4. INSTALLATION

With the aim to guarantee the user physic integrity or materials damages during the valve movement and installation it is necessary to observe the following warnings:

- The valve must be used and maintained by prepared and authorized personnel.
- Use adequate personal protection accessories (gloves, safety shoes, ...).
- Install the valve in accordance with the actual standards.
- Discharge the pressure inside the tank before performing any maintenance activity and/or valve disassembly.

Before installing the valve, check it to verify that has not suffer damages during the sending or the storage.

In case of accidental impact (also of modest identity), verify the valve integrity and perform one or more manual opening before putting in service the valve.

The installation optimum position is the vertical valve one. In this position we obtain the best valve functionality and the internal parts maximum protection from the atmospheric agents.

Use to different installation positions (inclined axle) only in case of exceptional needs.

We recommend to install the valve in positions protected against accidental impacts.

5. WORKING RESTRICTION

The safety valve in object ***can not be used*** in the following cases:

- Use on equipments classified in class IV according to the Directive 2014/68/CE;
- Use on equipments designed for the carrying and/or treatment of fluids belonging to group 1 (ref. Art.13 point 1 letter a) DIR 2014/68/CE);
- Working conditions different from those indicated at point 5;
- Use with temperatures lower than -15 °C;
- Use with liquids too aggressive in relation to the materials in the valve is made of;
- Applications in cases in which there is passage of liquids through the valve;
- Use in the food field.

In the following table are indicated the working conditions of the safety valves article 0860 and article 0870

ART	DN	Working temperture (°C)	Setting range (Bar)	(PSI)
0860	1”	-10 +50	0,3 ÷ 1,5	4 ÷ 22
0860 - 0870	1”1/4	-10 +50	0,3 ÷ 1,5	4 ÷ 22
0860 - 0870	1”1/2	-10 +50	0,3 ÷ 1,5	4 ÷ 22
0860 - 0870	2”	-10 +50	0,3 ÷ 1,5	4 ÷ 22
0860 - 0870	2”1/2	-10 +50	0,2 ÷ 1	3 ÷ 15

9. MATERIALS

- Body: brass ΔC UNI EN 1982 cast
  superficial treatment: sandblasting

Chemical composition percentage

Cu	Pb	Sn max	Al	Ni	Fe	Mn max	Si max	Zn
57,5 ÷ 59,5	1,5 ÷ 2,5	1,2	0,4 ÷ 0,8	0,3 ÷ 0,6	0,3 ÷ 0,8	0,3	0,10	rest

- Seat connection (nosepiece): brass ST UNI EN 12165 CW617N moulded
  superficial treatment: sandblasting

chemical composition percentage

Cu	Pb	Sn max	Fe max	Ni max	Al max	other impurities max	Zn
57 ÷ 59	1,6 ÷ 2,5	0,3	0,3	0,3	0,05	0,2	rest

- Screw M5 × 10, self-locking nut, washer: zinc plated steel
- Stem: brass TN UNI EN 12164 CW614N drawn
- Spring: stainless steel AISI 302
- Gasket holder: nylon
- Ring: acetalic resin
- Gasket: NBR rubber

THE OVER STATED CHEMICAL ANALYSIS REFERS TO EMPLOYED RAW MATERIALS AND IS VALID ONLY AS AN INDICATION.

10. CORROSION RESISTANCE

The following is a table of the cases brass in various aggressive environments.

CORROSION AGENT		CORROSION AGENT		CORROSION AGENT	
Acetylene	0	Metan and GPL	2	Aluminum sulphate	0
Acetone	1	Glycerine	2	Anhydrous ammonium hydroxide	2
Acetic acid <50%	0	Ethylene glycol	2	Humid ammonium hydroxide	0
Acetic acid glacial	0	Glucose	2	Ammonium chloride	0
Boric acid	2	Hydrogen	2	Ammonium idroxide	0
Citric acid	2	Lacquer	2	Nitrate of ammonium	0
Hydrogen chloride	0	Magnesium chloride	0	Ammonium sulphate	0
Chromic acid	0	Magnesium hydroxide	1	Anhydrous carbon dioxide	2
Hydrogen fluorides	1	Magnesium sulphate	0	Humid carbon dioxide	0
Fluorosilicic acid	0	Mercury and salts	0	Anhydrous sulphur trioxide	2
Formic acid	0	Chloride nickel	2	Anhydrous sulphur trioxide	2
Phosphoric acid	0	Nickel sulphate	2	Humid sulphur trioxide	0
Lactic acid	0	Fuel oil	2	Aniline	0
Nitric acid	0	Potassium carbonate	0	Asphalt	2
Oleic acid	0	Potassium cyanide	0	Barium chloride	0
Oxalic acid	0	Potassium chloride	0	Barium sulphide	0
Picric acid	0	Potassium sulphate	0	Petrol and benzene	2
Anhydrous hydrosulfidric acid	0	Copper sulphate	0	Butane	2
Humid hydrosulfidric acid	0	Sodium bicarbonate	2	Calcium bisulphate	0
Sulphuric acid <78%	0	Sodium phosphate	2	Anhydrous calcium chloride	0
Sulphuric acid >78%	0	Sodium hypochlorite	0	Alkaline calcium chloride	0
Stearic acid	2	Sodium nitrate	1	Calcium hydroxide	0
Tannic acid	2	Sodium peroxide	1	Calcium hypochlorite	0
Tartaric acid	2	Sodium silicate	0	Anhydrous carbon tetrachloride	2
Salt water	0	Sodium sulphate	0	Humid carbon tetrachloride	1
Hydrogen peroxide	0	Sodium sulphite	0	Anhydrous chlorine	0
Condensed water	2	Ferric sulphate	0	Humid chlorine	0
Black water	0	Ferrous sulphate	0	Chloride ferric	0
Drinking water	1	Soap-suds solutions	0	Chloride ferrous	0
Acid subterranean water	0	Acetates solvents	1	Glue	2
Aluminium chloride	0	Toluene	1	Creosote	0
Ether	2	Turpentine	2	Bisulphate sodium	0
Formaldehyde	2	Trichloroethylene	2	Sodium carbonate	0
Freon	2	Paints	2	Sodium cyanide	0
Furancarboxaldehyde	2	Zinc chloride	0	Sodium chloride	0
Sulphur chloride	0	Sulphate zinc	0	Solid sulphur	0

