


PROJECT :			DATE :	
PROJ. NO. :			BY :	S.R. M.
CLIENT :			REV :	
UNIT :			DOC NO.:	

HORIZONTAL THREE PHASE SEPRATOR SIZING CALCULATION SHEET (DOUBLE WEIR TYPE 2)


Input Data	Unit	Vapor	Light Phase	Heavy Phase
Volumetric Flow Rate	m3/hr	66.9	3.5	60.0
Density	kg/m3	3.94	835.9	980.8
Viscosity	CP	0.01396	5.649	0.4997
Particle Dia. Oil in Vapor	micron	100		
Oil in Water	micron	100		
Water in Oil	micron	100		

Light Droplet Terminal Velocity		
CRe ²	----	7.4
Drag Coefficient	----	79.93
Terminal Velocity	m/sec	0.0016

Heavy Droplet Terminal Velocity		
CRe ²	----	0.05
Drag Coefficient	----	11609.16
Terminal Velocity	m/sec	0.0001

Trial Diameter	mm	3200
Inlet Nozzle Size	mm	250
Hv/D Ratio	----	0.2
Weir Safety Height	mm	200
Vapor Space	mm	640
Heavy Phase 1st Weir Height	mm	2550
Light Phase Weir Height	mm	2350
Vessel Cross sectional Area	m2	8.04

Separation Compartment		
BTM - LLIL	mm	300
LLIL - LIL	mm	300
LIL - NIL	mm	1250
NIL - HIL	mm	150
HIL - HHIL	mm	150
HHIL - WIER	mm	200
Total Liquid level Height	mm	2350
Light Droplet Rising Time	min	19.8
heavy phase Cross Sec. Area	m2	4.8
Heavy Phase Velocity	m/sec	0.003
Lmin light drop through heavy pha	mm	4100
Heavy Droplet Settling time	min	59.6
Light phase Cross Sec. Area	m2	1.4
Light Phase Velocity	m/sec	0.001
Lmin heavy drop through light pha	mm	2462
Separation Comp. Length	mm	4200
BTM - LLIL Hold up Time	min	1.72
LLIL - LIL Hold up Time	min	2.77
LIL - NIL hold up Time	min	15.83
NIL - HIL hold up Time	min	1.97
HIL - HHIL hold up Time	min	1.93
HHIL - WIER hold up time	min	2.46
Heavy Phase hold up Time	min	15.83

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Light Phase Compartment		
Light Phase Weir Height	mm	2350
BTM Bucket - LLLL	mm	200
LLLL - LLL	mm	350
LLL - NLL	mm	650
NLL - HLL	mm	600
HLL - HHLL	mm	250
HHLL - WIER	mm	300
Total Liquid level Height	mm	2350
Light Phase Comp. Length		
	mm	300
Hold up Time		
BTM - LLLL Hold up Time	min	0.62
LLLL - LLL Hold up Time	min	1.80
LLL - NLL hold up Time	min	4.68
NLL - HLL hold up Time	min	4.87
HLL - HHLL hold up Time	min	2.00
HHLL - WIER hold up time	min	2.27
Hold up Time	min	9.54

