Installation, Operation and Maintenance Manual

1. Foreword

Thank you for choosing our product. This manual should be read carefully prior to installation. This manual has been carefully prepared to provide instructions on installation, operation, and maintenance of the Winflo-Eautechnik products.

This manual is intended to be used in conjunction with other literature provided with the Winflo-EauTechnik products. Installation should be made in accordance with the regulations of the authority having jurisdiction, local code authorities, and utility companies which pertain to this type of equipment. Authority having jurisdiction (AHJ) may be federal, state, local government, or individuals such as fire department, labor department, health department, building official, electrical inspector, or others having statutory authority. In some circumstances, the property owner of his/her agent assumes the role, and at government installations, the commanding officer or departmental official may be the AHJ.

Installation and maintenance of Winflo-EauTechnik products must be performed by qualified professionals where civil, mechanical, and electrical work is required.

This document is intended to provide information only and does not form a contract with third parties.

Note: EauTechnik reserves the right to modify and update product technical specifications, components, and documentation without notice and without obligation to update existing equipment. It is the user's responsibility to ensure that the latest version of this manual is being used that is available by contacting EauTechnik GmbH or any of its authorized distributors.

Note: The texts and drawings in this manual are correct to the best of our knowledge. Your own calculations and plans, under consideration of the current standards and directions should be the only basis for your projects. We do not offer a guarantee for the completeness of the drawings and texts of this manual - they only represent some examples. They can only be used at your own risk. No liability is assumed for incorrect, incomplete, or false information and / or the resulting damages. The design and the specifications can be changed without notice. The illustrations may differ from the original product.

2. Table of Contents

3. General Instructions

1. Read these instructions and warnings carefully. Instructions contain vital information regarding the safe installation, operation, and maintenance of this product. Failure to comply with the instructions in this manual can cause product/property damage, severe personal injury, and/or loss of life for which the manufacturer shall not be liable.
2. This manual must be kept in a suitable place with easy access for users and operators, protected from dust and damp. The manual must accompany the unit during the entire life cycle.
3. Examine the product when it is received to be sure that there is no damage in shipping. If any damage is evident, report it to the transportation company and have it inspected by them. Check the nameplate to verify the correct unit has been received.
4. The responsibility of installation lies with the installer and must be performed by an authorized and qualified professional.
5. Using the product for reasons other than those specified in this manual are strictly prohibited. The manufacturer shall not be held liable for any damage caused by improper or unjustifiable use or by failure to comply with the instructions in the manual.
6. Incorrect handling, installation, operation, and maintenance of the product may cause personal injury or damage to property. The manufacturer shall not be held liable for such damage.
7. Installation, maintenance, and other special work on the product must be performed by an authorized professional, always in compliance with instructions provided in this manual and any other further instructions provided by the manufacturer.
8. Keep all packaging materials out of reach of children.
9. All repairs must be performed exclusively by an authorized specialist, using only the appropriate parts. Failure to comply with the instructions above may endanger your safety and relieves the manufacturer of all responsibility.
10. The product is for its intended use only.

Symbols

Symbol	Meaning
	These instructions must be strictly followed and indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.
	Indicates an electrical hazard that can result in fatal injury. These instructions must be followed and carried by a qualified electrician or electrical engineer.
	These instructions are highly recommended and indicates the product's general and specific cautions, instructions and standards.

Note: Failure to follow the procedures and instructions in this manual will void the warranty and EauTechnik may not be held liable for any damages to property nor injury or death.

4. Safety Standards

General Safety Standards

- Observe the national regulations for working at heights.
- Wear a safety belt.
- Cordon off the areas in the fall zone below the working position so that persons cannot be injured by falling objects.
- Identify the working position, e.g. by signs conforming to the applicable national regulations.
- Avoid danger of burning and scalding. Where applicable, we recommend installing a thermostatic mixer valve on the water delivery line, marked with a red collar.
- The product is not be used by persons under 8 years of age/persons with reduced physical, sensory or mental capacity, or lacking the requisite experience and familiarity, unless under supervision or

following instruction in the safe use of the appliance and the hazards attendant on such use. DO NOT permit children to play with the appliance. User cleaning and maintenance may not be done by unsupervised children.

- DO NOT leave the packaging materials (staples, plastic bags, expanded polystyrene, etc.) within the reach of children.
- Do not leave flammable materials in contact with or in the vicinity of the product.
- Do not place anything under the product which may be damaged by a leak.

5. Transportation, Storage, & Disposal

5.1. Transportation

Winflo-EauTechnik products are supplied from the factory and should be stored in its original packaging until installation. Care must be taken when handling the product during unpacking and prior to installation. When carrying the product, it should be transported using a pallet and handled carefully. The product should not be subjected to unnecessary shocks and impacts.

Only used approved hoisting gear that is sized to handle the total weight to be transported.

Never lift the valve by the handwheel, stem, indicator assembly, or by flange bolt holes.

Use the cast lifting hole provided on the valve body as the primary rigging point. Protect the valve body coating from damage during lifting.

