



ÖZKAN

lead water to the next level

DOUBLE ORIFICE AIR RELEASE VALVES

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ÖZKAN .LEAD WATER TO THE NEXT LEVEL



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1. INTRODUCTION



- ÖZ-KAN Double Orifice Air release Valves can be used in well chambers, pumping stations, pipelines and high level reservoirs. ÖZ-KAN Double Orifice Air release valves cannot be used for waste water and sewage pipelines.
- Double Orifice Air Release Valves are vital equipment for pipelines. These valves discharge air from the pipeline while an empty line is being filled and take in air to the pipeline while the pipeline is being discharged. Also they discharge the small air pockets that get stuck in the pipeline under pressure.
- Double Orifice Air Release Valve prevents costly pipeline fractures by admitting air into the pipeline while the line is being discharged.
- These valves work with natural law for buoyancy and they do not need operators after the initial start up.
- These valves can be manufactured with or without the integral isolation valves.

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2. ASSEMBLY GUIDE & START UP INSTRUCTIONS

- Double Orifice Air Release Valves are connected to the pipelines at special points where the pipelines change direction, on top of hills, on pump outlets and at certain lengths on straight pipelines.
- Usually these valves are installed on Tees that are on the top side of the pipes.
- Valves should be thoroughly checked before installations to the pipeline. Although all valves are tested carefully before leaving the manufacturing area, this control should be made in case there are problems due to faulty transport and handling.

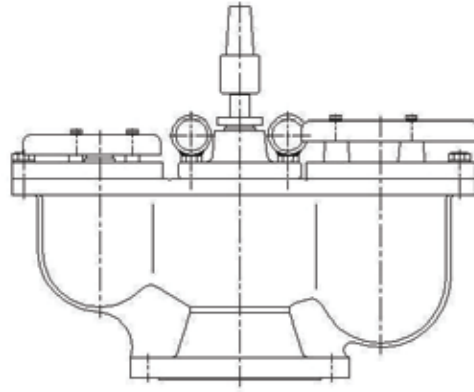
WARNING : Pipes both on the downstream and upstream sides of the valves should be carefully cleaned from all solid particles. Otherwise these particles will damage the resilient sealing ring on the initial filling of the pipeline.

- An isolation valve of the same diameter with the double orifice air release valve can be connected to the pipeline before connecting the air valve. This valve can be used to isolate the double orifice air release valve from the pipeline for removals and maintenance while the pipeline is in operation.
- After installing the isolation valve, the double orifice air release valve can be installed to the pipeline. Be sure the integral isolation valve of the double orifice air release valve is in closed position at this moment.
- Double orifice air release valve should be lifted with the help of lifting eyes that are on the top side of the valve.

WARNING : Only lift the valve from the lifting eyes. Using other connection points from lifting eyes may cause serious damage to the valve and it is extremely dangerous for the workers. Always check the weight of the valve and the crane capacity before lifting a valve. Never lift a valve that's weight is over the crane capacity.

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- Lift and place the double orifice air release valve on the isolation valve. Fasten the connection bolts and nuts. Only use the recommended size bolts and nuts for connection. Otherwise there may be leakage from flange connection.
- Open both the isolation valve(if installed between the double orifice air release valve and the pipeline) and the integral isolation valves. Double orifice air release valve is ready for operation.

