








Contractor:  <b>TIANCHEN CORP. CHINA</b>	PROJECT	MKP Methanol Project			Owner :  شرکت کیمیاوی پارس خاور سینجان <i>Methanol East Hsinjiang Pura Co.</i>
	UNIT	Flare	PHASE	Basic Engineering	
	Doc. Title	Pump Calculation for unit 8500			
	Owner No.	MKP-11-BE-8500-PR-CAL-001			
	Contractor	MKP-11-BE-8500-PS84-CAL-001			
Licensor: <b>HALDOR TOPSOE</b> 	Licensor No.	N/A			Rev. :2 Page : 1 of 4

**Pump Calculation for unit 8500**

REV.	DATE	PURPOSE OF ISSUE	PREPARE	CHECK	REVIEW	APPROVE
2	12.4.2016	Issued for Information	Luo Jiaqi	Xu Hang	Shi Jing	
1	23.2.2016	Issued for Information	Luo Jiaqi	Xu Hang	Shi Jing	
0	30.12.2015	Issued for Information	Luo Jiaqi	Xu Hang	Shi Jing	



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Licensor:	TOPSOE No.			N/A			Rev. : 2	Page : 3 of 4
ITEM NO.	P8511							
SERVICE	Knock-out Drum Pump							
SECTION	Suction Side			Discharge Side				
	A			D				
TOTAL EQUIV. L.L.,m	48.80			43.28				
ACTUAL L.LENGTH, m	20			20				
ELL FOR ELEMENTS, m	28.8			23.28				
Pipe Inside Dia(mm)	100			80				
VALVES	Gate	1		1				
	Globe	0		0				
	Check	0		1				
	Angle	0		0				
	Butterfly	0		0				
	Cock	0		0				
	Ball	0		0				
	Diaphragm	0		0				
FITTINGS	T Type	1		0				
	45 Elbow	0		0				
	90 Elbow	3		4				
	Reducer & Flex.	0		1				
	Tee Strait Branch	0		0				
CASE DESCRIPTION								
FLUID INFORMATION	REMARK							
Liquid Pumped								
Flow Rate , m3/h @15°C	30.00							
Operature Temp. , °C	50.00							
Density @ Temp., kg/m3	990.00							
Viscosity @ Temp., mPa.s(cP)	0.40			0.40 cSt				
Vapor press. @ Temp., bar a	0.12							
Pump Flow Rate @ Temp., m3/h	30.00			Flow rate coefficient		1.20		
Pipe Roughnees, mm	0.20							
SUCTION SIDE:								
Press. @ B.L., bar a	1.00			max. pressure		1.00		
Static Heads, bar	0.03			@HLL,m: 6.1		@LLL,m: 0.80		
Pipe Friction, bar				m3/h		DN		
Section-A DN1	0.07			30.00		100.00		
Section-B DN2	N/A			N/A		N/A		
pulse loss coefficent Kacc	1							
Acceleration loss Hacc, bar				R, r/min		C		
Press. Drop @ Suction Heater, bar	N/A			N/A		N/A		
Press. Drop @ Suction Strainer, bar	0.1							
Net Suction Press., bar a	0.7			Pump Suction press		0.86		
NPSH Available, m	7.6			Pump Center Elevation		0.50 m		
DISCHARGE SIDE:								
Press. @ B.L., bar a	2.0							
Static Heads, bar	0.8			@HLL,m: 9.0		@LLL,m: 6.5		
Pipe Friction, bar				m3/h		DN		
Section-D, bar	0.2			30.00		80.00		
Press. Drop @ CV, bar	0			Should be the higher of 100KPa or 30% of discharge side loss.				
Press. Drop @ FQI, bar	0							
Press. Drop @ Filter, bar	0							
Press. Drop @ Reactor, bar	0							
Press. Drop @ Exchanger, bar	0.00							
Total Disch. Press., bar a	3.0							
PUMP INFORMATION								
Differential Press., bar	2.2			Estimated shut-off pressure, barg 1)		2.00		
Total Net Head, m	22.4			Rated Head Coefficient		1.05		
Hydraulic, kW	1.81			Efficiency		0.80		
Shaft, kW	2.37			Margin coefficient		1.25		
Power, kW	11			Driven coefficient		1.00		
Remarks				Max. Discharge Press., bar a		3.0		
1.To be verified by pump vendor								

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	Unit: Flare	PHASE	Basic Engineering		
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