


<b>PROJECT :</b>			<b>DATE :</b>	
<b>PROJ. NO. :</b>			<b>BY :</b>	
<b>CLIENT :</b>			<b>REV :</b>	
<b>UNIT :</b>			<b>DOC NO.:</b>	

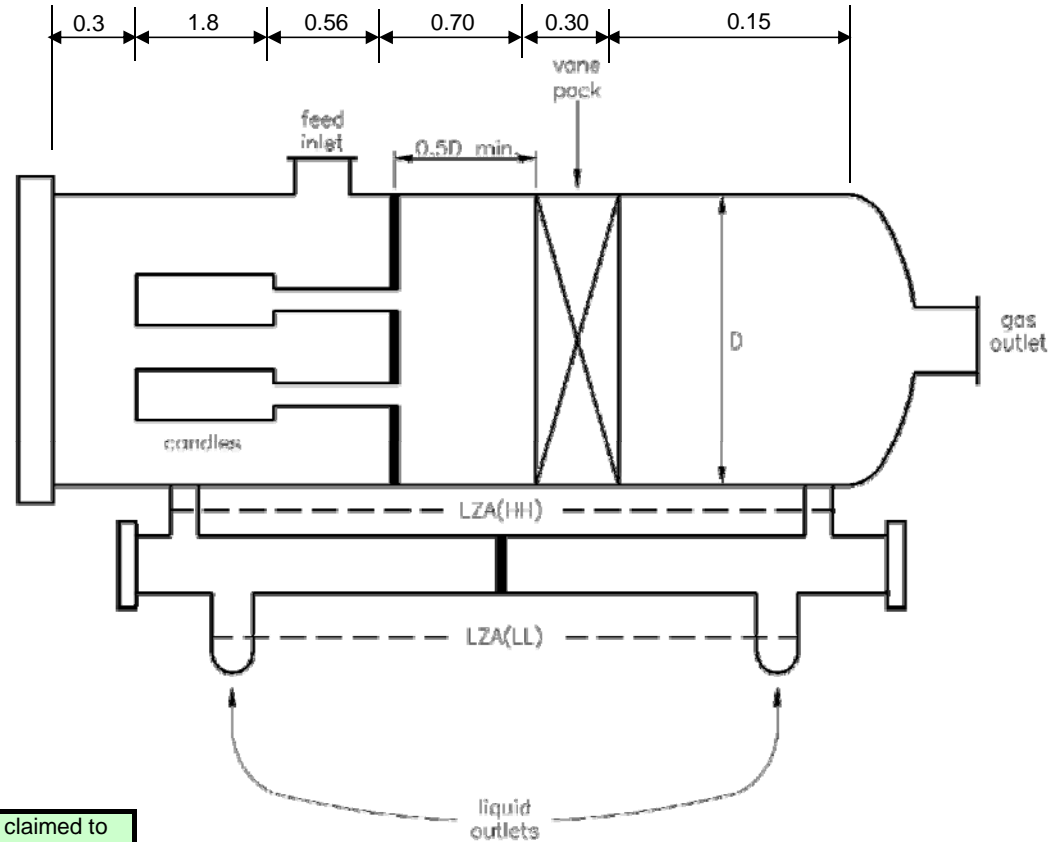
### TWO STAGE HORIZONTAL FILTER SEPARATOR SIZING

Inept Data		
Cartridge External Diameter	m	0.1
Cartridge Length	m	1.8
Gas Flow Rate	m <sup>3</sup> /hr	1843
Gas Density	kg/m <sup>3</sup>	85.5
Liquid Density	kg/m <sup>3</sup>	890
Gas Pressure	barg	90
Outlet Nozzle Size	mm	400
Inlet Nozzle Size	mm	400

Calculation Results		
Vane Pack Kstd	m/sec	0.198
Pressure Correction Factor (C1)	----	0.73
Vane Pack K	m/sec	0.145
Vane Pack Allowable Velocity	m/sec	0.44
Cartridge Allowable Velocity	m/sec	0.1
No of Cartridge (Calculated)	----	9.1
No of Cartridge (Selected)	----	10.0
Vessel Diameter (vane Req.)	m	1.21
Vessel Diameter (filter Req.)	m	0.53
<b>Selected Vessel Diameter</b>	<b>m</b>	<b>1.40</b>
Tube Length	m	0.56
Tubeheet - Vane Pack	m	0.70
Vane Pack Thickness	m	0.30
Vane Pack - Outlet TL	m	0.15
<b>Vessel Length</b>	<b>m</b>	<b>3.81</b>
<b>Vessel L/D</b>	<b>----</b>	<b>2.72</b>

**Notes**

This type of separator has been installed at many locations and is generally claimed to remove more than 99 % of the inlet liquids but it was revealed in recent survey that this was not more than about 50 %, and therefore application of this separator is no longer recommended.



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### SINGLE STAGE VERTICAL FILTER SEPARATOR SIZING

<b>Inept Data</b>		
Cartridge External Diameter	m	0.1
Cartridge Length	m	0.9
Gas Flow Rate	m <sup>3</sup> /hr	1100
Gas Density	kg/m <sup>3</sup>	31.11
Liquid Density	kg/m <sup>3</sup>	740
Gas Pressure	barg	37

<b>Upper Comp. Input Data</b>		
Tube Sheet - LSL	mm	150
LSL - LL	mm	100
LL - HLL	mm	200
HLL - LSHH	mm	100
Outlet Nozzle	mm	200

<b>Lower Comp. Input Data</b>		
TL - LSL	mm	150
LSL - LL	mm	100
LL - HLL	mm	200
HLL - LSHH	mm	100
Inlet Nozzle	mm	200

<b>Calculation Results</b>		
Allowable Velocity	m/sec	0.10
Cartridge Surface Area	m <sup>2</sup>	3.06
No of Cartridge (Calculated)	----	10.8
No of Cartridge (Selected)	----	12.0
Calculated Vessel Diameter	m	0.59
<b>Selected Vessel Diameter</b>	<b>m</b>	<b>0.60</b>
Cartridge - Outlet Nozzle C. L.	m	0.40
Tube Length	m	0.65
Inlet nozzle - Tube Sheet	m	0.60
LSHH - Inlet Nozzle	m	0.30
Lower Comp. TL - LSHH	m	0.55
<b>Vessel Length</b>	<b>m</b>	<b>3.85</b>
<b>Vessel L/D</b>	<b>m</b>	<b>6.42</b>

<b>Notes</b>

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**SINGLE STAGE VERTICAL FILTER SEPARATOR SIZING**