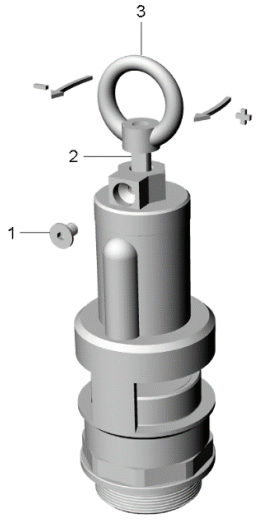
LEGENDA: 0= not enough 1= enough 2= good

The following is the chemical resistance of the nitrilic rubber NBR

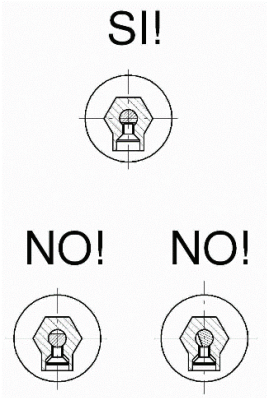
CORROSION AGENT			
Mineral, vegetal and animal oils and fat	3	Synthetic lubricants with diestere basis	1
Water, sea water and saline solutions	3	Chetons and hesteres	0
Aliphatic hydrocarbons and fuels	3	Benzene and chlorirated hydrocarbons	0
Alcohols (except the benzilic one)	2	Concentrated strong mineral acids,	0
Alkaline solutions concentrated till 50°C	2	Alkaline hot solutions	0
Several types of freon	2	Ozone and atmospheric agent	0
Hydraulic fluids with petrolifer	2	Phenol	0
Xylene and toluene	1	Hydraulic fluids with phosphoric hestere bases	0
Diluted acid solutions	1	Several liquids for brakes with ono petrolic bases	0

LEGENDA: 0= not enough 1= enough 2= good 3= very good

11. SETTING

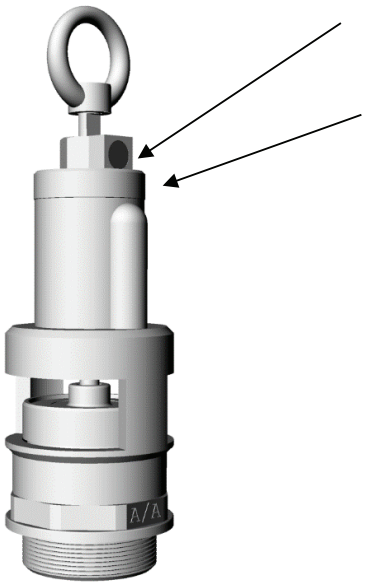


In lack of directions from the Customer, the safety valves are delivered without setting.
In this case the setting will be done by the person who install the valve according to the under stated proceedings.



After having released the anti-rotation screw (pos. 1), is sufficient to wheel the upper ring (pos. 3) to increase (clockwise rotation) or decrease (anti-clockwise rotation) the setting pressure. When you have reached the desidered pressure, you must verify than plane obtained on the stem (pos. 2) founds corresponding to anti-rotation screw (pos. 1). On the contrary it is necessary to wheel lightly the upper ring till to reach the exact correspondance. At last you have to screw completely the anti-rotation screw (pos. 1) and the setting is completed.
ATTENTION: when setting is over, please verify that the stem can not wheel, but can only slide vertically.
DO NOT REPLACE: for no motivations, the standard anti-rotation screw with other typess or blocking systems: use exclusively Metaltecnica spare parts.

