

Chapter SPS 345

APPENDIX

The following table provides the flow capacity of various equivalent lengths of discharge piping for conventional relief valves using the formula in s. SPS 345.37 (3).
Pressure-Relief Valve Discharge Line Capacity (lb/min of air) of Various Discharge Line Lengths

Set Length (PSIG) (feet)	Nominal Pipe Size, NPS/DN											Set Length (PSIG) (feet)	Nominal Pipe Size, NPS/DN										
	0.5 15	0.75 20	1 25	1.25 32	1.5 40	2 50	2.5 65	3 80	4 100	5 125	6 150		0.5 15	0.75 20	1 25	1.25 32	1.5 40	2 50	2.5 65	3 80	4 100	5 125	6 150
5 2	2.8	5.8	10.7	21.3	31.4	57.8	88.8	148.0	278.9	469	704	50 2	7.6	14.7	25.4	46.5	65.3	111.7	162.8	256	451	718	1045
5 3	2.3	4.8	9.0	18.1	26.8	49.9	77.3	130.4	249.8	426	647	50 3	6.8	13.2	23.2	43.4	61.4	106.3	156.1	248	439	704	1027
5 4	2.0	4.2	7.9	16.0	23.7	44.5	69.4	117.8	228.2	393	601	50 4	6.1	12.2	21.6	40.8	58.1	101.6	150.2	240	429	691	1011
5 5	1.8	3.8	7.1	14.4	21.5	40.6	63.5	108.3	211.4	367	564	50 5	5.7	11.3	20.2	38.6	55.2	97.4	144.9	233	419	678	996
5 6	1.7	3.5	6.6	13.3	19.8	37.5	58.9	100.8	197.8	346	533	50 6	5.3	10.6	19.1	36.7	52.8	93.8	140.1	226	410	666	981
5 8	1.5	3.0	5.7	11.6	17.4	33.1	52.0	89.5	177.0	312	484	50 8	4.7	9.5	17.3	33.6	48.7	87.5	131.8	215	393	644	953
5 10	1.3	2.7	5.1	10.5	15.7	29.9	47.1	81.3	161.7	286	446	50 10	4.3	8.7	15.9	31.2	45.5	82.4	124.8	205	378	624	927
5 15	1.1	2.2	4.2	8.6	12.9	24.7	39.2	67.9	135.9	243	380	50 15	3.6	7.4	13.6	26.9	39.6	72.7	113.3	185	347	582	872
5 20	0.9	1.9	3.7	7.5	11.3	21.6	34.2	59.4	119.5	214	337	50 20	3.1	6.5	12.0	24.0	35.5	65.8	101.4	170	323	547	825
5 25	0.8	1.7	3.3	6.7	10.1	19.4	30.8	53.5	107.9	194	306	50 25	2.8	5.9	10.9	21.9	32.4	60.5	93.8	158	303	517	785
5 30	0.8	1.6	3.0	6.2	9.3	17.8	28.2	49.1	99.1	179	282	50 30	2.6	5.4	10.0	20.3	30.1	56.3	87.6	148	286	492	750
5 40	0.7	1.4	2.6	5.3	8.0	15.4	24.5	42.8	86.5	156	247	50 40	2.3	4.7	8.8	17.8	26.6	50.1	78.3	133	260	451	692
5 60	0.5	1.1	2.1	4.4	6.6	12.6	20.1	35.1	71.2	129	205	50 60	1.9	3.9	7.3	14.8	22.1	42.0	66.0	113	224	393	608
5 100	0.4	0.9	1.7	3.4	5.1	9.8	15.6	27.3	55.6	101	160	50 100	1.4	3.0	5.7	11.6	17.4	33.3	52.6	91	182	323	504
5 160	0.3	0.7	1.3	2.7	4.0	7.8	12.4	21.7	44.1	89	127	50 160	1.1	2.4	4.5	9.3	13.9	26.7	42.3	73	148	265	416
5 250	0.3	0.6	1.0	2.1	3.2	6.2	9.9	17.4	35.3	64	102	50 250	0.9	1.9	3.6	7.5	11.2	21.5	34.2	59	120	217	342
15 2	4.6	9.3	16.7	32.0	46.0	81.6	121.8	196.5	355.2	577	849	75 2	9.1	17.2	29.4	53.3	74.3	126.0	182.7	286	501	795	1154
15 3	3.9	8.0	15.5	28.3	41.0	74.0	111.6	182.3	334.5	550	815	75 3	8.2	15.8	27.3	50.4	70.7	121.2	176.9	279	491	783	1140
15 4	3.5	7.1	13.0	25.6	37.4	68.1	103.6	170.8	317.1	526	784	75 4	7.5	14.6	25.7	47.8	67.6	116.9	171.6	272	482	772	1127
15 5	3.1	6.5	11.9	23.6	34.6	63.5	97.1	161.2	302.2	506	757	75 5	7.0	13.7	24.3	45.7	64.8	113.1	166.8	266	474	762	1114
15 6	2.9	6.0	11.0	22.0	32.3	59.7	91.7	153.1	289.2	487	732	75 6	6.5	13.0	23.1	43.7	62.4	109.6	162.3	260	466	751	1101
15 8	2.5	5.2	9.7	19.5	28.9	53.8	83.2	140.0	267.5	455	689	75 8	5.9	11.8	21.1	40.6	58.3	103.4	154.4	249	450	732	1077
15 10	2.3	4.7	8.8	17.8	26.3	49.3	76.7	129.7	250.1	429	683	75 10	5.4	10.8	19.6	38.0	54.9	98.2	147.5	240	437	714	1054
15 15	1.9	3.9	7.3	14.8	22.1	41.7	65.3	111.6	218.0	379	583	75 15	4.5	9.2	16.9	33.2	48.4	88.0	133.7	220	407	675	1004

