ZISHAN ENGINEERS (PVT.) LTD.

APICAL OIL TERMINAL (PVT.) LTD.

MATERIAL REQUISITION FOR PRODUCT PUMPS

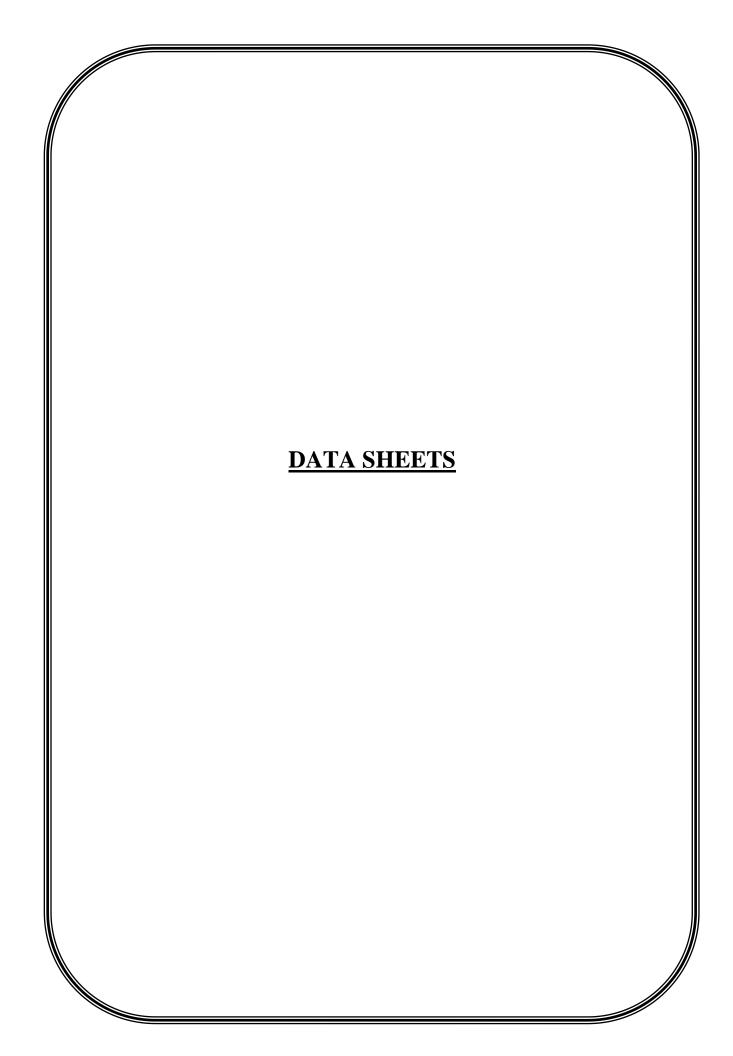
CLIENT APICAL OIL TERMINAL (PVT.) LTD.

PROJECT CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

ITEM PRODUCT PUMPS

ITEM	MATERIAL DESIGNATION		UNIT	RATE / UNIT SUPPLY INCLUDING ALL APPLICABLE TAXES, DUTIES, INSURANCE & INSPECTION ETC. (Pak.Rs.)	TOTAL PRICE (PAK.Rs)	NOTES
		Α		В	C = A x B	
	THE SUPPLIED PUMPS SHALL COMPLY WITH THE FOLLOWING DOCUMENTS ATTACHED. ANY DEVIATION SHALL BE CLEARLY HIGHLIGHTED & JUSTIFIED BY THE SUPPLIER. ALL PRICES SHOULD BE EXCLUSIVE OF GST & SST. GENERAL PURCHASE CONDITIONS (DOC. NO. 294-1-GCC-010) INSTRUCTIONS TO BIDDERS (DOC. NO. 294-1-ITB-010) DATA SHEETS 294-1-DSM-001 294-1-DSM-002 294-1-DSM-005 294-1-DSM-006 294-1-DSM-007 294-1-DSM-008 294-1-DSM-008					INSPECTION OF SUPPLIED PUMPS, REVIEW OF CERTIFICATES, DIMENSIONAL, QUALITY, QUANTITY AND PACKING LIST CHECK SHALL BE WITNESSED BY THE 3RD PARTY INSPECTORS FROM A REPUTED INSPECTION COMPANY HIRED BY THE OWNER, SUPPLIER SHALL SUBMIT DETAILED MANUFACTURING SCHEDULE, QUALITY CONTROL PLAN AND INSPECTION AND TEST PROCEDURES ALONGWITH THE BID. FINAL ACCEPTANCE OF PUMPS WILL BE SUBJECT TO APPROVAL FROM THE 3RD PARTY INSPECTION COMPANY AND THE OWNER REPRESENTATIVE. QUOTED PUMPS SHALL BE LOCAL OR IMPORTED. IN CASE OF LOCAL PUMPS ACCEPTABLE BRAND IS KSB AND FOR IMPORTED PUMPS THE ORIGIN SHOULD BE WESTERN EUROPE, JAPAN, USA. PUMP VENDOR SHALL BE RESPONSIBLE TO PROVIDE PUMPS PERFORMANCE CURVE AND SHALL CONFIRM THE REQUIRED FLOW RATES AT SPECIFIED HEADS MENTION IN DATA SHEET. PUMPS SHALL BE SUPPLIED WITH DIMENSIONAL DRAWINGS, INSTALLATION, OPERATION AND COMMISSIONING MANUAL, STARTER DOL OR STAR DELTA CONNECTIONS. PUMP VENDORS SHALL BE RESPONSIBLE TO ASSIST PUMP ALIGNMENT WITH AND WITHOUT CONNECTION OF PIPING AND COMMISSIONING WORKS. SUPPLIER SHALL PROVIDE BILL OF LADING FOR ALL IMPORTED ITEMS. PLEASE NOTE THAT QUANTITIES MAY INCREASE OR DECREASE. ALL IMPORTED / LOCAL MATERIAL TO BE DELIVERED AT PORT QASIM TERMINAL AFTER THIRD PARTY INSPECTION OF ALL MATERIALS INCLUDING LOADING, UNLOADING, TRANSPORTATION ETC. TO PORT QASIM TERMINAL SITE.
	294-1-DSM-015					

FILE: 294-1-MRM-009, Rev. A SHEET 1 OF 5





Document No.	294-1-DSM-001
Revision	С
Date	26-09-2018
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CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR EDIBLE OIL LOADING PUMPS



С	26-09-2018	Issued for Approval	MW	MKK	MM
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Rev.	Date	Description	Prepared By	Checked By	Approved By

Consultant									Data S	heet		
	710							EDIBI	LE OIL LOA	DING PUMPS		
TEL	ZIS	SHAN ENGINEERS	(PVT.) LTD.		Ì		Document	No.		Revision		DATE
Client							294-1-DSM-	-001		С		26-09-2018
A mical	ADIC	CAL OIL TERMINAI	· (DVT) I TD			Prepa	red by	Checke	d by	Approved I	by	SHEET
Apical	AFIC	AL OIL TERIVIIINAI	L (PVI.) LID.			N	IW	MKI	<	MM		2 OF 2
Applicable To: Note: For Unit No. Pumps Req'd. Item No.	O II O II PRODUC	Proposals O Indicates informatio Indicates informatio ICT LOADING PUM No. Motors Re PU-101/102/103/10	on to be completed on to be completed MPS eq'd	d by purchaser. d by manufacturer.		Site Service rided By scription				SIM, KARACHI OIL LOADING By		
No. Engines Req'd No. Turbines Req'd Prov					vided By			Mtd I Seria	·			
		OPER#	ATING CONDITION	NS, EACH PUMP						PERFORM	ANCE (VT.	A)
	C (psia) cST	Max. 87-0.875 - 27-87	Flow at PT. r Disch. Press. Suct. Press. B Diff. Press. Diff. Head NPSHA utdoor Interm	Bar G Bar G Bar m m		-0.2 d.KW oSafe	Rated	RPM .4 Eff. Max. Max. Rota	BHP rated Head Rate	NPSHR (V BHP IMP d IMP	Rated	
			CONSTRUCT	TION						SHOP	TESTS	
Nozzles Suction Discharge Case-mount: - Split: - Press: - Connect: Impeller Dia. :	O Centerline O Axial O Max. Allow, O Vent O Rated	Size VTS VTS O O Rad;	Volute barg @	Type: O °C;	Bracket SGL	O DBL dro Test ge Type:	Vert. (Type) O Diffuser barg	0 0 0	Inspection	. Hydro leq'd. spection . & Insp. After Te on Required For on Required For	est Nozzle We Casing	Wit. Perf. Wit. Hydro Wit. NPSH elds. Ultrasonic
Mount:	O Between Be	earings	O Overhu	ung				0	Other			
Bearings-type: Lube: Coupling: Driver Mtd. By: Packing: Mech. Seal:	O Radial O Ring Oil O Mfr. O Pump Mfr. O Mfr. & Type O Mfr. & Mode O Mfr. Code	e	O C	O	O Thru	ger O	Pressure Purchaser	SHA	ELLER (S)	MATE	RIALS	Carbon Steel SS 304 SS 304 Cast Iron
			AUXILIARY PI	IPING						VERTICA	L PUMPS	
C.W. Pipe Plan Cooling Wate Par Seal Flush Piping I External Seal Flush Auxiliary Seal Plan Aux. Seal Quench	cking Cooling In Plan h Fluid n	njection Req'd:	m Total .	gpm	SS O	O Pipe ht F.I. Req'd psig Tubing O Tubing	O Pipe	Min. Colu Line Brgs Brg.l		ce Req'd. O Flater O Op O Water O CS O	O oi	O Threaded O Enclosed ne Shaft I O Grease BRZ O None
			MOTOR DRI					Pum	p thrust,lb.	O UF	·	O Down
	RPM VTS TEFC VTS (eatherproof, IP5 OFT STARTER +/- 10%		ngs tion		Full Load	I Amps Rotor Amps	VTS VTS	Appr	ox. WT. Pur	mp & Base	Turbii	ne

