

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
	TBE for Instrument/Plant Air & Nitrogen Packages								
شماره پیمان: 053 - 073 - 9184	پروژه BK	بسته کاری GCS	صادرکننده PEDCO	تسهیلات 120	رشته ME	نوع مدرک TB	سریال 0006	نسخه D00	شماره صفحه: 1 از 11

طرح نگهداشت و افزایش تولید 27 مخزن

TBE for Instrument/Plant Air & Nitrogen Packages

نگهداشت و افزایش تولید میدان نفتی بینک

D00	MAR.2023	IFI	H. Adineh	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval
Class: 3		CLIENT Doc. Number: F0Z-709228				
status: - IDC: Inter-Discipline Check - IFC: Issued For Comment - IFA: Issued For Approval - AFD: Approved For Design - AFC: Approved For Construction - AFP: Approved For Purchase - AFQ: Approved For Quotation - IFI: Issued For Information - AB-R: As-Built for CLIENT Review - AB-A: As-Built -Approved						

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	TBE for Instrument/Plant Air & Nitrogen Packages								
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REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D00	D01	D02	D03	D04
1	X					65					
2	X					66					
3	X					67					
4	X					68					
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		BK	GCS	PEDCO	120	ME	TB	0006	D00	
REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006				BIDDER NAME:		HAVAYAR		PARS COMPRESSOR		HAVASAN
QUOTATION NO.:						HY/01/1/3118		18910		HAV-BK-HRGN-001
QUOTATION DATE:						02.21.2023		02.27.2023		02.04.2023
No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS						
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	
Instrument & Plant Air Production Package										
1 GENERAL										
1.1	Guarantee & Warranty as per project requirement	-	12 month after successful start up or 18 month after delivery at site	A	YES	A	YES	A	YES	
1.2	Delivery Time	Month	As per project requirement	6	YES	6	YES	6	YES	
1.3	Delivery Location	-	-	Factory, Alborz province	YES	Factory, Alborz province	YES	Factory, Tabriz province	YES	
2 DOCUMENTS CHECK LIST										
2.1	Quality System Certificates	-	Required	A	YES	A	YES	A	YES	
2.2	Catalogues	-	Required	A	YES	A	YES	A	YES	
2.3	Sub-Vendor List	-	Required	A	YES	A	YES	A	YES	
2.4	Scope of Supply & Work (Attachment of MR)	-	Required	A	YES	A	YES	A	YES	
2.5	Deviation List	-	Required	A	YES	A	YES	A	YES	
2.6	Reference and Installation List	-	Required	A	YES	A	YES	A	YES	
2.7	Recommended Spare Part List for erection & Commissioning	-	Required	A	YES	A	YES	A	YES	
2.8	Recommended Spare Part List for 2 Years of Operation	-	Required	A	YES	A	YES	A	YES	
2.9	Special Tools List (If Required)	-	Required	NA	YES	NA	YES	NA	YES	
2.10	P&ID	-	Required	A	YES	A	YES	A	YES	
2.11	Process Flow diagram	-	Required	A	YES	A	YES	A	YES	
2.12	Control Philosophy	-	Required	After P.O	YES	After P.O	YES	After P.O	YES	
2.13	ESD Philosophy	-	Required	N	NO	After P.O	YES	After P.O	YES	
2.14	Main Equipment list	-	Required	A	YES	A	YES	A	YES	
2.15	Calculation Note For PSV Sizing	-	Required	A	YES	A	YES	N	NO	
2.16	Operating Manual	-	Required	After P.O	YES	After P.O	YES	After P.O	YES	
2.17	Outline/General Lay-out Drawings	-	Required	A	YES	A	YES	A	YES	
2.18	Data Sheets for All Equipment Inside the Package	-	Required	A	YES	A	YES	A	NO	