5.2. Storage

The product should be transported and stored in a clean, dry, and ventilated area away from direct sunlight, rain, excessive humidity, and corrosive environments. It is recommended to keep the product in its original packaging until it is ready for installation to protect it from dust, moisture, and accidental damage. Keep protective flange covers until installation, if available.

The product must be placed on a stable, level surface, and care should be taken to prevent the valve from overturning. During handling and storage, appropriate precautions must be taken to prevent mechanical shock or impact. Proper storage helps maintain product integrity and ensures reliable performance during installation and operation.

5.3. Disposal

For safe disposal that does not impact the environment:

1. Avoid contamination by lubricants, detergents, etc.
2. Dispose the product and packaging in a proper and environmentally sound manner using local public or private waste collection services.
3. Observe local regulations for decommissioning and disposal.

The crossed-out wheelie bin symbol on a product means that it must be disposed of separately from household waste. When a product marked with this symbol reaches its end of life, take it to a collection point designated by the local waste disposal authorities. The separate collection and recycling of such products will help protect the environment and human health.

6. General Product Information

The Winflo Triple Duty Valve Angle (TDVA) Series combines the functions of a shut-off valve, a non-slam check valve, a balancing valve, and a long radius elbow into a single valve that enables the user to save costs on using several system components, installation and space for pump installations.

6.1. Technical Data

Model	TDVA300DWF16	TDVA250DWF16	TDVA200DWF16	TDVA150DWF16	TDVA125DWF16	TDVA100DWF16	TDVA080DWF16	TDVA065DWF16
Size [DN]	300	250	200	150	125	100	80	65
øD1 [mm]	370	319	266	211	184	156	132	118
øD2 [mm]	410	355	295	240	210	180	160	145
øD3 [mm]	460	405	340	285	250	220	200	185
n-ød	12-ø28	12-ø28	12-ø23	8-ø23	8-ø19	8-ø19	8-ø19	4-ø19
L [mm]	967	762	716	525	445	355	305	304
A [mm]	611	516	481	359	305	244	208	187
B [mm]	356	248	233	168	140	111	98	117
Plug (NPT) [inch]	¼	¼	¼	¼	¼	¼	¼	¼

6.2. Product Identification

Product can be identified using the model, for example:

TDVA065DWF16P

Series Name = TDVA

Connection Size = 065

Body Material = D (D = Ductile Iron, C = Cast Iron)

Fasteners and Plugs Material = W (W = Carbon Steel, S = SS304, M = SS316)

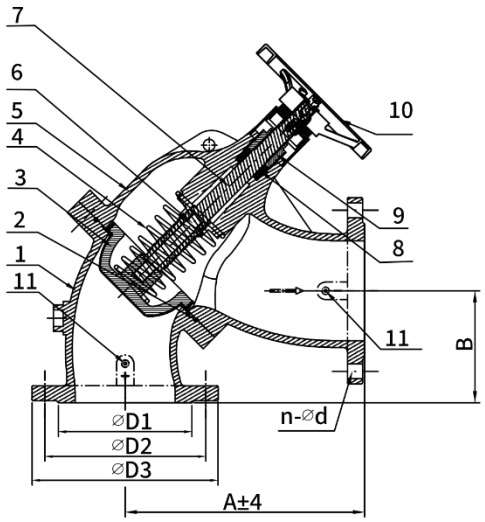
Connection Type = F (F = Flanged, W = Welded, G = Grooved Coupling)

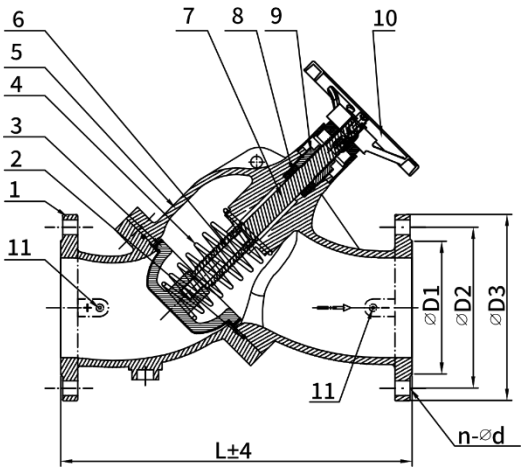
Pressure Rating = 16 (bar)

P/T Plugs = P (P = with P/T plugs, no letter = standard plugs)

6.3. Materials of Construction

ID	Component	Material of Construction
1	Lower Body	EN-GJS-450-10 (Ductile Iron)
2	Body O-Ring	EPDM
3	Seat Disc	EN-JL1040 (Cast Iron)
3	Seat	EPDM
4	Spring	BS 304S15 (SS 304)
5	Upper Body	EN-GJS-450-10 (Ductile Iron)
6	Disc Shaft	BS 410S21 (SS 410)
7	Stem	BS 410S21 (SS 410)
8	V Type Filler	EPDM
9	Packing Gland	BS 410S21 (SS 410)
10	Handwheel	WCB Carbon Steel
11	Plug	WCB Carbon Steel/BS 304S15 (SS 304)





7. Installation

Ensure all machined surfaces are free from defect and that the inside of the valve is free from foreign objectcs.

