

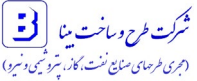






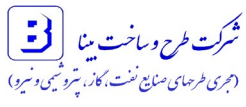






Owner:  شرکت پتروشیمی پارس Pars Petrochemical Co.		PARS PETROCHEMICAL COMPANY PROPANE DEHYDROGENATION (PDH) PROJECT Duty Specification for Sodium Carbonate Dosing Package (81-W-505)					Contractor:  پناه صنعت پارت Parsan Sanat Part  شرکت طرح و ساخت مینا (مهری طراحی صنایع نفت، گاز، پتروشیمی و نیرو)		
MC: 									
Document Number:		Project Code	Sec.	Phase Code	Department	Doc. Type	Serial No.	Rev.:	Page
		3981-50-DE-PR-DSP-018					07	1 of 6	
Duty Specification for Sodium Carbonate Dosing Package (81-W-505)									
07	27-Sep-25	Final Issue			M.Fallahi	M.Jamshidi	M.H.Eshraghi		
06	25-Aug-25	Final Issue			M.Fallahi	M.Jamshidi	M.H.Eshraghi		
05	7-May-25	Final Issue			M.Fallahi	M.Jamshidi	M.H.Eshraghi		
04	26-Feb-25	Issued For Approval			M.Fallahi	M.Jamshidi	E.Shafaghathi		
03	27-Jan-25	Issued For Approval			M.Fallahi	M.Jamshidi	E.Shafaghathi		
02	11-May-24	Issued For Approval			M.Afsar	A.Hadipour	A.Aghaei		
01	25-Dec-23	Issued For Approval			M.Afsar	A.Hadipour	A.Aghaei		
00	22-Nov-23	Issued For Approval			F.Ebrahimi	A.Hadipour	D.Mirblouki		
Rev.	Date	Purpose of Issue			Prepared	Checked	Approved		
									Class: 1

