

# IPEX DK SERIES DIALOCK® DIAPHRAGM VALVES



I N D U S T R I A L   S Y S T E M S

- DK Manual Diaphragm Valves
- DKL Manual Diaphragm Valves
- DK Actuated Diaphragm Valves



## Lock it in with IPEX DK Series Dialock® Diaphragm Valves

The DK Series Dialock® Diaphragm Valves are available in manual and pneumatically actuated versions. These diaphragm valves are the ideal solution in a variety of applications, which include modulating flow and controlling dirty or abrasive fluids. The modular nature of these valves results in many material, body style, and diaphragm options. The re-designed weir-style body has significantly improved the DK's flow rate compared to the old design and it facilitates precise linear flow regulation through the valve's full range of operation. The new innovative and patented Dialock locking mechanism allows the manual handwheel to be adjusted and locked in over 300 positions.

### VALVE AVAILABILITY

BODY MATERIAL	PVC, CPVC, PP, PVDF
SIZE RANGE	1/2" through 2-1/2"
PRESSURE	150 psi
DIAPHRAGM	EPDM, FPM, PTFE (EPDM Backed)
CONTROL STYLE	Manual – Handwheel Pneumatic – Double Acting, Normally Open, Normally Closed
END CONNECTION	True Union (Socket, Threaded), Spigot, Flanged (ANSI 150)

## THE NEW DK SERIES TECHNICAL DATA AND RANGE



Series		DK Manual				DKL Manual				DK Actuated			
General Information	Control Options	Handwheel				Handwheel with Stroke Limiter				Piston Actuator			
	Range "True Union up to 2"	1/2" – 2-1/2" (20mm – 75mm)				1/2" – 2-1/2" (20mm – 75mm)				1/2" – 2 1/2" (20mm – 75mm)			
	Pressure	150 psi				150 psi				150 psi			
	Actuator Functions	–				–				DA/NO/NC			
Body Material		PVC	CPVC	PP	PVDF	PVC	CPVC	PP	PVDF	PVC	CPVC	PP	PVDF
End Connection	Spigot (IPS)	■	■	–	–	■	■	–	–	■	■	–	–
	True Union Socket (IPS)	■	■	–	–	■	■	–	–	■	■	–	–
	True Union Threaded (NPT)	■	■	–	–	■	■	–	–	■	■	–	–
	Flanged (ANSI 150)	■	■	■	■	■	■	■	■	■	■	■	■
	Spigot (Metric)	■	■	■	■	■	■	■	■	■	■	■	■
	True Union Socket (Metric)	■	■	■	■	■	■	■	■	■	■	■	■
Diaphragm Material	EPDM	■	■	■	■	■	■	■	■	■	■	■	■
	FPM	■	■	■	■	■	■	■	■	■	■	■	■
	PTFE	■	■	■	■	■	■	■	■	■	■	■	■
	NBR	■	■	■	■	■	■	■	■	■	■	■	■

■ Available ■ Available on request – Not Available

## APPLICATIONS

- Precise Flow Regulation
- Abrasive Slurries and Dirty Fluids
- Water and Wastewater Treatment
- Plant Chemical Distribution Lines
- Bleach, Dye and Acid Lines
- Pharmaceutical
- Semiconductor & Microelectronics
- Aquatic Animal Life Support Systems
- Food Processing
- Laboratories
- and many more ...

# DK DIALOCK<sup>®</sup> MANUAL VERSION

1/2" to 2-1/2"



## Graduated Optical Position Indicator

A graduated optical position indicator allows for a quick visual check of the valve position.

## Custom Labelling Plate

A custom labelling plate housed in a transparent cap can be used to identify the chemical service or pipeline contents.



## Optimized Fluid Dynamic Design

The newly designed internal profile of the DK body reduces the pressure drop across the valve, resulting in a significantly improved flow coefficient.

Precise linear flow regulation is achieved through the DK's full range of operation.



## Floating Pin Connection

A floating pin connection between the control screw and diaphragm evenly distributes the compressive load on the diaphragm and results in an improved seal.



## Tag Ready

The DK incorporates a feature that allows an identification tag to be easily affixed to the valve body.



## Mounting Bracket

The DK features a mounting bracket that is integrally molded into the base of the valve, allowing the valve to be mounted to a wall or panel.



# Dialock<sup>®</sup>

## Dialock<sup>®</sup> System

The new innovative and patented locking mechanism allows the DK manual handwheel to be adjusted and locked in over 300 positions.

## Waterproof Design

The DK manual handwheel and bonnet are totally waterproof, which means that all internal metal components are isolated from the external environment.



