



PV

PRESSURE RELIEF VALVES



TECHNICAL CATALOG
ASSEMBLY-MAINTENANCE CATALOG
SPARE PARTS CATALOG



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1.

TECHNICAL CATALOG



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1.1 BASIC SAFETY WARNINGS

In compiling this instruction catalog, careful attention has been paid to all considerations of operation and maintenance during normal working conditions. Buyers/users are exclusively responsible in complying all laws, rules and regulations in force in their country/area regarding safety of working environment and labour safety.

For matters which are not specified by the manufacturer in this catalog, as requirements of the applicable environmental process, safety, health care and other social responsibilities applicable laws, regulations, instructions, and rules will be effective.

Special care should be taken against all possible risks, danger and accidental incidents which may occur during the operation of the product.

This catalog contains description and recommendations for to guide set-up, start-up, operation and maintenance procedures.

This catalog or its related parts should be kept close to the product with easy access for users. It is the buyer's/user's responsibility and authority to ensure the delivery of this catalog to related users of the product.

Never start any operation before reading this catalog completely.

The product is produced solely for its intended use. Please ask for manufacturer's approval for different applications.

The product shall be operated in and under normal operating conditions. Manufacturer is absolutely not responsible for any complications or their consequences in cases where alterations have been made without written consent of the manufacturer.

All protective and safety clothes, tools, devices, and conditions have to be supplied by user. The unit has to be fixed during and prior to any operation.

In order to perform assembly, maintenance, repair and cleaning on the product, according to 2006/42 EC the user must take all necessary precautions to ensure public safety, safety of the environment and its entities and also take all actions to prevent any harm that may involve third parties.

Requirements of pneumatic lines and air usage shall be completed by the user to meet air consumption according to technical specifications which are given in technical catalog.

Only fully qualified and authorized electricians should conduct electrical operations. Occupational safety and worker health requirements must be met. Electrical problems and their consequences are out of manufacturer's control and are not covered under warranty. The manufacturer cannot be held responsible for any damage to property, persons or third parties, arising from poor electrical workmanship.

Always ensure that the power is disconnected before each operation. It is vital important that Power button has to be managed by a qualified person to prevent uncontrolled opening and closing.

All electrical connections shall be executed by the user to ensure safe operation. Users also have to take necessary actions to avoid uncontrolled startup of machine by means of emergency stop and switches of sufficient amount.

Controlling the status of Voltage and frequency's compliance is important. The electrical earthing of the product must be proper, safety warnings should be clean and readable, and all operations should be according to EN 600079-14 and TS 60204-1 EN standards.

Do not start up, if the unit is not complete and/or not in proper condition. Do not interfere to the unit during operation.

Never approach while the units are operating. Never let tools, hand, or head to approach to the operating zone during operation.

If you require further technical information or spares for your unit, please contact with manufacturer and it is necessary to report all data such as serial number, type etc. which are written on the machine's plate.

Make sure that; all lifting/transportation operations must be carried out in accordance with the instructions specified in this catalog and the relevant standards. Lifting operations should be done with accessories and carrying systems suitable for unit dimensions and weight.

Manufacturer can modify the product without notice and immediate effect. All dimensions specified in the catalog are for nominal standard parts. Dimensions and features may change depending on the type of project, applications, material.

This catalog cannot be changed without informing the manufacturer. The latest version of the catalog is accessible at our web site www.ozb.com.tr.

1.2 SAFETY SYMBOLS

These signs are of a warning nature and do not eliminate the risk. These instructions and/or warnings are recommendations, which should be run in conjunction with the latest health and safety directives in accident prevention.

WARNING DANGER

Special indication, provision and prohibition to prevent injury to personnel.



ELECTRICAL POWER DANGER



1.3 UNIT DESCRIPTIONS

Pressure relief valves are designed to balance the positive or negative pressure inside silos or hoppers.

Pressure relief valves work on the principle of the valve opening and letting out air in order not to damage the silo and silo top filter during material charge or discharge from the silo or hopper.

OZB pressure relief valves offer a durable thermoplastic top cover, elevated position of cover and dust rejection spring bellows to prevent blockage of the valve and carbon steel or stainless steel connection elements. Thanks to the new design of the discs the lifetime is extremely extended.

The metal parts of the relief valve that contact the handled material are offered as carbon steel or stainless steel.

OZB pressure relief valves can be supplied in varied sizes, 10" and 14".

In addition, models with inductive sensors are also available.

