

BRIHANMUMBAI MUNICIPAL CORPORATION

(HYDRAULIC ENGINEER'S DEPARTMENT)

EXPRESSION OF INTEREST (EOI)

FOR

**“Approval of Vertical (VT) & Horizontal Centrifugal (HSCF / End suction) Pump in
HE & WSP department of Brihanmumbai Municipal Corporation (BMC) from
reputed manufactures”**

Prepared By	Checked By	Recommended By	Approved By
Sd/-	Sd/-	Sd/-	Sd/-
AE (Maint) WW City-I	EE (Maint) MW	Dy HE (Maint)	HE

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BRIHANMUMBAI MUNICIPAL CORPORATION

(HYDRAULIC ENGINEER'S DEPARTMENT)

NOTICE FOR INVITING EXPRESSION OF INTEREST (EOI)

Notice is hereby issued for eligible Water Meter Manufacturers for submission of applications for “**Approval of Vertical (VT) & Horizontal Centrifugal (HSCF / End suction) Pump in HE & WSP department of Brihanmumbai Municipal Corporation (BMC) from reputed manufactures**, subject to conditions & eligibility of Eoi document. Kindly note the following:

Sr	Description	Details
1	Start date for sale of Eoi	24/09/2026
2	Last Date of Submission of Eoi	23/11/2026
3	Mode of Submission of Eoi Application	To be submitted physically at following office address.
4	EOI Application & document will be sold, accepted & opened at the office of	Office of Executive Engineer (Meter Workshop) City, 3 rd floor, BMC Water Deptt. Plot No 566, N. M. Joshi Marg, Byculla (West) Mumbai – 400011. (Opp to 'S' Briddge) Email id – eemmwcity.he@mcgm.gov.in
5	Processing Fee	Rs 42,160/- for initial approval.

NOTE –

- The pump **Manufacturers** i.e. Original Equipment Manufacturers (OEM) are **only eligible to apply** under this EOI. Applications received from other than OEM will not be accepted.
- The applicant shall satisfy conditions mentioned in EOI document.
- EOI application shall be physically submitted at above mentioned address only. Applications received through post / courier / e-mail will not be accepted.
- This EOI does not offer any guarantee of business by BMC.
- The Municipal Commissioner reserves rights to reject all or any applications without assigning any reason thereof.

Sd/-

Hydraulic Engineer

Chapter 1

Services Provided by BMC

The piped water supply is one of the earliest civic services provided by Hydraulic Engineer's Department, one of the oldest departments of Brihanmumbai Municipal Corporation (BMC). It was established under Section 73A of the MMC Act 1888. The main objective of Hydraulic Engineer's department is to operate, maintain and provide water and related services to the citizens of Mumbai. It is also committed to the important task of constantly improving and upgrading the water distribution system of Mumbai. The water supply for Mumbai is sourced from seven (7) different lakes and is treated at 4-Water Treatment Plants as per drinking water standards before being distributed to the citizens. The water is distributed from 2-Master Balancing Reservoirs, 27- Service Reservoirs across the city of Mumbai and through the maze of 6,000 km long distribution network spread all over the city. The complex water supply system of Mumbai has another unique feature that almost entire water supply distribution is by gravity due to typical terrain geography of Mumbai.

Mumbai Water Supply system is one among the largest in the World and perhaps second largest in Asia. The Bhandup Water Treatment facility is the largest (by capacity) such facility at single location in Asia. BMC uses under-ground water supply tunnels & pipelines ranging from diameter 2200 mm to 5500 mm totaling in length of approx. 100 Km to convey raw / treated water. Daily more than 1000 number of valves are operated to regulate water supply in **256** water supply zones. The water supply of BMC network is in intermittent in nature.

The Citizen Services provided by Hydraulic Engineer department are –

Water Distribution

BMC is committed to distribute **4000 MLD** water to the 1.35 Crore population in the BMC operational limit. Daily BMC ensure that the quality of water supplied to our Connection holder is in compliance with the desired standard.

Disruptions of Water Supply

BMC delivers uninterrupted water supply to all citizens of Mumbai. However, there are times when citizens may experience some disruptions of supply mainly due to sudden network breakdown, leakages and network repair & maintenance etc. In such a scenario, citizens are kept informed through all possible channels

such as SMS / news channels and / or newspaper notifications etc. Also, in such cases, importance is given for timely restoration of supply and to adopt all possible means to minimize the interruption periods.

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Chapter 2

The Need of Approval of Pump in BMC

The Municipal Corporation is engaged in providing continuous water supply services across its jurisdiction, for which high capacity pumping systems are deployed. These pumps are required to operate on a round-the-clock basis, thereby necessitating stringent standards of quality, reliability, and operational efficiency.