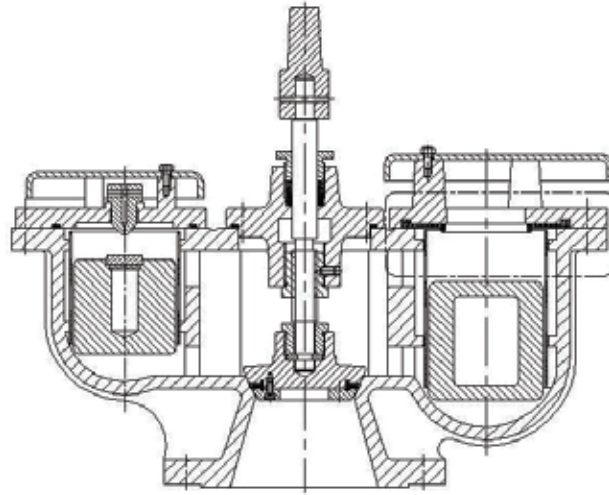
3. OPERATION

- Double Orifice Air release Valves do not require an operator. These valve work with natural law for buoyancy and they do not need operators after the initial start up.
- While an empty pipeline is being filled for the first time the double orifice air release valve floats are down at the bottom of the orifices. Valve discharges air freely at this moment. When water reaches and fills the orifice floats rise with the rising water in the orifice and close tightly on the sealing rings and stop water from coming out.
- The small air pockets that get stuck in the pipeline are collected in the small orifice chamber and where there is enough air in the chamber the float falls down a little and lets the air out. Float tightly seals the orifice with the rising water and does not let the water leak from the orifice.
- When discharging the pipeline floats fall down when the water leaves the valve chamber and admit air to the pipeline. This prevents the pipeline fractures.

IMPORTANT NOTICE : Integral isolation valve of the double orifice air release valve must be in open position all time while the pipeline is in operation. Otherwise the double orifice air release valve will not perform its function and lead to costly pipe breaks in case the line is discharged.

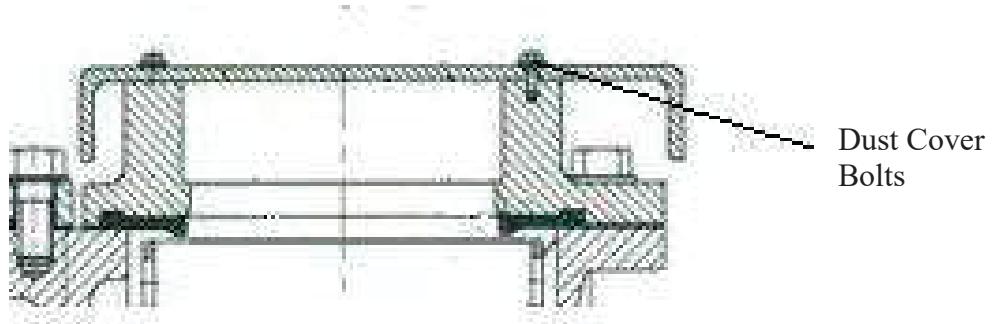
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4. MAINTENANCE & REPAIRS

- ÖZ-KAN Double Orifice air Release Valves are designed for maintenance free service.
- In case a double orifice air release valve leaks in operation, integral isolation valve should be closed. Leakage should stop after the integral isolation valve is closed tightly. After closing the integral isolation valve, bolts that are holding the dust cover of the leaking orifice should be loosened.

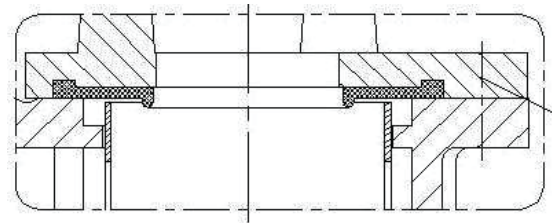


- After loosening the dust cover bolts, dust cover can be disassembled from the air valve. After disassembling the dust cover from the air valve, bolts that are holding the orifice cover in place should be loosened. Before loosening the bolts, integral isolation valve for the air should be checked. The integral isolation valve for the air

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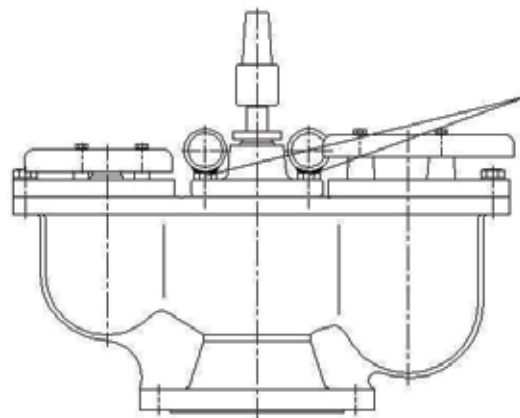
release valve should be closed through out the repairs that are performed on the air valve.