- 1) NPSH(A) at Pump suction Nozzle
- 2) VTA: Vendor to Advise
- 3) Temperature rise shall be adjusted for ambient temperature of 122 $^{\circ}\text{F}.$
- 4) VTS = Vendor To Specify
- 5) Motor to be selected for end of curve operation.
- 6) The cable entry details shall be provided to the supplier after the detail design & finalization of Power cable size if the motor manufacturer / supplier is unable to accommodate the same in the motor terminal box, suitable arrangement reducer / expander to be provided.
- 7) VTC: Vendor to Confirm
- 8) Vendor to provide casing drain with valve and blind flange.
- 9) Mating flanges for suction & discharge, gaskets, studs & nuts and reducers shall be supplied by pump vendors.



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Revision	С
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CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR WATER DISPOSAL PUMP



С	26-09-2018	Issued for Approval	MW	MKK	MM
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Rev.	Date	Description	Prepared By	Checked By	Approved By

Consultant						Data Sheet						
						WATER DISPOSAL PUMP						
TEL	ZISHA	AN ENGINEERS (P\	/T.) LTD.		İ	Document No.			Revision		DATE	
Client							294-1-DSN	M-002		С		26-09-2018
Anical	APICA	L OIL TERMINAL (P	VT) I TD			Prepa	red by	Chec	ked by	Approved by	,	SHEET
Apical	711 1071	e ole retainive (r	V1.) E1D.			M	W	М	KK	MM		2 OF 2
Applicable To: Note:	О п	Proposals Ondicates information										
For						Site				QASIM, KARACHI		
Unit	WATER D	ISPOSAL PUMP				Service				TER DISPOSAL		
No. Pumps Req'd. Item No.		1 No. Motors Re	eq'a		Prov Item Des	/ided By			IVIT	d By		
No. Engines Req'd.		No. Turbines	Rea'd ·			vided By			Mt	d By		
Pump Mfr.							VERTICAL TU	JRBINE PU		rial No.		
		OPERATIN	IG CONDITIO	NS, EACH PUM	IP					PERFORMA	NCE (VTA)
Liquid	WATER		Flow at PT.	m³/hr Nor.		5	Rated	Pro	posal Curv		· · · · · ·	•
			Disch. Press	. (barg)	_		1.5	RPI	М	NPSHR (W	ater)	
PT.(°F) Nor.	AMB	Max.	Suct. Press.		Min	0	Rated	Eff.		BHP R	Rated	
Sp.Gr. at PT.	(22:5)	<u>.</u>	Diff. Press.	(bar)	-		1.5		x. BHP rate			
Vap. Press. at PT.		1 	Diff. Head NPSHA	(m)	-		15.3 Ample	Max	x. Head Ra			
Vis. at PT.	cP _	0.68	INPSHA	(m)	_ U.vo	4 K/V/	0.21	Pot	ation (Viou	•	gpm	
Corr/Eros. Caused Location:	O Indoor		utdoor	Area		d.KW Safe	O.21 O Hazardou		ation (View ad rise to sl	red from CPLG End))	
	Continuous	• 0	• Intermitt				dom	из пеа	au rise io Si	nat on		
vvoiking.	Continuous		- intomitt	Cit	'	O Kai	dom					
			CONSTRUC	CTION						SHOP 1	TESTS	
Nozzles		Size	Rating	Facin	g		Location	0	Non-V	Vit. Perf.	•	Wit. Perf.
Suction		VTS	150#	RF				0	Non-V	Vit. Hydro	•	Wit. Hydro
Discharge		VTS	150#	RF				0	NPSH	l Req'd.	•	Wit. NPSH
Case-mount:	O Centerline		Foot	0	Bracket	0	Vert. (Type)	•	Shop	Inspection		
- Split:	O Axial	O Rad;	Volute Type:	0	SGL	\bigcirc DBL	O Diffuse	er O		ant. & Insp. After Tes		
- Press:	O Max. Allow,		psig @	°C;	-	dro Test	psi	g		ction Required For N		ds.
- Connect:	O Vent	O	Drain		O Gaç					ction Required For C		
Impeller Dia. :	O Rated		O Max.			Type:			Radio	g <u>raphy</u>		Ultrasonic
Mount:	O Between Be	earings	O Overhun	9	O Thr			NA A	TERIALS			
Bearings-type: Lube:	O Ring Oil	○ Flood	O Oil	Mist	O Flin		Pressure	CA				Cast Iron (VTC)
Coupling:	O Mfr.	9 1 1000	0 011	iviist	O Mod	90.	1 1033410		PELLER (S)		Cast Iron
Driver Mtd. By:	O Pump Mfr.		0	Driver Mfr.	_	0	Purchaser		AR RING	/	Cast	Iron / Bronze (VTC)
Packing:	○ Mfr. & Type	ı		0	Size/No.	of Rings			AFT			Cast Steel (VTC)
Mech. Seal:	○ Mfr. & Mode					· ·						,
	O Mfr. Code											
			AUXILIARY I	DIDING						VERTICAL	DUMDE	
O C.W. Pipe Plan		O CL		0	Tubing;	O Pipe		Pit	or Sump D			S (Note-9)
O Total Cooling W) req gp	m		_	ht F.I. Req'd		Min	. Submerg	ence Req'd.		, ,
_	king Cooling Inject			gpm	_ 0	psig		Col	umn Pipe:	O Flai	nged	O Threaded
O Seal Flush Pipin	ng Plan			0	ss O	Tubing	O Pipe	Line	e Shaft:	О Оре		O Enclosed
O External Seal Fl			0	gpm		O	psig	Brg		Bowl		Shaft
O Auxiliary Seal Pl	_		O CS	O SS	0	Tubing	O Pipe		.Lube	O Water	O Oil	O Grease
O Aux. Seal Quen	ich Fluid								at & Rod	0 cs 0	ss O	BRZ O None
			MOTOR	DIVER					Float Switc			O Down
HP VTS	RPM	VTS Frame	MOTOR DE		/0		400/3/50	Pur	np thrust,lb	o. O UP		OOWN
Mfr. V15	KPM _ VTS	V1SFrame Bearir		C Volts/Phas	se/Cycles		400/3/30					
Cooling Type	VTS	beam Insula		CLASS-F	Full Lee -	LAmps	VTS	S				
Cable Entries	VTS			CLASS-I	_Full Load	Rotor Amps	VTS	-				
	Weatherproof, IP5	Temp. Ri 55	se(U)		_ Locked R	COLOT ATTIPS	<u></u>	Apr	orox. WT F	Pump & Base		
	OOL Starter	S.F.	1.15					Mot			Turbin	e
Voltage Tolerance	+/-10%											
NOTES: 1) NPSH(A) at Pur	-	,						_				
2) VTA: Vendor to												
3) Temperature rise		d for ambient temp	erature of 12	2 °F								
4) VTS = Vendor To	· ·											
5) VTC = Vendor To												
6) Motor to be selec		•										
7) Vendor shall con		•			NSI.							
 Water Disposal F To be confirmed 			наскаде Sup	pplier								
o, to be confinitied	by or repainage S	արբուշը.										



