



Series AS Knife Gate Valve

Bidirectional Wafer Knife Gate Valve

- Bidirectional wafer-design knife gate valve.
- One-piece cast body.
- Provides high flow rates with low pressure drop.
- Various seat and packing materials available.
- Face-to-face dimension in accordance with Arnett standard.

General Applications:

This knife gate valve is suitable for liquids that contain a maximum of 4% suspended solids. Designed for applications such as:

- Chemical plants
- Pumping
- Food Industry
- Sewage treatment

In all these applications, the valve should be installed once the fluid has been filtered, to eliminate solids or large particles it contains.

Sizes: ND50 to ND600.

Working (ΔP):

	Maximum PN
DN 50-250	10 bar
DN 300-400	6 bar
DN 450	5 bar
DN 500-600	4 bar
DN 700-1600	2 bar

PN10 and ANSI B16.5 (class 150)

Other Common Flanges:



Fig. 1

Standard Flanges: DIN

DIN PN 6 • DIN PN 16 • BS "D" and "E" • ANSI 150 • DIN PN25 • Others on request

Directives:

- Machinery Directive: **DIR 2006/42/EC (MACHINERY)**
- Pressure Equipment Directive: **DIR 97/23/EC (PED) ART.3, P.3**
- Potential Explosive Atmospheres Directive: **DIR 94/9/EC (ATEX) CAT.3 ZONE 2 and 22 GD**

For further information on categories and zones please contact the Arnett Technical-Commercial Dept.

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 AS Valve

This valve's main characteristic is the body design. It is a one-piece machined cast body with wedges on both sides that offers the ability to work with fluids in both directions with the same pressure.

The sealing joint has a stainless steel ring that ensures that the inside of the body is kept clean and prevents the joint from coming loose. This design provides a completely flat seat with no internal cavities and avoids any build-up of solids in the seat area.

The stem protection hood is independent from the handwheel securing nut, this means the hood can be disassembled without the need to release the handwheel. This advantage allows regular maintenance operations to be performed, such as lubricating the stem, etc.

The stem on the Arnett valve is made of 18/8 stainless steel. This is another added advantage, as some manufacturers produce it with 13% chrome and it gets rusty very quickly.

The handwheel is made of GJS-500 nodular cast iron. Some manufacturers produce them in normal cast iron which can lead to breakages in the event of very high operating torque or knocks.

The yoke is has a compact design with the bronze actuator nut protected in a sealed and lubricated box. This makes it possible to move the valve with a key, even without the handwheel (in other manufacturers' products this is not possible).



The pneumatic actuator's upper and lower covers are made of GJS-400 nodular cast iron, making them highly shock resistant. This characteristic is essential in pneumatic actuators.

The pneumatic cylinder's o-ring seals are commercial products and can be purchased worldwide. This means it is not necessary to contact Arnett every time a seal is required.

Standard Components List		
Component	Cast Iron Version	Stainless Steel Version
1. Body	GJL-250	CF8M
2. Gate	AISI304	AISI316
3. Seat	EPDM	EPDM
4. Packing gland	GJS-500	CF8M
5. Packing	SYNT + PTFE	SYNT + PTFE
6. O-ring seal	EPDM	EPDM
7. Support plates	S275JR	S275JR
8. O-ring	NITRILE	NITRILE
9. Stem	AISI303	AISI303
10. Yoke	STEEL	STEEL
11. Stem nut	BRONZE	BRONZE
12. Check nut	ST44.2 + ZINC	ST44.2 + ZINC
13. Handwheel	NODULAR CAST IRON	NODULAR CAST IRON
14. Nut	STEEL	STEEL
15. Hood	STEEL	STEEL

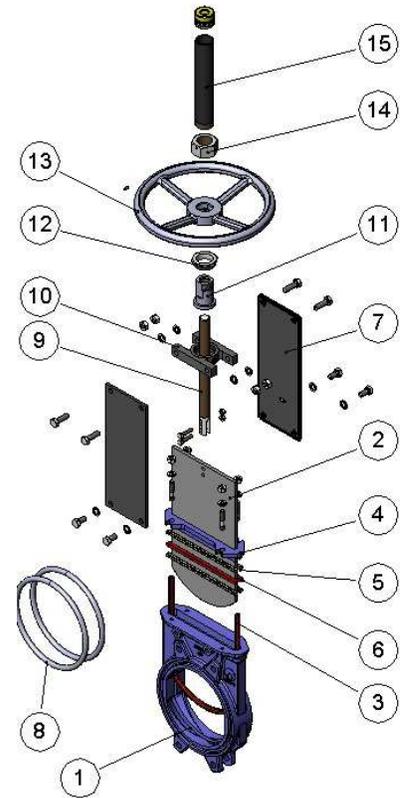


Fig. 2

Design Characteristics

1. BODY

Bidirectional wafer-design knife gate valve. One-piece cast iron body.

