

THE
SERIES 2000

Telford Shell Mouldings Ltd. t/a

GRESSWELL Valves



The SERIES 2000 Range to BS 6759 Parts 1, 2 & 3 and *SAFed - TAS (Eagle Star)

*(Steam, Air, Gases and Vapours up to 12.4 Bar.g)

**BRONZE BODIES OR STAINLESS STEEL
SCREWED OR FLANGED CONNECTIONS**

THE SERIES 2000 FULL LIFT SAFETY RELIEF VALVE RANGE

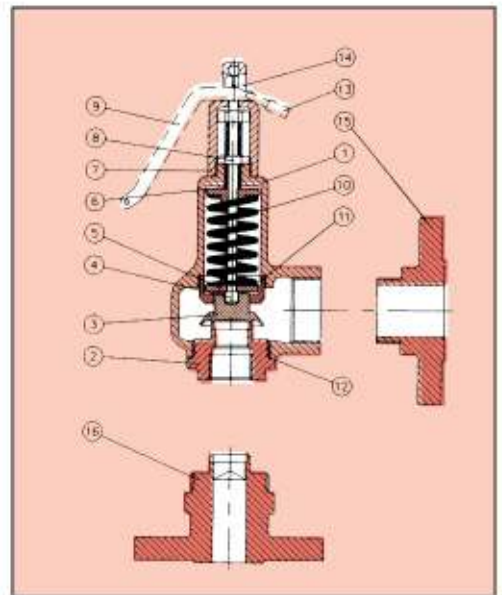
These valves offer the very latest technology combined with the most economic use of materials available on the market.

They are used to prevent excess pressure build up in systems, by automatically opening and closing at pre-set pressures.

Being of the full lift design, maximum flow-rates and positive shut off is provided through a variety of soft and hard seating materials.

SIZE RANGE

inlet connection	DN	15	20	25	32
outlet connection	DN	20	32	40	50

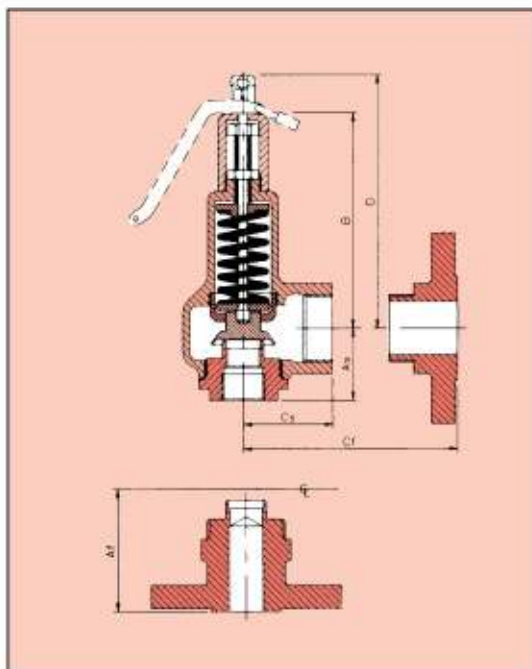


BRONZE BODY

No	Component	Material	No	Component	Material
1	Body	Gunmetal BS 1400 LG2	9	Test Lever	Brass
2	Base	Gunmetal BS 1400 LG2	10	Spring	Stainless Steel BS 2056-302-S26
3	Disc	Gunmetal BS 1400 LG2	11	Guide	Gunmetal BS 1400 LG2
4	Spindle	Brass BS 2874 CZ121	12	'O' Ring	Viton
5	Spring Plates	Brass BS 2874 CZ121	13	Padlock	Brass or Steel
6	Adjusting Screw	Brass BS 2874 CZ121	14	Pin (if fitted)	Stainless Steel
7	Cap	Brass	15	Outlet Flange	Gunmetal BS 1400 LG2
8	Locknut	Brass BS 2874 CZ121	16	Inlet Flange	Gunmetal BS 1400 LG2

