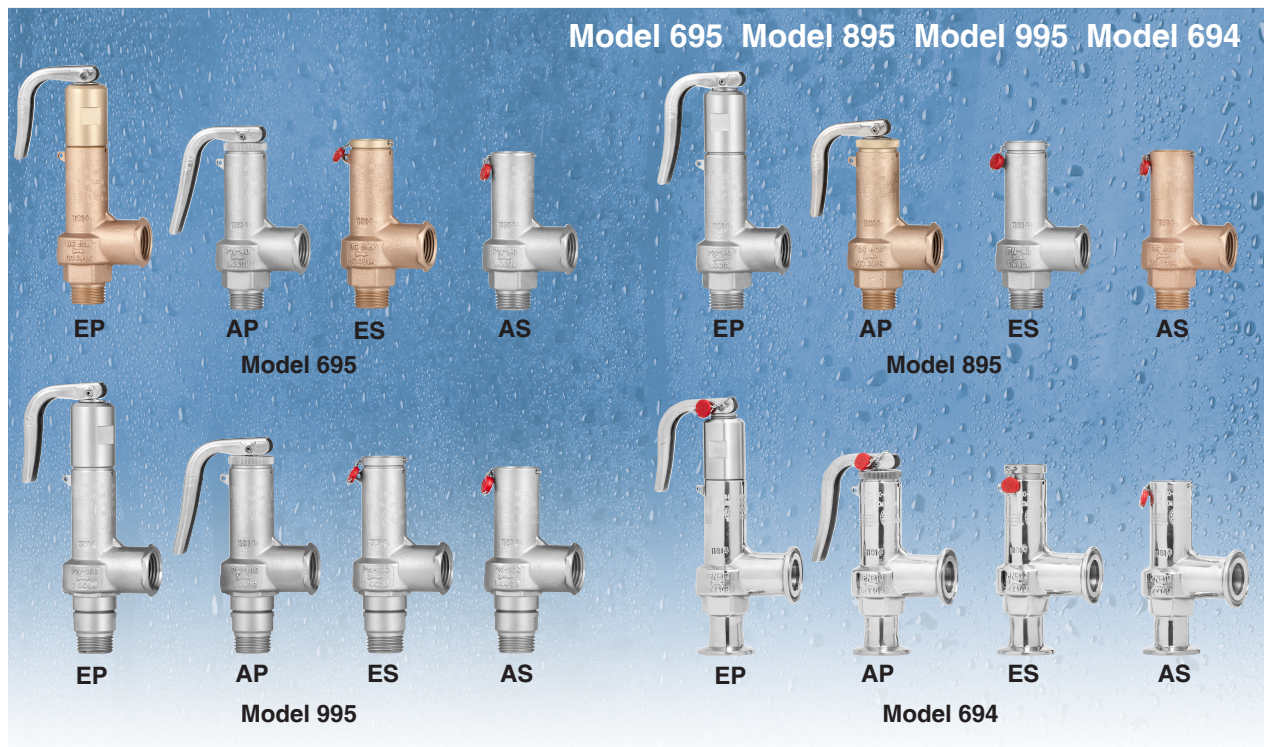


# Full lift safety valve with spring loading. (AIT)



NE



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 Rheinland Industrie Service GmbH, Notified Body for Pressure Equipment ID-No. 0035.

Type (Module B) EC examination report n° 33530455 certified by: TÜV Rheinland Ibérica ICT, S.A.

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

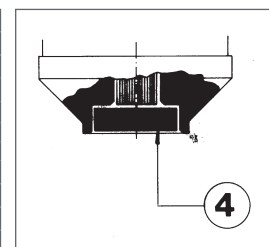
- 90° angular flow.
- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Materials carefully selected for their resistance to corrosion.
- Internal body designed to offer favourable flow profile.
- Sealing surfaces balanced and making them extremely tightness, even exceeding EN 12266-1 requirements.
- 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 (Vitón) seals, Silicone's rubber, PTFE (Teflón) o Perfluorelastomer (FFKM).

Achieving leakage levels less than:  $0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{seg.}}$

| RANGE OF APPLICATION FOR THE SEALS |   |                     |      |      |       |         |       |       |        |
|------------------------------------|---|---------------------|------|------|-------|---------|-------|-------|--------|
| FLUID                              |   | SET PRESSURE IN bar |      |      |       |         |       |       |        |
|                                    |   | 0,20                | 1,80 | 4,80 | 20,00 | 30,00   | 36,01 | 45,00 | 144,00 |
| Saturated steam                    |   | S                   |      | V    |       | K       |       | T     |        |
| Liquids and gases                  |   |                     | S    |      | V     |         | K     |       | T      |
| SEALS                              |   | TEMPERATURE IN °C   |      |      |       |         |       |       |        |
|                                    |   | MINIMUM             |      |      |       | MAXIMUM |       |       |        |
| Silicone's rubber                  | S | -50                 |      |      |       | 200     |       |       |        |
| Fluorelastomer (Vitón)             | V | -20                 |      |      |       | 220     |       |       |        |
| PTFE (Teflón)                      | T | -196                |      |      |       | 260     |       |       |        |
| Perfluorelastomer (FFKM)           | K | -10                 |      |      |       | 230     |       |       |        |



