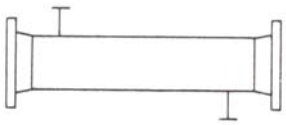
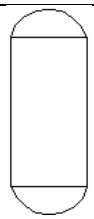
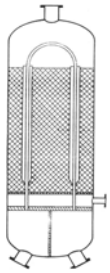
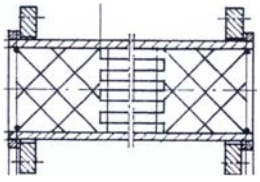
ANNEX M- FULLES D'ESPECIFICACIONS DELS EQUIPS

Índex

M.1- Introducció

En aquest annex s'omplen les fulles d'especificacions de tots els equips de la planta. Aquestes fulles es poden omplir un cop s'ha fet el disseny i el càlcul de l'equip.

Les fulles d'especificacions es classificaran segons es tracti d'un tipus d'equip o un altre. A la taula següent hi ha un resum a nivell general de tots els equips existents a la planta.

Tipus d'equip	Nº unitats	Nom de l'equip	Tipus	Sketch
Intercanviador de calor	5	E-501	Tubs i carcassa	
		E-502	Tubs i carcassa	
		E-503	Tubs i carcassa	
		E-504	Tubs i carcassa	
		E-505	Tubs i carcassa	
Recipients	7	V-501	Dipòsit de matèria prima	
		V-502	Dipòsit de matèria prima	
		V-503	Dipòsit pulmó	
		V-504	Dipòsit de producte acabat	
		F-501	Flash cilíndric	
		F-502	Flash cilíndric	
		R-501	Reactor tubular	
Bombes	3	P-501	Dosificadora	-
		P-502	Dosificadora	-
		P-503	Diafragma	-
Compressors	2	K-501	Booster	-
		K-502	De membrana	-
Mesclador	1	MIX-501	Estàtic	

Taula M.1- Equips existents a la planta.

HEAT EXCHANGER DATA SHEET

Equipment No. (Tag) *E-501*
Function *Condensar el DME*
Sheet No. *1*

Operating Data

SIZE (kW)	*0,1*	TYPE	*Shell and tubes*	No. OF UNITS	*1*	3
SHELLS PER UNIT	*1*	HORIZONTAL CONNECTED IN (parallel or series)			-	4
SURFACE PER UNIT (m^2)	*1*	SURFACE PER SHELL (m^2)	*1*			5

Performance of one Unit

	SHELL SIDE			TUBE SIDE			
FLUID CIRCULATING	*Aigua*	-	-	*DME*	-	-	9
TOTAL FLUID ENTERING ($kg \cdot h^{-1}$)	*15,9*	-	-	*28,3*	-	-	10
	IN		OUT	IN		OUT	11
VAPOUR	*0*		*0*	*0*		*0*	12
LIQUID	*1*		*1*	*1*		*1*	13
STEAM	*0*		*0*	*0*		*0*	14
WATER	*1*		*1*	*0*		*0*	15
NON-CONDENSABLES	*0*		*0*	*0*		*0*	16
FLUID VAPOURISED OR CONDENSED	*0*		*0*	*0*		*0*	17
SPECIFIC GRAVITY LIQUID	-	-	-	-	-	-	18
Mol Wt VAPOUR	-	-	-	-	-	-	19
Mol Wt NON-CONDENSABLES	-	-	-	-	-	-	20
VISCOSITY LIQUID (mPa·s)	*1,136*	-	-	*0,088*	-	-	21
LATENT HEAT ($kJ \cdot kg^{-1}$)	*2130,2*	-	-	*682,6*	-	-	22
HEAT CAPACITY ($kJ \cdot kg^{-1} \cdot K^{-1}$)	*4,315*	-	-	*2,430*	-	-	23
THERMAL CONDUCTIVITY ($W \cdot m^{-1} \cdot K^{-1}$)	*0,595*	-	-	*0,133*	-	-	24
TEMPERATURE (ºC)	*15*		*20*	*25*		*20*	25
OPERATING PRESSURE (bar)	*5*	-	-	*10*	-	-	26
VELOCITY	-	-	-	-	-	-	27
No. OF PASSES	*1*	-	-	*1*	-	-	28
PRESSURE DROP (Pa)	ALLOW *100000*	CALC. *511*		ALLOW *100000*	CALC. *511*		29
FOULING RESISTANCE	-	-	-	-	-	-	30
HEAT EXCHANGED (kW)		*0,1*	MTD (CORRECTED)		*5*	-	31
TRANSFER RATE SERVICE		-	CLEAN		-	-	32

Construction of one Shell

DESIGN PRESSURE (bar)		*11*					35
TEST PRESSURE (bar)		*20*					36
DESIGN TEMPERATURE (ºC)		*25*					37
METAL TEMPERATURE		-					38

TUBES: *5/8 plg BWG 16 SS 316*	*21*	OD (mm)	*15,87*	THICK. (mm)	*1,65*	LENGTH (mm)	*1000*	PITCH	*Triangle*	39
SHELL	*SS 316*	I.D. (mm)		*241*		SHELL COVER	-			40
CHANNEL	-	CHANNEL COVER		-		FLTNG HEAD COVER	-			41
TUBE SHEET STATIONARY	-	-				FLOATING	-			42
BAFFLES CROSS	-	TYPE		-		SPACING % CUT	-			43
TUBE SUPPORTS	-	TYPE		-		SPACING	-			44
LONG BAFFLE	-	TYPE		-		SEAL	-			45
IMPINGEMENT BAFFLE	-	TYPE		-		SEAL STRIPS	-			46
TYPE OF JOINT	-	TUBE		-		TUBE ATTACHMENT	-			47
GASKETS SHELL IN	-	CHANNEL		-		FLOATING HEAD	-			48
CONNECTIONS SHELL IN	-	INTERCONN		-		SHELL OUT	-			49
CONNECTIONS CHANNEL IN	-	INTERCONN		-		CHANNEL OUT	-			50
CORROSION ALLOWABLE SHELL SIDE (mm)				*1*		TUBE SIDE (mm)	*1*			51
EXPANSION BELLOWS	-	BOLTS		-		NUTS	-			52
DESIGN CODE	*ASME*	X-RAY		-		S.R.	-			53
INSPECTION	-	PAINTING		-		INSULATION	-			54
WEIGHT OF ONE UNIT EMPTY	-	OPERATING		-		DATE OF ENQUIRY	*9/2/04*			55
DATE OF ORDER	*9/2/04*	ORDER No.		-		DRG. No.	-			56
INSPECTION FITTING ATTACHMENT BY		MANUFACTURER		Alfa Laval						57

Prepared	*15/2/04*	-	-	3				6				58
Checked	*20/2/04*	-	-	2				5				59
Approved	*25/2/04*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address	62
Equipment No. *E-501*			63
Project No. *13*			64

HEAT EXCHANGER DATA SHEET

Equipment No. (Tag)	*E-502*
Function	*Escalfar la mescla*
Sheet No.	*1*

Operating Data

SIZE (kW)	*138,03*	TYPE	*Shell and tubes*	No. OF UNITS	*1*	
SHELLS PER UNIT	*1*	HORIZONTAL CONNECTED IN (parallel or series)			-	
SURFACE PER UNIT (m^2)	*4,62*	SURFACE PER SHELL (m^2)	*4,62*			

Performance of one Unit

	SHELL SIDE			TUBE SIDE		
FLUID CIRCULATING	*Dowtherm G*	-	-	*DME*	H_2	Oli
TOTAL FLUID ENTERING ($kg \cdot h^{-1}$)	*7210,7*	-	-	*718,1*		
	IN	OUT		IN	OUT	
VAPOUR	*0*	*0*		*0*	*1*	
LIQUID	*1*	*1*		*1*	*0*	
STEAM	*0*	*0*		*0*	*0*	
WATER	*0*	*0*		*0*	*0*	
NON-CONDENSABLES	*0*	*0*		*0*	*0*	
FLUID VAPOURISED OR CONDENSED	*0*	*0*		*0*	*0*	
SPECIFIC GRAVITY LIQUID	-	-	-	-	-	-
Mol Wt VAPOUR	-	-	-	-	-	-
Mol Wt NON-CONDENSABLES	-	-	-	-	-	-
VISCOSITY LIQUID (mPa·s)	*0,45*	-	-	*0,097*	-	-
LATENT HEAT ($kJ \cdot kg^{-1}$)	-	-	-	*252,5*	-	-
HEAT CAPACITY ($kJ \cdot kg^{-1} \cdot K^{-1}$)	*2,30*	-	-	*2,66*	-	-
THERMAL CONDUCTIVITY ($W \cdot m^{-1} \cdot K^{-1}$)	*0,100*	-	-	*0,108*	-	-
TEMPERATURE (ºC)	*250*		*220*	*50*		*215*
OPERATING PRESSURE (bar)	*5*	-	-	*200*	-	-
VELOCITY	-	-	-	-	-	-
No. OF PASSES	*1*	-	-	*1*	-	-
PRESSURE DROP (Pa)	ALLOW *100000*	CALC. *988*		ALLOW *100000*	CALC. *988*	
FOULING RESISTANCE	-	-	-	-	-	-
HEAT EXCHANGED (kW)		*138,03*	MTD (CORRECTED)		*85,42*	-
TRANSFER RATE SERVICE		-	CLEAN		-	-

Construction of one Shell

DESIGN PRESSURE (bar)			*220*				
TEST PRESSURE (bar)			*350*				
DESIGN TEMPERATURE (ºC)			*250*				
METAL TEMPERATURE			-				
TUBES: *1 plg BWG 8 SS 316*	*58*	OD (mm) *25,40*	THICK. (mm) *4,19*	LENGTH (mm) *1000*	PITCH *Triangle*		
SHELL	*SS 316*	I.D. (mm)	*343*	SHELL COVER	-		
CHANNEL	-	CHANNEL COVER	-	FLTNG HEAD COVER	-		
TUBE SHEET STATIONARY	-	-		FLOATING	-		
BAFFLES CROSS	-	TYPE	-	SPACING % CUT	-		
TUBE SUPPORTS	-	TYPE	-	SPACING	-		
LONG BAFFLE	-	TYPE	-	SEAL	-		
IMPINGEMENT BAFFLE	-	TYPE	-	SEAL STRIPS	-		
TYPE OF JOINT	-	TUBE	-	TUBE ATTACHMENT	-		
GASKETS SHELL IN	-	CHANNEL	-	FLOATING HEAD	-		
CONNECTIONS SHELL IN	-	INTERCONN	-	SHELL OUT	-		
CONNECTIONS CHANNEL IN	-	INTERCONN	-	CHANNEL OUT	-		
CORROSION ALLOWABLE SHELL SIDE (mm)			*1*	TUBE SIDE (mm)	*1*		
EXPANSION BELLOWS	-	BOLTS	-	NUTS	-		
DESIGN CODE	*ASME*	X-RAY	-	S.R.	-		
INSPECTION	-	PAINTING	-	INSULATION	-		
WEIGHT OF ONE UNIT EMPTY	-	OPERATING	-	DATE OF ENQUIRY	*9/2/04*		
DATE OF ORDER	*9/2/04*	ORDER No.	-	DRG. No.	-		
INSPECTION FITTING ATTACHMENT BY		MANUFACTURER	Alfa Laval				