Pressure-Relief Valve Discharge Line Capacity (lb/min of air) of Various Discharge Line Lengths

Set Length (PSIG) (feet)	Nominal Pipe Size, NPS/DN												Set Length (PSIG) (feet)	Nominal Pipe Size, NPS/DN											
	0.5 15	0.75 20	1 25	1.25 32	1.5 40	2 50	2.5 65	3 80	4 100	5 125	6 150	0.5 15		0.75 20	1 25	1.25 32	1.5 40	2 50	2.5 65	3 80	4 100	5 125	6 150		
15 20	1.6	3.4	6.4	13.0	19.4	36.8	57.9	99.4	195.8	344	532	75	20	4.0	8.2	15.1	29.9	43.8	80.5	123.1	204	383	641	960	
15 25	1.5	3.1	5.7	11.7	17.5	33.3	52.5	90.5	179.3	316	492	75	25	3.6	7.4	13.7	27.4	40.3	74.6	114.8	192	363	612	921	
15 30	1.3	2.8	5.3	10.7	16.1	30.7	48.4	83.6	166.3	295	460	75	30	3.3	6.8	12.7	25.4	37.6	69.8	107.9	181	345	587	887	
15 40	1.2	2.4	4.6	9.4	14.0	26.8	42.4	73.5	147.1	262	411	75	40	2.9	6.0	11.2	22.5	33.4	62.5	97.2	164	317	544	828	
15 60	1.0	2.0	3.8	7.7	11.6	22.1	35.1	61.0	122.7	220	347	75	60	2.4	5.0	9.3	16.8	28.0	52.9	82.8	141	276	481	739	
15 100	0.7	1.5	2.9	6.0	9.0	17.3	27.5	47.9	96.8	175	276	75	100	1.9	3.9	7.3	14.8	22.2	42.2	66.5	115	227	401	623	
15 160	0.6	1.2	2.3	4.7	7.1	13.7	21.8	38.1	77.3	140	222	75	160	1.5	3.1	5.8	11.9	17.8	34.0	53.8	93	186	332	520	
15 250	0.5	1.0	1.9	3.8	5.7	11.0	17.5	30.6	62.3	113	179	75	250	1.2	2.5	4.7	9.6	14.4	27.5	43.6	76	153	274	432	
25 2	5.7	11.3	20.0	37.6	53.5	93.2	137.5	219.2	390.5	628	918	100	2	10.3	19.4	32.9	59.3	82.2	138.8	200.8	314	547	868	1258	
25 3	4.9	9.9	17.8	34.0	48.8	86.5	128.8	207.5	374.4	608	893	100	3	9.4	17.9	30.9	56.4	78.9	134.4	195.4	307	539	857	1246	
25 4	4.4	8.9	16.2	31.3	45.3	81.0	121.6	197.6	360.1	589	869	100	4	8.7	16.8	29.2	54.0	75.9	130.3	190.4	301	531	847	1234	
25 5	4.0	8.2	14.9	29.1	42.3	76.4	115.5	188.9	347.3	572	848	100	5	8.1	15.8	27.8	51.8	73.2	126.6	185.9	295	523	837	1222	
25 6	3.7	7.6	13.9	27.4	39.9	72.6	110.2	181.3	335.8	556	828	100	6	7.6	15.0	26.5	49.9	70.8	123.2	181.7	289	515	828	1210	
25 8	3.3	6.7	12.4	24.6	36.1	66.4	101.5	168.5	315.9	529	791	100	8	6.9	13.7	24.5	46.6	66.6	117.2	174.0	279	501	810	1188	
25 10	3.0	6.1	11.3	22.6	33.3	61.5	94.6	158.1	299.1	505	759	100	10	6.3	12.7	22.8	43.9	63.1	112.0	167.2	270	488	793	1167	
25 15	2.5	5.1	9.5	19.1	28.3	52.9	82.1	138.7	266.6	457	694	100	15	5.4	10.9	19.9	38.7	56.3	101.4	153.1	250	459	756	1120	
25 20	2.1	4.5	8.3	16.8	25.0	47.1	73.5	125.0	242.9	420	643	100	20	4.7	9.7	17.8	35.1	51.3	93.4	142.1	234	435	723	1077	
25 25	1.9	4.0	7.5	15.2	22.7	42.9	67.1	114.7	224.5	391	602	100	25	4.3	8.8	16.3	32.3	47.4	87.0	133.2	221	415	694	1039	
25 30	1.8	3.7	6.9	14.0	20.9	39.6	62.2	106.6	209.8	367	568	100	30	4.0	8.2	15.1	30.1	44.3	81.8	125.8	210	397	668	1005	
25 40	1.5	3.2	6.0	12.2	18.3	34.8	54.9	94.5	187.3	331	514	100	40	3.5	7.2	13.3	26.7	39.5	73.7	114.0	192	367	625	946	
25 60	1.3	2.6	4.9	10.1	15.1	28.9	45.7	79.1	158.0	281	440	100	60	2.9	5.9	11.1	22.4	33.4	62.7	97.9	166	323	558	853	
25 100	1.0	2.0	3.8	7.9	11.8	22.7	36.0	62.5	125.8	226	356	100	100	2.2	4.7	8.7	17.8	26.6	50.4	79.2	136	268	471	728	
25 160	0.8	1.6	3.1	6.3	9.4	18.1	28.7	50.0	101.1	183	289	100	160	1.8	3.7	7.0	14.3	21.4	40.7	64.3	111	222	393	614	
25 250	0.6	1.3	2.4	5.0	7.6	14.5	32.1	40.3	81.7	148	235	100	250	1.4	3.0	5.6	11.5	17.3	33.0	52.3	91	182	326	513	

