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|---|--------------------------------|--|-------|---|---------------|-------------------|
| Contractor:  TIANCHEN CORP. CHINA | Project : MKP Methanol Project | | | Owner :  شرکت کیمیای پارس خاورمیانه <i>Middle East Kinayah Pars Co.</i> | | |
| | Unit | Flare | Phase | | | Basic Engineering |
| | Doc. Title : | Data Sheet for P 8511, Knock Out Drum Pump | | | | |
| | Owner No. | MKP-11-BE-8500-PR-DSH-003 | | | | |
| | Contractor No.: | MKP-11-BE-8500-PS11-DSH-032 | | | | |
| Licensor: HALDOR TOPSOE  | TOPSOE No. | N/A | | Rev. : 0 | Page : 1 of 3 | |

Data Sheet for P 8511, Knock Out Drum Pump

| REV. | DATE | PURPOSE OF ISSUE | PREPARE | CHECK | REVIEW | APPROVE |
|------|------------|---------------------|-----------|---------|----------|---------|
| 0 | 7.6.2016 | Final Issue | Li Yanan | Xu Hang | Shi Jing | |
| C | 12.4.2016 | Issued for Review | Luo Jiaqi | Xu Hang | Shi Jing | |
| B | 18.2.2016 | Issued for Review | Luo Jiaqi | Xu Hang | Shi Jing | |
| A | 30.12.2015 | Issued for Comments | Luo Jiaqi | Xu Hang | Shi Jing | |

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Operation Condition

| | | | | | | | | |
|----|---|--------------------------------------|----|-----------------------------------|---------|------------------------------|-------|-------------------|
| 1 | Type | Centrifugal | 13 | Flowrate Rated | 30.0 | Normal | N/A | m ³ /h |
| 2 | Fluid | Liquid (Water, Methanol) | 14 | Press. Suc. Rated | 0.86 | Max | 0.95 | Bar a |
| 3 | Fluid Temperature | amb, 75(max) °C | 15 | Press. Dis. Rated | 2.30 | Max | 2.80 | Bar a |
| 4 | Density (at Oper. Temp.) | 990 (50°C) kg/m ³ | 16 | Differential Press. | 1.44 | | Bar | |
| 5 | Viscosity (at gas temp.) | 0.400 mPa.s | 17 | Head | 30 | | m | |
| 6 | Solid content | N/A %Wt | 18 | NPSHa | 4 | | m | |
| 7 | Saturated Vapor Pressure (at operating temperature) | 0.12 (50°C) Bar a | 19 | Submerging Depth (submerged pump) | N/A | | m | |
| 8 | Risk | Inflammable and explosive | 20 | Heating and Cooling Jacket | N/A | | | |
| 9 | Recommended Material | C.S | 21 | Oper. Press. inside Jacket | N/A | | Bar g | |
| 10 | Explosion-proof Class | dII CT3 | 22 | Oper. Temp. inside Jacket | N/A | | °C | |
| 11 | Service behavior | Intermittent | 23 | Efficiency | 0.8 | (it is confirmed by vendors) | | |
| 12 | Hydraulic | 1.81 kW (it is confirmed by vendors) | 24 | Shaft Power | 2.37 kW | (it is confirmed by vendors) | | |

Installation Condition

| | | | | | |
|--------------------------|--------------|----------------------|----------------|-------|----------|
| Installation Environment | Outdoor | Driver Type | Electric motor | | |
| Flange Code | ASME B16.5 | Cooling Water Press. | 4.5 Bar g | Temp. | 38/48 °C |
| Rated press. | Class 150 RF | Steam Press. | N/A Bar g | Temp. | N/A °C |

Remarks

1. There must be companion flange in the inlet and outlet of the pump.
2. No leakage of methanol is allowed.