# DVD VALVES

# OPERATION MANUAL

# THV – CHV – SHV – KHV – YHV – PHV – VCC – 1” THV AIR VALVE

## GENERAL SAFETY INSTRUCTIONS

This Operation Manual is created for you to use DVD Air Valves effectively and to reduce potential risks regarding faulty use of the mentioned valves. With this Manual, potential accidents and damages can be prevented and life time of the valve can be increased.

The product you will be using is designed and manufactured according to highest quality standards and has passed DVD quality procedures 100%. However, Valves hold potential risks and can cause danger in case of faulty use or faulty assembly. Therefore, **everyone, who somehow gets in contact with the valve, is responsible for reading and fully understanding this Operation Manual.**

Unauthorized revision, change or application on the product or any of its parts shall be prevented at all times. In case of incompliance to this Operation Manual, DVD Valves cannot be hold directly or indirectly responsible or liable.

During the use of the Valves, general regulations and standards shall be followed. Some of these regulations are defined in EN Standards. Installation of the Valves shall be done by qualified and experienced technical personnel. For detailed information regarding the Valves, DVD Documentation (Catalogs, if appropriate Special Specifications and Technical Drawings, related DVD Order Confirmation etc.) shall be used and followed.

Before disassembling the Valve from the pipeline or any of its parts from the valve, make sure that the pipeline is de-pressurized and necessary safety cautions are taken. **If the line (water or air) is pressurized, any part of the Valve can move unintentionally, without any control.**

After commissioning, consequently the Valves are working under pressure; the Valves shall be monitored at all times and should be inspected regularly. Furthermore; laws, regulations and standards about Occupational Health and Safety should be taken into consideration.

Air Valves are installed on a T-connection, discharge open to atmosphere. Therefore operation of the valve shall be done with extreme caution. Any movement of the valve parts can result in pressurized water discharge and thereby flooding. To prevent flooding, necessary precautions should be taken and Valve chamber should have automated drainage system. Moreover, Valve float mechanism can move without any warning. Necessary protection covers are present to prevent reaching to the moving mechanisms. These protections covers should never be dismantled and reaching to the moving mechanisms should be prevented at all times.

During dismantling of the Valve from the pipeline, medium can flow out from the pipe or the valve, in a fast and uncontrolled way. Before dismantling, the pipeline must be emptied to prevent such an incident. Along with the medium; foreign objects (stone, sand, debris etc.) can be flowing out that can cause damage to personnel. Necessary precautions shall be taken to prevent such damage.

DVD Air Valves are designed to be installed on pipelines via T-Connection, vertical to the ground; and are designed to regulate the air inside the pipelines.

DVD Air Valves are manufactured in different models. Each model has different Valve Characteristic and is appropriate to be used for different air regulation purposes. These Characteristics are summarized as below:

| VALVE CHARACTERISTIC | | | | | |
|---|---|---|---|---|---|
| **MODEL** | **PRODUCT** | **FUNCTION** | **MEDIUM** | **CAPACITY** | **CLOSURE TYPE** |
| THV | Single Chamber Air Valve | 1 & 2 | Potable Water | RB (FB optional) | Classical Type |
| CHV | Double Chamber Air Valve | 1 & 2 & 3 | Potable Water | RB (FB optional) | Classical Type |
| SHV | Non-Slam Air Valve | 1 & 2 & 3 | Potable Water | FB (DN65, 125 RB) | Non-Slam Type |
| KHV | Air Valve with Integral Isolation Valve | 1 & 2 & 3 | Potable Water | RB | Classical Type (Optional NonSlam Type) |
| YHV | Underground Type Air Valve | 1 & 2 & 3 | Potable Water | RB | Classical Type |
| PHV | Sewage Air Valve | 1 & 2 & 3 | Sewage | RB | Classical Type |
| VCC | Vacuum Breaker | 2 | Potable Water | FB | Classical Type |
| 1" THV | 1" Single Chamber Air Valve | 3 | Potable Water | RB | Classical Type |

Function:
1. Function : Venting of air on the start-up of the system, while pipelines are filled.
2. Function : Intake of air on shut-off of the system, while pipelines are drained.
3. Function : Discharge of pressurized air pockets during the operation of the system.

Capacity:
FB : Full Bore (Flange nominal size and discharge size are equal)
RB : Reduced Bore (Flange nominal size is greater than discharge size)

**For more information regarding the Capacities, please check the DVD Documentation (Catalog). Air Valve selections should be done based on DVD Documentation (Catalog) capacity charts.**

Valve Characteristics can be seen in related DVD Product Documentation (Catalog, if appropriate related specifications, technical drawings, related DVD Order Confirmation etc.). **DVD Air Valves can only be used under defined operating conditions (operating pressure, discharge flow rate, temperature, medium type etc.) and under the defined characteristics. If the project need is noncompliant to these operating conditions or characteristics; pipeline bursts, pipeline rupture, excessive pumping costs or air accumulation problems can be seen.**

Noncompliance to these operating conditions or noncompliant use (valve characteristic) can cause permanent damage to the Valve. Operating conditions and valve characteristics are calculated and defined individually for every project. If you do not have any knowledge of these Operating Conditions or Characteristics, or if the conditions of the project are changed, please contact the manufacturer immediately.

Operating limits such as Nominal Size, Pressure, Operating Temperature of the Valve can be found in DVD Documentation. Furthermore; Operating Size, Operating Pressure, Valve Body Material and Production Date can be found on the marking of the Valve Body. Any operating condition that is incompliant with these operating limits shall be approved by the Manufacturer

in written. Pipeline Operating Pressure can be fluctuating (due to surge, water hammer, air regulation problems etc.). Therefore, such fluctuations should be considered, and the Valve should never be faced with a higher pressure than the defined Nominal Pressure.

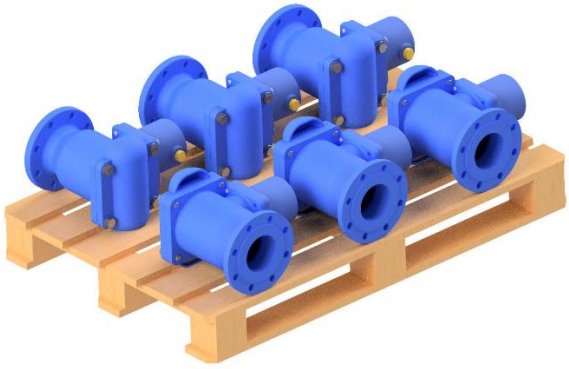
Valves should be protected from frosting at all times. Especially in locations that have high risk, protective measures should be taken such as; burying of pipelines in more depth, protecting the valve chambers by isolation material, or fully draining of pipelines before freezing conditions occur. If no precaution is taken, due to expansion of water, Valve body or other parts of the Valve can be permanently damaged. DVD Valves cannot be held liable from such damages.

## TRANSPORTATION AND STORAGE

During transportation and storage, Valves shall be packed with material that can withstand to its size and weight, and should be fully fixed on a pallet. If the Valves are not fully fixed on the pallet, the Valve can move during transportation and can cause severe damage. The Valve should be protected from environmental conditions and physical impacts from outside. Any part of the Valve body should not exceed the pallet dimension and shall be wrapped by protective cover (stretch film, insulation material etc).

Valve coating and Valve accessories shall be protected at all times during transportation and assembly.

For Valves of sizes DN150 and above, Positioning of the Valve on the pallet is on its flange, fixed to the pallet. For Valves of sizes below DN150, Positioning of the Valve on the pallet is as laid down.



<DN200

>DN150

*PICTURE 1: Positioning of the Valve on the Pallet*

Center of Gravity of the Valve can be away from the Valve Center. Therefore, during lifting the Valve, it can swing around. Such incidents can cause damage on the lifting device, the Valve itself, and to the personnel around the Valve. **Lifting operation should be done with extreme care and Center of Gravity of the Valve should be determined before lifting operation.**

In CHV Double Chamber Air Valve models; be cautious about the extra weight of the second chamber and its effect on the center of gravity. This chamber can cause the Valve to tilt down, especially at small sizes. Therefore, small sizes of these models are advised to be stocked as laid down to the pallet.

Lifting Belts and Lugs that are according to safety norms shall be used. They have to be suitable for the Valve weight. Valves of sizes DN200 and above should be lifted only from the Eye-Bolts.

**Lifting from the Cover, Cover Studs or Filter should not be done at all times.** These parts are not designed to carry the weight of the Valve and lifting from these parts can cause breaking, tumbling or dropping.

**During Storage and Transportation, Valves should never be faced with direct sunlight.** Under direct sunlight; seals or valve coating can get damaged. Valves should be protected and stored in a dry and aerated environment and should be protected from environmental effects. Storage should be done @ -20°C/+50°C temperature range. If the temperature is below 0°C, before assembling the Valve; the Valve should be heated up to 5°C.

Valves should never be in direct contact with the ground, and should be protected by a pallet. Valve internal surface and moving parts should be protected from foreign particles, sand, dirt, debris etc. Debris collected on moving parts can cause these parts to get stuck and prevent valve operation. Flange Protection Covers should only be dismantled right before assembly to the pipeline.

## USE AND APPLICATON

**Minimum operating pressure of DVD Air Valves is 0.2 bar.** Below 0.2 bar applications, Air Valve is not guaranteed to provide sealing and there can be water spillage. In such low pressure applications, Air Pipes use is recommended.