Notes: SI Conversions; kPa = psig × 6.895, mm = inches × 25.4, kg/s = lb/min × 0.007559, m = feet × 0.3048.

Pressure-Relief Valve Discharge Line Capacity (lb/min of air) of Various Discharge Line Lengths

Set (PSIG)	Length (feet)	Nominal Pipe Size, NPS/DN											Set (PSIG)	Length (feet)	Nominal Pipe Size, NPS/DN										
		0.5	0.75	1	1.25	1.5	2	2.5	3	4	5	6			0.5	0.75	1	1.25	1.5	2	2.5	3	4	5	6
		15	20	25	32	40	50	65	80	100	125	150			15	20	25	32	40	50	65	80	100	125	150
150	2	12.5	23.3	39.2	70.1	96.8	162.7	234.5	366	636	1006	1457	300	2	18.4	33.7	56.1	99.4	136.7	228.3	328	510	884	1395	2019
150	3	11.6	21.8	37.2	67.4	93.7	158.5	229.6	360	628	996	1446	300	3	17.3	32.1	54.0	96.0	133.5	224.2	323	504	877	1386	2009
150	4	10.8	20.6	35.5	64.9	90.8	154.7	225.1	354	621	987	1435	300	4	16.4	30.8	52.2	94.1	130.6	220.4	319	498	869	1378	1998
150	5	10.2	19.6	34.0	62.8	88.1	151.2	220.7	348	613	979	1425	300	5	15.6	29.6	50.5	91.7	127.8	216.8	314	493	862	1369	1988
150	6	9.6	18.7	32.7	60.8	85.7	147.8	216.6	343	606	970	1414	300	6	14.9	28.5	49.0	89.6	125.2	213.4	310	488	856	1361	1978
150	8	8.8	17.3	30.5	57.3	81.4	141.8	209.1	333	593	954	1394	300	8	13.8	26.6	46.3	85.6	120.4	206.9	302	478	843	1345	1959
150	10	8.1	16.1	28.7	54.4	77.7	136.5	202.3	324	581	938	1375	300	10	12.8	25.1	44.1	82.2	116.2	201.0	295	468	830	1330	1940
150	15	6.9	14.0	25.2	48.7	70.3	125.4	187.8	304	553	902	1330	300	15	11.2	22.2	39.6	75.1	107.2	188.3	279	447	801	1293	1895
150	20	6.2	12.5	22.8	44.5	64.6	116.6	176.0	288	529	870	1289	300	20	10.0	20.1	36.2	69.6	100.1	177.7	265	428	775	1260	1853
150	25	5.6	11.4	21.0	41.2	60.2	109.4	166.2	274	507	841	1251	300	25	9.2	18.6	33.6	65.2	94.2	168.7	253	412	751	1229	1814
150	30	5.2	10.6	19.5	38.6	56.5	103.4	157.9	261	488	815	1217	300	30	8.5	17.3	31.5	61.5	89.2	160.9	243	397	729	1200	1777
