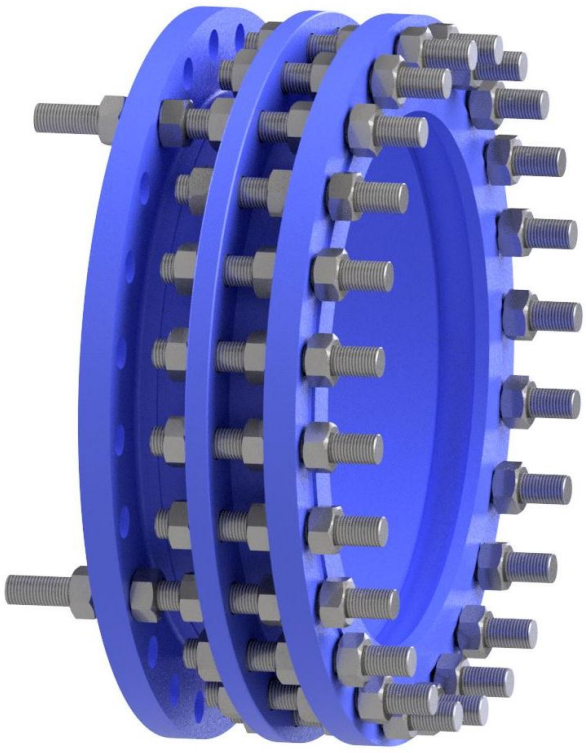
DVD VALVES

OPERATION MANUAL

FDM DISMANTLING PIECES



GENERAL SAFETY INSTRUCTIONS

This Operation Manual is created for you to use DVD Dismantling Pieces effectively and to reduce potential risks regarding faulty use of the mentioned devices. With this Manual, potential accidents and damages can be prevented and life time of the device 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, such devices hold potential risks and can cause danger in case of faulty use or faulty assembly. Therefore, **everyone, who somehow gets in contact with the device, 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 Devices, general regulations and standards shall be followed. Some of these regulations are defined in EN Standards. Installation of the Devices shall be done by qualified and experienced technical personnel. For detailed information regarding the Devices, DVD Documentation (Catalogs, if appropriate Special Specifications and Technical Drawings, related DVD Order Confirmation etc.) shall be used and followed.

Before disassembling the dismantling pieces or any other parts of the device, make sure that the pipeline is de-pressurized and necessary safety cautions are taken.

After commissioning, consequently the Dismantling Pieces are working under pressure; they 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.

During dismantling of the Device from the pipeline, medium can flow out from the pipe or the dismantling piece 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 Dismantling Pieces are designed to be installed on pipelines and to allow easy installation and removal of valves from the system.

Operating limits such as Nominal Size, Pressure, Temperature of the Dismantling Piece can be found in DVD Documentation. 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 Dismantling Piece should never be faced with a higher pressure than the defined Nominal Pressure.

Dismantling Pieces 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, Dismantling

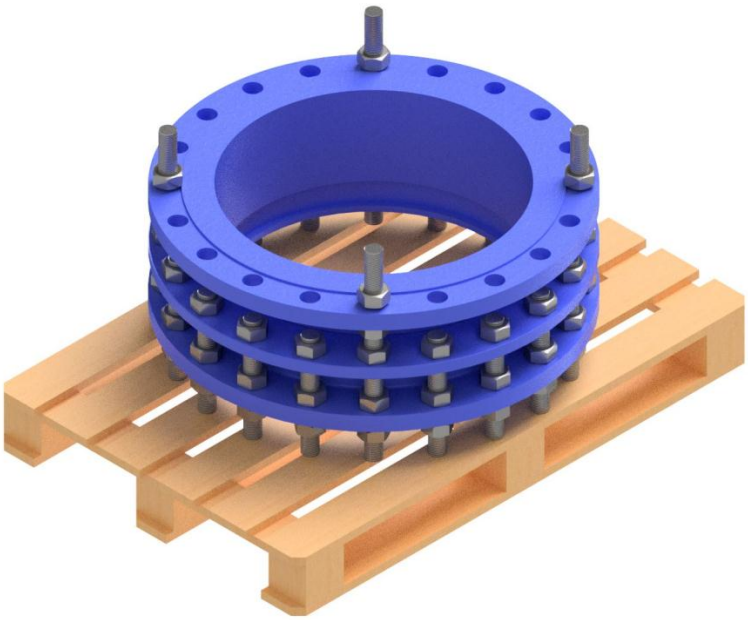
Piece body or other parts of it can be permanently damaged. DVD Valves cannot be held liable from such damages.

