


Domain :	bpcleproc.in	 भारत पेट्रोलियम कॉर्पोरेशन लिमिटेड Bharat Petroleum Corporation Limited E-PROCUREMENT
Parent department:	BPCL	

Tender Document

Department	:	CPO (M)	Department officer	:	Ajoy Sarkar
System ID	:	32833	Tender Reference No.	:	1000295262
Tender Title	:	Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION	Tender Date	:	26/12/2017
Tender Description	:	Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION			
Envelope Bidding Type	:	In 2 Part bidding	Envelope Bidding Option	:	Technical bid + Price bid
Bid validity period (in days)	:	180	Type of contract	:	Goods
Project duration / delivery or completion period (in days)	:	180	Form of Contract	:	Supply

Bid submission configuration

Bidding access	:	Limited			
Base currency	:	INR	Bidding type	:	National

Key configuration

Bidding variant	:	Buy	Pre-bid meeting	:	No
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Dates configuration

Document downloading start date	:	27/12/2017 12:40:00	Document downloading end date	:	18/01/2018 14:59:00
Bid submission start date	:	27/12/2017 12:41:00	Bid submission end date	:	18/01/2018 15:00:00
Bid opening date	:	18/01/2018 15:01:00			

Document / EMD / Security fee detail

Tender fees	:	Not Applicable	EMD	:	Not Applicable
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Documents

			File		
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Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Sr. No.	File name	File description	size (in MB)	Date and time	Status
1	NIT Text 32833.doc	Document NIT	0.037	27/12/2017 10:50:21	Approved
2	TECHSPECS_MS_TADA_50 KLPH CENT. PUMP.pdf	TECHSPECS_MS_TADA_50 KLPH CENT. PUMP	0.107	26/12/2017 14:54:04	Approved
3	TECHSPECS_HSD_TADA_50 KLPH CENT. PUMP.pdf	TECHSPECS_HSD_TADA_50 KLPH CENT. PUMP	0.148	26/12/2017 14:53:45	Approved
4	DKN_Cent. Pump data sheets_TWD_SKO_100KLPH.pdf	DKN_Cent. Pump data sheets_TWD_SKO_100KLPH	0.148	26/12/2017 14:53:27	Approved
5	DKN_Cent. Pump data sheets_TWD_MS_350KLPL.pdf	DKN_Cent. Pump data sheets_TWD_MS_350KLPL	0.148	26/12/2017 14:52:54	Approved
6	DKN_Cent. Pump data sheets_TWD_HSD_500KLPH.pdf	DKN_Cent. Pump data sheets_TWD_HSD_500KLPH	0.147	26/12/2017 14:52:31	Approved
7	DKN_Cent. Pump data sheets_TWD_ATF_300KLPH.pdf	DKN_Cent. Pump data sheets_TWD_ATF_300KLPH	0.147	26/12/2017 14:52:04	Approved
8	Data Sheets for DKN_TLF Centrifugal pump MS.pdf	Data Sheets for DKN_TLF Centrifugal pump MS	0.108	26/12/2017 14:51:45	Approved
9	Data Sheets for DKN_TLF Centrifugal pump HSD.pdf	Data Sheets for DKN_TLF Centrifugal pump HSD	0.110	26/12/2017 14:51:31	Approved

Bidding forms

Technical bid

Instructions to Bidders (ITB) for e-tendering

Instructions to vendors for e-tendering

Instructions to vendors for e-tendering

Bidder's Response

General Instructions to vendors for e-tendering

1. Interested parties may download the tender from BPCL website (<http://www.bharatpetroleum.in>) or the CPP portal (<http://eprocure.gov.in>) or from the e-tendering website (<https://bpclproc.in>) and participate in the tender as per the instructions given therein, on or before the due date of the tender. The tender available on the BPCL website and the CPP portal can be downloaded for reading purpose only. For participation in the tender, please fill up the tender online on the e-tender system available on <https://bpclproc.in>.

2. For registration on the e-tender site <https://bpclproc.in>, you can be guided by the "Instructions to Vendors" available under the download section of the homepage of the website. As the first step, bidder shall have to click the "Register" link and fill in the requisite information in the "Bidder Registration Form". Kindly remember your e-mail id (which will also act as the login ID) and the password entered therein. Once you complete this process correctly, you shall get a system generated mail. Login in to the portal using your credentials. When you log in for the first time, system will ask you to add your Digital Signature. Once you have added the Digital Signature, please inform us by mail to the vendor administrator vendoradmin@bpclproc.in with a copy to support@bpclproc.in for approval. Once approved, bidders can login in to the system as and when required.

3. As a pre-requisite for participation in the tender, vendors are required to obtain a valid Digital Certificate of Class IIB and above (having both signing and encryption certificates) as per Indian IT Act from the