150	40	4.5	9.4	17.3	34.5	50.8	93.9	144.5	241	456	769	1156	300	40	7.5	15.4	28.2	55.6	81.3	148.2	225	372	691	1148	1710
150	60	3.8	7.8	14.5	29.2	43.3	80.8	125.4	212	407	696	1058	300	60	6.3	12.9	23.9	47.7	70.2	129.7	199	333	639	1061	1595
150	100	2.9	6.1	11.5	23.3	34.7	65.6	102.7	175	343	597	918	300	100	4.9	10.3	19.1	38.5	57.2	107.1	167	282	544	934	1422
150	160	2.3	4.9	9.2	18.7	28.0	53.3	84.0	145	286	505	785	300	160	3.9	8.2	15.4	31.3	46.6	88.1	138	236	463	807	1243
150	250	1.9	3.9	7.4	15.2	22.7	43.4	68.6	119	238	423	662	300	250	3.2	6.6	12.5	25.4	38.0	72.3	114	196	389	687	1068
200	2	14.6	26.9	45.0	80.2	110.6	185.2	266.6	415	721	1139	1649	350	2	20.3	37.0	61.4	108.6	149	249	358	556	963	1519	2199
200	3	13.6	25.4	43.1	77.5	107.4	181.2	261.9	409	713	1130	1638	350	3	19.1	35.3	59.3	105.8	146	245	353	550	956	1510	2189
200	4	12.7	24.2	41.3	75.1	104.6	177.4	257.4	404	706	1121	1628	350	4	18.1	33.9	57.4	103.3	143	241	348	544	949	1502	2178
200	5	12.0	23.1	39.8	72.8	101.9	173.9	253.1	398	699	1113	1618	350	5	17.3	32.7	55.7	100.9	140	237	344	539	941	1493	2168
200	6	11.5	22.1	38.4	70.8	99.4	170.6	249.1	393	692	1105	1608	350	6	16.6	31.5	54.1	98.6	137	234	340	534	935	1484	2158
200	8	10.5	20.5	36.0	67.2	95.0	164.5	241.5	383	679	1089	1588	350	8	15.3	29.6	51.3	94.5	132	227	331	523	921	1468	2139
200	10	9.7	19.2	34.0	64.1	91.1	159.0	234.6	374	667	1073	1570	350	10	14.4	28.0	48.9	90.9	128	221	324	514	908	1452	2120
200	15	8.4	16.8	30.2	57.9	83.2	147.3	219.6	354	639	1038	1525	350	15	12.5	24.8	44.1	83.5	119	208	307	492	879	1414	2075
200	20	7.5	15.2	27.5	53.2	77.0	137.9	207.2	337	614	1005	1485	350	20	11.3	22.6	40.5	77.6	111	196	293	473	852	1379	2032

Pressure-Relief Valve Discharge Line Capacity (lb/min of air) of Various Discharge Line Lengths

