



# Hydraulic Analysis Report - T-100 : Internals-1@Main Tower@COL2

Generated by Aspen HYSYS V12.1

Simulation case: c:\Users\hp\Desktop\Ali\Gas Dehydration.hsc

2/23/2023

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Description:

## 1. Column Internals Summary

### Summary

Property	Value	Units
Number of Trayed/Packed stages	3	
Total height	1.5	m
Total head loss (Hot liquid height)	186.3	mm
Total pressure drop	19.57	mbar
Number of sections	1	
Number of diameters	1	
Total residence time	3.534	seconds

### Sections

Section	Start	End	Diameter (m)	Section Height (m)	Internals Type	Tray or Packing Type	Section Pressure Drop (mbar)	% Approach to Flood	Limiting Stage
CS-1	1_Main Tower	3_Main Tower	0.95	1.5	Trayed	Bubble-Cap	19.57	46.5866	3_Main Tower

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## 2. Feed/Draw Summary

### Feed/Draw Summary

Stage Number	Stream	Feed/Draw
1_Main Tower	Reflux	Feed
	teg 4	Feed
	To Condenser	Draw
3_Main Tower	Boilup	Feed
	To Reboiler	Draw

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## 3. CS-1

### 3.1. Tray Geometry

#### Section

Property	Value	Units
Tray type	BUBBLE_CAP	
Diameter	0.95	m
Tray spacing	0.5	m
Number of passes	1	
Cap diameter	3 IN (76.2 MM)	
Skirt height	1.0 IN (25.4 MM)	
Number of caps per active area	72.64	1/m2
Number of caps	70	
Deck gauge thickness	10 GAUGE	
Deck gauge thickness value	3.404	mm
Cross-sectional area	0.7088	m2
Active area	0.6883	m2
Net area	0.6986	m2

#### Downcomer geometry

Property	Side	Units
Downcomer clearance	0.037	m
Downcomer width top	0.04	m
Downcomer width bottom	0.04	m
Downcomer area top	0.01026	m2
Downcomer area bottom	0.01026	m2

#### Weir geometry

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Property	Side	Units
Weir height	0.04	m
Weir length	0.3816	m

## Panels

Property	A	Units
Flow path length	0.87	m
Bubbling area	0.6883	m2

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## 3.2. Results Summary

### Summary

Property	Value	Units
Section starting stage	1_Main Tower	
Section ending stage	3_Main Tower	
Calculation Mode	Sizing	
Tray type	BUBBLE_CAP	
Number of passes	1	
Tray spacing	0.5	m
Section Diameter	0.95	m
Section height	1.5	m
Section pressure drop	19.57	mbar
Section head loss (Hot liquid height)	0.1863	m
Trays with weeping	None	
Section residence time	3.534	seconds

### Limiting conditions

Property	Value	Units	Tray	Location
Maximum % jet flood	46.5866		3_Main Tower	
Maximum % downcomer backup (aerated)	39.479		3_Main Tower	
Maximum downcomer loading	446.4	m3/h-m2	3_Main Tower	Side
Maximum % downcomer choke flood	73.0332		3_Main Tower	Side
Maximum weir loading	12.01	m3/h-m	3_Main Tower	Side
Maximum aerated height over weir	0.0464	m	3_Main Tower	
Maximum % approach to	22.3107		3_Main Tower	

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Property	Value	Units	Tray	Location
system limit				
Maximum Cs based on bubbling area	0.04383	m/s	3_Main Tower	

## Messages Summary

Status	Messages
	The length of the side weir is less than 50% of the section diameter. We recommend increasing downcomer widths or using swept back weirs.



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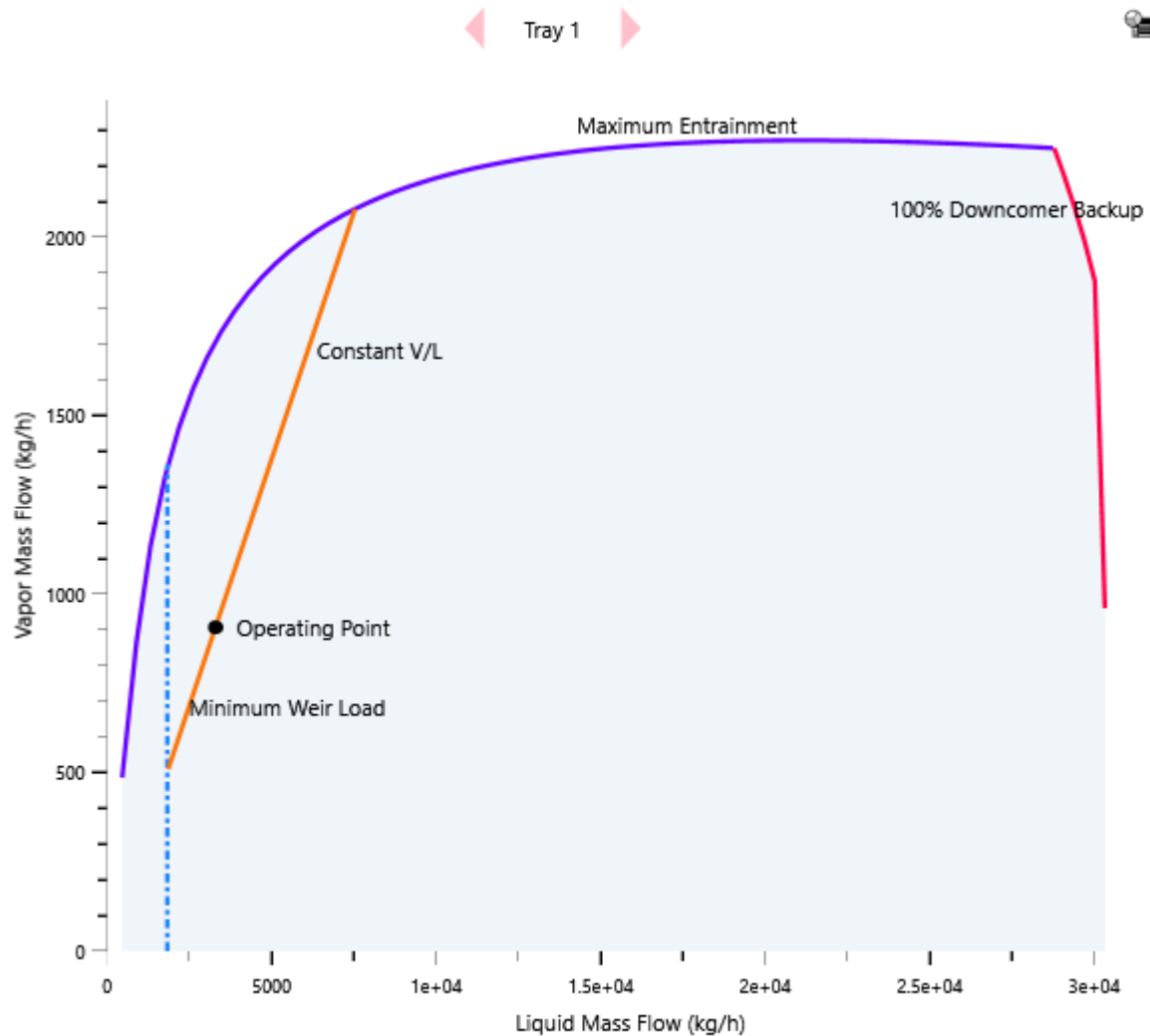
User Name:

