



# DATASHEET

## DIAPHRAGM REPLACEMENT VALVE (DRV)

# ARTeSYN<sup>®</sup>

# About the Diaphragm Replacement Valve (DRV)

The ARTeSYN DRV is a direct drop-in replacement for your existing stainless steel diaphragm valves, enabling the customer to switch over easily and adopt single-use processing practices.

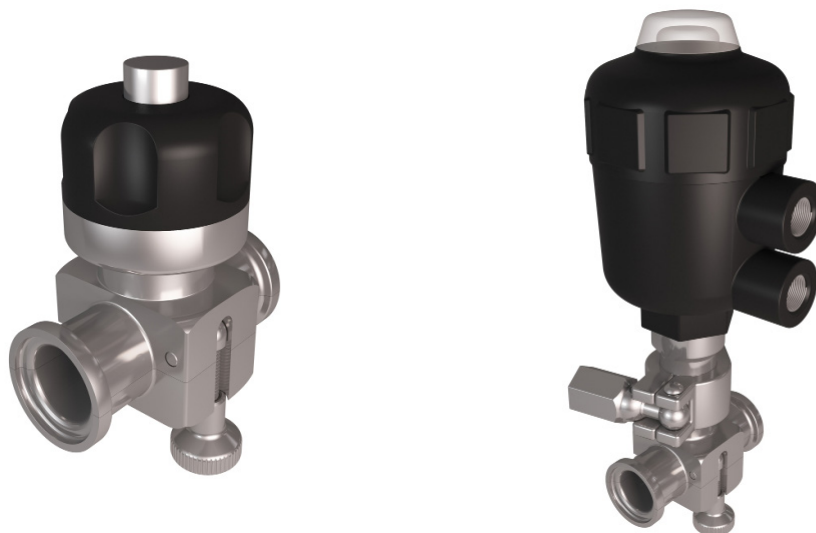
The DRV brings process improvement by offering a design free of shear, hold-ups and flow restrictions when in an open state. The complete single-use contact layer benefits the user by eliminating the need for cleaning and ensures functional reliability of critical valves at point of use.

The simple and secure fluid contact layer set up allows for quick and reliable fluid control at a predictable operating cost. Available in manual and pneumatic actuation options, in a variety of sanitary connections sizes, enables seamless valve replacement in existing processes. The engineered full bore, encapsulated design allows for downsized process equipment and increased closure resistance, enabling higher level of process safety and drug yields in bioprocessing.

These valves are available with sanitary to sanitary end connections with ½ in., ¾ in., 1 in., and 1½, 2 in. clamp size depending on the valve seat size. The single-use liner internal diameters range from 9.4 mm (0.37 in.) up to 34.8 mm(1.37 in.), in close alignment to the ASME BPE standard widely used for fixed piping systems allowing for seamless equipment integration. The liners come with integrated gaskets, thereby minimizing the connection sealing surface and reducing the number of additional parts.

With a range of sizes, the Artesyn valves are suitable for use in liquid or gas fluid streams from upstream processing, downstream processing through to formulation and filling.

The DRVs are also designed for use in both traditional and hybrid facilities. The valve bodies are manufactured from high end 316L stainless steel ensuring they meet the highest quality standards.



