



High pressure washing
accessories

New “ZERO” valve range
Pressure under control



Zero pressure valves, the future of cleaning at high pressure proceeds from here

A normal by-pass valve, as we all know, is used to recycle the water in the pump internally when the gun is closed or in any case when the exit flow of water is interrupted. The pressure spike which is created in the delivery line between valve and gun, when the latter is closed, permits the by-pass aperture and the consequent water recycle in the pump. Up to the moment of the gun reopening this pressure spike, equal to circa 10% more of the working pressure, remains “trapped” in the delivery line and cannot be discharged. Over the years, from a refined viewpoint of Technology applied to this type of product, we have pursued to design valves which could allow at least a partial reduction of pressure values between valve and gun at closure. Important results in this sense have been reached and the VB10 was created, a valve capable to reduce “trapped” pressure in

the delivery line up to a value circa equal 30% of the working pressure. The new “Zero” range by PA has achieved more than this: these particular and refined valves are described as such because they have the capacity to discharge completely the trapped pressure on the inside of the delivery line to the gun when closed. This distinctive feature not only makes the gun become extremely easy to handle softly at aperture but allows also a longer lifespan to all the parts that form the machine and pump itself.

At gun closure the pressure is in fact decreased throughout the circuit and therefore downstream to the valve, which would normally remain at high pressure, resulting in less strain and stress. At gun aperture the working pressure is also gradually reached, avoiding abrupt load variations on the pump. Another important advantage brought by these valves is respective to the end users safety.

Using a normal by-pass valve the pressure that remains on the inside of the delivery line at gun closure could represent danger: in this circumstance the system remains “loaded” and at the moment of going back to use, the water jet under pressure could become quite difficult to control if an end user is off guard or accidentally touches the gun trigger. With the “Zero” valves this problem does not exist. The PA “Zero” range depicts a new

generation of valves that develop a new concept of design completely different than all other products currently on the market and therefore covered by patent. The applied technology to these valves has allowed to exceed all problems of reliability and performance, hereby intended for the pressure loss control, clearly present on the market with similar valves.

The PA “Zero” valve range is distinguished for easy assembly, setting and maintenance, ensuring control of expenditure.

Zero setting of pressure in the delivery line to gun closure. Advantages:

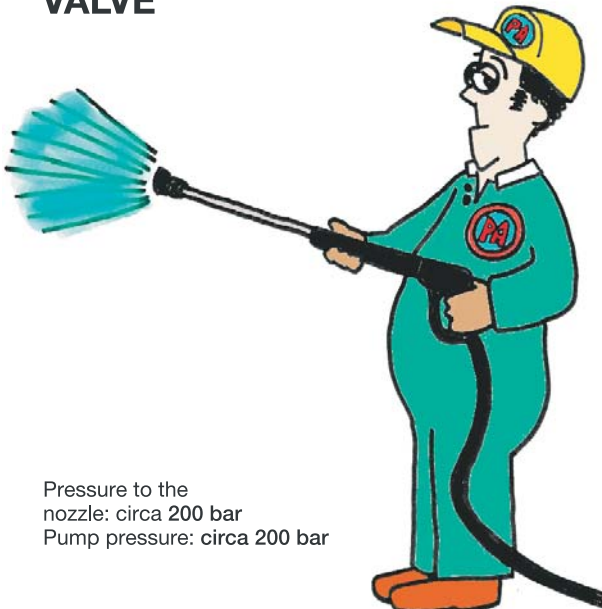
- Increased safety for the operator
- Easy manoeuvrability of the delivery tube at gun closure
- Gun opening force well reduced
- At gun reopening, work pressure is reached gradually, making the operators job easier and simplifying the start up of a heat engine if used
- Improved maintenance of all accessories that make up the machine & pump



