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Multiphase Pump
MW 9.3zk - 90/1 / N

order no. / pos.
NU 81100944 / 1,0
page: 1

1.0 Project Data

Item:	revision						
		customer	: BARIVEN S.A. c/o PDVSA Services B.V. President Kennedylaan 19 NL 2517 JK The Hague	6		**quantity**	: **8**
				7		**delivery date**	: **31.12.2012**
				8		customer-no.	: 352260
				9		expert	: Dirk Schneider
				10		phone/fax	: 05724/390-2382 / -1766
1		order-no.	: 5100095132	11		application	:
2		order-date	: 20.12.2011	12		final destination	: Venezuela
3		project-no.	:	13		application code	:
4		position	:	14		serial-no.	:
5		project name	: Dobo Kubi & Bare Este	15		item-no.	: 1505

2.0 Performance Data

1/2/3		pumped liquid	: Multiphase Mixture with Crude Oil,

		operating points	1.	2.	3.	guarantee			operating points	1.	2.	3.	guarantee
4	3	temperature (C°)	: 40,0	0,0		40,0	14	1	capacity (m³/h)	: 768,00			768,00
5	3	viscosity (mm²/s)	: 446			446	15	1	suction pressure (bar)	: 8,30			8,30
6		gravity (kg/dm³)	:				16	2	discharge pressure (bar)	: 34,50			34,50
7		vapour pressure (bar)	:				17	2	diff. pressure (bar)	: 26,20			26,20
8	1	gas content (%)	: 71,0			71,0	18	2	speed (1/min-)	: 1561			1561
9		solid content (%)	:				19	2	shaft power (kW)	: 868,00			868,00
10		particle size (mm)	:				20		motor power (kW)	: 1119,00			1119,00
11		pH-value	:				21		NPSH required (m)	:			
12		condition (liqu./gas.)	:				22		NPSH available (m)	:			
13		remarks	:										

3.0 Material Execution

1		pump casing	: P265GH (fabricated carbon steel)	7	bearing housing	: EN-GJL-250 s. t. ASTM A48 cl. 40
2		screws	: 1.4057 sim. to AISI 431	8	sealing housing	: 1.4057 sim. to AISI 431
3		shafts	: 1.4542 sim. to AISI 630 + Cr3C2	9	flat gaskets	: fiber composition, non asbestos
4		liner	: EN-JS3011 s.t AISI D2 A439 hcp	10	o-rings medium wett.	: FKM
5		intermediate flange	: P265GH (fabricated carbon steel)	11	non med. wetted seals	: FKM
6		remarks	:			

4.0 Shaft Sealing

1		construction / function	: mechanical seal, single acting + radial shaft sealing	6		API-plan	: 52
2		manufacturer	: Burgmann	7		piping	: BORNEMANN
3		type	: HSHJ42	8		piping execution	: stainl. st. pipes, fitt. Swagelok stainl.
4		material code	: AQ1VMG1 + FPM	9		quench / barrier fluid	: oil, low viscous
5		remarks	:				

5.0 Bypass / Heating / Design / Bearings

1		bypass	: without handwheel (Leser unit)	9		heating fluid data	: bar °C
2	2	setting point	: 30,0 bar	10		bearing life time	: h
3		max. suction pressure	: bar	11		additional execut. 1	:
4		casing design	:	12		additional execut. 2	:
5		design data heating	:	13		measuring points 1	: 1x 1/2"NPT für Pt-100 at pump casing
6		heating	: -	14		measuring points 2	: 4x G1/2" for Pt-100 at bearing casing
7		heating fluid	:	15		----------	:
8		remarks	:				

6.0 Flanges / Connections

			rule	size	press. rate	position
1	2	suction	: ANSI B16,5	12"	300 lbs RF	left
2	2	discharge	: ANSI B16,5	12"	600 lbs RF	top
3		heating	:			
4	2	drain	: ANSI B16,5	2"	300 lbs RF	bottom
5		quench	:			
6		cooling	:			
7		flange options	:			
8		remarks	:			

issued: Schneiderd / 24.07.2012 checked: Sawatzkij / 01.08.2012 revised: Sawatzkij / 01.08.2012 **rev.: 3**

7.0 Installation / Rotation / Name Plate

1		installation	:	horizontal	5		rotation	:	cw
2		location	:		6		pos. of drive shaft	:	left
3		area classification	:		7/8	2,2	name plate	:	Spanish / stainless steel
4		remarks	:						

8.0 Accessories

1	2	base plate	:	sectional steel	9	2	maker coupling	:	KTR
2		executioncode	:		10	2	coupling type	:	Rigiflex
3		option base plate 1	:		11	2	coupling guard	:	brass
4		option base plate 2	:		12		cover for drive	:	
5	2	drip pan	:	complete, integrated in base plate	13		instruments/options	:	
6		mounting option 1	:		14		spare parts	:	
7		mounting option 2	:		15		electrical wiring	:	
8		remarks	:						

9.0 Drive

1	2	drive system	:	3-phase-motor					11	2	frequency (Hz)	:	60
2		type	:						12	2	protection	:	IP 55
3		manufacturer	:		13	2	explosion proof	:	class 1, Div. 2 T3				
4/5		size/ mounting form	:	/ B3	14	2	insulation class	:	F used acc. to B (155 / 130 °C)				
6		start	:		15		certificate	:					
7	2	power (kW)	:	1119	16		supplied by	:					
8	2	speed (1/min-)	:	1561	17		assembly	:					
9	2	voltage (V)	:	4160	18	2	part no. drive	:					
10	3	remarks	:										

10.0 Painting / Conservation

1	2	painting	:	grey, RAL 7038 (Qffshore)	5	2	intermediate coat	:	acc. to QSA 09010 (Offshore)
2	2	surface preparation	:	acc. to QSA 09010 (Offshore)	6	2	final coat	:	acc. to QSA 09010 (Offshore)
3	2	primer coat	:	acc. to QSA 09010 (Offshore)	7	2	preservation	:	acc. to QSA 09011 standard
4		remarks	:						

11.0 Mill Certs / Testing

1		casing	:	EN 10204-3.1	11		liner	:	EN 10204-3.1
2		shafts	:	EN 10204-3.1	12		bearing housing	:	
3		screws	:	EN 10204-3.1	13		intermediate flange	:	EN 10204-3.1
4		additional parts	:						

		Testing	yes/no	according to	by	pressure	test medium
5	2	hydrostat. press. test	: yes	EN 10204-2.2		75 barg	water
6	2	performance test	: yes	VDMA 24284			water
7		NPSH-test	:				
8		noise level test	: yes	QSP 10 032	BORNEMANN		
9		vibration test	: yes	QSP 10 031	BORNEMANN		
10		remarks	:				

12.0 Documentation

1	2	language	:	English / Spanish	6	2	operation manual	:	3-fold
2	2	hydrostat. press. test	:	3-fold	7	2	mill certs	:	3-fold
3	2	performance test	:	3-fold	8	2	dimensional drawing	:	3-fold
4		documents to	:						
5		remarks	:						

13.0 Weights / Packing

1		pump	:	kg	3		accessories	:	kg	5		total gross	: kg
2		base plate	:	kg	4		total net	:	kg	6		packing	:

14.0 Remarks

1	