All DVD Air Valve Models other than PHV Sewage Air Valves (THV, CHV, SHV, KHV, YHV, 1"THV, VCC) are designed to be used in clean potable water systems. Operation in medium containing oil or lubricants is only possible with written manufacturer approval and with special material selections suitable to the medium.

**In systems that contain foreign particles (dirt, sand, debris etc.), the Valve can be clogged or sealing problems can occur.** None of the DVD Air Valve Models other than PHV Sewage Air Valves can be used in such systems.

Pipeline protection by using Air Valves is only possible if all below conditions are valid:

- Correct air valve model selection,
- Correct air valve size selection,
- Correct air valve positioning on the pipeline (place and quantity).

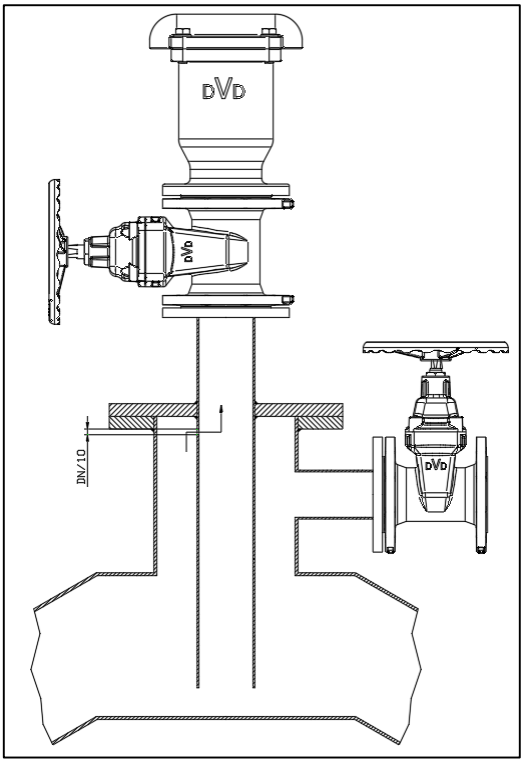
**DVD Valves cannot be held responsible from any problems that can occur due to wrong project design, wrong air valve model selection, wrong air valve size selection or wrong air valve positioning.** If there is a doubt about project selection, all project data should be sent to DVD Valves and should be approved in written.

**Filling and emptying the pipeline should be done in a controlled manner. Excessive Water Filling Velocity can result in pre-mature closure of Air Valves. Likewise, Excessive Water Drainage Velocity can result in inadequate air intake and pipeline rupture.**

To prevent such incidents, System Pressure should be checked during these processes. During pipeline water filling, differential pressure between the atmospheric pressure and the pressure

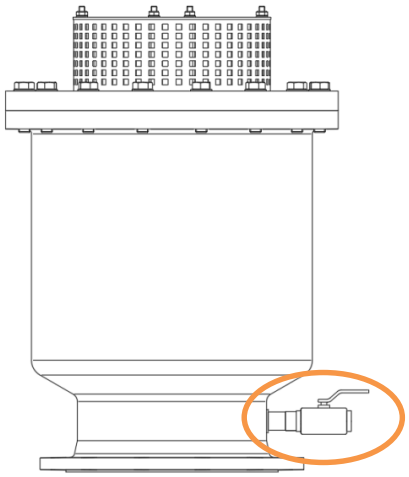
inside the pipeline should be at most 0.3 bar. And during pipeline water emptying, differential pressure between the atmospheric pressure and the pressure inside the pipeline should be at most 0.4 bar.

While confirming with the above conditions, if water filling velocities go higher than 0.25 m/sec; to prevent slamming, Immersion Pipe Application is recommended.




*PICTURE 2: Immersion Pipe Application*

If the Valve is not actively used for a long time (either in fully open or fully closed position), Valves are recommended to be manually operated at least every six months. Long time of non-operation increases the potential of blocking in the Valve. Inspection can be done using the Isolation Valve in the upstream of the Air Valve and by the Optional Test Cocks located on the Air Valve body.

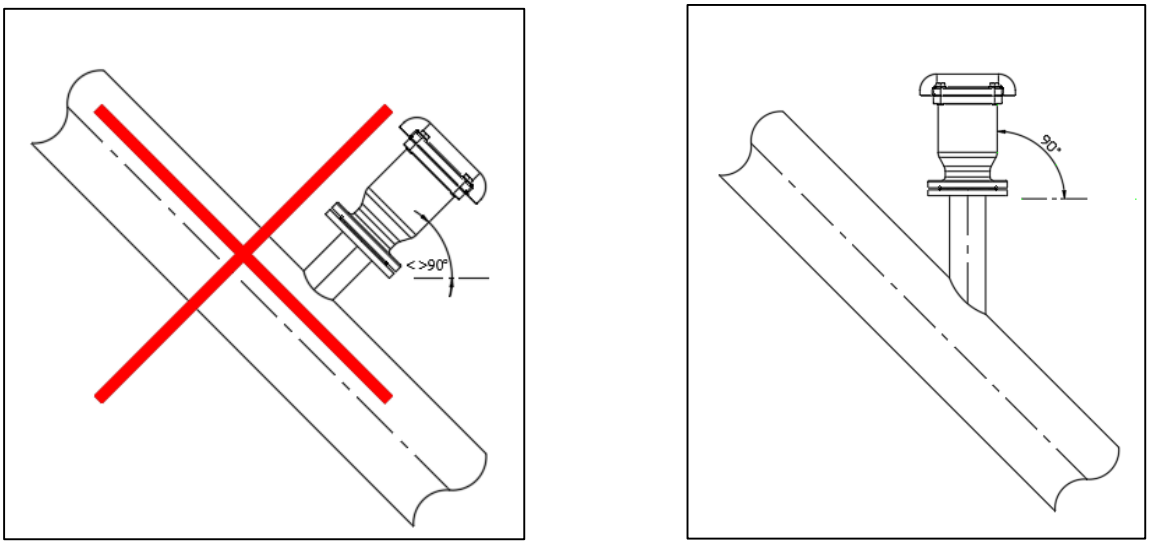


*PICTURE 3: Optional Testing Cocks*

## INSTALLATION TO THE PIPELINE

The T-connected pipeline flange should be horizontally positioned and should be parallel to the earth. Even if the pipeline profile is sloppy, Air Valve positioning should be done vertical to the earth. **Non-vertical installations of the Valve can cause malfunction of the Valve. DVD Valves cannot be held liable from such malfunction due to wrong installation.**

Load forces transmitted to the Valve from the pipeline should not go beyond what is defined in EN 1074-2 standard. Not to do so can cause Valve failure. During installation, make sure that flange surfaces are clean and smooth.




*PICTURE 4 – Air Valve Installation on a Sloppy Pipeline Profile*

Valve flange to pipeline flange connection should be done by bolts and nuts; and washers must be used to protect the Valve coating. Opposing bolts should be screwed equally, preventing high load forces, strain and failure. Steel reinforced gaskets should be used between the flanges. Make sure that the gaskets are correctly positioned on the sealing surface of the flanges. Flange bolting should be selected according to EN 1591 Standard requirements. Excessive screwing of the bolts can cause permanent damage on the Valve.

Air Valves should be installed as close to the main pipeline as possible and T-connection length should be minimized. Otherwise Air Valve reaction speed increases, and frost risk is increases as well.

Valve should be protected from outside effects (construction work, coating, concrete work etc.) at all times. Welding work should be concluded before Valve installation, and welding burrs should be cleaned beforehand.

**Pipeline should be flushed and cleaned from all foreign particles, before Valve installation.** Even though the pipeline can seem to be clean around the Valve installation area, during filling the line, particles from long distances can be carried to the installation area and can cause permanent damage on the Valve. DVD Valves cannot be held liable from damages occurred due to foreign particles such as debris, dirt, stones, wooden sticks etc.

**Air Valves have small air discharge orifices which contain a potential clogging risk if the medium is not clean. DVD Valves cannot be held liable from malfunctioning of the Valve due to residual clogging of these orifices.**

Especially at steel pipeline applications, make sure to have full cathodic protection. In the absence of cathodic protection or non-active protection, Galvanic Corrosion can occur very fast. DVD Valves cannot be held liable from such damages.

Inspect the Valve before installation and make sure that there are no foreign particles inside the Valve. Check the sealing surfaces of the Valve and confirm that they are clean. For Valves that are stored for a long period of time, please check the sealing gasket for any deformation and please contact the manufacturer if you see any problems.

If the Valve needs to be re-coated on site, for maintenance purposes, be sure to protect the sealing surfaces (gaskets, o-rings, stainless steel surfaces etc.) If these surfaces are coated, sealing problems can occur.

## VALVE POSITIONING

All models of Air Valves other than YHV Model are designed to be installed above ground and should be protected by a Valve Chamber. YHV Underground Air Valve is designed to be buried underground and do not require a Valve Chamber. Any other installation can cause malfunctioning of the Valve.

Air Valves discharge or intake air from/to the pipeline. Therefore Valve Chamber should have enough aeration capacity; otherwise Air Valve capacity can be constrained.

Make sure that the Valve Chamber has enough drainage system. Otherwise Air Valve can be flooded, which can cause contaminated water to penetrate inside the pipeline, or can cause air intake function of the Air Valve to fail.