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licensed Certifying Authorities operating under the Root Certifying Authority of India (RCIA), Controller of Certifying Authorities (CCA). The cost of obtaining the digital certificate shall be borne by the vendor. In case any vendor so desires, he may contact our e-procurement service provider M/s. E-Procurement Technologies Ltd., Ahmedabad (Contact no. Tel: +91 79 40270573 for obtaining the digital signature certificate. 4. Corrigendum/amendment, if any, shall be notified on the site <https://bpclproc.in>. In case any corrigendum/amendment is issued after the submission of the bid, then such vendors who have submitted their bids, shall be intimated about the corrigendum/amendment by a system-generated email. It shall be assumed that the information contained therein has been taken into account by the vendor. They have the choice of making changes in their bid before the due date and time. 5. Price bid of only those vendors shall be opened whose Techno-Commercial bid is found to be acceptable to us. The schedule for opening the price bid shall be advised separately. 6. Directions for submitting online offers, electronically, against e-procurement tenders directly through internet: (i) Vendors are advised to log on to the website (<https://bpclproc.in>) and arrange to register themselves at the earliest, if not done earlier. (ii) The system time (IST) that will be displayed on e-Procurement web page shall be the time considered for determining the expiry of due date and time of the tender and no other time shall be taken into cognizance. (iii) Vendors are advised in their own interest to ensure that their bids are submitted in e-Procurement system well before the closing date and time of bid. If the vendor intends to change/revise the bid already submitted, they shall have to withdraw their bid already submitted, change / revise the bid and submit once again. In case vendor is not able to complete the submission of the changed/revise bid within due date & time, the system would consider it as no bid has been received from the vendor against the tender and consequently the vendor will be out of contention. The process of change / revise may do so any number of times till the due date and time of submission deadline. However, no bid can be modified after the deadline for submission of bids. (iv) Once the entire process of submission of online bid is complete, they will get an auto mail from the system stating you have successfully submitted your bid in the following tender with tender details. (v) Bids / Offers shall not be permitted in e-procurement system after the due date / time of tender. Hence, no bid can be submitted after the due date and time of submission has elapsed. (vi) No manual bids/offers along with electronic bids/offers shall be permitted. 7. For tenders whose estimated procurement value is more than Rs. 10 lakhs, vendors can see the rates quoted by all the participating bidders once the price bids are opened. For this purpose, vendors shall have to log in to the portal under their user ID and password, click on the "dash board" link against that tender and choose the "Results" tab. 8. No responsibility will be taken by BPCL and/or the e-procurement service provider for any delay due to connectivity and availability of website. They shall not have any liability to vendors for any interruption or delay in access to the site irrespective of the cause. It is advisable that vendors who are not well conversant with e-tendering procedures, start filling up the tenders much before the due date / time so that there is sufficient time available with him/her to acquaint with all the steps and seek help if they so require. Even for those who are conversant with this type of e-tendering, it is suggested to complete all the activities ahead of time. It should be noted that the individual bid becomes viewable only after the opening of the bid on/after the due date and time. Please be reassured that your bid will be viewable only to you and nobody else till the due date / time of the tender opening. The non availability of viewing before due date and time is true for e-tendering service provider as well as BPCL officials. 9. BPCL and/or the e-procurement service provider shall not be responsible for any direct or indirect loss or damages and or consequential damages, arising out of the bidding process including but not limited to systems problems, inability to use the system, loss of electronic information etc. In case of any clarification pertaining to e-procurement process, the vendor may contact the following agencies / personnel: 1. For system related issues : a. M/s. E-Procurement Technologies Ltd at contact no. Tel: +91 79 40270573 followed with an e-mail to idsupport@bpclproc.in.

Technical
bid

Acceptance Of GPC

Acceptance Of GPC			
Acceptance Of GPC			
Sr No	Document Name	File Name	I / We have read, understood and accepted the following Annexure of the Tender Document. (To read the Document please click the corresponding Download link)
1	General Purchase Conditions	gpc.pdf	

Technical
bid**TECHNO-COMMERCIAL TERMS CONDITIONS****TECHNO COMMERCIAL TERMS CONDITIONS**

SR.NO.	TECHNO COMMERCIAL TERMS CONDITIONS	VENDOR'S CONFIRMATION
1	PARTICULARS OF TERMS AND CONDITIONS	
2	Supply of items for this tender is on ARC basis. Please note that Evaluation of offers and award will be on "Overall lowest landed cost basis". Vendors are required to quote for all the line items to qualify for commercial evaluation. In case vendor is not quoting for all line items, their offer shall be rejected for further evaluation.	
3	Supply/Works place: Kindly mention your works / supply place from where material will be supplied	
4	<p>Basic Cost: Basic cost should be as per specs and also the basic cost should be firm till the completion of contract / P.O. no escalation allowed. No foreign exchange parity variation and no steel price escalation will be considered during the contractual period.</p> <p>It may be noted that the rates quoted in the price bid will only be considered for evaluation. No revision of prices is allowed in the price bid once the technical bid is opened. Vendor to quote their prices considering all the technical and commercial aspect.</p>	
5	<p>Basic information from Vendor</p> <p>Name of Vendor</p>	
6	PAN Number	
7	Billing Address (Location from where materials shall be despatch).	
8	GST Number	
10	HSN Code	
11	% of GST as per HSN code applicable for Materials Supply	
12	SAC Code for any services (If applicable)	
13	% of GST as per HSN/SAC code applicable for supervision of erection and commissioning (if applicable)	
14	Any other information pertaining to GST implementation.	
15	<p>INSPECTION: i. Materials shall be inspected as per scope of inspection by independent third party inspection agency (approved by BPCL) viz. IRS / DNV / LRIS / EIL / ULIPL / BVI etc. However, arranging and providing inspection facilities is entirely vendors responsibility and in no way shall affect the delivery schedule. ii. Scope of Inspection shall be as per tender Specifications. iii. Unless otherwise specified, the inspection shall be carried out as per the relevant standards/scope of inspection provided alongwith the Tender Enquiry/Purchase Order. iv. BPCL may, at its own expense, have its representative(s) witness any test or inspection. In order to enable BPCLs representative(s) to witness the</p>	

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	<p>tests/inspections. BPCL will advise the Vendor in advance whether it intends to have its representative(s) be present at any of the inspections. v. Even if the inspection and tests are fully carried out, the Vendor shall not be absolved from its responsibilities to ensure that the Material(s), raw materials, components and other inputs are supplied strictly to conform and comply with all the requirements of the Contract at all stages, whether during manufacture and fabrication, or at the time of Delivery as on arrival at site and after its erection or start up or consumption, and during the defect liability period. The inspections and tests are merely intended to prima-facie satisfy BPCL that the Material(s) and the parts and components comply with the requirements of the Contract. The Vendors responsibility shall also not be anyway reduced or discharged because BPCL or BPCLs representative(s) or Inspector(s) shall have examined, commented on the Vendors drawings or specifications or shall have witnessed the tests or required any chemical or physical or other tests or shall have stamped or approved or certified any Material(s). vi. Although material approved by the Inspector(s), if on testing and inspection after receipt of the Material(s) at the location, any Material(s) are found not to be in strict conformity with the contractual requirements or specifications, BPCL shall have the right to reject the same and hold the Vendor liable for non-performance of the Contract.</p>	
16	<p>Validity of offer: Your quotation should be valid for 180 days from the due date of opening of tender and prices will remain firm till the supply is completed.</p>	
17	<p>Part Order: BPCL reserve the right to split the tender quantity line item wise. There is no guarantee of order quantity in the call off PO as the call off PO will be placed by locations/user as per their requirement.</p>	
18	<p>Additional Levies: BPCL shall not be liable for any increase in taxes and duties or any additional levies imposed by Govt. on materials supply after the contractual delivery date.</p>	
19	<p>Payment Terms: 100% payment within 30 days from the date of receipt of materials at site and on submission of 10% PBG.</p>	
20	<p>Delivery period: Please quote best delivery schedule for supply of materials from the date of PO</p> <p>Please note that the delivery is required all India BPCL locations.</p>	
21	<p>EMD: Not Applicable for this Tender</p>	
22	<p>Performance Bank guarantee (PBG): Performance Bank Guarantee will be submitted for 10% of the value of order for a period of 12 months from the date of commissioning or 18 months from date of receipt of materials at site with invocation period of 6 month. Supplier shall furnish the Performance Bank Guarantee as per standard format enclosed. PBG is mandatory.</p>	
23	<p>Warranty / Guarantee: Materials / Equipment / Component / Software should be guaranteed against manufacturing defects, workmanship and design for a period of 12 months from date of commissioning or 18 months from date of receipt of materials at site, shipment whichever is earlier.</p>	
24	<p>LD Clause/Delay delivery clause: For any delay in delivery of equipment / materials beyond the delivery date stipulated above, the vendor shall be liable to pay compensation @ 0.5% per week or part thereof on the value of non delivered portion of material subject to maximum of 5% of total order value.</p>	
25	<p>Force Majeure: Details refer as per GPC</p> <p>Arbitration Clause: Details refer as per GPC</p>	