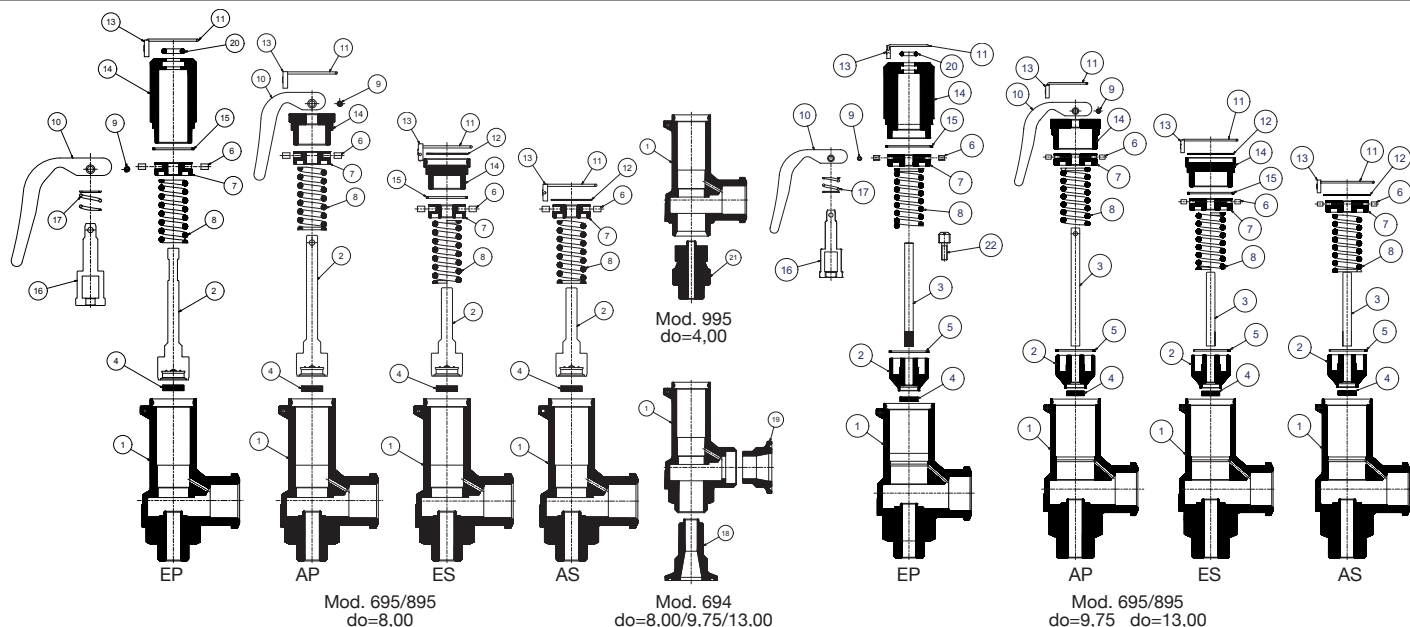
Depending on demand:

1. Buna-nitrils 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.).

| N.º PIECE | PIECE                | MATERIAL                   |                            |
|-----------|----------------------|----------------------------|----------------------------|
|           |                      | BRONZE                     | STAINLESS STEEL            |
| 1         | Body                 | Bronze (EN-CC491K)         | S. steel (EN-1.4408)       |
| 2         | Plug                 | Brass (EN-CW617N)          | S. steel (EN-1.4401)       |
| 3         | Shaft                | S. steel (EN-1.4305)       | S. steel (EN-1.4305)       |
| 4         | Seal                 | Silicone's rubber          | Silicone's rubber          |
|           |                      | Fluorelastomer (Viton)     | Fluorelastomer (Viton)     |
|           |                      | PTFE (Teflon)              | PTFE (Teflon)              |
|           |                      | Perfluorelastomer (FFKM)   | Perfluorelastómero (FFKM)  |
| 5         | Limiter ring         | S. steel (EN-1.4310)       | S. steel (EN-1.4310)       |
| 6         | End-stop             | PTFE (Teflon)              | PTFE (Teflon)              |
| 7         | Spring press         | Brass (EN-CW617N)          | S. steel (EN-1.4305)       |
| 8         | Spring               | S. steel (EN-1.4310)       | S. steel (EN-1.4310)       |
| 9         | Clip                 | S. steel (EN-1.4310)       | S. steel (EN-1.4310)       |
| 10        | Lever                | S. steel (EN-1.4301)       | S. steel (EN-1.4301)       |
| 11        | Sealing wire         | Sealing wire               | Sealing wire               |
| 12        | Characteristic plate | Aluminium                  | Aluminium                  |
| 13        | Seal                 | Plastic                    | Plastic                    |
| 14        | Cap                  | Brass (EN-CW617N)          | S. steel (EN-1.4305)       |
| 15        | Hood coupling        | PTFE (Teflón)              | PTFE (Teflón)              |
| 16        | Piston               | Latón (EN-CW617N)          | S. steel (EN-1.4305)       |
| 17        | Piston Spring        | S. steel (EN-1.4310)       | S. steel (EN-1.4310)       |
| 18        | Inlet clamp          | -                          | S. steel (EN-1.4404)       |
| 19        | Outlet clamp         | -                          | S. steel (EN-1.4404)       |
| 20        | O-ring               | Fluorelastomer (Viton) (1) | Fluorelastomer (Viton) (1) |
| 21        | Seat                 | -                          | S. steel (EN-1.4401)       |
| 22        | Screw cap            | S. steel (EN-1.4305)       | S. steel (EN-1.4305)       |

| MODEL | 695 | OPERATING CONDITIONS | $R_1 \times R_2$       | 3/8"x1/2" to 1"x1"     |      |
|-------|-----|----------------------|------------------------|------------------------|------|
|       |     |                      | PS                     | 36                     | 36   |
|       |     |                      | PRESSURE IN bar        | 36                     | 36   |
|       |     |                      | MAX. TEMPERATURE IN °C | 200                    | 250  |
|       |     |                      | MIN. TEMPERATURE IN °C | -60                    | -60  |
|       | 895 | OPERATING CONDITIONS | $R_1 \times R_2$       | 3/8"x1/2" to 1"x1"     |      |
|       |     |                      | PS                     | 36                     | 36   |
|       |     |                      | PRESSURE IN bar        | 36                     | 36   |
|       |     |                      | MAX. TEMPERATURE IN °C | 60                     | 60   |
|       |     |                      | MIN. TEMPERATURE IN °C | -196                   | -196 |
|       | 995 | OPERATING CONDITIONS | $R_1 \times R_2$       | 3/8"x1/2" to 1/2"x1/2" |      |
|       |     |                      | PS                     |                        | 144  |
|       |     |                      | PRESSURE IN bar        | -                      | 144  |
|       |     |                      | MAX. TEMPERATURE IN °C | -                      | 250  |
|       |     |                      | MIN. TEMPERATURE IN °C | -                      | -60  |
|       | 694 | OPERATING CONDITIONS | $DN_1 \times DN_2$     | 10x15 to 25x25         |      |
|       |     |                      | PN                     | -                      | 16   |
|       |     |                      | PRESSURE IN bar        | -                      | 16   |
|       |     |                      | MAX. TEMPERATURE IN °C | -                      | 260  |
|       |     |                      | MIN. TEMPERATURE IN °C | -                      | -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 piston (16) to the rod (3).
- E - Screw the hood (14).
- F - 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**