Prepared	*15/2/04*	-	-	3				6				
Checked	*20/2/04*	-	-	2				5				
Approved	*25/2/04*	-	-	1				4				
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	

Service	Company	Address
Equipment No. *E-502*		
Project No. *13*		

HEAT EXCHANGER DATA SHEET

Equipment No. (Tag) *E-503*
Function *Condensar / refredar la mescla*
Sheet No. *1*

Operating Data

SIZE (kW)	*139,51*	TYPE	*Shell and tubes*	No. OF UNITS	*1*	
SHELLS PER UNIT	*1*	HORIZONTAL CONNECTED IN (parallel or series)			-	
SURFACE PER UNIT (m^2)	*11,88*	SURFACE PER SHELL (m^2)	*11,88*			

Performance of one Unit

	SHELL SIDE			TUBE SIDE		
FLUID CIRCULATING	*Aigua*	-	-	*DME*	H_2	-
TOTAL FLUID ENTERING ($kg \cdot h^{-1}$)	*4657,8*	-	-	*568,3*		-
	IN		OUT	IN		OUT
VAPOUR	*0*		*0*	*1*		*0*
LIQUID	*1*		*1*	*0*		*1*
STEAM	*0*		*0*	*0*		*0*
WATER	*1*		*1*	*0*		*0*
NON-CONDENSABLES	*0*		*0*	*0*		*0*
FLUID VAPOURISED OR CONDENSED	*0*		*0*	*0*		*0*
SPECIFIC GRAVITY LIQUID	-	-	-	-	-	-
Mol Wt VAPOUR	-	-	-	-	-	-
Mol Wt NON-CONDENSABLES	-	-	-	-	-	-
VISCOSITY LIQUID (mPa·s)	*1,136*	-	-	*0,02*	-	-
LATENT HEAT ($kJ \cdot kg^{-1}$)	*2130,2*	-	-	*410,2*	-	-
HEAT CAPACITY ($kJ \cdot kg^{-1} \cdot K^{-1}$)	*4,315*	-	-	*2,706*	-	-
THERMAL CONDUCTIVITY ($W \cdot m^{-1} \cdot K^{-1}$)	*0,595*	-	-	*0,045*	-	-
TEMPERATURE (ºC)	*15*		*40*	*200*		*25*
OPERATING PRESSURE (bar)	*5*	-	-	*80*	-	-
VELOCITY	-	-	-	-	-	-
No. OF PASSES	*1*	-	-	*1*	-	-
PRESSURE DROP (Pa)	ALLOW *100000*	CALC. *1181*		ALLOW *100000*	CALC. *1181*	
FOULING RESISTANCE ($W \cdot m^{-2} \cdot ºC^{-1}$)	6000	-	-	-	-	-
HEAT EXCHANGED (kW)		*139,51*	MTD (CORRECTED)		*38,95*	-
TRANSFER RATE SERVICE		-	CLEAN		-	-

Construction of one Shell

DESIGN PRESSURE (bar)		*88*					
TEST PRESSURE (bar)		*150*					
DESIGN TEMPERATURE (ºC)		*200*					
METAL TEMPERATURE		-					
TUBES: *1 plg BWG 8 SS 316*	*149*	OD (mm) *25,40*	THICK. (mm) *4,19*	LENGTH (mm) *1000*	PITCH *Triangle*		
SHELL	*SS 316*	I.D. (mm)	*486*	SHELL COVER	-		
CHANNEL	-	CHANNEL COVER	-	FLTNG HEAD COVER	-		
TUBE SHEET STATIONARY	-	-		FLOATING	-		
BAFFLES CROSS	-	TYPE	-	SPACING % CUT	*25*		
TUBE SUPPORTS	-	TYPE	-	SPACING (mm)	*97*		
LONG BAFFLE	-	TYPE	-	SEAL	-		
IMPINGEMENT BAFFLE	-	TYPE	-	SEAL STRIPS	-		
TYPE OF JOINT	-	TUBE	-	TUBE ATTACHMENT	-		
GASKETS SHELL IN	-	CHANNEL	-	FLOATING HEAD	-		
CONNECTIONS SHELL IN	-	INTERCONN	-	SHELL OUT	-		
CONNECTIONS CHANNEL IN	-	INTERCONN	-	CHANNEL OUT	-		
CORROSION ALLOWABLE SHELL SIDE (mm)			*1*	TUBE SIDE (mm)	*1*		
EXPANSION BELLOWS	-	BOLTS *2 cm de diàmetre*	36	NUTS	-		
DESIGN CODE	*ASME*	X-RAY	-	S.R.	-		
INSPECTION	-	PAINTING	-	INSULATION	-		
WEIGHT OF ONE UNIT EMPTY	-	OPERATING	-	DATE OF ENQUIRY	*9/2/04*		
DATE OF ORDER	*9/2/04*	ORDER No.	-	DRG. No.	-		
INSPECTION FITTING ATTACHMENT BY		MANUFACTURER	Alfa Laval				

Prepared	*15/2/04*	-	-	3				6				
Checked	*20/2/04*	-	-	2				5				
Approved	*25/2/04*	-	-	1				4				
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	

Service	Company	Address
Equipment No. *E-503*		
Project No. *13*		

HEAT EXCHANGER DATA SHEET

Equipment No. (Tag) *E-504*
Function *Refredar l'oli hidrogenat*
Sheet No. *1*

Operating Data

SIZE (kW)	*11,57*	TYPE	*Shell and tubes*	No. OF UNITS	*1*	
SHELLS PER UNIT	*1*	HORIZONTAL CONNECTED IN (parallel or series)			-	
SURFACE PER UNIT (m^2)	*1,11*	SURFACE PER SHELL (m^2)	*1,11*			

Performance of one Unit

	SHELL SIDE			TUBE SIDE		
FLUID CIRCULATING	*Oli*	-	-	*Aigua*	-	-
TOTAL FLUID ENTERING ($kg \cdot h^{-1}$)	*120,92*	-	-	*386,35*	-	-
	IN	OUT		IN	OUT	
VAPOUR	*0*	*0*		*0*	*0*	
LIQUID	*1*	*1*		*1*	*1*	
STEAM	*0*	*0*		*0*	*0*	
WATER	*0*	*0*		*1*	*1*	
NON-CONDENSABLES	*0*	*0*		*0*	*0*	
FLUID VAPOURISED OR CONDENSED	*0*	*0*		*0*	*0*	
SPECIFIC GRAVITY LIQUID	-	-	-	-	-	-
Mol Wt VAPOUR	-	-	-	-	-	-
Mol Wt NON-CONDENSABLES	-	-	-	-	-	-
VISCOSITY LIQUID (mPa·s)	*0,594*	-	-	*1,136*	-	-
LATENT HEAT ($kJ \cdot kg^{-1}$)	*1094,2*	-	-	*2130,2*	-	-
HEAT CAPACITY ($kJ \cdot kg^{-1} \cdot K^{-1}$)	*2,65*	-	-	*4,315*	-	-
THERMAL CONDUCTIVITY ($W \cdot m^{-1} \cdot K^{-1}$)	*0,039*	-	-	*0,595*	-	-
TEMPERATURE (ºC)	*190*		*60*	*15*		*40*
OPERATING PRESSURE (bar)	*1*	-	-	*5*	-	-
VELOCITY	-	-	-	-	-	-
No. OF PASSES	*1*	-	-	*1*	-	-
PRESSURE DROP (Pa)	ALLOW *100000*	CALC. *1343*		ALLOW *100000*	CALC. *1343*	
FOULING RESISTANCE	-	-	-	-	-	-
HEAT EXCHANGED (kW)		*11,57*	MTD (CORRECTED)		*52,33*	-
TRANSFER RATE SERVICE		-	CLEAN		-	-

Construction of one Shell

DESIGN PRESSURE (bar)			*5,5*							
TEST PRESSURE (bar)			*10*							
DESIGN TEMPERATURE (ºC)			*200*							
METAL TEMPERATURE										
TUBES: *5/8 plg BWG 16 SS 316*	*23*	OD (mm)	*15,87*	THICK. (mm)	*1,65*	LENGTH (mm)	*1000*	PITCH	*Triangle*	
SHELL	*SS 316*	I.D. (mm)		*241*		SHELL COVER		-		
CHANNEL	-	CHANNEL COVER		-		FLTNG HEAD COVER		-		
TUBE SHEET STATIONARY	-	-				FLOATING		-		
BAFFLES CROSS	-	TYPE		-		SPACING % CUT		-		
TUBE SUPPORTS	-	TYPE		-		SPACING		-		
LONG BAFFLE	-	TYPE		-		SEAL		-		
IMPINGEMENT BAFFLE	-	TYPE		-		SEAL STRIPS		-		
TYPE OF JOINT	-	TUBE		-		TUBE ATTACHMENT		-		
GASKETS SHELL IN	-	CHANNEL		-		FLOATING HEAD		-		
CONNECTIONS SHELL IN	-	INTERCONN		-		SHELL OUT		-		
CONNECTIONS CHANNEL IN	-	INTERCONN		-		CHANNEL OUT		-		
CORROSION ALLOWABLE SHELL SIDE (mm)				*1*		TUBE SIDE (mm)		*1*		
EXPANSION BELLOWS	-	BOLTS		-		NUTS		-		
DESIGN CODE	*ASME*	X-RAY		-		S.R.		-		
INSPECTION	-	PAINTING		-		INSULATION		-		
WEIGHT OF ONE UNIT EMPTY	-	OPERATING		-		DATE OF ENQUIRY		*9/2/04*		
DATE OF ORDER	*9/2/04*	ORDER No.		-		DRG. No.		-		
INSPECTION FITTING ATTACHMENT BY			MANUFACTURER		Alfa Laval					

Prepared	*15/2/04*	-	-	3				6				
Checked	*20/2/04*	-	-	2				5				
Approved	*25/2/04*	-	-	1				4				
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	

Service	Company	Address
Equipment No. *E-504*		
Project No. *13*		

HEAT EXCHANGER DATA SHEET

Equipment No. (Tag)	*E-505*
Function	*Condensar / refredar DME*
Sheet No.	*1*

Operating Data

SIZE (kW)	*14,99*	TYPE	*Shell and tubes*	No. OF UNITS	*1*	3
SHELLS PER UNIT	*1*	HORIZONTAL CONNECTED IN (parallel or series)			-	4
SURFACE PER UNIT (m^2)	*1,04*	SURFACE PER SHELL (m^2)	*1,04*			5