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Revision	С
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CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR OIL TRANSFER PUMP



С	26-09-2018	Issued for Approval	MW	MKK	MM
В	23-06-2018	Issued for Approval	MW	MKK	MM
Α	09-06-2018	Issued for Review	MW	RA	ММ
Rev.	Date	Description	Prepared By	Checked By	Approved By

Consultant						Data Sheet						
						OIL TRANSFER PUMP						
TEL	ZISHA	AN ENGINEERS	(PVT.) LTD.				Documen	nt No.		Revision	DAT	E
Client							294-1-DSN	M-004		С	26-09-2	2018
						Prepar	ed by	Che	cked by	Approved by	SHEI	ET
Apical	APICAI	L OIL TERMINAI	L (PVT.) LTD.			MV			MKK	MM	2 OF	
Applicable To:	O II			O eleted by purchas		t						
For	O II	ndicates inform	ation to be comp	leted by manufac	turer.	Site			PORT C	ASIM, KARACHI		
Unit	OIL TRA	NSFER PUMP)			Service				TRANSFER		
No. Pumps Req'd.		1 No. Motors	s Req'd	1		ovided By			Mtd	Ву		
Item No.		PU-203				escription						
No. Engines Req'd. Pump Mfr. —		No. Turbin	es Req'a		Pr	ovided By Type V	ERTICAL TU	JRBINE PU	JMP Seri	al No		
				NS, EACH PUMI	P					PERFORMAN	NCE (VTA)	
Liquid	EDIBLE OI	L	Flow at PT.			2.5	Rated		oposal Curve			
PT.(°F) Nor.	AMB	Max.	Disch. Press Suct. Press.(Min		1.5 Rated	RF Ef	PM 	NPSHR (Wa BHP Ra	· —	
Sp.Gr. at PT.	0.887-		Diff. Press.	barg) (bar)	IVIIII		1.5		т. ax. BHP rated			
Vap. Press. at PT. (•	Diff. Head	(m)			15.3		ax. Head Rate			
Vis. at PT.	cST _	27-87	NPSHA	(m)			Ample				om	
Corr/Eros. Caused	•					yd.KW	0.11		•	d from CPLG End)		
	O Indoor		Outdoor	Area:		_	O Hazardou	us He	ead rise to sh	ut off		
Working: (O Continuous		Intermitte	ent		O Rano	Iom					
			CONSTRUC	TION						SHOP T	ESTS	
Nozzles		Size	Rating	Facing	ı	L	ocation	0	Non-W		Wit. Perf.	
Suction		VTS	150#	RF	<u>'</u>			0		t. Hydro	Wit. Hydro	
Discharge		VTS	150#	RF				0	NPSH I	Req'd.	Wit. NPSH	I
Case-mount:	O Centerline	_	○ Foot	0	Bracket		Vert. (Type)	•	•	spection		
- Split:	O Axial	O Rad;	Volute Type:	0	SGL	OBL	ODiffuse	_		t. & Insp. After Test		
- Press:	O Max. Allow,		psig @	°C;		ydro Test	psi	ig -		ion Required For No		
Connect:Impeller Dia. :	○ Vent ○ Rated		O Drain O Max.		O G	age Type:		•		ion Required For Ca	asıng O Ultrasonic	
Mount:	O Between Be	earings	— O Overhung	1					Radiog	арпу	Olliasonic	
Bearings-type:	O Radial	.ago	O TOTAL I	,	ОТ	hrust		M	ATERIALS			
Lube:	O Ring Oil	O Flo	ood Oil I	Mist			Pressure		ASE		Cast Iron (VTC)
Coupling:	O Mfr.				O M	lodel			IPELLER (S)		SS 304	
Driver Mtd. By:	O Pump Mfr.		0	Driver Mfr.			Purchaser		EAR RING		Cast Iron / Bror	, ,
Packing:	O Mfr. & Type			O	Size/No	o. of Rings		SH	HAFT		SS 304	4
Mech. Seal:	○ Mfr. & Mode ○ Mfr. Code	el										
	o Will. Code											
_			AUXILIARY F							VERTICAL		
C.W. Pipe Plan			CU O SS	0	Tubing;	-			t or Sump De		VTS (Note-9)	<u> </u>
O Total Cooling W	/ater Req'd (m³/hr) king Cooling Inject		gpm	anm	O Si	ight F.I. Req'd psig			in. Submerge olumn Pipe:	nce Req'd. O Flan	ged O Thread	
O Seal Flush Pipin		ion Requ.	Orolar.	gpm O			O _{Pipe}		ne Shaft:	O Ope	_	
Cear rider ripin	•			gpm	00		psig			Bowl	O Line Shaft	
O Auxiliary Seal Pl			O CS	O SS			O Pipe		g.Lube	O Water	Ooil Gre	ase
O Aux. Seal Queno	ch Fluid		·					Flo	oat & Rod	ocs o	ss O BRZ O	None
									Float Switch			
UD V/TO	DDM	\/TC	MOTOR DR	_			400/0/50	Pι	ımp thrust,lb.	O UP	O Down	
HP VTS Mfr.	RPM _ VTS		ame <u>TEF</u> arings	CVolts/Phase VTS	e/Cycles		400/3/50					
Cooling Type	VTS		ulation	CLASS-F	Full Loc	ad Amps	VTS	s				
Cable Entries	VTS		. Rise(°C)	CLASS-B	-	ad Amps I Rotor Amps	VTS					
	Weatherproof, IP5							Ap	prox. WT. Pu	ımp & Base		
, ,	OOL	S.F.	1.15				_		otor		Turbine	
Voltage Tolerance	+/-10%											
NOTES:												
1) NPSH(A) at Pun												
 VTA: Vendor to Temperature rise 		for ambient to	mnerature of 40°	2 °F								
4) VTS = Vendor To		a ioi aiiibieiil (e	mperature of 12	<u> </u>								
5) VTC = Vendor To												
6) Motor to be selec		ve operation										
7) Vendor shall com		•	nd its acessories	mentioned in AN	ISI.							
8) Oil Transfer Pum	np PU-203 to be s	upplied by CPI										
9) To be confirmed	by CPI package s	supplier.										



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CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR OIL DISPOSAL PUMP



В	26-09-2018	Issued for Approval	MW	RA	MM
Α	09-06-2018	Issued for Review	MW	RA	ММ
Rev.	Date	Description	Prepared By	Checked By	Approved By

Consultant									Data Sh	neet		
								DATA SHEI	ET FOR OIL	DISPOSAL PU	MP	
TEL	ZIS	HAN ENGINEERS	S (PVT.) LTD.				Document N	No.		Revision		DATE
Client							294-1-DSM-0	005		В		26-09-2018
A missel	A DIC	CAL OIL TERMINA	\			Prepa	ared by	Checke	d by	Approved b	ру	SHEET
Apical	AFIC	AL OIL TERMINA	(E (F V I.) LID.			N	1VV	RA		MM		2 OF 2
Applicable To: Note:	0 I		on to be complete on to be complete	O ad by purchaser. ad by manufacturer.	As Built	Site				SIM, KARACHI		
Unit		DISPOSAL PUMP			D	Service				DISPOSAL		
No. Pumps Req'd. Item No.	1	No. Motors R PU-205	eq'a	1		vided By			Mtd E			
Item No. PU-205 Item Description No. Engines Req'd. No. Turbines Req'd Provided By Pump Mfr. Size and Type									Mtd E	l No.		
Limid	Edible			ONS, EACH PUMP		10	Datad	Drop	and Cumia N	PERFORMA	ANCE (VTA	۸)
PT.(°F) Nor. Sp.Gr. at PT. Vap. Press. at 37.8		Max. 87-0.875	Flow at PT. Disch. Press Suct. Press. Diff. Press. Diff. Head	. Bar G	Min	-0.25	Rated	RPM Eff. Max.	BHP rated	NPSHR (V BHP I	Vater) Rated	
Vis. at PT.	cST _	27-87	NPSHA	m			6.5				gpm	
	O Indoor O Continuous	•0		Area mittent		d.KW)Safe () Ra	0.42 O Hazardous ndom		tion (Viewed I rise to shut			
		0:	CONSTRUC						N. 1877		TESTS	140° D. (
Nozzles Suction		Size VTS	Rating 150 #	Facin RF	_		Location	$ $ $^{\circ}$	Non-Wit. Non-Wit.			Wit. Perf. Wit. Hydro
Discharge		VTS	150 #	RF				$ \frac{1}{0}$	NPSH R	•		Wit. NPSH
Case-mount: - Split: - Press: - Connect: Impeller Dia. : Mount:	O Centerline O Axial O Max. Allow O Vent O Rated O Between B		Volute barg @		Bracket SGL O Hy O Ga	O DBL dro Test ge Type:	Vert. (Type) O Diffuser barg	• • •	Inspection	. & Insp. After Te on Required For l on Required For (Nozzle Wel Casing	ds. Ultrasonic
Bearings-type:	O Radial	zailigs	o oven	lang	O Thi	rust			Other	MATE	RIALS	
Lube: Coupling: Driver Mtd. By: Packing: Mech. Seal:	O Ring Oil O Mfr. O Pump Mfr. O Mfr. & Type O Mfr. & Mod O Mfr. Code			Oil Mist O Driver Mfr. O	O Flir	nger O	Pressure Purchaser	SHAF	LLER (S)			Carbon Steel Cast Iron Carbon Steel Cast Iron
			AUXILIARY F	PIPING						VERTICA	L PUMPS	
C.W. Pipe Plan Total Cooling Wa Seal Flush Piping External Seal Flu Auxiliary Seal Quence	Packing Cooling Ir g Plan ush Fluid an	jection Req'd:	O m Total O CS	SS O . gpm CS O O gpm O SS	o ss o	O Pipe tht F.I. Req'd psig Tubing O Tubing	O Pipe O Pipe	Min. : Colur Line : Brgs: Brg.L Float	ube ⁰ & Rod oat Switch	th ce Req'd. O Fla O Op Sowl O Water O CS	anged pen O Line O Oil ss O	BRZ O None
			MOTOR DR					Pump	thrust,lb.	O UF	-	O Down
_	RPM VTS TEFC VTS Weatherproof, IPS D.O.L. +/- 10%		ngs ation	VTS Volts/Phase VTS CLASS F 75	Full Load	d Amps Rotor Amps	VTS VTS		ox. WT. Pur	np & Base	Turbio	
								Moto	_		Turbin	e

- 1) NPSH(A) at Pump suction Nozzle
- 2) VTA: Vendor to Advise
- 3) Temperature rise shall be adjusted for ambient temperature of 122 $^{\circ}\text{F}.$
- 4) VTS = Vendor To Specify
- 5) Motor to be selected for end of curve operation.
- 6) The cable entry details shall be provided to the supplier after the detail design & finalization of Power cable size if the motor manufacturer / supplier is unable to accommodate the same in the motor terminal box, suitable arrangement reducer / expander to be provided.
- 7) VTC: Vendor to Confirm
- 8) Vendor to provide casing drain with valve and blind flange.
- 9) Mating flanges for suction & discharge, gaskets, studs & nuts and reducers shall be supplied by pump vendors.



