Bronze Relief Valves

Test Lever - Screwed or Flanged Connections

GRESSWELL G90 RELIEF VALVES

Side Outlet discharge with test lever. These valves are commonly used for preventing a safe pressure being exceeded in pressurised systems.

The lift is proportional to the system overpressure.

Available with stainless steel trim, PTFE, viton and silicon soft seats.

SIZE RANGE

DN	15	20	25	32	40	50	65	80
in	½"	¾"	1"	1¼"	1½"	2"	2½"	3"

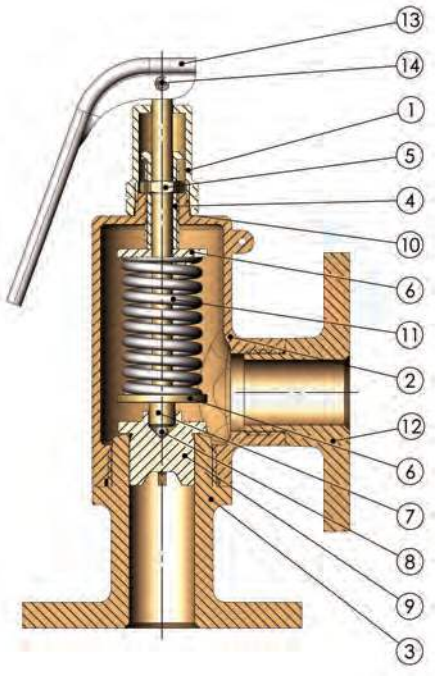
PIPE CONNECTIONS

INLET: Threaded 'G' (BSP) Male to BS EN ISO 228/BS 2779

OUTLET: Threaded 'Rp' Parallel Female to BS 21/BS EN 10226/ISO 7

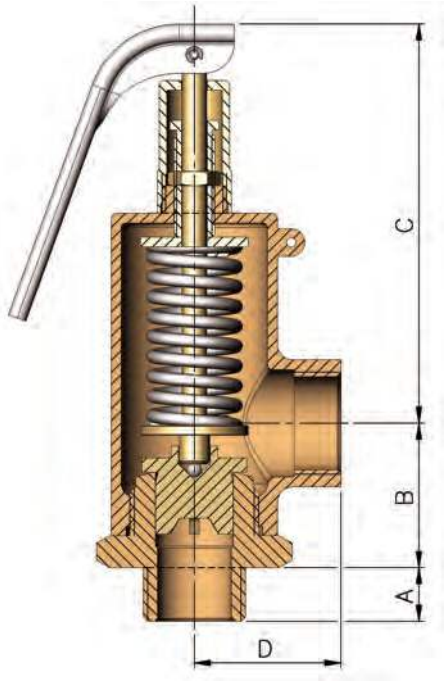
Alternative thread standards, e.g. 'R' x 'Rc' (BSPT) or ANSI B1.20.1 (NPT) are available upon request.

FLANGED: Most flange standards can be accommodated, e.g. BS EN 1759 (Class designated), BS EN 1092 (PN designated) or BS 10 (Table designated) - please specify.



STANDARD SPECIFICATION

No.	Component	Material	No.	Component	Material
1	Dome Top	Cu Alloy BS EN 12164 CW614N	6	Spring Plate	Cu Alloy BS EN 12164 CW614N
2	Body	Cu Alloy BS EN 1982 CC491K	7	Spindle	Cu Alloy BS EN 12164 CW614N
3	Base (Metal Seat)	Cu Alloy BS EN 1982 CC491K	8	Ball	St. Steel AISI 420
3P	PTFE Seat	Virgin PTFE	9	Valve	Cu Alloy BS EN 12165 CW602N
3V	Viton Seat	Viton 85 Black	10	Label	Metallised Polymer
3S	Silicone Seat	Silicone 50 Blue	11	Spring 15 - 50mm	St. Steel BS2056 302 S26
3FL	Flanged Inlet	Cu Alloy BS EN 1982 CC491K		Spring 65 & 80mm	Carbon Steel BS5216 ND3
4	Adjusting Screw	Cu Alloy BS EN 12164 CW614N	12	Flanged Outlet	Cu Alloy BS EN 1982 CC491K
5	Lock Nut	Cu Alloy BS EN 12164 CW614N	13/14	Lever & Pin	Stainless Steel