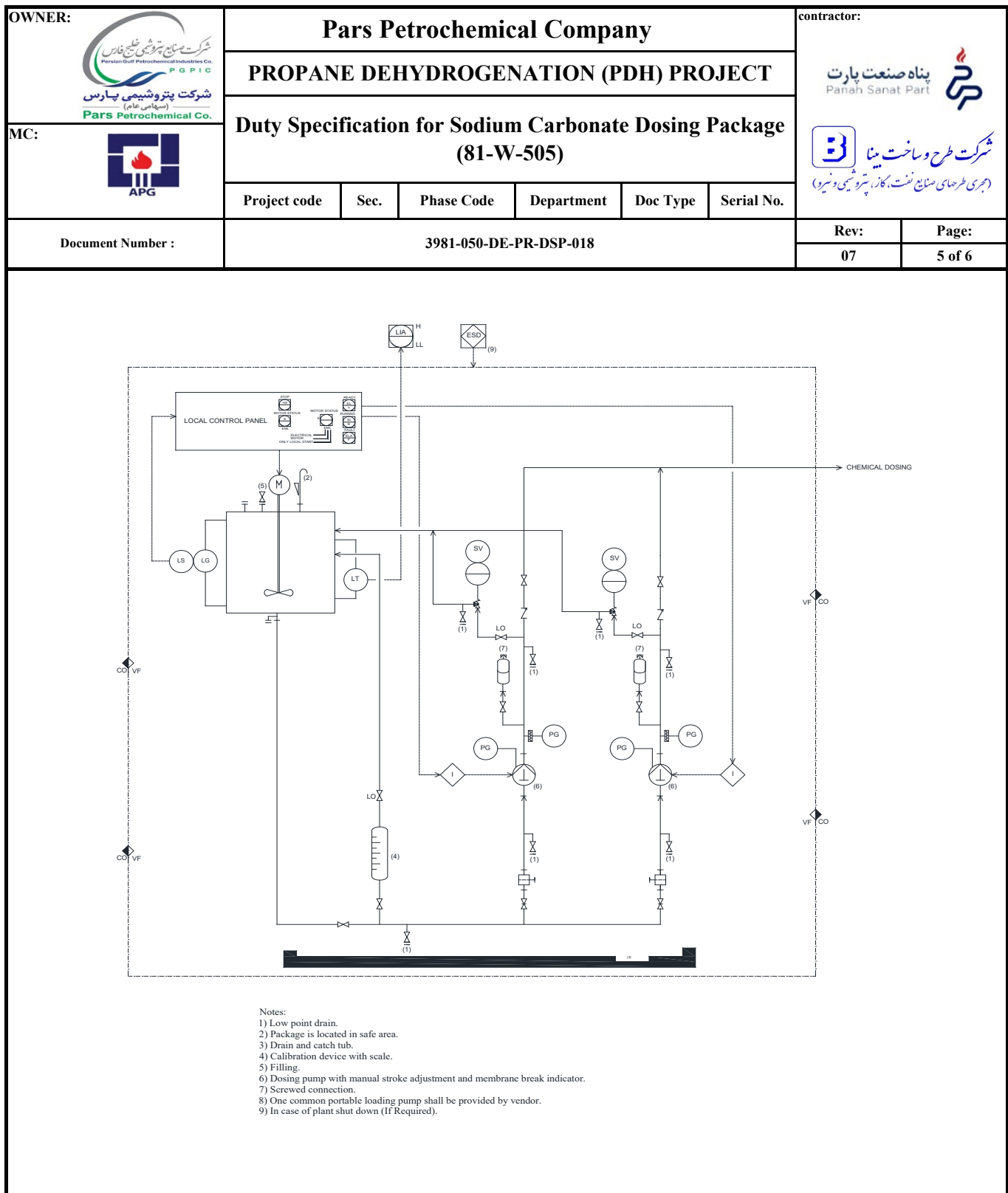
Owner:  شرکت پتروشیمی پارس Pars Petrochemical Co.		PARS PETROCHEMICAL COMPANY PROPANE DEHYDROGENATION (PDH) PROJECT						Contractor:  پناه صنعت پارت Panah Sanat Part شرکت طرح و ساخت پناه (جرئی خدماتی صنایع نفت، گاز، پتروشیمی و نیرو)																		
MC:  APG		Duty Specification for Sodium Carbonate Dosing Package (81-W-505)																								
Document Number:		Project Code	Sec.	Phase Code	Department	Doc. Type	Serial No.	Rev.: 07	Page: 2 of 6																	
		3981-050-DE-PR-DSP-018																								
TABULATION OF REVISED PAGES																										
Page	Revision								Page	Revision								Page	Revision							
	00	01	02	03	04	05	06	07		00	01	02	03	04	05	06	07		00	01	02	03	04	05	06	07
1	X	X	X	X	X	X	X	X	37																	
2	X	X	X	X	X	X	X	X	38																	
3	X	X		X		X			39																	
4	X	X		X	X	X			40																	
5	X	X		X	X	X	X		41																	
6	X	X	X	X		X			42																	
7									43																	
8									44																	
9									45																	
10									46																	
11									47																	
12									48																	
13									49																	
14									50																	
15									51																	
16									52																	
17									53																	
18									54																	
19									55																	
20									56																	
21									57																	
22									58																	
23									59																	
24									60																	
25									61																	
26									62																	
27									63																	
28									64																	
29									65																	
30									66																	
31									67																	
32									68																	
33									69																	
34									70																	
35									71																	
36									72																	




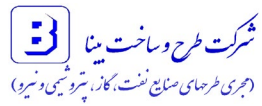
OWNER:		 Pars Petrochemical Company					contractor:	
		PROPANE DEHYDROGENATION (PDH) PROJECT						
MC:		Duty Specification for Sodium Carbonate Dosing Package (81-W-505)						
		Project code	Sec.	Phase Code	Department	Doc Type	Serial No.	
Document Number :		3981-050-DE-PR-DSP-018					Rev:	Page:
							07	3 of 6