1.4 OPERATION CONDITION

Products are not designed to operate in explosive, flammable, toxic, hazardous viral or dangerous bacterial environment and/or materials. If the machine has to operate in these conditions, the manufacturer must be informed.

The appropriate use of the unit according to the food norms should be reported to the manufacturer at order although the unit has to be produced accordingly.

If the unit is used on adhesive and abrasive materials, the flow of material through the valve may be blocked or it may cause the valve parts to wear out.

In case of the pressure relief valve is used in adhesive and abrasive type materials, the manufacturer is not responsible for any damages that may arise from the application and/or misuse of the product.

In risky applications, the necessary precautions for possible explosions in the filter unit and other equipment/systems that may be needed must be ready. The above-mentioned issues are under the responsibility of the plant designer and/or installer.

Temperature Values:

Maximum temperature: -40 / +248°F

Pressure Values:

PV273 Pressure Relief Valve

Positive Pressure Range: 0.57 / 1.42 psi

- Factory Setting: 0.57 psi

Negative Pressure Range: -0.06 / -0.17 psi

- Factory Setting: -0.06 psi

PV400 Pressure Relief Valve

Positive Pressure: 0.07 / 0.64 psi

- Factory setting: 0.36 psi

Negative Pressure: -0.07 / -0.21 psi

- Factory setting: -0.14 psi

1.5 PRODUCT LABEL

Every unit is supplied with identification plates showing;

- Manufacturer's information
- Manufacturer's website
- CE logo
- Product type
- Product serial number
- Product Code
- Production Place
- Product year
- Pressure

Do not throw away the labels on the unit and do not change the information on the label. Make sure that labels are clean and legible.



1.6 PRODUCT CODE KEY

1	2	3	4
PV	273	F	-PS

1	Unit Code	PV	
2	Body Diameter	273	10.75" (273mm)
		400	15.75" (400mm)
3	Body Material (Metal parts in contact with handled material)	F	Carbon Steel
		X	Stainless Steel
4	Sensor	PS	Inductive Sensor

1.7 COMPOSITION

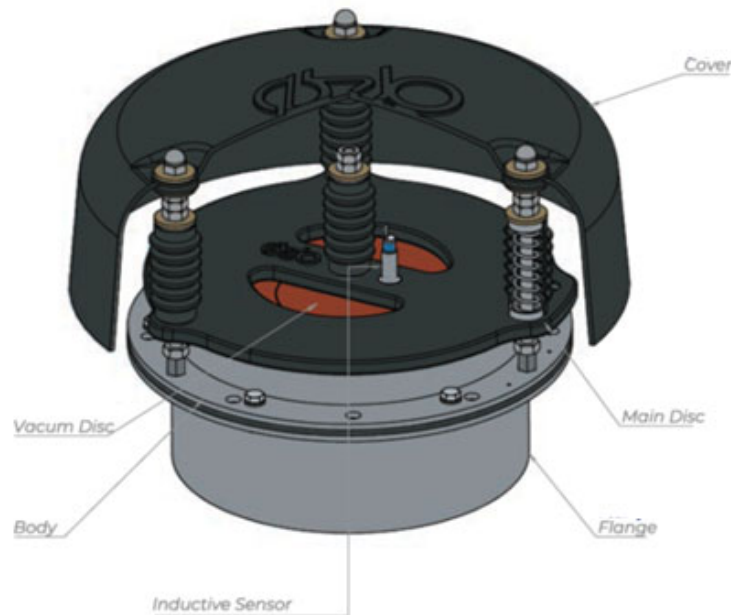
The top cover is made of high impact resistance and flexible thermoplastic material and is designed for heavy duty applications.

The main disc is steel covered with EPDM. (Max Temp. 248°F). The disc provides long service life, and it is possible to scrape-clean the disc.

Vacuum disc is a steel disc covered with silicone (Max Temp. 482°F). It provides minimum sticking of material and is brushable.

The body, contact parts, is offered as carbon steel or stainless steel.