## High Strength & Corrosion Resistance

The manual handwheel and bonnet are made with glass-filled polypropylene (GFPP), which provides high mechanical strength and corrosion resistance. This also makes the DK diaphragm valve suitable in a variety of chemically aggressive environments.



## Wall/Panel Mounting Plate

The new mounting plate allows the DK diaphragm valve to be anchored to a wall or panel. It also facilitates axial alignment of the valve with the rest of the piping system.





# NEW MAXIMIZED FLOW RATE VALVE BODIES



## Valve Body

The design of the new DK valve body has increased its flow performance by up to 90% compared to previous models.

The new internal profile of the valve has greatly improved its flow coefficient values (Cv) and has resulted in a reduced pressure drop across the valve.

This new design has also enabled the size and weight of the valve to be reduced.

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
C <sub>v</sub>	7.8	18.1	30.8	38.1	75.3	114.2	110.9

## New 2-1/2" body

The increased performance derived from the new fluid dynamic design has also allowed the size range of the DK diaphragm valve to be extended to 2-1/2". Compared to the previous model, the 2-1/2" has improved its flow coefficient by 20% and reduced its weight by 60%, while maintaining an identical lay length.

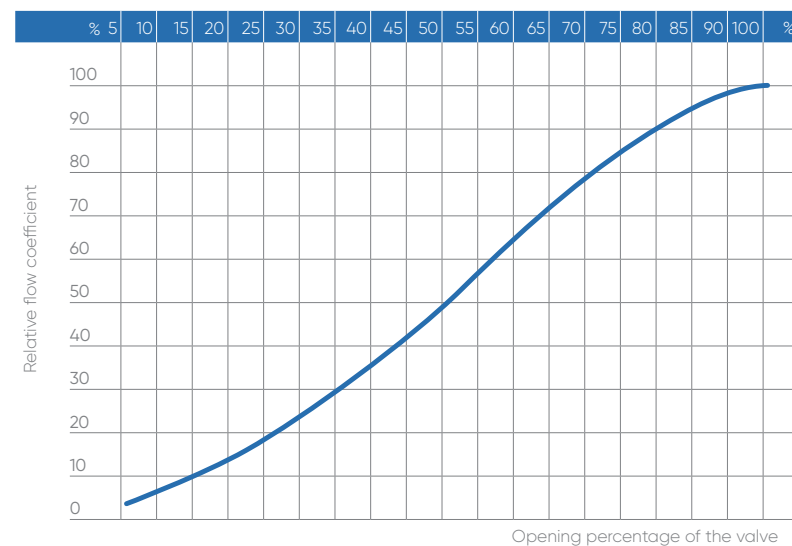


## Circular Diaphragm Sealing Area (CDSA)

The new internal profile design is free of dead zones, which minimizes the risk of deposit build-up and diaphragm contamination or damage through crystallization. This leaves the valve clean and hygienic.

## Precise Linear Flow Regulation

The new body design allows precise linear flow regulation through the DK's full range of operation.



# SAFE AND PRACTICAL TO USE

## New Diallock® Integrated Handwheel Locking System

### Diallock® System

The innovative handwheel is equipped with a patented, ergonomic locking device that allows it to be adjusted and locked in any position.

## Diallock®



The valve can be locked by simply lifting the handwheel once the required position has been reached.



To release, simply push the handwheel downwards.



The handwheel and bonnet are made with glass-filled polypropylene (GFPP), which provides high mechanical strength and corrosion resistance. The manual handwheel and bonnet are totally waterproof, which means that all internal metal components are isolated from the external environment.



To further safeguard the system against unwanted interference, it is also possible to fit a lock after having set the handwheel in the locked position.

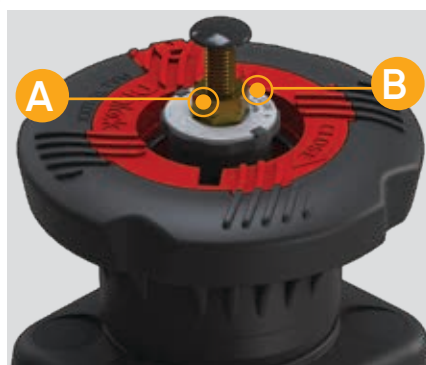
## MAXIMUM AND MINIMUM FLOW RATE SETTINGS



### DKL Series with Integral Travel Stop and Stroke Limiter

The DKL valve, a limited version of the DK diaphragm valve, is equipped with an innovative handwheel stroke control system which allows the maximum and minimum flow rates of the valve to be adjusted and prevents excessive pressure on the diaphragm during closing.

