



**B/F type FREE OUTLET SAFETY VALVE  
2800 AND 2810 SERIES**

Model/Ref: 28004



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Without Limits.*

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## B/F type FREE OUTLET SAFETY VALVE 2800 AND 2810 SERIES

### CHARACTERISTICS

The B/F type safety valve is dedicated to protect the equipment from potential overpressure. This is an automatic device that closes when the pressure conditions are back to normal. It is a spring type safety valve with a free outlet design. The F type safety valve is available in brass or stainless steel construction. The standard version is delivered sealed with NBR tightness and a testing device. It complies with the PN 40 pressure rating standards and is certified by a TÜV approval. It can be used on compressed air and other non-hazardous compatibles gases. Setting certificate and information folder, in compliance with the 1998 decree about the safety valves monitoring, are available on request.

### AVAILABLE ITEMS

Type	F18	B20	F25	F32	F40
Brass	x	-	X	x	X
Stainless steel	-	x	X	x	x
TÜV #	SV_912	SV_912	SV_912	SV_913	SV_913
PN	40	40	40	40	40
Orifice (mm)	18	20	25	32	40
Surface cm <sup>2</sup>	2.54	3.14	4.906	8.038	12.566
Lift (mm)	7	7	9	9	12
Min Calibration. (bar)	0.5	0.5	0.5	0.5 (2)	0.5
Max Calibration. (bar)	21	30	30	12.2	30 (14.5)
Inlet connection	G 1" M*	G 1" M*	G 1" 1/4 M* or G 1" 1/2 M	G 1" 1/2 M*	G 1" 1/2 M or G 2" M*

\*Standard models available



### CONSTRUCTION STANDARDS

TÜV approval

EC0044 certification, category IV (modules B+D)

Maximum flow rate at setting pressure + 10 %

Closing pressure: setting pressure -10 %

### LIMITS OF USE

Maximum body pressure : PN 40

**Maximum temperature of materials:**

(Read taking into account the working pressure at operating temperature)

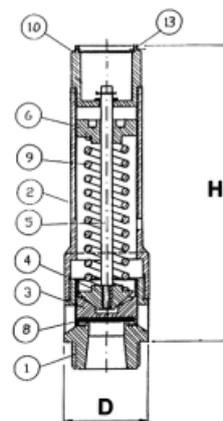
	Brass		Stainless steel	
	Min. Temp.	Max. Temp.	Min. Temp.	Max. Temp.
<b>Bearing</b>				
NBR	-10 °C	+100 °C	-10 °C	+100 °C
EPDM	-50 °C	+150 °C	-50 °C	+150 °C
FKM	-20 °C	+200 °C	-20 °C	+200 °C
Silicone	-50 °C	+200 °C	-60 °C	+200 °C
PTFE	-50 °C	+180 °C	-100 °C	+180 °C
Metal	-	-	-195 °C	+450 °C

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### CONSTRUCTION

#	Item	Brass	Stainless steel
1	Body	CW614N / 2.0372 Brass	AISI 316 / 1.4401
2	Bonnet	CW614N / 2.0372 Brass	AISI 316 / 1.4401
3	Clack	CW614N / 2.0372 Brass	AISI 316 / 1.4401
4	Needle	CW614N / 2.0372 Brass	AISI 316 / 1.4401
5	Stem	CW614N / 2.0372 Brass	AISI 316 / 1.4401
6	Adjustment screw	CW614N / 2.0372 Brass	AISI 316 / 1.4401
7	Cap	CW614N / 2.0372 Brass	AISI 316 / 1.4401
8	Bearings	NBR/EPDM/Viton/Silicone/Metal	NBR/EPDM/Viton/Silicone/Metal
9	Spring	C 72 UNI 3823	AISI 302
10	Testing device	CW614N / 2.0372 Brass	AISI 316 / 1.4401
11	Nut	CW614N / 2.0372 Brass	AISI 316 / 1.4401
12	Deflector	Al Mg	Al Mg



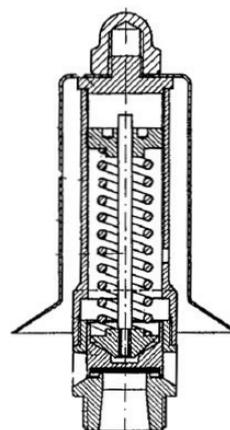
### FLOW RATE COEFFICIENTS - (TÜV)

Type	Gas pressure < 3 bar	Gas pressure > 3 bar
F18	0.70	0.82
F25	0.69	0.80
F32	0.67	0.69
F40	0.59	0.69

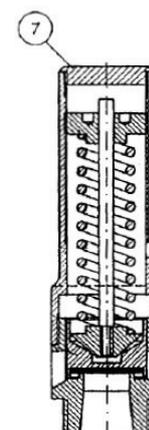
For compressed air, please refer to the below chart.  
For other gases, please contact us.