2.19	Performance Curve	-	Required	A	YES	A	YES	A	NO	
2.20	Utility Consumption List	-	Required	A	YES	A	YES	A	YES	
2.21	Load List	-	Required	A	YES	A	YES	A	YES	
2.22	Control System Architecture Drawing	-	Required	A	YES	A	YES	NS	NO	
3 SCOPE OF SUPPLY										
3.1	Oil Free Screw Compressors	-	2 (1+1)	A	YES	A	YES	A	YES	
3.2	Coupling with Non-sparking Guard	-	Required	A	YES	A	YES	A	YES	
3.3	Pressurized Lubrication System	-	Required	A	YES	A	YES	A	YES	
3.4	Drivers (Electro motor) and Accessories, Space Heater	-	Required	A	YES	A	YES	A	YES	
3.5	Gearbox	-	Required	A	YES	A	YES	A	YES	
3.6	Inlet Air Filter and Silencer	-	Required	A	YES	A	YES	A	YES	
3.7	Accessories for Inlet Filter Cleaning	-	Required	NA	YES	PDT	YES	A	YES	
3.8	Interstage air cooler and water separator and water trap	-	Required	A	YES	A	YES	A	YES	

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		BK	GCS	PEDCO	120	ME	TB	0006	D00	
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Instrument & Plant Air Production Package										
3.9	After cooler, Outlet water separator(at downstream of after cooler) with water trap	-	Required	A	YES	A	YES	A	YES	
3.10	Capacity Control system	-	Required	A	YES	A	YES	A	YES	
3.11	Air Dryer Package	-	2 (1+1)	A	YES	A	YES	A	YES	
3.12	Instrumentations (Minimum as per PID & duty spec)	-	Required	A	YES	A	YES	A	YES	
3.13	Unit Control panel and local board dedicated to each Air Compressor and Dryer As per Project requirements (Air Package)	-	Required	N	NO	A	YES	A	YES	
3.14	Acoustic Enclosure (if any)	-	Required	A	YES	A	YES	A	YES	
3.15	Mating Flanges with Bolts, Nuts and Gasket (If Required)	-	Required	NA	YES	A	YES	A	YES	
3.16	Grounding Bosses & Wiring	-	Required	A	YES	A	YES	A	YES	
3.17	Ladders, Stairs, Platforms and Hand Railings,etc., Within the Package	-	Required	NA	YES	A	YES	NA	YES	
3.18	All Interconnecting Piping, Valves and Fittings	-	Required	A	YES	A	YES	N	NO	
3.19	All Electrical and Instrumentation Cabling	-	Required	A	YES	A	YES	N	NO	
3.20	All Electrical and Instrumentation Junction Boxes	-	Required	A	YES	A	YES	N	NO	
3.21	All Required Cable Trays, Tray Support and Cable Transits	-	Required	A	YES	A	YES	N	NO	
3.22	Foundation Bolts and Nuts	-	Required	A	YES	A	YES	N	NO	
3.23	Name Plates for All Equipment	-	Required	A	YES	A	YES	A	YES	
3.24	Lifting Frames or Beams Including Slings and Shackles	-	Required	A	YES	A	YES	NA	NO	
3.25	All Insulation and Heat Tracing	-	Required	NA	YES	A	YES	NA	YES	
2.26	First Filling	-	Required	A	YES	A	YES	A	YES	
3.27	Personnel Safety Devices	-	Required	NA	YES	A	YES	NA	YES	
4	SCOPE OF WORK									
4.1	Engineering & Documentation	-	Required	A	YES	A	YES	A	YES	
4.2	Manufacturing & Assembling	-	Required	A	YES	A	YES	A	YES	
4.3	PIM (pre-inspection meeting)	-	Required	A	YES	A	YES	A	YES	
4.4	Procurement	-	Required	A	YES	A	YES	A	YES	
4.5	Inspection & Testing at shop	-	Required	A	YES	A	YES	A	YES	
4.6	Performance Guarantee	-	Required	A	YES	A	YES	A	YES	
4.7	Mechanical Guarantee	-	Required	A	YES	A	YES	A	YES	
4.8	Review of Purchaser's Drawings	-	Required	A	YES	A	YES	A	YES	
4.9	Painting	-	Required	A	YES	A	YES	A	YES	
4.10	Shipping and Transportation	-	Required	A	YES	A	YES	A	YES	
4.11	Packing & Preservation	-	Required	A	YES	A	YES	A	YES	
4.12	Certification	-	Required	A	YES	A	YES	A	YES	
