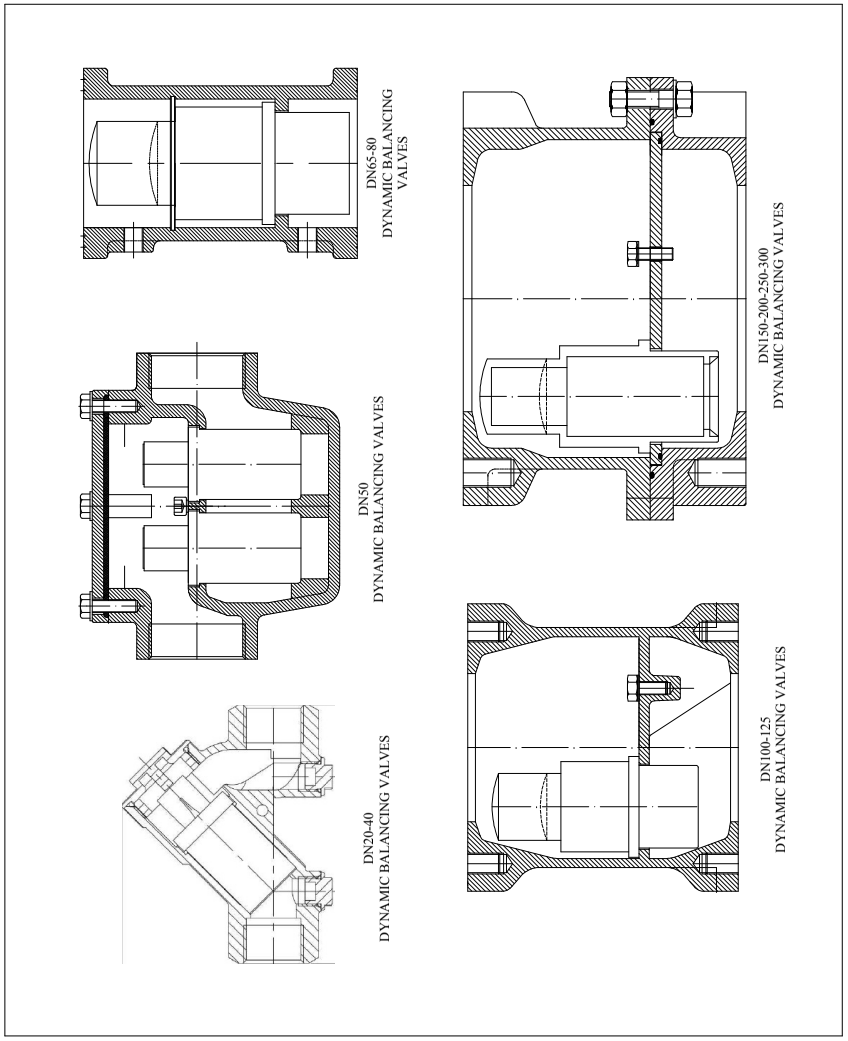
**Size:** DN15 – DN300
**Operating Pressure:** PN10 – PN 25






BALANCING VALVES OPERATION MANUAL

## DESCRIPTION

DVD Dynamic Balancing Valves are designed to give a stable flow rate to downstream in the defined differential pressure (ΔP) range. In case the differential pressure goes out of the defined ΔP range, flow rate varies from the demanded flow. Valves consist of a cast body and cartridges. Body is manufactured from optimum dimensions and weight for different sizes. Cartridge is manufactured from a stainless steel spring and a varying orifice in a POM body. When the differential pressure changes in the system (inside the defined ΔP range), cartridge length changes which causes the orifice size, meaning the kv value, to change; so that same flow rate occurs in the downstream. In case differential pressure goes outside the defined range, valve works as a constant orifice and flow rate changes with the pressure.

Warning: Make sure that the line is not pressurized when opening the signal ports or valve cover (in appropriate models).

Do not damage the cartridge body by all means. There is a compressed spring inside the cartridge and it can be loose in case the body is damaged. Compressed spring can hurt the ones around the cartridge if it is loose.

## STORAGE

- Balancing valves should be stored in a place where they will not be subjected to sunlight. They should be kept on wooden pallets, avoiding any direct contact of the valves with the ground.
- Balancing valves should be protected from any external effects and mechanical damages in the storage place.
- During the storage, it should be assured that the openings of the balancing valves are closed; to prevent dirt from entering the valve.

