Technical Data Sheet

Bailey

Safety Relief & Pressure Reducing Valves

707 Safety Relief Valve

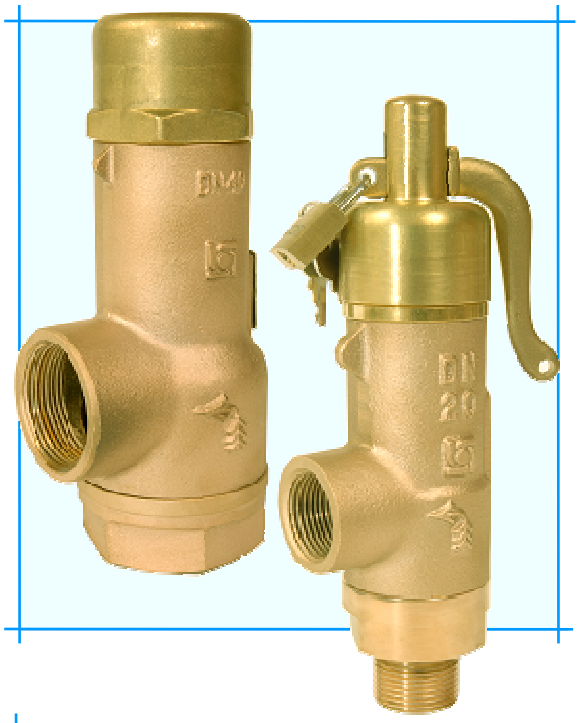
Introduction

The Bailey 707 Safety Relief Valve encompasses a top guided design, combining an unobstructed seat bore with high lift capability. This bronze bodied valve can be supplied with a resilient or metal trim with a choice of screwed and flanged connections.

The Bailey 707 is certified to BS EN ISO 4126 Part 1 (BS6759 pt 1:2:3) and is suitable for duty on air/gas, steam/hot water (above 100˚C) and process liquid.

Test levers are available for inline safety checking, alternatively a sealed dome can be supplied for service conditions requiring a pressure tight seal on the discharge side, e.g. liquid service with enclosed discharge.

Note: The 707 replaces figure numbers 706, 1640B, Pop ranges (3373, 3376, 1643, 3373A, 3376A), and the 300 series.



Approvals

The 707 is fully approved and certified to the following internationally recognised standards:

- Pressure Equipment Directive (PED)
- BS EN ISO 4126 Part 1 (SAFED)
- ISO 9001:2000
- Water Regulation Advisory Scheme (WRAS)

Performance

	Kdr	Over Pressure	Blow Down
Steam	0.173	10%	15% *
Hot Water (>100℃)	0.173	10%	15% *
Air / Gas	0.173	10%	15% *
Liquid	0.149	10%	20% †

* or 0.3 Barg min † 0.6 Barg min

Connection Options

There are 3 connection options available:

- Screwed Female Inlet x Screwed Female Outlet
- Screwed Male Inlet x Screwed Female Outlet
- Flanged Inlet x Flanged Outlet