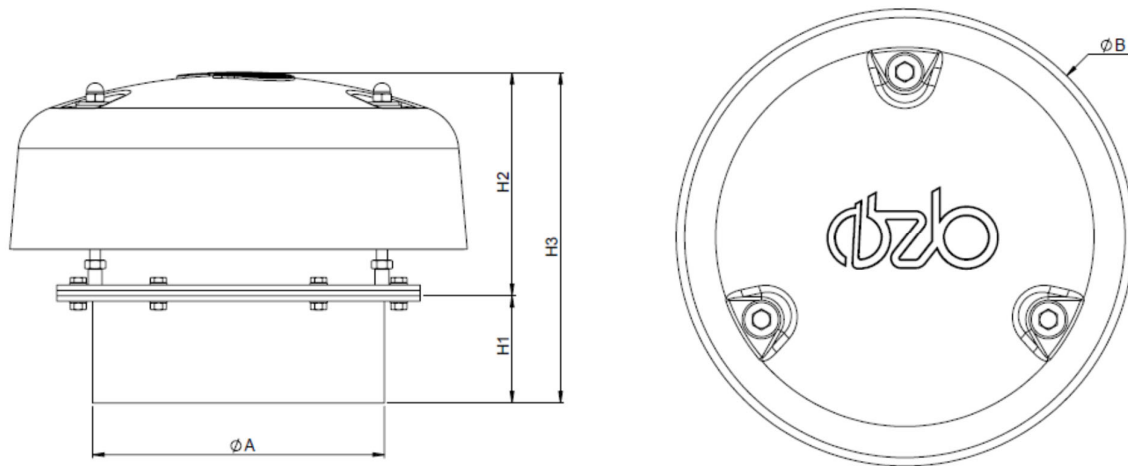
Flange can be supplied in carbon steel or stainless steel.



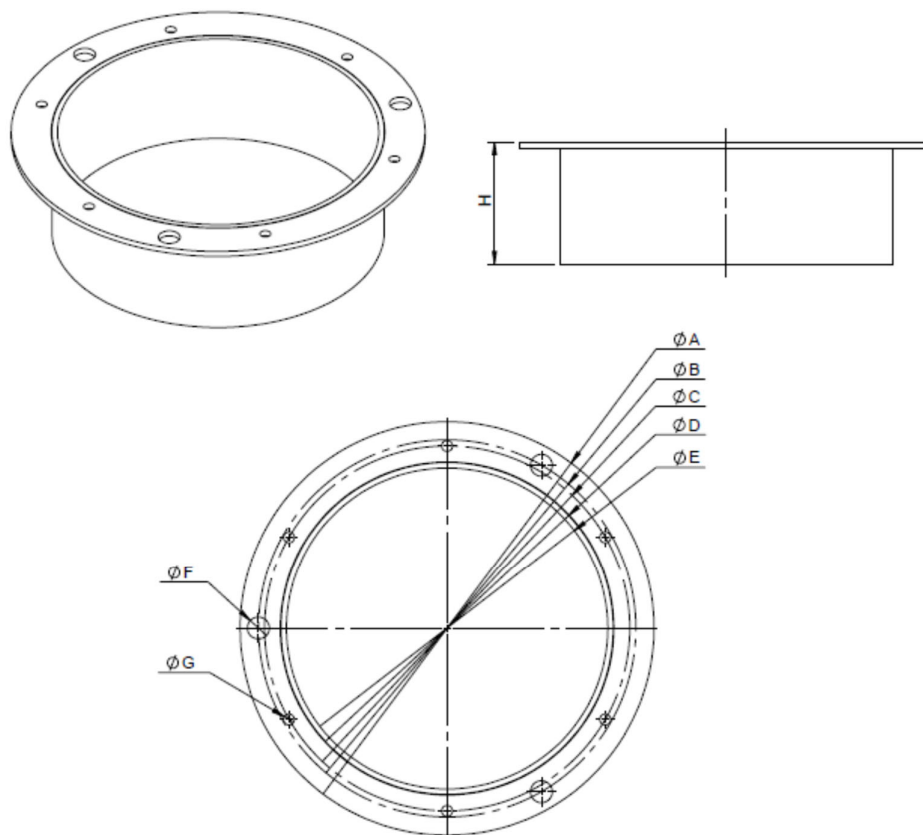
CARBON STEEL	
Cover:	Thermoplastic
Metal parts in contact with handled material:	Carbon steel
Main Disc:	Carbon steel covered by EPDM
Vacuum Disc:	Carbon steel covered by silicone
Flange:	Carbon steel

STAINLESS STEEL	
Cover:	Thermoplastic
Metal parts in contact with handled material:	Stainless steel AISI 304
Main Disc:	Carbon steel covered by EPDM
Vacuum Disc:	Carbon steel covered by silicone
Flange:	Stainless steel AISI 304

1.8 OVERALL DIMENSIONS



1.8.1 FLANGE DIMENSIONS



Type	ϕA (in)	ϕB (in)	ϕC (in)	ϕD (in)	ϕE (in)	ϕF (in)	ϕG (in)	H (in)
PV273	13.39	12.2	11.81	10.75	10.39	3 x $\phi 0.71$	6 x $\phi 0.35$	3.94
PV400	19.09	17.91	17.52	16.00	15.76	3 x $\phi 0.71$	9 x $\phi 0.35$	3.94