Dust Cover Bolts

WARNING : Never loosen any of the orifice cover bolts without closing the integral isolation valve of the air valve. Loosening the orifice cover bolts without closing the integral isolation valve may lead to serious injury and damage the valve.

- After loosening the orifice cover bolts, orifice cover can be disassembled easily. Once the orifice cover is replaced, reason for the leakage can be spotted very easily. Usually the cause for the leakage is a small solid particle that got stuck between the seal ring and the float. If this is the problem, this solid particle should be removed and the sealing ring on the orifice cover should be checked. In case sealing ring is damaged, it should be replaced with a new sealing.
- To prevent any problem such as the one mentioned above, pipeline should be thoroughly cleaned before the initial filling of the pipeline. Also strainers should be used in order to prevent solid particles to reach the vital points of the pipeline, such as pumps, valves and air valves.
- If the integral isolation valve is closed and the orifice is still leaking than the sealing ring of the integral isolation valve should be replaced. If an extra isolation valve is used under the double orifice air release valve in order to isolate the double orifice air release valve from the pipeline, this valve should be closed. If an extra isolation valve is not used that the pipeline around the double orifice air release valve should be depressurized and the upstream and downstream valves of the air valve should be closed.
- After closing the isolation valve under the air valve (if equipped) or depressurizing the pipeline and closing the downstream and upstream valves, loosen the bolts that are holding the integral isolation valve cover in place.



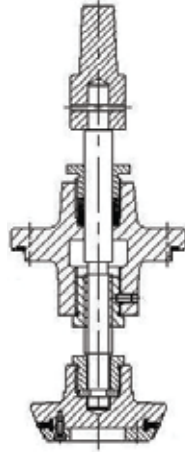
Integral Isolation Valve Cover Bolts

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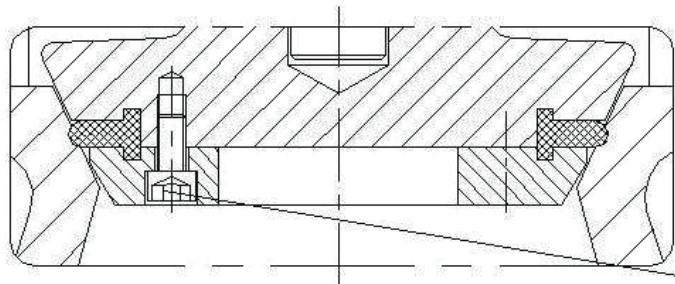
WARNING : Be sure that the double orifice air release valve is isolated from the pipeline, either by means of depressurizing the pipeline around the air valve and closing the downstream and upstream valves or by closing the isolation valve under the air valve (if installed). Failing to do so may cause serious injury and damage the equipment.

- After loosening the integral isolation valve cover bolts, remove the integral isolation valve cover from its place. Integral isolation valve cover, integral isolation valve spindle and the integral isolation valve are all installed together and they will be removed as a group.



Integral Isolation Valve, Integral Isolation Valve Spindle, Integral Isolation Valve Cover Group

- After removing the integral isolation valve cover, integral isolation valve spindle and the integral isolation valve group, damaged sealing ring of the integral isolation valve can be easily changed.
- In order to uninstall and replace the damaged sealing ring of the integral isolation valve, all the bolts that are holding the retaining ring of the integral isolation valve should be loosened. After loosening the bolts, the retaining ring should be uninstalled and the damaged sealing ring should be removed.



Retaining Ring Bolts

- After removing the damaged sealing ring, sealing ring grooves, both on the integral isolation valve and the retaining ring should be cleaned and the new sealing ring should be placed on the integral isolation valve groove.
- After placing the new sealing ring in place, the retaining ring should be placed in its place and the retaining ring bolts should be fastened crosswise.