4.13	Coordination with Sub vendors	-	Required	A	YES	A	YES	A	YES	
4.14	Export Customs Clearance	-	Required	NA	YES	A	YES	A	YES	
4.15	Obtain Any Export License or Other Official Authorization	-	Required	A	YES	A	YES	A	YES	
4.16	Supervision for Installation	-	Required (As Option)	A	YES	A	YES	A	YES	
4.17	Supervision for Pre-commissioning, commissioning & Start up	-	Required (As Option)	A	YES	A	YES	A	YES	
4.18	Vendor Shop Training for Owner's Personnel	-	Required (As Option)	A	YES	A	YES	A	YES	
4.19	Insulation Work (If any)	-	Required	NA	YES	A	YES	NA	YES	

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Instrument & Plant Air Production Package										
5	SITE CONDITION									
5.1	Ambient temperature (Max./Min.)	°C	5-50	A	YES	A	YES	A	YES	
5.2	Relative Humidity (Max./Min.)	%	0-100%	A	YES	A	YES	A	YES	
5.3	Barometric Pressure	bara	0.914-0.991	A	YES	A	YES	A	YES	
6	OIL FREE SCREW COMPRESSORS									
6.1	Quantity		2 (1+1)	A	YES	A	YES	A	YES	
6.2	Manufacturer	-	VTS	HAVAYAR	YES	PARS COMPRESSOR	YES	HAVASAN	YES	
6.3	Compressor Allowable Operating Temperature (Max. / Min.)	-	5/50	A	YES	A	YES	A	YES	
6.4	Delivered Flow	Nm³/hr	VTS	170.8	YES	235	YES	191	YES	
6.5	Design Capacity (Dry Basis)	Nm³/hr	191	A	YES	A	YES	A	YES	
6.6	Outlet Air Pressure	barg	VTS	9.5	YES	10	YES	10	YES	
6.7	Dry Air Pressure at Normal Conditions at Producer's B/L	barg	9	A	YES	A	YES	A	YES	
6.8	Max. Outlet Air temperature @ after cooler outlet	°C	65	A	YES	A	YES	A	YES	
6.9	Max Oil Content at package outlet/ B.L	-	≤ 1 ppm wt	A	YES	A	YES	A	YES	
6.10	Max Dust Particle Size	-	≤ 0.1 µm	A	YES	A	YES	A	YES	
6.11	Noise Level	dB(A)	85	A	YES	A	YES	A	YES	
6.12	Capacity Control Method	-	Load/Unload	A	YES	A	YES	A	YES	
6.13	Cooling Type	-	Air Cooled	A	YES	A	YES	A	YES	
6.14	Intake Filter	-	Required	A	YES	A	YES	A	YES	
6.15	Air-end Manufacturer / Model	-	VTS	GHH RAND	YES	GHH RAND	YES	GHH RAND	YES	
6.16	Power Transmission Method	-	Direct Coupled or Gear Type	A	YES	A	YES	A	YES	
6.17	Weight	kg	VTS	1817	YES	NS	NO	1900	YES	
6.18	Dimension (L x W x H)	mm	VTS	2240*1370*1985	YES	2500*1350*2110	YES	2000*1200*1650	YES	
6.19	Enclosure Fan Motor Power / Qty	kW	VTS	5.5	YES	NS	NO	4	YES	
6.20	Room Mounted Control Panel per compressor	-	PLC Type C	N	NO	A	YES	A	YES	
6.21	SIL Rated loops for safety functions		Required	NS	NO	NS	NO	NS	NO	
6.22	Control Panel Power (UPS/Non UPS)	KW	110VAC/230VAC	A	YES	A	YES	A	YES	
6.23	Instrumentation/Analyzer		As per Specification	A	YES	NS	NO	A	YES	
6.24	Local Control Panel		Required per compressor	A	YES	A	YES	A	YES	
6.25	Cabling to LCP		Required	A	YES	NS	NO	NS	NO	
6.26	Serial Link connection	-	Modbus RTU	Hard Wire	NO	Modbus	YES	Hardwire	NO	
7	MAIN MOTOR									
7.1	Manufacturer	-	VTS	Jemco	YES	Jemco	YES	WEG	YES	
7.2	Motor Power	-	KW	55	YES	75	YES	55	YES	
7.3	Power Supply	V / HZ / PH	400/50/3	A	YES	A	YES	A	YES	
7.4	IP Degree / Temperature Class	-	VTS	55/B	YES	55/B	YES	55/B	YES	
7.5	Speed, Motor / Compressor	rpm	VTS	3000	YES	2950	YES	3000	YES	

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شماره پیمان: 053 - 073 - 9184		شماره پروژه	بسته کاری	صادر کننده	تجهیزات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۱ از ۱۶
