



**Series CS Knife Gate Valve**

## Bidirectional Wafer Knife Gate Valve

- Wafer style, bidirectional knife gate valve.
- Cast body, composed by two bolted parts, with inside sliding guides to provide a smooth operation.
- High flow rates with low pressure drops.
- Several seat and packing materials available.
- Face to face dimension according Arnett standard

### General Applications:

This knife gate valve is appropriate for liquids with a solids concentration of maximum 8%. Designed for a wide range of applications such us:

- Pulp and Paper.
- Mining.
- Effluent handling plants.
- Chemical plants.
- Food and beverage.
- Bulk conveying.
- Sewage applications.
- Chemical plants.

**Sizes:** From DN50 up to DN600 (bigger sizes under request)

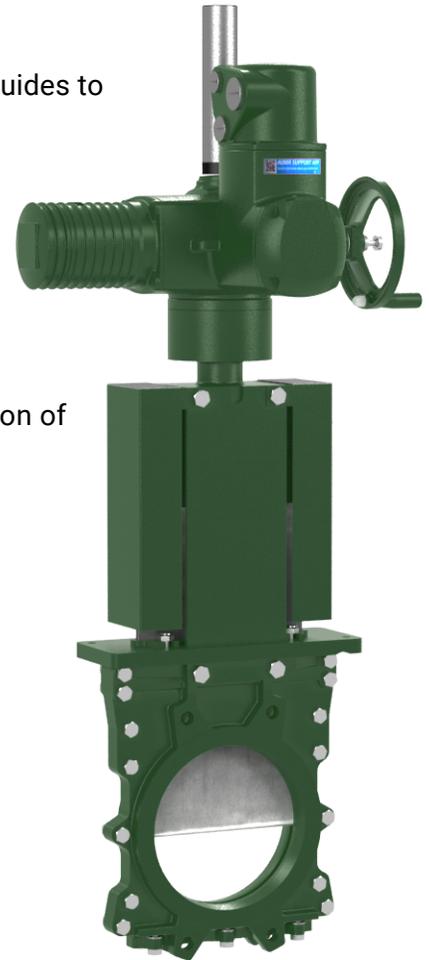
**Working ( $\Delta P$ ):**

	Maximum PN
DN50 to DN125	10kg/cm <sup>2</sup>
DN150	8kg/cm <sup>2</sup>
DN200	7kg/cm <sup>2</sup>
DN250 to DN300	5kg/cm <sup>2</sup>
DN350 to DN400	4kg/cm <sup>2</sup>
DN450 to DN600	3kg/cm <sup>2</sup>
DN700 to DN 1200	2kg/cm <sup>2</sup>

**Note:** These pressures can be applied either in one side or the other side of the valve because of its bidirectional design.

**Standard Flanges:** DIN PN10

**Other Common Flanges:**



DIN PN 6 • DIN PN 16 • DIN PN25 • British Standard • Australian Standard • JIS Standard • ANSI 150 • Others on request

### Directives:

- Directive 98/37/CE (machinery)
- **Directive 97/23/CE (PED: Group 2)**
- Directive 94/9/CE (ATEX: Group II, Cat. 3 / Zones 2 and 22)

**Quality dossier** - All valves are tested hydrostatically and material and test certificates can be provided.

- Body test = working pressure x 1.5.
- Seat test = working pressure x 1.1.

## Advantages of our Series CS Valve

The main characteristic of this knife gate valve is that it has full and continuous bore. This means that in open position it has no cavity, therefore there are no turbulences in the fluid. The type CS Is constructed with two body half design. The inside surface of the two bodies is machined and they are assembled with bolts creating a solid block.

The valve gate slides inside of the two body parts thanks to several RCH 1000 nylon sliding guides installed inside of the bodies.

The stem protection hood is independent from the hand wheel fixing system, so the hood can be removed without removing the hand wheel. This point allows normal maintenance operations like greasing of the spindle, etc.

The spindle (stem) of the Arnett valve is made of stainless steel 18/8. This point is very important because there are manufacturers that manufacture it with 13% CR and it gets rusty in a very short time.

