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Technical Specification
Centrifugal pumps Unit 04
04-MA-MC-001

Client.

Etabli. par:

ZGFDC
KERMANSHAH

CB

11/10/2016

[illegible]

 تایمه سازمان گسترش و توسعه صنایع ایران Zagros Green Fuel Development co.   A Moret Industries Company 磨锐泵（上海）有限公司 Ensival-Moret (Shanghai) Co., Ltd			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Wash water Pump P0410 Unit : 04					Client :		ZGFDC		
Doc n° :		P999-04-MA-MC-001-P0410										
Made by :		SZ			Rev.		Page					
Date :		11/10/2016			1		1					
Quantity : 1												
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID - MAXI FLOW RATE (guarantee) - PRESSURE - TOTAL HEAD - NPSH available - MAXI ALLOWABLE pressure and temperature - RUNNING : Continuous/Discontinuous			. Type . Dry Matter . Temperature . Specific Gravity . Viscosity . Vapor pressure . Discharge . Suction . Differential			wash water 6% alc		% weight °C kg/m³ cPo bar abs. m³/h bar abs. bar abs. bar m of liquid m of liquid bar g./ °C				
						0%						
						33						
						1000						
						-						
						0,062						
						3,4						
						3,1						
						1						
						2,1						
						21,8						
						10						
						6 / 100°C						
						continuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency - Speed of rotation - Mini flow rate - Required NPSH - Material - Impeller - Seal type - Suction flange - Discharge flange - Supplier - Model - Construction standard - Transmission gear and coupling type - Motor : - Base plate - Total weight for complet group - Dimensional drawing / Section drawing - Test curves			. Casing / impeller . Shaft . Actual Ø, Maxi Ø . Type (open-close) . single / double . Material . O- ring . flushing (lubrication) . ND/NP . ND/NP . Supplier . Safety type . Volts . Power / Speed			(*)		kW/kW/% rpm m³/h m mm, mm Water l /mn Volts / Hz kW / rpm kg				
						2900						
						(*)						
						(*)						
						Stainless Steel						
						Stainless Steel						
						(*)						
						close						
						single						
						(*)						
						(*)						
						No lost water 1						
						(*) /ANSI 150 lbs RF						
						(*) /ANSI 150 lbs RF						
						(*)						
						(*)						
						ISO 2858 / ISO 5199 1						
						direct						
						(*)						
						IP 557 class F						
400 V 3 ph. / 50 Hz												
(*)												
(*)												
(*)												
(*)												
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement) 1 . Provide pump curves with the quotation (*) : To be precised in the quotation 1 . Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Prefermenter Pumps P0411 & P0412 Unit : 04				Client :		ZGFDC KERMANSHAH			
							Doc n° :		P999-04-MA-MC-001-P0411 & P0412			
							Made by :		SZ		Rev.	
							Date :		11/10/2016		1	
									Quantity :		2	
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID			. Type			mash 4% alc						
			. Dry Matter			15% (soluble & non-soluble)			% weight			
			. Temperature			33			°C			
			. Specific Gravity			1053			kg/m³			
			. Viscosity			20			cPo			
			. Vapor pressure			0,059			bar abs.			
- MAXI FLOW RATE (guarantee)						128			m³/h			
- PRESSURE			. Discharge			3,2			bar abs.			
			. Suction			1,6			bar abs.			