Pressure/Temperature Limitations

Minimum Pressure - 0.35 Barg

Maximum Pressure - 24 Barg

Maximum Back Pressure - 5.5 Barg

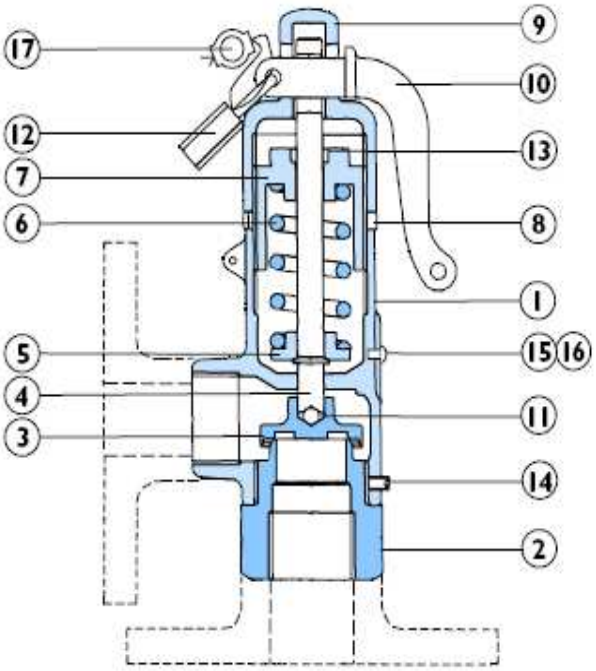
Valve Temperature - Up to 224˚C

Trims Temperature - EPDM from -20℃ to 95˚C

AFLAS from -20˚C to 200˚C

Stainless Steel from -20℃ to 224˚C

Cross Sectional Diagram



Parts List

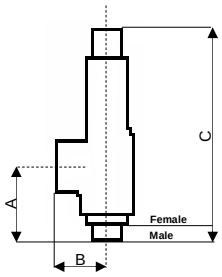
Item	Part	Material
1	Body	Bronze
2	Seat	Bronze
3	Disc *	Stainless Steel/EPDM/ Aflas
4	Spindle	Stainless Steel
5	Spring Cap	Stainless Steel
6	Spring *	Chrome Alloy
7	Adjusting Screw	Bronze
8	Locking Ring	Bronze
9	Dome	Bronze
10	Lever	Bronze
11	Ball *	Stainless Steel
12	Padlock	Brass
13	Bush	PTFE
14	Pinning Screw	Steel
15	Nameplate	Aluminium
16	Nameplate Screw	Steel
17	Lead & Wire Seal	Lead & Stainless Steel

* Recommended Spares

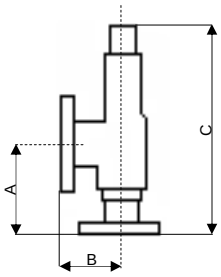
Dimensions

	Size	Inlet	Outlet	A mm	B mm	Dome C mm	Lever C mm	Weight Kg
Male x Fem	DN15	½"	½"	59	29	130	152	0.5
	DN20	¾"	¾"	65	37	159	181	1.6
	DN25	1"	1"	78	40	185	208	2
	DN32	1¼"	1¼"	89	48	205	237	3.5
	DN40	1½"	1½"	95	56	245	277	5
	DN50	2"	2"	109	71	298	333	7
Fem x Fem	DN15	½"	½"	40	29	111	133	0.6
	DN20	¾"	¾"	46	37	140	162	1
	DN25	1"	1"	56	40	163	186	1.5
	DN32	1¼"	1¼"	67	48	183	215	3
	DN40	1½"	1½"	67	56	216	249	4.5
	DN50	2"	2"	79	71	268	303	6
Flgd x Flgd	DN15	½"	½"	-	-	-	-	-
	DN20	¾"	¾"	70	62	164	187	2
	DN25	1"	1"	71	73	179	202	3
	DN32	1¼"	1¼"	90	81	206	239	4.5
	DN40	1½"	1½"	94	89	243	276	6
	DN50	2"	2"	110	108	298	333	9

Screwed



Flanged



Size Range

Size	Orifice mm^2	Min Pressure Barg	Max Pressure Barg
DN15 (½")	126	0.30	24.0
DN20 (¾")	364	0.30	24.0
DN25 (1")	481	0.30	24.0
DN32 (1¼")	791	0.30	24.0
DN40 (1½")	1240	0.30	24.0
DN50 (2")	1943	0.30	24.0

Capacity Charts

Air Capacities (l/s) at 10% Overpressure[1] & 15˚C
(BS EN ISO 4126 Part 1)

Size	Set Pressure - Barg																		
	0.35	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	12.5	14.0	16.0	18.0	20.0	22.0	24.0
DN15	3.93	8.29	13.6	18.3	22.9	27.6	32.3	36.9	41.6	46.3	50.9	60.2	62.6	69.6	78.9	88.2	97.5	107	116
DN20	11.4	23.9	39.1	52.8	66.3	79.7	93.2	107	120	134	147	174	181	201	228	255	282	309	336
DN25	15.0	31.6	51.7	69.8	87.6	105	123	141	159	177	194	230	239	266	301	337	372	408	443
DN32	24.7	52.0	85.1	115	144	173	203	232	261	290	320	378	393	437	495	554	612	671	729
DN40	38.7	81.5	133	180	226	272	318	363	409	455	501	593	616	684	776	868	960	1051	1143
DN50	60.6	128	209	282	354	426	498	569	641	713	785	929	965	1073	1216	1360	1504	1648	1791

