Full lift safety valve with spring loading.  
(AIT)

The valve works as an automatic pressure releasing regulator activated by the static pressure existing at the entrance to the valve and is characterized by its ability to open instantly and totally.

Design in accordance with “International Standard ISO 4126-1 Safety Valves”.

In accordance with the requirements of the pressure equipment directive 2014/68/EU. EC valve verification certified by: TÜV Internacional Grupo TÜV Rheinland, S.L. EC 0035.

In compliance with the ATEX 2014/34/EU directive “Protective equipment and systems for use in potentially explosive atmospheres”.

Other authorisations: ISCIR, ITI, NASTHOL,EAC,...etc.

Specifications

— 90° angular flow.
— Activated by direct action helicoid spring.
— Simplicity of construction ensuring minimum maintenance.
— Materials carefully selected for their resistance to corrosion.
— Internal body designed to offer favourable flow profile.
— Sealing surfaces balanced and making them extremely tightness, even exceeding EN 12266-1 requeriments.
— Great discharge capacity. For liquids typically used with openings similar to proportional safety valves.
— Auto-centering plug.
— Totally precise open and close.
— All the valves are supplied sealed at the set pressure requested, simulating operational conditions, and are vigorously tested.
— All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve, and the instruction manual, in accordance with P.E.D. 2014/68/EU.

IMPORTANT

1.- Fluorelastomer (Viton) seals, Silicone’s rubber, PTFE (Teflón) o Perfluorelastomer (FFKM).

Achieving leakage levels less than: \(0,3 \times 10^{-9} \text{Pa cm}^2 \text{m}^{-2}\)

Depending on demand:

1. Buna-nitryls seals, Butyl, Natural rubber, E.P.D.M., Chlorosulphonate polyethylene (Hypalon), Neoprene, etc.
2. Possibility of manufacture in other types of material, for use in special working conditions (high temperatures, fluids, etc.).
<table>
<thead>
<tr>
<th>N.º PIECE</th>
<th>PIECE</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Bronze (EN-CC491K)</td>
</tr>
<tr>
<td>2</td>
<td>Plug</td>
<td>Brass (EN-CW617N)</td>
</tr>
<tr>
<td>3</td>
<td>Shaft</td>
<td>S. steel (EN-1.4305)</td>
</tr>
<tr>
<td>4</td>
<td>Seal</td>
<td>Silicone’s rubber</td>
</tr>
<tr>
<td>5</td>
<td>Limiter ring</td>
<td>S. steel (EN-1.4310)</td>
</tr>
<tr>
<td>6</td>
<td>End-stop</td>
<td>PTFE (Teflon)</td>
</tr>
<tr>
<td>7</td>
<td>Spring press</td>
<td>Brass (EN-CW617N)</td>
</tr>
<tr>
<td>8</td>
<td>Spring</td>
<td>S. steel (EN-1.4310)</td>
</tr>
<tr>
<td>9</td>
<td>Clip</td>
<td>S. steel (EN-1.4310)</td>
</tr>
<tr>
<td>10</td>
<td>Lever</td>
<td>S. steel (EN-1.4310)</td>
</tr>
<tr>
<td>11</td>
<td>Sealing wire</td>
<td>Aluminium</td>
</tr>
<tr>
<td>12</td>
<td>Characteristic plate</td>
<td>Plastic</td>
</tr>
<tr>
<td>13</td>
<td>Seal</td>
<td>Plastic</td>
</tr>
<tr>
<td>14</td>
<td>Cap</td>
<td>Brass (EN-CW617N)</td>
</tr>
<tr>
<td>15</td>
<td>Hood coupling</td>
<td>PTFE (Teflon)</td>
</tr>
<tr>
<td>16</td>
<td>Piston</td>
<td>Latón (EN-CW617N)</td>
</tr>
<tr>
<td>17</td>
<td>Piston Spring</td>
<td>S. steel (EN-1.4310)</td>
</tr>
<tr>
<td>18</td>
<td>Inlet clamp</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>Outlet clamp</td>
<td>-</td>
</tr>
<tr>
<td>20</td>
<td>O-ring</td>
<td>Fluorelastomer (Viton)</td>
</tr>
<tr>
<td>21</td>
<td>Seat</td>
<td>-</td>
</tr>
<tr>
<td>22</td>
<td>Screw cap</td>
<td>S. steel (EN-1.4305)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL</th>
<th>695</th>
</tr>
</thead>
</table>
| OPERATING CONDITIONS | (R × R) | 3/8" x 1/2" a 1" x 1"
| PRESSURE IN bar | PN | 36 | PMS 36 bar | 40 |
| MAX. TEMPERATURE IN ºC | 200 | 250 |
| MIN. TEMPERATURE IN ºC | -60 | -60 |