The hand wheel of the manual actuator is made of nodular iron GGG-50. Some manufacturers manufacture it on normal cast iron and they can break easily when receiving any big torque or knock.

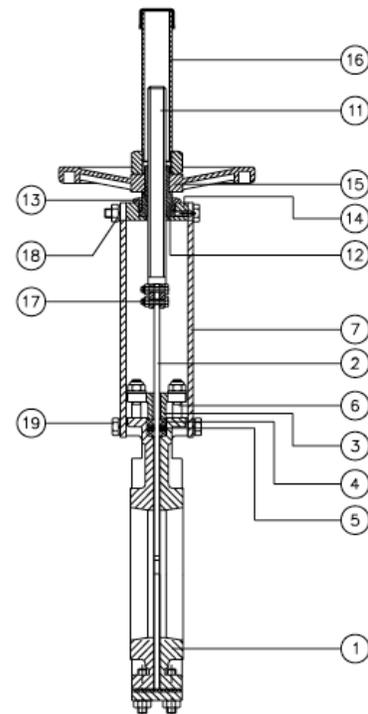
The bridge of the Arnett manual actuator is manufactured in a compact way, with the bronze nut protected in a greased and closed box. This point gives the possibility to move it with a key even without the hand wheel (in other manufacturer valves this is not possible).



The pneumatic actuator upper and lower caps are made of nodular iron GGG-50, therefore their resistance to the knocks is very high. This characteristic is essential in this type of pneumatic cylinder. Special care must be taken with cylinders with covers in aluminum or cast iron.

The sealing O-rings of the pneumatic cylinders are commercial and they can be bought all over the world, it is not needed, therefore, to contact Arnett every time that these spares are needed.

Standard Components List		
Component	Cast Iron Version	Stainless Steel Version
1. Body	GG25	CF8M
2. Knife	304	316
3. Packing Gland	ALUMINUM	CF8M
4. Packing	SYNT + PTFE	SYNT + PTFE
5. O-ring	EPDM	EPDM
6. Stud	STEEL+ZINC	316
7. Support	STEEL	STEEL
8. Socket	316	316
9. Joint	EPDM	EPDM
10. Socket	CF8M	CF8M
11. Splinde	303	303
12. Stem Nut	BRONZE	BRONZE
13. Nut	ST44.2+ZINC	ST44.2+ZINC
14. Yoke	STEEL	STEEL
15. Handwheel	NODULAR IRON	NODULAR IRON
16. Hood	STEEL	STEEL
17. Bolts/Nuts/Washers	304	316
18. Bolts/Nuts/Washers	STEEL	STEEL
19. Bolts/Washers	STEEL	316



## Design Characteristics

### 1. BODY

Wafer style cast body with reinforcing ribs, composed by two bolted parts, with inside 1000 nylon sliding guides to provide a smooth operation.

The inside surface of the two bodies is machined and they are assembled with bolts creating a solid block.

It has full and continuous bore and in open position it has no cavity, therefore there are no turbulences in the fluid, it provides high flow rates and the pressure drop is minimal.

For sizes bigger than DN600 the construction of the body is fabricated in carbon steel with reinforcement ribs to withstand the maximum rated pressure.

The standard manufacturing materials are GG25 cast iron and CF8M stainless steel. Other materials like GGG50 nodular cast iron, A216WCB carbon steel and stainless steel alloys (AISI316Ti, Duplex, 254SMO, Uranus B6 ....) under request. Cast iron or steel valves are painted as standard with 80 microns anticorrosive protection of EPOXY (color RAL 5015). Other anticorrosive protections available under request.

## 2. GATE

The standard manufacturing materials are AISI304 stainless steel for cast iron body valve and AISI316 stainless steel for CF8M stainless steel body valve. Other materials or combinations can be supplied under request.

The gate is polished in both sides to provide a smooth contact surface with the sealing joint. At the same time the gate wedge is rounded to avoid cutting of the sealing. Several polishing grades, anti-abrasion treatments and modifications are available to adapt the valve to the customer requirements.

## 3. SEAT: (watertight)

Six types of seats are available according to the working application:

**Seat 1:** Metal to metal seat. This seat construction does not include any resilient sealing and the estimated leakage (considering water) is 1.5% of the flow.