1.9 TECHNICAL PROPERTIES

1.9.1 PRESSURE VALUES

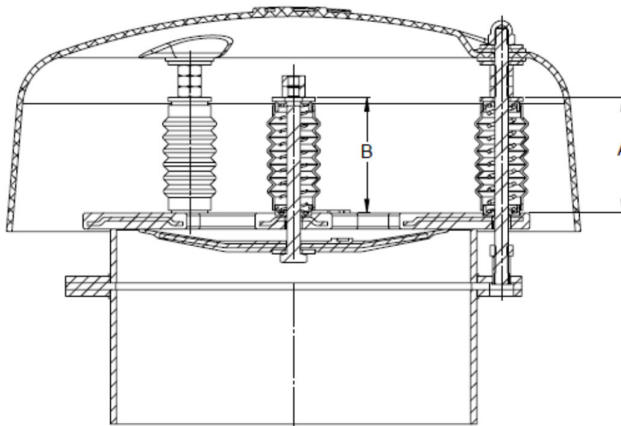
Type	Pressure (psi)	Negative Pressure (psi)	Flow For Outflow (SCFH)	Flow For Inflow (SCFH)
PV273	0.57 / 1.42	0.57 / 1.42	282,518	141,259
PV400	0.07 / 0.64	0.07 / 0.64	565,035	211,888

PRESSURE ADJUSTMENTS

Nominal pressure values are given in the relevant table below. In case of incorrect valve pressure settings or incorrect use of the valve, the manufacturer is not responsible for any damage.

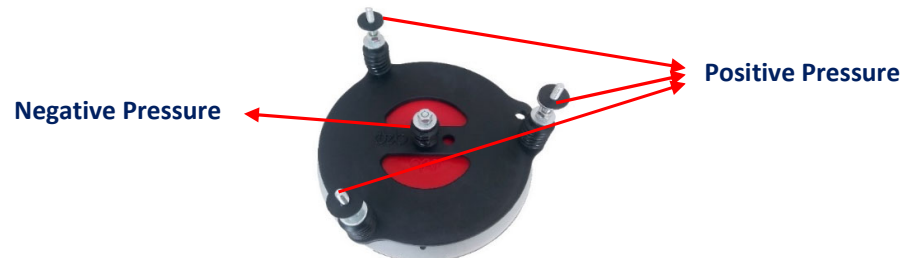
The user shall adjust the pressure ratings of the valve, according to the maximum pressure in the silo.

There may be %10-15 deviations in valve settings due to climatic conditions. The user shall make necessary adjustments.



A: Compressed spring length for positive pressure (EPDM coating surface and the upper surface of the washer)

B: Compressed spring length for negative pressure (EPDM coating surface and the upper surface of the washer)



1.9.1.1 PV273 PRESSURE ADJUSTMENTS

The factory settings are done as; overpressure 0.57 psi and negative pressure -0.06 psi (according to DIN 4119 F.1 86.1.2.2)

Max working positive pressure: 1.42 psi
Max working negative pressure: -0.17 psi

PV273F			
PRESSURE SETTINGS			
Positive Pressure		Negative Pressure	
A (in)	P (psi)	B (in)	P (psi)
2.17	1.636	1.77	-0.171
2.36	1.351	1.97	-0.142
2.56	1.138	2.17	-0.114
2.76	0.853	2.36	-0.085
2.95*	0.569*	2.56*	-0.057*
* Factory setting			

PV273X			
PRESSURE SETTINGS			
Positive Pressure		Negative Pressure	
A (in)	P (psi)	B (in)	P (psi)
2.09	1.636	1.57	-0.171
2.28	1.351	1.77	-0.142
2.48	1.138	1.97	-0.114
2.68	0.853	2.17	-0.085
2.87*	0.569*	2.36*	-0.057*
* Factory setting			

1.9.1.2 PV400 PRESSURE ADJUSTMENTS

The factory settings are done as; overpressure 0.36 psi and negative pressure -0.14 psi (according to DIN 4119 F.1 86.1.2.2)

Max working positive pressure: 0.64 psi
Max working negative pressure: -0.21 psi

PV400F			
PRESSURE SETTINGS			
Positive Pressure		Negative Pressure	
A mm	P mmH ₂ O	B mm	P mmH ₂ O
4.92	0.64	2.36	-0.213
5.91*	0.356*	3.15*	-0.142*
6.89	0.071	3.94	-0.071
*Factory setting			

