VALVE AND FLOW CONTROL SPECIALISTS
SERVICE AND RELIABILITY

COMBINATION VALVES

(Suitable up to 1380 kPa — 200 psi)
(or fitted with stainless steel base up to 2070 kPa — 300 psi)

* Also available in Stainless Steel (except for lever and cap) in sizes 25 and 50NB.

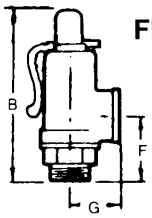

FIG. 248

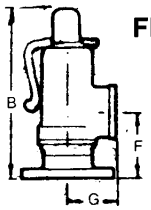

FIG. 247

This Combination Safety Relief Valve has a closed side outlet with right angle discharge combined with a manual easing lever. The outlet is female threaded and of the same size as the inlet. Available with screwed base (248) or flanged base (247).
Max operating temp. 200 °C
Suitable for discharge of steam, water, oil, air and liquids non-injurious to copper alloys.

SPECIFICATION:

BODY	— GUNMETAL LG2
CAP	— GUNMETAL LG2
LOCK NUT	— BRASS SM1
LEVER	— GUNMETAL LG2
VALVE	— GUNMETAL LG2
BASE	— GUNMETAL LG2
SPRING	— CARBON STEEL ZINC PLATED
ADJ SCREW	— BRASS SM1
BUTTON	— BRASS SM1

* Stainless Steel Springs available upon request.

DIMENSIONS AND SIZES:

FIG. 248
(Screwed Base (BSP Thread)

Size mm	B	F	G
15	153	54	35
20	175	57	41
25	222	70	45
32	264	83	51
40	298	89	67
50	330	102	70
65	397	117	83
80	445	134	95

FIG. 247
(Flanged Base)

Size mm	B	F	G
15	146	48	35
20	168	51	41
25	213	60	45
32	251	70	51
40	286	76	67
50	318	89	70
65	384	105	83
80	425	115	95

Flanges available undrilled or drilled to purchaser's written instructions.

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SAFETY VALVES

(Suitable up to 1380 kPa — 200 psi)
(or fitted with stainless steel base up to 2070 kPa — 300 psi)

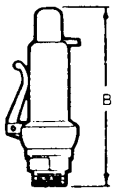

FIG. 228

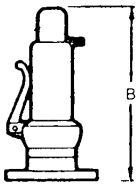

FIG. 227

This Safety valve is pop type with open ports for the discharge of steam and air. Available with screwed base (228) or flanged base (227).

Maximum operating temperature 200 °C

SPECIFICATION:	BODY	— GUNMETAL LG2
	CAP	— GUNMETAL LG2
	LEVER	— GUNMETAL LG2
	PEG	— GUNMETAL LG2
	SPINDLE	— BRASS SM1
	SPRING	— CARBON STEEL ZINC PLATED
	VALVE	— GUN METAL LG2
	ADJ. SCREW	— BRASS SM1
	BUTTON	— BRASS SM1

* Stainless Steel Springs available upon request.

DIMENSIONS & SIZES

FIG. 228
(Screwed Base.B.S.P. Thread)

Size mm	B
15	143
20	156
25	203
32	229
40	254
50	292
65	368
80	400

FIG. 227
(Flanged Base)

Size mm	B
15	150
20	162
25	220
32	242
40	267
50	305
65	381
80	420

Flanges available undrilled or drilled to purchaser's written instructions.

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RELIEF VALVES

(Suitable up to 1380 kPa — 200 psi)
(or fitted with stainless steel base up to 2070 kPa — 300 psi)

*Also available in Stainless Steel in sizes 25 and 50NB only

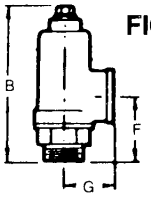

FIG. 268

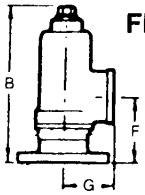

FIG. 270

This Relief Valve has a closed side outlet with right angle discharge. The outlet is female threaded and of the same size as the inlet. Available with screwed base (268) or flanged base (270).

Suitable for discharge of steam, water, oil, air and liquids non-injurious to copper alloys.
Maximum operating temperature 200°C

SPECIFICATION:

BODY	— GUNMETAL LG2
LOCK NUT	— BRASS SM1
VALVE	— GUNMETAL LG2
BASE	— GUNMETAL LG2
SPRING	— CARBON STEEL ZINC PLATED
ADJ SCREW	— BRASS SM1
BUTTON	— BRASS SM1

* Stainless Steel Springs available upon request.

DIMENSIONS AND SIZES:

FIG. 268
(Screwed Base (BSP Thread)

Size mm	B	F	G
15	118	54	35
20	133	57	41
25	172	70	45
32	203	83	51
40	229	89	67
50	254	102	70
65	305	118	83
80	343	134	95

FIG. 270
(Flanged Base)

Size mm	B	F	G
15	111	48	35
20	127	51	41
25	162	60	45
32	191	70	51
40	216	76	67
50	242	89	70
65	292	105	83
80	324	115	95

Flanges available undrilled or drilled to purchaser's written instructions.