7.1. Location

The valve should be installed on the discharge side of the pump with the flow arrow pointed away from the pump discharge.

The fluid level in the motor must be checked and the motor must be refilled if necessary.

The minimum recommended distance for the valve installation from the pump discharge for pump sizes 2" to 6" is 12". Minimum recommended distance for pump sizes 8" – 14" is 24". If using the valve for balancing then the valve should be installed at least 10 pipe diameters from the discharge of the pump. If using the valve for only isolation and as a check valve, then the valve should be installed at least 5 pipe diameters from the discharge of the pump.

It is not recommended to mount the valve directly to the pump.

Sufficient clearance should be left around the valve for removal, repair, and accessing the handwheel for operation.

Valve should be mounted with the stem pointing up to facilitate proper sealing of the valve disc.

When connecting the valve to the line, be sure that the flanges are the same – flat face to flat face. Flat face flanges require full face gaskets. The specified face-to-face dimension of the valve is approximate due to machining tolerances. Allow adjustment in prefabricated piping or request certified dimensions.

Check to see that the flange gaskets are properly positioned before tightening the bolts. Tighten bolts gradually in a back and forth clockwise motion.

7.2. Orientation

The valve can be installed either in a straight pipe, with the inlet and outlet flanges in-line and parallel to each other, or as a 90 degree elbow in the angle pattern with the inlet and outlet flanges perpendicular to each other. When ordering the valves, the configuration must be specified to assemble the valve in the required configuration.

If the configuration of the valve has to be changed, please contact us or your local authorized service provider to send a qualified personnel to perform the modification.

8. Operation

Turn the handwheel counterclockwise until the integrated position indicator stem reads the largest number and the stem can be opened no further.

Start the system pump and purge all air from the system.

Install test plugs or pressure gauges in the two ports on the lnlet and outlet of the valve and read the differential pressure across the valve. Pressure drop across the valve should not exceed 11 psi (0.758 bar). Excessive noise or damage to the valve may occur on pressure drop above 11 psi.

Refer to the appropriate valve's performance curve to determine flow based on the pressure drop across the valve and the respective stem marking curve.

Slowly close the valve, turning the valve handwheel clockwise, until the specified flowrate is achieved. Handwheel may be removed to prevent authorized adjustment of the handwheel position. Additionally, it is recommended to keep a record of the stem indicator position.

Consult the pump manufacturers guidelines if specified GPM is achieved with the valve at <50% open, pump impeller may need to be trimmed.

9. Maintenance

9.1. Routine Maintenance

The winflo TDVA requires no regular maintenance. Replacement parts are available upon request by contacting us or your local authorized

representative.

Prior to closing the valve, make sure to not the stem marking and return to this position.

9.2. Inspection

Inspection frequency should be decided by the user. Winflo recommended that the valve be inspected periodically at 3 month intervals to check for reductions in flowrate and improper sealing.

After initial system filling phase is completed, the valve should be cleaned for the first time after a week of operation to remove any obstruction from the installation residue. The cleaning of the valve can be done by cycling the valve from fully open to fully closed to create jetting action that may remove trapped particles.

9.3. Stem Packing Gland Leakage

If there is a leakage from the stem packing gland, the following procedure can be carried out to tighten the packing material in the packing box.

