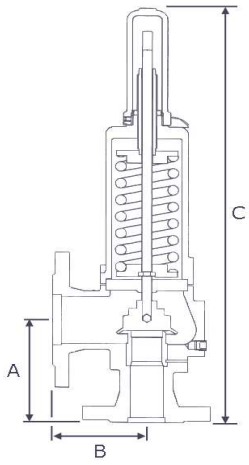

746

Carbon Steel or Stainless Steel Safety Relief Valve High Capacity Full Lift For Steam, Water, Oil, Air & Gasses

PN16/40, ANSI 150/300 Inlet Flanged* PN16, ANSI 150 Outlet Flanged*

(*Specify when enquiring)

Bailey Birkett

The 746 combination of top guiding, unobstructed seat bore and full lift capability ensures the highest possible discharge rate.

The 'conventional' arrangement is suitable for applications where the built up pressure will not exceed 5%. The conventional valve can also be used in systems where the superimposed backpressure is at a constant level (up to 80%).

The 'balanced bellows' arrangement is for applications where several safety relief valves discharge into a common discharge manifold, or in any circumstances where a variable back pressure can occur, up to a maximum of 40%.

Approvals, Features & Benefits

- BS6759 Part 1, 2 & 3
- ASME VIII / TUV-AD Merkblatt A2 (on request)
- Conventional or balanced bellows arrangement
- Special disc option for liquids
- Open lever, packed lever or dome top
- Top guided design
- Full lift for maximum capacity
- Suitable for a wide range of duties
- Set, tested and certified prior to despatch

Pressure & Temperature

Pressure range:-

25-50mm : 0.35 to 40 bar
65mm : 0.35 to 35 bar
80mm : 0.35 to 32 bar
100mm : 0.35 to 25 bar

Body temperature range:-

-29°C to 427°C
See table for disc temperature ranges

DN	25	32	40	50	65	80	100
Inlet Flange	25	32	40	50	65	80	100
Outlet Flange	40	50	65	80	100	125	150
A	105	115	140	150	170	195	220
B	100	110	115	120	140	160	180
C (Dome) ♦	410	455	570	615	725	825 (925)	925 (1030)
C (Lever) ♦	410	455	570	615	725	825 (925)	925 (1030)
C (Bellows) ♦	445	490	605	665	785	865 (965)	955 (1060)
Orifice (mm^2)	415	660	1075	1662	2827	4301	6648
Weight Kg	8.5	14	20	30	42.5	64.5	86

♦ Figures in brackets for high pressure version (contact sales for further details)

Disc Options

Material	Temperature Range	Application*
Stainless Steel (Standard)	-46°C to 427°C	Steam & Process Liquids
EPDM	-29°C to 150°C	Water
FKM	-29°C to 200°C	Air, Gases & Steam
PTFE	-46°C to 220°C	Steam & Process Liquids

Performance to BS6759 (figures in brackets are for ASME)

Media	Kdr	Over Pressure	Blowdown
Steam	0.7 (0.738)	5% (10%)	15% or 0.3 bar min (Fixed)
Hot Water (>100°C)	0.7 (N/A)	5% (N/A)	15% or 0.3 bar min (N/A)
Air/Gases	0.7 (0.738)	10% (10%)	10% or 0.3 bar min (Fixed)
Liquid	0.46 (0.482)	10% (10%)	20% or 0.6 bar min (Fixed)

Materials	Carbon Steel	Stainless Steel
Body, Bonnet & Cap	Carbon Steel	Stainless Steel
Seat	Stainless Steel	Stainless Steel
Spindle	Stainless Steel	Stainless Steel
Disc	Stainless Steel • EPDM • FKM • PTFE	Stainless Steel • EPDM • FKM • PTFE
Spring	Chrome Vanadium (up to 232°C **)	Stainless Steel 316 (up to 260°C **)