FEATURES & BENEFITS

Gresswell Valves are quality assurance approved to BS EN ISO 9001: 2000. Certificate No. 0910407.

Manufactured in accordance with BS 6759 Parts 1, 2 & 3 and compliant with BS EN ISO 4126 Part 1 with full Cat IV PED approval.

Only 4 springs are needed to cover the full pressure range.

Clear operating and maintenance instructions are supplied with each despatch.

Screwed/Flanged or a combination of both are available as standard.

See leaflet Ref: DC G55 & G90 for Discharge Capacities.

TESTING

All Gresswell Relief Valves are given a hydraulic seat tightness test before leaving the factory and the adjustment range is clearly marked.

All valves are supplied pre-set.

Flanged valves are pressure tested to ensure soundness of joints.

Special tests or witness testing can be arranged at extra cost.

DIMENSION CHART

Size	A	B	C	D	Weight (kg)
DN15	16	35	87	34	0.6
DN20	16	36	97	40	0.8
DN25	17	47	113	48	1.5
DN32	23	51	136	51	2.0
DN40	24	51	138	56	2.6
DN50	27	60	127	62	3.5
DN65	28	87	156	78	6.9
DN80	28	94	170	83	9.0

All dimensions in millimetres (mm). Flange dimensions vary according to specification (available upon request).

SEAT TYPES - SPRING/PRESSURE RANGES

Seat Housing	Valve	Pressure Range	Temperature Range	Spring Range (bar & p.s.i.)			
				A (Low)	B (Medium)	C (High)	D (Special)*
Bronze	Bronze	to 20.7 bar (300 p.s.i.)	-15° to +225°C	0.5 - 3.5 (7 - 50)	3.5 - 10.4 (50 - 150)	10.4 - 20.7 (150 - 300)	N/A
Bronze PTFE insert	Bronze	to 20.7 bar (300 p.s.i.)	-15° to +225°C	0.5 - 2.0 (7 - 30)	2.0 - 8.3 (30 -120)	8.3 - 17.9 (120 - 260)	17.9 - 20.7 (260 - 300)
Bronze VITON seal†	Bronze	to 20.7 bar (300 p.s.i.)	-15° to +200°C	0.5 - 2.0 (7 - 30)	2.0 - 8.3 (30 -120)	8.3 - 16.5 (120 - 240)	16.5 - 20.7 (240 - 300)

* D spring only avalailable as standard for DN15, DN20, DN25 and DN40 soft seated valves.
† SILICON seal also available on request - available set pressures will be confirmed at time of order. DN65 and DN80 not available.

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Discharge Capacities for Bronze Safety Relief Valves