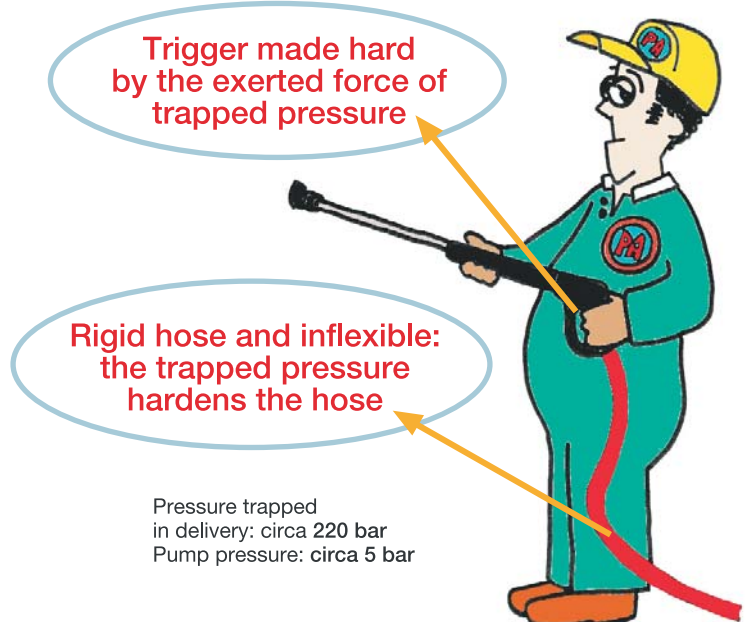
Main aspects of performance between a normal by-pass valve and a Zero pressure valve

NORMAL VALVE

Gun open



Gun closed



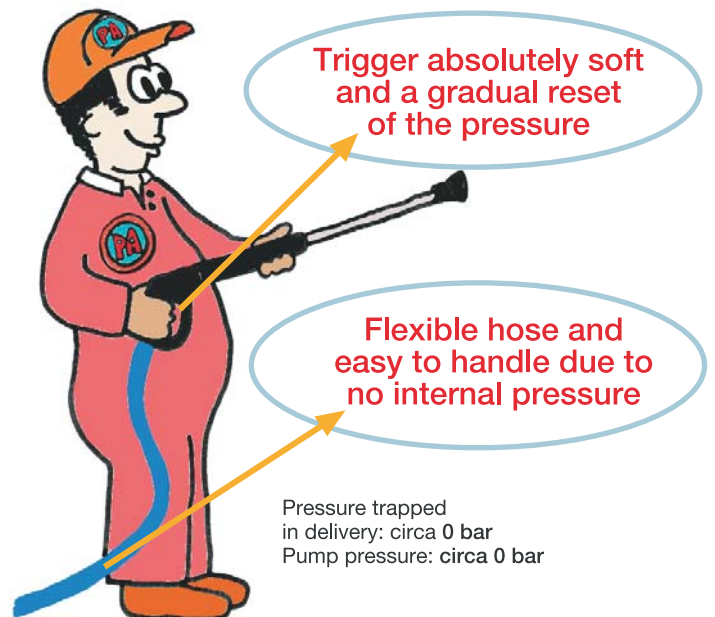
In a system where a normal by-pass valve is fitted, at gun closure, a pressure spike occurs which allows the by-pass aperture. In this circumstance the section of the system found between valve and gun remains isolated and the water under pressure is "trapped" internally until the aperture of the gun.

ZERO VALVE

Gun open



Gun closed



In a system where a Zero valve is fitted, at gun closure, the section of the system between valve and gun remains always connected with the by-pass which allows to discharge the pressure completely. The hose results flexible and easy to handle while the gun trigger, at opening, will be absolutely tender because will not have to overcome any pressure. The difference of features between pump pressure and nozzle pressure indicates the pressure loss necessary for the function of the valve: it's value is very limited in the case of the PA Zero valves.



“Zero” range, a spectrum vast and varied

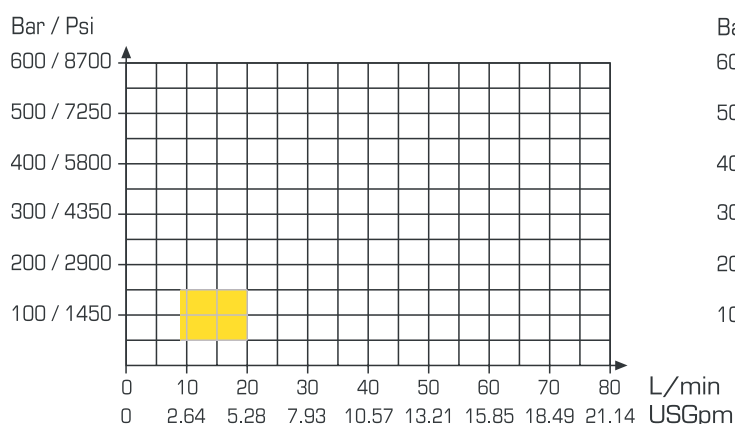
The PA “Zero” range is a line of valves designed around the same technology but very distinct from each other. The assortment of the “Zero” range begun with the intent to provide the client a specific product for every type of application; whoever purchases a “Zero” valve can optimize the characteristics of the product and, just as important, the cost. We begin with a small and light valve like the VB20-160 Zero, a valve designed to work at flows up to 20 l/min and 160 bar, up to a valve like the VB60/600 built completely in Sst 303 and capable to function with 60 l/min and 600 bar.