			. Differential			1,6			bar			
- TOTAL HEAD						15,7			m of liquid			
- NPSH available						14,8			m of liquid			
- MAXI ALLOWABLE pressure and temperature						6 / 100°C			bar g./ °C			
- RUNNING : Continuous/Discontinuous						continuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%			
- Speed of rotation						1450			rpm			
- Mini flow rate						(*)			m³/h			
- Required NPSH						(*)			m			
- Material			. Casing / impeller			UR 55 Hyp or 316L						
			. Shaft			(*)						
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm			
			. Type (open-close)			Half-open						
- Seal type			. single / double			Double						
			. Material			SiC/SiC						
			. O- ring			(*)						
			. flushing (lubrication)			No lost water			Water l /mn			
- Suction flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Discharge flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Supplier						(*)						
- Model						(*)						
- Construction standard						ISO 2858 / ISO 5199						
- Transmission gear and coupling type						1/2 flexible with spacer						
- Motor :			. Supplier			(*)						
			. Safety type			IP 557 class F						
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz			
			. Power / Speed			(*)			kW / rpm			
- Base plate						(*)						
- Total weight for complet group						(*)			kg			
- Dimensional drawing / Section drawing						(*)						
- Test curves						(*)						
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement)												
. Stainless Steel Lubrication Tank (without cooling) + support												
. Provide pump curves with the quotation												
(*) : To be precised in the quotation												
The pump has to be able to drain the the tank (at lower flow) --> NPSH = 7,4 m of liquid / HMT = 17 m of liquid												
. Drain nozzle with plug required on pump casing for freeze protection procedure												
Non soluble DM particle size is maximum : <1.5 mm and 50% < 0,5 mm												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Wash water Pump P0420 Unit : 04				Client :		ZGFDC KERMANSHAH			
							Doc n° :		P999-04-MA-MC-001-P0420			
							Made by :		SZ		Rev.	Page
							Date :		11/10/2016		1	1
Quantity : 1												
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID			. Type			wash water 6% alc						
			. Dry Matter			0%			% weight			
			. Temperature			33			°C			
			. Specific Gravity			1000			kg/m³			
			. Viscosity			-			cPo			
			. Vapor pressure			0,062			bar abs.			
- MAXI FLOW RATE (guarantee)						3,4			m³/h			
- PRESSURE			. Discharge			3,1			bar abs.			
			. Suction			1			bar abs.			
			. Differential			2,1			bar			
- TOTAL HEAD						21,8			m of liquid			
- NPSH available						10			m of liquid			
- MAXI ALLOWABLE pressure and temperature						6 / 100°C			bar g./ °C			
- RUNNING : Continuous/Discontinuous						continuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%			
- Speed of rotation						2900			rpm			
- Mini flow rate						(*)			m³/h			
- Required NPSH						(*)			m			
- Material			. Casing / impeller			Stainless Steel						
			. Shaft			Stainless Steel						
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm			
			. Type (open-close)			close						
- Seal type			. single / double			single						
			. Material			(*)						
			. O- ring			(*)						
			. flushing (lubrication)			No lost water 			Water l /mn			
- Suction flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Discharge flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Supplier						(*)						
- Model						(*)						
- Construction standard						ISO 2858 / ISO 5199 						
- Transmission gear and coupling type						direct						
- Motor :			. Supplier			(*)						
			. Safety type			IP 557 class F						
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz			
			. Power / Speed			(*)			kW / rpm			
- Base plate						(*)						
- Total weight for complet group						(*)			kg			
- Dimensional drawing / Section drawing						(*)						
- Test curves						(*)						
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement) 												
. Provide pump curves with the quotation												
(*) : To be precised in the quotation												
 . Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Fermenter Pumps P0421 & P0422 Unit : 04				Client :		ZGFDC KERMANSHAH			
							Doc n° :		P999-04-MA-MC-001-P0421 & P0422			
							Made by :		SZ		Rev.	Page
							Date :		11/10/2016		1	1
Quantity : 2												
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID			. Type			mash 9% alc						
			. Dry Matter			20% (soluble & non-soluble)			% weight			
			. Temperature			33			°C			
			. Specific Gravity			1080			kg/m³			
			. Viscosity			40			cPo			
			. Vapor pressure			0,066			bar abs.			
- MAXI FLOW RATE (guarantee)						390			m³/h			
- PRESSURE			. Discharge			3			bar abs.			
			. Suction			1,6			bar abs.			