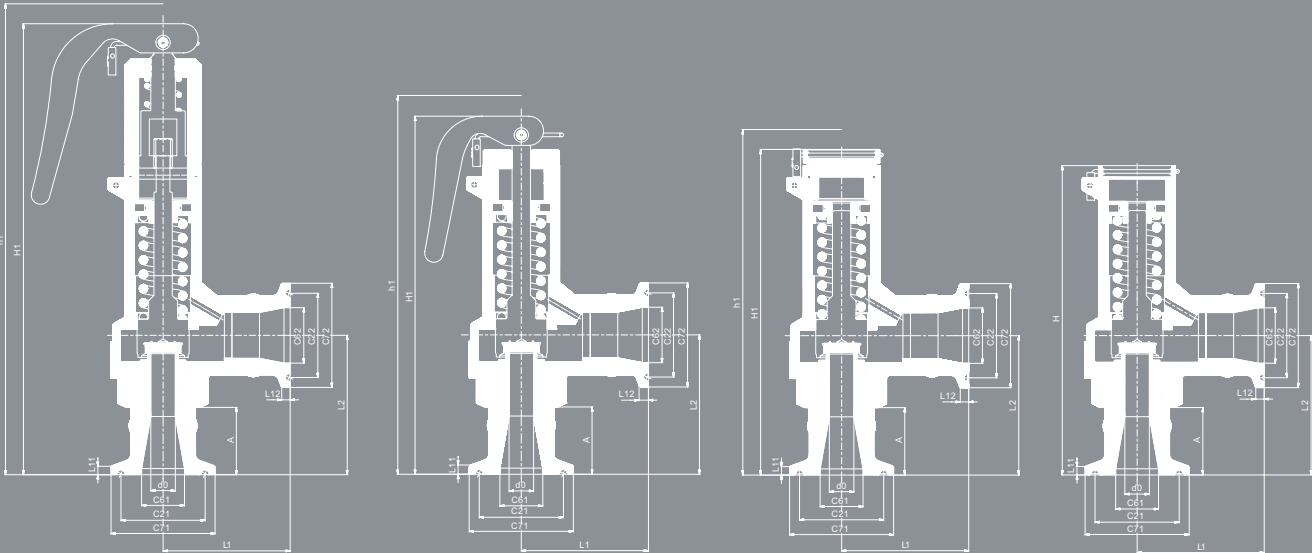
- A - Enter the spring (8) through the upper part of the rod (3).
- B - Screw the spring press (7) holding the rod (3).
- C - Adjust the set pressure with the spring press (7).

### **2. Adjusting the firing pressure**

- A - Proceed according to points 1.1.A, 1.1.B.
- B - Proceed according to points 1.2.C.