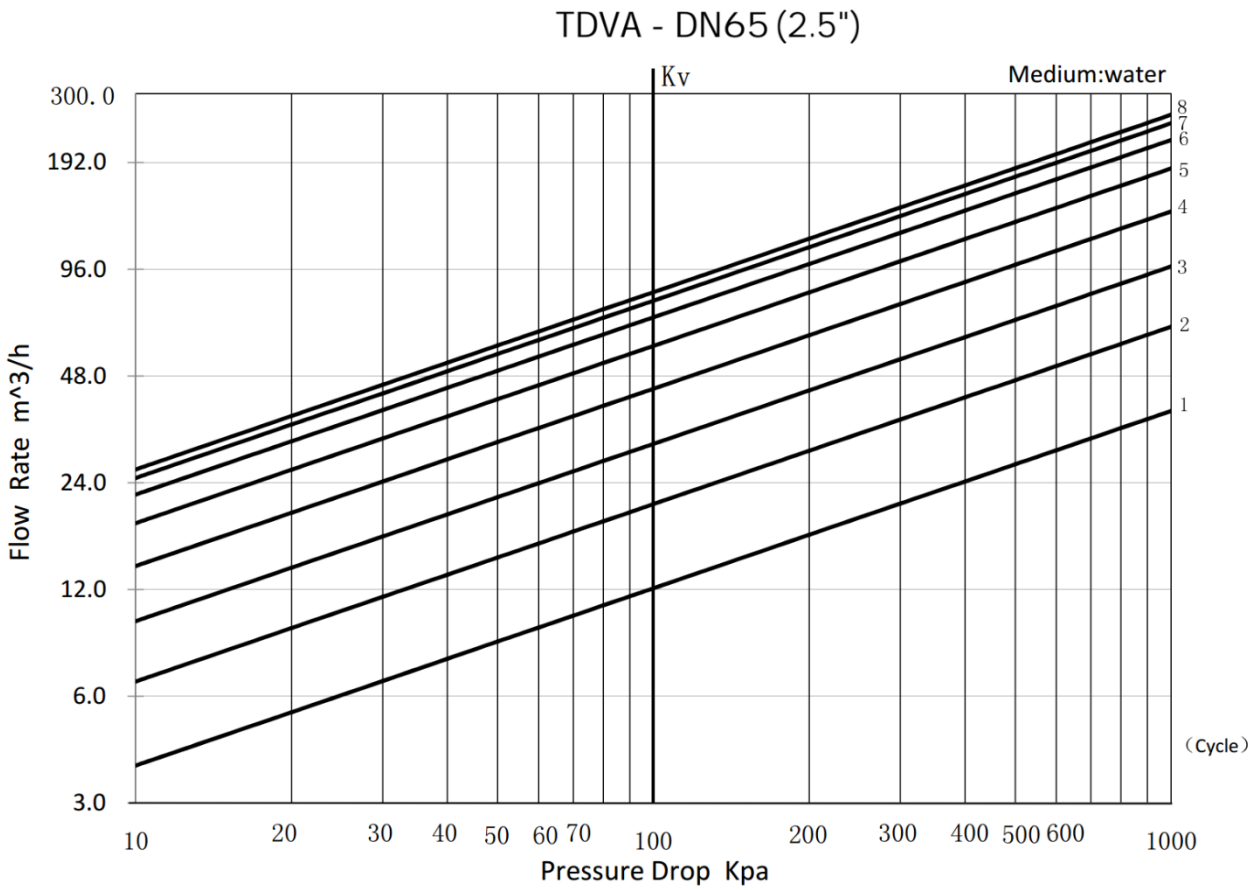
- Remove the handwheel, by removing the bolt and washer on the handwheel.
- Remove the black cylindrical cover on the red indicator stem.
- Remove the red indicator stem by rotating the part counter-clockwise to loosen and remove from the stem.
- You will see the packing gland nut at the bottom of the stem. Using a wrench, the packing material can be pressed and tightened in the packing gland box.
- Then using a wrench on the stem, loosen and tighten the stem to check if the leakage issue has been resolved by tightening the packing gland nut.
- Once the issue has been resolved, reinstall the red indicator stem by rotating it onto the stem in a clockwise direction.
- Then reinstall the black cylindrical cover on the indicator stem by aligning the inner edges of the cover with the edges of the indicator stem.
- Once the cover has been put on the indicator stem, use a hammer to lightly push it's original place.
- Finally, reinstall the wheel on the stem by putting the wheel on the stem and then reinstalling the wheel bolt and washer onto the threaded hole in the stem.

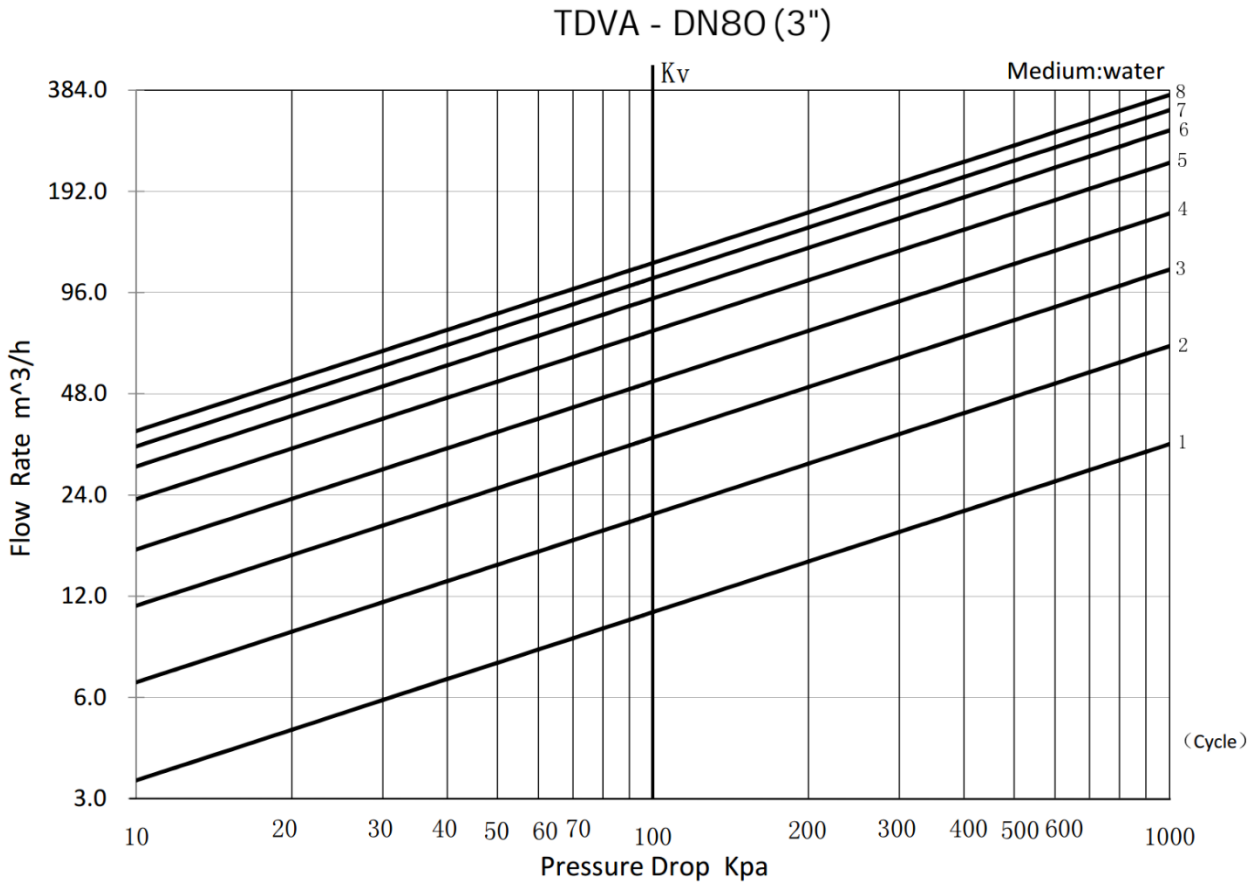
If the leakage persists after tightening the packing material then the packing material needs to be replaced. Please contact us or your local authorized service provider for replacements and repairs.