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REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006				BIDDER NAME:		HAVAYAR		PARS COMPRESSOR		HAVASAN
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Instrument & Plant Air Production Package										
8	AIR DRYER									
8.1	Manufacturer	-	VTs	HAVAYAR	YES	PARS COMPRESSOR	YES	HAVASAN	YES	
8.2	Type / Design Code	-	Heatless Desiccant/ASME SEC. VIII DIV.1 & 2	A	YES	A	YES	A	YES	
8.3	Dryer Life Time	-	not less than 3 years	A	YES	A	YES	A	YES	
8.4	Quantity	-	1+1	A	YES	A	YES	A	YES	
8.5	Desiccant Material	-	Molecular seive / Activated Alumina	A	YES	A	YES	A	YES	
8.6	Cycle time	min	VTs	7~15	YES	2	YES	5	YES	
8.7	Dryer Capacity	Nm³/hr	VTs	300	YES	391	YES	1080	YES	
8.8	Inlet Flow Rate	Nm³/hr	VTs	140.8	YES	286	YES	457	YES	
8.9	Outlet Flow Rate	Nm³/hr	119.7	A	YES	A	YES	380	YES	
8.10	Regeneration Flow Ratio	%	VTs	15	YES	20	YES	20	NO	
8.11	Dew Point	°C	-40 @ 8 barg	A	YES	A	YES	A	YES	
8.12	Design Pressure	barg	12.5	N	NO	A	YES	A	YES	
8.13	Tower Design Code	-	ASME SEC. VIII DIV.1	A	YES	A	YES	A	YES	
8.14	Material for Shell / Head	-	VTs	SA106 Gr B/SA 234 WPB	YES	Carbon steel	YES	SA 516 Gr. 70	YES	
8.15	Corrosion Allowance	mm	3.2	A	YES	A	YES	N	NO	
8.16	Safety Valve	-	Required	A	YES	A	YES	A	YES	
8.17	Pre Filter / Qty.	-	Required / 2	A	YES	A	YES	A	YES	
8.18	After Filter/ Qty.	-	Required / 2	A	YES	A	YES	A	YES	
8.19	Filter Manufacturer	-	VTs	OMEGA	NO	MIKROPOR	NO	OMEGA	NO	
8.20	Dryer LCP	-	Yes , IP65	A	YES	A	YES	A	YES	
8.21	Dryer instrumentation/IP/EEEX	-	As per Specification	A	YES	A	YES	A	YES	
8.22	Cabling to LCP		Required as per specification	A	YES	A	YES	A	YES	
8.23	Dryer Controller Type	-	Microprocessor	A	YES	A	YES	A	YES	
FINAL CONCLUSION					ACCEPTED		ACCEPTED		ACCEPTED	
NOTES: ABBREVIATIONS: A: ACCEPTED By Vendor N: NOT ACCEPTED By Vendor NA:Not Applicable NS:Not Specified C:Clarification Required VTS: Vendor to Specify										

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1.2	Delivery Time	-	As per project requirement	6	YES	6	YES	6	YES	
1.3	Delivery Location	-	As per project requirement	Factory, Alborz province	YES	Factory, Alborz province	YES	Factory, Tabriz province	YES	
2	DOCUMENTS CHECK LIST									
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2.9	Special Tools List (If Required)	-	Required	NA	YES	NA	YES	NA	YES	
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2.12	Control Philosophy	-	Required	After P.O	YES	After P.O	YES	After P.O	YES	
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2.21	Control System Architecture Drawing	-	Required	A	YES	A	YES	NS	NO	
3	SCOPE OF SUPPLY									
3.1	Pre filter / After Filter / Dust Filter	-	2/2/1	A	YES	A	YES	A	YES	
3.2	Carbon Mole Sieve Adsorption Vessels	-	Required	A	YES	A	YES	A	YES	
3.3	Gearbox	-	Required	A	YES	A	YES	A	YES	
3.4	Chiller Package	-	Required	A	YES	A	YES	A	YES	
3.5	On-skid piping, tubing & wiring	-	Required	A	YES	A	YES	A	YES	
3.6	Base plate	-	Required	A	YES	A	YES	A	YES	
3.7	Earthing system	-	Required	A	YES	A	YES	A	YES	
3.8	Name plates for all equipment	-	Required	A	YES	A	YES	A	YES	
3.9	Any other required accessories	-	Required	A	YES	A	YES	A	YES	
3.10	Commissioning spare parts	-	Required	A	YES	A	YES	A	YES	
3.11	Two years spare parts	-	Required	A	YES	A	YES	A	YES	