### DIMENSIONS (mm)

Type	F18	B20	F25	F32	F40
H	138	137	214	214	275
D	35	40	60	60	70



F/P



F/S

### INSTALLATION

The valve has to be installed as close as possible to the device to protect. It has to be installed in a vertical position. There should be no valve between the safety valve and the device to protect. No foreign body should block the safety valve discharge openings. Given that it is a free outlet, install the safety valve away from the operators working areas and check that the safety valve operations are secure. The safety valve mounting and maintenance have to be carried out in an appropriate way and conforming to the information sheet provided with the device.

### PRE-SET, MATERIAL AND TEST CERTIFICATE

Standard pre-set and conformity certification according to EN 10 204 2.2 with series number engraved on the safety valve.

### OPTIONS

F/S type safety valve without testing device  
F/P type safety valve with deflector  
Nickel-plated brass construction  
Brass construction with stainless steel body and clack  
Clamp, BSPT, NPT connections

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## B/F type FREE OUTLET SAFETY VALVE 2800 AND 2810 SERIES

### COMPRESSED AIR FLOW RATE (KG/H) ACCORDING TO AD – Merkblatt A2 – TÜV

Pressure (bar)	F18	B20	F25	F32	F40	Pressure (bar)	F18	B20	F25	F32	F40	Pressure (bar)	F18	B20	F25	F32	F40
0,5	243	304	462	735	1012	10,5	2301	2393	4336	6128	9579	20,5	4318	4483	8137		17975
1	340	408	646	996	1417	11	2402	2498	4526	6396	9999	21	4419	4587	8327		18395
1,5	443	512	840	1275	1847	11,5	2503	2602	4716	6665	10419	21,5		4692	8517		18815
2	552	617	1045	1540	2301	12	2604	2707	4906	6933	10839	22		4796	8707		19235
2,5	667	721	1260	1831	2779	12,5	2704	2811	5096		11259	22,5		4901	8897		19655
3	788	826	1486	2099	3282	13	2805	2916	5286		11678	23		5005	9087		20074
3,5	889	930	1676	2368	3702	13,5	2906	3020	5476		12098	23,5		5110	9277		20494
4	990	1035	1866	2637	4122	14	3007	3125	5666		12518	24		5214	9467		20914
4,5	1091	1139	2056	2905	4542	14,5	3108	3229	5856		12938	24,5		5319	9657		21334
5	1192	1244	2246	3174	4961	15	3209	3334	6046		13358	25		5423	9847		21754
5,5	1293	1348	2436	3442	5381	15,5	3310	3438	6236		13777	25,5		5528	10037		22174
6	1393	1453	2626	3711	5801	16	3410	3543	6426		14197	26		5632	10227		22593
6,5	1494	1557	2816	3979	6221	16,5	3511	3647	6617		14617	26,5		5737	10417		23013
7	1595	1662	3006	4248	6641	17	3612	3752	6807		15037	27		5841	10607		23433
7,5	1696	1766	3196	4516	7060	17,5	3713	3856	6997		15457	27,5		5946	10797		23853
8	1797	1871	3386	4785	7480	18	3814	3961	7187		15876	28		6050	10987		24273
8,5	1898	1975	3576	5053	7900	18,5	3915	4065	7377		16296	28,5		6155	11177		24692
9	1999	2080	3766	5322	8320	19	4015	4170	7567		16716	29		6259	11367		25112
9,5	2099	2184	3956	5590	8740	19,5	4116	4274	7757		17136	29,5		6364	11557		25532
10	2200	2289	4146	5859	9159	20	4217	4379	7947		17556	30		6468	11747		25952