PV400X			
PRESSURE SETTINGS			
Positive Pressure		Negative Pressure	
A mm	P mmH ₂ O	B mm	P mmH ₂ O
5.24	0.64	1.77	-0.213
6.06-	0.356-	2.56-	-0.142-
6.81	0.071	3.54	-0.071
*Factory setting			

1.9.2 INDUCTIVE PROXIMITY SWITCH

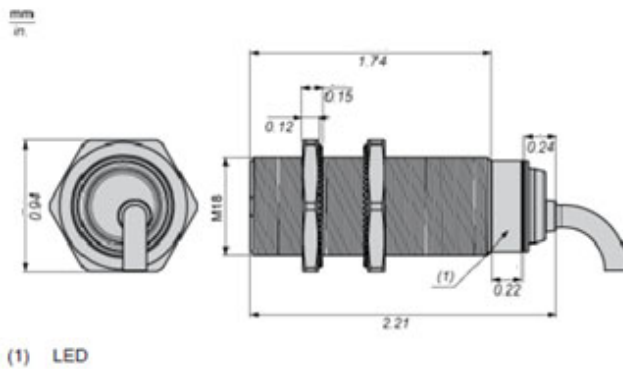
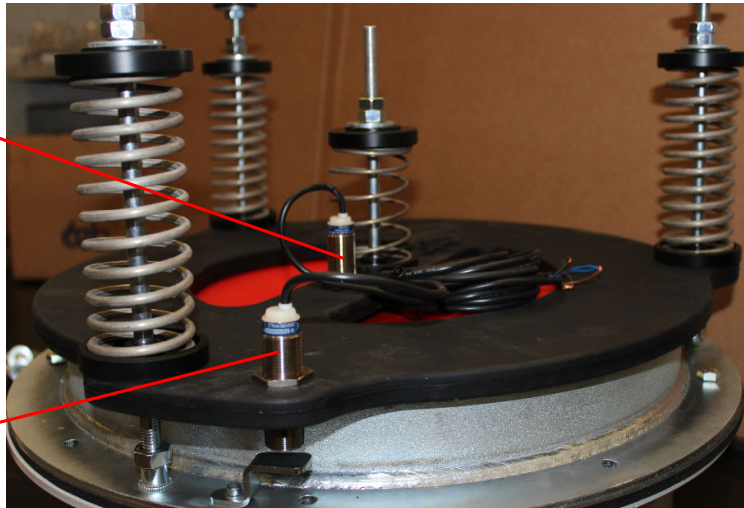
PV...-PS model pressure relief valves have proximity switch. Proximity switch makes it possible to signal the opening of the positive or negative pressure valve, to the pre-set calibration value.

Operating voltage; 24 - 240 V AC/DC 50/60Hz.

Negative Pressure Sensor

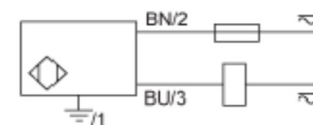
M18x1
24-240 V AC/DC 50/60Hz

Positive Pressure Sensor



2-Wire AC or DC

NC output

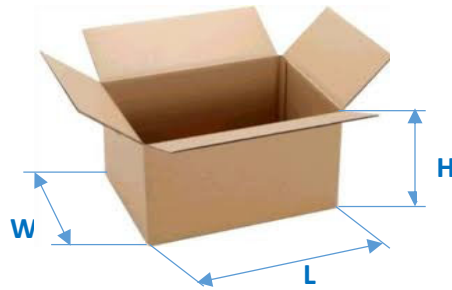


BU : Blue
BN : Brown

1.10 PACKAGING DIMENSIONS AND WEIGHTS

Package sizes and weights of the units are given below.

When receiving the units; check if the unit code and quantity are compatible with your order. Possible damages must be reported/informed to the authorized person of cargo/transportation company before taking the goods. The manufacturer is not responsible for any damage that may occur during transportation.



Type	L (in)	W (in)	H (in)	Net Weight (lbs)	Gross Weight (lbs)
PV273	17.32	17.32	14.17	26.68	27.34
PV400	24.21	24.21	17.32	45.86	46.74



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2.

ASSEMBLY-MAINTENANCE CATALOG



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2.1 SAFETY CONDITIONS AND PROTECTIONS

It needs to be kept at nearest position available for the concerned personnel for installation, operation, maintenance and repair staff.

