



Bronze safety valve angle type with brass cap PN16

01704 *Bronze safety valve, angle type with brass cap, metallic seat PN16*

01705 *PTFE seat*

DN	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
L	-	-	32	40	46	51	58	61	-	-	-	-	-
H	-	-	105	130	140	160	175	200	-	-	-	-	-
V	-	-	-	-	-	-	-	-	-	-	-	-	-
Kg.	-	-	0,470	0,720	1,100	1,650	2,150	3,450	-	-	-	-	-



DIRECTIONS

1.1. USE

Article 1705 is an angle safety valve.
Setting pressure is expressed in BAR and it is stamped on the screw.
Terms of use are the following:

Fluids	Water, water-steam, gas.
Working temperature	From -10 °C to + 200 °C (body in brass) From -10 °C to + 220 °C (body in bronze)
Maximum working pressure	16 bar
K	0.05
Calibrating overpressure	10% of the pressure setting point
Max contropressure	1.013 bar

1.2. ASSEMBLING AND INSTALLATION

ATTENTION

in order to have a right assembly set the valve following its flow direction-arrow stamped on the body .
This valve must be assembled vertically, if not it can compromise its functionality.

For a good holding of the thread use the proper material, according to the type of fluid passing through.

Screw-down the valve on the threaded pipes placing the key only on the proper exahagonal parts till reaching the locking of the valve on its pipe (in this article the pipe leans at the end of the thread thanks to a stopping point).

ATTENTION

Do not play any strenght on the screw.

The drain-pipe must be properly supported as to avoid pressing on the body of the valve therefore use only heavy holdfast to hold pipes.

Drained fluid must be properly driven and deflected towards the lower part to avoid that the drained fluid went back to the valve causing a change of the setting pressure. If you use a pipe you must give a slight inclination.

1.3. MAINTENANCE

Maintenance is not expected..

Check and if that is the case remove impurities from the fluid which could damage the good functionality of the valve.

ATTENTION

Do not remove leaden-seal, do not disassemble the valve, do not change the setting pressure, do not operate on the regulating screw of the spring.

Use protective gloves when passing fluids in critical temperature.



DRAIN FLOW , WATER VAPOUR

The flow rate was calculated using the following formula:

$$q = 0.9 * K * 113.8 * C * \sqrt{\frac{P1}{V1}} * A$$

symbol	description	Unit	Value
q	Max drain flow	Kg/h	
K	Discharge coefficient		0.05 for ordinary valves
C	Coefficient of expanding		0.637
P1	Absolute pressure calibration = relative pressure calibration + 1.013 + overpressure allowed	bar	
V1	Volume specific at conditions p1 and T1 in degrees kelvin	m ³ /kg	
A	The minimum transverse section area	cm ²	

DN		3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	
A		0,400	1,295	1,980	4,190	7,450	10,930	16,990	30,110	41,880	74,200	
V1		Max drain flow [Kg/ora]										
pressure calibration	1	0,881	1,29	6,38	9,76	20,66	36,73	53,88	83,76	148,44	206,47	365,86
	2	0,602	2,91	9,44	14,44	30,57	54,36	79,75	123,97	219,71	305,59	541,48
	3	0,472	3,80	12,32	18,84	39,86	70,88	103,99	161,66	286,49	398,48	705,89
	4	0,383	4,72	15,29	23,38	49,47	87,97	129,06	200,61	355,53	494,51	876,23
	5	0,322	5,63	18,24	27,90	59,04	104,98	154,02	239,42	424,31	590,17	1045,61
	6	0,272	6,62	21,44	32,79	69,40	123,40	181,04	281,42	498,74	693,70	1229,00
	7	0,240	7,54	24,41	37,31	78,97	140,41	206,00	320,22	567,51	789,35	1398,55
	8	0,215	8,45	27,35	41,82	88,49	157,35	230,85	358,84	633,95	884,54	1567,12
	9	0,194	9,37	30,34	46,39	98,18	174,58	256,13	398,14	705,59	981,41	1738,87
	10	0,177	10,29	33,31	50,94	107,81	191,69	281,24	437,17	774,76	1077,61	1909,20
	11	0,163	11,20	36,26	55,48	117,33	208,63	306,08	475,78	843,20	1172,80	2077,87
	12	0,151	12,11	39,11	59,95	126,87	225,59	330,97	514,47	911,76	1268,16	2246,91



DRAIN FLOW , AIR OR GAS

The flow rate was calculated using the following formula:

$$q = \frac{(0.9 * K * 394.9 * C * P1 * A)}{\sqrt{\frac{Z1 * T1}{M}}}$$

symbol	description	Unit	Value
q	Max drain flow	Kg/h	
K	Discharge coefficient		0.05 for ordinary valves
C	Coefficient of expanding		0.607
P1	Absolute pressure calibration = relative pressure calibration + 1.013 + overpressure allowed	bar	
A	The minimum transverse section area	cm ²	
Z1	Compressibility factor of the fluid conditions P1 and T1		if it is not known Z = 1
T1	Temperature in K of the fluid at the valve inlet during unloading	K	
M	Molecular mass of the fluid	Kg/Kmol	

for example fluid with **t=60°C (T1=333 K) e Z1=1 e M=28.97**

	DN	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
A		0,400	1,295	1,980	4,190	7,450	10,930	16,990	30,110	41,880	74,200
		Max drain flow [Kg/ora]									
pressure calibration	1	2,82	9,12	13,94	29,50	52,46	76,96	119,62	211,98	294,84	522,38
	2	4,23	13,68	20,91	44,25	78,69	115,44	179,43	317,97	442,26	783,57
	3	5,64	18,24	27,88	59,00	104,92	153,92	239,29	423,96	589,68	1044,76
	4	7,05	22,80	34,85	73,75	131,15	192,40	299,05	529,95	737,10	1305,95
	5	8,64	27,36	41,82	88,50	157,38	230,88	358,86	635,94	884,52	1567,14
	6	9,87	31,92	48,79	103,25	183,61	269,36	418,67	741,93	1031,94	1828,33
	7	11,28	36,48	55,76	118,00	209,84	307,84	478,48	847,92	1179,36	2089,52
	8	12,69	41,04	62,73	132,75	236,07	346,32	538,29	953,91	1326,78	2350,71
	9	14,10	45,60	69,70	147,50	262,30	384,80	598,10	1059,90	1474,20	2611,90
	10	15,51	50,16	76,67	162,25	288,53	423,28	657,91	1165,89	1621,62	2873,09
	11	16,92	54,72	83,64	177,00	314,76	461,76	717,72	1271,88	1769,04	3134,28
	12	18,33	59,28	90,61	191,75	340,99	500,24	777,53	1377,46	1916,46	3395,47