			. Differential			1,4			bar			
- TOTAL HEAD						13,4			m of liquid			
- NPSH available						14,5			m of liquid			
- MAXI ALLOWABLE pressure and temperature						6 / 100°C			bar g./ °C			
- RUNNING : Continuous/Discontinuous						continuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%			
- Speed of rotation						1450			rpm			
- Mini flow rate						(*)			m³/h			
- Required NPSH						(*)			m			
- Material			. Casing / impeller			UR 55 Hyp or 316L						
			. Shaft			(*)						
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm			
			. Type (open-close)			Half-open						
- Seal type			. single / double			Double						
			. Material			SiC/SiC						
			. O- ring			(*)						
			. flushing (lubrication)			No lost water			Water l /mn			
- Suction flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Discharge flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Supplier						(*)						
- Model						(*)						
- Construction standard						ISO 2858 / ISO 5199						
- Transmission gear and coupling type						1/2 flexible with spacer						
- Motor :			. Supplier			(*)						
			. Safety type			IP 557 class F						
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz			
			. Power / Speed			(*)			kW / rpm			
- Base plate						(*)						
- Total weight for complet group						(*)			kg			
- Dimensional drawing / Section drawing						(*)						
- Test curves						(*)						
Observations :												
. Plots Wattelez or eq. (anti vibratory / height adjustement)												
. Stainless Steel Lubrication Tank (without cooling) + support												
. Provide pump curves with the quotation												
(*) : To be precised in the quotation												
The pump has to be able to drain the the tank (at lower flow) --> NPSH = 7,5 m of liquid / HMT = 13 m of liquid												
Non soluble DM particle size is maximum : <1.5 mm and 50% < 0,5 mm												
. Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Fermenter Pumps P0423 & P0424 Unit : 04				Client :		ZGFDC KERMANSHAH			
							Doc n° :		P999-04-MA-MC-001-P0423 & P0424			
							Made by :		SZ		Rev.	
							Date :		11/10/2016		Page	
									Quantity :		2	
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID			. Type			mash 11% alc						
			. Dry Matter			16% (soluble & non-soluble)			% weight			
			. Temperature			33			°C			
			. Specific Gravity			1060			kg/m³			
			. Viscosity			20			cPo			
			. Vapor pressure			0,069			bar abs.			
- MAXI FLOW RATE (guarantee)						204			m³/h			
- PRESSURE			. Discharge			2,8			bar abs.			
			. Suction			1,6			bar abs.			
			. Differential			1,2			bar			
- TOTAL HEAD						11,7			m of liquid			
- NPSH available						14,6			m of liquid			
- MAXI ALLOWABLE pressure and temperature						6 / 100°C			bar g./ °C			
- RUNNING : Continuous/Discontinuous						continuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%			
- Speed of rotation						1450			rpm			
- Mini flow rate						(*)			m³/h			
- Required NPSH						(*)			m			
- Material			. Casing / impeller			UR 55 Hyp or 316L						
			. Shaft			(*)						
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm			
			. Type (open-close)			Half-open						
- Seal type			. single / double			Double						
			. Material			SiC/SiC						
			. O- ring			(*)						
			. flushing (lubrication)			No lost water			Water l /mn			
- Suction flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Discharge flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Supplier						(*)						
- Model						(*)						
- Construction standard						ISO 2858 / ISO 5199						
- Transmission gear and coupling type						1/2 flexible with spacer						
- Motor :			. Supplier			(*)						
			. Safety type			IP 557 class F						
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz			
			. Power / Speed			(*)			kW / rpm			
- Base plate						(*)						
- Total weight for complet group						(*)			kg			
- Dimensional drawing / Section drawing						(*)						
- Test curves						(*)						
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement)												
. Stainless Steel Lubrication Tank (without cooling) + support												
. Provide pump curves with the quotation												
(*) : To be precised in the quotation												
The pump has to be able to drain the the tank (at lower flow) --> NPSH = 7,6 m of liquid / HMT = 13 m of liquid												
Non soluble DM particle size is maximum : <1.5 mm and 50% < 0,5 mm												
. Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Fermenter Pumps P0425 & P0426 Unit : 04				Client :		ZGFDC KERMANSHAH			
							Doc n° :		P999-04-MA-MC-001-P0425 & P0426			
							Made by :		SZ		Rev.	Page
							Date :		11/10/2016		1	1
Quantity : 2												
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID			. Type			mash 12% alc						
			. Dry Matter			14% (soluble & non-soluble)			% weight			
			. Temperature			33			°C			
			. Specific Gravity			1050			kg/m³			
			. Viscosity			10			cPo			
			. Vapor pressure			0,07			bar abs.			