### COMPRESSED AIR FLOW RATE (Nm<sup>3</sup>/h) ACCORDING TO AD – Merkblatt A2 – TÜV

Pressure (bar)	F18	B20	F25	F32	F40	Pressure (bar)	F18	B20	F25	F32	F40	Pressure (bar)	F18	B20	F25	F32	F40
0,5	188	235	357	568	783	10,5	1780	1851	3354	4740	7410	20,5	3340	3468	6294		13904
1	263	316	500	770	1096	11	1858	1932	3501	4947	7734	21	3418	3548	6441		14229
1,5	343	396	650	986	1429	11,5	1936	2013	3648	5155	8059	21,5		3629	6588		14554
2	427	477	808	1191	1780	12	2014	2094	3795	5363	8384	22		3710	6735		14878
2,5	516	558	975	1416	2150	12,5	2092	2175	3942		8709	22,5		3791	6882		15203
3	610	639	1149	1624	2539	13	2170	2255	4089		9033	23		3872	7029		15528
3,5	688	720	1296	1832	2864	13,5	2248	2336	4236		9358	23,5		3953	7176		15853
4	766	801	1443	2039	3188	14	2326	2417	4383		9683	24		4033	7323		16177
4,5	844	881	1590	2247	3513	14,5	2404	2498	4530		10008	24,5		4114	7470		16502
5	922	962	1737	2455	3838	15	2482	2579	4677		10332	25		4195	7617		16827
5,5	1000	1043	1884	2663	4162	15,5	2560	2659	4824		10657	25,5		4276	7764		17152
6	1078	1124	2031	2870	4487	16	2638	2740	4971		10982	26		4357	7911		17476
6,5	1156	1205	2178	3078	4812	16,5	2716	2821	5118		11306	26,5		4438	8058		17801
7	1234	1285	2325	3286	5137	17	2794	2902	5265		11631	27		4518	8205		18126
7,5	1312	1366	2472	3493	5461	17,5	2872	2983	5412		11956	27,5		4599	8352		18450
8	1390	1447	2619	3701	5786	18	2950	3064	5559		12281	28		4680	8499		18775
8,5	1468	1528	2766	3909	6111	18,5	3028	3144	5706		12605	28,5		4761	8646		19100
9	1546	1609	2913	4117	6436	19	3106	3225	5853		12930	29		4842	8793		19425
9,5	1624	1690	3060	4324	6760	19,5	3184	3306	6000		13255	29,5		4922	8940		19749
10	1702	1770	3207	4532	7085	20	3262	3387	6147		13580	30		5003	9087		20074

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## B/F type FREE OUTLET SAFETY VALVE 2800 AND 2810 SERIES

### COMPRESSED AIR FLOW RATE (l/min) ACCORDING TO – Merkblatt A2 - TÜV

Pressure (bar)	F18	B20	F25	F32	F40	Pressure (bar)	F18	B20	F25	F32	F40	Pressure (bar)	F18	B20	F25	F32	F40
0,5	3128	3913	5955	9474	13042	10,5	29665	30854	55901	78995	123495	20,5	55667	57795	104898		231738
1	4383	5260	8325	12835	18269	11	30966	32201	58351	82457	128907	21	56967	59142	107348		237150
1,5	5714	6607	10830	16439	23809	11,5	32266	33548	60801	85919	134319	21,5	60489	109798			242562
2	7121	7954	13470	19850	29663	12	33566	34895	63251	89381	139732	22	61836	112248			247974
2,5	8605	9301	16244	23604	35831	12,5	34866	36242	65701	145144		22,5	63183	114698			253387
3	10164	10648	19153	27066	42313	13	36166	37589	68151	150556		23	64530	117148			258799
3,5	11464	11995	21603	30528	47725	13,5	37466	38936	70600	155968		23,5	65877	119597			264211
4	12764	13342	24053	33990	53137	14	38766	40283	73050	161380		24	67224	122047			269623
4,5	14065	14689	26503	37452	58550	14,5	40066	41630	75500	166792		24,5	68571	124497			275035
5	15365	16036	28953	40914	63962	15	41366	42977	77950	172204		25	69918	126947			280447
5,5	16665	17383	31403	44376	69374	15,5	42666	44324	80400	177617		25,5	71265	129397			285859
6	17965	18730	33853	47838	74786	16	43966	45671	82850	183029		26	72612	131847			291271
6,5	19265	20077	36302	51300	80198	16,5	45266	47018	85299	188441		26,5	73959	134297			296684
7	20565	21424	38752	54762	85610	17	46567	48365	87749	193853		27	75306	136746			302096
7,5	21865	22771	41202	58224	91022	17,5	47867	49712	90199	199265		27,5	76653	139196			307508
8	23165	24118	43652	61686	96434	18	49167	51059	92649	204677		28	78000	141646			312920
8,5	24465	25466	46102	65147	101847	18,5	50467	52406	95099	210089		28,5	79347	144096			318332
9	25765	26813	48552	68609	107259	19	51767	53753	97549	215502		29	80694	146546			323744
9,5	27065	28160	51002	72071	112671	19,5	53067	55100	99999	220914		29,5	82041	148996			329156
10	28365	29507	53451	75533	118083	20	54367	56448	102448	226326		30	83388	151446			334569

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## B/F type FREE OUTLET SAFETY VALVE 2800 AND 2810 SERIES

### D / E / F / G NGI SERIES SAFETY VALVES MOUNTING AND MAINTENANCE INFORMATION SHEET

#### **1. Description**

- a. NGI spring loaded safety valves are suitable for use on gas, steam and liquids. They are the result of 10 years of experience on many applications and ensure the ultimate protection of pressured equipment. They are able to guarantee that the internal pressure does not exceed the maximum authorized pressure, even if other safety devices installed upstream are defective, as long as they are properly sized.
- b. NGI spring loaded safety valves have a brass or stainless steel construction. The pressure of all the safety valves is pre-set and they are all sealed at the plant in order to ensure a maximum safety and a minimum maintenance level.