STAINLESS STEEL BODY

No	Component	Material	No	Component	Material
1	Body	Stainless Steel Type 316	9	Test Lever	Stainless Steel
2	Base	Stainless Steel Type 316	10	Spring	Stainless Steel BS 2056-302-S26
3	Disc	Stainless Steel Type 316	11	Guide	Stainless Steel Type 316
4	Spindle	Stainless Steel Type 316	12	'O' Ring	Viton
5	Spring Plates	Stainless Steel Type 316	13	Padlock	Steel
6	Adjusting Screw	Stainless Steel Type 316	14	Pin (if fitted)	Stainless Steel
7	Cap	Stainless Steel Type 316	15	Outlet Flange	Stainless Steel Type 316
8	Locknut	Stainless Steel Type 316	16	Inlet Flange	Stainless Steel Type 316



FEATURES & BENEFITS

The Series 2000 range is a very efficient and cost effective automatic over-pressure protection device.

All valves are tested before leaving the works.

The Series 2000 range is a Full Lift design and as such, the flow-rates are very high when compared to traditional Safety valves.

Clear operating and maintenance instructions and certification as detailed below are supplied with each despatch.

Gresswell Valves Ltd. are quality assurance approved to BS EN ISO 9002: 1994. Certificate No. 91047.

DIMENSION CHART

SIZE inlet x outlet	As	Af	B	Cs	Cf	D	Weight (kgs)	
							Screwed	Flanged
15 x 20	32	75	121	40	67	145	1.1	1.7
20 x 32	44	75	132	55	82	156	1.6	2.6
25 x 40	48	76	139	60	90	163	2.6	3.3
32 x 50	64	100	250	70	116	295	7	12

All dimensions in millimetres (mm).

PIPE CONNECTIONS

Female Inlet x Female Outlet with threads to BS 21 1985 Rp parallel. Alternative threading available to special order. Flanged connections, meeting most standards are available.

TESTING

All Gresswell Series 2000 Safety Valve is tested before leaving the factory to prove successful pressure retention across the valve seat.

If specified, valves can be pre-set to BS 6759 specification and sealed prior to despatch.

Flanged valves, without levers are tested to 1½ times the working pressure to ensure soundness of jointing.

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

All Bronze Series 2000 valves are supplied with certificates of conformance as standard. Test certificates can be supplied at extra cost if specified at time of ordering. All Stainless Steel valves have certification to EN10204-3.1.B.

ORDER REFERENCES & SEAT TYPES - BRONZE BODY SERIES 2000 VALVES

Code	Seat	Pressure Range	Temperature Range	Valve Type
200	St. St.	} LP = up to 180 psi (12.4 bar)	-90° to +220°C	Test Lever
202	Viton		-30° to +200°C	Test Lever
210	St. St.	} HP = 180 - 400 psi (27.6 bar)	-90° to +220°C	Test Lever
212	Viton		-30° to +200°C	Test Lever
220	St. St.	} LP = up to 180 psi (12.4 bar)	-90° to +220°C	Dome Cover
222	Viton		-30° to +200°C	Dome Cover
230	St. St.	} HP = 180 - 400 psi (27.6 bar)	-90° to +220°C	Dome Cover
232	Viton		-30° to +200°C	Dome Cover

ORDER REFERENCES & SEAT TYPES - STAINLESS STEEL BODY SERIES 2000 VALVES

Code	Seat	Pressure Range	Temperature Range	Valve Type
250	St. St.	} LP = up to 180 psi (12.4 bar)	-90° to +220°C	Test Lever
252	Viton		-30° to +200°C	Test Lever
260	St. St.	} HP = 180 - 400 psi (27.6 bar)	-90° to +220°C	Test Lever
262	Viton		-30° to +200°C	Test Lever
270	St. St.	} LP = up to 180 psi (12.4 bar)	-90° to +220°C	Dome Cover
272	Viton		-30° to +200°C	Dome Cover
280	St. St.	} HP = 180 - 400 psi (27.6 bar)	-90° to +220°C	Dome Cover
282	Viton		-30° to +200°C	Dome Cover

Note! Valves in the H.P. pressure range (180-400 psi) have reduced diameter bores. Therefore the Kdr factors are lower and flow-rates are calculated.