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- After installing the sealing ring in to its place, the integral isolation valve cover, integral isolation valve spindle and the integral isolation valve group should be reinstalled in their space.

WARNING : The integral isolation valve cover, integral isolation valve spindle and the integral isolation valve group should be installed carefully. Avoid hitting the integral isolation valve spindle and the sealing ring to sharp edges. Failing to do so may damage the spindle and the new sealing ring.

- After carefully placing the integral isolation valve cover, integral isolation valve shaft and the integral isolation valve group back to its place, fasten all the bolts that are holding the integral isolation valve cover in its place. Open the integral isolation valve all the way up. Pressurize the pipeline around the double orifice air release valve or open the isolation valve under the double orifice air release valve (if installed.)
- If the coating gets damaged, damaged coating can be mended with touch-up paint for fusion bonded powder epoxy RAL5015. Damaged coating area should be cleaned from grease and rust before applying the touch-up paint. After completely cleaning the area from rust, grease and dust touch-up paint can be applied.

5. SHUT DOWN & DISASSEMBLY

- In case a double orifice air release valve should be disassembled from the pipeline, either the isolation valve under the double orifice air release valve should be closed (if installed) or the pipeline around the air valve should be depressurized and both the downstream and the upstream valves should be closed.
- Secure the double orifice air release valve that is going to be disassembled to a crane or a lifting equipment from the valve's lifting eyes before disassembly.

WARNING : Never lift a double orifice air release valve from a place other than the lifting eyes. This may cause serious injury and damage the air valve. Always check the weight of the equipment that is going to be lifted and the capacity of the lifting equipment that is going to be used. Never lift anything that exceeds the capacity of the lifting equipment. This may cause serious injury and damage the equipment.

- After closing the isolation valve (if installed) or depressurizing the pipeline around the air valve and closing the downstream and upstream valves, bolts and nuts connecting the air release valve to the isolation valve flange (if installed) or to the pipeline flange, should be loosened.

WARNING : While disassembling a double orifice air release valve from the pipeline, make sure the isolation valve is tightly closed (if installed) or the

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pipeline around the double orifice air release valve is depressurized and the downstream and upstream valves are closed and remain this way throughout the operation. Failing to do so may cause serious injury to the operators.

- After all the bolts and nuts are removed, air release valve can be removed from the pipeline. The isolation valve (if installed) should remain closed, until a new air release valve is installed. If an isolation valve is not installed, than the pipeline flange should be closed by means of a blank flange with the same pressure rating of the air valve.
- If the valve is going to be kept in stock for a while, it should be kept in a closed place and shielded from direct sun and hazardous environmental effects. Air valve should be kept on a wooden pallet. Valve should not be stocked on soil.

6. SPARE PARTS

- Resilient sealing rings that provide the orifice sealing and the sealing ring for the integral isolation valve can be supplied from ÖZ-KAN Center Office in Turkey in case they have to be changed.

OZ-KAN MAKINA ELEMENLARI SAN. ve TIC. LTD A. .
10008 Sok. No.15 Ataturk Organize Sanayi Bolgesi Cigli – IZMIR – TURKEY
Tel. 00 90 232 3280600 (Pbx) Fax. 00 90 232 3280609
Web Site : www.oz-kan.com E-mail : info@oz-kan.com

- In order to order sealing rings, please send your order in the below given format indicating the necessary quantities.

This order is given as an example for DN200, PN25 Double Orifice Air Release Valve Sealing Ring.

DN	PN	DESCRIPTION	QTY.
200	25	Air Valve Large (or small) Orifice Sealing Ring	2 pieces
200	25	Air Valve Integral Isolation Valve Sealing Ring	

7. SERVICE STOPS

- In case maintenance personnel is required for maintenance and repairs please contact ÖZ-KAN Center Office in Turkey. Contact details given below.

OZ-KAN MAKINA ELEMENLARI SAN. ve TIC. A. .
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