10. Troubleshooting

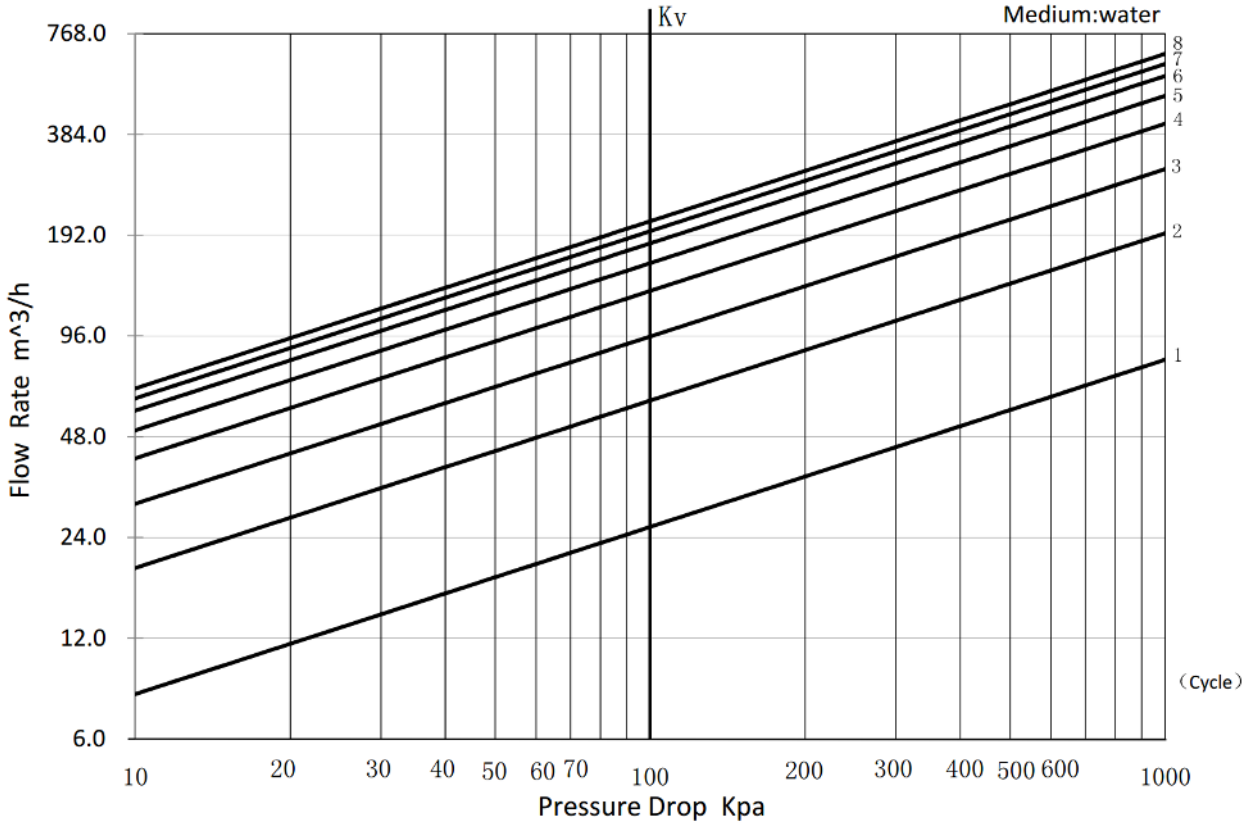
Problem	Possible Cause	Remedy
Leakage at sealing surface	Seat/gasket damage	Replace the seal/gasket
	Dirt between disc and seat/gasket.	Clean the sealing surface
	Medium polluted with solid particles	Clean the valve and pipeline from all impurities. Install a suction diffuser or y-strainer upstream of the valve to protect the valve and pump from impurities.
Rotation difficulty of the handwheel	Valve is packed with debris	Flush out the pipelines with valves in fully open position to ensure pipeline free of debris. Cycle the valve from full open to full close causes a jetting action that will wash away foreign particles that may be trapped. Also cycling the valve will usually squeeze away build-up away from the seat mating faces and allow tight shut off again.
	3rd Party Handwheel	Replace handwheel with supplied handwheel by manufacturer.
Leakage at stem packing	The gland packing is misaligned	Align the gland packing
	The gland is slacked	Adjust the gland
	The gland packing is damaged	Replace the gland packing
	Damage to the flange holes due excessive tightening of bolts or damage due improper lifting of the valve using flange holes.	Replace the valve.
	The bolt(s) are not uniform	Use uniform bolts suitable for the flange holes.
	The seat is damaged	Replace the seat.
	The sealing is damaged	Replace the sealing ring.