3.12	Special tools (if any)	-	Required	NA	YES	NA	YES	NA	YES	
3.13	First Filling	-	Required	A	YES	A	YES	A	YES	
3.14	Unit Control Panel dedicated to each Nitrogen Package as per project requirements (N2 Package)	-	Required	N	NO	A	YES	A	YES	

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
		TBE for Instrument/Plant Air & Nitrogen Packages								
شماره پیمان: 053 - 073 - 9184		پروژه	بسته کاری	صادر کننده	تهیه کننده	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۸ از ۱۱
		BK	GCS	PEDCO	120	ME	TB	0006	D00	
REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006			BIDDER NAME:		HAVAYAR		PARS COMPRESSOR		HAVASAN	
QUOTATION NO.:					HY/01/1/3118		18910		HAV-BK-HRGN-001	
QUOTATION DATE:					02.21.2023		02.27.2023		02.04.2023	
No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS						
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	
Nitrogen Production Package										
3.15	Personnel Safety Devices	-	Required	NA	YES	A	YES	NA	YES	
4 SCOPE OF WORK										
4.1	Engineering & Documentation	-	Required	A	YES	A	YES	A	YES	
4.2	Manufacturing & Assembling	-	Required	A	YES	A	YES	A	YES	
4.3	PIM (pre-inspection meeting)	-	Required	A	YES	A	YES	A	YES	
4.4	Procurement	-	Required	A	YES	A	YES	A	YES	
4.5	Inspection & Testing at shop	-	Required	A	YES	A	YES	A	YES	
4.6	PMI for Non-Carbon Steel material	-	Required	A	YES	A	YES	A	YES	
4.7	PWHT/ Stress Relieve (if required)	-	Required	NA	YES	A	YES	A	YES	
4.8	Chemical Cleaning, Pickling & Passivation for Stainless Steel Parts	-	Required	NA	YES	A	YES	A	YES	
4.9	Wiring and Tubing to Junction Boxes	-	Required	A	YES	A	YES	A	YES	
4.10	Interconnecting piping inside unit assembly	-	Required	A	YES	A	YES	A	YES	
4.11	Review of Purchaser's Drawings	-	Required	A	YES	A	YES	A	YES	
4.12	Painting	-	Required	A	YES	A	YES	A	YES	
4.13	Participation in HAZOP and SIL Study		Required	A	YES	A	YES	N	NO	
4.14	Shipping and Transportation	-	Required	A	YES	A	YES	NS	NO	
4.15	Packing & Preservation	-	Required	A	YES	A	YES	A	YES	
4.16	Certification	-	Required	A	YES	A	YES	A	YES	
4.17	Coordination with Subvendors	-	Required	A	YES	A	YES	A	YES	
4.18	Export Customs Clearance	-	Required	A	YES	A	YES	A	YES	
4.19	Obtain Any Export License or Other Official Authorization	-	Required	A	YES	A	YES	A	YES	
4.20	Supervision for Installation	-	Required (As Option)	A	YES	A	YES	A	YES	
4.21	Supervision for Pre-commissioning, commissioning & Start up	-	Required (As Option)	A	YES	A	YES	A	YES	
4.22	Vendor Shop Training for Owner's Personnel	-	Required (As Option)	A	YES	A	YES	A	YES	
4.23	Insulation Work (If any)	-	Required	NA	YES	A	YES	NA	YES	
5 SITE CONDITION										
5.1	Ambient temperature (Max./Min.)	°C	5-50	A	YES	A	YES	A	YES	
5.2	Relative Humidity (Max./Min.)	%	0-100%	A	YES	A	YES	A	YES	
5.3	Barometric Pressure	bara	0.914-0.991	A	YES	A	YES	A	YES	
6 OIL FREE SCREW COMPRESSOR										
6.1	Quantity		1	A	YES	A	YES	A	YES	
6.2	Manufacturer	-	VTS	HAVAYAR	YES	PARS COMPRESSOR	YES	HAVASAN	YES	
6.3	Compressor Allowable Operating Temperature (Max. / Min.)	°C	VTS	NS	NO	270	YES	NS	NO	
6.4	Delivered Flow	Nm³/hr	VTS	117.5	YES	235	YES	203.5	YES	
6.5	Outlet Air Pressure	barg	VTS	9.5	YES	10	YES	10	YES	
6.6	Max. Outlet Air temperature @ after cooler outlet	°C	65	A	YES	A	YES	A	YES	