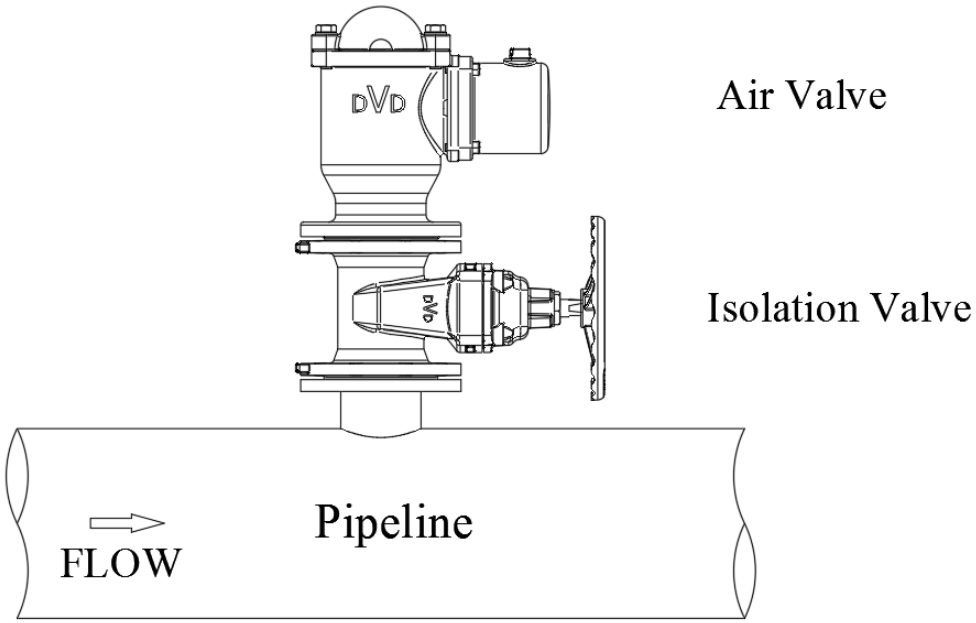
Air Valves can spill some water out of the pipeline, in cases of sudden water column movement. Precautions should be taken for such incidents and enough drainage system should be constructed.

**During installation, take into consideration possible inspection and maintenance circumstances and provide enough space for such intervention. An Isolation Valve (Gate Valve, Ball Valve or Butterfly Valve) should be installed in the upstream of the Air Valve.**

Make sure that the Isolation Valve is full bore and does not limit the air capacity of the Air Valve. In small size applications, Butterfly Valves are not recommended to be used as Isolation Valves. YHV Underground Air Valves do have an integral isolation valve and does not require an extra external Isolation Valve to be installed with it.

**After commissioning the Air Valve, make sure that the Isolation Valve is fully opened. Closed or Semi-open Isolation Valves directly influence the Air Valve capacity and can endanger the pipeline safety.**

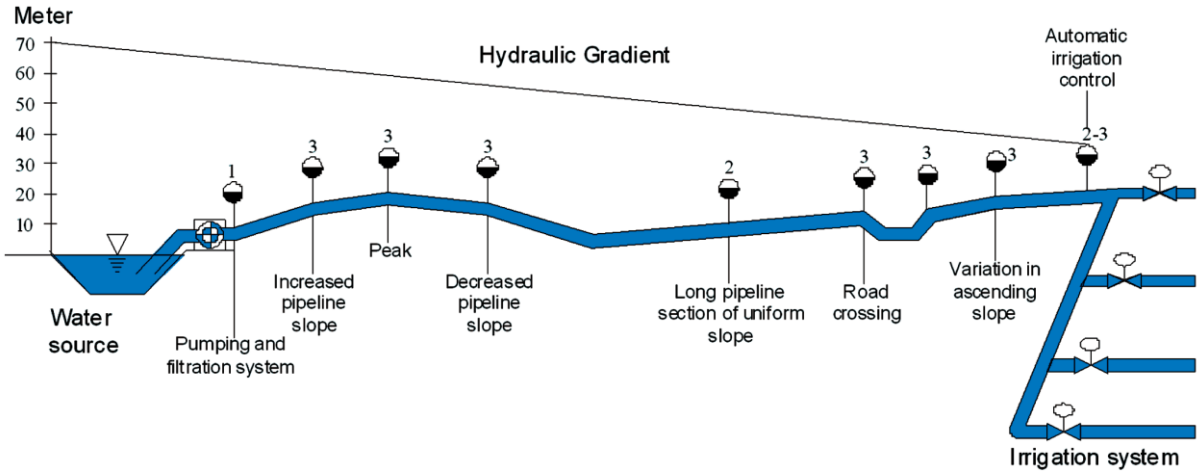
Lifting Device should be available on the site that is in line with the weight of the Valve. Otherwise, dismantling and re-installing of the Valve for maintenance purposes will not be possible.




*PICTURE 5 – Air Valve + Isolation (Service) Valve Connection*

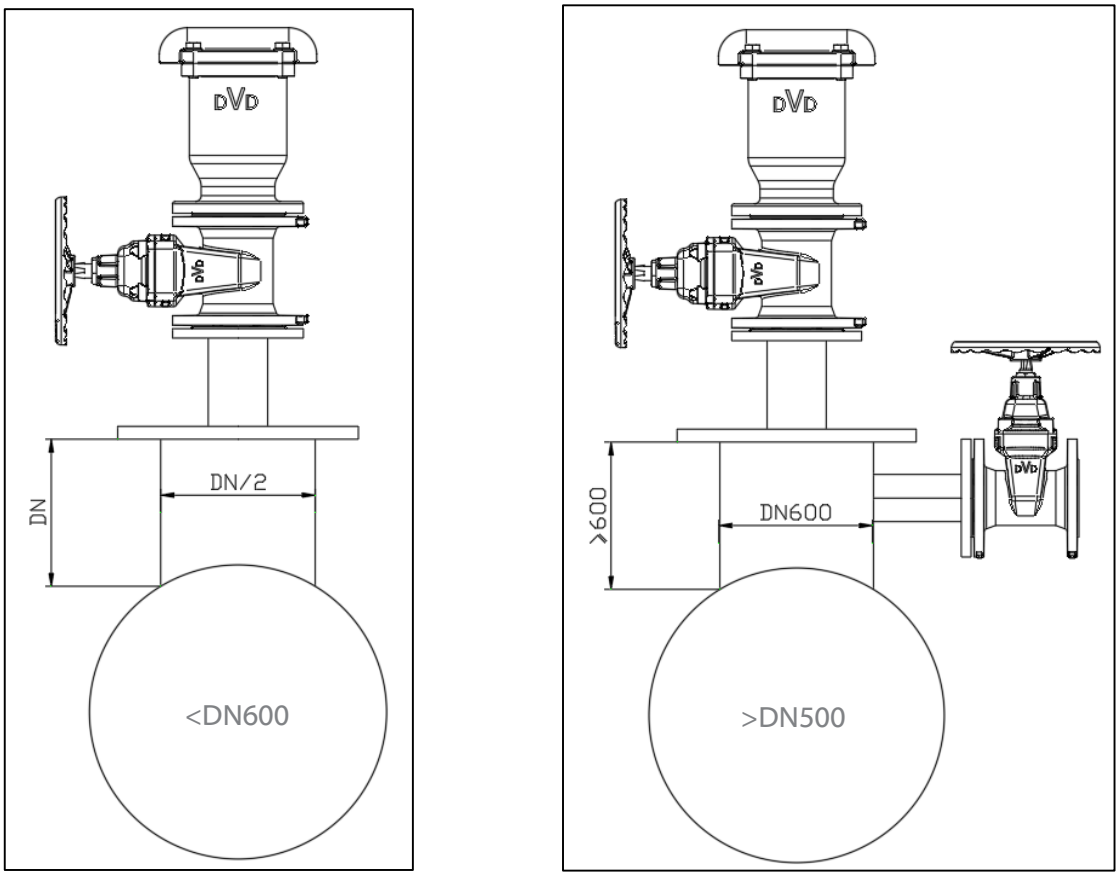
Air Valves should be positioned on the pipeline, analyzing each single project data individually. This work should be correctly done by the design office. However, typical locations of Air Valves are in high elevation points, slope angle changing points, branch distribution points, road/river transition points, pump stations, every 400 meters in continuous pipelines, and more.

**DVD Valves cannot be held liable from any damages that can occur due to wrong project design, wrong air valve model selection, wrong air valve size selection or wrong air valve positioning.** If there is a doubt about project design, all available project data should be sent to DVD Valves for analysis and written approval should be received from the DVD.




*PICTURE 6 –Typical Air Valve Positioning on a Pipeline Profile – Each Project should be Analyzed and Positioning should be Done Accordingly!*

Air Valves are recommended to be installed on correctly sized Ventilation Domes. Typical ventilation dome sizing are provided as below. In main pipeline sizes of DN600 and above, a Drainage Valve installation on the Ventilation Dome is recommended. Drainage Valve can be used for manual air discharge or air intake.