Full port designed to provide high flow rates with low pressure drop.

The body's internal design prevents any build-up of solids in the seat area.

The standard manufacturing materials are GJL-250 cast iron and CF8M stainless steel. Other materials, such as GJS-500 nodular cast iron, A216WCB carbon steel and stainless steel alloys (AISI316Ti, Duplex, 254SMO, Uranus B6...) are available on request. As standard, iron or carbon steel valves are painted with an anti-corrosive protection of 80 microns of EPOXY. Other types of anticorrosive protections are available on request.

2. GATE

The standard manufacturing materials are AISI304 stainless steel in valves with iron body and AISI316 stainless steel in valves with CF8M body. Other materials or combinations can be supplied on request. The gate is polished on both sides to provide a smooth contact surface with the resilient seat. At the same time, the gate is rounded to prevent the seat from being cut. Different degrees of polishing, anti-abrasion treatments and modifications are available to adapt the valves to the customer's requirements.

3. SEAT: (watertight)

There is only one seat design available on the AS valve and it must always be soft seated. It can never have a metal or PTFE sealing joint.

Below we show the detail of the seat:

The AS valve seat is a square rubber joint with an internal stainless steel wire.

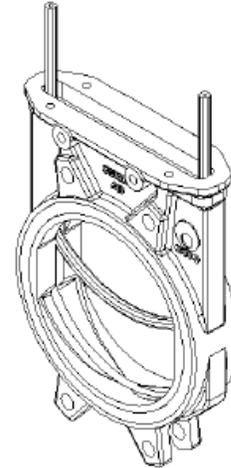
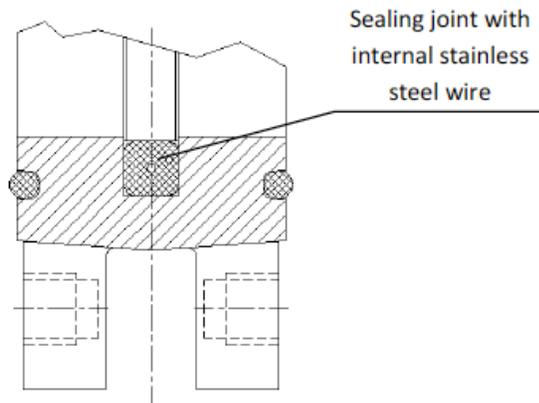


fig. 3 and 4

This rubber joint is inserted inside the body in such a way that it starts on one side, level with the packing, and continues around the body to reach the other end of the packing area.

This means that the sealing joint is not installed around the whole perimeter of the valve's flow passing hole, but rather, it is installed in a U shape, to cover the gate's perimeter.

The internal stainless steel wire helps to keep the U shape and ensures that the joint does not come out of the body because of the flow as it passes through the valve.

This design provides a completely flat seal with no cavities and avoids any solids being stored in the seal area.

Resilient seat materials

EPDM - This is the standard resilient seat fitted on Arnett valves. It can be used in many applications, however, it is generally used for water and products diluted in water at temperatures no higher than 90° C*. It can also be used with abrasive products and it provides the valve with 100% watertight integrity.

NITRILE - It is used in fluids containing fats or oils at temperatures no higher than 90° C*. It provides the valve with 100% watertight integrity.

VITON - Suitable for corrosive applications and continuous high temperatures of up to 190.C and peaks of 210.C. It provides the valve with 100% watertight integrity.

SILICONE - Mainly used in the food industry and for pharmaceutical products with temperatures no higher than 200° C. It provides the valve with 100% watertight integrity.

Note: In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you require one of these materials.

4. PACKING

Arnett's standard packing is composed of three lines with a specially designed EPDM O-ring in the middle which provides watertight integrity between the body and the gate, preventing any type of leakage to the atmosphere. It is located in an easily accessible place and can be replaced without dismantling the valve from the pipeline. Below we indicate various types of packing available according to the application in which the valve is located:

GREASED COTTON (Recommended for hydraulic services):

This packing is composed of braided cotton fibers soaked in grease both inside and out. It is for general use in hydraulic applications in both pumps and valves.