Performance of one Unit

	SHELL SIDE			TUBE SIDE		
FLUID CIRCULATING	*Aigua*	-	-	*DME*	-	-
TOTAL FLUID ENTERING ($kg \cdot h^{-1}$)	*500,5*	-	-	*28,8*	-	-
	IN		OUT	IN		OUT
VAPOUR	*0*		*0*	*1*		*0*
LIQUID	*1*		*1*	*0*		*1*
STEAM	*0*		*0*	*0*		*0*
WATER	*1*		*1*	*0*		*0*
NON-CONDENSABLES	*0*		*0*	*0*		*0*
FLUID VAPOURISED OR CONDENSED	*0*		*0*	*0*		*0*
SPECIFIC GRAVITY LIQUID	-	-	-	-	-	-
Mol Wt VAPOUR	-	-	-	-	-	-
Mol Wt NON-CONDENSABLES	-	-	-	-	-	-
VISCOSITY LIQUID (mPa·s)	*1,136*	-	-	*0,019*	-	-
LATENT HEAT ($kJ \cdot kg^{-1}$)	*2130,2*	-	-	*1171,25*	-	-
HEAT CAPACITY ($kJ \cdot kg^{-1} \cdot K^{-1}$)	*4,315*	-	-	*2,32*	-	-
THERMAL CONDUCTIVITY ($W \cdot m^{-1} \cdot K^{-1}$)	*0,595*	-	-	*0,049*	-	-
TEMPERATURE (ºC)	*15*		*40*	*327*		*25*
OPERATING PRESSURE (bar)	*5*	-	-	*10*	-	-
VELOCITY	-	-	-	-	-	-
No. OF PASSES	*1*	-	-	*1*	-	-
PRESSURE DROP (Pa)	ALLOW *100000*	CALC. *790*		ALLOW *100000*	CALC. *790*	
FOULING RESISTANCE	-	-	-	-	-	-
HEAT EXCHANGED (kW)		*0,1*	MTD (CORRECTED)		*5*	-
TRANSFER RATE SERVICE		-	CLEAN		-	-

Construction of one Shell

DESIGN PRESSURE (bar)		*11*						
TEST PRESSURE (bar)		*20*						
DESIGN TEMPERATURE (ºC)		*330*						
METAL TEMPERATURE								
TUBES: *3/4 plg BWG 14 SS 316*	*18*	OD (mm) *19,05*	THICK. (mm) *2,11*	LENGTH (mm) *1000*	PITCH *Triangle*			
SHELL	*SS 316*	I.D. (mm)	*241*	SHELL COVER	-			
CHANNEL	-	CHANNEL COVER	-	FLTNG HEAD COVER	-			
TUBE SHEET STATIONARY	-	-		FLOATING	-			
BAFFLES CROSS	-	TYPE	-	SPACING % CUT	-			
TUBE SUPPORTS	-	TYPE	-	SPACING	-			
LONG BAFFLE	-	TYPE	-	SEAL	-			
IMPINGEMENT BAFFLE	-	TYPE	-	SEAL STRIPS	-			
TYPE OF JOINT	-	TUBE	-	TUBE ATTACHMENT	-			
GASKETS SHELL IN	-	CHANNEL	-	FLOATING HEAD	-			
CONNECTIONS SHELL IN	-	INTERCONN	-	SHELL OUT	-			
CONNECTIONS CHANNEL IN	-	INTERCONN	-	CHANNEL OUT	-			
CORROSION ALLOWABLE SHELL SIDE (mm)			*1*	TUBE SIDE (mm)	*1*			
EXPANSION BELLOWS	-	BOLTS	-	NUTS	-			
DESIGN CODE	*ASME*	X-RAY	-	S.R.	-			
INSPECTION	-	PAINTING	-	INSULATION	-			
WEIGHT OF ONE UNIT EMPTY	-	OPERATING	-	DATE OF ENQUIRY	*9/2/04*			
DATE OF ORDER	*9/2/04*	ORDER No.	-	DRG. No.	-			
INSPECTION FITTING ATTACHMENT BY		MANUFACTURER	Alfa Laval					

Prepared	*15/2/04*	-	-	3				6				
Checked	*20/2/04*	-	-	2				5				
Approved	*25/2/04*	-	-	1				4				
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	

Service	Company	Address
Equipment No. *E-505*		
Project No. *13*		

VESSEL DATA SHEET

Equipment No. (Tag) *V-501*
Function *Emmagatzemar l'oli*
Sheet No. *1*

Operating Data

No REQUIRED		*2*	CAPACITY (m^3)			*30*					3
SPECIFIC GRAVITY OF CONTENTS		-	COMPUTED (yes or no)			*no*					4
	SHELL		JACKETED FULL/ HALF COIL			INTERNAL COIL					5
CONTENTS	*Oli*		-			-					6
DIAMETER (m)	*2,02*		-			-					7
LENGTH (m)	*4,03*		-			-					8
DESIGN CODE	*ASME*		-			-					9
MAX. WORKING PRESSURE (bar)	*1,2*		-			-					10
DESIGN PRESSURE (bar)	*1,3*		-			-					11
MAX. WORKING TEMP (ºC)	*45*		-			-					12
DESIGN TEMP (ºC)	*50*		-			-					13
TEST PRESSURE (HYDROSTATIC) (bar)	*5*		-			-					14
TEST PRESSURE (AIR)	-		-			-					15
MATERIALS	*Acer*		-			-					16
JOINT FACTOR	-		-			-					17
CORROSION ALLOWANCE (mm)	*1*		-			-					18
THICKNESS (mm)	*7*		-			-					19

END TYPE	-	THICKNESS	-	JOINT FACTOR		-					20
END TYPE	-	THICKNESS	-	JOINT FACTOR		-					21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL		-					22
WIND LOAD DESIGN	-	RADIOGRAPHY %	*100*	STRESS RELIEF		-					23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-					24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-					25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-							26
GASKET MATERIAL	-	INSPECTION BY		-							27
PAINTING	-										28
WEIGHT (kg)	*3414*	EMPTY (kg)	*3414*								29
FULL OF LIQUID (kg)	*21078*	OPERATING	-								30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER		5/3/04					31
ORDER No.	-	DRG No.	-								32
MANUFACTURER											33

REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE 34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY) 35

36 37 38 39 40

A										41
B										42
C										43
D										44
E										45
F										46
G										47
H										48
H										49
K										50
K										51
M										52
N										53
P										54

REF	No.	DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS	55
BRANCH					FLANGE SPEC					56

57

Prepared	*10/3/04*	-	-	3				6				58
Checked	*11/3/04*	-	-	2				5				59
Approved	*15/3/05*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address
Equipment No. *V-501*		
Project No. *13*		

62 63 64

VESSEL DATA SHEET

Equipment No. (Tag) *V-502*
Function *Emmagatzemar el DME*
Sheet No. *1*

Operating Data

No REQUIRED		*1*	CAPACITY (m^3)			*2*							3
SPECIFIC GRAVITY OF CONTENTS		-	COMPUTED (yes or no)			*no*							4
		SHELL	JACKETED FULL/ HALF COIL			INTERNAL COIL							5
CONTENTS		*DME*	-			-							6
DIAMETER (m)		*0,77*	-			-							7
LENGTH (m)		*2,30*	-			-							8
DESIGN CODE		*ASME*	-			-							9
MAX. WORKING PRESSURE (bar)		*10*	-			-							10
DESIGN PRESSURE (bar)		*11*	-			-							11
MAX. WORKING TEMP (ºC)		*45*	-			-							12
DESIGN TEMP (ºC)		*50*	-			-							13
TEST PRESSURE (HYDROSTATIC) (bar)		*20*	-			-							14
TEST PRESSURE (AIR)		-	-			-							15
MATERIALS		*SS 316*	-			-							16
JOINT FACTOR		-	-			-							17
CORROSION ALLOWANCE (mm)		*1*	-			-							18
THICKNESS (mm)		*5*	-			-							19
END TYPE	-	THICKNESS	-	JOINT FACTOR		-							20
END TYPE	-	THICKNESS	-	JOINT FACTOR		-							21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL		-							22
WIND LOAD DESIGN	-	RADIOGRAPHY %	*100*	STRESS RELIEF		-							23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-							24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-							25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-									26
GASKET MATERIAL	-	INSPECTION BY		-									27
PAINTING	-												28
WEIGHT (kg)	*410*	EMPTY (kg)	*410*										29
FULL OF LIQUID (kg)	1410	OPERATING	-										30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER		5/3/04							31
ORDER No.	-	DRG No.	-										32
MANUFACTURER													33
REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE													34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY)													35
													36
													37
													38
													39
													40
A													41
B													42
C													43
D													44
E													45
F													46
G													47
H													48
H													49
K													50
K													51
M													52
N													53
P													54
REF	No.	DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS				55
BRANCH					FLANGE SPEC								56
													57

Prepared	*10/3/04*	-	-	3				6					58
Checked	*11/3/04*	-	-	2				5					59
Approved	*15/3/05*	-	-	1				4					60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date		61
Service				Company				Address					62
Equipment No. *V-502*													63
Project No. *13*													64

VESSEL DATA SHEET

Equipment No. (Tag) *V-503*
Function *Assegurar pressió H_2*
Sheet No. *1*

Operating Data

No REQUIRED			*1*	CAPACITY (m^3)			*3,20*					3
SPECIFIC GRAVITY OF CONTENTS			-	COMPUTED (yes or no)			*no*					4
		SHELL		JACKETED FULL/ HALF COIL			INTERNAL COIL					5
CONTENTS		*Hidrogen*		-			-					6
DIAMETER (m)		*0,81*		-			-					7
LENGTH (m)		*4,05*		-			-					8
DESIGN CODE		*ASME*		-			-					9
MAX. WORKING PRESSURE (bar)		*120*		-			-					10
DESIGN PRESSURE (bar)		*132*		-			-					11
MAX. WORKING TEMP (ºC)		*45*		-			-					12
DESIGN TEMP (ºC)		*50*		-			-					13
TEST PRESSURE (HYDROSTATIC) (bar)		*200*		-			-					14
TEST PRESSURE (AIR)		-		-			-					15
MATERIALS		*SS 316*		-			-					16
JOINT FACTOR		-		-			-					17
CORROSION ALLOWANCE (mm)		*1*		-			-					18
THICKNESS (mm)		*32,75*		-			-					19
END TYPE	-	THICKNESS	-	JOINT FACTOR		-						20
END TYPE	-	THICKNESS	-	JOINT FACTOR		-						21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL		-						22
WIND LOAD DESIGN	-	RADIOGRAPHY %	*100*	STRESS RELIEF		-						23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-						24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-						25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-								26
GASKET MATERIAL	-	INSPECTION BY		-								27
PAINTING	-											28
WEIGHT (kg)	*3643*	EMPTY (kg)	*3643*									29
FULL OF LIQUID (GAS) (kg)	*3673*	OPERATING	-									30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER		5/3/04						31
ORDER No.	-	DRG No.	-									32
MANUFACTURER												33
REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE												34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY)												35
												36
												37
												38
												39
												40
A												41
B												42
C												43
D												44
E												45
F												46
G												47
H												48
H												49
K												50
K												51
M												52
N												53
P												54
REF No.	DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS				55
BRANCH				FLANGE SPEC								56
												57