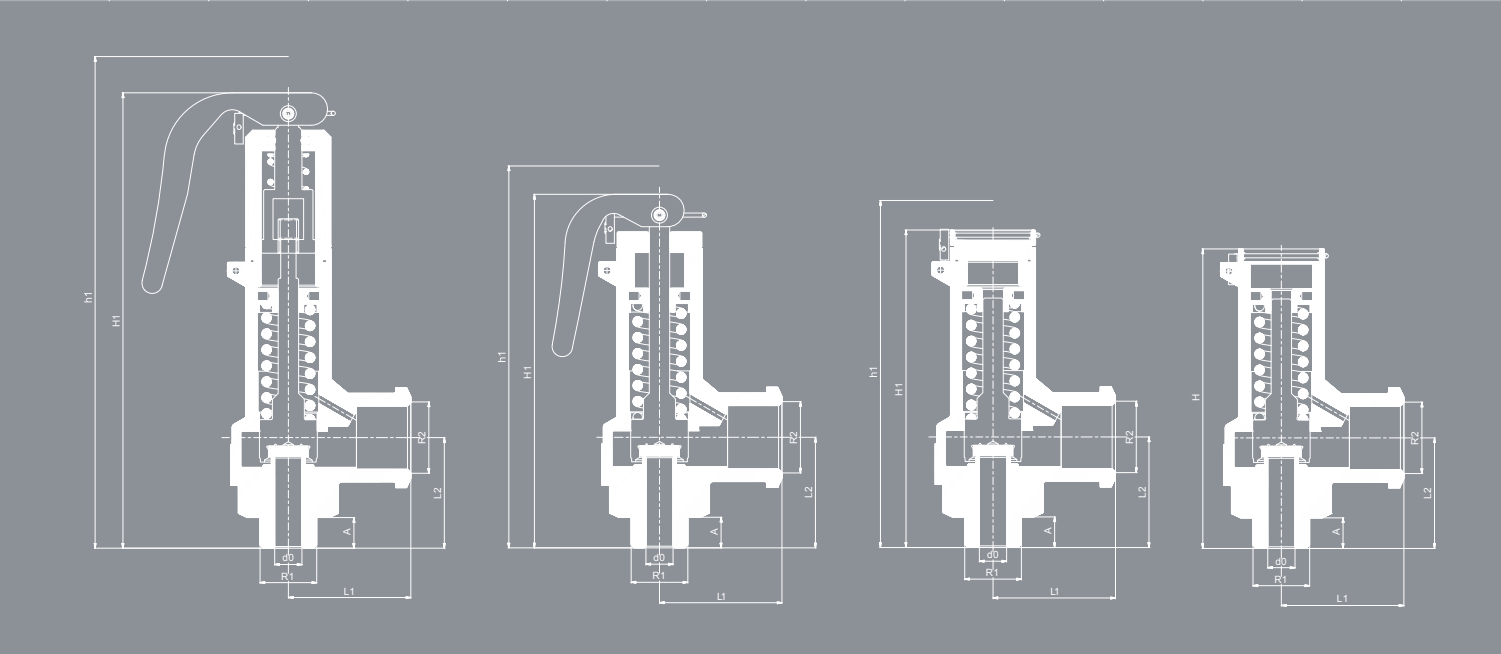


| MODEL 695/895/995/694             |                                 |                                                                       |       |        |        |        |       |            |        |            |       |        |  |
|-----------------------------------|---------------------------------|-----------------------------------------------------------------------|-------|--------|--------|--------|-------|------------|--------|------------|-------|--------|--|
| R <sub>1</sub> xR <sub>2</sub>    |                                 | 3/8"x1/2"                                                             |       |        |        |        |       | 1/2"x 1/2" |        | 1/2"x 3/4" |       |        |  |
| CONNECTIONS                       |                                 | Male thread x Female thread Whitworth gas-tight cylindrical ISO 228/1 |       |        |        |        |       |            |        |            |       |        |  |
| MODEL 694                         |                                 |                                                                       |       |        |        |        |       |            |        |            |       |        |  |
| DN <sub>1</sub> xDN <sub>2</sub>  |                                 | 10x15                                                                 |       |        |        | 15x15  |       |            |        | 15x20      |       |        |  |
| CONNECTIONS                       |                                 | CLAMP ISO 2852:1993                                                   |       |        |        |        |       |            |        |            |       |        |  |
| d <sub>0</sub>                    | 694/695/895                     | 8,00                                                                  |       |        |        |        |       |            |        | 9,75       |       |        |  |
|                                   | 995                             | 4,00                                                                  |       |        |        |        |       |            |        |            |       |        |  |
| $A_0 = \frac{\pi \cdot d_0^2}{4}$ | 694/695/895                     | 50,26                                                                 |       |        |        |        |       |            |        | 74,66      |       |        |  |
|                                   | 995                             | 12,57                                                                 |       |        |        |        |       |            |        |            |       |        |  |
| H                                 | 695/895                         | -                                                                     | -     | -      | 88     | -      | -     | -          | 91     | -          | -     |        |  |
|                                   | 995                             | -                                                                     | -     | -      | 99     | -      | -     | -          | 102    |            |       |        |  |
|                                   | 694                             | -                                                                     | -     | -      | 101    | -      | -     | -          | 101    | -          | -     |        |  |
| H <sup>1</sup>                    | 695/895                         | 136                                                                   | 102   | 93     | -      | 139    | 105   | 96         | -      | 164        | 127   |        |  |
|                                   | 995                             | 147                                                                   | 113   | 104    | -      | 150    | 116   | 107        | -      |            |       |        |  |
|                                   | 694                             | 149                                                                   | 115   | 106    | -      | 149    | 115   | 106        | -      | 176        | 139   |        |  |
| h <sup>1</sup>                    | 695/895                         | 148                                                                   | 119   | 109    | -      | 151    | 122   | 112        | -      | 178        | 142   |        |  |
|                                   | 995                             | 159                                                                   | 130   | 120    | -      | 162    | 133   | 123        | -      |            |       |        |  |
|                                   | 694                             | 161                                                                   | 132   | 122    | -      | 161    | 132   | 122        | -      | 190        | 154   |        |  |
| A                                 | 695/895/995                     | 9                                                                     |       |        |        | 12     |       |            |        | 12         |       |        |  |
|                                   | 694                             |                                                                       |       |        |        | 22     |       |            |        | 24         |       |        |  |