## INSTALLATION

- Allow enough space around the valve assembly for future maintenance/disassembly work.
- Ensure that a valve of correct size, specification and clean out rating is being used.
- In the first installation, there should be no cartridge inside the valve. If cartridges are installed inside the valve, do not forget to dismantle them first.
- During storage, keep the valve fully closed. It should be assembled to the pipeline in fully closed position.
- The flanges which the valve will be assembled should be in the same axis and the flange surfaces should be parallel to each other. Problems with sealing can be seen in case this is not obtained.
- In valve connection, make sure to use appropriate sealing elements between the line and the valve.
- The valve should be assembled by using the lifting eyes. It is very dangerous for the workers to lift the valve from any other place. Moreover, if the valve is lifted from any other direction, the valve can be damaged.
- The flanges should be connected only with the nuts, bolts and studs that are specified. Otherwise, sealing problems can be seen.
- Before commissioning the pipeline, make sure there are no foreign particles in the pipeline. These particles can damage the valves.

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Please consult our factory for supplying spare parts.
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## OPERATION

- The operating pressure of the balancing valve is specified on the product. The operating pressure should never exceed this value in case of commissioning. The balancing valve should be protected from possible pressure surges and excessive operating pressures.
- Balancing valve should be first installed on the line without a cartridge. System should be run for 15 days and it must be flushed. In this time period, leakage points should be inspected and repaired. When it is sure that the system is clean, after this time period, cartridges should be installed on the valves.
- Every cartridge has different colors showing the operating differential pressure range of the cartridge, and every cartridge is designed to give a different flow rate. By looking at the color and the written code on the cartridge orifice, one can figure out the operating differential pressure and the flow of the cartridge. Please check the cartridge table on the related catalog page.
- Make should to isolate the valve before installed the cartridge to the valve.
- Make should that you install the correct cartridge to every valve.
- In models with covers, cartridge can be installed without removing the valve from the line. In models without covers, valve should be dismantled from the line.
- In installing the cartridge, make should that there is no gap between the cartridge seating surface and the valve cartridge fixing surface. In case there is a gap between these surfaces, flow can bypass the cartridge and that needed flow can not be achieved. Cartridges should be fixed so that they do not move inside the valve.
- After installing the cartridges to the valves, read the differential pressure from the signal lines of the valves and check the operating differential pressure.

## DISMANTLING

- Valve that is going to be disassembled must be closed and both downstream and upstream sides of the valve should be discharged.
- Valve should be secured to a crane or lifting equipment that is capable of lifting the valve. Valve should be connected to the crane from the lifting eye or from the flange holes. Lifting the valve from another direction is extremely dangerous for the workers and may damage the valve beyond repair.
- All flange bolts, nuts and studs must be removed.
- Valve should be lifted with the help of the crane and stored according to storage instructions.

## MAINTANANCE

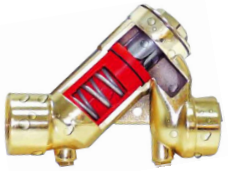
- Balancing valves are designed to have minimum maintenance.
- Inspect valves regularly and pay attention to whether correct flow rates are achieved.
- Inspect valves regularly from the signal lines whether the valve is operating on correct differential pressure.
- Valve should be isolated periodically and cartridges should be dismantled. If any debris formation is on the valve, it must be cleaned.



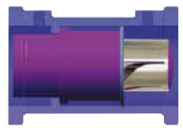
BALANCING VALVES OPERATION MANUAL

## TROUBLESHOOTING

| Problem | Reason | Solution |
|---|---|---|
| Valve does not give the needed flow | There is dirt inside the valve | Dismantle the valve from the line and clean it |
| | Cartridges are wrongly selected | Check the cartridge flow and operation pressure difference from the catalogue and examine if correct cartridge is used |
| | Cartridge is damaged | Replace the cartridge |
| | Cartridge is not installed correctly | Check whether there is a gap between the cartridge contact surface and the valve cartridge fixing surface. Tighten the screws (appropriate models) so that the cartridge does not move on the housing |
| Valve cover sealing is not achieved | Cover gasket is worn out | Replace the cover gasket |


DN 15-40


DN 50

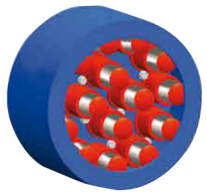

DN 65/80


DN 100


DN 125


DN 150


DN 200


DN 250 ve above

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