



716ST
Stainless Steel
Safety Relief Valve
High Capacity Full Lift
For Steam, Water, Oil, Air & Gasses*
BSP & NPT Threaded**
PN16/25, ANSI 150 & BS10 E/F/H Flanged**
Bailey Birkett



The 716 range of safety relief valves offer protection against overpressure on boilers, compressors, pressure vessels, process pipelines and pressurised equipment.

They have a top guided construction with an unobstructed seat bore providing full protection with maximum discharge capacity.

Approvals, Features & Benefits

- BS6759 Part 1, 2 & 3
- Dome top
- Full lift for maximum capacity
- Suitable for a wide range of duties
- Set, tested and certified prior to despatch

Pressure & Temperature

Pressure range:-

0.35 up to 12.5 bar

Dependent on duty & size, see table below

Body temperature range:-

-29°C to 260°C

See table below for disc temperature ranges

DN	15	20	25	32	40	50
A	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
B	3/4"	1 1/4"	1 1/2"	2"	2 1/2"	3"
C	-	265	284	365	418	464
C1	-	241	261	332	379	422
D♦	158 (173)	209 (229)	235 (257)	295 (318.5)	340 (366.5)	382 (414.5)
D1♦	178 (192.5)	232 (252)	258 (280)	328 (351)	380 (405.5)	424 (456.5)
E	40	55	60	70	81	96
F	-	75	75	95	105	120
G♦	40 (58)	44 (63)	48 (70)	58 (80)	67 (91)	80 (110)
Orifice (mm ²)	109	314	415	660	1075	1662
Weight Kg♦♦	1	1.6 (2.5)	2.1 (3.2)	4 (5.7)	7 (9)	10 (12.5)

♦ Figures in brackets for male x female version ♦♦ Figures in brackets for flanged version

Disc Options

Material	Temperature Range	Application*
Aflas	-29°C to 200°C	Air, Gases & Steam
St. St.	-29°C to 260°C	Steam & Process Liquids

Performance

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

Materials

Body & Seat	Stainless Steel
Spindle	Stainless Steel
Disc	Aflas • Stainless Steel
Spring	Stainless Steel
Dome	Stainless Steel

* Dependent on materials, please check compatibility ** Specify connections when enquiring

716ST

Capacity Charts/Sizing

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

Set Pressure (bar)	DN15	DN20	DN25	DN32	DN40	DN50
0.35	18.3	52.6	69.6	111	180	279
1.0	31.2	89.9	119	189	308	476
2.0	48.8	140	186	295	481	744
3.0	63.5	183	242	384	626	968
4.0	79.7	230	303	482	786	1215
5.0	95.9	276	365	580	945	1462
6.0	112	323	427	678	1105	1708
7.0	128	369	488	776	1265	1955
8.0	144	416	550	874	1424	2202
9.0	161	463	611	972	1584	2449
10.0	177	509	673	1070	1744	2696
12.0	209	603	796	1267	2063	3189
12.5	217	626	827	1316	2143	3313

* Minimum overpressure = 0.7 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 above can be used. The valve capacity will however change depending on the specific gravity of the flowing gas. Multiply the valve air capacity by 1/ SG to give the gas capacity.

SG = specific gravity (relative to air = 1)

Useful Conversions

Nm³/h = 1/sec x 3.60

SCFM = 1/sec x 2.12

SATURATED STEAM CAPACITY (kg/h) BS6759 Part 1 @ 5% Overpressure

Set Pressure (bar)	DN15	DN20	DN25	DN32	DN40	DN50
0.35	35.6	103	136	216	351	543
1.0	70.5	203	269	427	696	1075
2.0	125	359	475	755	1230	1902
3.0	167	480	635	1010	1645	2543
4.0	209	602	795	1265	2060	3185
5.0	251	723	955	1519	2475	3826
6.0	293	844	1115	1774	2889	4467
7.0	335	965	1276	2029	3304	5108
8.0	377	1086	1436	2283	3719	5750
9.0	419	1207	1596	2538	4134	6391
10.0	461	1329	1756	2793	4549	7032
12.0	545	1571	2076	3302	5378	8315
12.5	566	1632	2156	3429	5586	8636

* Minimum overpressure = 0.7 bar at set pressure less the 1.0 bar

Other Temperatures

For steam systems operating at higher temperatures, the above capacities will need to be de-rated by using the super heat correction factor table below.

Useful Conversions

lbs/h = kg/h x 2.2046

SUPERHEAT STEAM CORRECTION TABLE

Set Pressure (bar)	Saturated Steam Temperature °C	Total Steam Temperature in °C					
		150	200	260	310	370	430
1.0	120	1.00	0.98	0.93	0.88	0.84	0.80
4.0	150	1.00	0.99	0.93	0.88	0.84	0.81
7.0	170	1.00	0.99	0.94	0.89	0.84	0.81
10.0	184	1.00	0.99	0.94	0.89	0.85	0.81

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

Set Pressure (bar)	DN15	DN20	DN25	DN32	DN40	DN50
0.35	27.6	79.4	105	167	272	420
1.0	44.6	129	170	270	440	680
2.0	63.1	182	240	382	622	962
3.0	77.3	223	294	468	762	1178
4.0	89.3	257	340	540	880	1361
5.0	99.8	287	380	604	984	1521
6.0	109	315	416	662	1078	1667
7.0	118	340	449	715	1164	1800
8.0	126	364	481	764	1245	1924
9.0	134	386	510	811	1320	2041
10.0	141	406	537	854	1392	2152
12.0	155	445	589	936	1525	2357
12.5	158	454	601	955	1556	2406

* Minimum overpressure = 0.7 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 above can be used. The valve capacity will however change depending on the specific gravity of the flowing liquid. Multiply the valve water capacity by 1/ √SG to give the liquid capacity.

SG = specific gravity (relative to water = 1)

Useful Conversions

l/gpm = 1/min x 0.22

m³/min = 1/min x 0.001

HOT WATER CAPACITY (kW) @ 5% overpressure* Pressurised (un-vented) Systems BS6759 Part 1

Set Pressure (bar)	DN15	DN20	DN25	DN32	DN40	DN50
0.35	54.5	157	208	330	538	832
1.0	61.9	178	236	374	611	944
2.0	78.2	225	298	473	771	1192
3.0	105	301	398	633	1031	1594
4.0	131	377	498	792	1291	1996
5.0	157	453	599	952	1551	2398
6.0	184	529	699	1112	1811	2799
7.0	210	605	799	1271	2071	3201
8.0	236	681	900	1431	2331	3603
9.0	263	757	1000	1590	2591	4005
10.0	289	833	1100	1750	2851	4407
12.0	342	984	1301	2069	3370	5211
12.5	355	1022	1351	2149	3500	5412

* Minimum overpressure = 0.7 bar at set pressure less the 1 bar

Note

Pressurised (un-vented) hot water systems have the entire discharge capacity handed solely by the valve.

Open vented systems take into account the discharge capacities of the vent. Hence the equivalent discharge of the valve/system is considered to be double the above chart capacities.