- MAXI FLOW RATE (guarantee)						108			m³/h			
- PRESSURE			. Discharge			2,6			bar abs.			
			. Suction			1,6			bar abs.			
			. Differential			1			bar			
- TOTAL HEAD						9,8			m of liquid			
- NPSH available						14,7			m of liquid			
- MAXI ALLOWABLE pressure and temperature						6 / 100°C			bar g./ °C			
- RUNNING : Continuous/Discontinuous						continuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%			
- Speed of rotation						1450			rpm			
- Mini flow rate						(*)			m³/h			
- Required NPSH						(*)			m			
- Material			. Casing / impeller			UR 55 Hyp or 316L						
			. Shaft			(*)						
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm			
			. Type (open-close)			Half-open						
- Seal type			. single / double			Double						
			. Material			SiC/SiC						
			. O- ring			(*)						
			. flushing (lubrication)			No lost water			Water l /mn			
- Suction flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Discharge flange			. ND/NP			(*) /ANSI 150 lbs RF						
- Supplier						(*)						
- Model						(*)						
- Construction standard						ISO 2858 / ISO 5199						
- Transmission gear and coupling type						1/2 flexible with spacer						
- Motor :			. Supplier			(*)						
			. Safety type			IP 557 class F						
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz			
			. Power / Speed			(*)			kW / rpm			
- Base plate						(*)						
- Total weight for complet group						(*)			kg			
- Dimensional drawing / Section drawing						(*)						
- Test curves						(*)						
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement)												
. Stainless Steel Lubrication Tank (without cooling) + support												
. Provide pump curves with the quotation												
(*) : To be precised in the quotation												
The pump has to be able to drain the the tank (at lower flow) --> NPSH = 7,7 m of liquid / HMT = 13 m of liquid												
Non soluble DM particle size is maximum : <1.5 mm and 50% < 0,5 mm												
. Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Mash Pumps P0430 A/B Unit : 04				Client :		ZGFDC KERMANSHAH		
			Doc n° :		P999-04-MA-MC-001-P0430 A/B						
			Made by :		SZ		Rev.		Page		
			Date :		11/10/2016		1		1		
Quantity : 2											
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.
14/1/16	0	First Edition	CB	SZ	JT		3				
11/10/16	1	comments update	SZ				4				
	2						5				
PROCESS SPECIFICATIONS											
- FLUID			. Type			mash 12% alc					
			. Dry Matter			14% (soluble & non soluble)			% weight		
			. Temperature			33			°C		
			. Specific Gravity			1050			kg/m³		
			. Viscosity			10			cPo		
			. Vapor pressure			0,07			bar abs.		
- MAXI FLOW RATE (guarantee)						90			m³/h		
- PRESSURE			. Discharge			6,1			bar abs.		
			. Suction			1,3			bar abs.		
			. Differential			4,8			bar		
- TOTAL HEAD						46,7			m of liquid		
- NPSH available						11,7			m of liquid		
- MAXI ALLOWABLE pressure and temperature						10 / 100°C			bar g./ °C		
- RUNNING : Continuous/Discontinuous						continuous					
PUMP CHARACTERISTICS											
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%		
- Speed of rotation						1450			rpm		
- Mini flow rate						(*)			m³/h		
- Required NPSH						(*)			m		
- Material			. Casing / impeller			UR 55 Hyp or 316L					
			. Shaft			(*)					
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm		
			. Type (open-close)			Half-open					
- Seal type			. single / double			Double					
			. Material			SiC/SiC					
			. O- ring			(*)					
			. flushing (lubrication)			No lost water			Water l /mn		
- Suction flange			. ND/NP			(*) /ANSI 150 lbs RF					
- Discharge flange			. ND/NP			(*) /ANSI 150 lbs RF					
- Supplier						(*)					
- Model						(*)					
- Construction standard						ISO 2858 / ISO 5199					
- Transmission gear and coupling type						1/2 flexible with spacer					
- Motor :			. Supplier			(*)					
			. Safety type			IP 557 class F					
