

Rankin Chemical Technologies - PRD Sizing Program

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RUPTURE DISK								
Rev.	Engineer	Date	Description	Project No.				
1	0	Gregory S. Rankin, PE	10/1/2019	For Bids	Tag No.	PSE-R801-18		
2					Line No.	6"-025-6918-SS		
3					Purchase Order / Quote No.	*		
4					Quantity	3 (Note 4)		
5		Location			P&ID No.	025-611		
6	GENERAL DATA	Service	chemical reactor		Ambient Temperature	70.0	deg F	
7		Protected Equipment			Atmospheric Pressure	14.38	psia	
8					Operating Conditions	180.0	deg F	
9		Safety or Isolation	isolation			3.20	psig	
10					MAWP	90.0	psig	
11		Corrosive Agents	light acids, bases			400.0	deg F	
12								
13	BASIS	Sizing Basis	Two-phase Relief		Applicable Codes	ASME Sec VIII, Div. 1		
14		Case ID	A			API 520 - Part I, II / API 521		
15		--> Preliminary Sizing Basis	Fire - wetted surface					
16	HOLDER	Model	*		Type	Pre-torqued insert		
17		Nominal Size	in.	6	Holddown Profile	Standard		
18		Pipe Schedule	---	10		Materials of Construction	316SS	
19		Pipe Class	---	150#		Coating ?	NO	
20					Sealing Lip Design	Light lip		
21	DISK	Model	AXIUS		Materials of Construction	316SS		
22		Operating Ratio	Actual / Max	4%	95%	Non-Fragmenting ?	YES	
23		Action	---	Reverse buckling		Coating / Liner ?	YES	TFE
24		Burst Temp.	deg F	343.5				
25		Burst Pressure				Sanitary ?	NO	
26		Desired	psig	80.0		Vacuum Resistant ?	YES	
27		Tolerance	%	5%	± (Note 3)	Pulsating / Cyclic Service ?	NO	
28		Range	psig	76 - 84				
29		Est. @ 22 °C	psig		*			
30	INLET FLUID DATA	Description	---	cyclohexane		Inlet Temp.	deg F	343.5
31		Fluid State	---	VAPOR		Inlet Pressure	psig	108.9
32		Mole Weight	lb/lbmol	84.16		Inlet Density	lb/ft3	1.3678
33		Compressibility	---	0.880		Latent Heat	BTU/lb	113.0
34		k (ideal gas)	---	1.053				
35	SIZING	Required Capacity	lb/h	37,105				
36		Est. Capacity	lb/h	76,578				
37								
38		Pipe ID	in.	6.357				
39	Pipe Flow Area	in2	31.74					
40								
41								
42	OPTIONS	Burst Indicator ?	NO		Jackscrews ?	YES		
43		Type / Model			Eyebolts ?	NO		
44		Explosion Proof ?			Pre-assembly screws ?	YES		
45		Intrinsically Safe ?			J-Hook ?	YES		
46		Weatherproof Rating			Gauge Tap ?	NO	1/4" NPT	
47		Service			Excess Flow Valve ?	NO		
48				Baffle Plate ?	NO			
49								
50	VENDOR DATA	Manufacturer	Fike		Certified Sizing Data			
51		Model No.	*		MNFA	in2	21.600	
52					Resistance (Kr)	vel. heads	0.450	
53								
54	NOTES	1 Stainless steel tag engraved with tag number to be permanently attached.						
55		2 Certification sheets to be provided.						
56		3 Burst tolerance shall include manufacturing range at specified burst temperature.						
57		4 One holder and a total of three disks (two as spares) are to be purchased.						
58								
59								
60								
* INFORMATION TO BE SUPPLIED OR VERIFIED BY VENDOR								