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## 3.3. Hydraulic Plots



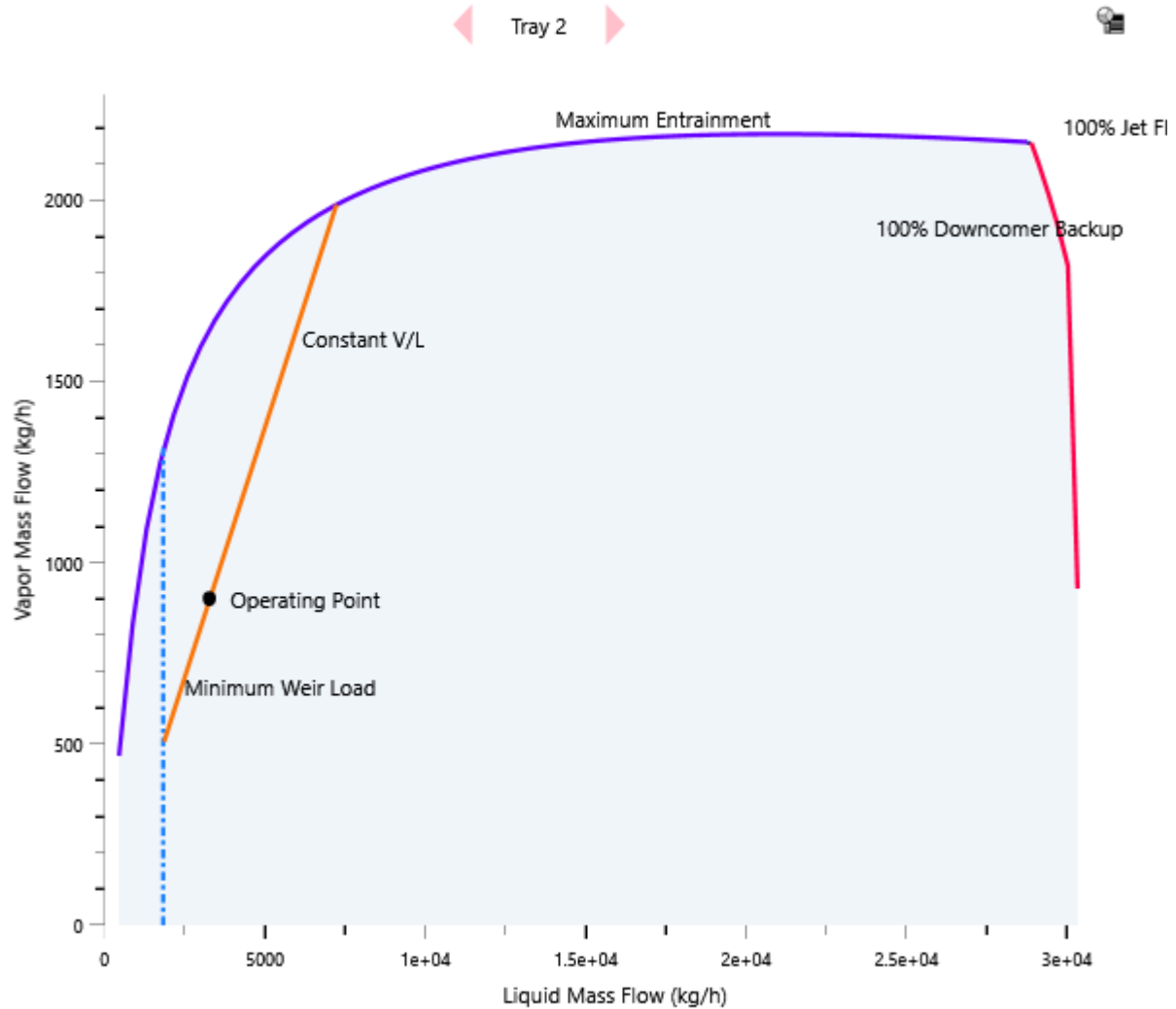
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