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	26	Holiday listing: Vendor to give confirmation/undertaking that they are not barred / holiday listed by any Indian PSU/Any Indian Government Department. At a later date, if it is found that the bidder has submitted false declaration, the offer will be liable to be rejected and suitable action may be taken as per guidelines.	
	27	INTEGRITY PACT -	
	.	Vendor to accept Integrity pact as per attached form, if applicable. Integrity pact is applicable for order value more than Rs. 1.0 crore.	
	28	Counter condition: No counter condition is acceptable. Bidder should consider all the tender standard terms and conditions and submit their bids accordingly. Counter condition may lead to rejection of offer.	
	29	Contact Details: Please Provide the address details of works and office, contact persons name, Phone no. & e-mail ID etc. for future correspondence.	
	30	<p>Note: Annual Rate Contract : This tender is to finalize the Annual Rate Contract for the various sizes & types of HVLR Monitors, the details of which are as under:-i. Annual Rate Contract will be placed on the successful bidders and will be valid for a period of One Year from the date of placement of the contract.ii. No supplies are to be made against the Annual Rate Contract (ARC) document.iii. Supplies are to be made only against Call-Offs or Purchase Orders (PO) which shall be placed by the various departments within BPCL. BPCL may place the call-off or purchase orders till the last validity date of the ARC.iv. The Call-Offs or Purchase Orders would be placed for any quantity as required by the respective departments & the vendors have to supply the same.v. The materials are required at various BPCL locations All Over India & the vendors have to deliver the materials based on the call-offs/POs. Accordingly, a single freight rate per valve has to be quoted in the price bid & this rate will be applicable for delivery anywhere in India.vi. The quantities against each item are only indicative / approximate & there is no assurance that BPCL will uplift any or all the items / quantities for which the contract is placed (other than as mentioned in note above). BPCL reserves the right to place call-offs for different quantities of the items subject to being within the overall value of the contract.vii. The validity of the contract may be extended by a further period of up to 6 months on a mutual agreement basis.viii. A repeat contract may also be placed on mutual agreement basis after expiry of the original contract. Any repeat contract will be at the same terms and conditions and rates as the original contract and valid up to a further period of up to 6 months.ix. In case the value of the contract gets exhausted within the one year validity period, BPCL reserves the right to place a repeat order for a value of up to the original contract value.Award of contract would on item-wise lowest landed cost basis.Purchase preference to MSEs (Micro & Small Enterprises) shall be applicable as per tender condition.</p>	
	.	(1) For Detailed Terms and Conditions please refer GPC	
	.	<p>(2) In case of any Deviation kindly mentioned in the Deviation Sheet with Justifications.</p> <p>Deviation mentioned in any other place, other than deviation sheet will not be considered.</p>	
	31	<p>Please confirm whether you are a MSME vendor with valid certificate for the tender Item.</p> <p>If YES, please submit / upload your valid MSME certificate in "Other Documents Upload" in the tender bidding form.</p>	
Technical bid	DEVIATION		

	DEVIATION																																			
	Sr. No.	Tender clause No.	BPCL Requirements/ specification	Deviations with JUSTification																																
Technical bid	<div>REQUIRED DOCUMENTS UPLOADING</div> <div>REQUIRED DOCUMENTS UPLOADING</div> <table border="1"> <tr> <td data-bbox="284 607 464 667">Sr.No.</td> <td data-bbox="464 607 1169 667">UPLOADED DOCUMENTS FILE NAME</td> <td data-bbox="1169 607 1532 667">Bidder's Response</td> </tr> </table>				Sr.No.	UPLOADED DOCUMENTS FILE NAME	Bidder's Response																													
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.	Driver MAIN - 3 STAND BY - 0	Electric Motor	
4	Driver Supplied and Mounted By	Pump Manufacturer	
.	Parallel Operation Required	Yes	
.	Application	TANKER LORRY Operation (Loading)	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/ Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	MOTOR SPRIT (MS)	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	32	
.	Ambient	32	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.73	
3	Vapour Pressure at PT Kg/cm2 A)	0.7	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	0.7 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	300 KL/HR(M3/HR)	
7	Minimum	300 KL/HR	
.	Normal	-	
.	Rated	300 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	Vendor to specify	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	FLOODED SUCTION	

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9	Diff Pressure (Kg/cm2)@ Rated Capacity)	Vendor to specify	
10	Diff Pressure(m) @ Rated Capacity	-	
.	NPSH Available (m)	2.5 M (MLC)	
	Differential Head	60 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	

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16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Req'd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	

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8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	

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F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable	.	