This catalog is a guide for users. It is the user's responsibility to take all necessary precautions to ensure occupational safety, worker health and safety of third parties as well as ensuring operations in accordance with local laws and regulations.

In order to perform assembly, maintenance, repair and cleaning on the product, according to 2006/42/EU, 2004/108/EU, 2006/95/EU Directives the user must take all necessary precautions to ensure public safety, safety of the environment and its entities and also take all actions to prevent any harm that may involve third parties.

In case of handling hot material over 140°F, it is the user's responsibility to assemble barriers and warnings in order to secure the workplace.

Apart from normal operating conditions, the product must be in safe position.

This unit may be working on dynamic forces, electrical energy and pressurized air and operates under high level of mechanical risk. Accidents that may arise due to any of the above or any combination of the above may result in catastrophic effects. Therefore, the user is responsible to supply maximum security in all stages and operations.

All related staff should be trained, authorised and specialised. For all work to be done on the product, other than normal operation, the electrical connection must be cut, all movement stopped, pressurised air supply disconnected and the product must be in good condition and in park mode.

Only fully qualified and authorized electricians should carry out electrical operations. Occupational safety and worker health requirements must be met. Electrical problems and their consequences are out of manufacturers control and are not covered under warranty. The manufacturer cannot be held responsible for any damages to property, persons or third parties, arising from poor electrical workmanship

The user who is carrying out the assembly is responsible for creating electrical circuits that will overcome all risks that may arise due to misuse during start, stop, emergency stop and maintenance.

It is necessary to check the compatibility of voltage and frequency. Operations should be carried out only by knowledgeable and authorised staff. In case air usage is required via pneumatic connections, the user should assemble a system to meet the requirements given on the technical information section.

The electrical earthing of the product must be proper, safety warnings should be clean and readable, and all operations should be according to EN 60204-1:2018 standard.

Before each operation, always ensure that the power is disconnected before commencing. It is vitally important that power on/off button has to be managed by a qualified person to prevent uncontrolled opening and closing.

Make sure that all moving parts are in absolute stop before each operation.

Always ensure that the dust inside the machine is completely settled.

Operators must use the following protection equipment during the maintenance and cleaning of the machine;

- Antistatic protective clothing
- Protective Helmets
- Antistatic cut-proof gloves
- Safety masks
- Antistatic protective shoes

After assembly, check that all operations are properly and fully completed, all bolts are tightened, all warning labels, barriers and safety accessories are proper.

Do not start operation if the product is not complete and fully mounted. Do not interrupt externally during operation. Never approach while the units are operating. Never let tools, hand, or head to approach to the operating zone during operation.

In case modifications are made without written consent of the manufacturer, no responsibility will be assumed by the manufacturer in case of damage and their consequences.

The product may display different wear and results according to material used and working conditions. Therefore the user is required to develop practices other than those given in this catalog.

During the practice of below maintenance notes, situations that may result in harm to humans or machines or which prevent the product from working may occur. All inspections and maintenance must be done when product is in safe position.

Maintenance staff must be fully qualified. Tools for lifting and stabilizing must be used. No humans must be present during lifting and carrying operations.

It is important to use original parts or parts that have the required specifications.

It is possible that problems may occur, and the product may be declared out of warranty in case maintenance work is conducted without full compliance with this maintenance guideline.

2.2 ASSEMBLY

Please consult assembly instructions, which can be found inside of each product package.

Carefully follow all technical, safety and worker health instructions during the assembly and the operation of the unit.

For right terminal connections of the unit, please double check voltage, frequency, local regulations, and procedures.

Disconnect from all mains before opening the unit.

Start up the unit only when the cover is closed.

Provide protection for relay contacts and output transistors to protect the device against spikes with inductive loads.

A voltage-disconnecting switch must be provided near the device.

In the case of inexpert handling or handling malpractice, the electric safety of the device cannot be guaranteed.

In the case of a defect, the distribution voltage must automatically be cut off by a protective switch so as to protect the user of the device from indirect contact with dangerous electric tensions.

All field wirings must have insulation suitable for at least 250VAC. The temperature rating must be at least 194°F.

Protect the power of the device by means of a fuse.

The device body has to be earthed to avoid static charges. This is particularly important in pneumatic conveying applications, or with non-metallic containers.

Close the cover when all connections are completed and supply the power. Always check the voltage with a voltmeter.

All electrical connections must be made according to the given connection diagram: make sure the cable is sealed tightly inside the cable gland.

Make sure the electrical connections are made properly and tightly. Setting on the assembled unit is not recommended.