#### **2. Warranty**

- a. Before contacting us, please make sure to identify the type of safety valve as well as the individual number engraved on the safety valve body.
- b. The NGI safety valves are guaranteed 12 months after the delivery date. The defective pieces, after our expertise, will be replaced at our own expense. We will not accept any claim of damage caused by a wrong use, a modification of the safety valve or by a leakage due to impurities.

#### **3. Transport, check upon delivery and storage**

- a. BEWARE: the safety valve can be damaged by vibrations, shocks or impurities. Consequently, the valve has to be handled carefully without removing the protection covers or use the testing lever before installation.
- b. When delivered, please check:
  - The quality of the package
  - The conformity of the safety valve to the ordered one
  - The possible damages
  - That the safety valve is delivered with its calibration certificate, which number has to correspond to the number engraved on the safety valve body.
- c. It is recommended to install the safety valve right after the delivery and not to leave it without using it. If the device is stored, it has to be in a dry and sheltered place

#### **4. Precautions for use**

- a. Before installation, please check that the device is depressurized and at room temperature.
- b. Any adjustment or modification has to be operated by safety valves qualified technicians only.
- c. WARNING – TOXIC GASES: If the safety valve is installed on an acid storage tank, make sure to use gloves and glasses or any other necessary protection equipment.
- d. A safety valve can be put into operation only if it is sealed and certified and if its pressure has been pre-set by NGI. The pre-set certificate mentions the exact pressure setting.
- e. When a free outlet safety valve has to be tested, please previously make sure that no one stays in the exhaust valve direction. Do not let toxic, explosive or flammable material exhaust in the atmosphere. Before the test, plan the controlled degassing procedure into a confined space.
- f. Do not modify the safety valve, damage its sealing or modify its pressure setting.
- g. Do not create hot or cold thermal shock on the safety valve.
- h. In the event of a malfunction, please immediately contact SECTORIEL or NGI.
- i. BEWARE: IN A CORROSIVE ENVIRONMENT, ONLY STAINLESS STEEL SAFETY VALVES SHOULD BE INSTALLED.

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## B/F type FREE OUTLET SAFETY VALVE 2800 AND 2810 SERIES

- j. The connection type has to comply with the device piping system.
- k. We recommend you to select ducted exhaust safety valve. If the safety valve has an atmosphere exhaust system, please direct it so that it does not cause any material or corporal damage. Possibility to provide a safety valve with a leakage detector for the control system on request.

### **5. Installation**

- a. Check that the sealing is not damaged.
- b. The spring loaded safety valves have to be installed in a vertical position with bonnet facing up.
- c. Remove the protection covers, taking care of not damaging the bearings, and mount the safety valve on the installation following its connection type.
- d. It is prohibited to install an isolating valve between the safety valve and the device to protect.
- e. It is prohibited to install a reduction fitting limiting the flow to evacuate between the safety valve and the device to protect.
- f. For ducted exhaust safety valves, make sure that the piping discharge will not cause any personnel or environmental damage.
- g. If the safety valve has to be connected to pipework, please make sure that it is as short as possible in order to create the lowest back pressure possible.
- h. The exhaust piping connected to a ducted exhaust safety valve should not be supported by the safety valve itself. Otherwise, leakage might appear.

### **6. Cleaning and lubrication**

- a. The NGI safety valves are designed to avoid the need of any lubrication
- b. Maintain the safety valve clean and fully operational. For example, check that the exhaust system remains open and that no foreign body blocks the exhaust piping.

### **7. Routine maintenance**

- a. The safety valve is a sensitive safety element that has to be verified periodically. In case of any malfunctioning, please contact SECTORIEL or NGI.
- b. BEWARE: SECTORIEL and NGI are not responsible for the safety valve effective operation if the device is dismantled, modified, or reset by anyone who is not assigned by either SECTORIEL or NGI.

### **8. Inspection and regular maintenance**

- a. Regular testing of valves is essential to maintain operational efficiency. To test it, the lever can be manually operated briefly. To protect the installation during the test, the testing pressure has to stay between 80 and 90% of the setting pressure. The safety valve should be widely open to ensure a significant flow rate. While reclosing, make sure that the seat remains tight. At the installation start-up phase, we recommend to operate this test on a regular basis.
- b. For use on gas or steam installation based in France, comply with the Decree of December, 4<sup>th</sup> 1998 relating to safety valves supervision.

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