The system allows the valve stroke to be modified using the two independent adjusting screws, which determine the limits of the valve during opening and closing.



#### Travel Stop Adjustment

To set the stop to the desired minimum flow rate or closed position, rotate the handwheel until the required position is reached and then lock the set position by tightening the nut (A) and locknut (B).



#### Stroke Limiter Adjustment

To set the stop to the maximum desired flow rate, rotate the handwheel until the required position is reached and then lock the set position by rotating the knob (C) counterclockwise until it reaches the stop.

## INSTANTANEOUS CHECK AND ADJUSTMENT

### Graduated Optical Position Indicator

A quick visual check of the valve position is provided by the highly visible graduated optical position indicator, protected by a transparent cap with an o-ring seal.

The graduated scale of the indicator has 4 valve opening percentages: 25, 50, 75, 100%.

This means the flow rate can be regulated intuitively by simply glancing at the indicator.



## UNIQUE ID FOR EACH FUNCTION

### Custom Labelling Plate

A white PVC custom labelling plate is housed in the transparent protection cap, which can be removed and, once overturned, used as a valve tag or used for identifying chemical service and pipeline contents.

The waterproof transparent protection cap with o-ring seal protects the plate against deterioration.



## PRACTICAL INSTALLATION SOLUTIONS

### Wall/Panel Mounting Plate

The new DK diaphragm valve is equipped with an integrated anchoring bracket with threaded metal inserts that allows mounting of the valve without the need for additional components. This bracket allows the DK to be fitted with the wall/panel mounting plate required for anchoring to a wall or panel. The mounting plate facilitates axial alignment of the valve with the rest of the piping system. It is available as an accessory.





# ACTUATED DK VERSION

1/2" to 2-1/2"

## A New Actuator for 1/2" to 2-1/2" Sizes

1/2" to 2-1/2" actuated DK diaphragm valves are equipped with a NEW robust and compact piston style pneumatic actuator, made with glass-filled polypropylene (GFPP). This new actuator is available in double acting (DA), normally open (NO), or normally closed (NC) configurations. The design and construction of the pneumatically actuated DK diaphragm valve makes it the ideal solution for applications requiring a high operating frequency and a long lifetime under aggressive service conditions.



When installing in confined spaces, the air supply connections can be oriented in line with the piping.



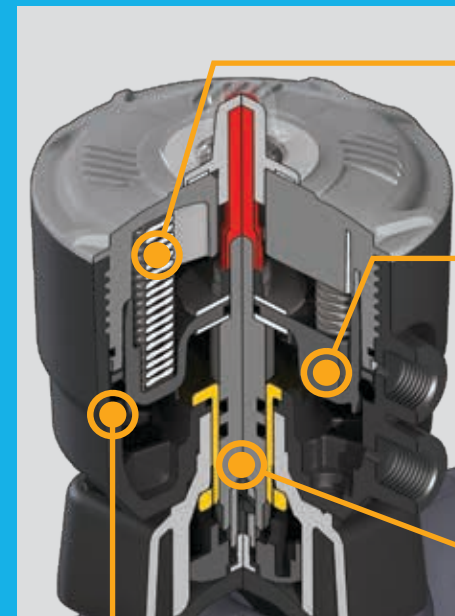
## Accessories

The DK actuated valve range can be equipped with various accessories, such as: pilot solenoid valve, positioners and different position detection sensors.



High visibility optical position indicator protected by a transparent cap with an o-ring seal.

## Key Features of the New Actuator



**6 independent cartridge springs** arranged radially to uniformly distribute the load on the piston.

**Piston in High Strength IXEF®**  
The high quality finish of the piston guarantees perfect slidability over the seal and ensures a long working life without any actuator maintenance.

**High strength stainless steel stem** with double o-ring seal.

### Dual Function Main Gasket

**Piston seal:** the gasket does not move but sits securely on the actuator cylinder instead of the piston.

**External seal:** The gasket positioned above the threaded joint between the bonnet and cylinder ensures that the coupling is not stressed by the pressure inside the actuator.

**Floating pin connection** between the actuator stem and diaphragm to prevent concentrated loads, improve the seal and extend its lifetime.

## SALES AND CUSTOMER SERVICE

### IPEX USA LLC.

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Markets served by IPEX group products are:

- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- PE Electrofusion systems for gas and water
- Industrial process piping systems
- Electrical systems
- Telecommunications and utility piping systems
- Irrigation systems
- Industrial, plumbing and electrical cements
- PVC, CPVC, ABS, PE, PEX, PVCO, PP and PVDF pipe and fittings (1/2" to 60")

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