# Features & Benefits

## Features

Single-use flowpath silicone only

Tool free installation

Seal free hemispherical closure

Full bore flow path

Liner encapsulation

Sterilization options

Visual indicator

Manual or pneumatic actuation

## Benefits

Reduced down time

No cleaning validation

No batch-to-batch cross contamination risk

Highest reliability for critical valves

Safe, reliable and simplified processing

Highest closure resistance and reliability

No entrapment areas

No product loss

No shear stress on cells and proteins compared to traditional diaphragm valves

Lower pressure drop, reduced process equipment size

Suits both pressurized and unpressurized applications

Liner shape restoration, ensures flow consistency after closure cycle

No changes in heat sterilization method of choice

Simple verification of valve open or close position for operators

Align to operation preference

# Applications

## Upstream



MEDIA AND BUFFER  
PREPARATION



CELL CLARIFICATION  
HARVEST



PERFUSION



FILTRATION



MIXING

## Downstream



FILTRATION



CHROMATOGRAPHY



BUFFER EXCHANGE



VIRUS  
INACTIVATION



CONCENTRATION



FRACTIONATION

A → B

TRANSFER



FINISH FILLING



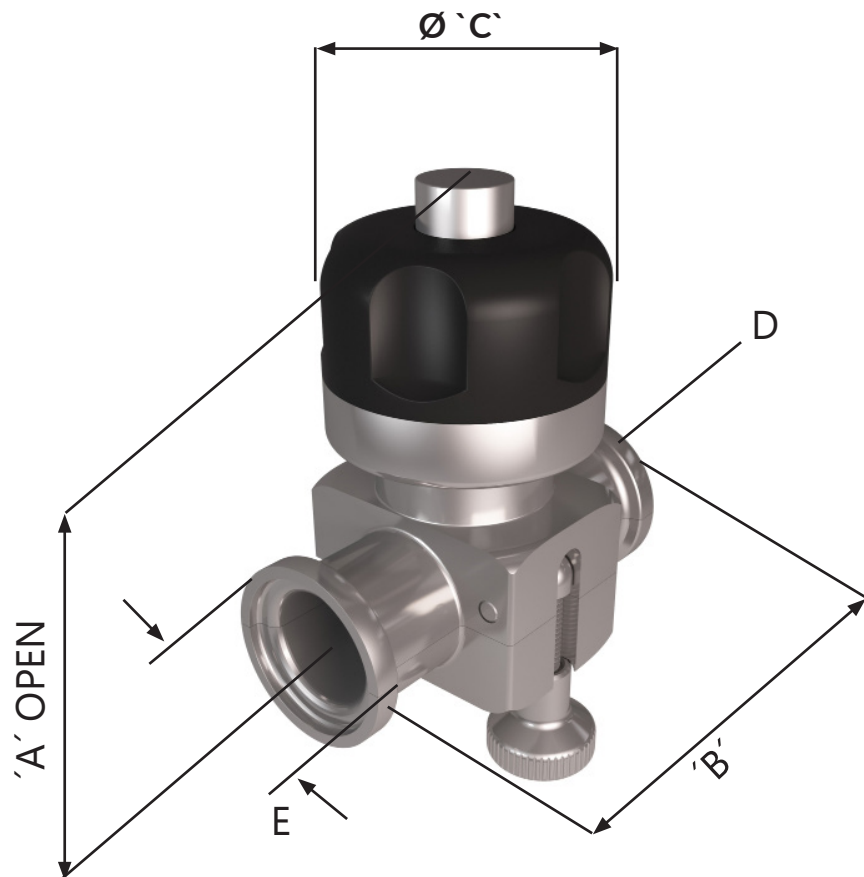
MIXING

# Critical Parameters

## Manual

Valve description	A	B	C	E	D	Weight
AC - Mini sanitary clamp x 0.37 in. internal diameter ( ID)	2.4 in (62mm)	2.5 in (64mm)	1.5 in (38mm)	1 in (25mm)	1/2 in. (DN15)	0.3 kg
AD- Mini sanitary clamp x 0.62 in. taper ID to 0.37 in. bore ID	2.4 in (62mm)	2.5 in (64mm)	1.5 in (38mm)	1 in (25mm)	3/4 in. (DN20)	0.3 kg
AE - 1 in. sanitary clamp x 0.87 in. ID	4.3 in (110mm)	4 in (101mm)	2.4 in (60mm)	2 in (51mm)	1 in. (DN25)	1.3 kg
AG - 1 1/2 in. sanitary clamp x 1.37 in. ID	6.3 in (159mm)	5.7in (145.7)	3.4 in (86mm)	2 in (51mm)	1 1/2 in. (DN40)	2.2 kg