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	Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents		
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	

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16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	

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	.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
	.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.	
	1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards. Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.	
	2	Hydrostatic Test of Casing at relevant pressure.	.	
	3	Mechanical Strip Test	.	
	4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
	5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
	6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
	7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	
	.	i) Pump Casing.	.	
	.	ii)Impeller.	.	
	.	iii)Wearing Ring.	.	
	.	iv)Shaft & Shaft Sleeve.	.	
	8	Motor Test Certificates will be furnished by the Vendor for verification.	.	
Technical bid	<p>TECHNICAL SPECIFICATIONS FOR 500 KL, TLF PUMP FOR HSD FOR DEVANGUNTHI INSTALLATION.</p> <p>TECHNICAL SPECIFICATIONS FOR 500 KL, TLF PUMP FOR HSD FOR DEVANGUNTHI INSTALLATION..</p> <p>TECHNICAL SPECIFICATIONS FOR 500 KL, TLF PUMP FOR HSD FOR DEVANGUNTHI INSTALLATION.</p>			

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION
A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps listed below	
.	Location :	DEVANGUNTHI INSTALLATION, COIMBATORE	
1	Quantity (No) Main -2 Stand by - 0	2	
2	Site Data	.	
3	Elevation-MSL	898 MTRS	
.	Ambient Temperature (Deg C)	0 to 55 Deg C	
.	Relative Humidity %	40% to 70%	
.	Driver MAIN - 2 STAND BY - 0	Electric Motor	
4	Driver Supplied and Mounted By	Pump Manufacturer	
.	Parallel Operation Required	Yes	
.	Application	TANKER LORRY Operation (Loading)	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/ Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	HIGH SPEED DIESEL (HSD)	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	32	

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.	Ambient	32	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.86	
3	Vapour Pressure at PT Kg/cm2 A)	0.1	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	2.5 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	500 KL/HR(M3/HR)	
7	Minimum	500 KL/HR	
.	Normal	-	
.	Rated	500 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	Vendor to specify	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	-	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	Vendor to specify	
10	Diff Pressure(m) @ Rated Capacity	-	
.	NPSH Available (m)	2.5 M (MLC)	
.	Differential Head	55 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	

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.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	

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.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Reqd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	
8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	

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.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	

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G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	

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.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation	.	

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	system is in use.		
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	
16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless	

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		spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	
.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.	
1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards.Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.	
2	Hydrostatic Test of Casing at relevant pressure.	.	
3	Mechanical Strip Test	.	
4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	

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	.	i) Pump Casing.	.	
	.	ii)Impeller.	.	
	.	iii)Wearing Ring.	.	
	.	iv)Shaft & Shaft Sleeve.	.	
	8	Motor Test Certificates will be furnished by the Vendor for verification.	.	
Technical bid	TECHNICAL SPECIFICATIONS FOR 500 KL, TWD PUMP FOR HSD E4 FOR DEVANGUNTHI INSTALLATION.			
	TECHNICAL SPECIFICATIONS FOR 500 KL, TWD PUMP FOR HSD E4 FOR DEVANGUNTHI INSTALLATION			
	TECHNICAL SPECIFICATIONS FOR 500 KL, TWD PUMP FOR HSD E4 FOR DEVANGUNTHI INSTALLATION			
	SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION
	A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps listed below	
	.	Location :	DEVANGUNTHI INSTALLATION, COIMBATORE	
	1	Quantity (No) Main -2 Stand by - 1	3	
	2	Site Data	.	
	3	Elevation-MSL	898 MTRS	
	.	Ambient Temperature (Deg C)	0 to 55 Deg C	
	.	Relative Humidity %	40% to 70%	
	.	Driver MAIN - 2 STAND BY - 1	Electric Motor	

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4	Driver Supplied and Mounted By	Pump Manufacturer	
.	Parallel Operation Required	Yes	
.	Application	TANK Wagon Decantation Operation (Unloading)	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/ Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	HIGH SPEED DIESEL (HSD)	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	32	
.	Ambient	32	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.86	
3	Vapour Pressure at PT Kg/cm2 A)	0.1	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	2.5 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	500 KL/HR(M3/HR)	
7	Minimum	500 KL/HR	
.	Normal	-	
.	Rated	500 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	Vendor to specify	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	-	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	Vendor to specify	
10	Diff Pressure(m) @ Rated Capacity	-	

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.	NPSH Available (m)	2.5 M (MLC)	
	Differential Head	65 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM	S-6 (Vendor to	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	Grades	Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Reqd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	
8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality	.	

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	control procedure to apply		
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of	.	

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	construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan		
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	
16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.		
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	
.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	Pumps shall be inspected by BPCL	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

		representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-		
	1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards. Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.	
	2	Hydrostatic Test of Casing at relevant pressure.	.	
	3	Mechanical Strip Test	.	
	4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
	5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
	6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
	7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	
	.	i) Pump Casing.	.	
	.	ii)Impeller.	.	
	.	iii)Wearing Ring.	.	
	.	iv)Shaft & Shaft Sleeve.	.	
	8	Motor Test Certificates will be furnished by the Vendor for verification.	.	
Technical bid	TECHNICAL SPECIFICATIONS FOR 350 KL, TWD PUMP FOR MS E4 FOR DEVANGUNTHI INSTALLATION.			
	TECHNICAL SPECIFICATIONS FOR 350 KL, TWD PUMP FOR MS E4 FOR DEVANGUNTHI INSTALLATION.			
	TECHNICAL SPECIFICATIONS FOR 350 KL, TWD PUMP FOR MS E4 FOR DEVANGUNTHI INSTALLATION.			
	SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps listed below	
.	Location :	DEVANGUNTHI INSTALLATION, COIMBATORE	
1	Quantity (No) Main -2 Stand by - 1	3	
2	Site Data	.	
3	Elevation-MSL	898 MTRS	
.	Ambient Temperature (Deg C)	0 to 55 Deg C	
.	Relative Humidity %	40% to 70%	
.	Driver MAIN - 2 STAND BY - 1	Electric Motor	
4	Driver Supplied and Mounted By	Pump Manufacturer	
.	Parallel Operation Required	Yes	
.	Application	TANK Wagon Decantation Operation (Unloading)	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	HIGH SPEED DIESEL (HSD)	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	32	
.	Ambient	32	
.	Maximum	55	

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.	Specific Gravity at PT / 15Deg C)	0.73	
3	Vapour Pressure at PT Kg/cm2 A)	0.7	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	0.7 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	350 KL/HR(M3/HR)	
7	Minimum	350 KL/HR	
.	Normal	-	
.	Rated	350 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	Vendor to specify	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	Flooded suction	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	Vendor to specify	
10	Diff Pressure(m) @ Rated Capacity	-	
.	NPSH Available (m)	2.5 M (MLC)	
.	Differential Head	65 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

		size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	

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.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Reqd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	
8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	

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.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA /	

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		BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	

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.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two	.	

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	years of operations in their technical bid.		
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	
16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	

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.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	
.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.	
1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards. Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.	
2	Hydrostatic Test of Casing at relevant pressure.	.	
3	Mechanical Strip Test	.	
4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	
.	i) Pump Casing.	.	
.	ii) Impeller.	.	