Pressure Relief Valve is supplied in two pieces; the operative valve and the frame/connector to silo and the unit must be installed by the user. Open a convenient hole on top of the silo according to the lower flange and weld the lower flange to the silo.

The silo flange must be installed parallel to the ground.

Make sure that the flange is mounted well.

Insert the supplied gasket between the valves.

Fix the bolts/nuts to the body and lower flange.

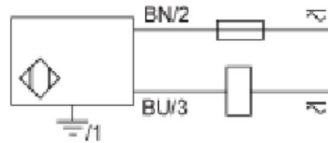
The flange cannot be used as a support for other purposes.

Do not use the walkway or any other unit as a support.

If you have supplied the pressure relief valve with the inductive proximity sensor, make the connection as indicated below.

2-Wire AC or DC

NC output



BU : Blue

BN : Brown



M18x1

24-240 V AC/DC 50/60Hz

2.3 START UP

Install the unit properly into the system. Make sure the electrical connection is made properly and tightly. Setting on the assembled unit is not recommended.

Before starting up the unit, make sure that no foreign bodies have entered during assembly if they have, remove them. Run the machine for max 2-3 minutes to observe and listen. Re-check the product and observe if heating has occurred on any component and/or abnormal noise, vibration occurs.

Make sure that there is no blocking or bridging around the valve operating parts. If there is any, clean it. Do not use the material as a supporter.

Make sure that the pressure relief valve is in optimum working conditions, check it once a month. If necessary, adjust the unit.

IMPORTANT: All connections should be undertaken by qualified electrical personnel only. Occupational safety and employee health requirements must be complied with. Before conducting any operation on the motor, make sure that the electrical supply is disconnected. The constructor declines to take any responsibility for any damage to property or persons, arising from poor electrical workmanship.

2.4 MAINTENANCE

Before maintenance procedures, all power lines must be disconnected.

Prior to each action, check that the energy lines are cut. It is vitally important to take precautions in order to prevent the on/off button of the power supply from being operated without authorization or control.

In case modifications are done without written consent of the manufacturer, no responsibility will be assumed by the manufacturer in case of damages and their consequences.

The product may display different wear and results according to material used and working conditions. Therefore, the user is required to develop practices other than those given in this manual.

During the practice of below maintenance notes, situations that may result in harm to humans or machines or which prevent the product from working may occur. All inspections and maintenance must be done when product is in safe position.

Supply and use safety equipment and tools that may be required for worker safety.

Maintenance staff must be fully qualified. Tools for lifting and stabilizing must be used. No humans must be present during lifting and carrying operations.

It is important to use original parts or parts that have the required specifications.

It is possible that problems may occur, and the product may be declared out of warranty in case maintenance work is carried out without full compliance to this maintenance guideline.

Before each shift:

Check the unit visually.

Check that the warning labels on the machine are present and in good condition.

Check all the bolts and nuts present and they are tightened.

Daily Maintenance:

Check the unit visually.

Check all bolts and nuts present and they are tightened.

Check the tightness of the bolts and nuts.

The pressure setting of the valve generally is stable, yet surges and clogs that may occur between the discs and frame will cause the adjustments to change.

Check if the discs are clean.

Clean any material that has blocked around the cover.

Monthly Maintenance:

Check the unit visually.

Check all mechanical functions, abnormal vibrations, sounds and similar.

Check the process by pushing the disc down and make sure it moves.

Every Six Month Maintenance:

In case of obvious deterioration contact the Manufacturer for a copy of the label.

Annual Maintenance:

Make sure that the labels are legible and in good condition.

In any case, replace the springs, bellows, and all current seals.

2.5 LUBRICATION

There are not any parts required lubrication.

2.6 DEMOLITION

At the end of the working life of the unit, demolish it according to the following recommendations: plastic parts consigning them to the authorized collection centres.

2.7 DEFINING PROBLEMS AND TROUBLE SHOOTING

Below are some guidelines regarding problems that may occur during the operation of the product.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Valve releases dust.	The pressure is high. The main disc is blocked. The valve setting is damaged. The vacuum spring (disc) is blocked.	Check pressure and regulate to normal value. Remove any dust stuck between the disc, clean it. Set to factory settings. Remove any dust stuck between the disc, clean it.



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3.

