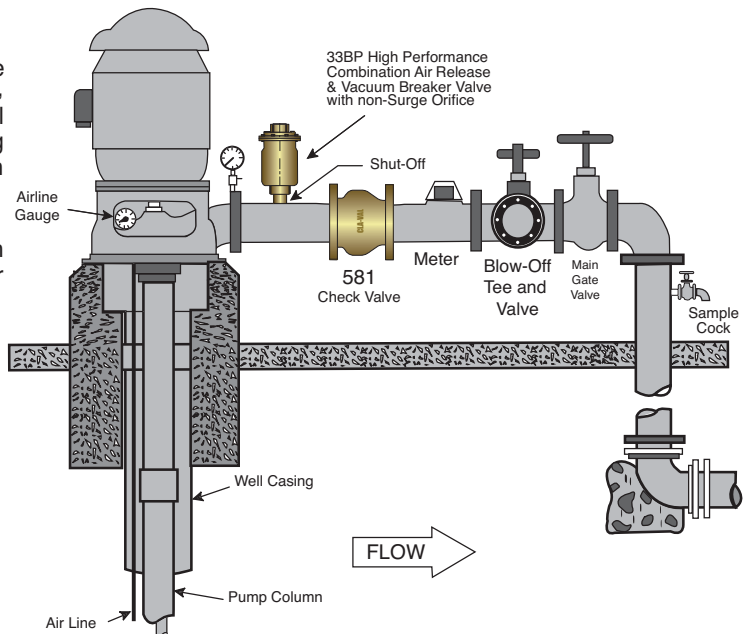
Operation

Air Release Mode—Valve is normally open.

When line is filled or pump started, air is exhausted through the normally open 33BP valve. With excessive air exhaust, the non-surge orifice closes. Air will continue to be exhausted through the non-surge orifice disc. The Anti-Slam float prevents the slam effect and therefore suppresses water hammer.

As liquid fills the valve, float ball rises to form a drip-tight closure and remaining air is exhausted through small orifice.

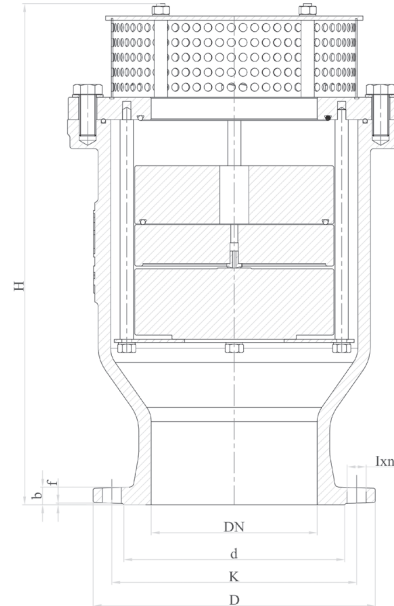
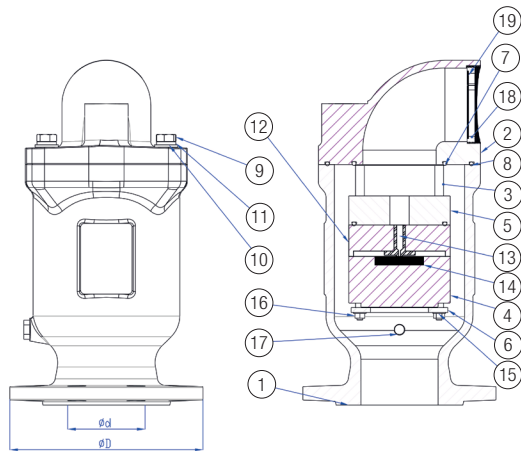
Vacuum Prevent Mode When line pressure drops below positive pressure and the liquid level lowers, the float drops, unseating the valve and allowing air into the line, thus preventing a vacuum.



MODEL 33BP Non-Slam Dynamic ARV Technical Details

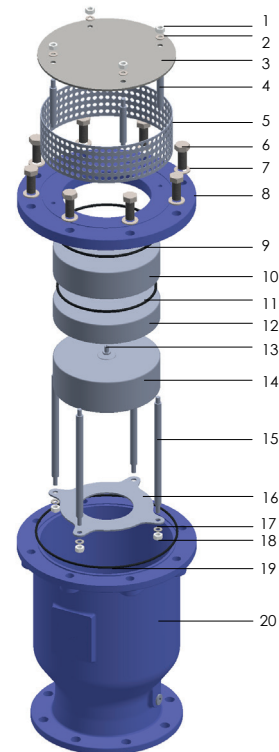
DIMENSIONS								
DN (mm)	PN	D	K	d	l x n	f	b	H
50	PN10	165	125	99	Ø19x4	3	19	300
80		200	160	132	Ø19x8	3	19	330
100	PN16	220	180	156	Ø19x8	3	19	375
150		285	240	211	Ø23x8	3	19	530
200	PN 16	340	295	266	Ø23x8	4	20	590
200	PN 10	340	295	266	Ø28x12	4	20	590
250	PN 16	400	355	319	Ø28x12	4	22	750
250	PN 10	400	350	319	Ø23x12	4	22	750