	.	iii)Wearing Ring.	.	
	.	iv)Shaft & Shaft Sleeve.	.	
	8	Motor Test Certificates will be furnished by the Vendor for verification.	.	
Technical bid	TECHNICAL SPECIFICATIONS FOR 300 KL, TWD PUMP FOR ATF FOR DEVANGUNTHI INSTALLATION.			
	TECHNICAL SPECIFICATIONS FOR 300 KL, TWD PUMP FOR ATF FOR DEVANGUNTHI INSTALLATION.			
	TECHNICAL SPECIFICATIONS FOR 300 KL, TWD PUMP FOR ATF FOR DEVANGUNTHI INSTALLATION.			
	SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION
	A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps listed below	
	.	Location :	DEVANGUNTHI INSTALLATION, COIMBATORE	
	1	Quantity (No) Main -2 Stand by - 1	3	
	2	Site Data	.	
	3	Elevation-MSL	898 MTRS	
	.	Ambient Temperature (Deg C)	0 to 55 Deg C	
.	Relative Humidity %	40% to 70%		
.	Driver MAIN - 2 STAND BY - 1	Electric Motor		
4	Driver Supplied and Mounted By	Pump Manufacturer		

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

.	Parallel Operation Required	Yes	
.	Application	TANK Wagon Decantation Operation (Unloading)	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/ Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	AVIATION TURBINE FUEL (ATF)	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	32	
.	Ambient	32	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.79	
3	Vapour Pressure at PT Kg/cm2 A)	0.1	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	2-5 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	300 KL/HR(M3/HR)	
7	Minimum	300 KL/HR	
.	Normal	-	
.	Rated	300 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	Vendor to specify	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	Flooded suction	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	Vendor to specify	
10	Diff Pressure(m) @ Rated Capacity	-	
.	NPSH Available (m)	2.5 M (MLC)	
.	Differential Head	60 M (MLC)	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

		Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Reqd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	
8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.		
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	
16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	
.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.	
1	Performance Test of the pump with Lab Motor in	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards. Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.		
2	Hydrostatic Test of Casing at relevant pressure.	.	
3	Mechanical Strip Test	.	
4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	
.	i) Pump Casing.	.	
.	ii)Impeller.	.	
.	iii)Wearing Ring.	.	
.	iv)Shaft & Shaft Sleeve.	.	
8	Motor Test Certificates will be furnished by the Vendor for verification.	.	

Technical
bid

TECHNICAL SPECIFICATIONS FOR 100 KL, TWD PUMP FOR SKO FOR DEVANGUNTHI INSTALLATION.

TECHNICAL SPECIFICATIONS FOR 100 KL, TWD PUMP FOR SKO FOR DEVANGUNTHI INSTALLATION.

TECHNICAL SPECIFICATIONS FOR 100 KL, TWD PUMP FOR SKO FOR DEVANGUNTHI INSTALLATION.

SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION
A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

		listed below	
.	Location :	DEVANGUNTHI INSTALLATION, COIMBATORE	
1	Quantity (No) Main -1 Stand by - 1	2	
2	Site Data	.	
3	Elevation-MSL	898 MTRS	
.	Ambient Temperature (Deg C)	0 to 55 Deg C	
.	Relative Humidity %	40% to 70%	
.	Driver MAIN - 1 STAND BY - 1	Electric Motor	
4	Driver Supplied and Mounted By	Pump Manufacturer	
.	Parallel Operation Required	Yes	
.	Application	TANK Wagon Decantation Operation (Unloading)	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/ Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	SUPERIOR KEROSENE OIL (SKO)	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	32	
.	Ambient	32	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.79	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

3	Vapour Pressure at PT Kg/cm2 A)	0.1	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	2-5 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	100 KL/HR(M3/HR)	
7	Minimum	100 KL/HR	
.	Normal	-	
.	Rated	100 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	Vendor to specify	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	Flooded suction	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	Vendor to specify	
10	Diff Pressure(m) @ Rated Capacity	-	
.	NPSH Available (m)	2.5 M (MLC)	
.	Differential Head	70 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Req'd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BkW (0% Tol)	Vendor to specify	
7	Max BkW Rated Impeller	Vendor to specify	
8	BkW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	CONNECTIONS		
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	
16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.		
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	
.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.	
1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards.Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.	
2	Hydrostatic Test of Casing at relevant pressure.	.	
3	Mechanical Strip Test	.	
4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	
.	i) Pump Casing.	.	
.	ii)Impeller.	.	
.	iii)Wearing Ring.	.	
.	iv)Shaft & Shaft Sleeve.	.	

	8	Motor Test Certificates will be furnished by the Vendor for verification.	.	
Technical bid	TECHNICAL SPECIFICATIONS FOR 50 KL, PUMP FOR HSD FOR TADA.			
	TECHNICAL SPECIFICATIONS FOR 50 KL, PUMP FOR HSD FOR TADA.			
	TECHNICAL SPECIFICATIONS FOR 50 KL, PUMP FOR HSD FOR TADA.			
	SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION
	A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps listed below	
	.	Location :	TADA	
	1	Quantity (No) Main -1 Stand by - 1	2	
	2	Site Data	.	
	3	Elevation-MSL	20 MTRS	
	.	Ambient Temperature (Deg C)	0 to 55 Deg C	
	.	Relative Humidity %	40% to 70%	
	.	Driver MAIN - 1 STAND BY - 1	Electric Motor	
	4	Driver Supplied and Mounted By	Pump Manufacturer	
	.	Parallel Operation Required	Yes	
	.	Application	TL Unloading	
	5	Zone	Division - 1	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	HSD	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	38	
.	Ambient	40	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.82 - 0.86	
3	Vapour Pressure at PT Kg/cm2 A)	0.1 KG/CM2	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	2- 7.5 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	50 KL/HR(M3/HR)	
7	Minimum	50 KL/HR	
.	Normal	-	
.	Rated	50 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	2 KG/CM2	
8	Suction Pressure (Normal/ Max Kg/cm2 A)	0 TO 0.3 KG/CM2	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	1.7 TO 2 KG/CM2	
10	Diff Pressure(m) @ Rated Capacity	20 M	
.	NPSH Available (m)	2.5 M (MLC)	
.	Differential Head	30 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	
14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Req'd (Water) (m)	Vendor to specify	
5	No. of Stages	One	
6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	
8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	
.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	
8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4:Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

.	<p>Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C.</p> <p>NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#.</p> <p>Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.</p>	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	
3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	
16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

		method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	
.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.	
1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards.Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.	
2	Hydrostatic Test of Casing at relevant pressure.	.	
3	Mechanical Strip Test	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.	
5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.	
6	Dimension checks as per Manufacturer's General Arrangement drawing.	.	
7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.	
.	i) Pump Casing.	.	
.	ii)Impeller.	.	
.	iii)Wearing Ring.	.	
.	iv)Shaft & Shaft Sleeve.	.	
8	Motor Test Certificates will be furnished by the Vendor for verification.	.	