Document No.	294-1-DSM-006				
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Date	26-09-2018				
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CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR INTER TANK TRANSFER PUMP



Rev.	Date	Description	Prepared By	Checked By	Approved By
Α	09-06-2018	Issued for Review	MW	RA	MM
В	23-06-2018	Issued for Approval	MW	MKK	MM
С	26-09-2018	Issued for Approval	MW	MKK	MM

Consultant								Data She	et	
							INTER	TANK TRAN	SFER PUMP	
TEL	ZIS	HAN ENGINEERS	} (PVT.) LTD.			Documen	nt No.		Revision	DATE
Client						294-1-DSN	M-006		С	26-09-2018
A 12 2 2 1	ADIO	SALOU TEDMINI	** (D\/T \ TD		Pre	pared by	Checked	d by	Approved by	SHEET
Apical	APIC	CAL OIL TERMINA	AL (PVI.) LID.			MW	MKK		MM	2 OF 2
Applicable To: Note: For Unit	0 I		on to be completed on to be completed	d by purchaser.	Site		PROI		M, KARACHI TANK TRANSFER	3
No. Pumps Req'd.	1	No. Motors R		1	Provided By			Mtd By		
Item No.		PU-105	D 11		em Description			Mal Du		
No. Engines Req'd. Pump Mfr.		No. Turbines		NO FACIL PUMP	Provided By Size and Type			Mtd By Serial N	No	
Liquid	Edible		Flow at PT.	<u> </u>	136	Rated	Propo	osal Curve No	PERFORMANCI	E (VTA)
Liquia	EUIDIO	Oli	Disch. Press.			Kated 2.8	RPM	Sai Curve inc	o. NPSHR (Water	-1
PT.(°F) Nor. Sp.Gr. at PT. Vap. Press. at 37.8		Max. 37-0.875	Suct. Press. I Diff. Press.		in -0.2		1.4 Eff. Max. I	BHP rated IM	BHP Rate	·
Vap. Press. at 37.8 Vis. at PT.	cST	27-87	NPSHA	m		7.3	IVIAX. I	neau Kaleu i	gpm	
Corr/Eros. Caused	_		''		Hyd.KW	11.3	Rotati	ion (Viewed f	rom CPLG End)	
Location: Working:	O Indoor O Continuous	•0		Area: nittent	Safe	O Hazardou andom		rise to shut o	off .	
			CONSTRUC						SHOP TES	
Nozzles		Size	Rating	Facing		Location	$$ $ $ $^{\circ}$ $ $	Non-Wit. F		Wit. Perf.
Suction Discharge		VTS VTS	150 # 150 #	RF RF				Non-Wit. H NPSH Red	-	Wit. HydroWit. NPSH
Case-mount: - Split: - Press: - Connect: Impeller Dia. :	O Centerline O Axial O Max. Allow O Vent O Rated	O Rad;	Foot Volute barg @	O Bi	,	O Diffuse	er O	Shop Inspection	ection k Insp. After Test Required For Nozz Required For Casii	tle Welds.
Mount:	O Between B	earings	O Overh	_			0	Other		
Bearings-type: Lube: Coupling: Driver Mtd. By: Packing: Mech. Seal:	O Radial O Ring Oil O Mfr. O Pump Mfr. O Mfr. & Type O Mfr. & Mod O Mfr. Code			Oil Mist O Driver Mfr. O Si	Flinger O	Pressure	SHAF	LLER (S)	MATERIAL	Carbon Steel SS 304 SS 304 Cast Iron
			ALIVII IADV E	NIDINO.					VERTICAL DI	1400
C.W. Pipe Plan Total Cooling W Seal Flush Pipir External Seal Fl Auxiliary Seal P Aux. Seal Quen	/ater Req'd (m³/hr) Packing Cooling Ir ng Plan lush Fluid lan	jection Req'd:	Om O Total VTS O CS	SS) psig	O Pipe	Min. S Colum Line S Brgs: Brg.Lu Float	O Boube O & Rod oat Switch	Req'd. O Flanged O Open wl Water O CS	O Threaded O Enclosed O Line Shaft O Oil O Grease ss O BRZ O None
			MOTOR DR				Pump	thrust,lb.	O UP	O Down
	RPM VTS TEFC VTS Weatherproof, IPS Soft Starter +/- 10%		ngs _ ation _		Ull Load Amps Ocked Rotor Amps	400/3/50 VTS	1	ox. WT. Pump) & Base	
							Motor	·		Turbine

- 1) NPSH(A) at Pump suction Nozzle
- 2) VTA: Vendor to Advise
- 3) Temperature rise shall be adjusted for ambient temperature of 122 $^{\circ}\text{F}.$
- 4) VTS = Vendor To Specify
- 5) Motor to be selected for end of curve operation.
- 6) The cable entry details shall be provided to the supplier after the detail design & finalization of Power cable size if the motor manufacturer / supplier is unable to accommodate the same in the motor terminal box, suitable arrangement reducer / expander to be provided.
- 7) VTC: Vendor to Confirm
- 8) Vendor to provide casing drain with valve and blind flange.
- 9) Mating flanges for suction & discharge, gaskets, studs & nuts and reducers shall be supplied by pump vendors.



D	ocument No.	294-1-DSM-007
R	Revision	С
	ate	26-09-2018
	otal Pages inc front cover)	3



CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR SLUDGE PUMP



Rev.	Date	Description	Prepared By	Checked By	Approved By
Α	09-06-2018	Issued for Review	MW	RA	MM
В	23-06-2018	Issued for Approval	MW	MKK	MM
С	26-09-2018	Issued for Approval	MW	MKK	ММ