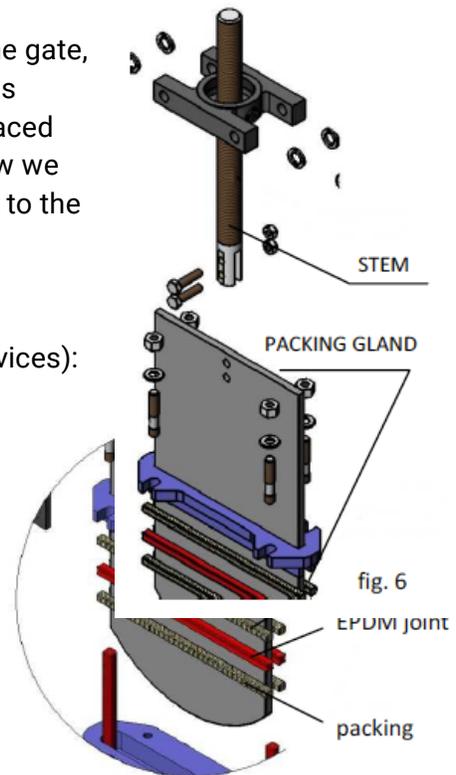
DRY COTTON: This packing is composed of cotton fibers. It is for general use in hydraulic applications with solids.

COTTON + PTFE: This packing is composed of braided cotton fibers soaked in PTFE both inside and out. It is for general use in hydraulic applications in both pumps and valves.

SYNTHETIC + PTFE: This packing is composed of braided synthetic fibers soaked in PTFE both inside and out. It is for general use in hydraulic applications in both pumps and valves and in all types of fluids, especially corrosive ones, including concentrated and oxidizing oils. It is also used in liquids with solid particles in suspension.

GRAPHITE: This packing is composed of high-purity graphite fibers. A diagonal braiding system is used and it is impregnated with graphite and lubricant which helps to reduce porosity and improve operation. It has a wide range of applications as graphite is resistant to steam, water, oils, solvents, alkali and most acids.

CERAMIC FIBER: This packing is composed of ceramic material fibers. Its main applications are with air or gas at high temperatures and low pressures.



5. STEM

The stem on the Arnett valve is made of 18/8 stainless steel. This characteristic provides high resistance and excellent corrosion-resistant properties. The valve design can be rising stem or non-rising stem. When a rising stem is required for the valve a stem hood is supplied to protect the stem from contact with dust and dirt, besides keeping it lubricated.

6. PACKING GLAND

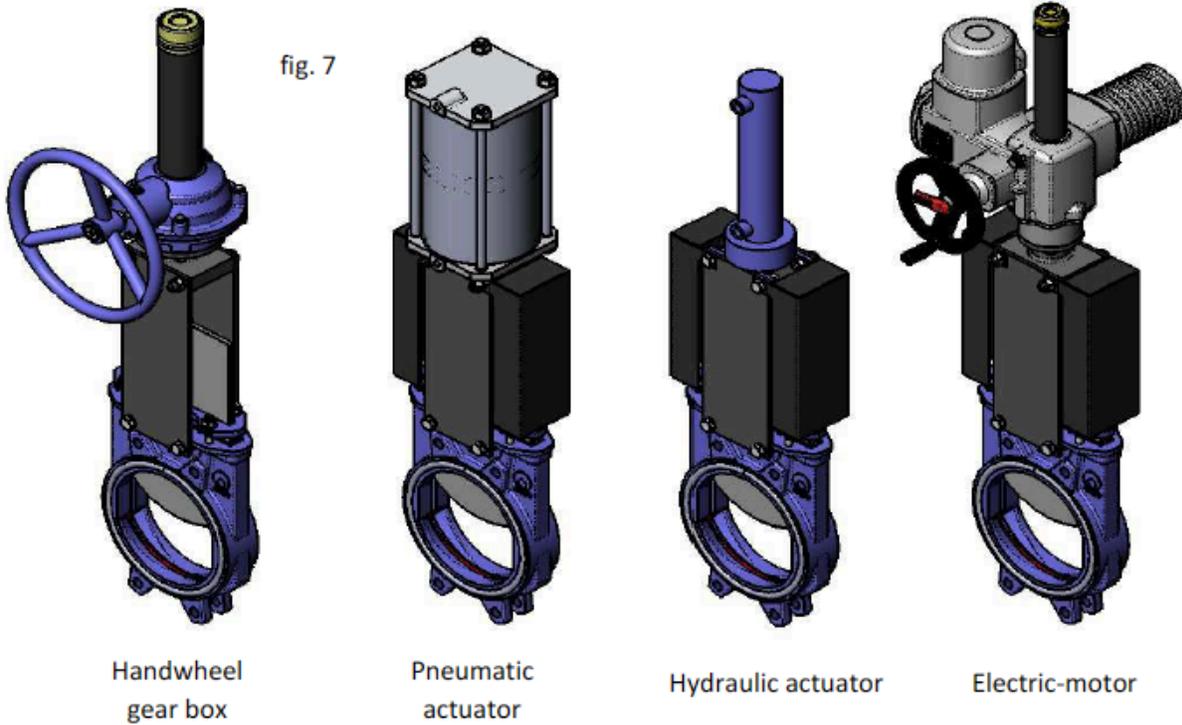
The packing gland allows uniform force and pressure to be applied to the packing to ensure watertight integrity. As standard, valves with cast iron body include GJS-500 packing glands, whilst valves with stainless steel body have CF8M packing glands.