*PICTURE 7 – Ventilation Dome Application and Air Valve Installation*

## MAINTANANCE

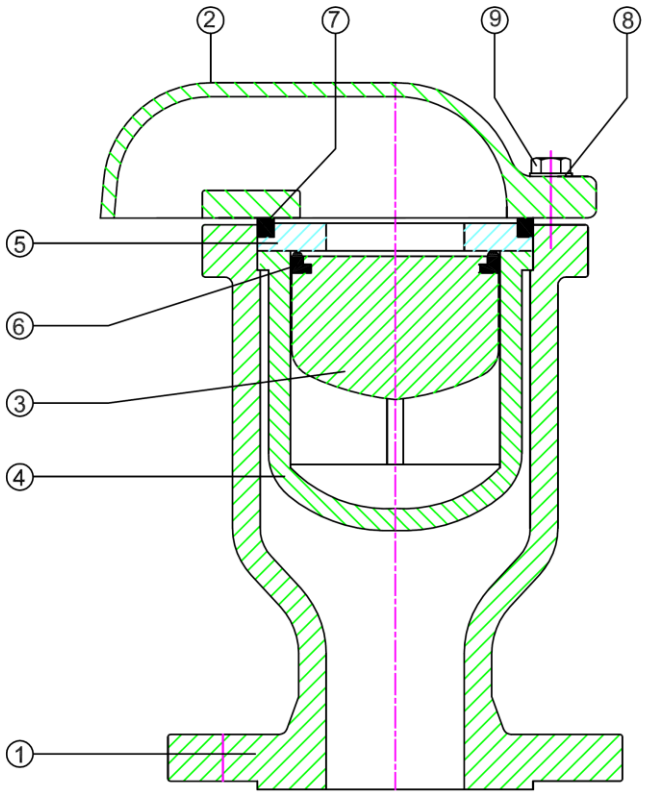
**Before starting the maintenance, make sure that the Valve is isolated; upstream pipeline of the Valve is drained and de-pressurized.** In case pipeline is not de-pressurized fully; potential dangers such as sudden disc movement, part movement or pressurized water outflow etc. can occur.

After maintenance is done, please re-install the Valve to the pipeline according to the related section in this Operation Manual.

Maintenance work should be done by experienced and skilled personnel. If there is no such personnel, please get in contact with DVD Valves and request your maintenance need. All personnel who will do the maintenance work should read and fully understand this Operation Manual.

Maintenance personnel should follow Occupational Health and Safety requirements and should use the necessary protective accessories (Work shoes, glasses, helmet, gloves etc.).

DVD THV Single Chamber Air Valve Spare Part lists and predicted life time of these parts are indicated as below:

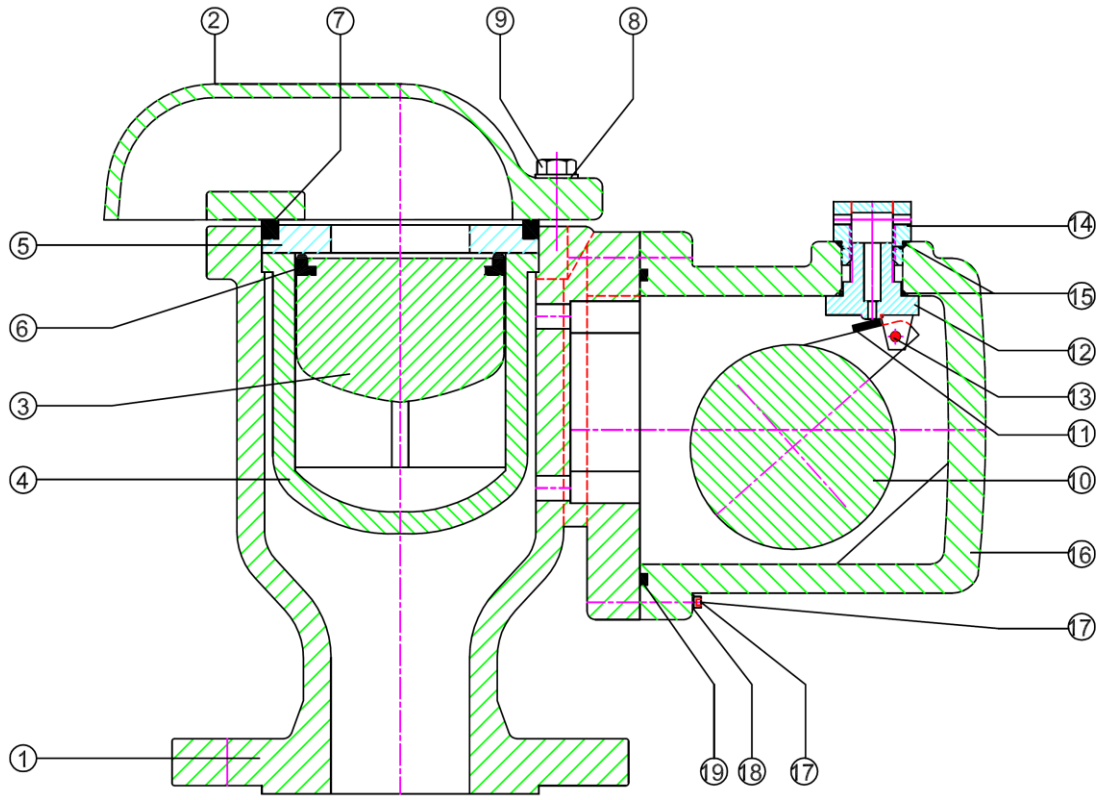



NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS. CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME.

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 4 | | SCREW | 8:8 Gal. | 5 YEARS | |
| 8 | 4 | | WASHER | SS 304 | 5 YEARS | |
| 7 | 1 | | COVER O-RING | EPDM | 3 YEARS | |
| 6 | 1 | | LARGE ORIFICE FLOAT O-RING | EPDM | 3 YEARS | |
| 5 | 1 | | LARGE ORIFICE | Brass | 10 YEARS | |
| 4 | 1 | | CAGE | Polyamid-6 | 5 YEARS | |
| 3 | 1 | | LARGE ORIFICE FLOAT | Polyethylene | 5 YEARS | |
| 2 | 1 | | COVER | GG-25 /GGG 40 | 10 YEARS | |
| 1 | 1 | | BODY | GG-25 /GGG 40 | 10 YEARS | |
| MONTAJ | QTY. | PART NO | PART NAME | MATERIAL | PART LIFE TIME | NOTE |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DRAWING NO | | DN 40-80 SINGLE CHAMBER AIR VALVE | | | | DVD DOGUS VANA SANAYI | |
| -- | | | | | | REV. DATE | |
| SIZE | A3 | | | | | | |
| SCALE | DESIGN | Nuray KAFADAR | | DRAWING DATE | | REVISION | 00 |
| 1:1 | APPROVED | Alaattin YILDIRIM | | 23.04.2009 | | SHEET | 00/21 |

DVD CHV Double Chamber Air Valve Spare Part lists and predicted life time of these parts are indicated as below:

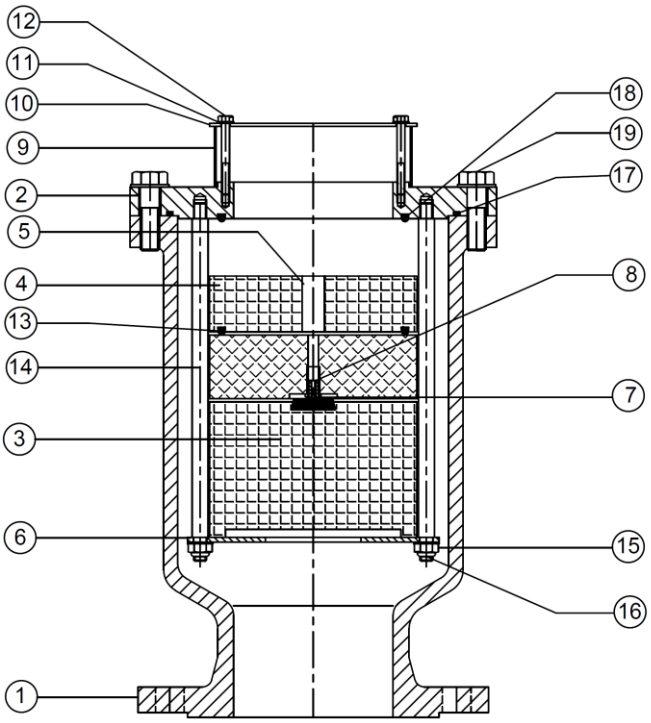



NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS. CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME.

| MONTAJ | QTY. | PART NO | PART NAME | MATERIAL | PART LIFE TIME | NOTE |
|---|---|---|---|---|---|---|
| 19 | 1 | | SMALL CHAMBER BOX O-RING | EPDM | 3 YEARS | |
| 18 | 4 | | WASHER | SS 304 | 5 YEARS | |
| 17 | 4 | | IMBUS SCREW | 8:8 Gal. | 5 YEARS | |
| 16 | 1 | | SMALL CHAMBER BOX | GG-25 /GGG 40 | 10 YEARS | |
| 15 | 2 | | O-RING | EPDM | 3 YEARS | |
| 14 | 1 | | SMALL ORIFICE COVER | Brass | 5 YEARS | |
| 13 | 1 | | PIN | Brass | 5 YEARS | |
| 12 | 1 | | SMALL ORIFICE | Brass | 5 YEARS | |
| 11 | 1 | | SMALL ORIFICE GASKET | EPDM | 3 YEARS | |
| 10 | 1 | | SMALL ORIFICE FLOAT | Polyethylene | 5 YEARS | |
| 9 | 4 | | SCREW | 8:8 Gal. | 5 YEARS | |
| 8 | 4 | | WASHER | SS 304 | 5 YEARS | |
| 7 | 1 | | COVER O-RING | EPDM | 3 YEARS | |
| 6 | 1 | | LARGE ORIFICE FLOAT O-RING | EPDM | 3 YEARS | |
| 5 | 1 | | LARGE ORIFICE | Brass | 10 YEARS | |
| 4 | 1 | | CAGE | Polyamid-6 | 5 YEARS | |
| 3 | 1 | | LARGE ORIFICE FLOAT | Polyethylene | 5 YEARS | |
| 2 | 1 | | COVER | GG-25 /GGG 40 | 10 YEARS | |
| 1 | 1 | | BODY | GG-25 /GGG 40 | 10 YEARS | |