Saturated Steam Capacities (kg/h) at 10% Overpressure[1]
(BS EN ISO 4126 Part 1)

Size	Set Pressure - Barg																		
	0.35	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	12.5	14.0	16.0	18.0	20.0	22.0	24.0
DN15	9.68	22.6	35.9	47.8	59.3	76.6	89.0	99.9	112	123	135	157	167	182	210	243	256	284	308
DN20	28.0	65.2	104	138	171	221	257	289	324	355	390	454	482	524	606	702	739	822	889
DN25	37.0	86.2	137	182	226	292	340	381	428	469	515	600	637	693	801	928	977	1086	1174
DN32	60.8	142	225	300	372	481	559	627	705	771	848	987	1048	1140	1318	1527	1606	1786	1931
DN40	95.3	222	353	470	583	753	876	983	1104	1208	1329	1548	1642	1787	2066	2393	2518	2799	3027
DN50	149	348	553	737	914	1181	1372	1540	1731	1893	2082	2425	2573	2799	3237	3750	3946	4386	4743

Water Capacities (l/min) at 10% Overpressure[1] & 20˚C
(BS EN ISO 4126 Part 1)

Size	Set Pressure - Barg																		
	0.35	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	12.5	14.0	16.0	18.0	20.0	22.0	24.0
DN15	10.3	16.7	23.6	28.9	33.4	37.4	40.9	44.2	47.3	50.1	52.8	57.9	59.1	62.5	66.8	70.9	74.7	78.4	81.9
DN20	29.8	48.3	68.3	83.6	96.5	108	118	128	137	145	153	167	171	181	193	205	216	226	236
DN25	39.4	63.8	90.2	110	128	143	156	169	180	191	202	221	226	239	255	271	285	299	312
DN32	64.8	105	148	182	210	235	257	278	297	315	332	363	371	392	420	445	469	492	514
DN40	102	164	233	285	329	368	403	435	465	493	520	570	581	615	658	698	735	771	806
DN50	159	258	364	446	515	576	631	682	729	773	815	893	911	964	1031	1093	1152	1208	1262

Hot Water Capacities (kW) for a Pressurised (Un-Vented) System at 10% Overpressure[1]
(BS EN ISO 4126 Part 1)

Size	Set Pressure - Barg																		
	0.35	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	12.5	14.0	16.0	18.0	20.0	22.0	24.0
DN15	6.88	14.0	22.9	30.9	38.8	46.7	54.6	62.5	70.4	78.3	86.2	102	106	118	133	149	165	181	197
DN20	19.9	40.5	66.3	89.4	112	135	158	181	203	226	249	294	306	340	386	431	477	522	568
DN25	26.3	53.5	87.5	118	148	178	208	239	269	299	329	389	404	449	510	570	630	690	751
DN32	43.2	88.0	144	194	244	293	343	392	442	491	541	640	665	739	838	937	1036	1135	1234
DN40	67.7	138	226	304	382	460	537	615	693	770	848	1003	1042	1158	1314	1469	1624	1780	1935
DN50	106	216	354	477	599	720	842	964	1085	1207	1329	1572	1633	1815	2059	2302	2545	2788	3032

[1] Minimum overpressure = 0.07 Barg at set pressure less than 0.7 Barg

Figure Numbering System

Size	Inlet x Outlet	Trim	Top
1=15mm	1=Scwd MBSP x FBSP	M=Stainless Steel	L=Marine Lever
2=20mm	2=Scwd FBSP x FBSP	E=St St/EPDM	D=Dome
3=25mm	3=Scwd MNPT x FNPT	V=St St/Aflas	
4=32mm	4=Scwd FNPT X FNPT		
5=40mm	5=Flgd PN25 x PN25		
6=50mm	6=Flgd ANSI 150 x ANSI 150		
	7=Flgd BS10 H x H		