6.7	Max Oil Content at package outlet/ B.L.	-	≤ 1 ppm wt	A	YES	A	YES	A	YES	
6.8	Max Dust Particle Size	-	≤ 0.1 µm	A	YES	A	YES	1	NO	
6.9	Noise Level	dB(A)	85	A	YES	A	YES	A	YES	
6.10	Capacity Control Method	-	Load/ Unload	A	YES	A	YES	A	YES	
6.11	Cooling Type	-	Air Cooled	A	YES	A	YES	A	YES	
6.12	Intake Filter	-	Required	A	YES	A	YES	A	YES	
6.13	Air-end Manufacturer / Model	-	VTS	GHH RAND / CD8D	YES	GHH RAND / CD8D	YES	GHH RAND / CD8D	YES	
6.14	Power Transmission Method	-	Direct Coupled or Gear Type	A	YES	A	YES	A	YES	

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		TBE for Instrument/Plant Air & Nitrogen Packages								
شماره پیمان:		پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۱ از ۱۱
053 - 073 - 9184		BK	GCS	PEDCO	120	ME	TB	0006	D00	
REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006			BIDDER NAME:		HAVAYAR		PARS COMPRESSOR		HAVASAN	
QUOTATION NO.:					HY/01/1/3118		18910		HAV-BK-HRGN-001	
QUOTATION DATE:					02.21.2023		02.27.2023		02.04.2023	
No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS						
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	
Nitrogen Production Package										
6.15	Weight	kg	VTs	1817	YES	2700	NO	1900	YES	
6.16	Dimension (L x W x H)	mm	VTs	2240*1370*1985	YES	2500*1350*2110	YES	2000*1200*1650	YES	
6.17	Enclosure Fan Motor Power / Qty	kW	VTs	5.5 / 1	YES	NS	NO	4	YES	
6.18	Controller of Compressor Skid	-	PLC	LCP microprocessor base	NO	A	YES	A	YES	
6.19	Control Panel Power	KW	VTs	1.5	YES	NS	NO	NS	NO	
6.20	Out Put Serial Link	-	VTs	Hardwire	NO	Modbus	YES	Hardwire	YES	
7 MAIN MOTOR										
7.1	Manufacturer	-	VTs	Jemco	YES	Jemco	YES	WEG	YES	
7.2	Motor Power	kW	VTs	55	YES	75	YES	55	YES	
7.3	Power Supply	V / HZ / PH	400/50/3	A	YES	A	YES	A	YES	
7.4	IP Degree / Temperature Class	-	VTs	55/B	YES	55/B	YES	55/B	YES	
7.5	Speed, Motor / Compressor	rpm	VTs	3000	YES	2950	YES	3000	YES	
8 PROCESS DESIGN										
8.1	Dry Air Demand for Nitrogen Production (at inlet to N2 Generators)	Nm3/hr	VTs	100	YES	188	YES	203.5	YES	
8.2	N2 Operating Outlet Pressure at Normal conditions at Producer's B/L	barg	8	A	YES	A	YES	N	NO	
8.3	N2 Package Pressure Drop	barg	max. 1 bar	A	YES	A	YES	N	NO	
8.4	Design Pressure	barg	12.5	N	NO	A	YES	A	YES	
8.5	Dew Point	°C	-70 @ 1.013 bara	A	YES	A	YES	NS	NO	
8.6	Max Oil Content- Inlet	-	≤ 1 ppm wt	A	YES	A	YES	A	YES	
8.7	Max Oil Content- Outlet	-	Oil Free	A	YES	A	YES	A	YES	
8.8	Max Allowable Dust	Micron	Less than 3	N	NO	A	YES	A	YES	
8.9	Nitrogen Purity	% vol	99.9	N	NO	N	NO	N	NO	
8.10	Oxygen Content	% vol	2 (max)	A	YES	A	YES	A	YES	
9 AIR DRYER										
9.1	Manufacturer	-	VTs	HAVAYAR	YES	PARS COMPRESSOR	YES	HAVASAN	YES	
9.2	Type / Design Code	-	Heatless Desiccant / ASME SEC. VIII DIV.1 & 2	A	YES	A	YES	A	YES	
9.3	Dryer Life Time	-	not less than 3 years	A	YES	A	YES	A	YES	
9.4	Quantity	-	1+1	A	YES	A	YES	A	YES	
9.5	Desiccant Material	-	Molecular sieve / Activated Alumina	A	YES	A	YES	A	YES	
9.6	Cycle time	min	VTs	7-15	YES	2	YES	5	YES	
9.7	Dryer Capacity	Nm3/hr	VTs	300	YES	391	YES	453	YES	
9.8	Inlet Flow Rate	Nm3/hr	VTs	117.5	YES	235	YES	408	YES	
9.9	Outlet Flow Rate	Nm3/hr	119.7	A	YES	A	YES	A	YES	
9.10	Regeneration Flow Ratio	%	VTs	15	YES	20	YES	20	YES	