Prepared	*10/3/04*	-	-	3				6				58
Checked	*11/3/04*	-	-	2				5				59
Approved	*15/3/05*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address
Equipment No. *V-503*		
Project No. *13*		

62
63
64

VESSEL DATA SHEET

Equipment No. (Tag) *V-504*
Function *Emmagatzemar oli hidrogenat*
Sheet No. *1*

Operating Data

No REQUIRED		*1*	CAPACITY (m^3)			*25*						3
SPECIFIC GRAVITY OF CONTENTS		-	COMPUTED (yes or no)			*no*						4
		SHELL		JACKETED FULL/ HALF COIL			INTERNAL COIL					5
CONTENTS		*Oli*		-			Aigua					6
DIAMETER (m)		*1,90*		-			-					7
LENGTH (m)		*3,79*		-			-					8
DESIGN CODE		*ASME*		-			-					9
MAX. WORKING PRESSURE (bar)		*1,2*		-			5					10
DESIGN PRESSURE (bar)		*1,3*		-			5,5					11
MAX. WORKING TEMP (ºC)		*60*		-			-					12
DESIGN TEMP (ºC)		*75*		-			-					13
TEST PRESSURE (HYDROSTATIC) (bar)		*5*		-			-					14
TEST PRESSURE (AIR)		-		-			-					15
MATERIALS		*Acer*		-			-					16
JOINT FACTOR		-		-			-					17
CORROSION ALLOWANCE (mm)		*1*		-			-					18
THICKNESS (mm)		*7*		-			-					19
END TYPE	-	THICKNESS	-	JOINT FACTOR		-						20
END TYPE	-	THICKNESS	-	JOINT FACTOR		-						21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL		-						22
WIND LOAD DESIGN	-	RADIOGRAPHY %	*100*	STRESS RELIEF		-						23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-						24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-						25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-								26
GASKET MATERIAL	-	INSPECTION BY		-								27
PAINTING	-											28
WEIGHT (kg)	*3024*	EMPTY (kg)	*3024*									29
FULL OF LIQUID (kg)	*19024*	OPERATING	-									30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER		5/3/04						31
ORDER No.	-	DRG No.	-									32
MANUFACTURER												33
REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE												34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY)												35
												36
												37
												38
												39
												40
A												41
B												42
C												43
D												44
E												45
F												46
G												47
H												48
H												49
K												50
K												51
M												52
N												53
P												54
REF	No.	DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS			55
BRANCH					FLANGE SPEC							56
												57

Prepared	*10/3/04*	-	-	3				6				58
Checked	*11/3/04*	-	-	2				5				59
Approved	*15/3/05*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address
Equipment No. *V-504*		
Project No. *13*		

VESSEL DATA SHEET

Equipment No. (Tag) *R-501*
Function *Hidrogenar l'oli*
Sheet No. *1*

Operating Data

No REQUIRED		*1*		CAPACITY (m^3)				*1*					3
SPECIFIC GRAVITY OF CONTENTS		-		COMPUTED (yes or no)				*no*					4
		SHELL			JACKETED FULL/ HALF COIL				INTERNAL COIL				5
CONTENTS		*Oli, DME, H_2*			-				*Vapor d'aigua*				6
DIAMETER (m)		*0,438*			-				-				7
LENGTH (m)		*3*			-				-				8
DESIGN CODE		*ASME*			-				-				9
MAX. WORKING PRESSURE (bar)		*200*			-				*10*				10
DESIGN PRESSURE (bar)		*220*			-				*11*				11
MAX. WORKING TEMP (ºC)		*215*			-				*215*				12
DESIGN TEMP (ºC)		*250*			-				*250*				13
TEST PRESSURE (HYDROSTATIC) (bar)		*350*			-				*20*				14
TEST PRESSURE (AIR)		-			-				-				15
MATERIALS		*SS 316*			-				*SS 316*				16
JOINT FACTOR		-			-				-				17
CORROSION ALLOWANCE (mm)		*1*			-				1				18
THICKNESS (mm)		*45,1*			-				3,38				19
END TYPE	-	THICKNESS	-	JOINT FACTOR	-								20
END TYPE	-	THICKNESS	-	JOINT FACTOR	-								21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL	-								22
WIND LOAD DESIGN	-	RADIOGRAPHY %	-	STRESS RELIEF	-								23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS	-								24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS	-								25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-									26
GASKET MATERIAL	-	INSPECTION BY		-									27
PAINTING	-												28
WEIGHT (kg)	*1099*	EMPTY (kg)	*1099*										29
FULL OF LIQUID (kg)	*1500*	OPERATING	-										30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER	5/3/04								31
ORDER No.	-	DRG No.	-										32
MANUFACTURER													33
REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE													34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY)													35
													36
													37
													38
													39
													40

A											41
B											42
C											43
D											44
E											45
F											46
G											47
H											48
H											49
K											50
K											51
M											52
N											53
P											54
REF	No.	DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS		55
BRANCH					FLANGE SPEC						56
											57

Prepared	*10/3/04*	-	-	3				6					58
Checked	*11/3/04*	-	-	2				5					59
Approved	*15/3/05*	-	-	1				4					60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date		61

Service	Company	Address	62
Equipment No. *R-501*			63
Project No. *13*			64

VESSEL DATA SHEET

Equipment No. (Tag) *F-501*
Function *Primera separació*
Sheet No. *1*

Operating Data

No REQUIRED		*1*	CAPACITY (m^3)			*0,73*							3
SPECIFIC GRAVITY OF CONTENTS		-	COMPUTED (yes or no)			*no*							4
		SHELL	JACKETED FULL/ HALF COIL			INTERNAL COIL							5
CONTENTS		*Oli, DME, H_2*	-			-							6
DIAMETER (m)		*0,495*	-			-							7
LENGTH (m)		*2,47*	-			-							8
DESIGN CODE		*ASME*	-			-							9
MAX. WORKING PRESSURE (bar)		*85*	-			-							10
DESIGN PRESSURE (bar)		*93,5*	-			-							11
MAX. WORKING TEMP (ºC)		*205*	-			-							12
DESIGN TEMP (ºC)		*225*	-			-							13
TEST PRESSURE (HYDROSTATIC) (bar)		*150*	-			-							14
TEST PRESSURE (AIR)		-	-			-							15
MATERIALS		*SS 316*	-			-							16
JOINT FACTOR		-	-			-							17
CORROSION ALLOWANCE (mm)		*1*	-			-							18
THICKNESS (mm)		*21,1*	-			-							19
END TYPE	-	THICKNESS	-	JOINT FACTOR		-							20
END TYPE	-	THICKNESS	-	JOINT FACTOR		-							21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL		-							22
WIND LOAD DESIGN	-	RADIOGRAPHY %	-	STRESS RELIEF		-							23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-							24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-							25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-									26
GASKET MATERIAL	-	INSPECTION BY		-									27
PAINTING	-												28
WEIGHT (kg)	*877*	EMPTY	*877*										29
FULL OF LIQUID	*1125*	OPERATING	-										30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER		5/3/04							31
ORDER No.	-	DRG No.	-										32
MANUFACTURER													33
REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE													34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY)													35
													36
													37
													38
													39
													40

A											41
B											42
C											43
D											44
E											45
F											46
G											47
H											48
H											49
K											50
K											51
M											52
N											53
P											54
REF No.		DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS		55
BRANCH					FLANGE SPEC						56
											57

Prepared	*10/3/04*	-	-	3				6					58
Checked	*11/3/04*	-	-	2				5					59
Approved	*15/3/05*	-	-	1				4					60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date		61

Service	Company	Address	62
Equipment No. *F-501*			63
Project No. *13*			64

VESSEL DATA SHEET

Equipment No. (Tag) *F-502*
Function *Segona separació*
Sheet No. *1*

Operating Data

No REQUIRED			*1*	CAPACITY (m^3)			*4,08*					3
SPECIFIC GRAVITY OF CONTENTS			-	COMPUTED (yes or no)			*no*					4
		SHELL		JACKETED FULL/ HALF COIL			INTERNAL COIL					5
CONTENTS		*Oli, DME, H_2*		-			-					6
DIAMETER (m)		*0,971*		-			-					7
LENGTH (m)		*2,914*		-			-					8
DESIGN CODE		*ASME*		-			-					9
MAX. WORKING PRESSURE		*1,2*		-			-					10
DESIGN PRESSURE (bar)		*1,3*		-			-					11
MAX. WORKING TEMP (ºC)		*189*		-			-					12
DESIGN TEMP (ºC)		*200*		-			-					13
TEST PRESSURE (HYDROSTATIC) (bar)		*5*		-			-					14
TEST PRESSURE (AIR)		-		-			-					15
MATERIALS		*SS 316*		-			-					16
JOINT FACTOR		-		-			-					17
CORROSION ALLOWANCE (mm)		*1*		-			-					18
THICKNESS (mm)		*5*		-			-					19
END TYPE	-	THICKNESS	-	JOINT FACTOR		-						20
END TYPE	-	THICKNESS	-	JOINT FACTOR		-						21
TYPE OF SUPPORT	-	THICKNESS	-	MATERIAL		-						22
WIND LOAD DESIGN	-	RADIOGRAPHY %	-	STRESS RELIEF		-						23
INTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-						24
EXTERNAL BOLTS MATERIAL	-	TYPE	-	NUTS		-						25
INSULATION (SEP. ORDER)	-	INSULATION FITTING ATTACHMENT BY		-								26
GASKET MATERIAL	-	INSPECTION BY		-								27
PAINTING	-											28
WEIGHT (kg)	*657*	EMPTY (kg)	*657*									29
FULL OF LIQUID (kg)	*768*	OPERATING	-									30
INTERNALS and EXTERNALS	-	DATE OF ENQUIRY	2/3/04	DATE OF ORDER		5/3/04						31
ORDER No.	-	DRG No.	-									32
MANUFACTURER												33
REMARKS AND NOTES:- UNLESS OTHERWISE STATED ALL FLANGE BOLT HOLES TO BE												34
OF-CENTRE OF VESSEL CENTRE LINES N/S and E/W (NOT RADIALLY)												35
												36
												37
												38
												39
												40