| L <sub>1</sub>                    | 695/895/995                     |                                                                       |       |        |        | 36     |       |            |        | 44         |       |        |  |
|                                   | 694                             |                                                                       |       |        |        | 41,50  |       |            |        | 52         |       |        |  |
| L <sub>2</sub>                    | 695/895                         | 32,50                                                                 |       |        |        | 35,50  |       |            |        | 45,50      |       |        |  |
|                                   | 995                             | 43,50                                                                 |       |        |        | 46,50  |       |            |        |            |       |        |  |
|                                   | 694                             |                                                                       |       |        |        | 45,50  |       |            |        | 57,50      |       |        |  |
| INTAKE FLANGE                     | PN-16<br>CLAMP ISO<br>2852:1993 | C <sub>61</sub>                                                       | 14    |        |        |        | 18,10 |            |        |            | 18,10 |        |  |
|                                   |                                 | C <sub>71</sub>                                                       |       |        |        |        | 34    |            |        |            | 34    |        |  |
|                                   |                                 | C <sub>21</sub>                                                       |       |        |        |        | 27,50 |            |        |            | 27,50 |        |  |
|                                   |                                 | L <sub>11</sub>                                                       |       |        |        |        | 2,85  |            |        |            | 2,85  |        |  |
| ESCAPE FLANGE                     | PN-16<br>CLAMP ISO<br>2852:1993 | C <sub>62</sub>                                                       |       |        |        |        | 18,10 |            |        |            | 23,70 |        |  |
|                                   |                                 | C <sub>72</sub>                                                       |       |        |        |        | 34    |            |        |            | 50,50 |        |  |
|                                   |                                 | C <sub>22</sub>                                                       |       |        |        |        | 27,50 |            |        |            | 43,50 |        |  |
|                                   |                                 | L <sub>12</sub>                                                       |       |        |        |        | 2,85  |            |        |            | 2,85  |        |  |
| WEIGHT IN Kgs.                    |                                 | EP                                                                    | AP    | ES     | AS     | EP     | AP    | ES         | AS     | EP         | AP    |        |  |
| 695/895/995                       | BRONZE                          | 0,47                                                                  | 0,38  | 0,36   | 0,34   | 0,47   | 0,38  | 0,36       | 0,34   | 0,97       | 0,74  |        |  |
|                                   | S. STEEL                        | 0,45                                                                  | 0,36  | 0,34   | 0,32   | 0,45   | 0,36  | 0,34       | 0,32   | 0,95       | 0,72  |        |  |
| 694                               | S. STEEL                        | 0,50                                                                  | 0,41  | 0,39   | 0,37   | 0,50   | 0,41  | 0,39       | 0,37   | 1,06       | 0,83  |        |  |
| CODE                              | 695                             | BRONZE<br>2002-695.                                                   | 83810 | 838110 | 838120 | 838130 | 80210 | 802110     | 802120 | 802130     | 80211 | 802111 |  |
|                                   |                                 | S. STEEL<br>2002-695.                                                 | 83820 | 838210 | 838220 | 838230 | 80220 | 802210     | 802220 | 802230     | 80221 | 802211 |  |
|                                   | 895                             | BRONZE<br>2002-895.                                                   | 83810 | 838110 | 838120 | 838130 | 80210 | 802110     | 802120 | 802130     | 80211 | 802111 |  |
|                                   |                                 | S. STEEL<br>2002-895.                                                 | 83820 | 838210 | 838220 | 838230 | 80220 | 802210     | 802220 | 802230     | 80221 | 802211 |  |
|                                   | 995                             | S. STEEL<br>2002-995.                                                 | 03820 | 03821  | 03822  | 03823  | 00220 | 00221      | 00222  | 00223      |       |        |  |
|                                   | 694                             | S. STEEL<br>2002-694.                                                 | 83820 | 838210 | 838220 | 838230 | 80220 | 802210     | 802220 | 802230     | 80221 | 802211 |  |