11. Pressure Drop Charts

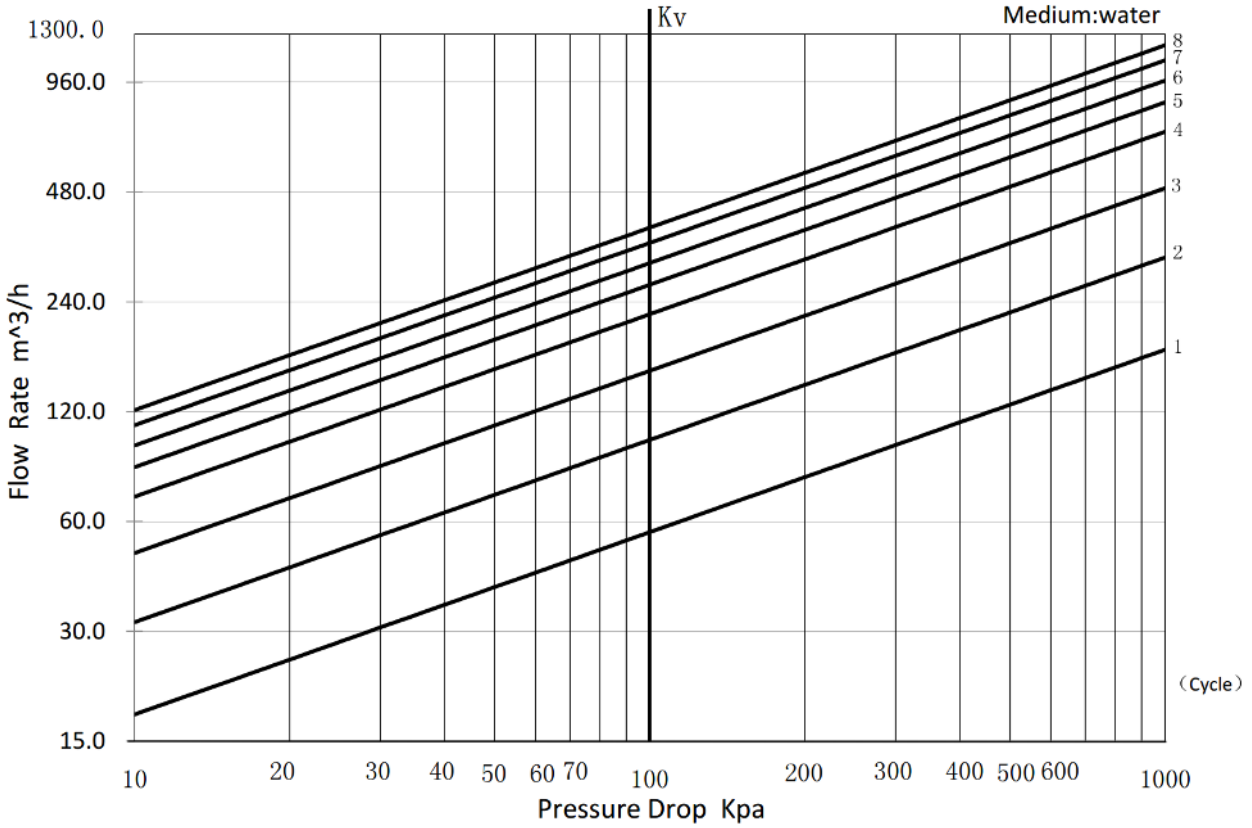




TDVA - DN100 (4")



TDVA - DN125 (5")