** Higher temperatures require different spring materials - contact sales for further details

Datasheet No. 130015a - 02/21

746

Capacity Charts/Sizing

AIR CAPACITY (*l*/s) @ 0.3 bar or 10% overpressure* at 15°C BS6759 Part 2

Set Pressure (bar)	DN25	DN32	DN40	DN50	DN65	DN80	DN100
0.35	69.6	109	178	275	467	711	1098
1.0	115	182	297	459	781	1188	1836
2.0	181	287	468	723	1231	1872	2894
3.0	242	384	626	968	1646	2505	3872
4.0	303	482	786	1215	2066	3144	4859
5.0	365	580	945	1462	2486	3782	5846
6.0	427	678	1105	1708	2906	4421	6834
7.0	488	776	1265	1955	3326	5060	7821
8.0	550	874	1424	2202	3746	5699	8808
9.0	611	972	1584	2449	4165	6337	9795
10.0	673	1070	1744	2696	4585	6976	10783
12.0	796	1267	2063	3189	5425	8253	12757
12.5	827	1316	2143	3313	5635	8573	13251
14.0	920	1463	2382	3683	6265	9531	14732
16.0	1043	1659	2701	4177	7104	10808	16706
18.0	1166	1855	3021	4670	7944	12086	18681
20.0	1289	2051	3340	5164	8784	13363	20655
24.0	1536	2443	3979	6151	10463	15918	24605
28.0	1782	2835	4617	7138	12142	18473	
32.0	2029	3227	5256	8126	13822	21028	
34.0	2152	3423	5575	8619	14661		
36.0	2276	3619	5894	9113			
40.0	2522	4011	6533	10100			

* Minimum overpressure = 0.07 bar at set pressure less the 1.0 bar

Other gases
If you wish to use the valve on other compatible gases, the sizing details can be used. However, the valve capacity will change depending on the specific gravity of the flowing gas. Multiply the valve air capacity by 1/√SG to give the gas capcity.
SG = specific gravity (reletive to air = 1)

Useful conversions
Nm^3/h = l/sec x 3.60 SCFM = l/sec x 2.12

WATER CAPACITY (*l*/min) @ 10% overpressure* at 20°C BS6759 Part 3

Set Pressure (bar)	DN25	DN32	DN40	DN50	DN65	DN80	DN100
0.35	105	167	272	420	715	1088	
1.0	170	270	440	680	1157	1761	2722
2.0	240	382	622	962	1637	2490	3849
3.0	294	468	762	1178	2005	3050	4714
4.0	340	540	880	1361	2315	3522	5443
5.0	380	604	984	1521	2588	3937	6086
6.0	416	662	1078	1667	2835	4313	6666
7.0	449	715	1164	1800	3062	4659	7210
8.0	481	764	1245	1924	3273	4980	7698
9.0	510	811	1320	2041	3472	5282	8165
10.0	537	854	1392	2152	3660	5568	8606
12.0	589	936	1525	2357	4009	6099	9428
12.5	601	955	1556	2406	4092	6225	9622
14.0	636	1011	1647	2546	4330	6588	10183
16.0	680	1081	1760	2722	4629	7043	10886
18.0	721	1146	1867	2887	4910	7470	11547
20.0	760	1208	1968	3043	5176	7874	12171
24.0	832	1324	2156	3333	5670	8626	13332
28.0	899	1430	2329	3600	6124	9317	
32.0	961	1528	2490	3849	6547	9960	
34.0	991	1575	2566	3967	6748		
36.0	1019	1621	2641	4082			
40.0	1074	1709	2783	4303			

* Minimum overpressure = 0.07 bar at set pressure less the 0.7 bar

Other liquids
If you wish to use the valve on other compatible liquids, the sizing details can be used. However, the valve capacity will change depending on the specific gravity of the flowing liquid. Multiply the valve water capacity by 1/√SG to give the liquid capcity.
SG = specific gravity (reletive to water = 1)