The range is completed by the Pulsar Zero and the VB80/280 Zero.

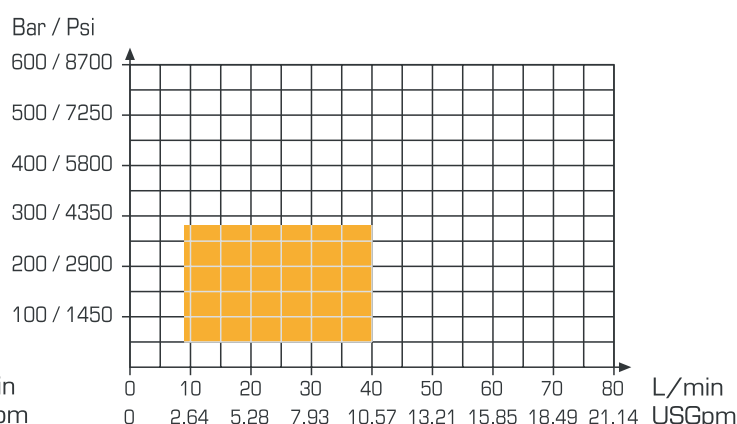
The first of these is the valve that represents the initiator of the range, a very versatile valve that can work with flows from 9 to 40 l/min and 280 bar; the second instead is a bigger and heavier valve studied to work at high flows: 80 l/min and 280 bar.

CHART FOR CHOICE OF CORRECT VALVE IN LINE WITH FLOW & PRESSURE

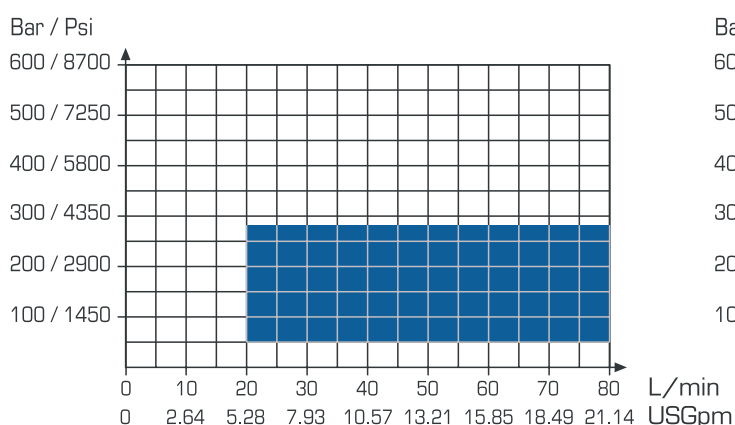
VB20-160 Zero



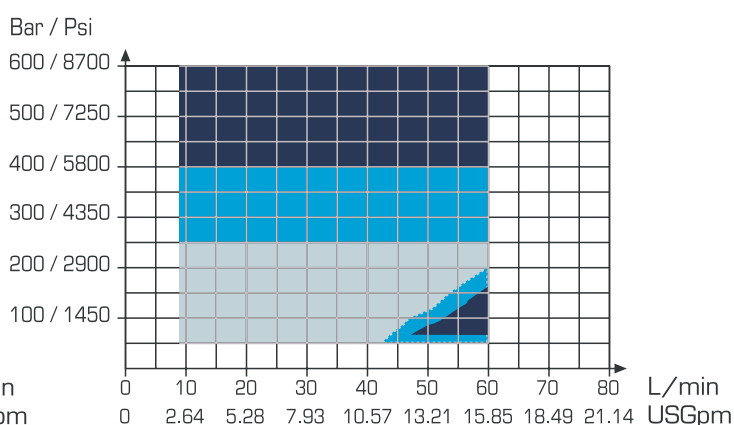
Pulsar Zero



VB80-280 Zero



VB60/600-400-250 Zero



VB60/250Zero

VB60/400Zero

VB60/600Zero

Note:

VB60/250:
Minimum pressure 50 bar/725 psi

VB60/400:
Minimum pressure 50 bar/725 psi

VB60/600:
Minimum pressure 70 bar/1015 psi



When and where to use the “Zero” valves

The Zero valves could be defined as “special by-pass valves” from the moment that their function is the same even though carried out with important aspects of performance. However let's see in which applications it is particularly recommended to use a Zero valve and where not too.

