Process Data Sheet For C2 Plus Tank Pump (70-P-7171A/B/S)

Contract No:

Project: Dehloran Olefin Plant

Owner: Dehloran Petrochemical Company (DPC)

Site: Dehloran Petrochemical Site

Rev.	DATE (DD.MM.YY)	PURPOSE OF ISSUE	PREPARED	CHECKED	APPROVED	AUTHORIZED
05						
04						
03						
02						
01	04.02.2019	Issued for Approval	H. Sadeghi	M. Mirsadeghi	H. Rayhani	A. Nouri
00	12.31.2018	Issued for Approval	S. Jafarzadeh	M. Mirsadeghi	H. Rayhani	A. Nouri

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	Note										Rev
		GENERAL DATA									
		Type	CENTRIFUGAL								
		No. of Main/Stand By Units	2 / 1								
		Centrifugal Type	VERTICAL								
		Positive displacement Type									
		Item	70-P-7171A/B/S								
		Service	C2 Plus Tank Pump		Installation	Other	(SUBMERGE)			(Note 8)	01
		Operation	Continuous		Parallel						
		Type of Driver	Motor	No. of Motor / Engine / Steam Turbine / Gas Turbine Driven:	3 / / /						
		CHARACTERISTICS OF HANDLED LIQUID									
		Type of Handled Liquid			C2+ Hydrocarbons						
		Pumping Temp. (Min. / Normal / Max.)	C	/ / -85.50							
		Density at Min. / Norm / Max. Temp.	kg/m3	/ / 616							
		Viscosity At Min. / Normal / Max. Temp.	cP	/ / 0.27							
		Specific Heat	Kj/KgK	2.27							
		Vapour Pressure at Max. Pumping Temp.	Bar(a)	0.99							
		Freezing Point / Pour Point	C	/							
		Dissolved Gas	Yes-No	No							
		Corrosive / Erosive / Hazard. Agents / Flammable/Other	Yes-No	No	No	Yes	Yes				01
		Corrosion / Erosion Caused by									
		Chloride Concentration / H2S Concentration	mm	/							
		Suspended solids (Type / Dimen. / Vol.%)	mm	- / - / -							
		OPERATING CONDITIONS									
		Suction Pressure (Min. / Normal / Max.)	Bar(g)	/ 0.1 (Note 12) / 1.35							01
		Discharge Pressure at Rated Capacity	Bar(g)	28.45							01
		Differential Pressure at Rated Capacity	Bar	28.35							
		Capacity (Min. / Normal / Rated)	m3/h	42.56 / 106.40 / 117						(Note 2)	01
		Head at Rated Capacity	m	469							
		NPSH Available	m							(Note 8)	01
		Max Allowable Pressure at Shut-Off	Bar(g)	35.40							
		Hydraulic Power	kW	92.10							01
		Reacceleration / Automatic Start-Up	Yes-No	No / Yes							
		Start-Up with Delivery Valve / Flow Controlled By		Open-Valve / Pressure Controller							
		Vertical									
		Minimum Liquid Level from Bottom of Sump	mm								
		Sump Depth	mm								
		Positive Displacement									
		Flow Control Required / Mode / Type / Method		/ / /							
		Pulsation dampeners at suction and discharge	Yes-No								
		Calibration Pot Required	Yes-No								
		Residual Pulsation on Discharge									
		Relief Valve Setting	barg								
		DESIGN CONDITIONS									
		Design Temperature: Min / Max	C	-104 / 55							
		Design Pressure	Bar(g)	35.4							
		MECHANICAL DATA									
		Contamination of Liquid Handled Allowed	Yes-No	NA							
		Air Entrainment Allowed / Leaks Allowed	Yes-No	NA / NA							
##		Antifreezing Protection	Yes-No	NA							
##		Suction Line: Diameter / Rating	in	NA / NA							01
##		Discharge Line: Diameter / Rating	in	6 /							
##		Mat. in Contact with Liq. Handled (Min.)		A-8							
##		Casing Corrosion Allowance	mm								

Note											Rev
	PUMP DRIVER DATA										
	Type of Driver	Motor									
	STEAM TURBINE										
	Type				Total No. of Req.						
	Steam Charachteristics	Estimated Flow Rate		kg/h	Pressure		Bar(a)	Temperature		C	
		Min.	Normal	Max.	Min.	Normal	Max.	Min.	Normal	Max.	
	Inlet										
	Exhaust										
	Induction										
	Extraction										
	Relief Valve Setting	Inlet:			Extraction:			Other:			
	Absorbed Power	Normal			Rated			Other:			
	GAS ENGINE-GAS TURBINE										
	Fuel Gas Characteristics										
	Molecular Weight	Kg/Kgmol									
	Net Heating Value	kJ/kg									
	Gross Heating Value	kJ/kg									
	Operating Temperature (Min./ Normal / Max.)	C			/			/			
	Operating Pressure (Min./ Normal / Max.)	Bar(g)			/			/			
	Design Temperature	C									
	Design Pressure	Bar(g)									
	DIESEL ENGINE										
	Fuel Oil Characteristics										
	Supply Pressure (Min./ Normal / Max.)	Bar(g)			/			/			
	Return Pressure (Min./ Normal / Max.)	Bar(g)			/			/			
	Temperature (Min./ Normal / Max.)	C			/			/			
	Net Heating Value	kJ/kg									
	Design Temperature	C									
	Design Pressure	Bar(g)									

Note		Rev
	NOTES	
1.	1- For Detail refer to PID No.: 70-BD-PR-PID-7104/5/6.	
2	2- Design (rated) flow rates is 110 % of normal flow rate. Turn down flowrate is 40% of normal flow rate of base case.	
3	3- Deleted	
4	4- Estimated effciency is 65% and Estimated shaft power is 142 KW.	
5	5- Deleted	
6	6- Deleted	
7	7- The fluid is at boiling point.	
8	8- Submerged pump type to be located in tank 70-TK-7101. NPSHA to be advised by pump vendor.	
9	9- For site condition refer to Doc. No.: 10-BD-00-PR-SPC-0001.	
10	10- Pump hydraulic calculation based on Case 5.	
11	11- Pump shut-off has been calculated based on 1.2 x differential pressure + Max suction pressure; this figure shall be rechecked during detail design based on vendor data.	
12	12- Estimated, Minimum pumping level at full rate to be guarnteed by vendor.	