Consultar	nt					Data Sheet						
							SLUDGE PUMP					
TEL	ZIS	SHAN ENG	SINEERS (P\	/T.) LTD.			Docu	ıment No.	Revision	DATE		
Client							294-1	-DSM-007	С	26-09-2018		
۸)					Pr	epared By	Checked By	Approved By	SHEET		
Ap	ICAI API	CAL OIL T	ERMINAL (F	VT.) LTD.			MW	MKK	MM	2 OF 3		
·	CABLE TO: P	ROPOSAL	O PURCH	IASE O	AS BUILT	-	UNIT		PRODUCT STORAGE			
2 FOR 3 SITE				ASIM, KARA				UMPS REQUIRED		1		
4 SERVI	CE		EDIBLE OI	L SLUDGE F	REMOVAL		SIZE AND	TYPE	ROTARY PUMP			
5 MANU	FACTURER					SERIAL NO.						
6 NOTE:	INDICATES INF	ORMATION	I TO BE COM	PLETED BY	PURCHASER	☐ BY MANUFACTURER						
7						GENERAL						
	OTOR DRIVEN ITEMS NO'S		1 PU-202		OTHER DRIVER TY PUMP ITEM NO'S	PE/						
ŭ	MOTOR ITEM NO'S - DRIVEN ITEM NO					3		GEAR IT	TEM NO'S			
	R PROVIDED BY	M	ANUFACTUR	ER	DRIVER PROVIDED	D BY		GEAR P	ROVIDED BY			
	R MOUNTED BY	M	ANUFACTUR	ER	DRIVER MOUNTED				OUNTED BY			
13 MOTO	R DATA SHEET NO.				DRIVER DATA SHE	ET NO.		GEAR D	ATA SHEET NO.			
14	0	OPERATI	NG CONDITIO	ons .				O LIQUI	ID.			
	.PACITY @ PT (m³/h):	50				TYPE OI	R NAME OF LIQU		EDIBLE OIL SLUDO	GE .		
16 @	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						G TEMPERATUR	RE (°C):				
	DISCHARGE PRESSURE (barg):						IAL AMB		50 MINIMUM	15		
10	MAXIMUM 1.8 MINIMUM - SUCTION PRESSURE (barg)						 SPECIFIC GRAVITY SPECIFIC HEAT GRAVITY MAXIMUM MINIMUM MINIMUM (Ki/kg°C) 					
	AXIMUM		IINIMUM	-0.2		SPECIFIC HEAT - (Kj/kg°C) VISCOSITY (cst) 425						
							SIVE/EROSIVE A					
22 MA	- 1						DE CONCENTRA	ATION (PPM)				
	SH AVAILABLE (m)			5		_	ICENTRATION (
24 O HY	DRAULIC Kw		2.8			LIQUID C) TOXIC	○ FLAMMABLE	OTHER			
] peri	FORMANCE									
25	DATED CARACITY (13	_	Oranizator					O SITE AND LITH	ITY DATA			
	RATED CAPACITY (m³/ NPSH REQUIRED (m)	h)				SITE AND UTILITY DATA LOCATION ○ INDOOR ● OUTDOOR						
	RATED SPEED (RPM)					O HEATED O UNDER ROOF						
29 🗆 [DISPLACEMENT (m³/h)					O ELECTRICAL AREA CLASS GROUP DIV						
	OLUMETRIC EFFICIEN	` '				○ WINTERIZATION REQD ○ TROPICALIZATION REQD						
	MECHANICAL EFFICIEN «W @ MAXIMUM VISCO	` '				SITE DATA PANCE OF AMBIENT TEMPS: MIN/MAY 0/45						
<u> </u>	KW @ MAXIMOM VISCO					● RANGE OF AMBIENT TEMPS: MIN/MAX 0/45 °C UNUSUAL CONDITIONS						
	MAXIMUM ALLOWABLE		PM)			● DUST ○ FUMES ● SALT ATMOSPHERE						
35 🗆 N	MINIMUM ALLOWABLE	SPEED (RF	PM)			OTHER						
36	Г	CONS	STRUCTION			UTILITY	CONDITIONS					
37		SIZE	ANSI	EVOING	POSITION	ELECTRICITY	DRIVERS	HEATING	CONTROL SHUT	DOWN		
38	CONNECTIONS		RATING	FACING	POSITION	VOLTAG	SE					
	SUCTION	VTS	150#	RF		HERTZ						
	DISCHARGE GLAND FLUSH	VTS VTS	150#	RF		PHASE COOLING WAT	ER INLE	 T RETU	JRN DESIGN	MAX Δ		
	DRAINS	VTS				TEMP °C	INCE	MAX	DEGIOIN	IVIAA 4		
	VENTS	VTS				PRESS. (kPa) (BARG)	MIN				
45 PH						INSTRUMENT		MAX		MIN		
10						PRESSURE (kPa) (BARG)						
	_				SING CAVITY			APPLICABLE SPE	CIFICATIONS:			
. •	AR TYPE											
	SPUR HEL		ada::4: C				NING SPECIFICA	ATION (IF DIFFERENT)				
51 🗆	OTHER	Ver	ndor to Sugge	est		REMARKS:						

Consultant		Data Sheet						
		SLUDGE PUMP						
ZISHAN ENGINEERS (PVT.) LTD.		Docum	nent No.	Revision	DATE			
Client		294-1-[DSM-007	С	26-09-2018			
A		Prepared By	Checked By	Approved By	SHEET			
APICAL OIL TERMINAL (PVT.) LTD.		MW	MKK	MM	3 OF 3			
1 OPERATING CONDITIONS			MATERIALS					
2 CASING		CASING						
3 MAXIMUM ALLOWABLE PRESSURE:(kPa) (BARG) @°C		STATOR			_			
4 HYDROSTATIC TEST PRESSURE:(kPa) (BARG)		END PLATES						
5 STEAM JACKET PRESSURE:(kPa) (BARG) @°C		ROTOR(S)						
6 ROTOR MOUNT BETWEEN BEARINGS OVERHUNG		VANES						
7 TIMING GEARS YES NO		SHAFT						
8 BEARING TYPE: RADIAL THRUST		SLEEVE(S)						
9 LUBRICATION TYPE: • CONSTANT LEVELS OILERS		GLAND(S)						
10 PUMPED FLUID RING COIL OIL MIST		BEARING HOUSING						
11 EXTERNAL OIL FLOOD GREASE		TIMING GEARS	20 (0.0.1.0					
12 LUBRICANT TYPE	0	SPECIAL MATERIAL TEST	·					
13 MECHANICAL SEALS	0	LOW AMBIENT TEMP. MA		TEST				
14 MANUFACTURER AND MODEL 15 MANUFACTURER CODE		COMPLIANCE WITH INSPE	QA INSPECTION AND	1601				
	0							
	0	CERTIFICATION OF MATE						
	0	SURFACE AND SUBSURFA						
18 PACKING: LANTERN RING 19 MANUFACTURER AND TYPE NO. OF RINGS	0	- DADIOODADIIV	ACE EXAMINATIONS					
Tig I willier her entance in the entitle entance		- 111 TDA CONIIO	-					
20 DRIVE MECHANISM		MAGNETIC PARTICL						
21 O DIRECT-COUPLED O V-BELT GEAR		O LIQUID PENETRANT			_			
22 COUPLING MANUFACTURER	0	CLENLINESS PRIOR TO F						
	0	HARDNESS OF PARTS, W	'ELDS & HEAT AFFECTED Z	ONES				
23 DRIVERS		FURNISH PROCEDURES F	FOR OPTIONAL TESTS					
24 MOTOR:	TEST	S	REQ'D	WIT	OBS			
25 MANUFACTURER VTS	HYDF	ROSTATIC	•	\circ	•			
26 TYPE -	MECH	HANICAL RUN	•	0	•			
27 FRAME NO. VTS	PERF	FORMANCE	•	0	•			
28 CONSTANT SPEED	NPSH	1	•	0	•			
29 VARIABLE SPEED			PREPARATION OF SHIP	PMENT				
30 KWRPMVTS	0		O	EXPORT BOXING RE	QD.			
31 VOLTS 400 PHASE 3	0	OUTDOOR STORAGE MOI						
32 HERTZ 50 SERVICE FACTOR VTS 33 ENCLOSURE Weatherproof IP55, TEFC	_		BASEPLATE	SHITADI E EOD EDO	VV GROUT			
33 ENCLOSURE Weatherproof IP55, TEFC 34 STARTER STAR-DELTA		BY PUMP MANUFACTURE EXTENDED FOR	:R	SUITABLE FOR EPO	AT GROUT			
34 STARTER STAR-DELTA 35 INSULATION CLASS F FOR CLASS B TEMPERATURE RISE		SUBSOLE PLATES BY PUI	MP MANUFACTURER					
36 OTHER (SEE SEPARATE DATA SHEETS)			DRAIN-PAN					
			WIEGHTS (LBS)					
OTHER PURCHASER REQUIREMENTS	0	PUMP) BASE	○ GEAR				
38 NAMEPLATE UNITS CUSTOMARY SI	0	DRIVER		_				
39 RELIEF VALVES BY PUMP MFGR INTERNAL EXTERNAL								
40 PIPING FOR SEAL FLUSH FURNISHED BY:								
● PUMP VENDOR OTHERS								
42 PIPING FOR COOLING/HEATING FURNISHED BY:								
43 PUMP VENDOR OTHER								
PROVIDE TECHNICAL DATA MANUAL								
NOTES: VTC Vandas to Confirm								
NOTES:- VTC - Vendor to Confirm VTS - Vendor to Specify								
VTS - Vendor to Specify								
 1- All missing information to be filled by Vendor. 2- Hydraulic Power. Vendor should select the best efficiency point to calculate pump 	DOWER (DL	IP)						
	POWEI (BF	ıı <i>j</i> .						
 3- Mating flanges at suction & discharge shall be provided by vendor. 4- Vendor to submit the performance curve and GA drawings. 								
51 5- The cable entry details shall be provided to the supplier after the detail design & fi	nalization (of Power cable size if the mot	or manufacturer / supplier is u	inable to accommodate	the same			
in the motor terminal box, suitable arrangement reducer / expander to be provided								
53								
54								



Document No.	294-1-DSM-008				
Revision	С				
Date	26-09-2018				
Total Pages (inc front cover)	2				



CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR EDIBLE OIL DECANTING PUMP



С	26-09-2018	Issued for Approval	MW	MKK	MM
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Rev.	Date	Description	Prepared By	Checked By	Approved By