Spring Selection Charts

DN15 Spring Range

Part No	Barg	Psig	Colour Code
C2193	0.35 - 1.0	5 - 15	Red
C2194	1.0 - 1.7	15 - 25	Blue
C2195	1.7 - 2.4	25 - 35	Orange
C2196	2.4 - 3.5	35 - 50	Orange/Blue
C2197	3.5 - 5.5	50 - 80	Green/White
C2198	5.5 - 8.3	80 - 120	Green/Blue
C2199	8.3 - 15.9	120 - 230	White/Blue
C3235	15.9 - 19.3	230 - 280	Red/Orange
C3236	19.3 - 24.1	280 - 350	Yellow/Blue

DN20 Spring Range

Part No	Barg	Psig	Colour Code
C2187	0.35 - 1.0	5 - 15	Red
C2188	1.0 - 1.7	15 - 25	Blue
C2189	1.7 - 3.5	25 - 50	Orange
C2190	3.5 - 6.9	50 - 100	Orange/Blue
C2191	6.9 - 10.3	100 - 150	Purple
C2192	10.3 - 13.8	150 - 200	Green/White
C3237	13.8 - 20.7	200 - 300	Red/Orange
C3238	20.7 - 24.1	300 - 350	Yellow/Blue

DN25 Spring Range

Part No	Barg	Psig	Colour Code
C0139	0.35 - 1.0	5 - 15	Red
C0145	1.0 - 1.7	15 - 25	Blue
C0147	1.7 - 2.4	25 - 35	Orange
C2182	2.4 - 4.1	35 - 60	Orange/Blue
C2183	4.1- 5.5	60 - 80	Purple
C2184	5.5 - 8.3	80 - 120	Green/White
C2185	8.3 - 12.5	120 - 180	Green/Blue
C3239	12.5 - 19.3	180 - 280	Red/Orange
C3240	19.3 - 24.1	280 - 350	Yellow/Blue

DN32 Spring Range

Part No	Barg	Psig	Colour Code
C2220	0.35 - 1.0	5 - 15	Red
C0174	1.0 - 1.7	15 - 25	Blue
C2213	1.7 - 2.4	25 - 35	Orange
C2221	2.4 - 4.1	35 - 60	Orange/Blue
C2214	4.1- 5.5	60 - 80	Purple
C2222	5.5 - 8.3	80 - 120	Green/White
C2215	8.3 - 10.3	120 - 150	Green/Blue
C2223	10.3 - 12.5	150 - 180	White/Blue
C3241	12.5 - 19.3	180 - 280	Red/Orange
C3242	19.3 - 24.1	280 - 350	Yellow/Blue

DN40 Spring Range

Part No	Barg	Psig	Colour Code
C2224	0.35 - 1.0	5 - 15	Red
C2216	1.0 - 1.7	15 - 25	Blue
C0709	1.7 - 2.4	25 - 35	Orange
C2225	2.4 - 4.1	35 - 60	Orange/Blue
C2226	4.1- 5.5	60 - 80	Purple
C2217	5.5 - 8.3	80 - 120	Green/White
C2208	8.3 - 10.3	120 - 150	Green/Blue
C2218	10.3 - 12.5	150 - 180	White/Blue
C3243	12.5 - 15.9	180 - 230	Red/Green
C3244	15.9 - 19.3	230 - 280	Red/Orange
C3245	19.3 - 24.1	280 - 350	Yellow/Blue

DN50 Spring Range

Part No	Barg	Psig	Colour Code
C2227	0.35 - 1.0	5 - 15	Red
C0718	1.0 - 1.7	15 - 25	Blue
C0719	1.7 - 2.4	25 - 35	Orange
C2219	2.4 - 4.1	35 - 60	Orange/Blue
C2228	4.1- 5.5	60 - 80	Purple
C2229	5.5 - 8.3	80 - 120	Green/White
C2209	8.3 - 10.3	120 - 150	Green/Blue
C2230	10.3 - 12.5	150 - 180	White/Blue
C0724	12.5 - 17.2	180 - 250	Red/Yellow
C3246	17.2 - 24.1	250 - 350	Yellow/Blue

Spring listed above comply with the requirements of BS EN ISO 4126: Part 7 and BS6759: Part 1.

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