9.11	Dew Point	°C	-40 @ 8 barg	A	YES	A	YES	A	YES	
9.12	Design Pressure	barg	12.5	N	NO	A	YES	A	YES	
9.13	Tower Design Code	-	ASME SEC. VIII DIV.1	A	YES	A	YES	A	YES	
9.14	Material for Shell / Head	-	VTs	SA106 Gr B / SA 234 WPB	YES	Carbon steel	YES	SA 516 Gr. 70	YES	
9.15	Corrosion Allowance	mm	3.2	A	YES	A	YES	N	NO	
9.16	Safety Valve	-	Required	A	YES	A	YES	A	YES	
9.17	Pre Filter / Qty.	-	Required / 2	A	YES	A	YES	A	YES	
9.18	After Filter / Qty.	-	Required / 2	A	YES	A	YES	A	YES	
9.19	Filter Manufacturer	-	VTs	OMEGA	NO	MIKROPOR	NO	OMEGA	NO	

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		TBE for Instrument/Plant Air & Nitrogen Packages								
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BK		GCS	PEDCO	120	ME	TB	0006		D00	
REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006			BIDDER NAME:		HAVAYAR		PARS COMPRESSOR		HAVASAN	
QUOTATION NO.:					HY/01/1/3118		18910		HAV-BK-HRGN-001	
QUOTATION DATE:					02.21.2023		02.27.2023		02.04.2023	
No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS						
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	
Nitrogen Production Package										
9.20	Dryer LCP	-	Yes , IP65	A	YES	A	YES	A	YES	
9.21	Dryer instrumentation /IP /EEX	-	As per Specification	A	YES	A	YES	A	YES	
9.22	Cabling to LCP		Required as per specification	A	YES	A	YES	A	YES	
9.23	Dryer Controller Type	-	Microprocessor	A	YES	A	YES	A	YES	
10	NITROGEN GENERATOR									
10.1	Type of Nitrogen Generator	-	PSA	A	YES	A	YES	A	YES	
10.2	Quantity	-	2	A	YES	A	YES	A	YES	
10.3	Manufacturer	-	VTS	HAVAYAR	YES	PARS COMPRESSOR	YES	OMEGA AIR	NO	
10.4	Design Code	-	ASME Sec. VIII, Div. 1 & 2	A	YES	A	YES	N	NO	
10.5	Adsorption Material	-	VTS	Carbon Molecular Sieve	YES	Carbon Molecular Sieve	YES	Carbon Molecular Sieve	YES	
10.6	Adsorption Life Time	-	Not less than 3 Years	A	YES	A	YES	A	YES	
10.7	Adsorber Vessel Material	-	VTS	SA106 Gr B/SA 234 WPB	YES	Carbon Steel	YES	Carbon Steel	YES	
10.8	Maximum Allowable Inlet Temperature	°C	VTS	85	YES	85	YES	50	YES	
10.9	Volume of One Adsorber	m3	VTS	NS	NO	NS	NO	NS	NO	
10.10	Design Flow / Regeneration Flow	Nm3/hr	34 / VTS	A	YES	A	YES	A	YES	
10.11	Regeneration Sequence Duration	Sec	VTS	NS	NO	60	YES	NS	NO	
10.12	Room Mounted Control Panel	-	PLC Type C	N	NO	A	YES	A	YES	
10.13	SIL Rated loops for safety functions		Required	NS	NO	NS	NO	NS	NO	
10.14	Control Panel Power (UPS/Non UPS)	KW	110VAC/230VAC	A	YES	A	YES	A	YES	
10.15	Instrumentation / Analyzer		As per Specification	A	YES	A	YES	A	YES	
10.16	Local Control Panel		Required per compressor	A	YES	A	YES	A	YES	
10.17	Cabling to LCP		Required	A	YES	A	YES	NS	NO	
10.18	Serial Link connection	-	Modbus RTU	Hardwire	NO	Modbus	YES	Hardwire	NO	
10.19	Exhaust Silencer SPL @ 1 m distance	dB (A)	< 85	A	YES	A	YES	A	YES	
10.20	Corrosion Allowance	mm	3.2	A	YES	A	YES	N	NO	
10.21	Oxygen analyzer and moisture analyzer	-	Required	A	YES	A	YES	A	YES	
10.22	Relief valves	-	Required	A	YES	A	YES	A	YES	
10.23	PSA Unit Skid Weight	kg	VTS	370	YES	NS	NO	740	YES	
10.24	Dimension (L X W X H)	mm	VTS	900*800*1839	YES	NS	NO	1040*795*2250	YES	
11	Chillers / Heat Exchangers or Refrigerant Dryer									
11.1	Manufacturer / Model	-	VTS	AVL	YES	NS	NO	Refrigerant Dryer/ OMEGA Air	NO	