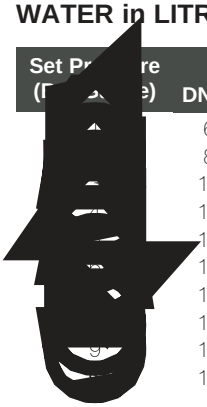
SATURATED STEAM in KILOGRAMS PER HOUR

Set Pressure (Bar Gauge)	with 10% Accumulation								Set Pressure (Bar Gauge)	with 10% Accumulation							
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80
1	13	29	52	82	118	210	328	476	11	75	168	302	473	680	1212	1898	2740
2	19	43	76	118	172	304	474	683	12	81	182	326	510	733	1306	2046	2954
3	24	55	98	153	227	394	612	880	13	86	195	350	548	786	1400	2195	3168
4	31	69	123	192	283	494	770	1108	14	92	209	374	586	873	1554	2437	3390
5	38	86	152	238	344	611	953	1377	15	100	225	401	629	904	1611	2701	3644
6	44	100	178	278	400	714	1113	1605	16	107	241	429	672	966	1723	2702	3898
7	50	112	201	314	453	807	1261	1812	17	115	257	456	715	1029	1836	2878	4153
8	56	126	227	355	510	910	1423	2048	18	121	270	481	753	1084	1940	3040	4386
9	63	140	253	395	568	1013	1584	2284	19	126	284	505	790	1136	2040	3198	4614
10	70	155	278	435	625	1116	1746	2520	20	132	297	529	826	1190	2141	3356	4841

HOT WATER in KILOWATTS

Set Pressure (Bar Gauge)	with 10% Accumulation								Set Pressure (Bar Gauge)	with 10% Accumulation							
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80
1	8	18	33	51	74	132	206	298	11	47	105	189	296	426	760	1189	1717
2	12	27	48	74	108	191	297	428	12	51	114	204	320	459	818	1282	1851
3	15	34	61	96	142	247	384	551	13	54	122	219	343	493	877	1376	1985
4	19	43	77	120	177	310	483	694	14	58	131	234	367	547	974	1527	2124
5	24	54	95	149	216	383	597	863	15	63	141	251	394	567	1010	1693	2284
6	28	63	112	174	251	447	697	1006	16	67	151	269	421	605	1080	1693	2443
7	31	70	126	197	284	506	790	1136	17	72	161	286	448	645	1151	1804	2603
8	35	79	142	222	320	570	892	1283	18	76	169	301	472	679	1216	1905	2749
9	39	88	159	248	356	635	993	1431	19	79	178	316	495	712	1278	2004	2891
10	44	97	174	273	392	699	1094	1579	20	83	186	332	518	746	1342	2103	3034

WATER in LITRES PER MINUTE



Set Pressure (Bar Gauge)	with 10% Accumulation								Set Pressure (Bar Gauge)	with 10% Accumulation							
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80
[illegible]	6	15	26	41	60	109	169	240	[illegible]	20	47	84	130	190	332	537	762
[illegible]	8	20	35	55	81	145	228	323	[illegible]	21	49	88	136	199	334	563	798
[illegible]	10	23	42	65	96	172	271	383	[illegible]	22	51	92	143	208	336	588	835
[illegible]	12	27	49	76	111	201	316	447	[illegible]	23	53	96	150	217	344	614	871
[illegible]	14	31	56	88	128	230	363	514	[illegible]	24	55	100	155	225	374	636	902
[illegible]	15	34	61	96	140	253	397	564	[illegible]	25	57	103	161	233	404	659	935
[illegible]	16	37	66	104	151	273	428	609	[illegible]	26	59	106	167	241	434	682	967
[illegible]	17	40	71	111	161	291	456	648	[illegible]	26	61	110	171	248	449	702	995
[illegible]	18	42	75	117	171	308	483	686	[illegible]	27	63	113	175	255	461	721	1022
[illegible]	19	44	80	123	180	326	511	725	[illegible]	28	65	116	180	262	473	741	1050

FREE AIR in LITRES PER SECOND AT 20°C

Set Pressure (Bar Gauge)	with 10% Accumulation								Set Pressure (Bar Gauge)	with 10% Accumulation							
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80
1	5	11	18	30	43	78	122	177	11	28	63	111	175	254	452	705	1006
2	7	16	27	44	62	113	175	254	12	31	68	121	190	274	486	756	1088
3	9	21	36	56	75	146	227	328	13	33	73	130	204	294	520	808	1168
4	12	26	45	70	102	183	286	414	14	36	78	138	218	315	556	864	1252
5	15	32	55	87	126	225	352	510	15	38	84	149	234	338	598	932	1345
6	17	36	65	103	149	267	416	602	16	40	90	160	250	360	640	1000	1438
7	18	42	73	117	168	302	468	675	17	43	95	170	265	384	682	1070	1531
8	21	47	83	132	190	340	529	758	18	45	100	178	280	404	718	1125	1615
9	23	53	92	146	212	378	590	841	19	48	105	187	294	424	753	1177	1695
10	26	58	102	161	234	417	650	925	20	50	110	196	308	443	788	1230	1776