Note: Sanitary liner connections have an integrated male gasket profile

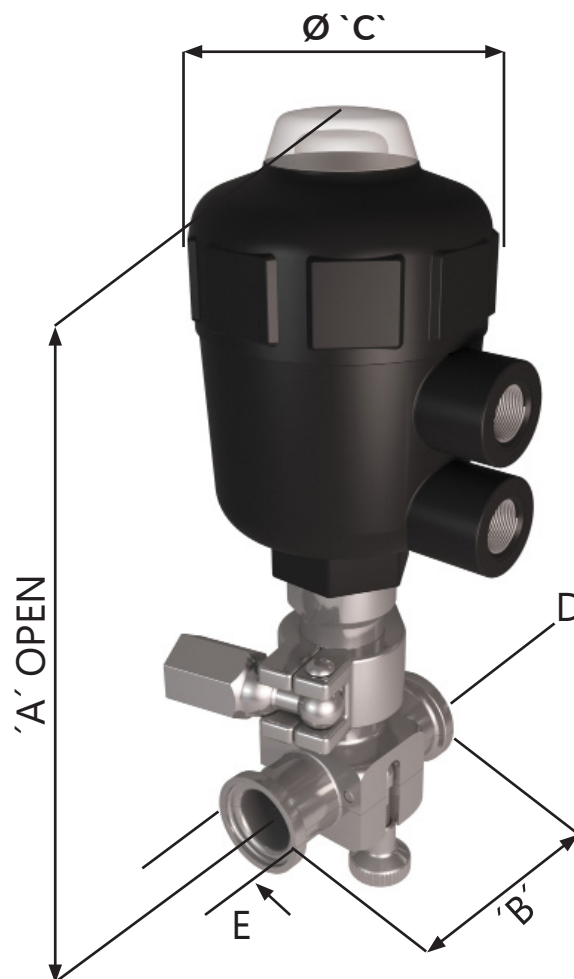


# Critical Parameters

## Pneumatic

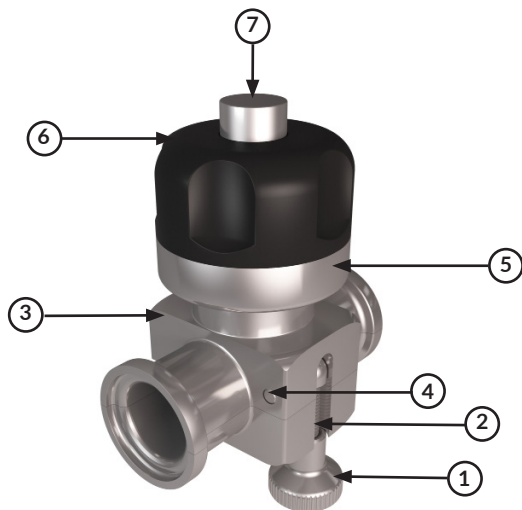
Valve description	A	B	C	E	D	Weight
AC - Mini sanitary clamp x 0.37 in. internal diameter ( ID)	6.3 in (159mm)	2.5 in (64mm)	2.5 in (63mm)	1 in (25mm)	1/2 in. (DN15)	0.9 kg
AD- Mini sanitary clamp x 0.62 in. taper ID to 0.37 in. bore ID	6.3 in (159mm)	2.5 in (64mm)	2.5 in (63mm)	1 in (25mm)	3/4 in. (DN20)	0.9 kg
AE - 1 in. sanitary clamp x 0.87 in. ID	7.5 in (190mm)	4 in (101mm)	2.4 in (79mm)	2 in (51mm)	1 in. (DN25)	3.1 kg
AG - 1 1/2 in. sanitary clamp x 1.37 in. ID	11.8 in (298.7 mm)	5.7 in (145.7 mm)	3.4 in (97mm)	2 in (51mm)	1 1/2 in. (DN40)	5.5 kg

Note: Sanitary liner connections have an integrated male gasket profile



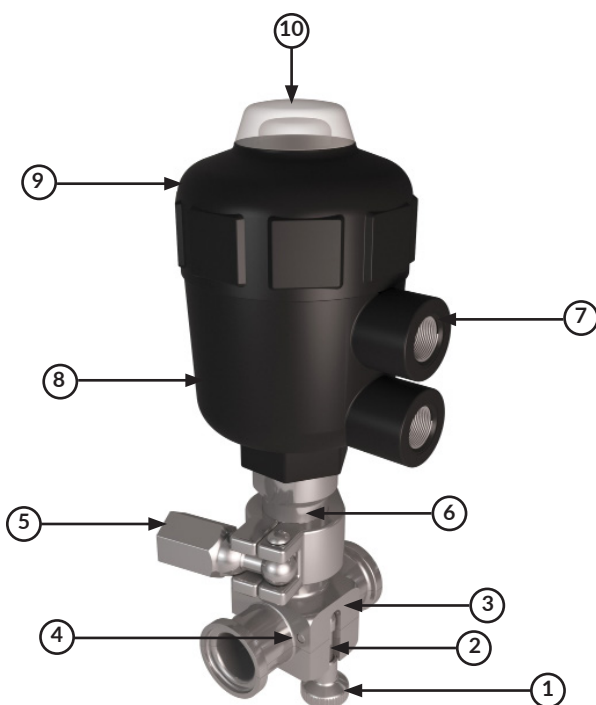
# Materials of Construction

## Manual



Item no.	Description	Material
1	Lock knob	Stainless steel 316 L
2	Swing arm	Stainless steel 18-8
3	Valve body	Stainless steel 316 L
4	Body pins	Stainless steel 316 L
5	Lower handle	Stainless steel 316 L
6	Handle	Polyetherimide (PEI)
7	Stem	Stainless steel 316 L

