

Multiphase Pump
MW7T.3zk - 39/1 / N

order no. / pos.
NU 81200545 / 1,0
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1.0 Project Data

Item	revision	customer	: Bornemann Inc	6	quantity	: 1
				7	delivery date	: 14.12.2012
				8	customer-no	: 399492
		320 441 5th Avenue S W		9	expert	: Katharina Ouart
		CA Calgary Alberta T2P 2V1		10	phone/fax	: 05724/390-1705 / 130
1		order-no	: BIC2390	11	application	: Cold Lake
2		order-date	: 09 07 2012	12	final destination	: Canada
3		project-no		13	application code	
4		position		14	serial-no	
5		project name	: Cenovus - Osprey	15	item-no	: 1500

2.0 Performance Data

1/2	pumped liquid : Multiphase Mixture, 420 ppm H2S, 12000 ppm CO2															
1/3																
	operating points				1.	2.	3.	guarantee	operating points				1.	2.	3.	guarantee
4	temperature	(C°)	150,0	150,0			150,0		14	capacity	(m³/h)	27,85	113,45			
5	viscosity	(mm²/s)	1,00	1,00			1,00		15	suction pressure	(barg)	5,80	0,50			
6	gravity	(kg/dm³)	0,898	0,898			0,898		16	discharge pressure	(barg)	21,00	21,00			
7	vapour pressure	(bara)							17	diff pressure	(bar)	15,20	20,50			
8	gas content	(%)	97,0	97,0			97,0		18	5 speed	(1/min)	552	1326			
9	solid content	(%)							19	shaft power	(kW)	22,00	77,00			
10	particle size	(mm)							20	motor power	(kW)					
11	pH-value								21	NPSH required	(m)					
12	condition (liqu /gas)								22	NPSH available	(m)					
13	remarks	The operating data may contain assumed values Please check !														

3.0 Material Execution

1	1	pump casing	: ASTM A 516 Gr 70	7	bearing housing	: EN-GJL-250 s t ASTM A48 cl 40	
2	1	screws	: 1 4542 sim to AISI 630	8	2	sealing housing	: 1 4462 (duplex) sim to UNS 31803
3		shafts	: 1 4542 sim to AISI 630 + Cr3C2	9		flat gaskets	: fiber composition, non asbestos
4		liner	: EN-JS3011 s t AISI D2 ASTM A439	10		o-rings medium wett	: FKM
5	1	intermediate flange	: ASTM A 516 Gr 70	11		non med wetted seals	: FKM
6	2	remarks	: Duplex weld overlay for liner support and intermediate flange area				

4.0 Shaft Sealing

1	construction / function	: mechanical seal, single acting + radial shaft sealing	6	2	API-plan	: 52	
2	manufacturer	: Burgmann	7	2	piping	: BORNEMANN	
3	2	type	: HSHJ42	8	2	piping execution	: stainl st pipes, fitt Swagelok stainl
4		material code		9	2	quench / barrier fluid	: oil, low viscous
5	2	remarks	: HSHJ42SX/80-EX, API plan 52(62)				

5.0 Bypass / Heating / Design / Bearings

1	bypass	: adjustment locked	9	heating fluid data	: barg	: °C
2	3	setting point	: 23,0	10	bearing life time	: h
3		max suction pressure	: 10	11	additional execut. 1	
4	4	casing design	: 43 bar, 200 °C	12	additional execut. 2	
5		design data heating		13	measuring points 1	: see below
6		heating		14	measuring points 2	: 4x G1/2" for Pt-100 at bearing casing
7		heating fluid		15		
8	2	remarks	: 1 x 3/4"NPT instrument connection at discharge size			

6.0 Flanges / Connections

		rule	size	press. rate	position
1	suction	: ANSI B16,5	: 10"	: 300 lbs RF	: left
2	discharge	: ANSI B16,5	: 10"	: 300 lbs RF	: top
3	heating				
4	drain	: ANSI B16,5	: 1"	: 300 lbs RF	: bottom
5	quench				
6	cooling				
7	flange options				
8	remarks				

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7.0 Installation / Rotation / Name Plate

1	installation	horizontal	5	rotation	cw
2	location	indoor	6	pos. of drive shaft	left
3	area classification		7/8	name plate	English / aluminium
4	remarks				

8.0 Accessories

1	base plate		9	maker coupling	
2	execution code		10	coupling type	
3	option base plate 1		11	coupling guard	
4	option base plate 2		12	cover for drive	
5	drip pan		13	instruments/options	
6	mounting option 1		14	spare parts	
7	mounting option 2		15	electrical wiring	
8	remarks				

9.0 Drive

1	drive system		11	frequency (Hz)	
2	type		12	protection	
3	manufacturer		13	explosion proof	
4/5	size/ mounting form	/	14	insulation class	
6	start		15	certificate	
7	power (kW)		16	supplied by	
8	speed (1/min)		17	assembly	
9	voltage (V)		18	part no. drive	
10	remarks				

10.0 Painting / Conservation

1	painting	silver, RAL 9006 (up to 400°C)	5	intermediate coat	acc. to QSA 09025 (up to 400°C)
2	surface preparation	acc. to QSA 09025 (up to 400°C)	6	final coat	acc. to QSA 09025 (up to 400°C)
3	primer coat	acc. to QSA 09025 (up to 400°C)	7	preservation	acc. to QSA 09011 (2 years)
4	remarks				

11.0 Mill Certs / Testing

1	casing	EN 10204-3 1 + NACE	11	liner	EN 10204-3 1 + NACE	
2	shafts	EN 10204-3 1 + NACE	12	bearing housing	EN 10204-2 2	
3	screws	EN 10204-3 1 + NACE	13	intermediate flange	EN 10204-3 1 + NACE	
4	additional parts	NACE MR 0175 for all medium wetted parts				
Testing						
		<u>yes/no</u>	<u>according to</u>	<u>by</u>	<u>pressure</u>	<u>test medium</u>
5	hydrostat press test	yes	EN 10204-2 2	BORNEMANN	75 barg	
6	performance test	yes	VDMA 24284	Hertzer		
7	NPSH-test					
8	noise level test	yes	QSP 10 032	customer		
9	vibration test	yes	QSP 10 031	customer		
10	remarks	Noise max 85 dBA				

12.0 Documentation

1	language	English	6	operation manual	
2	hydrostat press test		7	mill certs	
3	performance test		8	dimensional drawing	
4	documents to				
5	remarks	Documentation 5 hard copies and 1 electrical copy			

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 Pump data and documentation to be supplied / tagged for

Cenovous FCCL Ltd
Project Osprey CSS Pilot Project
LSD 11-02-070-04 W4W