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SIZING OF VALVES

STEAM SAFETY VALVES

To protect equipment supplied with reduced pressure steam by a Pressure Regulator may usually be sized by using the Steam Capacity Chart for 10% accumulation. Note that for sizing purposes, the maximum capacity of the Pressure Regulator must be taken into account rather than the steam consumption of the unit to be protected (see Chart 1).

STEAM BOILER SAFETY VALVES

Should be sized by using the Steam Capacity Chart for 6% accumulation (see Chart 2).

AIR AND GAS SAFETY VALVES

May usually be sized by using the Gas Capacity Chart for 10% accumulation after applying specific gravity and temperature correction factors if required (see chart below). Where equipment to be protected is supplied by a Pressure Regulator the notes on Steam Safety valves above may apply (see Chart 3).

LIQUID RELIEF VALVES

Chart applies when valve discharge is at atmospheric pressure and inlet pressure is approximately 10% above set point (ie. the pressure at which the valve begins to discharge). If a rise of 25% above set pressure is tolerable subtract one third from capacity before entering Chart. (See Chart 4.)

SPECIFIC GRAVITY & TEMPERATURE CORRECTION MULTIPLIERS

Multipliers for Temperature Variation

Mulipliers for Specific Gravity Variation

Temp. °F	Mult.	Temp. °F	Mult.	SP GR.	Mult.	SP GR.	Mult.
30	1.038	220	0.882	0.50	1.414	1.10	0.955
40	1.027	240	0.869	0.55	1.350	1.15	0.933
50	1.017	260	0.857	0.60	1.290	1.20	0.913
60	1.007	280	0.845	0.65	1.240	1.25	0.895
70	1.000	300	0.834	0.70	1.195	1.30	0.877
80	0.990	320	0.823	0.75	1.155	1.40	0.845
90	0.980	340	0.813	0.80	1.117	1.50	0.817
100	0.972	360	0.803	0.85	1.085	1.60	0.791
120	0.954	380	0.793	0.90	1.055	1.70	0.768
140	0.938	400	0.784	0.95	1.025	1.80	0.745
160	0.923	420	0.775	1.00	1.000	1.90	0.725
180	0.908	440	0.767	1.05	0.975	2.00	0.707
200	0.895	460	0.759				

VALVE SEAT AREAS (mm²)

Nominal Size mm							
15	20	25	32	40	50	65	80
126	285	506	791	1139	1382	3167	4560

Metric Conversion Factors

cu ft	28.317 l
sq in	645.16 sq m
psi	6.893 kPa
Gallons (imperial)	4.55 l
Fahrenheit	1.8 Celcius + 32

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1. **STEAM CAPACITY CHART**
(kg/hour saturated steam) with 10% accumulation

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	17	21	25	34	55	77	98	140	183	225
20	38	47	58	76	124	172	220	316	412	508
25	70	86	104	136	222	308	393	566	735	904
32	111	136	170	214	349	483	614	890	1149	1417
40	154	190	231	306	498	694	884	1270	1646	2032
50	273	340	410	546	889	1229	1569	2254	2939	3624
65	426	530	639	852	1388	1918	2453	3519	4581	5624
80	613	766	920	1229	2000	2762	3538	5034	6577	8119

2. **STEAM CAPACITY CHART**
(kg/hour saturated steam) with 6% accumulation

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	17	17	20	27	44	61	78	112	146	180
20	30	38	46	61	99	137	176	253	329	405
25	56	68	83	108	177	246	315	452	587	723
32	88	108	136	171	279	386	491	712	919	1134
40	123	152	185	244	398	555	707	1016	1315	1623
50	218	272	327	437	711	982	1254	1805	2349	2898
65	341	424	511	680	1111	1533	1964	2816	3665	4495
80	490	613	737	982	1601	2209	2830	4018	5261	6486

3. **GAS CAPACITY CHART**
(M^3 per minute of air at 15.5°C) with 10% accumulation

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	0.48	0.56	0.76	1.24	1.72	2.20	3.14	4.07	5.04	6.00
20	1.04	1.30	1.70	2.77	3.85	4.92	7.08	9.20	11.32	13.53
25	1.92	2.32	3.02	4.95	6.85	8.77	12.60	16.36	20.16	24.06
32	3.03	3.79	4.75	7.78	10.76	13.70	19.82	25.62	31.48	37.94
40	4.25	5.15	6.82	11.10	15.49	19.70	28.31	36.72	45.30	53.52
50	7.59	9.14	12.17	19.82	27.41	34.97	50.26	65.55	80.84	96.00
65	11.83	11.24	19.03	30.92	42.75	54.65	78.43	101.94	125.44	149.79
80	17.10	20.55	27.41	44.59	61.59	78.86	112.13	146.68	181.22	215.77

4. **LIQUID CAPACITY CHART**
(L/min cold water)

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	6.1	8.6	10.5	13.5	19.1	23.5	27	33	38.5	42.9
20	15.7	19.4	23.7	30.5	43.3	53	61	75	86.6	97.3
25	24.3	34.5	42.1	54.3	76.8	94.1	108	133	153	172
32	41.8	58.8	71.8	92.7	131	160	185	227	261	293
40	59.4	84.3	103	132	187	230	266	326	376	421
50	115	163	199	256	364	445	514	631	727	859
65	179	254	311	401	568	695	802	982	1135	1268
80	257	365	446	576	816	1000	1152	1413	1629	1823

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