A											41
B											42
C											43
D											44
E											45
F											46
G											47
H											48
H											49
K											50
K											51
M											52
N											53
P											54
REF	No.	DUTY	NOM BORE mm/ins	PIPE WALL THICKNESS	TYPE	CLASS	MATERIAL	BRANCH COMPEN	REMARKS		55
BRANCH					FLANGE SPEC						56
											57

Prepared	*10/3/04*	-	-	3				6				58
Checked	*11/3/04*	-	-	2				5				59
Approved	*15/3/05*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address	62
Equipment No. *F-502*			63
Project No. *13*			64

PUMP DATA SHEET

Equipment No. (Tag) *P-501*
Function *Elevar la pressió de l'oli*
Sheet No. *1*

Operating Data

NUMBER OF MACHINES	*2*	Installed	*1*	Working	-	Standby	3
TYPE	*Dosificadora*						4
LIQUID	*Oli*						5
AVAILABLE N.P.S.H.	-	Bar a					6
CAPACITY (l/h)	*300*	Max.	*100*	Min.	*131,4*	Normal	7
PRESSURES	*1 mcdf*	Suction	*100 bar*	Discharge	*100 bar*	Differential	8
ELECTRCAL SUPLY	-	Volts	-	Phase	-	Cycles	9
COOLING WATER SUPLY	-	Press.	-	Temp.	-	Flow	10
SEALING WATER SUPPLY	-	Press.	-	Temp.	-	Flow	11
STEAM SUPPLY	-	Press.	-	Temp.	-	Flow	12
VISCOSITY (mPa·s)	*1,76*	@	1	Press. (bar)	*25*	Temp. (ºC)	13
Sp GRAVITY	-	@		Press.		Temp.	14
VAPOUR PRESSURE	-			@		Temp.	15
WORKING TEMPERATURE (ºC)	*25*			pH			16
ANALYSIS	-						17

Technical Data

PUMP DRAWING No.	-	MAX. ABSORBED POWER REQD.			-		20
SPEED rpm	-	EFFICIENCY			-		21
PLUNGER DIA ans SPEED	-	MAX. RECOMMENDED Kw OF DRIVER			-		22
STROKE	-	INSTALLED Kw OF DRIVER			-		23
N.P.S.H. REQUIRED	-	SPEED OF DRIVER			-		24
CAPACITY CONTROL	-	SPEED RATIO			-		25
TYPE OF DRIVE	-	DIR'N OF ROT'N (FACING COUPLING)			-		26
TYPE OF GLAND	-	DETAILS OF LUBRICATOR			-		27
TYPE VALVES	-	TYPE OF BASEPLATES			-		28
COOLING WAER REQUIRED	-	RELIEF VALVE SET PRESSURE			-		29
SEALING WATER REQUIRED	-	TYPE OF BEARINGS			-		30
DETAILS OF CONNECTIONS	-	SUPPLIER OF DRIVER			-		31
SUCTION	-	COUPLING			-		32
DISCHARGE	-	DRIVER HALF COUPLING FITTED BY			-		33
STARTING TORQUE	-	TYPE OF COUPLING and MAKER			-		34
TYPE OF GEAR and MAKER	-	TYPE OF TORQUE CONVERTER and MAKER			-		35
TYPE OF DRIVE	-	DIRECT	-	GEAR	-		36

Materials of Construction

CYLINDERS	-	CRANK CASE	-		39
VALVE HEAD	-	CRANKSHAFT	-		40
VALVE SEAT	-	CONNECTING ROD	-		41
VALVE SPRING	-	CROSS HEAD	-		42
CYLINDER BORE SURFACE HEAD	-	CROSS HEAD GUIDES	-		43
PLUNGER	-	CROSSHEAD PIN	-		44
PISTON RINGS	-	BEARINGS	-		45
GLAND CASING	-	BASEPLATE	-		46
GLAND PACKING	-	RELIEF VALVE	-		47
LANTERN RING	-	GASKETS / 'O' RINGS	-		48

Design Standards and Inspection

DESIGN CODE	-	MAX. ERECTION WEIGHT	-		51
Hydrostatic test press.	-	SHIPPING WEIGHT	-		52
Inspection requirements	-	SHIPPING VOLUME	-		53
Drg. And DATA REQUIREMENTS	-	TOTAL WEIGHT	-		54
DATE OF ENQUIRY	*15/2/04*	DATE OF ORDER	*18/2/04*		55
DRG. No.	-	ORDER No.	-		56
MANUFACTURER	*Lewa* **ECOFLOW LDD**				57

Prepared	*20/3/04*	-	-	3				6					58
Checked	*22/3/04*	-	-	2				5					59
Approved	*27/3/04*	-	-	1				4					60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date		61

Service	Company	Address	62
Equipment No. *P-501*			63
Project No. *13*			64

PUMP DATA SHEET

Equipment No. (Tag) *P-502*
Function *Elevar la pressió del DME*
Sheet No. *1*

Operating Data

NUMBER OF MACHINES	*2*	Installed	*1*	Working	-	Standby	3
TYPE	*Dosificadora*						4
LIQUID	*DME*						5
AVAILABLE N.P.S.H.	-	Bar a					6
CAPACITY (l/h)	*150*	Max.	30	Min.	46,4	Normal	7
PRESSURES (bar)	*1 mcdf*	Suction	*100 bar*	Discharge	*100 bar*	Differential	8
ELECTRCAL SUPLY	-	Volts	-	Phase	-	Cycles	9
COOLING WATER SUPLY	-	Press.	-	Temp.	-	Flow	10
SEALING WATER SUPPLY	-	Press.	-	Temp.	-	Flow	11
STEAM SUPPLY	-	Press.	-	Temp.	-	Flow	12
VISCOSITY (mPa·s)	*0,092*	@	*1*	Press. (bar)	*25*	Temp. (ºC)	13
Sp GRAVITY	-	@	-	Press.	-	Temp.	14
VAPOUR PRESSURE	-			@	-	Temp.	15
WORKING TEMPERATURE (ºC)	*25*			pH	-		16
ANALYSIS	-						17

Technical Data

PUMP DRAWING No.	-	MAX. ABSORBED POWER REQD.		-		20
SPEED rpm	-	EFFICIENCY		-		21
PLUNGER DIA ans SPEED	-	MAX. RECOMMENDED Kw OF DRIVER		-		22
STROKE	-	INSTALLED Kw OF DRIVER		-		23
N.P.S.H. REQUIRED	-	SPEED OF DRIVER		-		24
CAPACITY CONTROL	-	SPEED RATIO		-		25
TYPE OF DRIVE	-	DIR'N OF ROT'N (FACING COUPLING)		-		26
TYPE OF GLAND	-	DETAILS OF LUBRICATOR		-		27
TYPE VALVES	-	TYPE OF BASEPLATES		-		28
COOLING WAER REQUIRED	-	RELIEF VALVE SET PRESSURE		-		29
SEALING WATER REQUIRED	-	TYPE OF BEARINGS		-		30
DETAILS OF CONNECTIONS	-	SUPPLIER OF DRIVER		-		31
SUCTION	-	COUPLING		-		32
DISCHARGE	-	DRIVER HALF COUPLING FITTED BY		-		33
STARTING TORQUE	-	TYPE OF COUPLING and MAKER		-		34
TYPE OF GEAR and MAKER	-	TYPE OF TORQUE CONVERTER and MAKER		-		35
TYPE OF DRIVE	-	DIRECT	- GEAR	-		36

Materials of Construction

CYLINDERS	-	CRANK CASE		-		39
VALVE HEAD	-	CRANKSHAFT		-		40
VALVE SEAT	-	CONNECTING ROD		-		41
VALVE SPRING	-	CROSS HEAD		-		42
CYLINDER BORE SURFACE HEAD	-	CROSS HEAD GUIDES		-		43
PLUNGER	-	CROSSHEAD PIN		-		44
PISTON RINGS	-	BEARINGS		-		45
GLAND CASING	-	BASEPLATE		-		46
GLAND PACKING	-	RELIEF VALVE		-		47
LANTERN RING	-	GASKETS / 'O' RINGS		-		48

Design Standards and Inspection

DESIGN CODE	-	MAX. ERECTION WEIGHT		-		51
Hydrostatic test press.	-	SHIPPING WEIGHT		-		52
Inspection requirements	-	SHIPPING VOLUME		-		53
Drg. And DATA REQUIREMENTS	-	TOTAL WEIGHT		-		54
DATE OF ENQUIRY	*15/2/04*	DATE OF ORDER		*18/2/04*		55
DRG. No.	-	ORDER No.		-		56
MANUFACTURER	*Lewa* **ECOFLOW LDC**					57

Prepared	*20/3/04*	-	-	3				6				58
Checked	*22/3/04*	-	-	2				5				59
Approved	*27/3/04*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address	62
Equipment No. *P-502*			63
Project No. *13*			64

PUMP DATA SHEET

Equipment No. (Tag) *P-503*
Function Elevar pressió de la mescla
Sheet No. *1*

Operating Data

NUMBER OF MACHINES	*2*	Installed	*1*	Working	-	Standby	3
TYPE	*Diafragma triple capçal*						4
LIQUID	*DME, Oli i H_2*						5
AVAILABLE N.P.S.H.	-	Bar a					6
CAPACITY (l/h)	*3000*	Max.	*800*	Min.	*1507*	Normal	7
PRESSURES	*1 mcdf*	Suction	*220*	Discharge	*140*	Differential	8
ELECTRCAL SUPLY	-	Volts	-	Phase	-	Cycles	9
COOLING WATER SUPLY	-	Press.	-	Temp.	-	Flow	10
SEALING WATER SUPPLY	-	Press.	-	Temp.	-	Flow	11
STEAM SUPPLY	-	Press.	-	Temp.	-	Flow	12
VISCOSITY (mPa·s)	0,066	@	*80*	Press. (bar)	*50*	Temp. (ºC)	13
Sp GRAVITY	-	@	-	Press.	-	Temp.	14
VAPOUR PRESSURE	-			@	-	Temp.	15
WORKING TEMPERATURE	50		pH		-		16
ANALYSIS	-						17

Technical Data

PUMP DRAWING No.	-	MAX. ABSORBED POWER REQD.			-		20
SPEED rpm	-	EFFICIENCY			-		21
PLUNGER DIA ans SPEED	-	MAX. RECOMMENDED Kw OF DRIVER			-		22
STROKE	-	INSTALLED Kw OF DRIVER			-		23
N.P.S.H. REQUIRED	-	SPEED OF DRIVER			-		24
CAPACITY CONTROL	-	SPEED RATIO			-		25
TYPE OF DRIVE	-	DIR'N OF ROT'N (FACING COUPLING)			-		26
TYPE OF GLAND	-	DETAILS OF LUBRICATOR			-		27
TYPE VALVES	-	TYPE OF BASEPLATES			-		28
COOLING WAER REQUIRED	-	RELIEF VALVE SET PRESSURE			-		29
SEALING WATER REQUIRED	-	TYPE OF BEARINGS			-		30
DETAILS OF CONNECTIONS	-	SUPPLIER OF DRIVER			-		31
SUCTION	-	COUPLING			-		32
DISCHARGE	-	DRIVER HALF COUPLING FITTED BY			-		33
STARTING TORQUE	-	TYPE OF COUPLING and MAKER			-		34
TYPE OF GEAR and MAKER	-	TYPE OF TORQUE CONVERTER and MAKER			-		35
TYPE OF DRIVE	-	DIRECT	-	GEAR	-		36