Technical
bid

TECHNICAL SPECIFICATIONS FOR 50 KL, PUMP FOR MS FOR TADA.

TECHNICAL SPECIFICATIONS FOR 50 KL, PUMP FOR MS FOR TADA.

TECHNICAL SPECIFICATIONS FOR 50 KL, PUMP FOR MS FOR TADA.

SR.NO.	TECHNICAL SPECIFICATIONS FOR 300 KL, TLF PUMP FOR MS FOR DEVANGUNTHI INSTALLATION.	BPCL REQUIREMENT	VENDORS CONFORMATION
A	Applicable Specification	API Std 610 8th Edition along with General Technical Specifications for Centrifugal pumps listed below	
.	Location :	TADA	
1	Quantity (No) Main -1 Stand by - 1	2	
2	Site Data	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

3	Elevation-MSL	20 MTRS	
.	Ambient Temperature (Deg C)	0 to 55 Deg C	
.	Relative Humidity %	40% to 70%	
.	Driver MAIN - 1 STAND BY - 1	Electric Motor	
4	Driver Supplied and Mounted By	Pump Manufacturer	
.	Parallel Operation Required	Yes	
.	Application	TL Unloading	
5	Zone	Division - 1	
6	Electrical Area Classification	Gas Group -IIA & IIB, Temp/Class/IP refer Note 1	
7	OPERATING / PROCESS DATA(Pump selection shall be for Rated capacity and performance should meet all the process data detailed below)	.	
B	Liquid Handled	MS	
1	Pumping Temp PT(Deg C)	Normal	
2	Normal	38	
.	Ambient	40	
.	Maximum	55	
.	Specific Gravity at PT / 15Deg C)	0.73	
3	Vapour Pressure at PT Kg/cm2 A)	0.61 KG/CM2	
4	Kinematic Viscosity at PT (cst)@ 38 D eg C	2- 7.5 Cst	
5	Solids in Suspension	No	
6	Capacity (m3/hr)	50 KL/HR(M3/HR)	
7	Minimum	50 KL/HR	
.	Normal	-	
.	Rated	50 KL/HR(M3/HR)	
.	Discharge Pressure (Kg/cm2 A)	2 KG/CM2	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

8	Suction Pressure (Normal/ Max Kg/cm2 A)	0.25 KG/CM2	
9	Diff Pressure (Kg/cm2)@ Rated Capacity)	1.75 TO 2 KG/CM2	
10	Diff Pressure(m) @ Rated Capacity	-	
.	NPSH Available (m)	2.5 M (MLC)	
.	Differential Head	30 M (MLC)	
11	MANUFACTURERS DATA	.	
C	Pump Manufacturer	Vendor to specify	
1	CONSTRUCTION	OH2 (Over Hung Centerline Mounted)	
2	Casing Mounting	Centreline	
3	Casing Split-Axial / Radial	Vendor to specify	
4	Type- single volute/double volute/ diffuser	Vendor to specify	
.	Casing Connection- Vent / drain/ gauge	Vendor to specify	
.	Nozzles	ANSI Rating B16.5 Class 300# (Matching Flange Mat Spec A 105 for Suction and discharge Nozzles to be supplied by vendor)	
.	Suction- Position END	Vendor to specify size	
5	Discharge- Position TOP	Vendor to specify size	
6	Impeller Dia (mm) min/ max/ rated	Vendor to specify	
7	Impeller Type	CLOSED	
8	Bearing Type/ No	Vendor to specify	
9	Lub Use	Vendor to specify	
10	Radial/Thrust	Vendor to specify	
11	Coupling Make	Vendor to specify	
12	Non Spark Guard	Yes	
13	Mechanical Seal Make/Model/ API Code	Refer note 2	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

14	Base Plate Drain Pan Type	Yes	
15	Foundation Bolts	Yes	
16	Balance device	Yes / No	
17	Throat Bush/ Materials	Yes / No	
18	Materials (API 610 Material Class) MOC/ASTM Grades	S-6 (Vendor to Confirm)	
D	Casing	Vendor to Confirm	
.	Impeller	Vendor to Confirm	
.	Inner Case Parts	Vendor to Confirm	
.	Sleeve packed	Vendor to Confirm	
.	Sleeve seal	Vendor to Confirm	
.	Casing Ring	Vendor to Confirm	
.	Impeller Ring	Vendor to Confirm	
.	Shaft	Vendor to Confirm	
.	Throttle Bush	Vendor to Confirm	
.	Throat Bush : Y	Vendor to Confirm	
.	Balance drum : X	Vendor to Confirm	
.	PERFORMANCE	.	
E	Proposal Curve No.	Vendor to submit the pump performance curve	
1	Speed (rpm)	1490	
2	Max Sound Pressure Level at 1m (dba)	85	
3	Efficiency (%)	Vendor to specify	
4	NPSH Reqd (Water) (m)	Vendor to specify	
5	No. of Stages	One	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

6	Rated BKW (0% Tol)	Vendor to specify	
7	Max BKW Rated Impeller	Vendor to specify	
8	BKW @MCF	Vendor to specify	
9	Required Driver Rating	Vendor to specify	
10	Max head rated impeller (m)	Vendor to specify	
11	MCF (m3/hr) Stable	Vendor to specify	
12	Cap. @ BEP (m3/Hr)	Vendor to specify	
13	MAWP @ 15 Deg C/ PT / Design Temp (Kg/cm2 G)	Vendor to specify	
14	Hydrostatic Test Pressure (Kg/cm2 G)	Vendor to specify	
15	Rotation facing coupling end	CW	
16	Seal Flush/Quench Plan	Vendor to specify	
17	** (Vendor to provide details of Material of construction, Make and Model and compatibility of Mechanical Seal with respect to mentioned Seal Flush/Quench plan	.	
.	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any for Class Products. Flushing and Quenching Plan on account of Operating temperature, RVP, other operating parameters.	.	
.	Vendor to submit performance curve corresponding to duty point and selection of pump	.	
.	Weight (kg)	.	
18	Pump +Base + Coupling	Vendor to specify	
.	Driver	Vendor to specify	
.	AUXILIARY PIPING INTERFACE CONNECTIONS	.	
19	(All interface connection shall be terminated with Flanged Block Valves)	Size / Rating (ANSI) / Facing	
.	Lantern ring Inlet/Outlet	Vendor to specify	
.	Ext Seal Flush Fluid inlet/Outlet	Vendor to specify	
.	Seal Quench Fluid inlet	Vendor to specify	
.	Casing Vent/ Drain	Vendor to specify	
.	C.W. Inlet/Outlet	Vendor to specify	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