11.2	Cooling Medium	-	VTS	Air	YES	Refrigerant	YES	Air	YES	
11.3	Inlet Temperature (Operating)	°C	VTS	60	YES	60	YES	58	YES	
11.4	Outlet Temperature (Operating)	°C	VTS	30	YES	30	YES	48	YES	
11.5	Design Temperature	°C	VTS	85	YES	NS	YES	50	YES	
11.6	Operating Pressure	barg	VTS	9.5	YES	10	YES	10	YES	
11.7	Heat Exchanger Duty	KW	VTS	2.6	YES	4	YES	10.6	YES	
12	PRE FILTER									
12.1	Manufacturer / Model	-	VTS	OMEGA	NO	MIKROPOR	NO	OMEGA	NO	
12.2	Volume	Lit	VTS	After P.O	YES	NS	NO	NS	NO	
12.3	Casing Material	-	VTS	Aluminum	YES	NS	NO	NS	NO	
12.4	Filter Cartridge Material	-	VTS	borosilicate micro fibres	YES	NS	NO	NS	NO	
12.5	Maximum Working Pressure	barg	VTS	9.5	YES	10	YES	NS	NO	

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شماره پیمان: 053 - 073 - 9184		پروژه	بسته کاری	صادر کننده	تهیهات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۱۱ از ۱۱
BK		GCS	PEDCO	120	ME	TB	0006		D00	
REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006			BIDDER NAME:		HAVAYAR		PARS COMPRESSOR		HAVASAN	
QUOTATION NO.:					HY/01/1/3118		18910		HAV-BK-HRGN-001	
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No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS						
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Nitrogen Production Package										
12.6	Maximum Working Temperature	°C	VTs	30	YES	30	YES	30	YES	
12.7	Filtration Mesh	Micron	VTs	0.1	YES	0.1	YES	0.1	YES	
12.8	Residual Oil Content After Filtration	mg/m3	VTs	0	YES	0.01	YES	0	YES	
13 AFTER FILTER										
13.1	Type / Manufacturer / Model	-	Dust filter	OMEGA	NO	MIKROPOR	NO	OMEGA	NO	
13.2	Volume	Lit	VTs	NS	NO	NS	NO	NS	NO	
13.3	Casing Material	-	VTs	Aluminum	YES	CS	YES	Aluminum	YES	
13.4	Filter Cartridge Material	-	VTs	borosilicate micro fibres	YES	SS	YES	borosilicate micro fibres	YES	
13.5	Maximum Working Pressure	barg	VTs	9.5	YES	13	YES	16	YES	
13.6	Maximum Working Temperature	°C	VTs	30	YES	85	YES	65	YES	
13.7	Filtration Mesh	µm	VTs	1	YES	5	YES	1	YES	
13.8	Residual Oil Content After Filtration	mg/m3	VTs	0	YES	0.01	YES	0	YES	
14 AIR RECEIVER VESSEL										
14.1	Design Code	-	ASME SEC. VIII DIV. 1 & 2	A	YES	A	YES	NA	YES	
14.2	Quantity	-	VTs	1	YES	1	YES	NA	YES	
14.3	Capacity	m³	VTs	1	YES	NS	NO	NA	YES	
14.4	Position (Vertical/Horizontal)	-	VTs	Vertical	YES	Horizontal	YES	NA	YES	
14.5	Dimensions (L x TL/TL)	mm	VTs	850*1600	YES	NS	NO	NA	YES	
14.6	Design Pressure	bar g	VTs	11.5	NO	13	YES	NA	YES	
14.7	Material	-	VTs	SA 516 GR 70	YES	CS	YES	NA	YES	
14.8	Corrosion Allowance	mm	VTs	3	YES	3	YES	NA	YES	
15 N2 BUFFER VESSEL										
15.1	Design Code	-	ASME SEC. VIII DIV. 1 & 2	A	YES	A	YES	NA	YES	
15.2	Quantity	-	VTs	1	YES	1	YES	NA	YES	
15.3	Capacity	m³	VTs	1	YES	NS	NO	NA	YES	
15.4	Position (Vertical/Horizontal)	-	VTs	Vertical	YES	Horizontal	YES	NA	YES	
15.5	Dimensions (L x TL/TL)	mm	VTs	850*1600	YES	NS	NO	NA	YES	
15.6	Design Pressure	bar g	VTs	11.5	NO	13	YES	NA	YES	
15.7	Material	-	VTs	SA 516 GR 70	YES	CS	YES	NA	YES	
15.8	Corrosion Allowance	mm	VTs	3	YES	3	YES	NA	YES	
FINAL CONCLUSION				ACCEPTED		ACCEPTED		ACCEPTED		
NOTES: ABBREVIATIONS: A: ACCEPTED By Vendor N: NOT ACCEPTED By Vendor NA: Not Applicable NS: Not Specified C: Clarification Required VTs: Vendor to Specify										