Useful conversions
lgpm = l/min x 0.22 m^3/min = l/sec x 0.001

SATUATED STEAM CAPACITY (*kg/h*) @ 5% overpressure* BS6759 Part 1

Set Pressure (bar)	DN25	DN32	DN40	DN50	DN65	DN80	DN100
0.35	124	198	322	498	847	1289	1992
1.0	269	429	698	1079	1836	2793	4317
2.0	457	727	1183	1830	3112	4735	7318
3.0	635	1010	1645	2543	4326	6581	10173
4.0	795	1265	2060	3185	5417	8241	12738
5.0	955	1519	2475	3826	6508	9901	15303
6.0	1115	1774	2889	4467	7598	11560	17869
7.0	1276	2029	3304	5108	8689	13220	20433
8.0	1436	2283	3719	5750	9780	14880	22999
9.0	1596	2538	4134	6391	10871	16539	25565
10.0	1756	2793	4549	7032	11962	18199	28130
12.0	2076	3302	5378	8315	14143	21518	33260
12.5	2156	3429	5586	8636	14689	22348	34543
14.0	2397	3811	6208	9598	16325	24838	38391
16.0	2717	4321	7038	10880	18587	28157	43522
18.0	3037	4830	7867	12163	20689	31476	48652
20.0	3357	5339	8697	13446	22871	34795	53783
24.0	3998	6358	10356	16011	27324	41434	64044
28.0	4638	7377	12015	18576	31598	48073	
32.0	5279	8396	13675	21142	35961	54711	
34.0	5599	8905	14504	22424	38143		
36.0	5919	9414	15334	23707			
40.0	6560	10433	16993	26272			

* Minimum overpressure = 0.07 bar at set pressure less the 1.0 bar

HOT WATER CAPACITY (*kW*) for a pressurized (un-vented) system

Set Pressure (bar)	DN25	DN32	DN40	DN50	DN65	DN80	DN100
0.35	227	360	587	907	1543	2547	3628
1.0	235	374	608	941	1600	2434	3762
2.0	309	492	801	1239	2107	3206	4956
3.0	398	633	1031	1594	2711	4124	6375
4.0	498	792	1291	1996	3394	5164	7983
5.0	599	952	1551	2398	4078	6204	9590
6.0	699	1112	1811	2799	4762	7244	11198
7.0	799	1271	2071	3201	5445	8285	12805
8.0	900	1431	2331	3603	6129	9721	14413
9.0	1000	1590	2591	4005	6813	10365	16020
10.0	1100	1750	2851	4407	7496	11405	17628
12.0	1301	2069	3370	5211	8863	13485	20843
12.5	1351	2149	3500	5412	9205	14005	21647
14.0	1501	2388	3890	6015	10231	15565	24058
16.0	1703	2708	4410	6818	11598	17645	27274
18.0	1903	3027	4930	7622	12965	19725	30489
20.0	2104	3346	5450	8426	14332	21805	33704
24.0	2505	3984	6490	10034	17067	25965	40134
28.0	2907	4623	7530	11641	19801	30125	
32.0	3308	5261	8569	13249	22536	34286	
34.0	3509	5580	9089	14053	23903		
36.0	3710	5900	9609	14856			
40.0	4111	6538	10649	16464			

* Minimum overpressure = 0.07 bar at set pressure less the 1.0 bar

Pressurized (un-vented) how water systems have the entire discharge capacity handled solely by the valve. Open vented systems take into account the discharge of the vent. Hence the equivariant discharge of the valve/system is considered to be double the chart capacities above.

Part Numbering System

746 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Type	Size	Connections	Body Material	Features	Seat
1. Conventional	1. DN25 x 40	1. PN16 x 16	2. Carbon Steel	D. Dome Cap	Stainless Steel
2. Bellows	2. DN32 x 50	2. PN40 x 16	3. Stainless Steel	F. Ferrule	EPDM
3. Liquid Conventional	3. DN40 x 65	5. ANSI 150 x 150		G. Gag	FKM
4. Liquid Bellows	4. DN50 x 80	6. ANSI 300 x 150		M. Open Lever	PTFE
	5. DN65 x 100			N. NACE Materials	
	6. DN80 x 125			P. Packed Lever	
	7. DN100 x 150			R. Resilient Seat	

Datasheet No. 130015b - 02/21