## Pneumatic



Item no.	Description	Material
1	Lock knob	Stainless steel 316 L
2	Swing arm	Stainless steel 18-8
3	Valve body	Stainless steel 316 L
4	Body pins	Stainless steel 316 L
5	Assembly clamp	Stainless steel 304
6	Actuator body	Stainless steel 316 L
7	Air Ports 1/4 in BSP	Stainless steel 304
8	Actuator housing	Polyamide(PA)
9	Actuator cap	Polyamide(PA)
10	Indicator lens	Polycarbonate (PC)

# ARTeSIL<sup>®</sup> DRV Replacement Liners

ARTeSYN<sup>®</sup> ARTeSIL<sup>®</sup> Diaphragm Replacement Valve (DRV) Liners are made of platinum cured silicone material, which is developed to significantly improve installation time, increase flow rates and reduce the risk of cross-contamination for ARTeSYN<sup>®</sup> DRVs.

Developed as a result of 20 years of manufacturing experience, this ARTeSIL<sup>®</sup> DRV Liner is specifically designed for the ARTeSYN<sup>®</sup> DRV to be flexible yet durable and with limited product contact only with silicone liner.

These Class 7 clean room produced and double-packaged ARTeSIL<sup>®</sup> DRV Liners conform to several USP and ISO requirements, along with using Animal Derived Content Free (ADCF) raw material.



## Features

60 Durometer, Shore A hardness material

Eliminates entrapment issues, reduces chance of cross-contamination

Zero dead legs

High quality and cost effective

Reduces assembly times

Unique DRV design limits product contact exclusively to silicone liner

Gamma sterilization available

## Applications

Sterile filling and protection

Filtration and fermentation

Drug delivery and discovery systems

Media dispensing

## Biocompatibility and Regulatory Info\*

USP 87

EP 3.1.9

USP 88

CFR 177.2600

USP 661

ADCF

ISO 10993-6

USP Class VI

ISO 10993-10

NO DEHP or BPA

ISO 10993-11

\*NOTE: Validation Summary and Regulatory Information Guide (RIG) available upon request



# Specifications

## Quality Standards

---

Manufacturing in ISO Class 7 clean room

---

Double-bagged in cleanroom

---

Animal derived components free (ADCF) material (including BSE/TSE risk free)

---

## Operating Conditions

**Maximum pressure**

---

4 barg at 60 °C

---

**Temperature range**

---

From 2 to 60 °C

---

**Normal Pneumatic valve state**

---

Normally closed

---

## Sterilization

**Autoclave**

---

One 75-minute cycle at 130 °C

---

**In situ steam**

---

One 75-minute cycle at 130 °C

---

## Extractables

Full BPOG standardized extractables test protocol in progress.

# Ordering Information

## Valves and Liners

Sizes	Manual	Pneumatic	Liner Part Number	Liner Gamma Irradiation
AC - Mini sanitary clamp, 0.37" (9.4mm) ID	DRVSAC16	DRVSAC19	DRVACS	- G - Gamma Irradiated
AD - Mini sanitary clamp, 0.37" I.D. Tapered 0.62"Face	DRVSAD16	DRVSAD19	DRVADS	- Non-Gamma Irradiated
AE - 1" sanitary clamp (M), 0.87" (22.1mm) ID	DRVSAE16	DRVSAE19	DRVAES	
AG - 1 1/2" sanitary clamp (M), 1.37" (34.8mm) ID	DRVSAF16	DRVSAF19	DRVAFS	
AH - 2" sanitary clamp, 1.870" (47.5mm) ID	DRVSAH16	DRVSAH19	DRVAHS	

## Accessories

Description	Part Number	Matching Valve	Valve Version
Mini sanitary ½ in. clamp rod bracket	ARTD001031	DRVSAC19 DRVSAD19	Pneumatic Only
Sanitary 1½ in. clamp with rod bracket	ARTD001030	DRVSAE19 DRVSAG19	Pneumatic Only