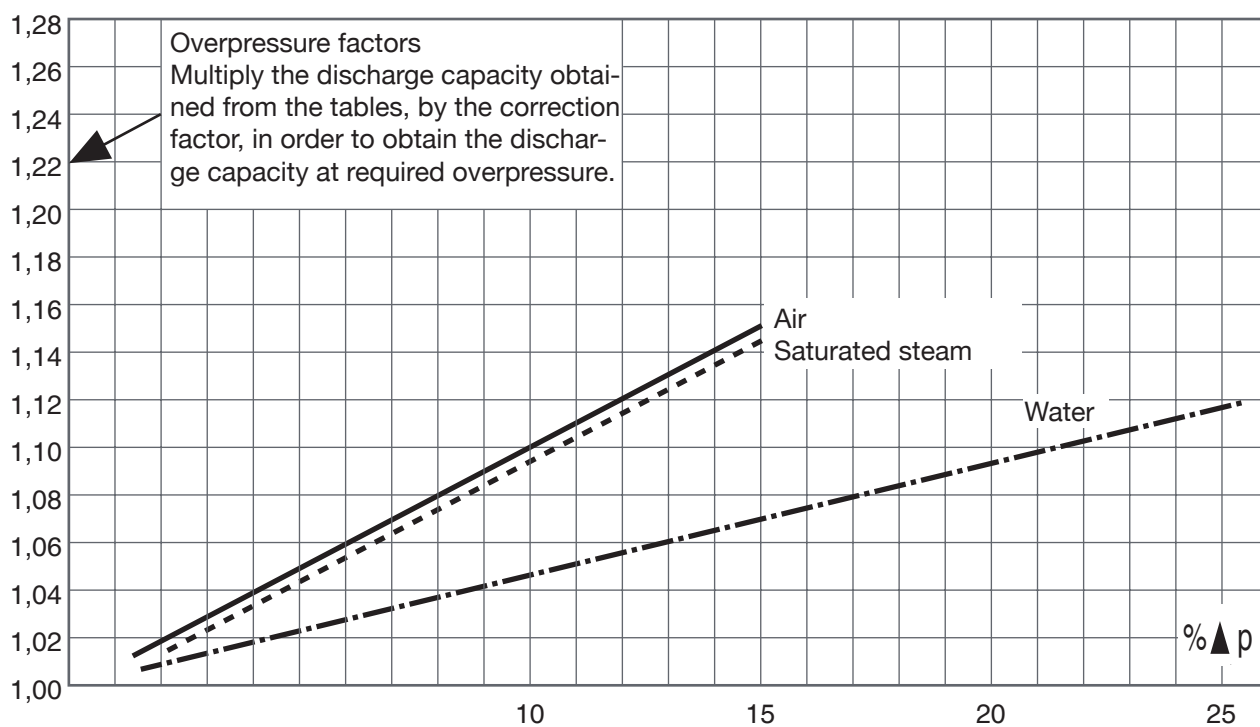
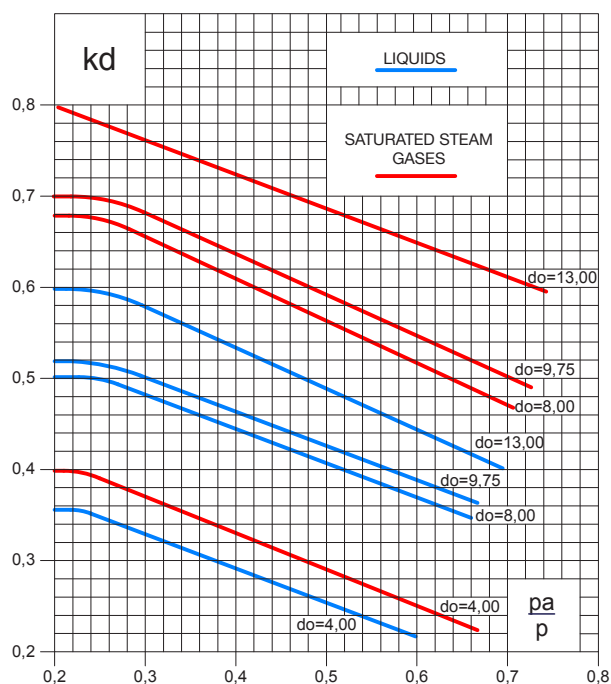
| MODEL 695/895/995/694                                                 |        |       |           |        |        |       |         |        |        |       |        |        |        |     |
|-----------------------------------------------------------------------|--------|-------|-----------|--------|--------|-------|---------|--------|--------|-------|--------|--------|--------|-----|
| 1/2"x 3/4"                                                            |        |       | 3/4"x3/4" |        |        |       | 3/4"x1" |        |        |       | 1"x1"  |        |        |     |
| Male thread x Female thread Whitworth gas-tight cylindrical ISO 228/1 |        |       |           |        |        |       |         |        |        |       |        |        |        |     |
| MODEL 694                                                             |        |       |           |        |        |       |         |        |        |       |        |        |        |     |
| 15x20                                                                 |        |       | 20x20     |        |        |       | 20x25   |        |        |       | 25x25  |        |        |     |
| 9,75                                                                  |        |       |           |        |        |       | 13,00   |        |        |       |        |        |        |     |
| 74,66                                                                 |        |       |           |        |        |       | 132,73  |        |        |       |        |        |        |     |
| -                                                                     | 109    | -     | -         | -      | -      | 112   | -       | -      | -      | 138   | -      | -      | -      | 141 |
| -                                                                     | 121    | -     | -         | -      | -      | 121   | -       | -      | -      | 148   | -      | -      | -      | 148 |
| 116                                                                   | -      | 167   | 130       | 119    | -      | -     | 196     | 159    | 147    | -     | 199    | 162    | 150    | -   |
| 128                                                                   | -      | 176   | 139       | 128    | -      | -     | 206     | 169    | 157    | -     | 206    | 169    | 157    | -   |
| 134                                                                   | -      | 181   | 145       | 137    | -      | -     | 210     | 174    | 165    | -     | 213    | 147    | 168    | -   |
| 146                                                                   | -      | 190   | 154       | 146    | -      | -     | 220     | 184    | 175    | -     | 220    | 154    | 175    | -   |
| 12                                                                    |        | 15    |           |        |        |       | 15      |        |        |       | 18     |        |        |     |
| 24                                                                    |        |       |           |        |        |       | 25      |        |        |       |        |        |        |     |
| 44                                                                    |        |       |           |        |        |       | 60      |        |        |       |        |        |        |     |
| 52                                                                    |        |       |           |        |        |       | 67      |        |        |       |        |        |        |     |
| 45,50                                                                 |        |       | 48,50     |        |        |       | 58,50   |        |        |       | 61,50  |        |        |     |
| 57,50                                                                 |        |       |           |        |        |       | 68,5    |        |        |       |        |        |        |     |
| 18,10                                                                 |        | 23,70 |           |        |        |       | 23,70   |        |        |       | 29,70  |        |        |     |
| 34                                                                    |        | 50,50 |           |        |        |       | 50,50   |        |        |       |        |        |        |     |
| 27,50                                                                 |        | 43,50 |           |        |        |       | 43,50   |        |        |       |        |        |        |     |
| 2,85                                                                  |        |       |           |        |        |       | 2,85    |        |        |       |        |        |        |     |
| 23,70                                                                 |        |       |           |        |        |       | 29,70   |        |        |       |        |        |        |     |
| 50,50                                                                 |        |       |           |        |        |       | 50,50   |        |        |       |        |        |        |     |
| 43,50                                                                 |        |       |           |        |        |       | 43,50   |        |        |       |        |        |        |     |
| 2,85                                                                  |        |       |           |        |        |       | 2,85    |        |        |       |        |        |        |     |
| ES                                                                    | AS     | EP    | AP        | ES     | AS     | EP    | AP      | ES     | AS     | EP    | AP     | ES     | AS     |     |
| 0,72                                                                  | 0,70   | 0,97  | 0,74      | 0,72   | 0,70   | 1,67  | 1,35    | 1,33   | 1,31   | 1,67  | 1,35   | 1,33   | 1,31   |     |
| 0,70                                                                  | 0,68   | 0,95  | 0,72      | 0,70   | 0,68   | 1,65  | 1,33    | 1,31   | 1,29   | 1,65  | 1,33   | 1,31   | 1,29   |     |
| 0,81                                                                  | 0,79   | 1,10  | 0,87      | 0,85   | 0,83   | 1,74  | 1,52    | 1,50   | 1,48   | 1,02  | 1,80   | 1,78   | 1,76   |     |
| 802121                                                                | 802131 | 83410 | 834110    | 834120 | 834130 | 83411 | 834111  | 834121 | 834131 | 81010 | 810110 | 810120 | 810130 |     |
| 802221                                                                | 802231 | 83420 | 834210    | 834220 | 834230 | 83421 | 834211  | 834221 | 834231 | 81020 | 810210 | 810220 | 810230 |     |
| 802121                                                                | 002131 | 83410 | 834110    | 834120 | 834130 | 83411 | 834111  | 834121 | 834131 | 81010 | 810110 | 810120 | 810130 |     |
| 802221                                                                | 802231 | 83420 | 834210    | 834220 | 834230 | 83421 | 834211  | 834221 | 834231 | 81020 | 810210 | 810220 | 810230 |     |
|                                                                       |        |       |           |        |        |       |         |        |        |       |        |        |        |     |
| 802221                                                                | 802231 | 83420 | 834210    | 834220 | 834230 | 83421 | 834211  | 834221 | 834231 | 81020 | 810210 | 810220 | 810230 |     |