Set (PSIG)	Length (feet)	Nominal Pipe Size, NPS/DN											Set (PSIG)	Length (feet)	Nominal Pipe Size, NPS/DN										
		0.5	0.75	1	1.25	1.5	2	2.5	3	4	5	6			0.5	0.75	1	1.25	1.5	2	2.5	3	4	5	6
		15	20	25	32	40	50	65	80	100	125	150			15	20	25	32	40	50	65	80	100	125	150
200	25	6.8	13.9	24.3	49.5	72.0	130.1	196.6	322	592	967	1447	350	25	10.3	20.8	37.6	72.8	105	187	280	455	827	1347	1992
200	30	6.3	12.9	23.6	46.5	67.9	123.4	187.6	309	572	949	1412	350	30	9.6	19.4	35.3	68.8	99	178	269	440	804	1317	1954
200	40	5.6	11.4	21.1	41.8	61.4	112.8	172.6	287	538	901	1349	350	40	8.5	17.3	31.7	62.4	91	163	250	413	764	1262	1885
200	60	4.6	9.6	17.7	35.5	52.5	97.7	151.1	254	484	823	1245	350	60	7.1	14.6	26.9	53.7	79	145	222	372	699	1170	1765
200	100	3.6	7.5	14.1	28.5	42.4	79.9	124.7	212	413	714	1094	350	100	5.6	11.6	21.6	43.5	64	120	186	316	607	1034	1582
200	160	2.9	6.0	11.3	23.0	34.4	65.2	102.5	176	347	610	944	350	160	4.5	9.3	17.4	35.4	52	99	155	266	519	897	1390
200	250	2.3	4.9	9.1	18.6	27.9	53.3	84.1	145	290	514	802	350	250	3.6	7.5	14.1	28.8	43	81	128	222	438	766	1200
250	2	16.5	30.4	50.7	89.9	123.8	207.0	297.7	463	803	1268	1836	400	2	22.0	40.2	66.6	117.7	161.7	269.6	387	601	1041	1642	2376
250	3	15.5	28.8	48.6	87.2	120.7	203.0	293.0	457	796	1260	1826	400	3	20.9	38.5	64.5	114.8	158.4	265.5	382	595	1034	1633	2366
250	4	14.6	27.5	46.9	84.7	117.8	199.3	288.5	452	789	1251	1815	400	4	19.8	37.0	62.5	112.2	155.3	261.5	378	589	1026	1625	2355
250	5	13.8	26.4	45.2	82.4	115.1	195.7	284.2	446	782	1243	1805	400	5	18.9	35.7	60.7	109.7	152.4	257.7	373	584	1019	1616	2345
250	6	13.2	25.4	43.8	80.3	112.5	192.3	280.2	441	775	1234	1795	400	6	18.2	34.5	59.1	107.4	149.6	254.1	369	578	1012	1608	2335
250	8	12.2	23.6	41.3	76.6	107.9	186.1	272.5	431	762	1219	1776	400	8	16.9	32.5	56.1	103.1	144.5	247.3	360	568	999	1591	2315
250	10	11.3	22.2	39.1	73.3	103.9	180.4	265.4	422	750	1203	1757	400	10	15.8	30.7	53.6	99.3	139.9	241.0	353	558	986	1575	2295
250	15	9.8	19.6	35.0	66.7	95.4	168.2	249.8	401	721	1167	1713	400	15	13.9	27.4	48.5	91.5	130.1	227.1	335	535	955	1537	2249
250	20	8.8	17.7	31.9	61.5	88.7	158.1	236.7	383	696	1135	1672	400	20	12.5	24.9	44.6	85.2	122.0	215.4	320	515	927	1502	2205
250	25	8.0	16.3	29.5	57.5	83.3	149.7	225.5	368	673	1104	1634	400	25	11.4	23.0	41.6	80.1	115.3	205.4	307	497	902	1469	2164
250	30	7.4	15.1	27.6	54.1	78.7	142.5	215.7	354	652	1076	1598	400	30	10.6	21.5	39.0	75.8	109.6	196.6	296	481	878	1438	2125
250	40	6.5	13.4	24.7	48.8	71.5	130.7	199.5	330	616	1026	1533	400	40	9.4	19.2	35.1	68.9	100.4	182.0	276	453	836	1382	2052
250	60	5.4	11.3	20.9	41.7	61.5	114.0	175.6	294	558	944	1423	400	60	7.9	16.2	26.9	59.4	87.2	160.4	246	409	767	1286	1927
250	100	4.3	8.9	16.6	33.6	49.9	93.7	145.9	248	479	826	1261	400	100	6.2	12.9	24.0	48.3	71.5	133.4	207	349	669	1143	1734
250	160	3.4	7.1	13.4	27.2	40.6	76.8	120.5	207	406	710	1096	400	160	5.0	10.4	19.4	39.3	58.5	110.3	173	294	574	996	1529
250	250	2.7	5.8	10.8	22.1	33.0	62.9	99.2	171	340	602	937	400	250	4.0	8.4	15.7	32.0	47.9	90.9	143	246	468	854	1324

Notes: SI Conversions; kPa = psig × 6.895, mm = inches × 25.4, kg/s = lb/min × 0.007559, m = feet × 0.3048.