1	Note	General Information		Rev
2		Project Description		
3		Project Description		
4		Pars Petrochemical Company intends to build Propane Dehydrogenation (PDH) Plant for Producing Propylene as Product near Bushehr, Pars Petrochemical Company, Iran. EPCC Contractor for PDH plant: Bina EPC Contractor-Panah Sanat Part Company. Main product is 600 KTY Propylene.		
5		The plant is to produce Propylene comprises of several main process units, including Feed preparation, Reaction Trains, Gas Compression, CO2 Removal, Separation and Fractionation.		
6				
7		Injection Package Description		
8		This document defines the process basic requirement for the design and supply of Sodium Carbonate Dosing Package for PDH. The Sodium Carbonate Dosing Package has to be utilized in cooling water basin for raise the PH of water and PH adjustment of water.		
9		Chemical media will be stored in storage tank. The chemical storage tank shall have a minimum working capacity of 3 days based on the normal flow rate.		
10		Injection is ensured by metering pumps, which is stopped/protected by tank low low level (to be finalized by package vendor.)		
11		Package Requirements		
12		Scope of supply and work shall include the complete system consisting of mainly the equipment, machinery, piping, electrical, instrument etc. but not limited to following items. (see detailes in next pages)		
13		- One Storage /Dilution Vessel (with mechanical agitator in case chemicals are supplied as solid or dilution is required): included in package Sec. 81-W-505.		
14		- Two Sets of Dosing Pumps: included in package Sec. 81-W-505 with discharge pulsation dampeners.		
15		- Each pump shall operate at all flow rates between 10 and 100% of design capacity		
16		- The injection pumps shall be design for 200% of the normal flow.		
17		- Connecting piping valves and accessories.		
18		- Required instrumentation and control for safe operation.		
19		-Discharge pulsation dampener for each pump individually.		
20		- One set of calibration pot (common for both pumps).		
21		- The vendor shall provide a skid mounted injection package Including above mentioned items to make sure package operates safely		
22		and efficiently. This skid shall have proper facilities for maintenance, operation and easy transportation.		
23		NOTE: one common plant air driven portable loading pump shall be provided to transfer chemicals from barrels to tank.		
24		Package type A: Package type A is considered standalone package unit with no (or very limited) interface with DCS, ESD and F&G systems. (4)		
25				
26				

OWNER:		<div>  <div> Pars Petrochemical Company PROPANE DEHYDROGENATION (PDH) PROJECT Duty Specification for Sodium Carbonate Dosing Package (81-W-505) </div> </div>						contractor:	
MC:		<div>  <div> پناه صنعت پارس Patah Sanat Pars شرکت طرح و ساخت پارس (پارس صنعت) PARS Petrochemical Co. </div> </div>						<div>  <div> پناه صنعت پارس Patah Sanat Pars شرکت طرح و ساخت پارس (پارس صنعت) PARS Petrochemical Co. </div> </div>	
Document Number :		3981-050-DE-PR-DSP-018						Rev: 07 Page: 4 of 6	

1	Note											Rev	
2		Item No. 81-W-505						Service of Unit Sodium Carbonate Dosing					
3		No. Required	Working	1	Standby	0	Total	1	Operation			Continuous	
4		Injection System for Cooling Tower Package											
5		Liquid Injected Sodium Carbonate											
6													
7		INJECTION LIQUID											
8		Liquid Sodium Carbonate Solution						Temperature Ambient C					
9		Injec. Flow	l/h	Nor.	18	(1)	Rated	36	(1)	Specific Gravity Kg/Lit 1 ± 0.1 (1), (14)			
10		Flow Rate to be Treated 30000 (1) m3/h						Dosage (1)		Viscosity (1) centipoise			
11		Make Up Solvent 15 (1) l/h						Vapour Pressure (1)					
12		Pressure Required at Injection Point 0 Bar(g)						Corrosive/Erosive Fluid Yes / No (1)					
13								Hazardous/Flammable/Toxic Yes / No / Yes (1)					
14		INJECTION PUMP						SOLUTION TANK					
15		Item No.						Item No.		No. Required 1			
16		Service Sodium Carbonate Dosing Pump						Service Sodium Carbonate Dosing Tank					
17		No. Required	Working	1	Standby	1							
18		Flow Nor. 18 (1) l/h						Storage Time Day		3 (28)			
19		Flow Rated 36 (1) l/h						Capacity m3		1.5 (1) (28)			
20		Press. At Discharge 3 Bar(g)						Design Pressure Bar(g)		ATM+Full of Liquid			
21		Press. At Suction ATM Bar(g)						Design Temp. C		65 (12)			
22		Type Metering Pump						Operating Press. Bar(g)		Atm.			
23		Cylinder/Case Plastic Material (7)						Operating Temp. C		Amb.			
24		Plunger/Int						Type		(3)			
25		Diaphragm						Size mm		(3)			
26		BHP (3) kW						Thickness mm		(3)			
27								Buffer Tank Volume m3		N/A			
28		Capacity Control Mode Manual						Material		HDPE (1)			
29		Capacity Control range % 10-100						Accessories		<input checked="" type="checkbox"/> Level Gauge <input type="checkbox"/> Measuring Cup			
30		Capacity Control Type/Signal Local /						<input type="checkbox"/> Baffles <input type="checkbox"/> Level Switch <input checked="" type="checkbox"/> Inner Basket					
31		Capacity Control Stroke Adjustment						<input type="checkbox"/> Floating Cover <input type="checkbox"/> Steam Bubbling <input checked="" type="checkbox"/> Level Transmitter					
32		Relief Valve Set. barg 4.5						<input type="checkbox"/> Steam Heater <input type="checkbox"/> Electrical Heater					
32		Design Temp. C 65 (12)						Design Pressure Bar(g) 4.5					
33		AGITATOR											
34		Agitator Required Yes (1)		Item No.				Service Sodium Carbonate Tank Mixer					
35		No. Req'd. 1						Mat. HDPE (1)					
36		TRUE Mechanical						TRUE					
37		ACCESSORIES (See sheet 5/6)											
38		<input checked="" type="checkbox"/> Strainers <input checked="" type="checkbox"/> Relief Valves <input checked="" type="checkbox"/> Pulsation Dampener <input checked="" type="checkbox"/> Calibration Pot <input checked="" type="checkbox"/> Pump Pressure Gauge											
39		<input type="checkbox"/> Sample Connection FALSE											
40		INSTALLATION											
41		Location Under Shelter (1)		Insulation Required No (1)		Steam / Electrical Tracing No / No (1)							
42		Heating Cond. Unheated (1)		Winterization Required No		Tropicalization Required Yes							
43		NACE Requirement NO											
44		Site AMB. Temp. Min. 5		Max. 48		C							
45													