**Seat 2:** Standard soft seated valve. This seat construction includes a resilient joint that is held on the valve body by an AISI316 stainless steel retaining ring. Considering that the valve is bidirectional it has two joints.

**Seat 3:** Soft seated valve with reinforced socket. This seat construction includes a resilient joint that is held on the valve body by a reinforced socket with two functions (protect the valve body from abrasion and clean the gate when the valve is working with particles that stick on the gate). Considering that the valve is bidirectional it has two joints and two reinforced sockets.

The three seat numbers can be supplied also with deflector. The deflector is a conical shaped ring located on the valve inlet with two functions (protect the valve body from abrasion and guide the flow to the center of the valve). Three materials are available for reinforced socket and deflector (CA-15 steel, CF8M and Ni-



hard).

### **Resilient seat materials**

**EPDM** - This is the standard resilient seat installed on Arnett valves. It can be used in many applications, but generally it is used for water and products diluted in water at temperatures not higher than 90°C. The EPDM rubber can also be used for abrasive products. It provides 100% tightness.

**NITRILE** - It is used for greasy fluids or oils at temperatures not higher than 90 °C. It provides 100% tightness.

**VITON** - Appropriate for corrosive products and high temperatures up to 190°C in continuous and picks of 210°C. It provides 100% tightness.

**SILICONE** - The silicone is used mainly into the food industry and pharmaceutical products with temperatures not higher than 200°C. It provides 100% tightness.

**PTFE** - It is used for corrosive products and PH from 2 to 12. This sealing material does not provide 100% tightness. The estimated leakage is 0.5% of the total flow.

## **4. PACKING**

As standard the packing is composed by three lines with an EPDM O-ring in the middle. It provides the tightness between the body and the gate and avoids any kind of leakage to the atmosphere.

The packing is located in an easily accessible place and can be changed without dismantling the valve from the pipeline.

Several types of packing can be supplied according to the different applications in which the valve can be located as follows:

**GREASED COTTON** (Recommended for hydraulic services): This packing is made with cotton threads and has impregnated both the inside and the outside with tallow. It is manufactured by the solid system. It is a packing for general use in hydraulic services for pumps as well as for valves.

**DRY COTTON:** This packing is made with cotton threads. It is manufactured by the solid system. This is a packing only for solid products.



**COTTON + PTFE:** This packing is made with cotton threads and has the inside and outside impregnated with P.T.F.E. It is manufactured by the solid system. It is a packing for general use in hydraulic services for pumps as well as for valves.

**PTFE LUBRICATED:** It is made of PTFE filament threads which are impregnated using vacuum with a dispersion of PTFE and a special lubricant which helps the work at high speed.

It is braided by the diagonal system. Suitable for valves and pumps working with nearly all the fluids, specially the more corrosives, including concentrated oils and oxidants. It is also suitable for fluids with solid contents.

**GRAPHITE:** It is made of graphite threads of high purity. It is braided by the diagonal system and impregnated with a small quantity of graphite and lubricant which helps to reduce the porosity and makes easier the running.

It is a packing with low friction coefficient and high heat conductivity.

Is has a wide range of applications, as the graphite withstands the steam, water, oils, solvents, alkalis and most of the acids.

The chemical products that attack this packing are strong oxifiers as the oleum, the fuming nitric acids, the dichromates and the oxygen.

**CERAMIC FIBER:** It is made with ceramic threads. Its application is only for air or gas at high temperature and low pressure.

## 5. SPINDLE (STEM)

The spindle (stem) of the ARNETT valve is made of stainless steel 18/8. This provides a high resistance and long corrosion resistant life.

The valve design can be with rising or-non rising stem construction. When rising stem construction is manufactured a stem protection hood is supplied that protects the stem from dust and dirty and, at the same time, keeps the stem lubricated.

## 6. PACKING GLANDS

The packing glands give the possibility to apply a uniform pressing force on the packing to ensure the tightness of the packing. As standard cast iron body valves include aluminum packing glands and stainless steel body valves include CF8M stainless steel packing glands.



## 7. ACTUATORS

All kind of actuators can be supplied with the advantage that Arnett design is completely interchangeable.