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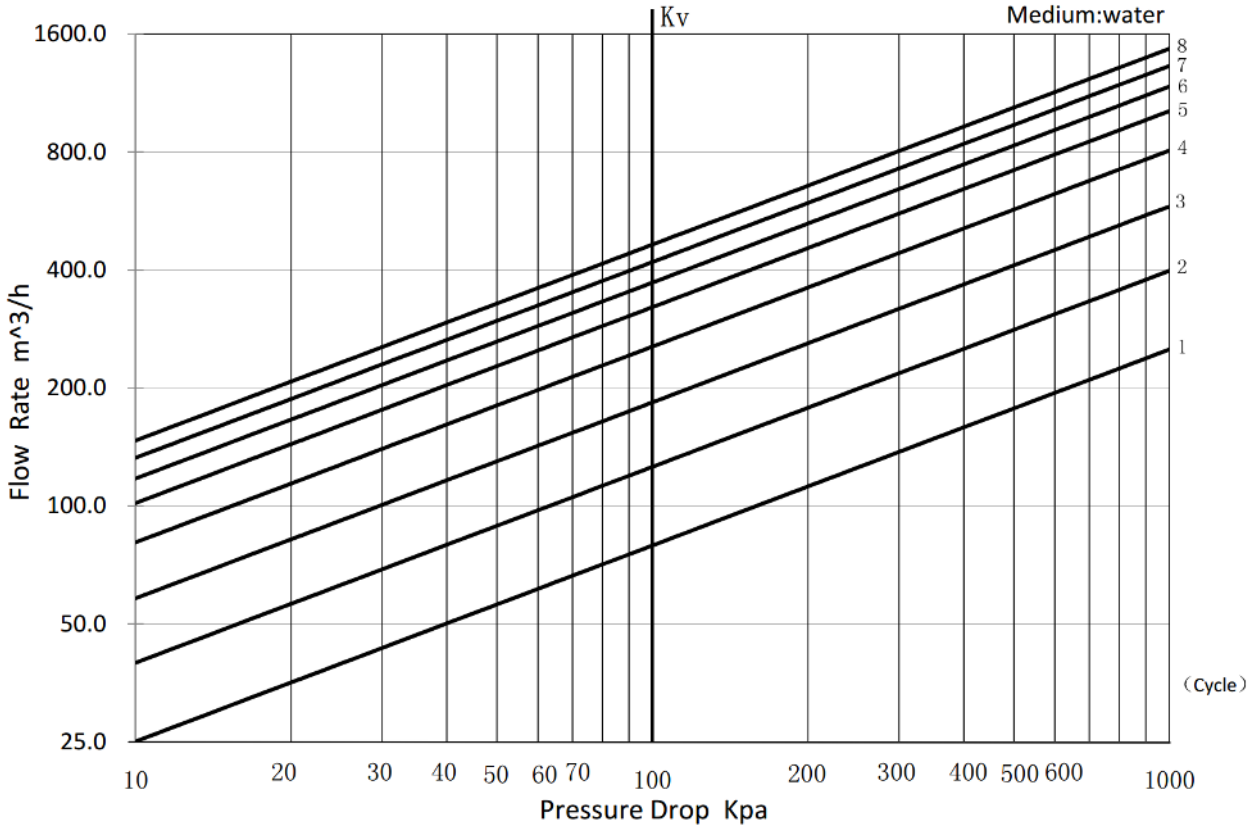
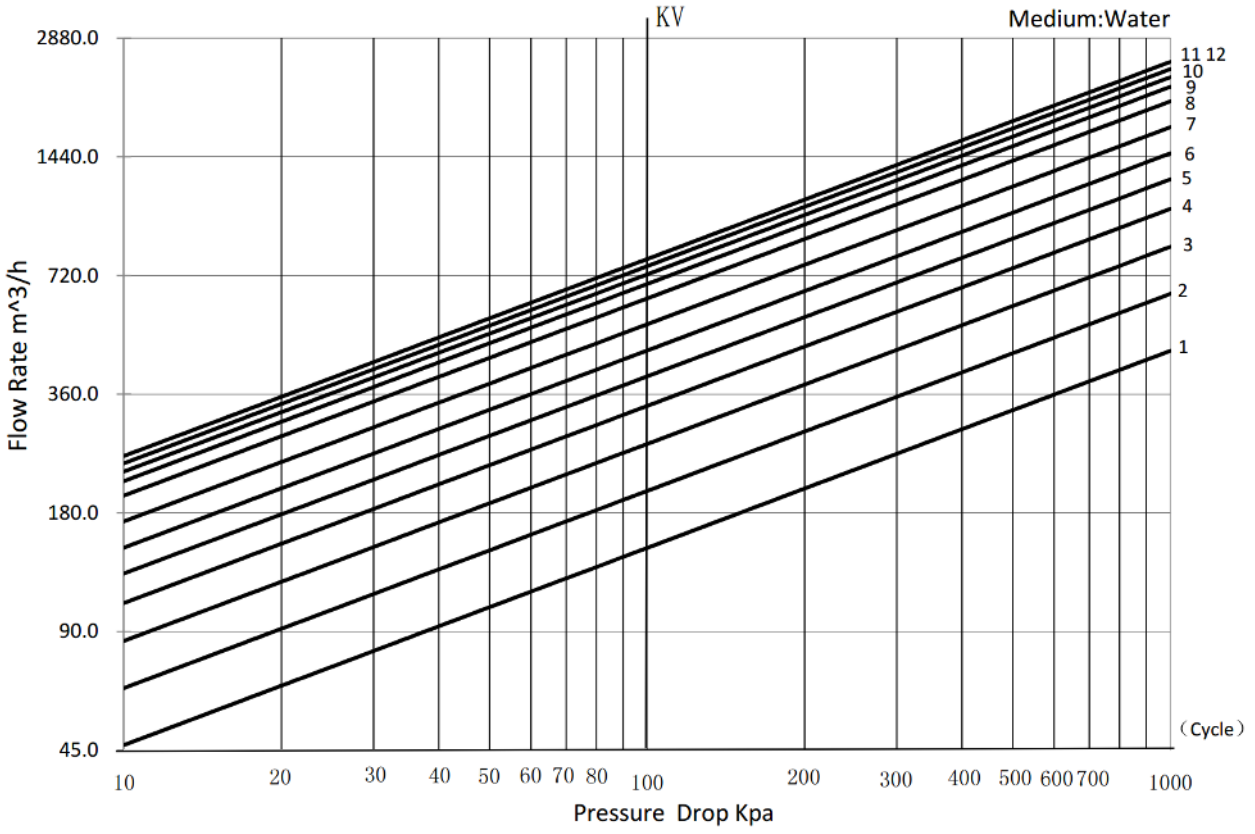