TRANSPORTATION AND STORAGE

During transportation and storage, Dismantling Pieces shall be packed with material that can withstand to its size and weight, and should be fully fixed on a pallet. If the Dismantling Pieces are not fully fixed on the pallet, the Dismantling Piece can move during transportation and can cause severe damage.

The Dismantling Piece should be protected from environmental conditions and physical impacts from outside. Any part of the Dismantling Piece body should not exceed the pallet dimension and shall be wrapped by protective cover (stretch film, insulation material etc). Dismantling Pieces coating and accessories shall be protected at all times during transportation and assembly.

Dismantling Piece should be stored and moved in the position of leaning on the studs on the pallet. Be sure that each stud has fully contact with the ground and has equal loads. **While rotating the Dismantling Piece from horizontal to vertical or from vertical to horizontal positions, make sure not to put the weight on one or few studs. Studs are not designed to handle such a lateral force and they can be easily bent.**



PICTURE 1: Positioning on the Pallet

Threads of studs on the Dismantling Piece are extremely sensitive and these threads allow easy movement on the nuts. Thus, studs should be protected all the times and should not get damaged. In case of an impact, threads can be damaged and nuts may get stuck.

Center of Gravity of the Dismantling Piece can be away from its center. Therefore, during lifting the Dismantling Piece, it can swing around. Such incidents can cause damage on the lifting device, the Dismantling Piece itself, and to personnel around it. **Lifting operation should be**

done with extreme care and Center of Gravity of the Dismantling Piece should be determined before lifting operation.

Lifting Belts and Lugs which are according to safety norms shall be used. They have to be suitable for the Dismantling Piece weight.

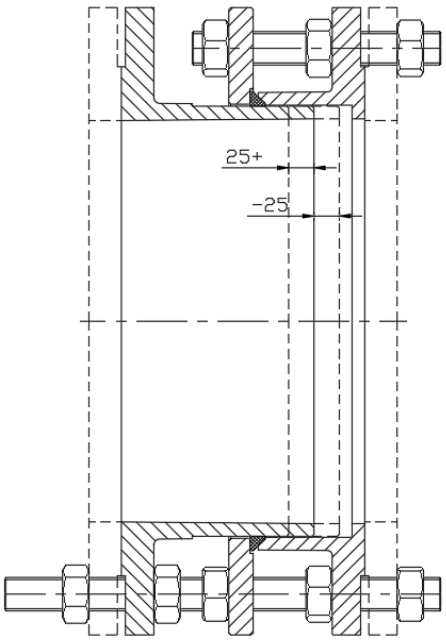
During Storage and Transportation, Dismantling Pieces should never be faced with direct sunlight. Under direct sunlight; seals or coating can get damaged. Dismantling Pieces should be protected and stored in a dry and aerated environment and should be protected from environmental effects. Storage should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

Dismantling Piece should never be in direct contact with the ground, and should be protected by a pallet. Studs, nuts, sealing gaskets and moving parts should be protected from foreign particles, sand, dirt, debris etc. **Due to the accumulation of debris, studs or short-long body movement can get stuck and prevent Dismantling Piece operation.** If there is hard movement over the stud-nuts movements, do not apply excessive force; check for particles that might be compressed within threads and clean them. Applying excessive force will cause a permanent damage on threads.

USE AND APPLICATON

DVD FDM Dismantling Pieces in standard configuration are designed to be used in clean potable water systems. Operation in medium containing gas, oil etc. is only possible with written manufacturer approval and with special material selections suitable to the medium.

The length of DVD Dismantling Piece can be moved +/- 25 mm, which makes Equipment easily to be installed on to the pipeline or to remove them. This function works by moving the nuts on the Dismantling Piece to move the Short Body of the Dismantling Piece into the Long Body.



PICTURE 2: +/- 25mm Adjustment of Length

Do not adjust the length of the dismantling joint without de-pressurizing and draining the pipeline fully. Length adjustment can only be done on empty pipes. Otherwise, retaining force on the Sealing Gasket can drop due to Nut movement and pressurized water can come out of the Dismantling Piece.

All Nuts on the Dismantling Piece should be equally screwed while avoiding over tightening. Due to unequal tightening of the Nuts, all around retaining force on the Sealing Gasket cannot be possible and leakage can occur from the Dismantling Piece. To prevent such an incident, length of dismantling joint should be checked circularly all the times.