	H	ØD	Ød
DN50	306	165	50
DN80	357	200	80



MODEL 33BP Material List

NO	ITEM	MATERIALS
1	NUT	DIN 934
2	WASHER	DIN 125
3	UPPER COVER	STAINLESS STEEL
4	STUD	STAINLESS STEEL
5	FILTER	1.4301 STAINLESS STEEL
6	BOLT	DIN 933
7	WASHER	DIN 125
8	BONNET	STEEL
9	O-RING	NBR - EPDM
10	UPPER FLOAT	HDPE
11	O-RING	NBR - EPDM
12	MIDDLE FLOAT	HDPE
13	ORIFICE	1.4301 STAINLESS STEEL
14	LOWER FLOAT	HDPE
15	STUD	STAINLESS STEEL
16	FLANGE	1.4301 STAINLESS STEEL
17	WASHER	DIN 125
18	NUT	DIN 934
19	O-RING	NBR - EPDM
20	BODY	EN GJS 500 DUCTILE IRON



MODEL 33BP

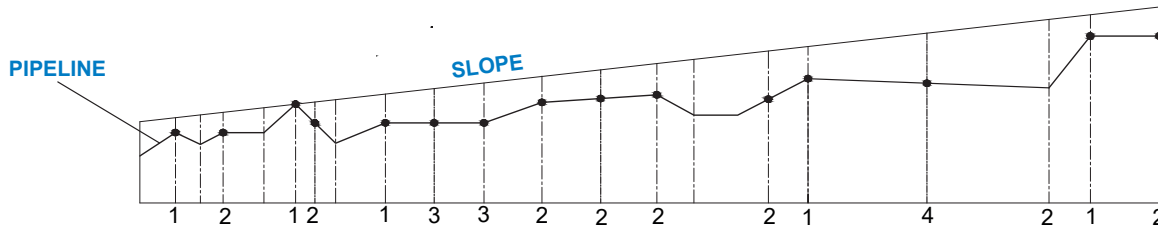
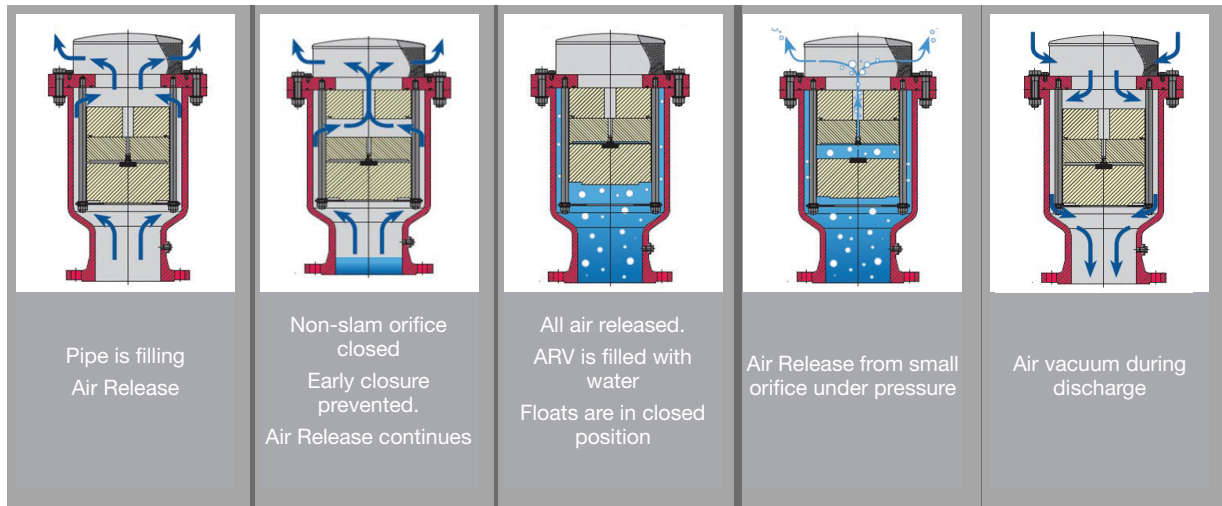
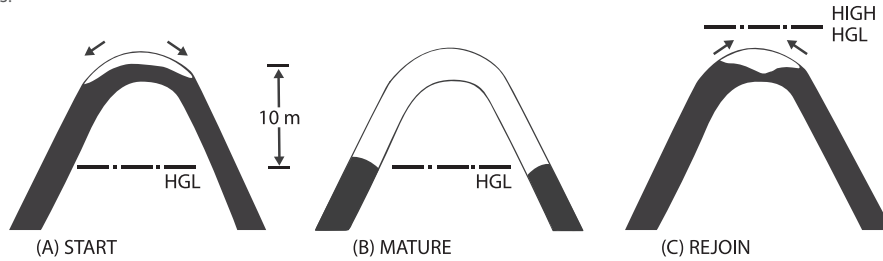
General Information About Arv's

Air vacuum and release is vital for the pipeline operation and safety. Many problems faced with the pipelines are actually related with the air left inside the pipe that cannot be released. Where does the air in the pipeline come from?