RECOMMENDED USE OF ZERO VALVES

High pressure cleaning

The more the pressure & flow is higher, the more the system can benefit of the advantages brought by the Zero valves, either by means of safety or maintenance due to the exclusion of pressure spikes and abrupt strokes.

Self-service applications

In all the installations that foresee inexperienced operators using pressure cleaners it is strictly advisable to use Zero valves: the gradual increase of pressure at gun opening reduces considerably the risks linked to the powerful water jet.

Machines with petrol engines

Reaching gradually the working pressure permitted by the Zero valves resolves all the starting problems of the machines with petrol engines.

By fitting a Zero valve it is not necessary to use an accessory like the easy starter.

Heated applications

With machines or systems that work with hot water and in case of a stoppage failure in the heater at gun closure, the risk of overheated water could provoke an ulterior increase of pressure in the delivery resulting very dangerous for the complete system. By using a Zero valve the risk of pressure increase would be avoided from the moment that the overheated water would be diverted only to by-pass.

WHERE NOT TO USE ZERO VALVES

Applications with total-stop system

With Zero valves, and using the appropriate electrical accessories, it is possible to control the machine motor switch-off to the gun closure. However the absence of pressure in delivery prevents operating the successive restarting of the motor through the gun aperture.

FURTHER INFORMATION

The PA Sales & Technical Office are at your complete disposal and pleased to answer any doubts, requests or further information concerning the new “ZERO” range and naturally, all other PA products. Do not hesitate to contact us!

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Pressure Loss Sensitive Unloader Valves

VB20/160 Zero

| P/N | Inlet | Outlet | Bypass | Weight | | | |
|------------|----------|----------|----------|--------|------|----|--|
| | | | | gr | oz | | |
| 60.2500.00 | 3/8Bsp F | 3/8Bsp F | 3/8Bsp F | 662,3 | 23,4 | 15 | |

| | | |
|--|------------------|-----------|
| Permissible Pressure | 160 bar - 16 MPa | 2300 psi |
| Max. flow rate | 20 l/min | 5.3 USGpm |
| Min. flow rate | 8 l/min | 2.1 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Material | Brass | |
| Patent No: MO2008A000043/-US-2009-02057 16-A1/-EP 2 093 643 A2 | | |



VB20/160 Zero with micro-switch

| P/N | Inlet | Outlet | Bypass | Weight | | | |
|------------|----------|----------|----------|--------|------|----|--|
| | | | | gr | oz | | |
| 60.2550.00 | 3/8Bsp F | 3/8Bsp F | 3/8Bsp F | 772,8 | 27,2 | 12 | |

| | | |
|--|------------------|-----------|
| Permissible Pressure | 160 bar - 16 MPa | 2300 psi |
| Max. flow rate | 20 l/min | 5.3 USGpm |
| Min. flow rate | 8 l/min | 2.1 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Max. Curr. Strength | 6 (2) A | |
| Max. Voltage | 250 V | |
| Patent No: MO2008A000043/-US-2009-02057 16-A1/-EP 2 093 643 A2 | | |



Pulsar Zero

| P/N | Inlet | Outlet | Bypass | Weight | | | |
|------------|-----------|-----------|-------------|--------|-------|----|---|
| | | | | gr | oz | | |
| 60.2400.00 | 3/8Bsp F | 3/8Bsp F | 2x3/8Bsp F | 1135 | 40,04 | 12 | ✓ |
| 60.2400.50 | 3/8 Npt F | 3/8 Npt F | 2x3/8 Npt F | 1135 | 40,04 | 12 | ✓ |

| | | |
|--|------------------|------------|
| Permissible Pressure | 280 bar - 28 MPa | 4050 psi |
| Max. flow rate | 40 l/min | 10.5 USGpm |
| Min. flow rate | 9 l/min | 2.4 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Material | Brass | |
| Patent No: MO2008A000043-/-US-2009-02057 16-A1-/-EP 2 093 643 A2 | | |



Pulsar Zero with knob and micro-switch



| P/N | Inlet | Outlet | Bypass | Weight | | | |
|------------|-----------|-----------|-------------|--------|-------|----|---|
| | | | | gr | oz | | |
| 60.2450.00 | 3/8Bsp F | 3/8Bsp F | 2x3/8Bsp F | 1250 | 40,04 | 12 | ✓ |
| 60.2450.50 | 3/8 Npt F | 3/8 Npt F | 2x3/8 Npt F | 1250 | 44,09 | 12 | |

| | | |
|--|------------------|------------|
| Permissible Pressure | 280 bar - 28 MPa | 4050 psi |
| Max. flow rate | 40 l/min | 10.5 USGpm |
| Min. flow rate | 9 l/min | 2.4 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Max. Curr. Strength | 6 (2) A | |
| Max. Voltage | 250 V | |
| Patent No: MO2008A000043/-US-2009-02057 16-A1/-EP 2 093 643 A2 | | |