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWING NO | | DN 40-80 DOUBLE CHAMBER AIR VALVE | | | | DOGUS VANA SANAYI |
| -- | | | | | | REV. DATE |
| SIZE | A3 | | | | | |
| SCALE | DESIGN | Nuray KAFADAR | | DRAWING DATE | | REVISION 00 |
| 1:1 | APPROVED | Alaattin YILDIRIM | | 23.04.2009 | | SHEET 00/21 |

DVD SHV Non-Slam Air Valve Spare Part lists and predicted life time of these parts are indicated as below:

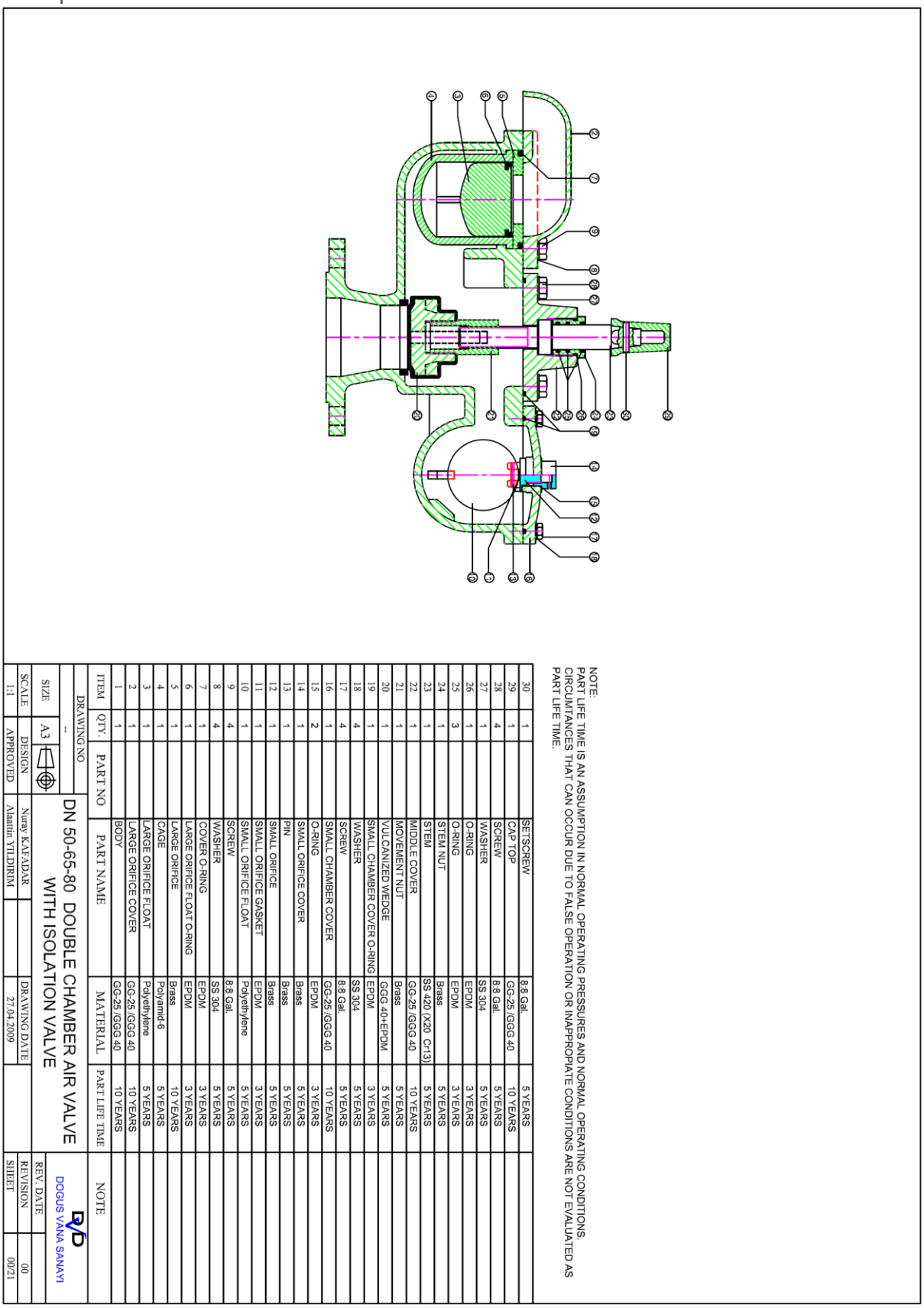



NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME

| Mon. No | QTY | PART CODE | PART NAME | MATERIAL | PART LIFE TIME | NOTE |
|---|---|---|---|---|---|---|
| 19 | | | BOLT | AISI 304 | 5 YEARS | |
| 18 | | | O-RİNG | EPDM | 3 YEARS | |
| 17 | | | O-RİNG | EPDM | 3 YEARS | |
| 16 | | | WASHER | AISI 304 | 5 YEARS | |
| 15 | | | NUT | AISI 304 | 5 YEARS | |
| 14 | | | STEM | AISI 304 | 5 YEARS | |
| 13 | | | O-RİNG | EPDM | 3 YEARS | |
| 12 | | | SCREW | AISI 304 | 5 YEARS | |
| 11 | | | WASHER | AISI 304 | 5 YEARS | |
| 10 | | | FILTER COVER | AISI 304 | 5 YEARS | |
| 9 | | | FILTER | AISI 304 | 5 YEARS | |
| 8 | | | SMALL ORIFICE | Brass | 5 YEARS | |
| 7 | | | ORIFICE GASKET | EPDM | 3 YEARS | |
| 6 | | | INTRODUCTION ORIFICE | AISI 304 | 5 YEARS | |
| 5 | | | TOP FLOAT | Polyethylene | 5 YEARS | |
| 4 | | | MIDDLE FLOAT | Polyethylene | 5 YEARS | |
| 3 | | | LARGE FLOAT | Polyethylene | 5 YEARS | |
| 2 | | | COVER | AISI 304 | 5 YEARS | |
| 1 | | | BODY | GGG40 | 10 YEARS | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ürün Adı: NON-SLAM AIR VALVE | | | | | DVD DOĞUS VANA SANAYİ | |
| Date | 19-02-2016 | Signature | | | | | DRAWING NO SHV | |
| Design | Nuray KAFADAR | | | | | | | |
| Approved | Alaattin YILDIRIM | | SIZE A3 | SCALE | | WEIGHT | | |
| GENERAL TOLERANCE ISO 2768-M | | | 0-6 | 6-30 | 30-120 | 120-400 | 400-1000 | 1000-2000 | 2000-4000 |
| | | | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2 |

DVD KHV Double Chamber Air Valve w/ Isolation Valve Spare Part lists and predicted life time of these parts are indicated as below:



| ITEM | QTY. | PART NO | PART NAME | MATERIAL | PART LIFE TIME | NOTE |
|---|---|---|---|---|---|---|
| 30 | 1 | | SETSCREW | 8.8 Gal. | 5 YEARS | |
| 29 | 1 | | CAP TOP | GG-25 /GGG 40 | 10 YEARS | |
| 28 | 4 | | SCREW | 8.8 Gal. | 5 YEARS | |
| 27 | 1 | | WASHER | SS 304 | 5 YEARS | |
| 26 | 1 | | O-RING | EPDM | 3 YEARS | |
| 25 | 3 | | O-RING | EPDM | 3 YEARS | |
| 24 | 1 | | STEM NUT | Brass | 5 YEARS | |
| 23 | 1 | | STEM | SS 420 (X20 Cr13) | 5 YEARS | |
| 22 | 1 | | MIDDLE COVER | GG-25 /GGG 40 | 10 YEARS | |
| 21 | 1 | | MOVEMENT NUT | Brass | 5 YEARS | |
| 20 | 1 | | VULCANIZED WEDGE | GGG 40+EPDM | 5 YEARS | |
| 19 | 1 | | SMALL CHAMBER COVER O-RING | EPDM | 3 YEARS | |
| 18 | 4 | | WASHER | SS 304 | 5 YEARS | |
| 17 | 4 | | SCREW | 8.8 Gal. | 5 YEARS | |
| 16 | 1 | | SMALL CHAMBER COVER | GG-25 /GGG 40 | 10 YEARS | |
| 15 | 2 | | O-RING | EPDM | 3 YEARS | |
| 14 | 1 | | SMALL ORIFICE COVER | Brass | 5 YEARS | |
| 13 | 1 | | PIN | Brass | 5 YEARS | |
| 12 | 1 | | SMALL ORIFICE | Brass | 5 YEARS | |
| 11 | 1 | | SMALL ORIFICE GASKET | EPDM | 3 YEARS | |
| 10 | 1 | | SMALL ORIFICE FLOAT | Polyethylene | 5 YEARS | |
| 9 | 4 | | SCREW | 8.8 Gal. | 5 YEARS | |
| 8 | 4 | | WASHER | SS 304 | 5 YEARS | |
| 7 | 1 | | COVER O-RING | EPDM | 3 YEARS | |
| 6 | 1 | | LARGE ORIFICE FLOAT O-RING | EPDM | 3 YEARS | |
| 5 | 1 | | LARGE ORIFICE | Brass | 10 YEARS | |
| 4 | 1 | | CAGE | Polyamid-6 | 5 YEARS | |
| 3 | 1 | | LARGE ORIFICE FLOAT | Polyethylene | 5 YEARS | |
| 2 | 1 | | LARGE ORIFICE COVER | GG-25 /GGG 40 | 10 YEARS | |
| 1 | 1 | | BODY | GG-25 /GGG 40 | 10 YEARS | |

NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS.
CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME.