The procurement of such pumps is undertaken through a competitive tendering process. However, at the stage of tender issuance, the specific makes / brands of pumps are not pre-determined.

In order to ensure that only technically qualified, reliable and experienced manufacturers participate in the tender process, it is considered necessary to undertake a pre-qualification exercise. Accordingly, it is proposed to invite an Expression of interest (EOI) from reputed pump manufacturers.

The objective of EOI is to assess the technical capabilities, past performance, manufacturing standards, and compliance with applicable specifications of the participating manufacturers. Based on the evaluation of the submitted credentials and technical data, a list of approved makes shall be finalized.

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Chapter 3

Scope & Process of EOI

A. Scope :-

Under this EOI, applications are hereby called for empanelment on BMC's approval list of Approved Pump Manufacturers, from the manufacturers. The Applicant shall submit the necessary information and certifications as requested under this EOI and submit the same along with application mentioning the specific pump type, size or size range for which he seeks approval or empanelment.

The Technical Approval Committee (TAC) appointed by BMC, will evaluate such applications, certifications, technical parameters and samples, etc, submitted by the applicant. Also, TAC may conduct the factory visit of pump manufacturer; in this regard the cost of factory visit (Cost of To & Fro Journey & 2 days accommodation for appointed BMC officers) will be borne by the applicant.

After approval the approved makes will be included in the Approved Manufacturer's List of BMC. This EOI does not offer any guarantee of business by BMC.

B. EOI Empanelment Process :-

1. BMC will publicly notify for empanelment of the manufacturers for pumps to be used in pumping stations granted by BMC, as per the technical specifications.
2. The Applicant will purchase the EOI document offline from BMC office address as mentioned in EOI Notice, on the specified dates & time.
3. The applicant will submit application along with the mandatory documents, certifications & samples of each size at the address mentioned in the EOI Notice. Manufacturers shall apply in the format prescribed by BMC along with credentials.
4. The Technical Approval Committee under the Chairmanship of Hydraulic Engineer will scrutinize the Applications, test certificates and documents submitted by the applicant. Shortfalls, if any, will be communicated to the concerned applicant. It will be responsibility of Meter Manufacturer to submit the documents, certifications & samples as mentioned in this EOI, within the specified time period.
5. The authority reserves right to accept minor deviations in specifications, provided that the offered product meets all functional, operational, and performance requirements and is suitable for the intended service conditions.
6. **Period of Approval & Renewal** – After successful evaluation, the pump

manufacturers shall be empaneled on BMC's approved list, initially for a period of **Three (3) years**, from the date of issue of approval letter. Further, after completion of three years, the renewal of approval will be done on the basis of site and laboratory performance & consumer feedbacks & complaints resolved, etc. During the approval period of 3 years, feedback from user department & performance of approved pumps at site will be checked on periodical basis (Approx. once in a six month). Such feedback / performance will be the criteria for issuance of continuation or discontinuation of approved makes.

Note: In case of failure to adhere to delivery schedules / non-compliance of specifications / non-attendance of complaints received from user department and if guarantee period is not complied with the period mentioned, in such situation / circumstances the BMC can hold applicant responsible for such acts & deeds and shall reserve the right to initiate actions deemed fit, like Blacklisting, removal from the approval list, penalize the manufacturer (limited up to the cost of the pump), etc. BMC reserves right to review, suspend, or cancel the approval at any time without prior intimation & without giving any reason thereof.

C. EOI Processing Fees :-

D. The processing fee for subject EOI to be paid amounting to **₹42,160/- for initial approval** (Circular of HE u/no HE/01/EEWW(P&R)/Cir dated 25.03.2026). The scrutiny fee shall be paid in the form of Demand Draft (DD) drawn on any Nationalized Bank, duly discharged in favour of Brihanmumbai Municipal Corporation, payable at Mumbai at any CFC only through challan before submission of the proposal.

Note: The processing fee is non-refundable & non-transferable.

E. Type of pump category proposed as per Policy:-

Sr No	Type of pump
1	Horizontal Centrifugal (HSCF / End suction) Pump
2	VT (Vertical turbine pump)

Chapter 4

Technical Specification

A) Horizontal centrifugal Pump (Split Case / End suction):-

Pump shall be horizontal centrifugal and axially split casing, double volute, double suction centrifugal type and shall be constructed in a manner that they can be placed on their foundation with their shaft in horizontal axis as per existing arrangement. The delivering capacity of the pump shall considering 24 hours continuous operation of the pump each day.