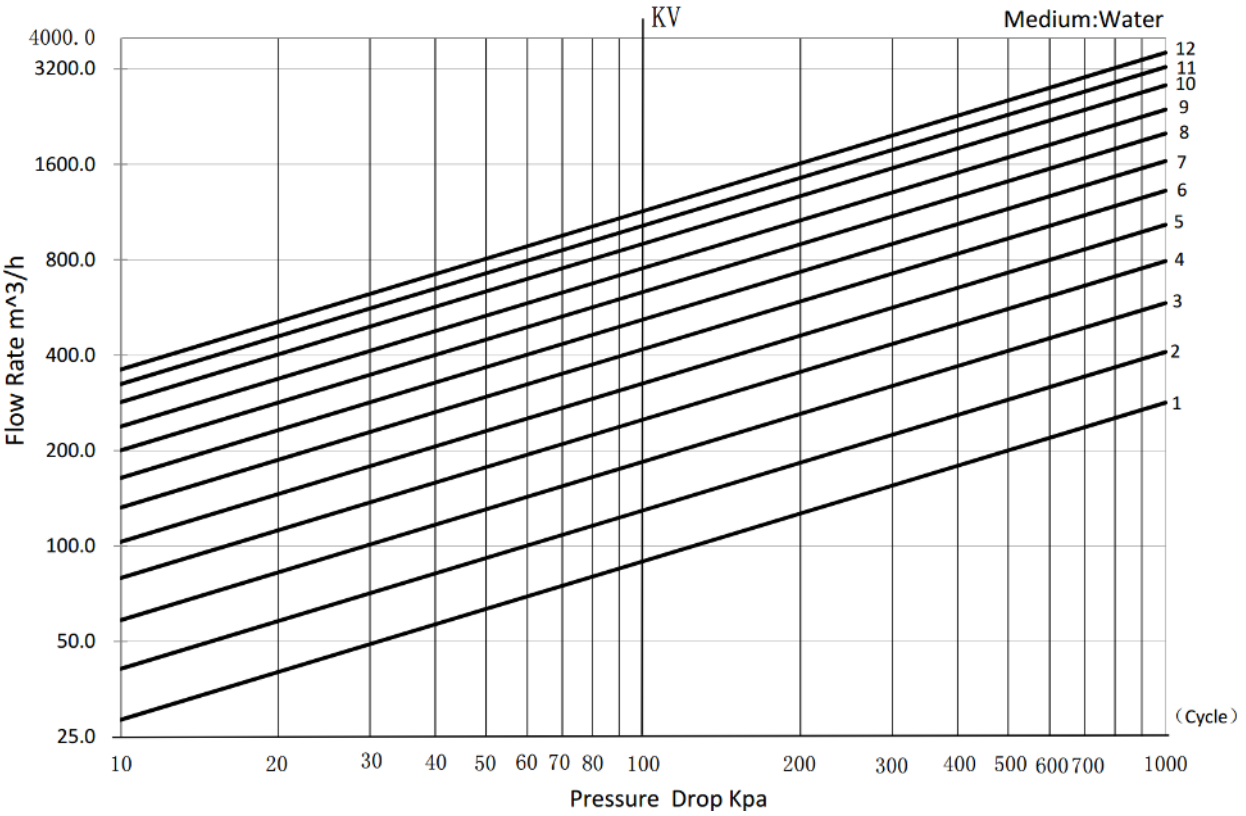


TDVA - DN200 (8")



TDVA - DN250 (10")



TDVA - DN300 (12")