OWNER:		 Pars Petrochemical Company					contractor:		
MC: 		PROPANE DEHYDROGENATION (PDH) PROJECT							
		Duty Specification for Sodium Carbonate Dosing Package (81-W-505)							
		Project code	Sec.	Phase Code	Department	Doc Type	Serial No.		
Document Number :		3981-050-DE-PR-DSP-018					Rev:	Page:	
							07	6 of 6	
1	Note								Rev
2	Notes								
3		1) To be finalized according to chemical Vendor's information.							
4		2) DELETED							
5		3) To be specified by package vendor.							
6		4) Package type A is considered standalone package unit with no (or very limited) interface with DCS, ESD and F&G systems. For more details refer to : General Specification for Package Unit Control System "3981-00-BA-IN-SPC-021".							
7		5) Injection point: Cooling Tower Basin. however its allowable to be recommended by the vendor.							
8		6) Vessel elevation to be specified by vendor based on pump NPSH and piping requirement.							
9		7) Minimum requirement.							
10		8) For site condition and available utilities, refer to Process Design Basis (3981-00-BA-PR-BOD-008) and Site condition(3981-00-BA-PR-SPC-003)							
11		9) For package battery limit refer to: PID NO. 3981-50-DE-PR-PID-002~004.							
12		10) All equipments,line instruments shown within package limit are required as minimum and to be finalized By package vendor.							
13		11) Pulsation dampener for pump suction shall be considered based on vendor recommendation.							
14		12) In case of considering shelter for package.							
15		13) DELETED							
16		14) At amb. temp.							
17		15) The dosing will be adjusted by means of the variable stroke adjustment either manually or automatically by signal from DCS.							
18		16) Besides a stirrer, the tank must be provided with inlets for filling of chemicals and water.							
19		17) Stroke shall be capable of being changed manually even during operation.							
20		18) All the measures for seasonal condition changes shall be foreseen by vendor, taking into account the severe climatic conditions,							
21		19) All the requirements for start-up or shut down (if any), to be advised by vendor							
22		20) DELETED							
23		21) DELETED							
		22) Equipment and machinery shall be provided so that the unit can operate for at least three years without major overhaul or inspection.							
		23) Block and bypass valves shall be provided for all control valves unless limited and restricted by Process nature and safety requirements.							
		24) Materials of construction and corrosion allowances shall be considered for a minimum of 25 years depreciation of the Sec.							
		25) DELETED							
		26) LT is required for solution tank							
		27) DELETED							
		28)To be confirmed by vendor,considering that minimum working capacity of 3 days based on the normal flow rate.							