| OPERATING CONDITIONS | (R × R) | 3/8" x 1/2" a 1" x 1"
| PRESSURE IN bar | PN | 36 | PMS 36 bar | 40 |
| MAX. TEMPERATURE IN ºC | 200 | 250 |
| MIN. TEMPERATURE IN ºC | -196 | -196 |

| OPERATING CONDITIONS | (R × R) | 3/8" x 1/2" a 1/2" x 1/2"
| PRESSURE IN bar | PN | - | 144 |
| MAX. TEMPERATURE IN ºC | - | 250 |
| MIN. TEMPERATURE IN ºC | - | -60 |

| OPERATING CONDITIONS | DN x DN | 10x15 a 25x25 |
| PRESSURE IN bar | PN | - | 16 |
| MAX. TEMPERATURE IN ºC | - | 250 |
| MIN. TEMPERATURE IN ºC | - | -60 |

(1) Mod. 895; Perfluorelastomer (FFKM)
Full lift safety valve with spring loading (AIT) version EP.

1. Disassembly and assembly

1.1 Disassembly
To replace the spring (8) or clean any of the internal components of the valve, proceed in the following manner:
A - Cut the seal thread (11) with pliers.
B - Withdraw the fastener (9), using a punching tool, until the lever (10) comes free.
C - Unscrew and extract the hood (14).
D - Unscrew the piston (16) from the rod (3) and then the screw cap (22).
E - Holding the rod (3), unscrew the spring press (7) until you note a releasing of the spring (8).
F - Extract the spring (8).

1.2 Assembly
A - Enter the spring (8) through the upper part of the rod (3).
B - Screw the spring press (7) holding the rod (3) and the screw cap (22).
C - Adjust the set pressure with the spring press (7).
D - Screw the hood (14).
E - Place the lever (10) and fix it with the fastener (9).

2. Adjusting the firing pressure
A - Proceed according to points 1.1.A, 1.1.B, 1.1.C, 1.1.D, 1.1.E.
B - Proceed according to points 1.2.C, 1.2.D, 1.1.E, 1.1.F.

Full lift safety valve with spring loading (AIT) version AP.

1. Disassembly and assembly

1.1 Disassembly
To replace the spring (8) or clean any of the internal components of the valve, proceed in the following manner:
A - Cut the seal thread (11) with pliers.
B - Withdraw the clip (9), using a punching tool, until the lever (10) comes free.
C - Unscrew and extract the hood (14).
D - Holding the rod (3), unscrew the spring press (7) until you note a releasing of the spring (8).
E - Extract the spring (8).

1.2 Assembly
A - Enter the spring (8) through the upper part of the rod (3).
B - Screw the spring press (7) holding the rod (3).
C - Adjust the set pressure with the spring press (7).
D - Screw the hood (14).
E - Place the lever (10) and fix it with the fastener (9).

2. Adjusting the firing pressure
A - Proceed according to points 1.1.A, 1.1.B, 1.1.C, 1.1.D.
B - Proceed according to points 1.2.C, 1.2.D, 1.1.E.

Full lift safety valve with spring loading (AIT) version ES.

1. Disassembly and assembly

1.1 Disassembly
To replace the spring (8) or clean any of the internal components of the valve, proceed in the following manner:
A - Cut the seal thread (11) with pliers and extract the characteristic plate (12).
B - Unscrew and extract the hood (14).
C - Holding the rod (3), unscrew the spring press (7) until you note a releasing of the spring (8).
D - Extract the spring (8).

