



Aviation Ground Fueling Solutions: Pantograph



FOR MILITARY APPLICATIONS

Pantographs for Direct Aircraft Refueling



Since 1936, Cla-Val has produced the world's highest quality automatic control valves and aviation fueling products for a diverse array of applications and market places.

Cla-Val's tradition of innovation for the aviation ground fueling industry began in World War II when we built the world's first control valves that allowed fuel-water separators to automatically eliminate water from aviation fuel, preventing catastrophic failure in aircraft engines.

Later, Cla-Val worked with the US Air Force to improve the speed and efficiency of aircraft refueling; and again with the commercial aviation industry to develop the first pressurized hydrant refueling system. Today, Cla-Val has become the standard bearer for technical expertise and performance, continuing to introduce innovative products that improve the safety and efficiency of commercial and military aviation fueling worldwide.

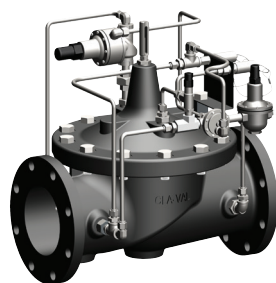


Application

- Fully adjustable spring balanced dispensing end
- Suitable for use with all types of wide body aircraft and tactical aircrafts, also helicopter and tank truck refuelling and defueling
- Ideal for applications at big airports with high refueling frequency and low downtimes



**Model 341GF-D3
Nozzle**



**Model 90AF4A-3
Pressure Reducing Fueling
Valve**

Design

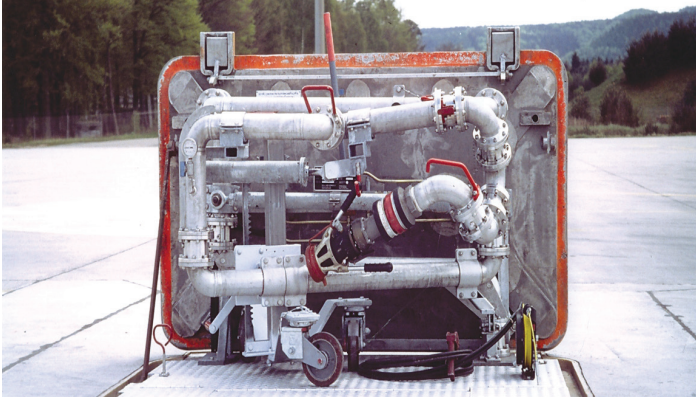
- Advanced liquid supply system design
- Engineering based on 30 year-experience in military aircraft refueling
- Low maintenance swivel joints with five-year guarantee as standard
- Working area up to 30 m, for underwing refueling height up to 5.70 m (19 feet)
- Flexible design readily accommodates all types of application
- In accordance with all European and International Standards



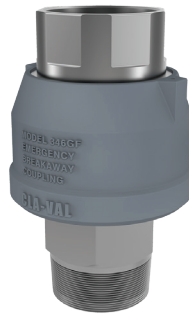
Pantographs for Direct Aircraft Refueling

In the Box

- Stored Pantograph in an underground pit
- Easy one man operation
- Flexible reach
- Rigid tube design with smooth operating swivel joints



**Model 380GF
Sexless Coupling**



**Model 346GF
Emergency Breakaway
Coupling**

High Reach

- Underwing refueling height up to 5.70 m (19 feet)
- Combination with wide body Pantograph possible
- Easy one man operation



Wide Body

- Long reach up to 30 m (100 feet)
- Easy one man operation
- Fully balanced connection end
- Rigid tube design with smooth operating swivel joints



Hot Refueling

- Long reach up to 30 m (100 feet)
- Easy one man operation
- Fully balanced connection end
- Rigid tube design with smooth operating swivel joints

Customers

- USAFE, US Army, US Navy, NATO
- German Bundeswehr and several other national armed forces

Approvals

- All our Pantographs fulfil the requirements of MIL-Standard and USAFE /NATO
- STS-M specification in service for more than 30 years.





**TRUSTED FOR
GENERATIONS
INNOVATING
FOR TOMORROW**

Global Capabilities. Local Expertise.

Cla-Val manufactures superior quality automatic control valves in production facilities located around the world. These facilities, coupled with sales offices and distribution centers in the United States, Canada, Switzerland, United Kingdom and France, enable Cla-Val to provide world-class product support to our customers wherever they are, whenever they need it.

In addition to our state-of-the-art manufacturing and foundry facilities in the US, Cla-Val Canada also supports North American customers in a diverse array of industries with superior quality products and services and is one of the continent's leading high volume OEM suppliers.

Our manufacturing operation in Lausanne, Switzerland, backed by an expert team of engineers and customer service professionals, provides outstanding product and technical support to customers throughout Europe and the Middle East.

Cla-Val UK Ltd. serves the United Kingdom and South Africa with an unparalleled level of customer service and technical expertise. Primary markets include waterworks, fire protection, aviation fueling and industrial processing facilities.

Cla-Val France, with offices located in Lyon, is one of the leading suppliers of automatic control valves in France. Serving diverse markets ranging from aviation fuel truck manufacturing to water utility companies, Cla-Val France brings a unique combination of industry experience, technical expertise and product know-how to customers in the French marketplace.



A World of Application

In addition to serving the aviation ground fueling industry, Cla-Val has provided the finest quality automatic control valves to the following markets for more than ninety years.



Waterworks Distribution: Cla-Val is the leading provider of automatic control valves and related products for the waterworks industry in the US and around the world. Our extensive product line includes pressure reducing valves, pressure relief valves, water savings products, remote and electronic control valves and a myriad of other products to ensure water system efficiency and reliable operations.

Industrial/Wastewater: Our extremely versatile automatic control valve, so prevalent in the waterworks industry, can also be customized to meet the demands of virtually any industrial fluid handling or wastewater application.

Fire Protection: Cla-Val fire protection products are specified by engineers and architects around the world, performing with reliability and precision in fire suppression systems on offshore oil platforms, industrial facilities and in high-rise buildings.

Marine: Cla-Val's marine products are designed to meet the exacting requirements of military and commercial shipboard applications including fire protection systems, aircraft fueling and seawater service. Their rugged construction and top quality materials help to ensure long life, minimal maintenance and precision performance.



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