Having over tightening can cause of over pressure on Dismantling Joint body and leave a permanent damage on the body. Thus, it is necessary to be careful while moving the bolts. DVD Valves cannot be held liable from damages occurred due to over tightening.

In Standard Configuration, DVD Dismantling Piece Studs and Nuts are manufactured as galvanized steel. **While adjusting the length of the Dismantling Piece, any type of rough works that can damage the galvanized coating should be avoided.** Otherwise, it can result in corrosion over Studs or Nuts and they might be locked up. DVD Valves cannot be held liable from issues occurred due to damages over galvanized items. For superior corrosion resistance, Studs and Nuts can be demanded from SS304, SS316 or X20Cr13 Stainless Steel materials. However such a request must be mentioned in the Order Confirmation.

If not mentioned in the Order Confirmation, in standard configuration Dismantling Piece consists of Short and Long Studs. However, Full Studs option is possible upon client request. Such a request should be mentioned in the Order Confirmation and written approval from the manufacturer.

INSTALLATION TO THE PIPELINE

Pipeline flanges (pipeline counter flange and the flange of the equipment (valve) which dismantling joint will be connected to), which the dismantling piece will be installed to should be in the same axis and flange surfaces should be parallel to each other. Sealing problems can be seen if this is not obtained, and/or the Dismantling Piece can face high load forces that can cause failures in long time. Load forces transmitted to the Dismantling Piece from the pipeline should not go beyond what is defined in EN 1074-2 standard. Not to do so can cause Dismantling Piece failure. Make sure that opposing flange surfaces are clean and smooth during installation. **In case of using a thicker flange than the standard one, the length of Studs will not be long enough.**

Dismantling Piece flange to pipeline flange connection should be done by studs and nuts; and washers must be used to protect the coating. Opposing nuts 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 Nuts can cause permanent damage on the Dismantling Piece.

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

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

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 Dismantling Piece before installation and make sure that there are no foreign particles inside of it. Check the sealing surfaces of the Dismantling Piece and confirm that they are clean. For Dismantling Pieces 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 Dismantling Piece 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.

DISMANTLING PIECE POSITIONING

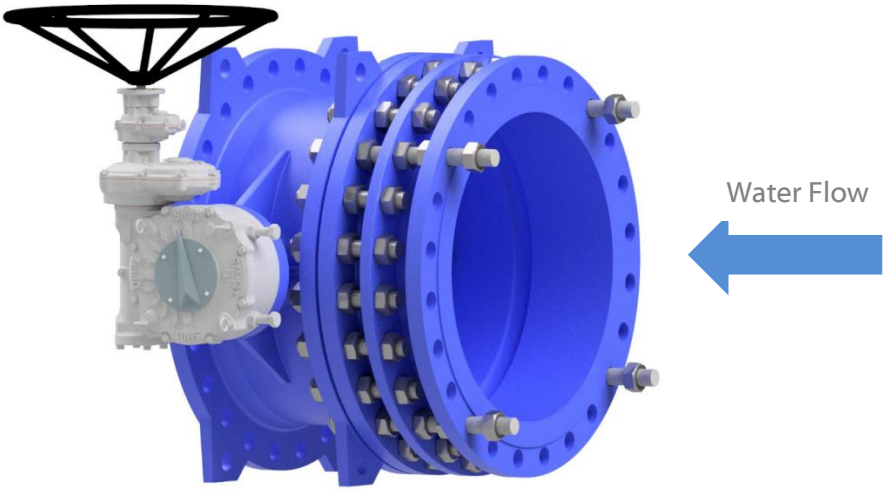
Dismantling Piece should be protected inside a Chamber. **It is not recommended to bury the Dismantling Piece.** Such an application can result in particles collection between Studs – Nuts, which will prevent working of the equipment.

During installation, take into consideration possible inspection and maintenance circumstances and provide enough space for such intervention.

In order to remove the Equipment (Valve) which the Dismantling Piece is used by; Long Studs should be pulled back from the flanges of Equipment (Valve) until being released. **If Dismantling Piece needs to be installed somewhere close to a wall or any other equipment, there should be enough space for pulling back of the Studs; otherwise it will not be possible to remove the Equpiment (Valve) from the pipeline.**

