"ARI" FIG. 920 (DIN) SAFETY VALVE DISCHARGE CAPACITY FOR SATURATED STEAM (INCLUDE 10% OVERPRESSURE)

Set Gauge Pressure	SATURATED STEAM IN Kg/h							
Bar	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
0.2 [1)]	20	23	33	44	85	142	195	305
0.4	23	34	48	65	126	209	290	450
0.5	27	39	55	74	144	239	332	520
0.6	30	43	62	82	162	267	372	580
0.8	36	51	73	100	189	323	435	680
1	41	58	84	114	218	370	500	785
2	68	97	139	188	362	610	830	1300
3	95	137	197	265	510	860	1180	1840
4	119	171	246	330	640	1070	1470	2300
5	142	205	295	396	765	1280	1760	2750
6	166	238	343	460	890	1495	2050	3200
7	189	272	391	525	1015	1700	2340	3650
8	213	305	440	590	1140	1910	2630	4100
9	236	340	490	655	1265	2120	2910	4550
10	259	370	535	720	1390	2330	3200	5000
12	306	440	630	850	1640	2750	3780	5900
14	352	505	730	980	1890	3170	4350	6800
16	400	570	825	1105	2140	3590	4920	7700
18	445	640	920	1235	2390	4000	5500	8600
20	490	705	1020	1365	2640	4430	6080	9500
22	540	770	1110	1495	2890	4850	6660	10400
24	585	840	1210	1630	3140	5270	7240	11300
25	609	875	1260	1690	3270	5480	7530	11760
26	630	910	1310	1760	3400	5700	7820	12200
28	680	975	1405	1890	3650	6120	8400	13100
30	730	1045	1505	2020	3900	6550	8990	14000
32	775	1110	1600	2150	4160	6980	9580	15000

1) DN20 – 0.3 bar

Calculation acc. to TRD421 and AD2000-A2

FORMULA FOR THE Cv CALCULATION OF VALVE SIZE

Liquid Formula

$$Cv = 1.17V\sqrt{\frac{G}{P1-P2}}$$

V: Maximum Flow, m^3/hr
G: Specific gravity (Water = 1)
P1: Inlet Pressure, kg/cm^2
P2: Outlet Pressure, kg/cm^2

Steam Formula

1) $\Delta P < \frac{P1}{2}$

$$Cv = \frac{WK}{13.67\sqrt{\Delta P(P1+P2)}}$$

W: Maximum flow, kg/hr
ΔP: P1-P2 (kg/cm^2)

2) $\Delta P \geq \frac{P1}{2}$

$$Cv = \frac{WK}{11.9P1}$$

P1: Absolute inlet pressure, kg/cm^2 abs
P2: Absolute outlet pressure, kg/cm^2 abs

When required valve flow coefficients in Kv, the value should be converted to Cv. Formula Cv = 1.17Kv