


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

HORIZONTAL THREE PHASE SEPRATOR SIZING CALCULATION SHEET (DOUBLE WEIR TYPE 1)


Input Data	Unit	Vapor	Light Phase	Heavy Phase
Volumetric Flow Rate	m3/hr	66.9	30.0	20.0
Density	kg/m3	3.94	835.9	980.8
Viscosity	CP	0.01396	1	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
Drag Coefficient	----	79.93
Terminal Velocity	m/sec	0.002

Heavy Droplet Terminal Velocity		
CRe ²	----	2
Drag Coefficient	----	363.80
Terminal Velocity	m/sec	0.001

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	2560
Light Phase Weir Height	mm	2360
Vessel Cross sectional Area	m2	8.04

Separation Compartment		
BTM - LLIL	mm	300
LLIL - LIL	mm	200
LIL - NIL	mm	1000
NIL - HIL	mm	460
HIL - HHIL	mm	200
HHIL - WIER	mm	200
Total Liquid level Height	mm	2360
Light Droplet		
Light Droplet Rising Time	min	16.1
heavy phase Cross Sec. Area	m2	3.7
Heavy Phase Velocity	m/sec	0.001
Lmin light drop through heavy pha	mm	1440
Heavy Droplet		
Heavy Droplet Settling time	min	18.2
Light phase Cross Sec. Area	m2	2.6
Light Phase Velocity	m/sec	0.003
Lmin heavy drop through light pha	mm	3558
Separation Comp. Length	mm	3700
Hold up Time		
BTM - LLIL Hold up Time	min	4.54
LLIL - LIL Hold up Time	min	4.65
LIL - NIL hold up Time	min	32.11
NIL - HIL hold up Time	min	16.24
HIL - HHIL hold up Time	min	6.80
HHIL - WIER hold up time	min	6.47
Heavy Phase hold up Time	min	32.11

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Light Phase Compartment		
Light Phase Weir Height	mm	2360
BTM Bucket - LLLL	mm	200
LLLL - LLL	mm	450
LLL - NLL	mm	610
NLL - HLL	mm	500
HLL - HHLL	mm	300
HHLL - WIER	mm	300
Total Liquid level Height	mm	2360
Light Phase Comp. Length		
	mm	2200
Hold up Time		
BTM - LLLL Hold up Time	min	0.53
LLLL - LLL Hold up Time	min	2.10
LLL - NLL hold up Time	min	3.89
NLL - HLL hold up Time	min	3.50
HLL - HHLL hold up Time	min	2.07
HHLL - WIER hold up time	min	1.95
Hold up Time	min	7.39

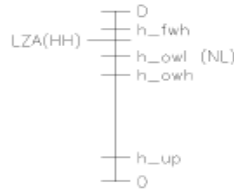
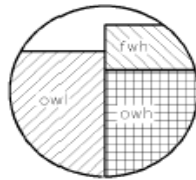
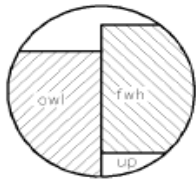
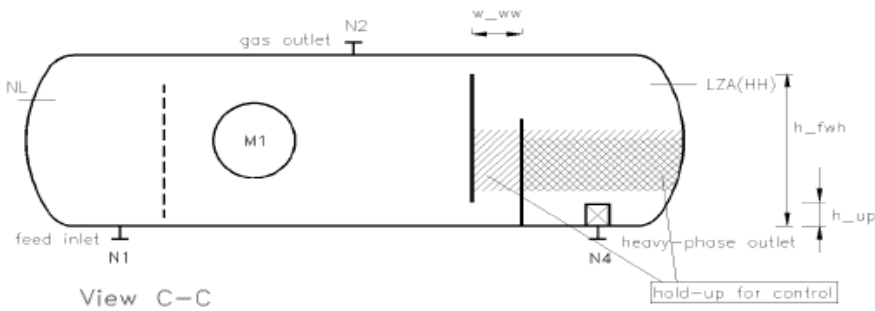
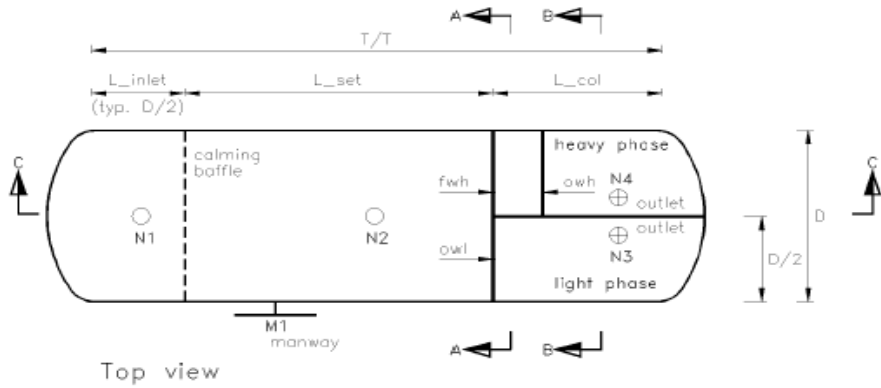
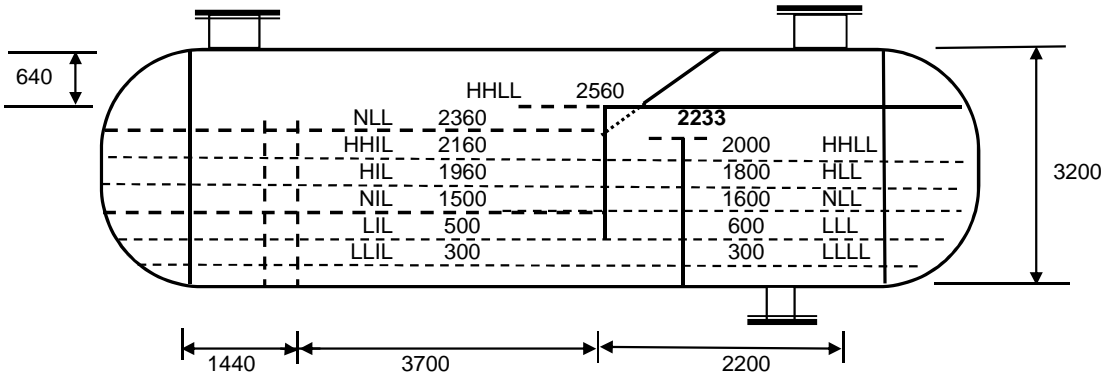
Heavy Phase Compartment		
Space Between 1st & 2nd Weir	mm	200
2nd Wier Height (based on NIL)	mm	2233
BTM - LLLL	mm	300
LLLL - LLL	mm	300
LLL - NLL	mm	1000
NLL - HLL	mm	200
HLL - HHLL	mm	200
HHLL - WIER	mm	233
Total Liquid level Height	mm	2233
Heavy Phase Comp. Length		
	mm	2000
Hold up Time		
BTM - LLLL Hold up Time	min	1.23
LLLL - LLL Hold up Time	min	1.98
LLL - NLL hold up Time	min	8.92
NLL - HLL hold up Time	min	1.92
HLL - HHLL hold up Time	min	1.89
HHLL - WIER hold up time	min	2.12
Hold up Time	min	10.83

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	7340
L/D	----	2.29

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handholes not shown