1.2 Assembly
A - Enter the spring (8) through the upper part of the rod (3).
B - Screw the spring press (7) holding the rod (3).
C - Adjust the set pressure with the spring press (7).
D - Screw the hood (14).

2. Adjusting the firing pressure
A - Proceed according to points 1.1.A, 1.1.B, 1.1.C.
B - Proceed according to points 1.2.C, 1.2.D.

Full lift safety valve with spring loading (AIT) version AS.

1. Disassembly and assembly

1.1 Disassembly
To replace the spring (8) or clean any of the internal components of the valve, proceed in the following manner:
A - Cut the seal thread (11) with pliers and extract the characteristic plate (12).
B - Holding the rod (3), unscrew the spring press (7) until you note a releasing of the spring (8).
C - Extract the spring (8).

1.2 Assembly
A - Enter the spring (8) through the upper part of the rod (3).
B - Screw the spring press (7) holding the rod (3).
C - Adjust the set pressure with the spring press (7).

2. Adjusting the firing pressure
A - Proceed according to points 1.1.A, 1.1.B.
B - Proceed according to points 1.2.C.
### Male thread x Female thread Whitworth gas-tight cylindrical ISO 228/1

**MODEL 695/895/995**

- **WEIGHT IN Kgs.**
  - 694
  - 995
  - 895

- **CONNECTIONS**
  - 694
  - 2002-694.
  - 2002-995.
  - 2002-895.

- **CLAMP ISO 2852:1993**
  - 694
  - 995
  - 695/895

- **Part No.**
  - 00221

- **Thread**
  - Male thread x Female thread

- **Dimensions**
  - **H**
  - **L**
  - **d**
  - **A**
  - **R**

- **Materials**
  - **S. STEEL**
  - **BRONZE**

- **Pressure Ratings**
  - **PN-16**

- **Standard**
  - **2852:1993**
## SET PRESSURES AND REGULATING RANGES

<table>
<thead>
<tr>
<th>MODEL 695/895/995/694</th>
<th>ENTRY CONNECTION</th>
<th>EXIT CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>R₁ 3/8&quot; 1/2&quot; 1/2&quot; 3/4&quot; 3/4&quot; 1&quot;</td>
<td>694 DN₁ 10 15 15 20 20 25</td>
<td>694 DN₂ 15 20 25</td>
</tr>
<tr>
<td>695/895/995 R₁ 3/8&quot; 1/2&quot; 3/4&quot; 1&quot;</td>
<td>694 DN₂ 15 20 25</td>
<td>695/895/995 R₂ 1/2&quot; 3/4&quot; 1&quot;</td>
</tr>
</tbody>
</table>