DN 50-65-80 DOUBLE CHAMBER AIR VALVE
WITH ISOLATION VALVE

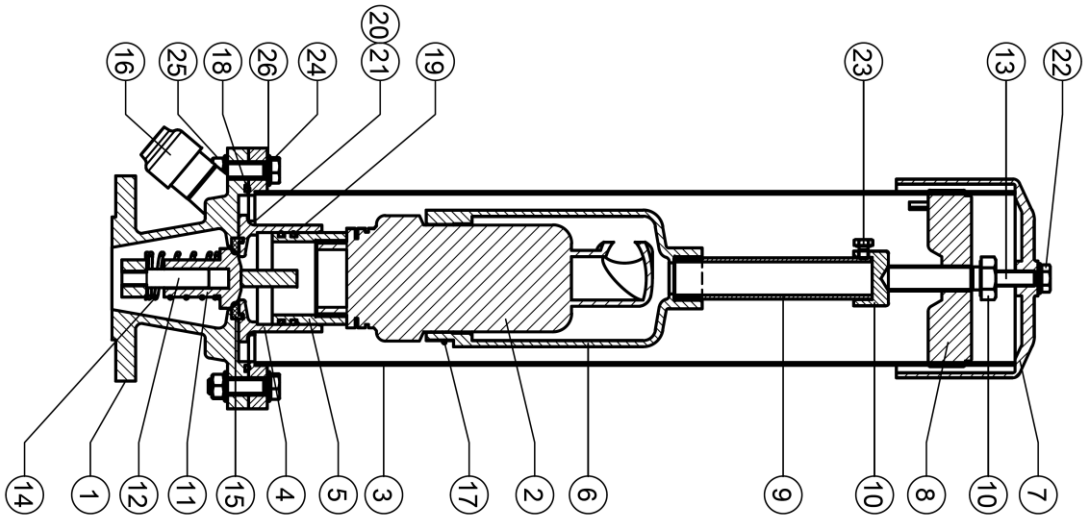
DOGUS VANA SANAYI

| SIZE | DRAWING NO | REV. DATE |
|---|---|---|
| A3 | -- | |

| SCALE | DESIGN | DRAWING DATE | REVISION | SHEET |
|---|---|---|---|---|
| 1:1 | Nuray KAFADAR | 27.04.2009 | 00 | 00/21 |

| APPROVED | |
|---|---|
| Altattin YILDIRIM | |

DVD YHV Underground Air Valve Spare Part lists and predicted life time of these parts are indicated as below:




NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME

| Mon. No | QTY | PART CODE | PART NAME | MATERIAL | PART LIFE TIME | NOTE |
|---|---|---|---|---|---|---|
| 26 | | | WACHER | AISI 304 | 5 YEARS | |
| 25 | | | NUT | AISI 304 | 5 YEARS | |
| 24 | | | SCREW | AISI 304 | 5 YEARS | |
| 23 | | | SCREW | AISI 304 | 5 YEARS | |
| 22 | | | SCREW | AISI 304 | 5 YEARS | |
| 21 | | | WACHER | AISI 304 | 5 YEARS | |
| 20 | | | SCREW | AISI 304 | 5 YEARS | |
| 19 | | | O-RING | EPDM | 3 YEARS | |
| 18 | | | O-RING | EPDM | 3 YEARS | |
| 17 | | | FIXING PIN | AISI 304 | 5 YEARS | |
| 16 | | | DRAINAGE COLLECTOR | Plastik | 5 YEARS | |
| 15 | | | SEALING RING | EPDM | 3 YEARS | |
| 14 | | | SPRING | AISI 302 | 5 YEARS | |
| 13 | | | SCREW | AISI 304 | 5 YEARS | |
| 12 | | | SPRING SHAFT | X20Cr13 | 5 YEARS | |
| 11 | | | CHECKVALVE CASE | X20Cr13 | 5 YEARS | |
| 10 | | | SCREW PRESSURE PART | X20Cr13 | 5 YEARS | |
| 9 | | | 1" PIPE | 8.8 Gal | 5 YEARS | |
| 8 | | | T- NUT | GGG 40 | 10 YEARS | |
| 7 | | | POWDER COVER | Aluminum | 3 YEARS | |
| 6 | | | AIR VALVE CASE | Aluminum | 3 YEARS | |
| 5 | | | PRESSURE PART | Bronze | 5 YEARS | |
| 4 | | | SEAT O-RING | Bronze | 5 YEARS | |
| 3 | | | FLANGED PIPE | AISI 304 | 5 YEARS | |
| 2 | | | AIR VALVE | Plastic | 5 YEARS | |
| 1 | | | BODY | GGG 40 | 10 YEARS | |

Ürün Adı:
**UNDERGROUND AIR VALVE**

DVD DOĞU SVANA SANAYİ

DRAWING NO
YHV

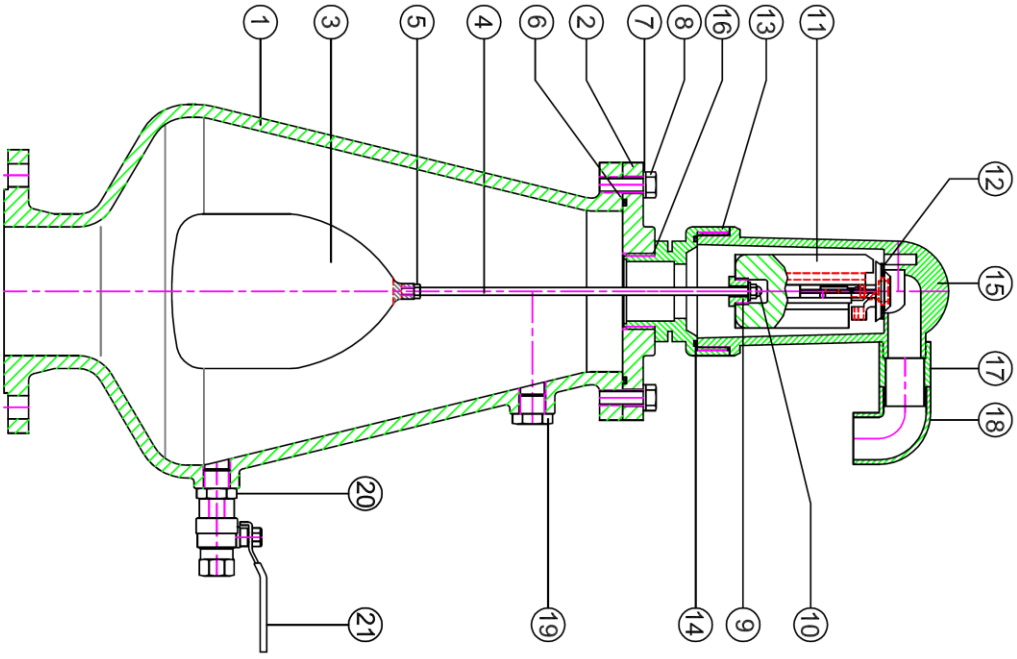
| | | |
|---|---|---|
| Date | 19-02-2016 | Signature |
| Design | Nuray KAFADAR | |
| Approved | Alaattin YILDIRIM | |

GENERAL TOLERANCE ISO 2768-M

| SIZE | 0-6 | 6-30 | 30-120 | 120-400 | 400-1000 | 1000-2000 | 2000-4000 |
|---|---|---|---|---|---|---|---|
| | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2 |

SCALE A3 — WEIGHT

DVD PHV Sewage Air Valve Spare Part lists and predicted life time of these parts are indicated as below:

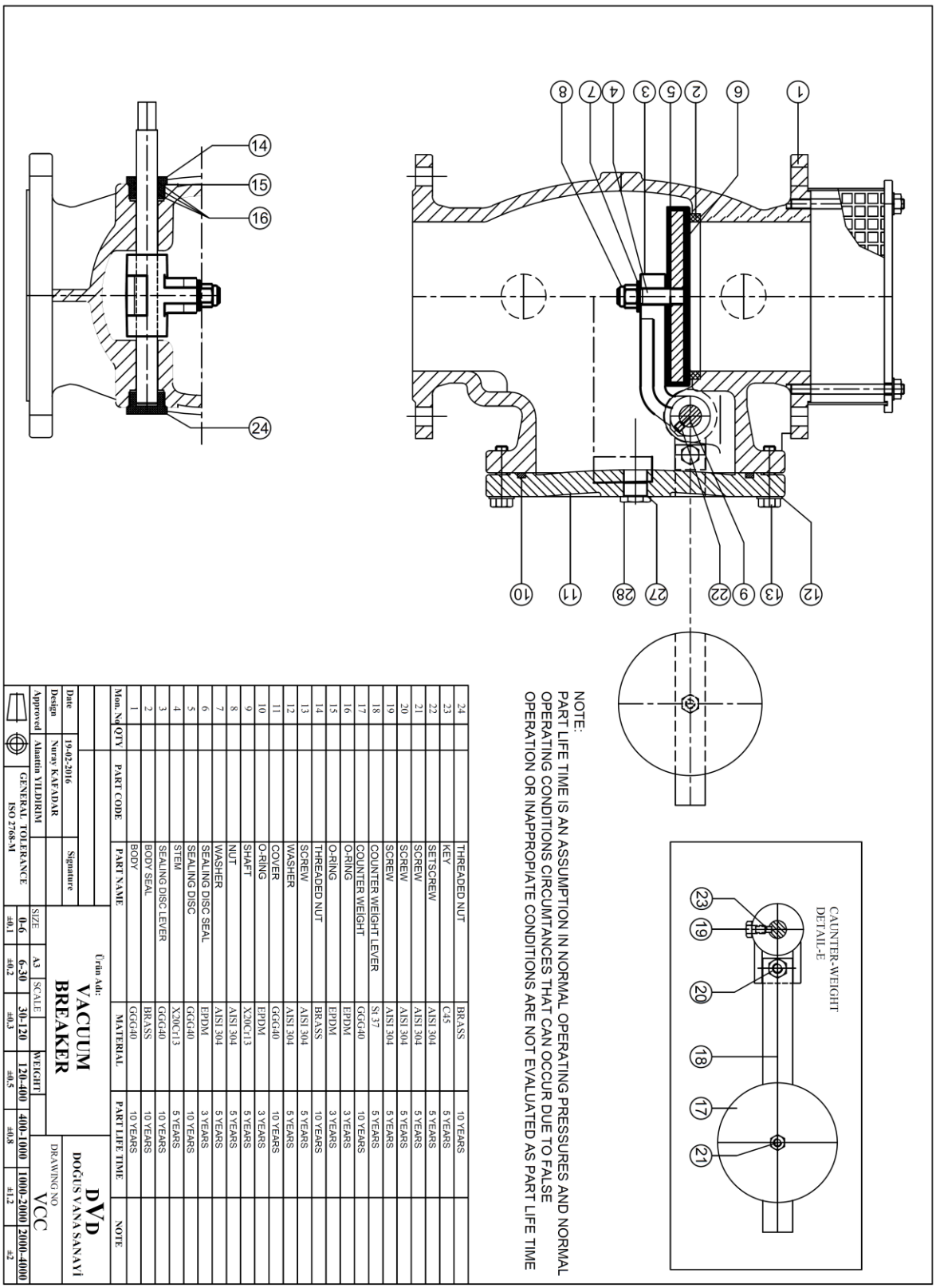



NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS.
CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME.

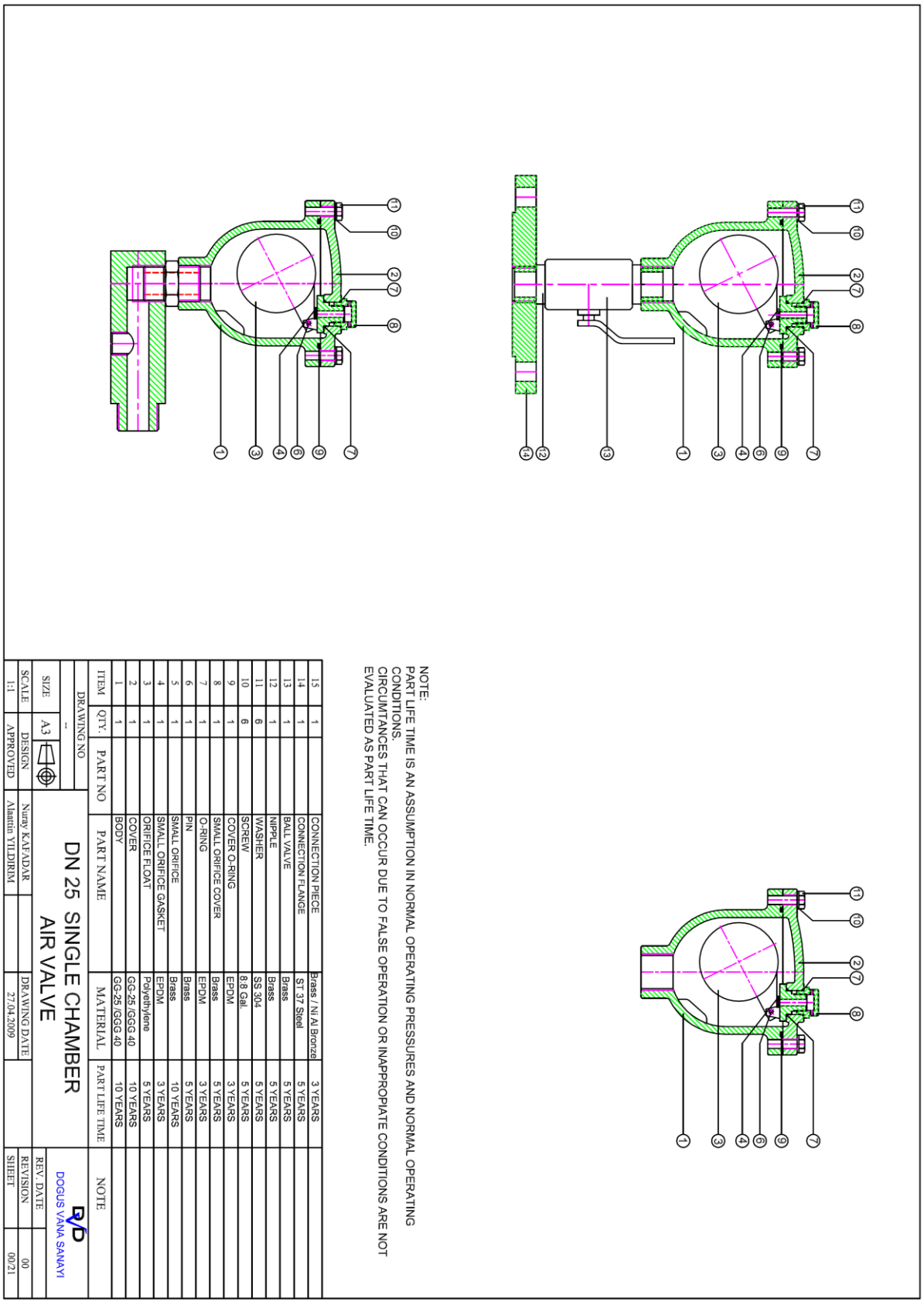
| ITEM | QTY. | PART NO | PART NAME | MATERIAL | PART LIFE TIME | NOTE |
|---|---|---|---|---|---|---|
| 21 | 1 | | R 1/2" BALL VALVE | BRASS | 5 YEARS | |
| 20 | 1 | | R 1/2" NIPPLE | BRASS | 10 YEARS | |
| 19 | 1 | | R 1/2" PLUG | BRASS | 10 YEARS | |
| 18 | 1 | | DN32 - PVC - ELBOW | PVC | 5 YEARS | |
| 17 | 1 | | DN40 - PVC - PIPE | PVC | 5 YEARS | |
| 16 | 1 | | O-RING | NBR | 2 YEARS | |
| 15 | 1 | | ADAPTOR COVER | PVC | 10 YEARS | |
| 14 | 1 | | O-RING | NBR | 2 YEARS | |
| 13 | 1 | | ADAPTOR | PVC | 10 YEARS | |
| 12b | 1 | | SEALING GASKET | PVC | 2 YEARS | |
| 12a | 1 | | SEALING GASKET HOLDER | PVC | 10 YEARS | |
| 12 | 1 | | SEALING GASKET ASMBLY. | EPDM | 2 YEARS | |
| 11 | 1 | | SEALING FLOAT | PVC | 10 YEARS | |
| 10a | 1 | | WASHER | SS 304 | 10 YEARS | |
| 10 | 1 | | COUNTERNUT | SS 304 | 10 YEARS | |
| 9 | 1 | | NUT | BRASS | 10 YEARS | |
| 8 | 8 | | SCREW | SS 304 | 10 YEARS | |
| 7 | 8 | | WASHER | SS 304 | 10 YEARS | |
| 6 | 1 | | O-RING | NBR | 10 YEARS | |
| 5 | 1 | | NUT | SS 304 | 10 YEARS | |
| 4 | 1 | | STEM | X20Cr13 | 10 YEARS | |
| 3 | 1 | | FLOAT | SS 431 | 10 YEARS | |
| 2 | 1 | | COVER | GG25,GGG40 | 10 YEARS | |
| 1 | 1 | | BODY | GG25,GGG40 | 10 YEARS | |

DRAWING NO: –
SIZE: A3
SCALE: 1:1
DESIGN: Nuray KAFADAR
APPROVED: Alaattin YILDIRIM
DRAWING DATE: 23.04.2009
SEWAGE AIR VALVE
DVD DOGUS VANA SANAYI
REV. DATE: 00
REVISION
SHEET: 00/21

DVD VCC Vacuum Breaker Spare Part lists and predicted life time of these parts are indicated as below:



DVD 1” THV Single Chamber Air Valve Spare Part lists and predicted life time of these parts are indicated as below:



| ITEM | QTY. | PART NO | PART NAME | MATERIAL | PART LIFE TIME | NOTE |
|---|---|---|---|---|---|---|
| 15 | 1 | | CONNECTION PIECE | Brass / Ni Al Bronze | 3 YEARS | |
| 14 | 1 | | CONNECTION FLANGE | ST 37 Steel | 5 YEARS | |
| 13 | 1 | | BALL VALVE | Brass | 5 YEARS | |
| 12 | 1 | | NIPPLE | Brass | 5 YEARS | |
| 11 | 6 | | WASHER | SS 304 | 5 YEARS | |
| 10 | 6 | | SCREW | 8.8 Gal. | 5 YEARS | |
| 9 | 1 | | COVER O-RING | EPDM | 3 YEARS | |
| 8 | 1 | | SMALL ORIFICE COVER | Brass | 5 YEARS | |
| 7 | 1 | | O-RING | EPDM | 3 YEARS | |
| 6 | 1 | | PIN | Brass | 5 YEARS | |
| 5 | 1 | | SMALL ORIFICE | Brass | 10 YEARS | |
| 4 | 1 | | SMALL ORIFICE GASKET | EPDM | 3 YEARS | |
| 3 | 1 | | ORIFICE FLOAT | Polyethylene | 5 YEARS | |
| 2 | 1 | | COVER | GG-25 /GGG 40 | 10 YEARS | |
| 1 | 1 | | BODY | GG-25 /GGG 40 | 10 YEARS | |

DRAWING NO: --
SIZE: A3
SCALE: 1:1
DESIGN: Nuray KAFADAR
APPROVED: Alaattin YILDIRIM
DRAWING DATE: 27.04.2009

DN 25 SINGLE CHAMBER AIR VALVE

DOGUS VANA SANAYI

REV. DATE
REVISION: 00
SHEET: 00/21

NOTE:
PART LIFE TIME IS AN ASSUMPTION IN NORMAL OPERATING PRESSURES AND NORMAL OPERATING CONDITIONS.
CIRCUMTANCES THAT CAN OCCUR DUE TO FALSE OPERATION OR INAPPROPIATE CONDITIONS ARE NOT EVALUATED AS PART LIFE TIME.