|        |        |       |        |        |        |       |        |        |        |       |        |        |        |
|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|
| 802221 | 802231 | 83420 | 834210 | 834220 | 834230 | 83421 | 834211 | 834221 | 834231 | 81020 | 810210 | 810220 | 810230 |
|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|



| SET PRESSURES AND REGULATING RANGES |                |                 |                 |                 |      |       |      |       |    |
|-------------------------------------|----------------|-----------------|-----------------|-----------------|------|-------|------|-------|----|
| MODEL                               |                |                 |                 | 695/895/995/694 |      |       |      |       |    |
| ENTRY CONNECTION                    | 695/895/995    |                 | R <sub>1</sub>  | 3/8"            | 1/2" | 1/2"  | 3/4" | 3/4"  | 1" |
|                                     | 694            |                 | DN <sub>1</sub> | 10              | 15   | 15    | 20   | 20    | 25 |
| EXIT CONNECTION                     | 695/895/995    |                 | R <sub>2</sub>  | 1/2"            |      | 3/4"  |      | 1"    |    |
|                                     | 694            |                 | DN <sub>2</sub> | 15              |      | 20    |      | 25    |    |
| d <sub>o</sub>                      | 695/895/694    |                 |                 | 8,00            |      | 9,75  |      | 13,00 |    |
|                                     | 995            |                 |                 | 4,00            |      |       |      |       |    |
| SET PRESSURE<br>IN bar              | MAXIMUM        | 695/895         | PS-36 bar       | 36              |      | 36    |      | 36    |    |
|                                     |                | 995             | PS-144 bar      | 144             |      |       |      |       |    |
|                                     |                | 694             | PN-16           | 16              |      | 16    |      | 16    |    |
|                                     | MINIMUM        | 695/895         | PS-36 bar       | 0,2             |      | 0,2   |      | 0,2   |    |
|                                     |                | 995             | PS-144 bar      | 36,1            |      |       |      |       |    |
|                                     |                | 694             | PN-16           | 0,2             |      | 0,2   |      | 0,2   |    |
| SPRING REGULATING RANGE<br>IN bar   | 695/895/694    | 995             |                 |                 |      |       |      |       |    |
|                                     | 0,20 to 0,70   |                 | CODE            | 56160           |      | 56169 |      | 56178 |    |
|                                     | 0,60 to 1,60   |                 | CODE            | 56161           |      | 56170 |      | 56179 |    |
|                                     | 1,50 to 3,50   |                 | CODE            | 56162           |      | 56171 |      | 56180 |    |
|                                     | 3,40 to 5,50   |                 | CODE            | 56163           |      | 56172 |      | 56181 |    |
|                                     | 5,40 to 10,00  | 36,10 to 40,00  | CODE            | 56164-56334     |      | 56173 |      | 56182 |    |
|                                     | 9,80 to 15,00  | 39,00 to 60,00  | CODE            | 56165-56335     |      | 56174 |      | 56183 |    |
|                                     | 14,50 to 20,00 | 58,00 to 80,00  | CODE            | 56166-56336     |      | 56175 |      | 56184 |    |
|                                     | 19,00 to 25,00 | 76,00 to 100,00 | CODE            | 56167-56337     |      | 56176 |      | 56185 |    |
|                                     | 24,00 to 36,00 | 96,00 to 144,00 | CODE            | 56168-56338     |      | 56177 |      | 56186 |    |

| RECOMMENDED RANGES OF APPLICATION            |                 |           |                 |    |    |    |
|----------------------------------------------|-----------------|-----------|-----------------|----|----|----|
| MODEL                                        |                 |           | 695/895/995/694 |    |    |    |
|                                              |                 |           | AP              | AS | EP | ES |
| FLUID                                        | SATURATED STEAM |           | *               | *  | *  | *  |
|                                              | GASES           | INERT     | *               | *  | *  | *  |
|                                              |                 | NON INERT |                 |    | *  | *  |
|                                              | LIQUIDS         |           |                 |    | *  | *  |
| OPENING PRESSURE IN %<br>OF THE SET PRESSURE |                 |           | +10%            |    |    |    |
| CLOSURE PRESSURE IN %<br>OF THE SET PRESSURE |                 |           | -10%            |    |    |    |