Materials of Construction

CYLINDERS	-	CRANK CASE			-		39
VALVE HEAD	-	CRANKSHAFT			-		40
VALVE SEAT	-	CONNECTING ROD			-		41
VALVE SPRING	-	CROSS HEAD			-		42
CYLINDER BORE SURFACE HEAD	-	CROSS HEAD GUIDES			-		43
PLUNGER	-	CROSSHEAD PIN			-		44
PISTON RINGS	-	BEARINGS			-		45
GLAND CASING	-	BASEPLATE			-		46
GLAND PACKING	-	RELIEF VALVE			-		47
LANTERN RING	-	GASKETS / 'O' RINGS			-		48

Design Standards and Inspection

DESIGN CODE	-	MAX. ERECTION WEIGHT			-		51
Hydrostatic test press.	-	SHIPPING WEIGHT			-		52
Inspection requirements	-	SHIPPING VOLUME			-		53
Drg. And DATA REQUIREMENTS	-	TOTAL WEIGHT			-		54
DATE OF ENQUIRY	*15/2/04*	DATE OF ORDER			*18/2/04*		55
DRG. No.	-	ORDER No.			-		56
MANUFACTURER	*Lewa* **DIAPHRAGM PUMP G3S**						57

Prepared	*20/3/04*	-	-	3				6				58
Checked	*22/3/04*	-	-	2				5				59
Approved	*27/3/04*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address	62
Equipment No. *P-503*			63
Project No. *13*			64

COMPRESSOR DATA SHEET

Equipment No. (Tag) *K-501*
Function *Elevar la pressió de l'hidrogen*
Sheet No. *1*

Operating Data

DESCRIPTION OF GAS		*Hidrogen*							3
Contingut en C_nH_m ≤5 ppmv		*Contingut en O_2 ≤2 ppmv*							4
Contingut en H_20 ≤5 ppmv		*Contingut en N_2 ≤5 ppmv*							5
TOXIC (give OEL or PHS)		*No aplicable*	ppm	CORROSIVE			-		6
FLAMMABLE (give FLASHPOINT)		-	ºC	ABRASIVE			-		7
SOLIDS CONTENT		-	% w/v	MIST CONTENT			-	% w/v	8
		OPERATING CONDITIONS		OTHER CONDITIONS					9
		NORMAL	RATED	A	B	C	D		10
		-							11
GAS HANDLED		-							12
		-							13
GAS ANALYSIS (MOL %)	M. WT.	-							14
		-							15
		-							16
		-							17
		-							18
		-							19
		-							20
		-							21
		-							22
		-							23
TOTAL		-							24
AVERAGE MOLECULAR WEIGHT		*2*						g/mol	25
CRITICAL TEMPERATURE		*-239,71*						ºC	26
CRITICAL PRESSURE		*13,155*						Bar	27
MASS FLOWRATE		*0,658*						kg/h	28
SUCTION SYSTEM									29
MIN PRESSURE IN VESSEL		-						Bar a	30
PRESSURE DROP EQUIPMENT		-						Bar	31
PRESSURE DROP CONT. VALVES		-						Bar	32
PRESSURE DROP FLOWMETER		-						Bar	33
PRESSURE DROP PIPEWORK		-						Bar	34
INLET CONDITIONS									35
PRESSURE		*30*						Bar	36
TEMPERATURE		*25*						ºC	37
RELATIVE HUMIDITY		-						%	38
Cp/Cv		*1,421*							39
COMPRESSIBILITY FACTOR		*1,01*							40
INLET VOLUME		*0,273*						m3/h	41
DENSITY		*2,413*						kg/m3	42
VISCOSITY		*0,0088*						cP	43
DELIVERY SYSTEM									44
MAX PRESSURE IN VESSEL		-							45
PRESSURE DROP EQUIPMENT		-							46
PRESSURE DROP CONT. VALVES		-							47
PRESSURE DROP FLOWMETER		-							48
PRESSURE DROP PIPEWORK		-							49
OUTLET CONDITIONS									50
REQUIRED PRESSURE		*150 bar*							51
TEMPERATURE		*25 ºC*							52
DEW POINT		-							53
Cp/Cv		*1,431*							54
COMPRESS FACTOR Z		*1,03*							55
DENSITY		*6,314 kg/m^3*							56
VISCOSITY		*0,0089 cP*							57

Prepared	*13/4/04*	-	-	3				6					58
Checked	*15/4/04*	-	-	2				5					59
Approved	*18/4/04*	-	-	1				4					60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date		61
Service				Company				Address					62
Equipment No. *K-501*													63
Project No. *13*													64

COMPRESSOR DATA SHEET

Equipment No. (Tag) *K-502*
Function *Elevar la pressió de l'hidrogen*
Sheet No. *2*

Ancillary Equipment

SUGGESTED AUTOMATIC	-							3
CONTROLS FOR PROCESSES	-							4
REASONS	-							5
	EQUIPMENT NO.S							6
ASSOCIATED EQUIPMENT	SUCTION COOLER	-						7
	INTER COOLER(S)	-						8
	AFTER COOLER	-						9
	SUCTION SEPARATOR	-						10
INSULATION	-	PURPOSE		-				11
INSULATION THICKNESS	-	REFER TO LAGGING SCH.		-				12
TRACING	-	DESCRIPTION		-				13
COOLING WATER TEMP INLET	-	ºC	MAX EXIT TEMP	-				14
COOLING WATER PRESSURE INLET	-	Bar g	ALLOWABLE P	-			Bar	15
FOULING RESISTANCE	-	m2·ºC/W	AT VELOCITY OF	-			m/s	16

Technical / Mechanical Data

LOCATION	-					19
RUNNING TIME	-	STARTS/YEAR		-		20
PARALLEL UNITS ASSUMED	-	CONTROL BY		-		21
SIGNIFICANT RUNING AT NO FLOW	-					22
DRIVE	-					23
COMPRESSOR TYPE	*Booster*					24
UNITS IN PARALLEL	*2*	TYPE OF SEAL		-		25
DESIGN PRESSURE	*150 bar*	DESIGN TEMP(S) STAGE DELIVERIES		-	ºC	26
NOISE RATING OF UNITS (INCLUDING DRIVES)		-			NR/db(A)	27
NARROW BAND OR FAST INTEGRAL CONTROL		-				28
SHUT OFF HEAD	-	RELIEF SETTING		-		29
SURGE LIMIT LOWER	-	SURGE LIMIT UPPER		-		30
SHAFT SPEEDS	-	Rpm				31
DRIVE SPEED	-	Rpm				32
SERVICES REQ. ELECTRICITY	-	volts	PHASE	-	kW	33
WATER PRESSURE	-	Bar g	WATER FLOWRATE	-	m3/s	34
STEAM PRESSURE	-	Bar g	STEAM FLOWRATE	-	kg/s	35
INSTRUMENT AIR P	-	Bar g	AIR FLOWRATE	-	m3/s	36

Materials of Construction

BODY / CASING	-	SHAFT	-		39
IMPELLER	-				40
					41
					42
					43

Manufacturers Details

DATE OF ENQUIRY	*12/3/04*	DATE OF ORDER	*18/3/04*		46
ORDER NO.	-	DRG No.	-		47
MANUFACTURER	*Haskel* **AGD-7**				48

REMARKS 49

50 51 52 53 54 55 56 57

Prepared	*13/4/04*	-	-	3				6				58
Checked	*15/4/04*	-	-	2				5				59
Approved	*18/4/04*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address	62
Equipment No. *K-501*			63
Project No. *13*			64

COMPRESSOR DATA SHEET

Equipment No. (Tag)	*K-502*
Function	*Elevar la pressió del DME*
Sheet No.	*1*

Operating Data

DESCRIPTION OF GAS		*DME*								3
		-								4
		-								5
TOXIC (give OEL or PHS)		**RATA**, *16,4 Vol %, 4 - hores per inhalació*		ppm	CORROSIVE		-			6
FLAMMABLE (give FLASHPOINT)		*-41,1*	ºC	ABRASIVE			-			7
SOLIDS CONTENT		-	% w/v	MIST CONTENT			-		% w/v	8
		OPERATING CONDITIONS		OTHER CONDITIONS						9
		NORMAL	RATED	A	B	C	D			10
		-								11
GAS HANDLED		-								12
		-								13
GAS ANALYSIS (MOL %)	M. WT.	-								14
		-								15
		-								16
		-								17
		-								18
		-								19
		-								20
		-								21
		-								22
		-								23
TOTAL		-								24
AVERAGE MOLECULAR WEIGHT		*46 g/mol*								25
CRITICAL TEMPERATURE		*126,85*							ºC	26
CRITICAL PRESSURE		*53,20*							Bar	27
MASS FLOWRATE		*28,83*							kg/h	28
SUCTION SYSTEM										29
MIN PRESSURE IN VESSEL		-							Bar a	30
PRESSURE DROP EQUIPMENT		-							Bar	31
PRESSURE DROP CONT. VALVES		-							Bar	32
PRESSURE DROP FLOWMETER		-							Bar	33
PRESSURE DROP PIPEWORK		-							Bar	34
INLET CONDITIONS										35
PRESSURE		100							Bar	36
TEMPERATURE		188,7							ºC	37
RELATIVE HUMIDITY		-							%	38
Cp/Cv		*1,107*								39
COMPRESSIBILITY FACTOR		*0,996*								40
INLET VOLUME		*24,31*							m3/h	41
DENSITY		*1,19*							kg/m3	42
VISCOSITY		*0,014*							cP	43
DELIVERY SYSTEM										44
MAX PRESSURE IN VESSEL		-								45
PRESSURE DROP EQUIPMENT		-								46
PRESSURE DROP CONT. VALVES		-								47
PRESSURE DROP FLOWMETER		-								48
PRESSURE DROP PIPEWORK		-								49
OUTLET CONDITIONS										50
REQUIRED PRESSURE		*15 bar*								51
TEMPERATURE		*327,1 ºC*								52
DEW POINT		-								53
Cp/Cv		*1,096*								54
COMPRESS FACTOR Z		*0,983*								55
DENSITY		*9,24 kg/m^3*								56
VISCOSITY		*0,019 cP*								57