Pressure Loss Sensitive Unloader Valves

VB80/280 Zero



| P/N | Inlet | Outlet | Bypass | Weight | |  |  |
|------------|----------|----------|----------|--------|------|---|--|
| | | | | gr | oz | | |
| 60.2800.00 | 1/2Bsp F | 1/2Bsp F | 1/2Bsp F | 1711 | 60,3 | 4 | |

| | | |
|--|------------------|-----------|
| Permissible Pressure | 280 bar - 28 MPa | 4050 psi |
| Max. flow rate | 80 l/min | 21 USGpm |
| Min. flow rate | 20 l/min | 5.3 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Material | Brass | |
| Patent No: MO2008A000043/-US-2009-02057 16-A1/-EP 2 093 643 A2 | | |



CE NEW

VB80/280 Zero with knob and micro-switch



| P/N | Inlet | Outlet | Bypass | Weight | |  |  |
|------------|----------|----------|----------|--------|------|---|--|
| | | | | gr | oz | | |
| 60.2850.00 | 1/2Bsp F | 1/2Bsp F | 1/2Bsp F | 1825,2 | 64,4 | 1 | |

| | | |
|--|------------------|-----------|
| Permissible Pressure | 280 bar - 28 MPa | 4050 psi |
| Max. flow rate | 80 l/min | 21 USGpm |
| Min. flow rate | 20 l/min | 5.3 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Max. Curr. Strength | 6 (2) A | |
| Max. Voltage | 250 V | |
| Patent No: MO2008A000043/-US-2009-02057 16-A1/-EP 2 093 643 A2 | | |

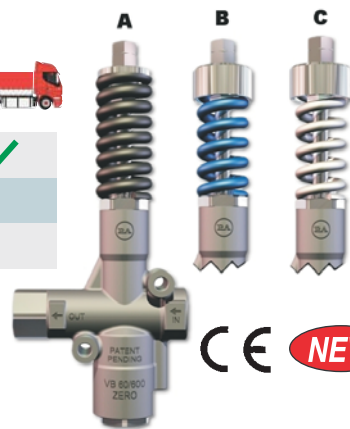


CE NEW

VB60/600-400-250 Zero



| P/N | Type | Permiss.press. bar-MPa psi | Inlet | Outlet | Bypass | Weight | |  |  |
|------------|------|-------------------------------|-------|----------|----------|----------|------|--|---|
| | | | | | | gr | oz | | |
| 60.2600.00 | A | 600-60 | 8700 | 1/2Bsp F | 1/2Bsp F | 1/2Bsp F | 2130 | 75,1 | 1 |
| 60.2600.40 | B | 400-40 | 5800 | 1/2Bsp F | 1/2Bsp F | 1/2Bsp F | 2125 | 75 | 1 |
| 60.2600.25 | C | 250-25 | 3600 | 1/2Bsp F | 1/2Bsp F | 1/2Bsp F | 2090 | 73,8 | 1 |

| | | |
|--|---------------------|-----------|
| Max. flow rate | 60 l/min | 16 USGpm |
| Min. flow rate | 9 l/min | 2.4 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Material | Stainless steel 303 | |
| Patent No: MO2008A000043/-US-2009-02057 16-A1/-EP 2 093 643 A2 | | |



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VB60/600 with micro-switch

| P/N | Inlet | Outlet | Bypass | Weight | |  |  |
|------------|----------|----------|----------|--------|------|---|--|
| | | | | gr | oz | | |
| 60.2650.00 | 1/2Bsp F | 1/2Bsp F | 1/2Bsp F | 2250 | 74,9 | 1 | |

| | | |
|----------------------|---------------------|-----------|
| Permissible Pressure | 600 bar - 60 MPa | 8700 psi |
| Max. flow rate | 60 l/min | 16 USGpm |
| Min. flow rate | 9 l/min | 2.4 USGpm |
| Rated Temperature | 60°C | 140°F |
| Max. Temperature | 90°C | 195°F |
| Max. Curr. Strength | Stainless steel 303 | |
| Max. Voltage | 6 (2) A | |
| | 250 V | |



CE NEW



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