SERIES 2000 RANGE – FULL LIFT SAFETY RELIEF VALVES

FLOW FIGURES witnessed by Lloyds Register to BS 6759 and *SAFed – TAS (Eagle Star)

*(Steam and Air, Gases and Vapours up to 12.4 Bar.g)

ALL
SERIES 2000
RANGE

*STEAM in KILOGRAMS per HOUR

Set Pressure Bar Gauge	With 10% Accumulation					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN50
1	89	258	341	580	883	1364
2	136	392	518	881	1342	2075
3	183	526	695	1183	1801	2785
4	229	660	873	1485	2261	3495
5	276	795	1050	1786	2720	4206
6	322	929	1227	2088	3180	4916
7	369	1063	1405	2390	3639	5626
8	416	1197	1582	2692	4098	6336
9	462	1331	1760	2993	4558	7047
10	509	1465	1937	3295	5017	7757
11	555	1600	2114	3597	5477	8467
12	602	1734	2292	3898	5936	9177
13	382	782	1088	1792	3019	4835
14	410	838	1167	1921	3236	5182
15	437	894	1245	2049	3452	5529
16	465	950	1323	2178	3669	5877
17	492	1006	1401	2307	3886	6224
18	520	1063	1479	2436	4103	6571
19	547	1119	1558	2564	4320	6919
20	575	1175	1636	2693	4537	7266
21	602	1231	1714	2822	4754	7613
22	630	1287	1792	2951	4970	7961
23	657	1343	1870	3079	5187	8308
24	685	1399	1948	3208	5404	8655
25	712	1456	2027	3337	5621	9003
26	740	1512	2105	3465	5838	9350
27	767	1568	2183	3594	6055	9697
27.5	781	1596	2222	3859	6163	9871

HOT WATER in KILOWATTS

Set Pressure Bar Gauge	With 10% Accumulation					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN50
1	35	100	133	226	344	532
2	53	153	202	343	523	808
3	71	205	271	461	702	1085
4	89	257	340	578	881	1362
5	107	310	409	696	1060	1638
6	126	362	478	813	1239	1915
7	144	414	547	931	1418	2192
8	162	466	616	1049	1597	2468
9	180	519	685	1166	1775	2745
10	198	571	755	1284	1954	3022
11	216	623	824	1401	2133	3298
12	234	675	893	1519	2312	3575
13	147	301	419	691	1163	1863
14	158	323	450	740	1247	1997
15	169	345	480	790	1331	2131
16	179	366	510	839	1414	2265
17	190	388	540	889	1498	2399
18	200	409	570	939	1581	2533
19	211	431	600	988	1665	2666
20	222	453	630	1038	1748	2800
21	232	474	661	1087	1832	2934
22	243	496	691	1137	1916	3068
23	253	518	721	1187	1999	3202
24	264	539	751	1236	2083	3336
25	274	561	781	1286	2166	3469
26	285	583	811	1336	2250	3603
27	296	604	841	1385	2333	3737
27.5	301	615	856	1410	2375	3804