Prepared	*13/4/04*	-	-	3				6				58
Checked	*15/4/04*	-	-	2				5				59
Approved	*18/4/04*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61
Service				Company				Address				62
Equipment No. *K-501*												63
Project No. *13*												64

COMPRESSOR DATA SHEET

Equipment No. (Tag)	*K-502*
Function	*Elevar la pressió del DME*
Sheet No.	*2*

Ancillary Equipment

SUGGESTED AUTOMATIC	-							3
CONTROLS FOR PROCESSES	-							4
REASONS	-							5
	EQUIPMENT NO.S							6
ASSOCIATED EQUIPMENT	SUCTION COOLER	-						7
	INTER COOLER(S)	-						8
	AFTER COOLER	-						9
	SUCTION SEPARATOR	-						10
INSULATION	-	PURPOSE		-				11
INSULATION THICKNESS	-	REFER TO LAGGING SCH.		-				12
TRACING	-	DESCRIPTION		-				13
COOLING WATER TEMP INLET	-	ºC	MAX EXIT TEMP	-				14
COOLING WATER PRESSURE INLET	-	Bar g	ALLOWABLE P	-			Bar	15
FOULING RESISTANCE	-	m2·ºC/W	AT VELOCITY OF	-			m/s	16

Technical / Mechanical Data

LOCATION	-					19
RUNNING TIME	-	STARTS/YEAR		-		20
PARALLEL UNITS ASSUMED	-	CONTROL BY		-		21
SIGNIFICANT RUNING AT NO FLOW	-					22
DRIVE	-					23
COMPRESSOR TYPE	*Membrana*					24
UNITS IN PARALLEL	*2*	TYPE OF SEAL				25
DESIGN PRESSURE	*15 bar*	DESIGN TEMP(S) STAGE DELIVERIES			ºC	26
NOISE RATING OF UNITS (INCLUDING DRIVES)		-			NR/db(A)	27
NARROW BAND OR FAST INTEGRAL CONTROL		-				28
SHUT OFF HEAD	-	RELIEF SETTING		-		29
SURGE LIMIT LOWER	-	SURGE LIMIT UPPER		-		30
SHAFT SPEEDS	-	Rpm				31
DRIVE SPEED	-	Rpm				32
SERVICES REQ. ELECTRICITY	-	volts	PHASE	-	kW	33
WATER PRESSURE	-	Bar g	WATER FLOWRATE	-	m3/s	34
STEAM PRESSURE	-	Bar g	STEAM FLOWRATE	-	kg/s	35
INSTRUMENT AIR P	-	Bar g	AIR FLOWRATE	-	m3/s	36

Materials of Construction

BODY / CASING	-	SHAFT	-		39
IMPELLER	-				40
					41
					42
					43

Manufacturers Details

DATE OF ENQUIRY	*12/3/04*	DATE OF ORDER	*18/3/04*	46
ORDER NO.	-	DRG No.	-	47
MANUFACTURER	*Abac* **B5900/B**			48

REMARKS 49

50 51 52 53 54 55 56 57

Prepared	*13/4/04*	-	-	3				6				58
Checked	*15/4/04*	-	-	2				5				59
Approved	*18/4/04*	-	-	1				4				60
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date	61

Service	Company	Address	62
Equipment No. *K-501*			63
Project No. *13*			64

MIXER DATA SHEET

Equipment No. (Tag) *MIX-501*
Function
Sheet No. *1*

Operating Data

No. OF MACHINES	*1*	WORKING	-	STANDBY	-	
SIZE OF CHARGE						
RATE OF CHARGING						
TIME ACTUALLY MIXING		CONTIN. DUTY	-	INTERMIT. DUTY	-	
TYPE OF MIXING (turbulent / moderate / light)			*moderate*			
SOLIDS CONTENT	-	SOLIDS S.G.	-			
LIQUID VISCOSITY	*0,094 cP*	LIQUIDS S.G.	-			
SLURRY VISCOSITY (APPARENT)	-					
PARTICLE SIZE ANALYSIS	-					
SOLIDS SETTLING VELOCITY	-					

Vessel Data

DEPTH OF VESSEL	-								
DEPTH OF LIQUID	-	MAX	-	NORMAL	-	MIN	-		
ANGLE OF AGITATOR	-								
SIZE OF APERTURE FOR IMPELLER	-								
WORKING PRESSURE	-								
WORKING TEMPERATURE	-								
DEPTH OF VESSEL	-								

Technical Data

TYPE OF MIXER	*Static*								
No. OF BLADES	-	DRAWING No.					-		
No. OF SETS OF BLADES	-	ELECTRICITY SUPPLY	-	Volts	-	phase	-	Hz	
SPEED	-	ABSORBED POWER (hp/kW)					-		
SHAFT DIAMETER	-	TYPE OF MOTOR					-		
CRITICAL SPEED	-	RECOMMENDED MOTOR POWER (hp/kW)					-		
TYPE OF SEAL OR GLAND	-	RECOMMENDED MOTOR SPEED (rpm)					-		
METHOND OF SUPPORT	-	INERTIA					-		
TOTAL LOAD	-	STARTING TORQUE					-		
WITHDRAWAL HEIGHT REQUIRED	-	OPERATING TORQUE					-		
TYPE OF BEARINGS	-	TYPE OF GEAR BOX					-		
ANGLE OF BLADES	-	VEE BELT/DIRECT DRIVE					-		

Design Standards and Inspection

DESIGN CODE	-	MAX. ERECTION WEIGHT		-	
HYDROSTATIC TEST PRESSURE	-	SHIPPING WEIGHT		-	
DRGS and DATA REQ.	-	SHIPPING VOLUME		-	
INSPECTION	-	TOTAL WEIGHT		-	

Materials of constrction

SHAFT	-	IMPELLER		-	
SUPPORTS	-				
VESSEL	-	SEAL OR GLANDS		-	
BEARINGS	-				
DATE OF ENQUIRY	*3/02/04*	DATE OF ORDER		*7/02/04*	
DRG No.	-	ORDER No.		-	
MANUFACTURER	*Sulzer* **SMXL**				
REMARKS					

Prepared	*1/04/04*	-	-	3				6					
Checked	*3/04/04*	-	-	2				5					
Approved	*9/04/04*	-	-	1				4					
	Date	Engineering	Process	REV	By	Appr.	Date	REV	By	Appr.	Date		

Service	Company	Address
Equipment No. *K-501*		
Project No. *13*		

S'han escollit bombes *Lewa* (dosificadores i de diafragma). Per saber quina és la bomba més indicada s'han utilitzat les figures que h ha a continuació.

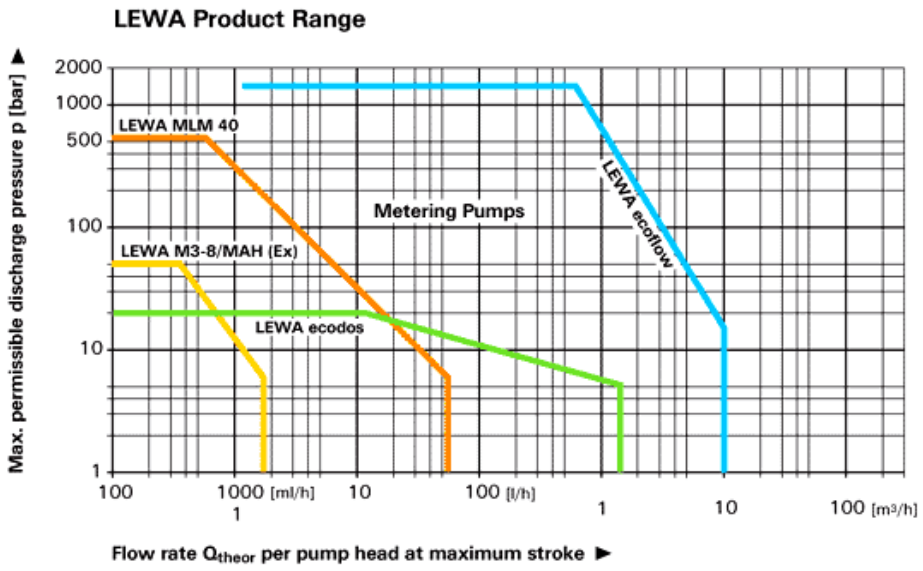


Figura M.1- Pressió de descàrrega en funció del cabal per a bombes Lewa.

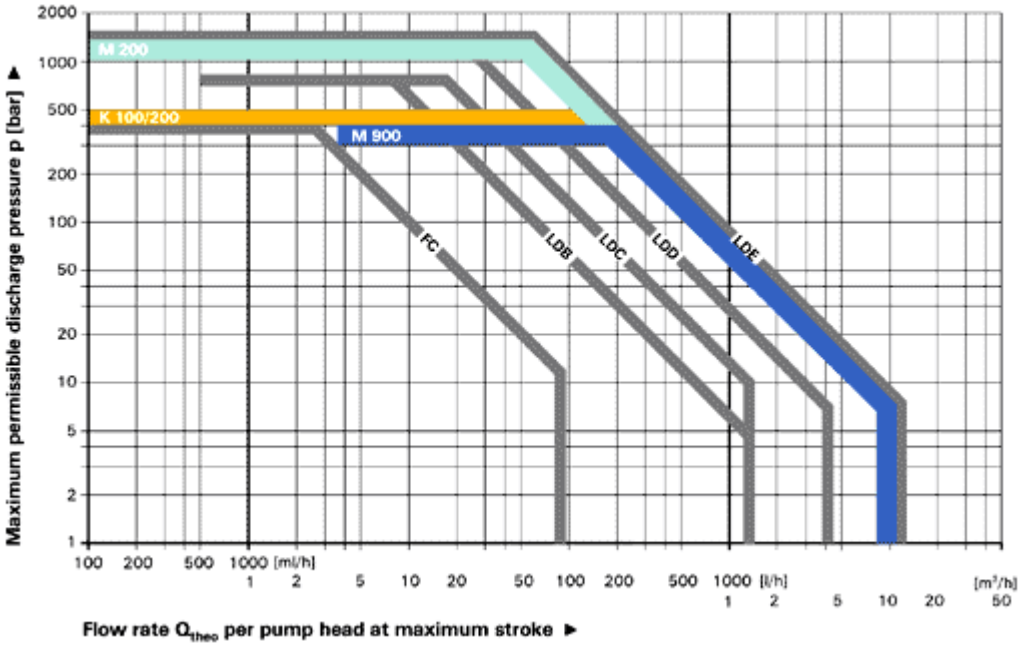


Figura M.2- Pressió de descàrrega en funció del cabal per a bombes Ecoflow.