Consultant									Data S	heet		
						EDIBLE OIL DECANTING PUMP						
TEL	ZISF	IAN ENGINEERS	(PVT.) LTD.				Documen	it No.		Revis	sion	DATE
Client							294-1-DSN	M-008		С	,	26-09-2018
A	ADIC	AL OIL TERMINIA	I (DVT) I TD			Prep	ared by	Check	ced by	Approv	ed by	SHEET
Apical	APIC	AL OIL TERMINA	L (PVI.) LID.			ı	MW	MI	KK	MI	VI	2 OF 2
Applicable To: Note:	O In		•	O ted by purchaser. ted by manufacture	As Buil r.	t Site			PORT O	ASIM, KARAO	CHI	
Unit	DEC	ANTING PUMP				Service				CT DECANTI		
No. Pumps Req'd.	1	No. Motors Re	eq'd	1		ovided By			Mtd	Ву		
Item No.		PU-201 No. Turbines	Dogld			escription ovided By			Mtd	D.,		
No. Engines Req'd. Pump Mfr.			Keq a			and Type				al No.		
		OPERA	TING CONDIT	IONS, EACH PUMF	•					PERFO	RMANCE (VTA)
Liquid	Edible	Oil		. m ³ /hr Nor.		50	Rated		posal Curve			
DT (OF) No.	ANAD	NA	Disch. Pres		B.42		2.8	RP			IR (Water)	
PT.(ºF) Nor. Sp.Gr. at PT.		Max. 7-0.875	Suct. Press		Min	-0.2	Max 	1.4 Eff	x. BHP rated		BHP Rated	
Vap. Press. at 37.8		-0.873	Diff. Head	m			34.0		x. Head Rate			
Vis. at PT.	cST	27-87	NPSHA	m			8		x. Hodd Hale	,	gpm	
Corr/Eros. Caused I					Н	yd.KW	4.2	Ro	tation (Viewe	d from CPLG	0.	
	O Indoor O Continuous	● Ou	utdoor • Inte	Ar ermittent	rea:	⊖Safe ⊝ Ra	O Hazardous andom	s He	ad rise to shu	ut off	_	
			CONSTRU	JCTION						SH	OP TESTS	}
Nozzles		Size	Rating	Fac	cing		Location	0	Non-Wi	t. Perf.		Wit. Perf.
Suction		VTS	150 #		RF			0		t. Hydro		■ Wit. Hydro
Discharge		VTS	150 #		RF			0	NPSH F	•		● Wit. NPSH
Case-mount:	O Centerline	0	Foot	0	Bracke		Vert. (Type)			spection		
- Split:	O Axial	O Rad;		ute Type:	SGL	○ DBL	O Diffuser			t. & Insp. Afte		
- Press:	O Max. Allow, O Vent		barg @	°C;		ydro Test age	barg			on Required		Welds.
- Connect: Impeller Dia. :	O Rated	O	Drain O	Лах.	0 6	age Type:			Radiogr	on Required	_	O Ultrasonic
Mount:	O Between Be	arings		erhung		_ ' ' ' ' ' ' '	·	0		арпу		O dicasonic
Bearings-type:	O Radial	amigo	- 010	, mang	ОТІ	hrust			01101	M	ATERIALS	
Lube:	O Ring Oil	O Flood	0	Oil Mist		linger O	Pressure					
Coupling:	O _{Mfr.}				_	lodel		CA	SE			Carbon Steel
Driver Mtd. By:	O Pump Mfr.			O Driver Mfr.		0	Purchaser	IMI	PELLER (S)			SS 304
Packing:	O Mfr. & Type			0	Size/No	o. of Rings			AFT			SS 304
Mech. Seal:	○ Mfr. & Mode○ Mfr. Code	I						WE	EAR RING			Cast Iron
			AUXILIARY	' PIPING						VERT	TICAL PUM	PS
O C.W. Pipe Plan		O CU		ss O	Tubing;	; O Pip	e	Pit	or Sump Dep			
O Total Cooling W	ater Req'd (m³/hr)	req gpr	n		_	ight F.I. Req'd		Mir	n. Submerger	nce Req'd.		
	Packing Cooling Inj	ection Req'd:	Tota	al. gpm		psig		Co	lumn Pipe:	0	Flanged	O Threaded
O Seal Flush Pipin	-	V	TS O	cs O	ss C	Tubing	O Pipe		e Shaft:	0	Open	O Enclosed
O External Seal Flu				_ O gpm		0	psig	Brg	•	Bowl		Line Shaft
O Auxiliary Seal Pl			O cs	O SS	C	Tubing	O Pipe			O Water		Oil Grease
O Aux. Seal Queno	ch Fluid								at & Rod Float Switch	o cs	O ss	O BRZ O None
			MOTOR D	ORIVER					mp thrust,lb.		UP	O Down
HP VTS	RPM	VTS Frame			nase/Cycles	<u> </u>	400/3/50		,			
Mfr.	VTS	Bearin		VTS	,							
Cooling Type	TEFC	 Insula	-	CLASS F	Full Loa	ad Amps	VTS	3				
Cable Entries	VTS	Temp. Ris		75		Rotor Amps	VTS					
	Weatherproof, IP5					•			prox. WT. Pu	mp & Base		
-	Star-Delta		F 1.15							-		
Voltage Tolerance	+/- 10%											
								Мо	tor		Τι	ırbine
									_			

- 1) NPSH(A) at Pump suction Nozzle
- 2) VTA: Vendor to Advise
- 3) Temperature rise shall be adjusted for ambient temperature of 122 $^{\circ}\text{F}.$
- 4) VTS = Vendor To Specify
- 5) Motor to be selected for end of curve operation.
- 6) The cable entry details shall be provided to the supplier after the detail design & finalization of Power cable size if the motor manufacturer / supplier is unable to accommodate the same in the motor terminal box, suitable arrangement reducer / expander to be provided.
- 7) VTC: Vendor to Confirm
- 8) Vendor to provide casing drain with valve and blind flange.
- 9) Mating flanges for suction & discharge, gaskets, studs & nuts and reducers shall be supplied by pump vendors.



Document No.	294-1-DSM-009 C				
Revision					
Date	26-09-2018				
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CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR HSD TRANSFER PUMP



С	26-09-2018	Issued for Approval	MW	MKK	MM
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Α	09-06-2018	Issued for Review	MW	RA	ММ
Rev.	Date	Description	Prepared By	Checked By	Approved By

Con	sultant					Data Sheet						
							HSD TRANSFER PUMP					
	I	SHAN ENG	SINEERS (P	VT.) LTD.			Document No. R			DATE		
Clie	nt						294-1-DSI	M-009	С	26-09-2018		
٨	A						ared By	Checked By	Approved By	SHEET		
F	APICAL OIL TERMINAL (PVT.) LTD.						иW	MKK	MM	2 OF 3		
	APPLICABLE TO: PI		HASE O	AS BUILT	UNIT HSD TRANSFER							
	SITE			ASIM, KARA			NO. OF PUMPS			1		
4	SERVICE		нѕ	D TRANSFI	≣R		SIZE AND TYP	PE	ROTARY PUMP			
5	MANUFACTURER						SERIAL NO.					
6	NOTE: • INDICATES INF	ORMATION	LTO BE COM	PI ETED BY	PURCHASER	Г	☐ BY MANUFAC	TURER				
7	NOTE. INDICATES IN	ORWATION	TO BE COM	FEETED BT	TOROHAGER	GENERAL		TOKEK				
	NO. MOTOR DRIVEN		1		OTHER DRIVER T	YPE						
Ŭ	PUMP ITEMS NO'S		PU-503		PUMP ITEM NO'S							
	MOTOR ITEM NO'S		-		DRIVEN ITEM NO'S			GEAR ITEM				
	MOTOR PROVIDED BY		ANUFACTUR		DRIVER PROVIDE			GEAR PROVI				
	MOTOR MOUNTED BY MOTOR DATA SHEET NO.	IVI	ANUFACTUR	EK	DRIVER MOUNTED DRIVER DATA SHE			GEAR MOUN GEAR DATA				
13	MOTOR DATA GILLET NO.				DRIVER DATA OFF	LLT NO.		OLAN DATA	ONEET NO.			
14	0	OPERATI	NG CONDITIO	ONS				LIQUID				
15	CAPACITY @ PT (m ³ /h):	20				TYPE OR N	AME OF LIQUID		High Speed Diesel			
16	@ MAXIMUM VISCOSITY		@ MINIMUM	VISCOSITY	5.5 cST		EMPERATURE (°C	•				
	DISCHARGE PRESSURE	,	415.115.41.15.4			NORMAL		MAXIMUM 50	MINIMUM	15		
18	MAXIMUM 1.8 SUCTION PRESSURE (be		IINIMUM			 SPECIFIC GRAVITY SPECIFIC HEAT MAXIMUM - MINIMUM - SPECIFIC HEAT (Kj/kg°C) 						
20	MAXIMUM		IINIMUM	-0.2		● VISCOSITY (cst) 5.5 -180 @ 50oC(Note-5)						
21	DIFFERENTIAL PRESSUR					O CORROSIVE/EROSIVE AGENTS						
22	MAXIMUM 2	N	MINIMUM			O CHLORIDE	CONCENTRATION	N (PPM)				
	NPSH AVAILABLE (m)			3		_	ENTRATION (PPM)					
24	O HYDRAULIC Kw		1.1			LIQUID O T	OXIC OF	FLAMMABLE	OTHER			
						-						
25		_ PER	FORMANCE									
26	RATED CAPACITY (m ³ /	/h)					0					
27	NPSH REQUIRED (m)					LOCATION HEATED		DOOR • C	OUTDOOR UNDER ROOF			
28 29	☐ RATED SPEED (RPM)☐ DISPLACEMENT (m³/h)					○ HEATED○ UNDER ROOF○ ELECTRICAL AREA CLASS○ GROUPDIV						
30	☐ VOLUMETRIC EFFICIE					○ WINTERIZATION REQD ○ TROPICALIZATION REQD						
31	☐ MECHANICAL EFFICIEN	` '				SITE DATA						
32	☐ kW @ MAXIMUM VISCO	SITY				RANGE OF AMBIENT TEMPS: MIN/MAX 0/45 °C						
33						UNUSUAL CONDITIONS						
34	MAXIMUM ALLOWABLE					DUST						
35	MINIMUM ALLOWABLE	OFEED (KI	- ivi <i>)</i>			OTHER _						
36		CON	STRUCTION			O UTILITY CO	NDITIONS					
37		SIZE	ANSI	FACING	POSITION	ELECTRICITY	DRIVERS	HEATING CC	NTROL SHUTE	DOWN		
38	CONNECTIONS		RATING		1 33111014	VOLTAGE						
39	SUCTION	VTS	150#	RF		HERTZ						
40 41	DISCHARGE GLAND FLUSH	VTS VTS	150#	RF		PHASE COOLING WATER	INLET		 DESIGN	MAX Δ		
41	DRAINS	VTS				TEMP °C		MAX	DE01014	IVIAA 4		
43	VENTS	VTS				PRESS. (kPa) (BAI	RG)	MIN				
44	JACKET					SOURCE						
45						INSTRUMENT AIR		MAX		MIN		
46							(kPa) (BARG)					
	47 INTERNAL GEAR TWIN-SCREW VANE 48 EXTERNAL GEAR THREE-SCREW PROGRESSING CAVITY						APPLICABLE SPECIFICATIONS:					
48 49	GEAR TYPE		L VV	OOKLO	S Oriviri	APPLICABLE SPECIFICATIONS:						
50	☐ SPUR ☐ HEL	ICAL				GOVERNING SPECIFICATION (IF DIFFERENT)						
51	OTHER	Ve	ndor to Sugg	est		REMARKS:						