7. ACTUATORS

All types of actuators can be supplied, with the advantage that the Arnett design is fully interchangeable. This design allows the customer to change the actuators themselves and no extra assembly accessories are required. In the event any accessory is required, Arnett will supply 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.)	

The chainwheel and gear box actuators are also available with non-rising stem. Graphical representation of some actuators on the next page (Fig. 7).



Accessories & Options

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

Mirror Polished Gate

Recommended for the food industry, its function is to prevent solids from sticking to the gate. They slide off the gate and do not stick to it.

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

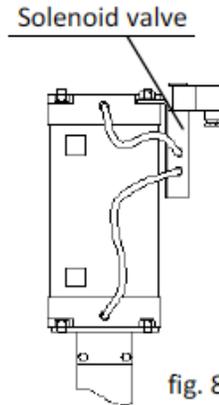
Its function is to clean the gate during the opening movement and prevent possible damage to the packing.

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.



Mechanical Limit Switches, Inductive Switches and Positioners

Indicates the valve's specific or continuous position.

Solenoid valves (Fig. 8)

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

Mechanical Locking Device

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

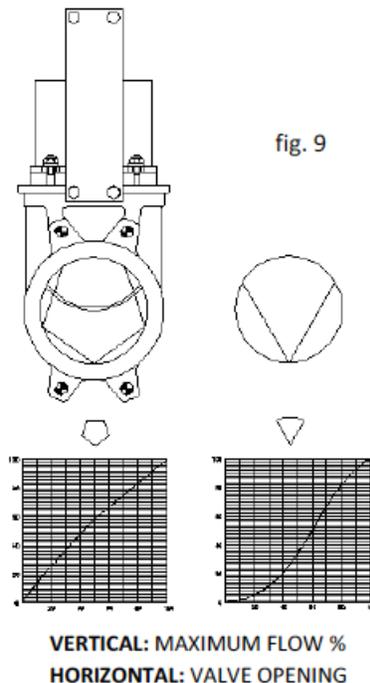
Emergency Manual Actuator (Hand Wheel /Gear Box)

Allows manual operation of the valve in the event of power or air failure.

Triangular (V-Notch) and Pentagonal Diaphragm with Indication Rule (fig. 9)

Recommended for applications in which flow regulation is required.

Allows flow control according to the valve's opening percentage.



Interchangeable Actuators

All actuators are easily interchangeable, except the lever.

Actuator or Yoke Support

Made of EPOXY-coated steel (or stainless steel on request), its robust design gives it great rigidity in order to resist the most adverse operation conditions.

Epoxy Coating

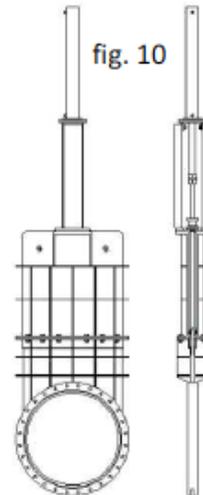
All cast iron and carbon steel bodies and components on Arnett valves are EPOXY coated, giving the valves great resistance to corrosion and an excellent finish. Arnett's standard colour is blue, RAL-5015.

Gate Safety Protection

In accordance with European Safety Standards ("EC" marking), Arnett automated valves are equipped with gate guards, to prevent any objects from being accidentally caught in the gate.

Bonnet (fig. 10)

The bonnet provides total watertight integrity to the outside, reducing the packing maintenance required.



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