Pressure Relief Valves

CONVERSION FIGURES

Steam…….	lbs/h	x	0.4535	=	kg/h
Hot Water…	Btu/h	x	0.0003	=	kW
Air ……..	m^3ph	x	16.667	=	L/min
	ft^3/min	x	28.32	=	L/min
Water ……..	m^3ph	x	16.667	=	L/min
	gpm	x	4.546	=	L/min
Pressure …..	psi	x	0.069	=	bar. g.
	kg/cm^2	x	0.98	=	bar. g.
	in.Water	x	0.0025	=	bar. g.

Gresswell Valves have over 65 years experience in the manufacture of Safety and Relief Valves, supplying all industries worldwide and are approved to BS EN ISO 9001:2000 quality standards. (Certificate No. 0910407.)

The ranges include versions in both Bronze and Stainless Steel (leaflet Ref: G36) as well as a choice of seating arrangements to suit even the most demanding applications.

Designed to protect systems against overpressure, the G55 and G90 ranges have proven to be the ideal safety device for thousands of users.

- Only 4 Springs are needed to cover the range's working pressure of 0.5 to 20.7 Bar g.

- Screwed/Flanged connections or a combination of both available as standard.

- A variety of Seating arrangements are available - allows the best selection for the products being handled.

- All valves are supplied pre-set.

- Clear operating and maintenance instructions are supplied.

VALVE OPERATION

All our pressure relief valves are designed to function automatically. They are fitted to systems to prevent a safe pressure being exceeded. As protective devices they will perform reliably and will require the minimum of maintenance.

As 'proportional lift' type valves, the lift, and therefore the flow-rate, is determined by the amount of 'overpressure' within the system. The accepted point to measure this flow is when the predetermined pressure (the set pressure) is exceeded by 10% - the maximum pressure including 10% accumulation is shown on the flow-rate charts overleaf.

INSTALLATION

1) It is recommended that the G55 and G90 valves be sited with their spindles upwards at a point where pressure surging or pulsation does not occur.

2) If thread sealing is required, DO NOT use PTFE tape as small pieces can easily foul the valve seat and cause 'weeping'. Always use a liquid sealer instead.

3) Discharge pipes should not be smaller than the valves outlet port and must be self draining. If the installation forms part of a sealed system, any possible 'back pressure must be considered in the setting of the relief valve. Gresswell engineers are able to advise on this.

4) Valves should be positioned where there is no possible risk to personnel during the normal course of operation. Some product will issue from the test lever area when the valve opens. Gresswell Valves should be consulted if there is any doubt regarding the valves SAFE operation.

GRESSWELL VALVES strive to provide the best possible service and welcome any suggestions which would advance this process. Therefore we reserve the right to change specifications without prior notice.
The company's engineering staff are able to assist in offering advice on further matters regarding the SAFE OPERATION of Safety and Relief valves. Information on sizing and selection can be obtained by contacting the GRESSWELL sales desk.

To place an order we request that you provide the following information regarding the intended service installation: OPERATING PRESSURE, OPERATING TEMPERATURE & INTENDED MEDIUM. Products selected and quoted for are based on the information provided and we reserve the right to amend / withdraw in part or in full should further information regarding the operating media and conditions (eg flow rates / viscosity etc) indicate that the products quoted may not be entirely suitable for the purpose(s) intended. Where a PED category is stated by Gresswell Valves, the product can only be used for the stated category.