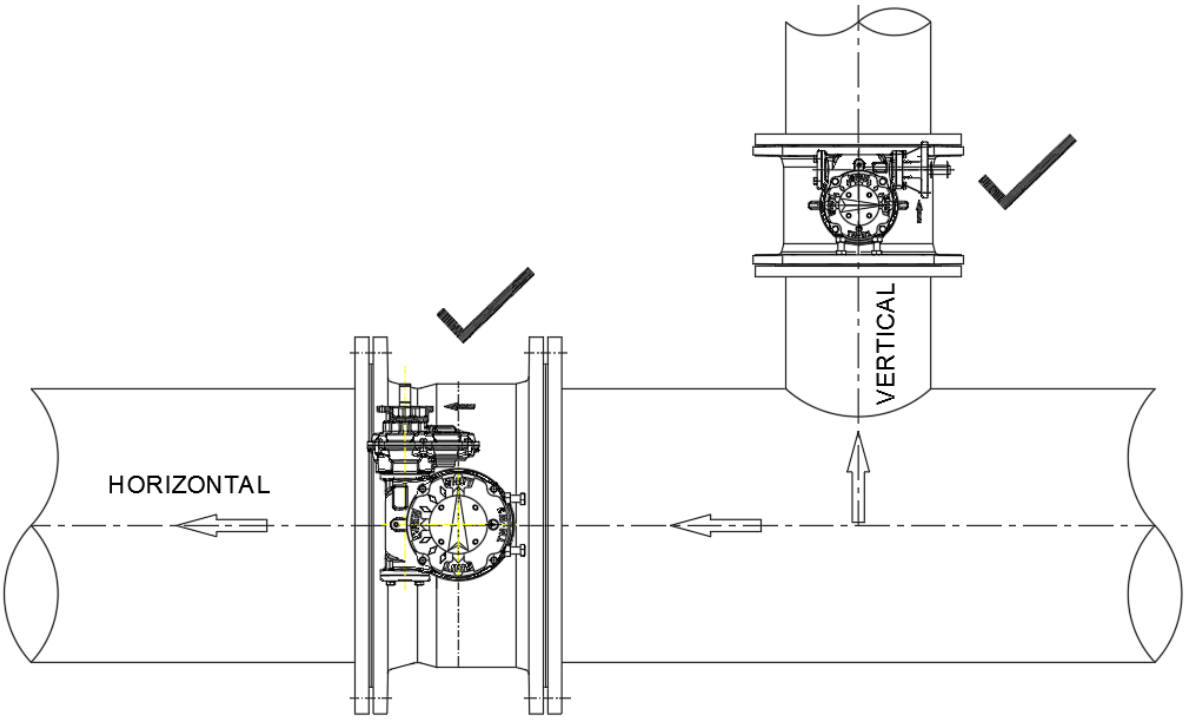
A Lifting Device should be available on the site that is in line with the weight of the equipment connected to the Dismantling Piece. Otherwise, dismantling and re-installing of the equipment for maintenance purposes will not be possible.

It is recommended to install the Dismantling Piece in the upstream of the equipment. Installation to the downstream of the equipment, especially in Regulation Valves, can cause cavitation damage to the Dismantling Piece. If vibration or noise occurs, please, please check the system operation conditions (flow rate, pressure etc.) in order not to face any cavitation damage.



PICTURE 3 – Dismantling Piece + Equipment (Valve) Connection

Dismantling Pieces can be installed to vertical and horizontal pipelines, meeting the constraints mentioned above.



PICTURE 4 – Correct Installation of Dismantling Pieces to Horizontal and Vertical Pipelines