.	Base plate Drain (Only Flanged)	Vendor to specify	
.	Casing Steam Jacket	Vendor to specify	
F.	DRIVER (Flameproof)	.	
1	Make	Vendor to specify	
2	Type / Frame	Vendor to specify	
3	Voltage /Phase / Frequency	415 +/- 10% / 3 Ph / 50 Hz +/- 5%	
4	Speed (Rpm)	Vendor to specify	
5	Enclosure	Vendor to specify	
6	Efficiency %	Vendor to specify	
7	Insulation	Class F	
8	Locked Rotor Amps	Vendor to specify	
9	KW Rating	Vendor to specify	
10	Min Starting voltage	Vendor to specify	
11	Full Load Amps	Vendor to specify	
12	Temp Rise Deg C	Vendor to specify	
13	Bearing Lubrication	Vendor to specify	
14	Driver Suitable for pump starting with open disc valve condition	YES	
G.	INSPECTION AND TEST DATA	.	
1	Shop Test / Inspection	Witness by TPIA / BPCL	
2	Material Certificates	Witness by TPIA / BPCL	
3	NPSH As Required As per spec	Witness by TPIA / BPCL	
4	Dismantle Inspection & Re Assembly after test	Witness by TPIA / BPCL	
5	Unitization/Dimensional Check	Witness by TPIA / BPCL	
6	Check for Direction of Rotation of Pump & Driver	Witness by TPIA / BPCL	
7	Hydrostatic Test	Witness by TPIA / BPCL	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

8	Performance Sound Level	Witness by TPIA / BPCL	
.	NOTES:	.	
.	Note 1 : Motor - TEFC, SCIM, FLP suitable for gas group II A & II B; Protection - IP 55; Insulation Class - F	.	
.	Note 2 : Manufacturer's standard material quality control procedure to apply	.	
.	Note 3: Downstream design Pressure is 1.5 Times of Max operating pressure. Maximum Shutoff considering max suction pressure, including all tolerances shall not exceed this value.	.	
.	Note 4: Process min flow shall be equal to Pump MCF (Minimum Continuous flow)	.	
.	Note 5: MAWP: Shall be 1.5 Times of Max operating pressure @ 55Deg C. Hydrotest pressure to be 1.5 times of MAWP @ 15 Deg C. NOTE 6 : Flange Rating : Flange rating for overhung pump OH2 shall have a minimum requirement, confirm to the dimensional requirement of ISO 7005-1 PN 50 and Equivalent to ANSI/ASME B 16.5 class 300#. Note 7 : Mechanical seal should in should be generally confirm to API 682, category 2 standard cartridge type design.	.	
.	Table 1: Properties of Petroleum Products	.	
.	Sp.Gr	MS 0.1-0.77 HSD 0.82-0.86 SKO 0.75 ATF 0.77-0.83	
.	Kinematic Viscosity (Cst) at 38 Deg C	MS 0.5-0.6 HSD 2 -7.5 SKO 1.6 ATF 3.3 - 5.3	
.	Reid Vapour Pressure (RVP) at 38 Deg C (Psi)	MS 5.0-8.7 HSD 0.009 SKO < 1.0 ATF < 1.0	
.	GENERAL TECHNICAL SPECIFICATION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.	
.	The Pumps shall be horizontal Centrifugal Pumps suitable for handling Petroleum products and the pump shall be	.	
1	designed and manufactured conforming to API 610 6th or 8th as specified in data sheet. Data sheet to be	.	
.	completed in API format by Vendor as appropriate.	.	
2	Pump shall be suitable for Parallel Operation.	.	

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3	Vendor shall supply the pumping unit as whole including supply of Pump, FLP Motor, FLP Push button station with indication and suitable Ammeter, matching flanges, Glycerine filled Perssure and Vacuum gauge, foundation bolts and other accessories as specified in the PO documents	.	
4	Vendor to provide details of Material of construction, Make and Model and compatibility of mechanical seal with respect to mentioned Seal flush/Quench plan	.	
5	Flushing Plan 11 and Quenching Plan 61 shall be generally adopted for Mechanical Seals for all products. However vendor shall propose any change, if any, for Class A Products (Ethanol/MS/LAN), Flushing and Quenching Plan on account of operating temperature, RVP, other operating parameters.	.	
6	Vendor shall furnish standard foundation drawing suitable for the pump unit.	.	
7	Vendor shall submit Characteristic curves for Flow Rate, Head, Efficiency and BHP, from zero flow to maximum, QAP, from zero flow to maximum, QAP, GA drawings in the technical bid without fail	.	
8	Vendor shall submit Rated impeller dia, Maximum shut off head, Mechanical seal details with cooling/flshing plans and minimum continuous flow.	.	
9	Pump motor to be designed for end of curve operation and open discharge condition	.	
10	Pump will start/stop automatically from the control room, wherever terminal automation system is in use.	.	
.	Vendor shall provide recommended spares for two years of operations in their technical bid.	.	
11	Prior approval for the makes of Accessories and Instrumentation shall be obtained from BPCL	.	
12	BPCL Approved Makes of FLP Motors are KEC/GEC (MARATHON)/Crompton/Siemens/NGEF/Bharat Bijlee	.	
13	BPCL Approved Makes of FLP PBS, cable Glands etc are AKG/FCG/Crompton/Baliga/Flexpro	.	
14	The entire performance test as per approved QAP shall be carried out at Vendors premises in presence of TPIA/BPCL. TPIA shall be engaged as per the approved list of BPCL.	.	
15	All the electrical equipments, motors, auxiliaries shall meet the Hazardous Area Classification Division 1 and Gas Group IIA IIB, PESO (Petroleum and Explosives Safety Organization) Regulations. Necessary certificates shall be submitted by the vendor.	.	