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz		
			. Power / Speed			(*)			kW / rpm		
- Base plate						(*)					
- Total weight for complet group						(*)			kg		
- Dimensional drawing / Section drawing						(*)					
- Test curves						(*)					
Observations :											
. Plots Wattelez or eq. (anti vibratory / height adjustement)											
. Stainless Steel Lubrication Tank (without cooling) + support											
. Provide pump curves with the quotation											
(*) : To be precised in the quotation											
. Non soluble DM particle size is maximum : <1.5 mm and 50% < 0,5 mm											
. Drain nozzle with plug required on pump casing for freeze protection procedure											

گسترش و توسعه صنعتی ایران تأسیسات گسترش و توسعه صنعتی ایران Zagros Green Fuel Development co. SSZ Ensival Moret A Moret Industries Company 磨锐泵（上海）有限公司 Ensival-Moret (Shanghai) Co., Ltd			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Antifoam pump P0453 Unit : 04					Client :		ZGFDC		
Doc n° :		P999-04-MA-MC-001-P0453										
Made by :		SZ			Rev.		Page					
Date :		11/10/2016			1		1					
Quantity : 1												
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID - MAXI FLOW RATE (guarantee) - PRESSURE - TOTAL HEAD - NPSH available - MAXI ALLOWABLE pressure and temperature - RUNNING : Continuous/Discontinuous			. Type . Dry Matter . Temperature . Specific Gravity . Viscosity . Vapor pressure . Discharge . Suction . Differential			Antifoam		% weight °C kg/m³ cPo bar abs. m³/h bar abs. bar abs. bar m of liquid m of liquid bar g./ °C				
						-						
						30						
						1100						
						10						
						0,01						
						1						
						2,6						
						0,9						
						1,7						
						17,9						
						8,9						
						6 / 100						
Continuous												
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency - Speed of rotation - Mini flow rate - Required NPSH - Material - Impeller - Seal type - Suction flange - Discharge flange - Supplier - Model - Construction standard - Transmission gear and coupling type - Motor : - Base plate - Total weight for complet group - Dimensional drawing / Section drawing - Test curves			. Casing / impeller . Shaft . Actual Ø, Maxi Ø . Type (open-close) . single / double . Material . O- ring . flushing (lubrication) . ND/NP . ND/NP . Supplier . Safety type . Volts . Power / Speed			(*)		kW/kW/% rpm m³/h m mm, mm Water l /mn Volts / Hz kW / rpm kg				
						2900						
						(*)						
						(*)						
						Stainless Steel						
						Stainless Steel						
						(*)						
						(*)						
						(*)						
						(*)						
						(*)						
						No lost water 1						
						/ANSI 150 lbs RF						
						/ANSI 150 lbs RF						
						(*)						
						(*)						
						ISO 2858 / ISO 5199 1						
						direct						
						(*)						
						IP 557 Class F						
400 V 3 ph. / 50 Hz												
(*)												
(*)												
(*)												
(*)												
(*)												
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement) 1 . Provide pump curves with the quotation (*) : To be precised in the quotation 1 . Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Nutrient pump P0454 Unit : 04				Client :		ZGFDC KERMANSHAH			
							Doc n° :		P999-04-MA-MC-001-P0454			
							Made by :		SZ		Rev.	Page
							Date :		11/10/2016		1	1
Quantity : 1												
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.	
14/1/16	0	First Edition	CB	SZ	JT		3					
11/10/16	1	comments update	SZ				4					
	2						5					
PROCESS SPECIFICATIONS												
- FLUID			. Type			Nutrients						
			. Dry Matter			-			% weight			
			. Temperature			30			°C			
			. Specific Gravity			1100			kg/m³			
			. Viscosity			1			cPo			
			. Vapor pressure			0,05			bar abs.			
- MAXI FLOW RATE (guarantee)						10			m³/h			
- PRESSURE			. Discharge			1,6			bar abs.			
			. Suction			0,9			bar abs.			