Co	nsultant	Data Sheet							
	ZICHAN ENCINEEDS (DVT.) LED		HSD TRANSFER PUMP						
	ZISHAN ENGINEERS (PVT.) LTD.		Docur	Document No.		DATE			
Clie	ent		294-1-	DSM-009	С	26-09-2018			
	APICAL OIL TERMINAL (PVT.) LTD.		Prepared By	Checked By	Approved By	SHEET			
	Apical Allone die Pertuint (1 VII.) et b.		MW	MKK	ММ	3 OF 3			
1	OPERATING CONDITIONS			MATERIALS					
2	CASING		CASING						
3	MAXIMUM ALLOWABLE PRESSURE: (kPa) (BARG) @ °C		STATOR						
4	HYDROSTATIC TEST PRESSURE: (kPa) (BARG)		END PLATES						
	 *								
5	STEAM JACKET PRESSURE:(kPa) (BARG) @°C		ROTOR(S)						
6	ROTOR MOUNT BETWEEN BEARINGS OVERHUNG		VANES						
7	TIMING GEARS YES NO		SHAFT						
8	BEARING TYPE: TRADIAL THRUST		SLEEVE(S)						
9	LUBRICATION TYPE: CONSTANT LEVELS OILERS		GLAND(S)						
10	PUMPED FLUID RING COIL OIL MIST		BEARING HOUSING						
11	■ EXTERNAL ☐ OIL FLOOD ■ GREASE		TIMING GEARS						
12	LUBRICANT TYPE	0	SPECIAL MATERIAL TEST	TS (2.3.1.3					
13	MECHANICAL SEALS		LOW AMBIENT TEMP. MA	TERIALS TESTS (2.9.5)					
14	MANUFACTURER AND MODEL			QA INSPECTION AND	TEST				
15			COMPLIANCE WITH INSP						
		0							
		0	CERTIFICATION OF MATI						
	API 610 SEAL CODE	0	FINAL ASSEMBLY CLEAR	ANCES					
18	PACKING: LANTERN RING	0	SURFACE AND SUBSURF	FACE EXAMINATIONS					
19	MANUFACTURER AND TYPE NO. OF RINGS		RADIOGRAPHY						
			ULTRASONIC			_			
20	DRIVE MECHANISM		MAGNETIC PARTIC	LE					
	O DIRECT-COUPLED O V-BELT GEAR	LIQUID PENETRANT							
			CLENLINESS PRIOR TO F						
22		C HADDNESS OF DARTS WELDS & HEAT AFFECTED ZONES							
	200720	-0			LONES				
23		\Box	FURNISH PROCEDURES						
24	MOTOR:	TEST	-S	REQ'D	WIT	OBS			
25	MANUFACTURER VTS	HYDF	ROSTATIC	•	\circ	•			
26	TYPE -	MECI	HANICAL RUN	•	\circ	•			
27	FRAME NO. VTS	PERF	FORMANCE	•	\circ	•			
28	● CONSTANT SPEED	NPSH	4	•	\circ	•			
	VARIABLE SPEED			PREPARATION OF SHI	PMENT				
	KPM VTS		DOMESTIC	EXPORT	EXPORT BOXING RE	OD.			
	● VOLTS 400 PHASE 3	0	OUTDOOR STORAGE MC	O	EXI ON BOXING NE				
			OOTBOOK STOKAGE WE	BASEPLATE					
			DV DUMD MANUE ACTUS		CHITARI E FOR EROY	VV CROUT			
	EEx d IIC, T4, IP65, TEFC		BY PUMP MANUFACTURI	ER O	SUITABLE FOR EPO	AT GROUT			
	STARTER D.O.L.	\circ	EXTENDED FOR						
	INSULATION CLASS F FOR CLASS B TEMPERATURE RISE	\circ	SUBSOLE PLATES BY PU						
36	OTHER (SEE SEPARATE DATA SHEETS)	O DRAIN-RIM O DRAIN-PAN							
		WIEGHTS (LBS)							
37	OTHER PURCHASER REQUIREMENTS	0	PUMP () BASE	○ GEAR				
38	NAMEPLATE UNITS CUSTOMARY SI	0	DRIVER						
39	RELIEF VALVES BY PUMP MFGR INTERNAL EXTERNAL								
	PIPING FOR SEAL FLUSH FURNISHED BY:								
	PUMP VENDOR OTHERS								
	PIPING FOR COOLING/HEATING FURNISHED BY:								
	PUMP VENDOR OTHER								
	PROVIDE TECHNICAL DATA MANUAL								
44	THOUSE LEGINIONE DATA IMANUAL								
	NOTES:- VTC - Vendor to Confirm								
46	VTS - Vendor to Specify								
47									
48									
49	3- Mating flanges at suction & discharge shall be provided by vendor.								
50	4- Vendor to submit the performance curve and GA drawings.								
51	5- This pump will be used as standby for Furnace Oil Transfer pump								
52	6- The cable entry details shall be provided to the supplier after the detail design & finali	ization	of Power cable size if the mo	tor manufacturer / supplier is	unable to accommodate	the same			
53	in the motor terminal box, suitable arrangement reducer / expander to be provided.								
54	and the second s								



Document No.	294-1-DSM-015		
Revision	С		
Date	26-09-2018		
Total Pages (inc front cover)	3		



CONSULTANCY SERVICES FOR SETTING UP OF EDIBLE OIL STORAGE TERMINAL AT PORT QASIM

DATA SHEET FOR FO TRANSFER PUMP



С	26-09-2018	Issued for Approval	MW	MKK	MM
В	23-06-2018	Issued for Approval	MW	MKK	MM
Α	09-06-2018	Issued for Review	MW	RA	ММ
Rev.	Date	Description	Prepared By	Checked By	Approved By

