



**PRESSURE RELIEF VALVE SIZING
CALCULATION**

Proj Name	
Proj No	
Doc. No	
Sheet	

1	Reference Standard	:	API 520 & 526	1			
2	Tag Number	=	PRV - 03 - 01	2			
3	Fluid handled	=	Steam	3			
4	Mass flow rate of the fluid(Required relieving capacity) W	=	744.06 lb/hr	4			
5	Line size	=	2 inch	5			
6	Material of Construction of the pipe	=	SA 106 Gr B	6			
7	Operating Pressure of the line	=	43.51 psi g	7			
8	Operating Temperature of the line	=	142.89 °C	8			
9	Design pressure of the line	=	65.265 psi g	9			
10	Set pressure	=	65.265 psi g	10			
11	Maximum accumulated pressure(110% set pressure)	=	71.7915 psi g	11			
12	Allowable over pressure	=	6.5265 psi g	12			
13	Standard Atmospheric pressure	=	14.7 psi	13			
14	Upstream relieving pressure	P_1 =	86.4915 psi abs	14			
15	Effective co efficient	K_d =	0.975	15			
16	Correction factor for Napior equation	K_N =	1	16			
17	$K_N = 1$ where P_1 is less than or equal 1515psi abs						
18	$K_N = (0.1906 * p_1) / ((0.2292 * p_1) - 1061)$ where						
19	P_1 is in between 1515 to 3215 psi abs						
20	Superheat steam correction factor	K_{SH} =	1	20			
21	For saturated steam at any pressure is 1						
22	Area ($A = W / (51.5 * P_1 * K_d * K_N * K_{SH})$	A =	0.17132577 inch ²	22			
23	Effective Orifice area	A =	0.196 inch ²	23			
24	Orifice Designation (Selected from API 526 Table 1)						
25	Valve Size (Ref: API 526 Table 9)	=	1 X 2 inch	25			
26	Flange Rating						
27	Inlet	=	150 Psi	27			
28	Outlet	=	150 Psi	28			
29	Centre to face dimension						
30	Inlet	=	mm	30			
31	Outlet	=	mm	31			
32	Maximum height of valve						
33	Approximate Weight						
34				34			
35				35			
36				36			
37				37			
38				38			
39				39			
40				40			
41				41			
42				42			
43				43			
44				44			
45				45			
46				46			
47				47			
48				48			
49				49			
50				50			
51				51			
52				52			
53				53			
54	Rev	Date	Prepared by	Checked by	Approved by	Released for	54