*PICTURE 8 – DVD Air Valves Spare Part List and Predicted Life Time*

This table is to provide a general idea to users, and life times can vary according to site conditions, application and operational conditions. Sealings should be changed when they are worn out or damaged.

All gasket and o-rings should be lubricated after renewal (w/ de-mineralized lubricant). If the Valve is potable water approved, potable water approved lubricants should be used.

Please follow the below steps to renew the DVD THV, CHV, SHV, KHV Cover Sealing (7, 7, 17, 7):

1. Isolate the Valve from the line, and drain the water. Make sure to fully de-pressurize the pipeline.
2. Remove the bolting on the Cover (2) and take it out from the Body.
3. Remove the Cover Sealing (7, 7, 17, 7).
4. Clean the Body (1) sealing surface and Cover (2) sealing surface. In THV, CHV and KHV models, clean the surface of the Disc (5).
5. Make sure that there are no residuals or particles inside the Valve body. If so, please clean them.
6. Check the Float movement and make sure that it is moving freely.
7. Install the new Cover Gasket (7, 7, 17, 7) on the body. Make sure that the gasket perfectly fits on the housing.
8. Install the Cover (2) on the Body (1) and screw the bolts in opposing order.

Please follow the below steps to renew the Big Float Sealing Gasket (6, 6, 13&18, 6) in THV, CHV, SHV, KHV models:

1. Isolate the Valve from the line, and drain the water. Make sure to fully de-pressurize the pipeline.
2. Remove the bolting on the Cover (2) and take it out from the Body. In SHV models, all the Float Assembly shall come out together with the Cover (2).
3. Remove the Cover Sealing (7, 7, 17, 7). In THV, CHV and KHV models, remove the Disc (5) as well.
4. Clean the Body (1) sealing surface and Cover (2) sealing surface. In THV, CHV and KHV models, clean the surface of the Disc (5).
5. Remove the Big Float Sealing Gasket (6, 6, 13&18, 6):
    a. In THV, CHV and KHV models, take out the Big Float (3) from the Float Guiding Cage (4) and remove the Float Sealing Gasket (13&18).
    b. In SHV models, remove the Studs (14) from the Cover (2) and take out the Floats from Studs. Remove the Float Sealing Gaskets (13&18).
6. Clean the Float (3, 3, 4&7, 3) sealing surfaces.
7. Install the new Float Sealing Gasket (6, 6, 13&18, 6) on the Float. Make sure that it fits perfectly to the housing.
8. Install the Floats (3, 3, 4&7, 3) inside the Float Cage (4, 4, 14, 4).
9. Install the Float Cage:
    a. In THV, CHV and KHV models, install the Float Cage (4, 4, 14, 4) to the Body (1).
    b. In SHV models, assemble the Cage Studs (14) to the Cover (2).
10. Check the Float movement and make sure that it is moving freely.
11. Make sure that there are no residuals or particles inside the Valve body. If so, please clean them.
12. Install the new Cover Gasket (7, 7, 17, 7) on the body. Make sure that the gasket perfectly fits on the housing.
13. Install the Cover (2) on the Body (1) and screw the bolts in opposing order.

Please follow the below steps to renew the Dynamic Float Sealing Gasket (7, 11):

1. Isolate the Valve from the line, and drain the water. Make sure to fully de-pressurize the pipeline.
2. Take out the Dynamic Float Assembly out of the Valve Body (1):
    a. In 1" THV, CHV and KHV models, disassemble the bolting of the Small Chamber Box (16) and take it out.
    b. In SHV models, disassemble the bolting of the Cover (2) and take it out. All Float Assembly shall come out as one item.
3. In 1" THV, CHV and KHV models, take out the Small Chamber Box Sealing (19). In SHV models, take out the Cover Sealing (17).
4. Clean the Body (1) sealing surface and Cover/Small Chamber Box (2, 16) sealing surface.
5. Remove the Dynamic Float Sealing Gasket (7):
    a. In 1" THV, CHV and KHV models, secure the Small Chamber Box (16) and dismantle the Small Orifice Body (12) and Cover (14). Pull out the Dynamic Float Sealing Gasket (7) from the Small Float (10).
    b. In SHV models, remove the Studs (14) from the Cover (2) and take out the Floats from Studs. Pull out the Dynamic Float Sealing Gasket (7) from the Dynamic Float (3).
6. Clean the Dynamic Float (10, 3) sealing orifice (12, 8) and make sure that there are no residuals on it.
7. Install the new Dynamic Float Sealing Gasket (7, 11) on the Float. Make sure that it fits perfectly to the housing.
8. Install the Floats (10, 3) to the Body (1):
    a. In 1" THV, CHV and KHV models, install the Small Orifice Body (12) and Cover (14) to the Small Chamber Box (16) by threading. Move the Small Float (10) and check that the Dynamic Float Sealing (11) perfectly seals the Orifice (12) hole.
    b. In SHV models, put the Floats (3&7&4) inside the Studs (14) and assemble the Cage Studs (14) to the Cover (2). Make sure that the Dynamic Float Sealing (7) perfectly seals the Orifice (8) hole.
9. Check the Float movement and make sure that it is moving freely.
10. Make sure that there are no residuals or particles inside the Valve body. If so, please clean them.
11. Install the new Body/Small Chamber Box Sealing (19) on the body. Make sure that the gasket perfectly fits on the housing.
12. Install the Cover (2) / Small Chamber Box (16) on the Body (1) and screw the bolts in opposing order.

In PHV Sewage Air Valve Models, please follow the below steps to renew the Float Sealing Gasket (12):

1. Isolate the Valve from the line, and drain the medium. Make sure to fully de-pressurize the pipeline.
2. Remove the bolting on the Cover (2) and take it out from the Body. The whole float assembly shall come out as one item.
3. Remove the Cover Sealing (6).
4. Clean the Body (1) sealing surface and Cover (2) sealing surface.
5. Disassemble the Sealing Air Valve Bottom Piece (13) and Sealing Air Valve Body (15) by unthreading.
6. Remove the Sealing O-ring (14) and clean the sealing surface.

7. Take out the Float (11) and remove the Float Sealing (12). Clean the surface and install the new Sealing.
8. Install the Sealing O-ring (14) and make sure that it fits on the channel perfectly.
9. Check the Float movement and make sure that it is moving freely.
10. Make sure that there are no residuals or particles inside the Valve body. If so, please clean them.
11. Thread the Sealing Air Valve Bottom Piece (13) and Sealing Air Valve Body (15).
12. Install the new Cover Gasket (6) on the body. Make sure that the gasket perfectly fits on the housing.
13. Install the Cover (2) on the Body (1) and screw the bolts in opposing order.

In YHV Underground Air Valve Models, please follow the below steps to renew the Air Valve Body (2):

1. Remove the bolt (22) on the Cover (7) and take the Cover out from the Sleeve (3).
2. Remove the bolt (13) on the T-Nut (8) and take the T-Nut out of the Sleeve (3).
3. By holding from the Pipe (9), take the Air Valve Body (2) Set out. In this process, integral Check Valve (11) mechanism shall act and provide sealing.
4. Remove the Pin (17) from the Air Valve Cover (6) and take the Air Valve Body (2) out.
5. Unthread the Retaining Body (5) at the bottom of the Air Valve Body (2).
6. Renew the Air Valve Body (2) and thread it to the Retaining Body (5).
7. Renew the O-rings (19) on the Retaining Body (5), clean them and fit them to the housings.
8. Assemble the Air Valve Cover (6) on the Air Valve Body (2) and fix them by the Pin (17).
9. Fit the Retaining Body (5) on the O-ring Housing (4), without damaging the O-rings.
10. Fit the T-Nut (8) on the channels of the Sleeve (3) and screw the bolt (13). Make sure that the bolt (13) fits on the Retaining Bolt (10). After this process, Check Valve (11) mechanism shall be in-active and Air Valve Body (2) shall be active. Make sure that there is no water outflow from the Valve.
11. Install the Cover (7) on the Sleeve (3) and screw the bolting (22).

For VCC Vacuum Breaker Models, please check DVD Check Valve Operations Manual.

## CONTACT INFORMATION

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