Con	sultant					Data Sheet						
ZISHAN ENGINEERS (PVT.) LTD.							FO TRANSFER PUMP					
		SHAN ENG	SINEERS (P	VI.) LID.			Document No.			DATE		
Clie	nt						294-1-	DSM-015	С	26-09-2018		
٨	APICAL OIL TERMINAL (PVT.) LTD.					Pr	epared By	Checked By	Approved By	SHEET		
_	Apical API	CAL OIL T	LINIIIVAL (I	V1.) L1D.			MW	MKK	MM	2 OF 3		
_	APPLICABLE TO: PI FOR	ROPOSAL	O PURCH	HASE O OIL TERMIN	AS BUILT IAL		UNIT		FO TRANSFER			
	SITE		PORT Q	ASIM, KARA	СНІ		NO. OF PU	MPS REQUIRED		1		
4	SERVICE		F	O TRANSFE	R		SIZE AND T	YPE	ROTARY PUMP			
5	MANUFACTURER						SERIAL NO					
6	NOTE: • INDICATES INF	ORMATION	TO BE COM	PLETED BY	PURCHASER		☐ BY MANUF	ACTURER				
7						GENERAL						
	NO. MOTOR DRIVEN		1		OTHER DRIVER T	YPE						
	PUMP ITEMS NO'S		PU-504		PUMP ITEM NO'S	9		GEAR ITEM	NOIS			
	MOTOR ITEM NO'S MOTOR PROVIDED BY	M	- ANUFACTUR	FR .	DRIVEN ITEM NO'S DRIVER PROVIDE			GEAR PROV				
	MOTOR MOUNTED BY		ANUFACTUR		DRIVER MOUNTER			GEAR MOU				
	MOTOR DATA SHEET NO.		7.1.017.010		DRIVER DATA SHI			GEAR DATA				
14	0	OPERATII	NG CONDITIO	ONS				LIQUID				
15	OAPACITY @ PT (m ³ /h):	20				● TYPE OF	R NAME OF LIQUI		FURNACE OIL			
16	@ MAXIMUM VISCOSITY		@ MINIMUM	VISCOSITY	5.5 cST	PUMPIN	G TEMPERATURE	E (°C):				
17	DISCHARGE PRESSURE					NORM		MAXIMUM 50		15		
18	MAXIMUM 1.8		IINIMUM	-			C GRAVITY	0.87 MAXIMUM	- MINIMUM			
	SUCTION PRESSURE (ba	-		0.0		● SPECIFIC HEAT - (Kj/kg°C) • VISCOSITY (cst) 5.5 -180@50oC (Note-5)						
20	MAXIMUM DIFFERENTIAL PRESSUF		IINIMUM	-0.2			SIVE/EROSIVE AG					
21 22	MAXIMUM 2	, ,	IINIMUM				DE CONCENTRAT					
	NPSH AVAILABLE (m)			 3			ICENTRATION (PF	· · ·				
	O HYDRAULIC Kw		1.1			-	TOXIC O	FLAMMABLE	OTHER			
		PERI	FORMANCE			Ī <u>—</u>						
25							0	CITE AND LITE IT	DATA			
26	RATED CAPACITY (m ³ /	h)				LOCATION		SITE AND UTILITY				
27 28	RATED SPEED (RPM)					O HEATED O UNDER ROOF						
29	DISPLACEMENT (m³/h)	ı				O ELECTRICAL AREA CLASS GROUP DIV						
30	□ VOLUMETRIC EFFICIEN					○ WINTERIZATION REQD ○ TROPICALIZATION REQD						
31	MECHANICAL EFFICIEN	NTY (%)				SITE DATA						
32	☐ kW @ MAXIMUM VISCO	SITY				● RANGE OF AMBIENT TEMPS: MIN/MAX 0/45 °C						
33		ETTING				UNUSUAL CONDITIONS						
34	MAXIMUM ALLOWABLE	•	,			● DUST ○ FUMES ● SALT ATMOSPHERE						
35	MINIMUM ALLOWABLE	SPEED (RF	PM)			OTHER						
36		CON	STRUCTION			O UTILITY	CONDITIONS					
37		SIZE	ANSI	FACING	POSITION	ELECTRICITY	DRIVERS	HEATING C	ONTROL SHUTE	OOWN		
38	CONNECTIONS		RATING		1 33111011	VOLTAC	SE					
39	SUCTION	VTS	150#	RF		HERTZ						
40	DISCHARGE	VTS	150#	RF		PHASE			DE010::			
41	GLAND FLUSH DRAINS	VTS VTS	-	-		COOLING WAT	ER INLET	RETURN MAX	DESIGN	MAX Δ		
42 43	VENTS	VTS	1	 		PRESS. (kPa) (BARG)	MIN	<u> </u>	<u> </u>		
44	JACKET		1	I	I	SOURCE						
45						INSTRUMENT A		MAX		MIN		
46	PUMP TYPE: GEAR	TYPE				PRESSU	IRE (kPa) (BARG)					
47	☐ INTERNAL GEAR ☐	TWIN-SO	CREW	VANE								
48	EXTERNAL GEAR	THREE-	SCREW	PROGRES	SING CAVITY		APPLICABLE SPECIFICATIONS:					
49	GEAR TYPE											
50	SPUR HEL					O GOVERNING SPECIFICATION (IF DIFFERENT)						
51	OTHER	Vei	ndor to Sugg	est		REMARKS:						

Cor	nsultant	Data Sheet							
			FO TRANSFER PUMP						
	ZISHAN ENGINEERS (PVT.) LTD.		Do	cument No.		Revision	DATE		
Clie	ent		294-1-DSM-015			С	26-09-2018		
	`		Prepared By	Checked B	у	Approved By	SHEET		
F	APICAL OIL TERMINAL (PVT.) LTD.		MW	MKK		MM	3 OF 3		
1	OPERATING CONDITIONS	Τ		<u> </u>	RIALS				
2	CASING		CASING						
3	MAXIMUM ALLOWABLE PRESSURE: (kPa) (BARG) @ °C		STATOR						
4	HYDROSTATIC TEST PRESSURE: (kPa) (BARG)		END PLATES						
	STEAM JACKET PRESSURE: (kPa) (BARG) @ °C		ROTOR(S)						
5	<u> </u>								
6			VANES						
7	TIMING GEARS YES NO		SHAFT						
8	BEARING TYPE: RADIAL THRUST		SLEEVE(S)						
9	LUBRICATION TYPE: CONSTANT LEVELS OILERS		GLAND(S)						
10	☐ PUMPED FLUID ☐ RING COIL ☐ OIL MIST		BEARING HOUSING				_		
11	EXTERNAL OIL FLOOD GREASE		TIMING GEARS				_		
12	LUBRICANT TYPE	0	SPECIAL MATERIAL T	ESTS (2.3.1.3					
13	● MECHANICAL SEALS	0	LOW AMBIENT TEMP.	MATERIALS TESTS (2.	9.5)				
14	MANUFACTURER AND MODEL			QA INSPECTI	ON AND	TEST			
15	MANUFACTURER CODE	0	COMPLIANCE WITH IN	NSPECTORS CHECK LI	ST				
16	O API 610 SEAL FLUSH PLAN MANUFACTURER STANDARD	0	CERTIFICATION OF M	ATERIALS					
17			FINAL ASSEMBLY CLE						
	PACKING: CANTERN RING	0		JRFACE EXAMINATION	S				
	— MANUEACTURED AND TYPE	0	○ RADIOGRAPHY	SKI AOL LAAMINATION	0				
19	MANOTACTORER AND TITE No. of Rings		O LILTDACONIC						
	DDIVE MECHANISM	_	O ULTRASONIC						
20	DRIVE MECHANISM		MAGNETIC PAR						
21			LIQUID PENETRA						
22	COUPLING MANUFACTURER	\circ	CLENLINESS PRIOR T	O FINAL ASSEMBLY					
		\circ	HARDNESS OF PARTS	S, WELDS & HEAT AFF	CTED Z	ONES			
23	DRIVERS	\circ	FURNISH PROCEDUR	ES FOR OPTIONAL TES	STS				
24	● MOTOR:	TEST	S	REQ'D		WIT	OBS		
25	MANUFACTURER VTS	HYDF	ROSTATIC	•		\circ	•		
26	TYPE -	MEC	HANICAL RUN	•		\circ	•		
27	FRAME NO. VTS	PERF	ORMANCE	•		\circ	•		
28	CONSTANT SPEED	NPSH	1	•		\circ	•		
	VARIABLE SPEED			PREPARATION	OF SHII	PMENT			
	KW RPM VTS		DOMESTIC	EXPORT	0	EXPORT BOXING RE	QD.		
	VOLTS 400 PHASE 3	0		MORE THAN 6 MONTH	_				
	HERTZ 50 SERVICE FACTOR VTS			BASEI					
	ENCLOSURE EEx d IIC, T4, IP65, TEFC		BY PUMP MANUFACT			SUITABLE FOR EPOX	(Y GROUT		
	STARTER D.O.L.		EXTENDED FOR	J. (L.)	\circ	SOUNDEL FOR LFO	001		
	■ INSULATION CLASS F FOR CLASS B TEMPERATURE RISE	0		PUMP MANUFACTURE	R				
		0		O DRAIN-PAN	IX				
36	OTHER (SEE SEPARATE DATA SHEETS)								
	OTUED BUDGULAGED DEGUNDENCE	WIEGHTS (LBS)							
37	OTHER PURCHASER REQUIREMENTS	0	PUMP	○ BASE		○ GEAR			
	NAMEPLATE UNITS CUSTOMARY SI	0	DRIVER						
	■ RELIEF VALVES BY PUMP MFGR ■ INTERNAL ○ EXTERNAL								
40	PIPING FOR SEAL FLUSH FURNISHED BY:								
41	● PUMP VENDOR ○ OTHERS								
42	PIPING FOR COOLING/HEATING FURNISHED BY:								
43	PUMP VENDOR OTHER								
	PROVIDE TECHNICAL DATA MANUAL								
45	NOTES:- VTC - Vendor to Confirm	1							
46	VTS - Vendor to Specify								
1- All missing information to be filled by Vendor.									
	Hydraulic Power. Vendor should select the best efficiency point to calculate pump po	wer (RL	IP)						
48		MOI (DE	·· <i>J</i> ·						
49	3- Mating flanges at suction & discharge shall be provided by vendor.								
50	4- Vendor to submit the performance curve and GA drawings.								
51	5- This pump will be used as standby for HSD Transfer pump								
52	6- The cable entry details shall be provided to the supplier after the detail design & final	lization	of Power cable size if the	motor manufacturer / su	oplier is u	unable to accommodate	the same		
53									
54									