*AIR in LITRES per SECOND

Set Pressure Bar Gauge	With 10% Accumulation					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN50
1	33	96	127	216	329	509
2	51	146	193	329	501	774
3	68	196	259	441	672	1039
4	86	246	326	554	844	1304
5	103	296	392	667	1015	1569
6	120	347	458	779	1186	1834
7	138	397	524	892	1358	2099
8	155	447	590	1004	1529	2364
9	172	497	657	1117	1701	2629
10	190	547	723	1230	1872	2894
11	207	597	789	1342	2044	3159
12	225	647	855	1455	2215	3424
13	143	292	406	669	1126	1804
14	153	313	435	717	1207	1934
15	163	334	464	765	1288	2063
16	173	355	494	813	1369	2193
17	184	376	523	861	1450	2322
18	194	396	552	909	1531	2452
19	204	417	581	957	1612	2582
20	214	438	610	1005	1693	2711
21	225	459	640	1053	1774	2841
22	235	480	669	1101	1855	2970
23	245	501	698	1149	1936	3100
24	255	522	727	1197	2017	3230
25	266	543	756	1245	2097	3359
26	276	564	785	1293	2178	3489
27	286	585	815	1341	2259	3618
27.5	291	596	829	1365	2300	3683

WATER in LITRES per MINUTE

Set Pressure Bar Gauge	With 10% Accumulation					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN50
1	45	129	170	289	440	681
2	63	182	240	409	623	963
3	77	223	295	501	763	1180
4	89	257	340	579	881	1362
5	100	288	380	647	985	1523
6	109	315	417	709	1079	1668
7	118	340	450	765	1165	1802
8	126	364	481	818	1246	1926
9	134	386	510	868	1321	2043
10	141	407	538	915	1393	2154
11	148	427	564	959	1461	2259
12	155	446	589	1002	1526	2359
13	94	192	267	440	742	1188
14	98	199	277	457	770	1233
15	101	206	287	473	797	1276
16	104	213	297	488	823	1318
17	107	220	306	503	848	1358
18	111	226	315	518	873	1398
19	114	232	323	532	897	1436
20	117	235	332	546	920	1473
21	119	244	340	560	943	1510
22	122	250	348	573	965	1545
23	125	255	356	586	986	1580
24	128	261	363	598	1005	1614
25	130	266	371	611	1028	1647
26	133	272	378	623	1049	1650
27	135	277	385	634	1069	1712
27.5	137	279	389	640	1079	1728

SPRING PRESSURE RANGE

Spring Ref:	Spring Range	
	Bar.g.	psi.g.
A	0.27 - 0.55	4 - 8
B	0.55 - 1.03	8 - 15
C	1.03 - 1.72	15 - 25
D	1.72 - 2.75	25 - 40
E	2.75 - 4.48	40 - 65
F	4.48 - 6.89	65 - 100
G	6.89 - 10.34	100 - 150
H	10.34 - 12.4	150 - 180
FH	12.4 - 15.5	180 - 225
GH	15.5 - 22.75	225 - 330
HH	22.75 - 27.59	330 - 400

CONVERSION FIGURES

Steam.....	Lbs/Hr	x 0.4535	= Kg/Hr
Hot Water.....	BTU/Hr	x 0.0003	= KW
Air.....	m ³ /ph	x 0.2777	= L/sec
	ft ³ /min	x 0.472	= L/sec
Water.....	m ³ /ph	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.
	ins. Water	x 0.0025	= Bar.g.

Kdr. -

Certified Co-efficient of Discharge

0.748 for Steam, Hot Water and Gases
0.48 for Liquids

INSTALLATION

- 1) Valves must be installed in the vertically upright plane and in a position so that no damage to personnel or plant will occur if the valve opens.
- 2) Inlet piping should be as short as possible but away from turbulent or pulsing flow which would cause the valve to 'flutter'.
- 3) To achieve the published flow figures, the outlet piping must be at least equal to the outlet connection size and kept as short as possible. It should also fall in height over its whole length.
- 4) Protective caps should not be removed until installation and PTFE tape must not be used on the inlet connection as tape and dirt particles will cause the valve to weep.
- 5) When fitting flanged valves especially, it is essential that any outlet piping is aligned to the valve - because the valve body must not be 'twisted' to match up to existing pipelines as to do so will cause leaking at the nozzle to body connection.