MAINTANANCE

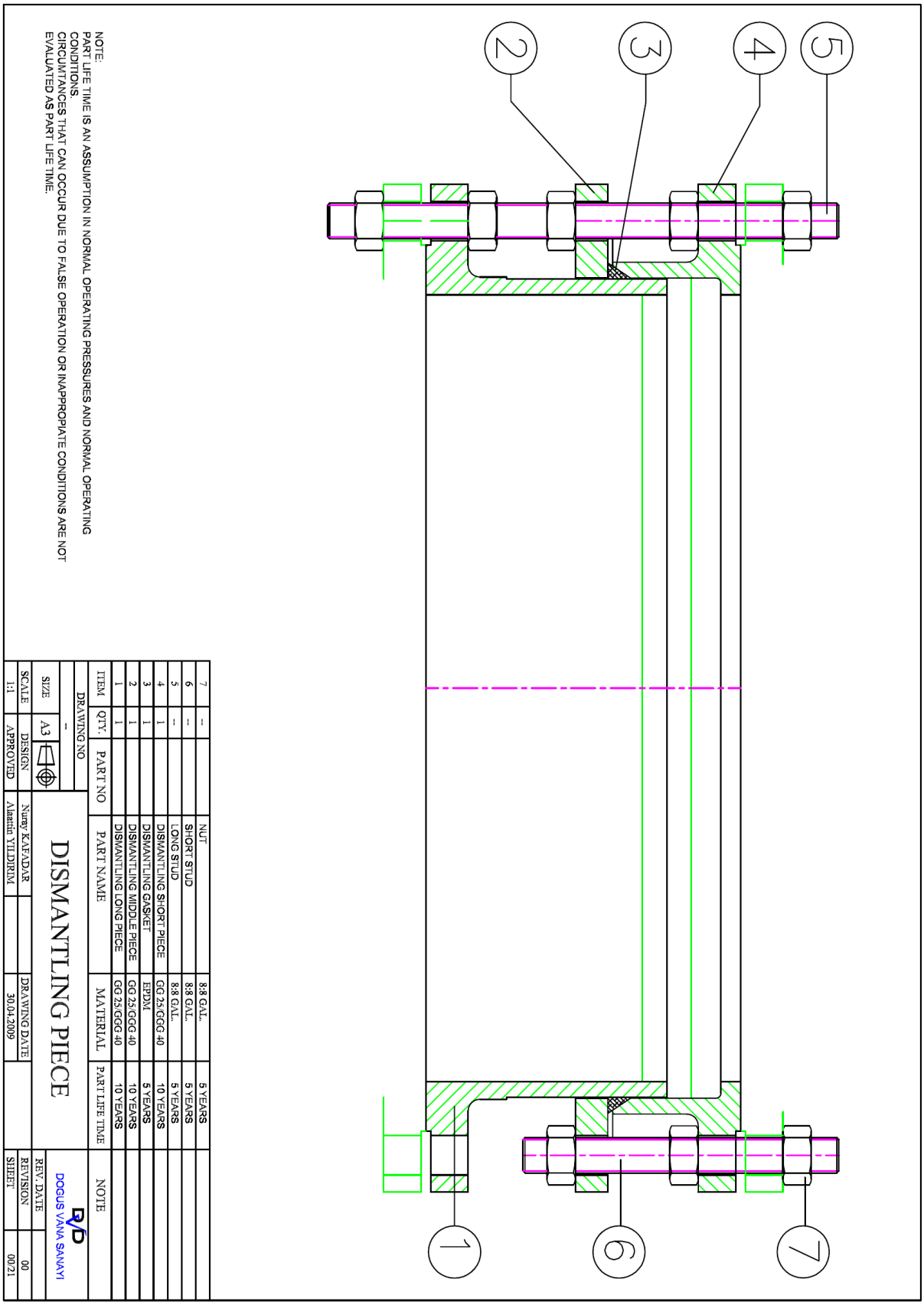
Dismantling Pieces are maintenance-free. However, the length of the Dismantling Piece can be adjusted to provide easy maintenance of the connected equipment. Before adjusting the length, make sure that the pipeline, which the Dismantling Piece is installed to, is isolated; upstream and downstream pipelines of the Dismantling Piece are drained and de-pressurized. In case pipeline is not de-pressurized fully; potential dangers such as sudden part movement or pressurized water outflow etc. can occur.

After maintenance is done, please re-install the Dismantling Piece 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 a 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 FDM Dismantling Piece Spare Part lists and predicted life time of these parts are indicated as below:



PICTURE 5 – DVD Dismantling Piece 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 Dismantling Piece is potable water approved, potable water approved lubricants should be used.

Please follow the below steps to renew the Sealing Gasket (3):

1. Remove the Dismantling Piece from the line, in line with the above mentioned requirements.
2. Remove the Nuts on the Short Body (4).
3. Remove the Short Body (4) from the Studs (5) by considering the Stud Threads (5) not being damaged.
4. Sealing Gasket will appeared between the Middle Body (2) and the Long Body (1). Remove the Sealing Gasket (3).
5. Clean the Middle Body (2) gasket facing surface, the Short Body (4) gasket facing surface and the Long Body (1) gasket moving surfaces.
6. Install the new Sealing Gasket (3) on the Middle Body (2). Make sure that gasket is correctly fit to the surface.
7. Install the Short Body (4) through the Studs (5) by retaining the Sealing Gasket (3).
8. Mount the Short Body (4) by screwing the Nuts (7).
9. Make sure that all Nuts (7) of the Dismantling Piece are equally screwed and without over tightening.
10. Make sure that there is enough retaining force on the Sealing Gasket (3). Excessive force can damage the gasket, while low force can cause leaking.

CONTACT INFORMATION

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