Design duties:- Duty condition and design features of the pumps shall be as follows:-

Sr No	Description	Details
1	Make	
2	Pump type	
3	Total Head	
4	Size (Suction x Delivery)	
5	Discharge	
6	Design head	
7	Speed	
8	Pump Input	
9	Impeller	
10	NPSHR	
11	Shut-off head	
12	Pump efficiency	
13	Head range	

Liquid Data:

Liquid handled	Potable water
Specific Gravity	Nearly 1.0

Design Requirement:

- The Pump shall be capable of developing the required total head at rated capacity.
 - The Total Head Capacity curve shall be continuously rising towards the shut off. The shut off head shall be at least 115% of the total head. The pump duty point shall be within +/- 10% of BEP.
- a) The Power rating of the Motor shall be the larger of the following:
- i. The maximum power required by the pump in the entire operating range.
 - ii. 115% of the power required at the duty point. Power requirement shall be worked out considering 1% negative tolerance on quoted figure of efficiency.

Materials of construction shall be as follows:-

Sr No	Component	Material specified by BMC
a)	Casing	CI IS 210 Grade FG 260
b)	Impeller	Stainless Steel of CF8M
c)	Shaft	Stainless Steel AISI 410
d)	Shaft Sleeve	Stainless Steel AISI 410
e)	Casing Ring	Stainless Steel CF8M or better
f)	Flexible Coupling	Forged Steel
g)	Nuts, Bolts and Washers	High tensile steel / Stainless Steel 316/ AISI 304

Constructional features:-

- **Casing:**

The casing shall be a double volute, double suction design and casing shall have axially split type construction so that one half of the casing can be removed without having to disturb the suction and discharge pipelines. The casing shall be designed to withstand the maximum shut-off pressure developed by the pump at the pumping temperature. Pump casing shall be provided with a vent connection and piping with fittings & valves. Casing drain as required shall be provided complete with drain valves, piping and plugs. Lifting eye bolts, etc. shall be provided for ease of lifting.

- **Impeller:**

The impeller shall be closed and double entry type, made in one piece. It shall be statically and dynamically balanced to grade 6.3 as per ISO 21940 to prevent vibration. The impeller shall be secured to the shaft and shall be retained against circumferential movement properly. It shall be removable type. It shall be designed to withstand all stresses from hydraulic loads, vibration and torques coming in during operation. Impeller wearing ring shall be provided to the impeller with proper locking arrangement.

- **Wearing Rings:**

Casing wear rings shall be provided with proper locking arrangement to prevent rotation and shall be easily removable and replaceable type. The wear rings shall be suitable designed to keep leakage losses to minimum.

- **Impeller Shaft:**

The impeller shaft shall be ground finished on its entire length and shall be protected with sleeves so that the shaft itself cannot come into contact with the actual liquid pumped. It shall be designed to withstand all stresses from rotor weight, hydraulic loads, vibration and torques coming in during operation.

- **Sleeves:**

The wearing surfaces of the pump shaft shall be provided with stainless steel renewable sleeves locked and clamped to the shaft. The sleeves shall be polished and ground on outer surface. They shall be sealed at one end and shall extend beyond the gland. Shaft and shaft sleeve assembly should ensure concentric rotation.

- **Coupling:**

Pin bush type flexible coupling shall be provided between pump and motor. Each half of flexible coupling shall be statistically and dynamically balanced. The couplings of motor and pumps shall be radially and axially aligned. The pump and motor shall be doweled using taper dowels, after completion of alignment/hot alignment.

- **Stuffing Box:**

The Stuffing box shall be an integral part of the casing and shall be fitted with lantern rings. The lantern rings shall be sandwiched between gland packing. The packing inside the stuffing box shall be held in position by glands.

- **Glands:**

The glands shall be designed to facilitate easy removal for inspection and replacement of packing.

- **Bearings:**

Adequate capacity bearings shall be provided to take the unbalanced axial thrust of the pump. The bearing temperature gauges and bearing temperature detector shall be provided for each bearing and it shall be compatible with the existing SCADA and instrumentation system.

- **Discharge Branch:**

Discharge branch pipe upto the terminal point under this specification shall be flanged and bolted and shall be complete with gaskets, nuts and bolts of shall screwed as specified. The standard length of the discharge branch pipe pieces shall be dictated from the consideration of ease in dismantling and handling.

- **Suction Branch:**

A dismantling joint will be provided at the pump suction, as such, the pipe assembly will be subject to an additional thrust.

- **Pump Motor Supports, Base Plate etc.:**

The pumps and motors shall have suitable supporting arrangements. The pumps & motors shall be supported on the foundation structure of adequate size.

- **Air release:**

Automatic air release valve with isolating cock at top of volute casing for air evacuation from the casing where water under positive suction is admitted shall be provided. The air valves shall exhaust all the air before static pressure is generated.