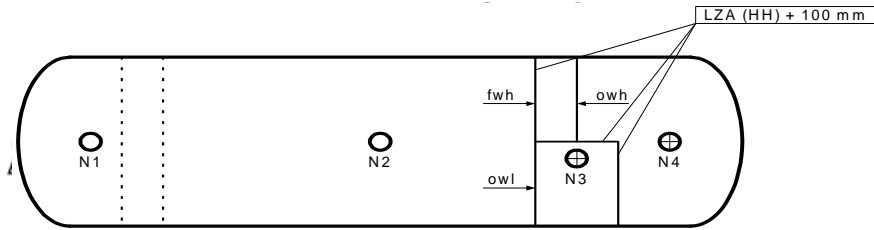
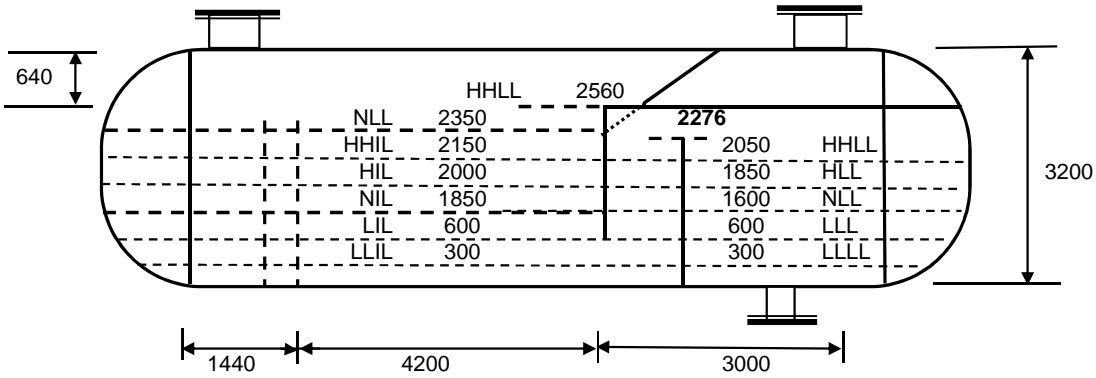
Heavy Phase Compartment		
Space Between 1st & 2nd Weir	mm	200
2nd Wier Height (based on NIL)	mm	2276
BTM - LLLL	mm	300
LLLL - LLL	mm	300
LLL - NLL	mm	1000
NLL - HLL	mm	250
HLL - HHLL	mm	200
HHLL - WIER	mm	226
Total Liquid level Height	mm	2276
Heavy Phase Comp. Length		
	mm	5500
Hold up Time		
BTM - LLLL Hold up Time	min	1.12
LLLL - LLL Hold up Time	min	1.81
LLL - NLL hold up Time	min	8.17
NLL - HLL hold up Time	min	2.19
HLL - HHLL hold up Time	min	1.72
HHLL - WIER hold up time	min	1.86
Hold up Time	min	10.36

Vapor Side		
K vlaue	m/sec	0.015
Terminal Velocity	m/sec	0.22
Mesh Pad Correction Factor	----	1.00
Drop out Time	sec	2.97
Av Cross sectional Area	m2	1.17
Vapor Velocity	m/sec	0.02
Lmin light phase thr. vapor	mm	47

Vessel Length	mm	8640
L/D	----	2.70

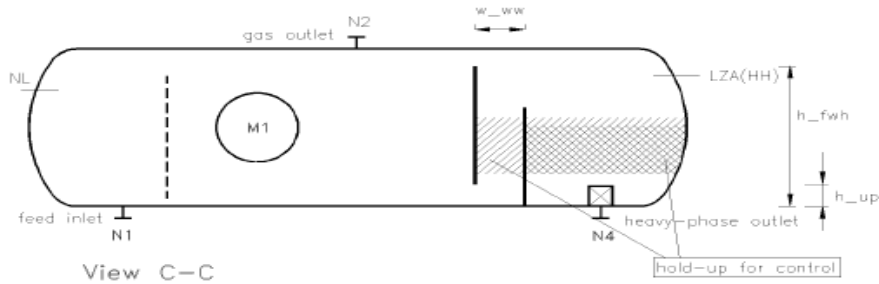
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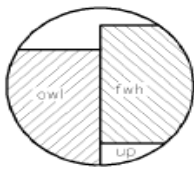


Small Q_1 / Q_h ratio

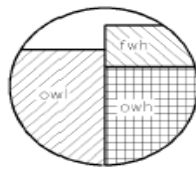
Top view



View C-C

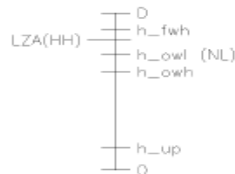


View A-A



View B-B

handholes not shown



Elevation