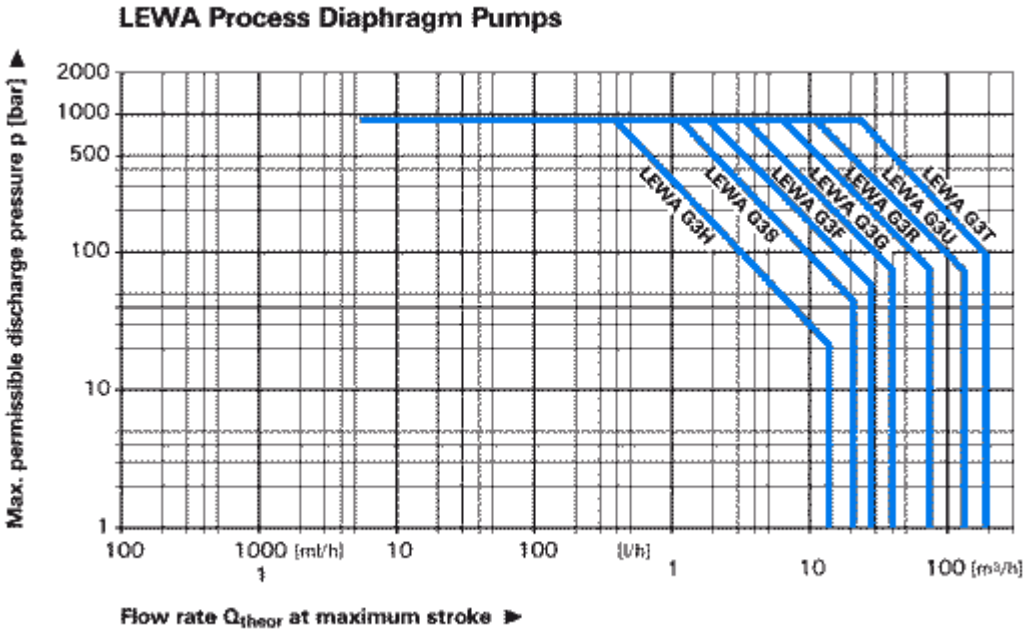


Figura M.3- Pressió de descàrrega en funció del cabal per a bombes de diafragma.

Figura M.4- Bomba Lewa de diafragma amb triple capçal.

Els compressors s'han triat de les marques *Haskel* i *Abac* segons siguin del tipus multiplicador o de membrana.

El multiplicador Haskel s'ha escollit a partir d'un software proporcionat per la mateixa empesa que serveix per dimensionar els compressors. A continuació es mostren els resultats obtinguts.

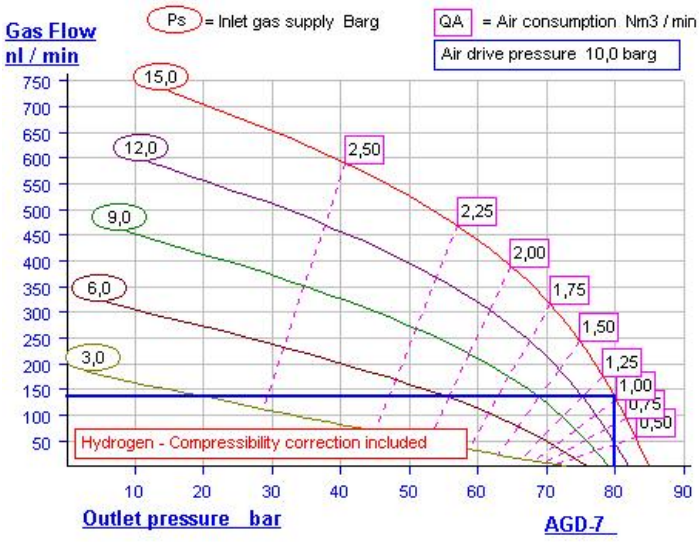


Figura M.5- Pressió de sortida en funció del cabal de gas pel multiplicador AGD-7.

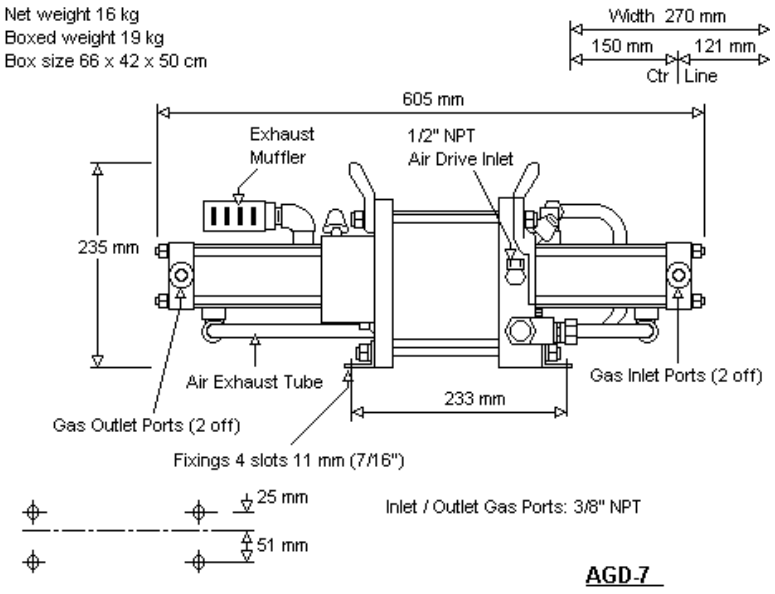


Figura M.6- Croquis del multiplicador Haskel AGD-7.

CODIGO	MODELO			LT/MIN	HP	KW	r.p.m.	BAR
900512	B2800	2	1	254	2	1,5	1250	9
900522	B2800/B	2	1	320	3	2,2	1570	9
900526	B3800B	2	1	476	4	3	1450	9
900545	B4900	2	2	514	4	3	1450	15
900557	B5900/B	2	2	653	5,5	4,1	1370	15

Figura M.7- Dades tècniques dels compressors de membrana de baixa pressió Abac.

Finalment, el mesclador estàtic és de la marca *Sulzer*. Es tracta d'un mesclador estàtic amb la possibilitat simultània d'intercanviar calor (model SMXL).

Per a aquest model els materials de construcció són els següents:

Elements de mescla: WNr. 1.4571 AISI 316 Ti
Canonades i brides : WNr. 1.4571 AISI 316 Ti
Suports: WNr. 1.4435 AISI 316 L

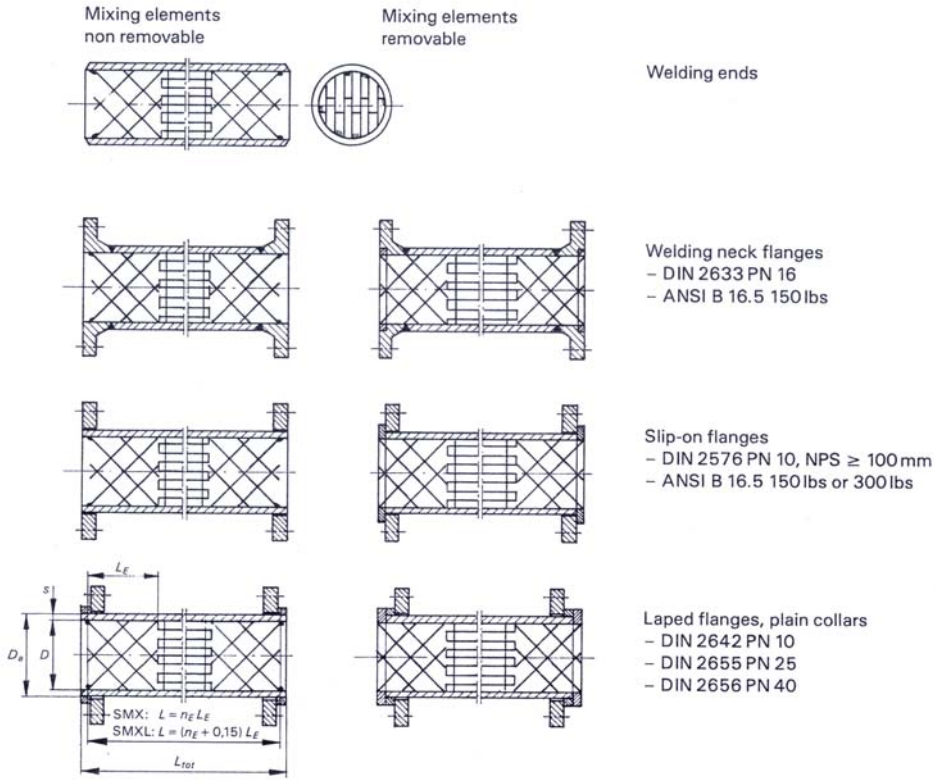


Figura M.8- Mescladors Sulzer SMX i SMXL.

Sulzer SMXL mixers

NPS		Mixer pipes		Mixing elements		L_{tot} (mm)				
		$D_a \times s$	D	L_E	$Ne\,Re_D$	Number of mixing elements n_E				
mm	in	mm	mm	mm		2	3	4	5	6
10		14.0 × 2.0	10.0	35	250	80	115	150	185	220
15	½	21.3 × 2.6	16.1	59	250	130	190	250	310	365
20		25.0 × 2.0	21.0	72	250	155	230	300	370	445
32		38.0 × 2.6	32.8	107	250	235	345	450	555	665
50		57.0 × 2.9	51.2	187	250	410	600	785	975	1160
80	3	88.9 × 3.2	82.5	307	250	675	985	1290	1595	1905

$Ne\,Re_D$ = Newton · Reynolds number

The maximum allowable pressure drop is within 4 and 25 bar, depending on NPS and operating temperature. Please contact us for exact data.

Figura M.9- Dades tècniques dels mescladors Sulzer SMXL.

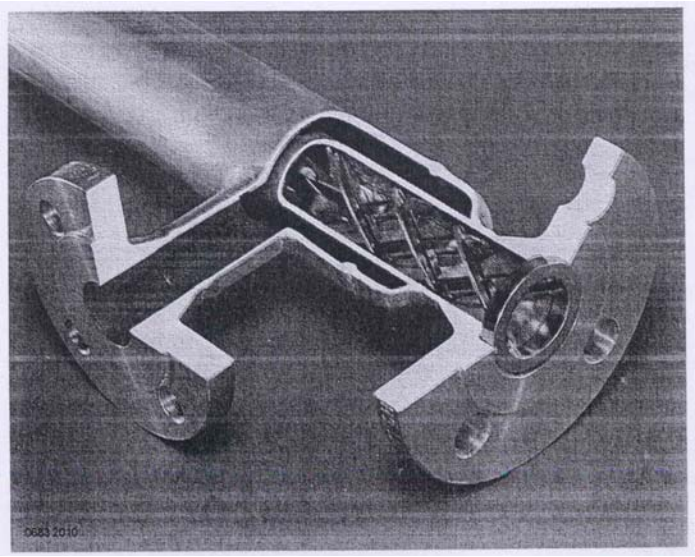


Figura M.10- Mesclador monotub Sulzer SMXL.