At customer request, the valve could be delivered setted and plumbed at a demanded pressure.
In this case on the valve there will be an identification code and a lead seal with Metaltecnica stamp (MZ).



LEAD SEAL WITH STAMP MZ

<u>IDENTIFICATION CODE</u>
The first two numbers mean the progressive number of the lot of setted valves.
The second two numbers mean the year of production.
By this code it is possible to correlate the valve to the technical documentation (setting and testing sheet, setting certificate).

On the valve, in addition to Metaltecnica stamp, you will find:

- Name of the manufacturer
- Setting pressure
- CE mark
- Identification number allowed from Notified Body
- Article number (for ex. ART. 0860 - ART. 0870)

12. MAITENANCE

During the maintenance phase it is necessary to observe the following warnings:

- The valve must be used and maintained by prepared and authorized personnel.
- Use adequate personal protection accessories (gloves, safety shoes, ...).
- Discharge the pressure inside the tank before performing any maintenance activity and/or valve disassembly.

The valve maintenance operation is to perform periodically the internal parts washing to guarantee the correct functioning of the valve.

In unused case for periods superior to 15 days or in case of use in very low or very high temperature conditions, it is necessary to perform one or more manual opening before putting in service again the valve.

13. DISPOSAL

Don't remove this product in the not separated refuses municipal harvest. The product is recyclable and it must be recycled on the basis of local standards.

14. TESTS CARRIED OUT

TYPE OF TEST	NORM - METHODOLOGY	FREQ.	P (bar)	T (°C)
Acceptance	Internal control plan	See table	-	-
Production	Internal control plan	See table	-	-
Final (standard production)				
• Hydraulic test	Internal control plan	100%	6	15 - 35
• Functionality	Internal control plan	100%	-	15 - 35
Final (setted valves)				
• Hydraulic test	Internal control plan	100%	6	15 - 35
• Functionality	Internal control plan	100%	-	15 - 35
• Seal structure	Internal control plan	100%	0,5	15 - 35
• Setting	Internal control plan	100%	(*)	15 - 35

(*) setting made of the pressare settino indicated by the Customers.

15. VOLUMETRICAL FLOW

The following are the specifications concernine the volumetrical flows (liters of the air per minute at 20°C - 1013 mbar)

ART.0860 SAFETY VALVE

		DISCHARGE PRESSURE										
DN	**S.T.**	**0,5**	**0,6**	**0,7**	**0,8**	**0,9**	**1,0**	**1,1**	**1,2**	**1,3**	**1,4**	**1,5**
1”	**0,3**	25	180	1.370	10.150							
	0,5				100	1.850	3.500					
	0,7						50	190	950	4.980		
	0,8								75	430		
	1										100	950

		DISCHARGE PRESSURE													
DN	**S.T.**	**0,5**	**0,6**	**0,7**	**0,8**	**0,9**	**1,0**	**1,1**	**1,2**	**1,3**	**1,4**	**1,5**	**1,6**	**1,7**	**1,8**
1”1/4	**0,3**	780	1.320	1.860	2.420	2.950									
	0,5			600	1.080	1.760	2.380	2.960	3.660	4.260					
	0,7					535	1.395	2.230	3.090	3.920	4.800				
	0,8							1.020	1.880	2.570	3.320	4.080			
	1,0									1.340	2.890	4.450	5.770	7.315	
	1,2											1.020	4.100	6.330	9.050

		DISCHARGE PRESSURE												
DN	**S.T.**	**0,6**	**0,7**	**0,8**	**0,9**	**1,0**	**1,1**	**1,2**	**1,3**	**1,4**	**1,5**	**1,6**	**1,7**	**1,8**
1”1/2	**0,5**	3.110	6.330	9.650	12.700	16.000								
	0,7				6.500	10.140	13.460	16.950						
	0,8					4.900	7.450	9.730	12.220	14.000				
	1,0							6.480	10.670	12.850	16.000			
	1,2									7.180	11.320	14.900		
	1,5											4.700	9.160	13.460

		DISCHARGE PRESSURE												
DN	**S.T.**	**0,4**	**0,5**	**0,6**	**0,7**	**0,8**	**0,9**	**1,0**	**1,1**	**1,2**	**1,3**	**1,4**	**1,5**	**1,6**
2”	**0,3**	800	2.600	4.400	6.080	7.990	9.830	11.460						
	0,5				3.890	7.620	11.550							
	0,7						5.020	8.840	12.230					
	0,8						1.400	6.090	10.730					
	1,0									4.420	8.500	12.450		
	1,1										3.730	7.100	11.760	
	1,3												5.580	10.940

		DISCHARGE PRESSURE						
DN	**S.T.**	**0,4**	**0,5**	**0,6**	**0,7**	**0,8**	**0,9**	**1,0**
2”1/2	**0,3**	1.300	3.800	7.460	10.400			
	0,4		610	3.180	10.380	11.260		
	0,5			150	8.560	12.450		
	0,6					6.920	15.450	
	0,7						5.780	14.380