| DISCHARGE CAPACITY                                  |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     |     |      |     |
|-----------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------|--------|------|------|-------|-----|-----|------|-----|
| MODEL                                               |     | 695-895                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |       |      |        |      |      |       | 995 |     |      |     |
| ENTRY CONNECTION                                    | R1  | 3/8"                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1/2" | 1/2"  | 3/4" | 3/4"   | 1"   | 3/8" | 1/2"  |     |     |      |     |
| EXIT CONNECTION                                     | R2  | 1/2"                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | 3/4"  |      | 1"     |      |      | 1/2"  |     |     |      |     |
| MODEL                                               |     | 694                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |      |        |      |      |       |     |     |      |     |
| ENTRY CONNECTION                                    | DN1 | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15   | 15    | 20   | 20     | 25   |      |       |     |     |      |     |
| EXIT CONNECTION                                     | DN2 | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      | 20    |      | 25     |      |      |       |     |     |      |     |
| do                                                  |     | 8,00                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | 9,75  |      | 13,00  |      |      | 4,00  |     |     |      |     |
| $A_0 = \frac{\pi \cdot d_0^2}{4}$                   |     | 50,26                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      | 74,66 |      | 132,73 |      |      | 12,57 |     |     |      |     |
| <b>p</b><br><b>[bar]</b><br><br>SET PRESSURE IN bar |     | For other, not so dense liquids, other than water at 20°C apply:<br><br>$V_L = \sqrt{\frac{\rho_A}{\rho_L}} \cdot V_A \quad V_A = V_L \cdot \sqrt{\frac{\rho_L}{\rho_A}}$<br><br>I- Saturated steam in kg/h.<br>II- Air at 0°C and 1,013 bar in [Nm3/h].<br>III- Water at 20°C in l/h.<br><br>V <sub>L</sub> = Water flow according to table.<br>V <sub>A</sub> = Liquid flow.<br>ρA= Water density at a 20° C.<br>(ρA= 998 kg/m3)<br>ρL= Liquid density. |      |       |      |        |      |      |       |     |     |      |     |
|                                                     |     | I                                                                                                                                                                                                                                                                                                                                                                                                                                                         | II   | III   | I    | II     | III  | I    | II    | III | I   | II   | III |
| 0,5                                                 | 30  | 34                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 924  | 45    | 51   | 1399   | 91   | 103  | 2870  |     |     |      |     |
| 1,0                                                 | 39  | 47                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1306 | 59    | 71   | 1979   | 120  | 144  | 4059  |     |     |      |     |
| 1,5                                                 | 49  | 59                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1600 | 73    | 88   | 2423   | 149  | 180  | 4971  |     |     |      |     |
| 2,0                                                 | 58  | 70                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1848 | 87    | 106  | 2798   | 178  | 215  | 5740  |     |     |      |     |
| 2,5                                                 | 67  | 82                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2066 | 101   | 124  | 3128   | 206  | 251  | 6417  |     |     |      |     |
| 3,0                                                 | 77  | 94                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2263 | 115   | 141  | 3427   | 235  | 287  | 7030  |     |     |      |     |
| 3,5                                                 | 86  | 105                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2444 | 129   | 159  | 3702   | 263  | 323  | 7593  |     |     |      |     |
| 4,0                                                 | 95  | 117                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2613 | 143   | 176  | 3957   | 291  | 359  | 8117  |     |     |      |     |
| 4,5                                                 | 104 | 129                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2771 | 157   | 194  | 4197   | 320  | 395  | 8610  |     |     |      |     |
| 5,0                                                 | 113 | 140                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2921 | 171   | 212  | 4424   | 348  | 431  | 9076  |     |     |      |     |
| 6,0                                                 | 132 | 164                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3200 | 198   | 247  | 4847   | 404  | 503  | 9942  |     |     |      |     |
| 7,0                                                 | 150 | 187                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3457 | 226   | 282  | 5235   | 460  | 575  | 10738 |     |     |      |     |
| 8,0                                                 | 168 | 211                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3695 | 253   | 318  | 5596   | 515  | 646  | 11480 |     |     |      |     |
| 9,0                                                 | 186 | 234                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3919 | 281   | 353  | 5936   | 571  | 718  | 12176 |     |     |      |     |
| 10,0                                                | 204 | 258                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4131 | 308   | 388  | 6257   | 627  | 790  | 12835 |     |     |      |     |
| 12,0                                                | 240 | 304                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4526 | 362   | 459  | 6854   | 738  | 934  | 14060 |     |     |      |     |
| 14,0                                                | 277 | 351                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4888 | 417   | 529  | 7403   | 849  | 1077 | 15186 |     |     |      |     |
| 16,0                                                | 313 | 398                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5226 | 471   | 600  | 7915   | 960  | 1221 | 16235 |     |     |      |     |
| 18,0                                                | 349 | 445                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5543 | 526   | 670  | 8395   | 1070 | 1365 | 17220 |     |     |      |     |
| 20,0                                                | 385 | 492                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5843 | 580   | 741  | 8849   | 1182 | 1508 | 18151 |     |     |      |     |
| 22,0                                                | 421 | 538                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6128 | 635   | 812  | 9281   | 1293 | 1652 | 19037 |     |     |      |     |
| 24,0                                                | 458 | 585                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6400 | 690   | 882  | 9693   | 1404 | 1796 | 19884 |     |     |      |     |
| 26,0                                                | 494 | 632                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6662 | 745   | 953  | 10089  | 1516 | 1939 | 20696 |     |     |      |     |
| 28,0                                                | 531 | 679                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6913 | 800   | 1023 | 10470  | 1628 | 2083 | 21477 |     |     |      |     |
| 30,0                                                | 567 | 726                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7156 | 855   | 1094 | 10837  | 1740 | 2226 | 22231 |     |     |      |     |
| 32,0                                                | 604 | 773                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7391 | 910   | 1164 | 11193  | 1852 | 2370 | 22960 |     |     |      |     |
| 34,0                                                | 641 | 819                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7618 | 966   | 1235 | 11537  | 1965 | 2514 | 23666 |     |     |      |     |
| 36,0                                                | 678 | 866                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7839 | 1021  | 1306 | 11872  | 2079 | 2657 | 24352 |     |     |      |     |
| 38,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       | 102 | 134 | 1363 |     |
| 40,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       | 105 | 141 | 1382 |     |
| 42,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       | 107 | 148 | 1400 |     |
| 44,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       | 110 | 155 | 1418 |     |
| 46,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       | 112 | 162 | 1435 |     |
| 48,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 169 | 1453 |     |
| 50,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 176 | 1470 |     |
| 52,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 182 | 1487 |     |
| 54,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 189 | 1504 |     |
| 56,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 196 | 1520 |     |
| 58,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 203 | 1537 |     |
| 60,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 210 | 1553 |     |
| 62,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 217 | 1569 |     |
| 64,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 224 | 1585 |     |
| 66,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 231 | 1601 |     |
| 68,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 238 | 1616 |     |
| 70,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 244 | 1632 |     |
| 72,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 251 | 1647 |     |
| 74,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 258 | 1662 |     |
| 76,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 265 | 1677 |     |
| 78,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 272 | 1692 |     |
| 80,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 279 | 1707 |     |
| 82,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 286 | 1722 |     |
| 84,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 293 | 1736 |     |
| 86,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 300 | 1751 |     |
| 88,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 306 | 1765 |     |
| 90,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 313 | 1779 |     |
| 92,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 320 | 1793 |     |
| 94,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 327 | 1807 |     |
| 96,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 334 | 1821 |     |
| 98,0                                                |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 341 | 1835 |     |
| 100,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 348 | 1848 |     |
| 105,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 365 | 1902 |     |
| 110,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 382 | 1954 |     |
| 115,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 399 | 2005 |     |
| 120,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 417 | 2054 |     |
| 125,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 434 | 2103 |     |
| 130,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 451 | 2150 |     |
| 135,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 468 | 2196 |     |
| 140,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 485 | 2242 |     |
| 145,0                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |       |      |        |      |      |       |     | 503 | 2286 |     |

| COEFFICIENT OF DISCHARGE        |             |                       |                 |      |      |      |       |    |
|---------------------------------|-------------|-----------------------|-----------------|------|------|------|-------|----|
| MODEL                           |             |                       | 695/895/995/694 |      |      |      |       |    |
| ENTRY CONNECTION                | 695/895/995 | R <sub>1</sub>        | 3/8"            | 1/2" | 3/4" | 3/4" | 1"    |    |
|                                 | 694         | DN <sub>1</sub>       | 10              | 15   | 15   | 20   | 20    | 25 |
| EXIT CONNECTION                 | 695/895/995 | R <sub>2</sub>        | 1/2"            |      | 3/4" |      | 1"    |    |
|                                 | 694         | DN <sub>2</sub>       | 15              |      | 20   |      | 25    |    |
| d <sub>o</sub>                  | 695/895/694 |                       | 8,00            |      | 9,75 |      | 13,00 |    |
|                                 | 995         |                       | 4,00            |      |      |      |       |    |
| h/d <sub>o</sub>                | h           |                       | 2,50            |      | 4,00 |      | 5,50  |    |
|                                 | 695/895/694 |                       | 0,31            |      | 0,41 |      | 0,42  |    |
|                                 | 995         |                       | 0,62            |      |      |      |       |    |
| COEFFICIENT OF DISCHARGE kd (1) | 695/895/694 | SATURATED STEAM GASES | 0,68            |      | 0,69 |      | 0,79  |    |
|                                 | 995         |                       | 0,40            |      |      |      |       |    |
|                                 | 695/895/694 | LIQUIDS               | 0,51            |      | 0,52 |      | 0,60  |    |
|                                 | 995         |                       | 0,35            |      |      |      |       |    |

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

pa = Backpressure permitted [bar] absolute.  
p = Set pressure [bar] absolute.  
kd = Coefficient of discharge.

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