The design gives the possibility to the customer to change the actuators by their own. Normally there is no need of any extra mounting kit and in the cases that it is necessary Arnett provides it.

Manual	Automatic
Handwheel with rising stem	Electric actuator
Handwheel with non-rising stem	Pneumatic actuator
Chainwheel	Hydraulic cylinder
Lever	
Gearbox	
Others (square stem, etc.)	

## Accessories & Options

Different types of accessories are available to adapt the valve to specific working conditions such as:

### Mirror Polished Gate

The mirror polished gate is especially recommended in the food industry and, as standard, in applications in which solids can stick to the gate. It is an alternative to ensure the solids slide off and do not stick to the gate.

### PTFE Lined Gate

As with the mirror polished gate, it improves the valve's resistance to products that can stick to the gate.

### Stellited Gate

Stellite is added to the gate's lower edge to protect it from abrasion.

### Scraper in the Packing



Its function is to clean the gate during the opening movement and prevent possible damage to the packing.

### **Air Injection in the Packing Gland**

By injecting air in the packing, an air chamber is created which improves the watertight integrity.

### **Heating Jacket**

Recommended in applications in which the fluid can harden and solidify inside the valve's body. An external jacket keeps the body temperature constant, preventing the fluid from solidifying.

### **Bonnet**

The valve can be supplied with bonnet to avoid leakage to the atmosphere when it is working with air or gases.

### **Square design**

Square design is also available when through going knife gate valve is requested for square connecting flanges.

### **Flushing Holes in Body**

Several holes can be drilled in the body to flush air, steam or other fluids out in order to clean the valve seat before sealing.

### **Mechanical Limit Switches, Inductive Switches and Positioners**

Limit switches or inductive switches are installed to indicate precise valve position, as well as positioners to indicate continuous position.

### **Solenoid Valves**

For air distribution to pneumatic actuators

### **Connection Boxes, Wiring and Pneumatic Piping**

Fully assembled units can be supplied with all the necessary accessories.

### **Stroke Limiting Mechanical Stops**

They allow the stroke to be mechanically adjusted, limiting the valve's desired run.

### **Mechanical Locking Device**





Allows the valve to be mechanically locked in a set position for long periods of time.

**Emergency Manual Actuator (Hand Wheel /Gear Box)** allows manual operation of the valve in the event of power or air failure.

**Triangular (V-Notch) and Pentagonal Diaphragm with Indication Rule**

Recommended for applications in which flow regulation is required. Allows flow control according to the valve's opening percentage.

# Global Manufacturing, Sales, & Distribution

---

## US

### Alabama

#### Birmingham

Downtown Wells Fargo Tower,  
420 North 20th Street, Suite 2200,  
Birmingham, 35203

### Arizona

#### Tucson

One South Church Avenue, Suite 1200,  
Tucson, 85701

### Georgia

#### Peachtree

401 Westpark Court, Suite 200,  
Peachtree, GA 30269

### Utah

#### Salt Lake City

2150 South 1300 East, Suite 500,  
Salt Lake City, UT 84106

---

## Canada

### Alberta

#### Calgary

TD Canada Trust Tower,  
421 7th Avenue SW, 30th Floor,  
Calgary, T2P 4K9, Canada

### Quebec

#### Montreal

2000 McGill College Avenue, 6th Floor,  
Montreal, Quebec, H3A 3H3

---

## South America

### Peru

#### Lima

Calle Dean Valdivia 148,  
Edif. Platinum Plaza I,  
piso 11 San Isidro, Lima, 27

### Chile

#### Santiago

Santiago Millenium,  
2939 Vitacura Avenue, 10th Floor,  
Las Condes, Santiago, C.P. 7550011, Chile

---

## Africa & Europe

### South Africa

#### Johannesburg

1ST Floor, Block B & Block C,  
Metropolitan Park, 8 Hillside Road,  
Parktown, Johannesburg, 2196

### Spain

#### Bilbao

Bilbao, Gran Via, 2nd & 3rd Floor,  
Gran Via 19-21,  
Bilbao, 48008, Spain

 [arnett.com](http://arnett.com)

 [support@arnett.com](mailto:support@arnett.com)

 844.785.7585