- Pipeline is already filled with air before filling with water.
- There exists 2% dissolved air in the water, which can vaporise by temperature change or pressure drop.
- Each pump absorbs a certain amount of air.
- Incorrect installations.

Effects of Air

- Air in the pipeline, narrows the filled water section and increases operating costs.
- Sometimes trapped air can stop the entire flow, depending on the nature of the pump



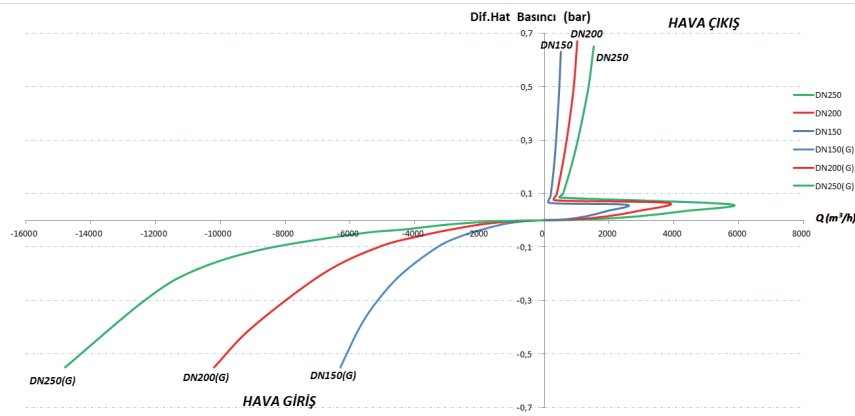
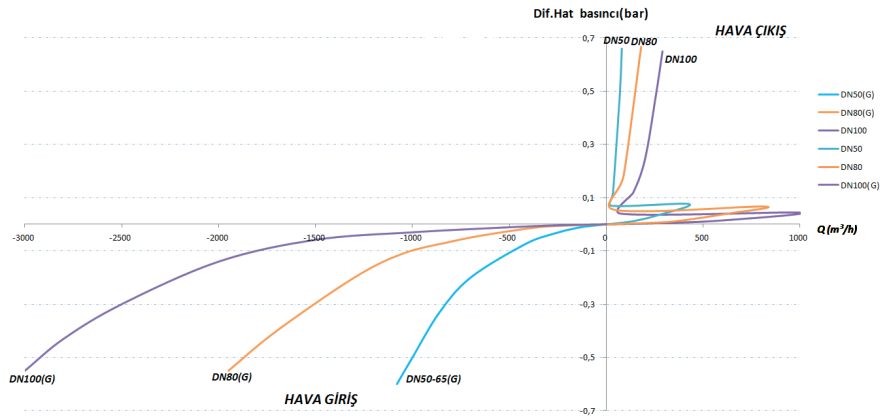
ARV Placement Position Suggestions ARV Application

1. Full peak points
2. Incase of increase in downward slope or decrease in upward slope.
3. At every 600 to 1000 mt. at long linear pipelines
4. At long sloping lines, maximum at every 600 mt.
5. At every 400-500 mt in water networks.

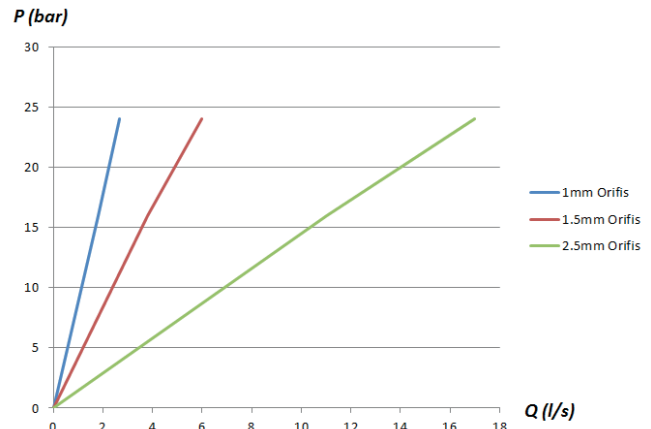
ARV placement interval alternative to Item 3 and 4; can be taken as PIPELINE DIAMETER DN (mm) X 1 (mt).

(DN1000 mm X 1mt. = 1000 mt)

MODEL 33BP - General Information about ARV's ARV Selection Criteria



ORIFICE SELECTION	
ARV Size	Orifice Size
DN50	1mm
DN65	1mm
DN80	1.5mm
DN100	1.5mm
DN150	1.5mm
DN200	2.5mm
DN250	2.5mm



ARV Factory Acceptance Test Requirements

1. Resistance Test
2. Hydrostatic Test
3. Low Pressure Sealing Test
4. Air Release
5. Air Release under pressure
6. Vacuum tests