SPARE PARTS CATALOG

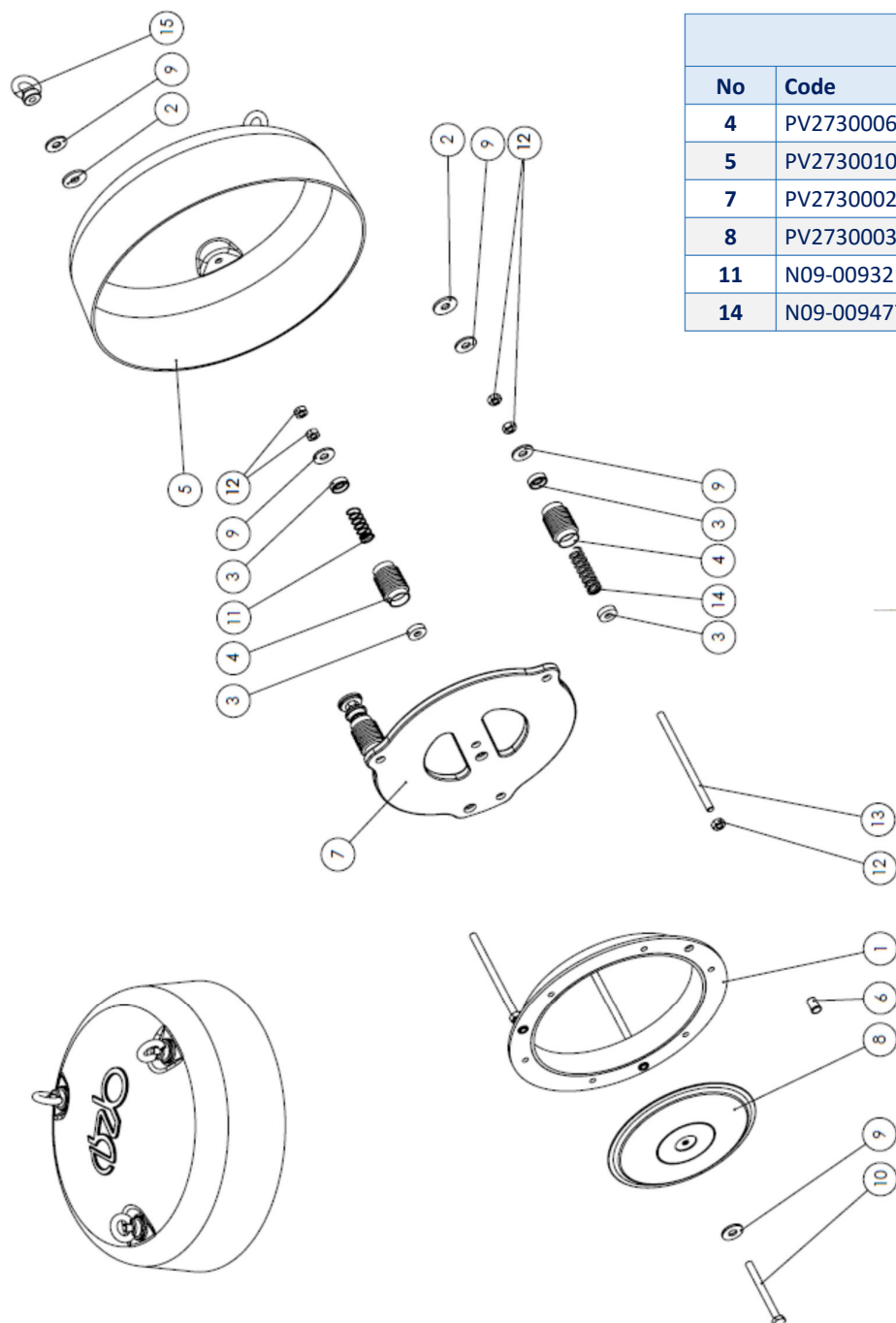
If you should require spares for your unit, please contact the manufacturer and it is necessary to report all data such as serial number, type etc. which are written on the machine's plate. Do not use non-original parts.



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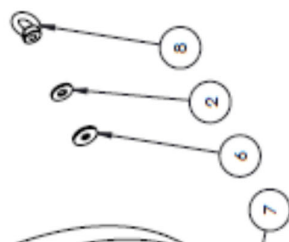
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3.1 PV273 PRESSURE RELIEF VALVE



PV273F		
No	Code	Description
4	PV27300060	Bellow
5	PV27300100	Cover
7	PV27300023	Main Disc
8	PV27300031	Vacuum Disc
11	N09-0093210	Spring
14	N09-0094778	Spring

3.2 PV400 PRESSURE RELIEF VALVE



PV400F		
No	Code	Description
7	PV40000100	Cover
10	PV40000030	Vacuum Disc
11	PV40000020	Main Disc
12	N09-0106422	Spring