			. Differential			0,7			bar			
- TOTAL HEAD						7,3			m of liquid			
- NPSH available						8,9			m of liquid			
- MAXI ALLOWABLE pressure and temperature						6 / 100			bar g./ °C			
- RUNNING : Continuous/Discontinuous						Discontinuous						
PUMP CHARACTERISTICS												
- Required power / Maxi brake power / Efficiency						(*)			kW/kW/%			
- Speed of rotation						2900			rpm			
- Mini flow rate						(*)			m³/h			
- Required NPSH						(*)			m			
- Material			. Casing / impeller			Stainless Steel						
			. Shaft			Stainless Steel						
- Impeller			. Actual Ø, Maxi Ø			(*)			mm, mm			
			. Type (open-close)			(*)						
- Seal type			. single / double			(*)						
			. Material			(*)						
			. O- ring			(*)						
			. flushing (lubrication)			No lost water 			Water l /mn			
- Suction flange			. ND/NP			/ANSI 150 lbs RF						
- Discharge flange			. ND/NP			/ANSI 150 lbs RF						
- Supplier						(*)						
- Model						(*)						
- Construction standard						ISO 2858 / ISO 5199 						
- Transmission gear and coupling type						direct						
- Motor :			. Supplier			(*)						
			. Safety type			IP 557 Class F						
			. Volts			400 V 3 ph. / 50 Hz			Volts / Hz			
			. Power / Speed			(*)			kW / rpm			
- Base plate						(*)						
- Total weight for complet group						(*)			kg			
- Dimensional drawing / Section drawing						(*)						
- Test curves						(*)						
Observations :												
. Plots Wattelez or eq. (anti vibratory / height ajustement) 												
. Provide pump curves with the quotation (*) : To be precised in the quotation												
 . Drain nozzle with plug required on pump casing for freeze protection procedure												

			Technical Specification Centrifugal pumps Unit 04 04-MA-MC-001 Germicide pump P0458 Unit : 04				Client :		ZGFDC KERMANSHAH		
			Doc n° :		P999-04-MA-MC-001-P0458						
			Made by :		SZ		Rev.		Page		
			Date :		11/10/2016		1		1		
Quantity : 1											
date	rev	designation	Design	Ver.	App.	date	rev	designation	Design	Ver.	App.
14/1/16	0	First Edition	CB	SZ	JT		3				
11/10/16	1	comments update	SZ				4				
	2						5				
PROCESS SPECIFICATIONS											
- FLUID - MAXI FLOW RATE (guarantee) - PRESSURE - TOTAL HEAD - NPSH available - MAXI ALLOWABLE pressure and temperature - RUNNING : Continuous/Discontinuous			. Type		Germicide		% weight °C kg/m³ cPo bar abs. m³/h bar abs. bar abs. bar m of liquid m of liquid bar g./ °C				
			. Dry Matter		-						
			. Temperature		30						
			. Specific Gravity		1005						
			. Viscosity		1						
			. Vapor pressure		0,05						
					0,7						
			. Discharge		2,7						
			. Suction		0,9						
			. Differential		1,8						
					18,8						
					8,9						
					6 / 100						
					Continuous						
PUMP CHARACTERISTICS											
- Required power / Maxi brake power / Efficiency - Speed of rotation - Mini flow rate - Required NPSH - Material - Impeller - Seal type - Suction flange - Discharge flange - Supplier - Model - Construction standard - Transmission gear and coupling type - Motor : - Base plate - Total weight for complet group - Dimensional drawing / Section drawing - Test curves			. Casing / impeller		(*)		kW/kW/% rpm m³/h m mm, mm Water l /mn Volts / Hz kW / rpm kg				
			. Shaft		2900						
			. Actual Ø, Maxi Ø		(*)						
			. Type (open-close)		(*)						
			. single / double		(*)						
			. Material		(*)						
			. O- ring		(*)						
			. flushing (lubrication)		No lost water 						
			. ND/NP		/ANSI 150 lbs RF						
			. ND/NP		/ANSI 150 lbs RF						
					(*)						
					(*)						
					ISO 2858 / ISO 5199 						
					direct						
					(*)						
					IP 557 Class F						
					400 V 3 ph. / 50 Hz						
					(*)						
					(*)						
					(*)						
					(*)						
		(*)									
Observations :											
. Plots Wattelez or eq. (anti vibratory / height ajustement) 											
. Provide pump curves with the quotation (*) : To be precised in the quotation  . Drain nozzle with plug required on pump casing for freeze protection procedure											