### Set Pressure IN bar

#### Maximum
- 695/895 PMS. 36 bar 36 36 36
- 695 PN-40 36 36 36
- 995 PN-160 144
- 694 PN-16 16 16 16

#### Minimum
- 695/895 PMS. 36 bar 0,2 0,2 0,2
- 695 PN-40 0,2 0,2 0,2
- 995 PN-160 36,1
- 694 PN-16 0,2 0,2 0,2

### Spring Regulating Range IN bar

<table>
<thead>
<tr>
<th>695/895/694</th>
<th>995</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,20 to 0,70</td>
<td>CODE 56160-56169-56178</td>
</tr>
<tr>
<td>0,60 to 1,60</td>
<td>CODE 56161-56170-56179</td>
</tr>
<tr>
<td>1,50 to 3,50</td>
<td>CODE 56162-56171-56180</td>
</tr>
<tr>
<td>3,40 to 5,50</td>
<td>CODE 56163-56172-56181</td>
</tr>
<tr>
<td>5,40 to 10,00</td>
<td>36,10 to 40,00 CODE 56164-56334-56173-56182</td>
</tr>
<tr>
<td>9,80 to 15,00</td>
<td>39,00 to 60,00 CODE 56165-56335-56174-56183</td>
</tr>
<tr>
<td>14,50 to 20,00</td>
<td>58,00 to 80,00 CODE 56166-56336-56175-56184</td>
</tr>
<tr>
<td>19,00 to 25,00</td>
<td>76,00 to 100,00 CODE 56167-56337-56176-56185</td>
</tr>
<tr>
<td>24,00 to 36,00</td>
<td>96,00 to 144,00 CODE 56168-56338-56177-56186</td>
</tr>
<tr>
<td>FLUID</td>
<td>SATURATED STEAM</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>*</td>
</tr>
<tr>
<td>GASES</td>
<td>*</td>
</tr>
<tr>
<td>LIQUIDS</td>
<td></td>
</tr>
<tr>
<td>OPENING PRESSURE IN % OF THE SET PRESSURE</td>
<td>+10%</td>
</tr>
<tr>
<td>CLOSURE PRESSURE IN % OF THE SET PRESSURE</td>
<td>-10%</td>
</tr>
</tbody>
</table>

Overpressure factors

Multiply the discharge capacity obtained from the tables, by the correction factor, in order to obtain the discharge capacity at required overpressure.
### DISCHARGE CAPACITY

<table>
<thead>
<tr>
<th>MODEL</th>
<th>695-895</th>
<th>995</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTRY CONNECTION</td>
<td>R1</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>R2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXIT CONNECTION</td>
<td>DN1</td>
<td>15</td>
</tr>
</tbody>
</table>

| A0, [bar] | 50.26 | 74.66 | 132.73 | 12.57 |

For other, not so dense liquids, other than water at 20°C apply:

\[
V' = \sqrt{\rho_l} \cdot V_e = \sqrt{\rho_l/\rho_v} \cdot V_e
\]

- I. Saturated steam in kgph.
- II. Air at 0°C and 1,013 bar in [Nm3/h].
- III. Water at 20°C in l/h.

### FOR OTHER, NOT SO DENSE LIQUIDS

For other, not so dense liquids, other than water at 20°C apply:

\[
A_0 = \frac{2 \cdot \frac{d_0}{h}}{4}
\]

\[
V_e = \text{Water flow according to table.}
\]

\[
V_l = \text{Liquid flow.}
\]

\[
p_a = \text{Backpressure permitted [bar] absolute.}
\]

\[
\rho = \text{Set pressure [bar] absolute.}
\]

\[
K_d = \text{Coefficient of discharge.}
\]

### COEFFICIENT OF DISCHARGE

<table>
<thead>
<tr>
<th>MODEL</th>
<th>695/895/995/99A</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTRY CONNECTION</td>
<td>R1</td>
</tr>
<tr>
<td>DN1</td>
<td>694</td>
</tr>
<tr>
<td>EXIT CONNECTION</td>
<td>DN1</td>
</tr>
<tr>
<td>d0</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>18,1</td>
</tr>
<tr>
<td>h/d0</td>
<td>0.62</td>
</tr>
<tr>
<td>COEFFICIENT OF DISCHARGE</td>
<td>(K_d)</td>
</tr>
</tbody>
</table>

\(*\) For set pressures less than 3 bar see graph of discharge coefficient.

\[
p_a = \text{Backpressure permitted [bar] see graph of discharge coefficient.}
\]

\[
\rho = \text{Set pressure [bar] absolute.}
\]

\[
K_d = \text{Coefficient of discharge.}
\]

### EXIT CONNECTION

For other, not so dense liquids, other than water at 20°C apply:

\[
V' = \sqrt{\rho_l} \cdot V_e = \sqrt{\rho_l/\rho_v} \cdot V_e
\]

\[
V_e = \text{Water flow according to table.}
\]

\[
V_l = \text{Liquid flow.}
\]

\[
p_a = \text{Backpressure permitted [bar] absolute.}
\]

\[
\rho = \text{Set pressure [bar] absolute.}
\]

\[
K_d = \text{Coefficient of discharge.}
\]

### Calculus according to ISO 4126-1 "Safety valves."

Informative brochure, without obligation and subject to our General Sales Conditions.