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16	Vendor shall furnish cable entry gland details suitable for star delta type starter.(For motor ratings more than 10HP)	.	
17	Vendor shall depute authorized and competent service engineer to site for carrying out pre-commissioning checks (like alignment checks, vibration measuring and recording, sound pressure level etc) and providing Commissioning assistance.	.	
18	Painting Specifications to be followed is as tabulated below;	.	
19	Surface Preparation	Blast cleaned to SA 2.5; Surface profile-50 to 75 microns	
.	Surface Coating system - Primer	Type-Epoxy zinc phosphate; Application method - Airless spray, DFT - 50 microns	
.	Surface Coating system - Intermediate	Type Polyamide cured epoxy(high built); Applied method- Airless spray; DFT - 140 Microns	
.	Surface Coating system - Finish	TYPE Recoatable Polyurethane; Application method-Airless spray; DFT- 50 Microns	
.	Total Nominal paint thickness	240 microns	
20	Pump shall be properly packed in wooden box to ensure no damage happens in transit. Suitable arrangement for protection of the unit shall be provided by vendor against Rain and adverse weather conditions. Details of Purchase order, Packing list, Consignor and Consignee Details shall be stenciled clearly on the packing.	.	
21	Vendor shall submit following documents along with the pumping unit during shipping and the documents shall be submitted in 3 sets of Hard and Soft copy(DVD/CD) each. All documents, manuals shall be submitted in ENGLISH language	.	
.	a. QAP Documents duly signed	.	
.	b. Inspection Release Note from TPIA	.	
.	c. Installation/ Operations/ Maintenance Manual	.	
22	The vendor shall provide warranties and Performance Guarantee inline with data sheet for the pumping unit supplied as per API STD 610	.	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	.	SCOPE OF INSPECTION FOR CENTRIFUGAL PUMPS (POL APPLICATION)	.									
	.	Pumps shall be inspected by BPCL representative/or BPCL's approved TPIA at Manufacturer's Works as per our following procedures :-	.									
	1	Performance Test of the pump with Lab Motor in open circuit / close circuit at Manufacturer's Works for flow rate, head & efficiency and verification of Guarantee of duty point & Performance Curve as per API:610 6th edition, clause 4.3.3.2.1 Standards.Performance Test will be carried out from 150% discharge to shut-off , i.e. Zero flow rate.	.									
	2	Hydrostatic Test of Casing at relevant pressure.	.									
	3	Mechanical Strip Test	.									
	4	NPSH Tesing in open or close circuit by throttling suction valve at a constant flow as per API:610 8th edition, clause 4.3.4.1 Standards.	.									
	5	Dynamic Balancing of Rotor &/ Impeller as per ISO:1940 Gr.2.5	.									
	6	Dimension checks as per Manufacturer's General Arrangement drawing.	.									
	7	Manufacturer's Material Test Certificates for the following parts used in the Pump should be furnished for verification :	.									
	.	i) Pump Casing.	.									
	.	ii)Impeller.	.									
	.	iii)Wearing Ring.	.									
	.	iv)Shaft & Shaft Sleeve.	.									
	8	Motor Test Certificates will be furnished by the Vendor for verification.	.									
Price bid	<div>PRICE BID FOR CENTRIFUGAL PUMPS</div> <div>PRICE BID FOR CENTRIFUGAL PUMPS</div> <table><tr><th>Column name</th><th>Bidder response</th></tr><tr><td>Item Code</td><td>10</td></tr><tr><td>Item Description</td><td>CENT.PUMP MS E4 300KL/HR TLF @60M</td></tr><tr><td></td><td></td></tr></table>				Column name	Bidder response	Item Code	10	Item Description	CENT.PUMP MS E4 300KL/HR TLF @60M		
Column name	Bidder response											
Item Code	10											
Item Description	CENT.PUMP MS E4 300KL/HR TLF @60M											

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Quantity Required	3.00
Delivery Address / Plant	DEVANGUNTHI INSTALLATION
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	20
Item Description	CENT.PUMP HSD E4 500KL/HR TLF @55M
Quantity Required	2.00
Delivery Address / Plant	DEVANGUNTHI INSTALLATION
Unit of Mesurement	Number (NO)

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	30
Item Description	CENTRIFUGAL PUMP HSD E4 - 500 kl/hr TWD @65m
Quantity Required	3.00
Delivery Address / Plant	DEVANGUNTHI INSTALLATION
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	40
Item Description	CENTRIFUGAL PUMP MS E4 - 350 kl/hr TWD @65m
Quantity Required	3.00
Delivery Address / Plant	DEVANGUNTHI INSTALLATION
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	50
Item Description	CENTRIFUGAL PUMP ATF - 300 kl/hr TWD @60m
Quantity Required	3.00
Delivery Address / Plant	DEVANGUNTHI INSTALLATION
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection &	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	60
Item Description	CENTRIFUGAL PUMP SKO - 100 kl/hr TWD @70m
Quantity Required	2.00
Delivery Address / Plant	DEVANGUNTHI INSTALLATION
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	70
Item Description	CENTRIFUGAL PUMP HSD 50KL/HR 30M HEAD
Quantity Required	2.00
Delivery Address / Plant	TADA
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	
Mention HSN code as applicable	
Mention SAC code as applicable	

Column name	Bidder response
Item Code	80
Item Description	CENTRIFUGAL PUMP MS 50KL/HR 30M HEAD
Quantity Required	2.00
Delivery Address / Plant	TADA
Unit of Mesurement	Number (NO)
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM	
Basic cost including P&F Charges and TPI charges (Third Party Inspection) per UOM) in Words	
Fright Charges in % of Basic	
Total Price including Freight Charges per UOM	
GST IN % as per HSN Code	
Total Delivery cost including GST Per UOM	
Supervision of Erection & Commissioning charges in % per UOM	
Supervision of Erection & commissioning charges per UOM	
GST in % as per SAC Code for Supervision of Erection & Commissioning charges	
Total Supervision charges per UOM	
Delivery cost including Supervision of Erection & commissioning charges per UOM	
Total CASH OUT FLOW INCLUDING supervision Charges	

Tender title : Procurement of CENTRIFUGAL PUMPS FOR DEVANGUNTHI INSTALLATION

	Mention HSN code as applicable	
	Mention SAC code as applicable	