B) VERTICAL TURBINE

- **PUMPS GENERAL**

Under this section, specifications of the vertical turbine pumps are outlined. The vertical turbine pumps shall generally conform to I.S. 1710 of 1989 and latest version.

The specification given in this section is for the following type.

1.) VT Pumps self-water lubricated / Force water lubricated type

PUMP DUTIES

- **DUTY POINT DISCHARGE**

The pump shall have to give a discharge at normal water level and shall give corresponding higher discharge for the lesser heads.

- **DUTY POINT PUMP HEAD**

No loss of head, what so ever in entry, strainer, bell mouth, bowl assembly. Column pipes and discharge tee is accounted for in the calculations in the pump head. The manufacturer shall have to account for these losses while designing the pumps. However, head loss in delivery pipe, valves, fittings, rising mains and velocity head beyond discharge flange are included.

- **DUTY POINT EFFICIENCIES**

The manufacturer shall evaluate the above efficiency and specify the same in their offers along with calculations. The curves for both types of efficiencies, for entire range starting from shut off to static head should be invariably submitted along with the offer.

- **HEAD RANGE AND PARALLEL OPERATIONS**

The pumps will satisfy the head requirement as per the system resistance curves, while operating in solo and in any combination up to maximum no specified. The pumps should be suitable for operation in head range as specified by user department.

- **POWER MARGIN**

The pump shall be capable of operating in the range as mentioned above without being overloaded at any point and keeping a margin of at least 10% of power in the motor of pump over entire operating range. Requirement of power at shut off should not exceed power requirement at duty point. The pump should be capable of starting against fully closed butterfly valve without being overloaded at any point up to valve fully open.

- **PUMP CHARACTERISTICS**

The pump characteristic should be of stable nature and such that the efficiency is fairly steady for the water level variations as mentioned in the foregoing clauses. The maximum efficiency point will be nearer to the duty point and fairly constant for larger range on either side. The pumps should run smoothly from lowest head to shut off point without cavitation's and vibration (within H.I.S limitations for vibration). The variation in the efficiencies for any point of operation on the entire operating range should be minimum.

- **NPSH CONDITIONS (NET POSITIVE SUCTION HEAD CONDITION)**

NPSH required by the pumps should be lesser by at least 0.5 meters than N.P.S.H.A at duty point and shall not exceed the N.P.S.H. available at any point of operation in the range with solo and parallel operations.

The manufacturer shall take the following values of corresponding parameters for purpose of calculations of N.P.S.H.A at the site.

- | | | | |
|------|--------------------------|---|-------------------------------|
| (i) | Atmospheric Pressure | : | 10.3 Meter column of water |
| (ii) | Vapour pressure of water | : | 0.762 meters column of water |
| | | | (At 45° C Normal temperature) |

- **SPEED**

Pump speed should not exceed than that specified at the time of quotation / tender.

- **SOLID HANDLING CAPACITY**

The pump shall be suitable for pumping of new river containing silt, sand and suspended solids up to 50 mm size. If required suitable preventive special alloy coating needs to be provided to the impellers and castings to avoid any damage, due to abrasive material in raw water.

- **CLASS OF OPERATION**

The pump shall be suitable for non – stop continuous 24 hours operations without interruptions.

- **DEFINITION OF EFFICIENCIES**

The various efficiency will have same meaning and effect in the IS 1710 – 1989 & latest version which are reproduced below.

- **BOWL EFFICIENCY**

The ratio of bowl assembly output to bowl assembly input expressed as percentage.

(1) **PUMP EFFICIENCY**

The ratio of pump output to pump input expressed as percentage.

(2) **OVERALL EFFICIENCY**

The ratio of pump output to the driver input expressed as percentage.

CONSTRUCTION FEATURES FOR V. T. PUMPS

The pumps shall be vertical spindle, suspended and non-pull-out type. The pump shall comprise of bowl assembly, column pipes, line shaft, line shaft enclosing tubes, line shaft bearings, line shaft bearing holders, discharge tee, motor stool, thrust bearings, sole plates/ base frames, flexible couplings etc.

The pump shall be self-water & force water lubricated type as per condition of turbidity of inlet water.

CONSTRUCTION OF MAIN PUMP

1. Impellers

Impellers shall be semi-open type with streamlined passage and smooth hydraulic profile to give optimum efficiency and shall be manufactured from stainless steel to ST ST ASTMA 351/351M-CF8M. They shall be of smooth finish, fitted with renewable wearing rings having high resistance to wear at the points of running clearance with the casing wearing rings. Impellers shall be fastened securely to the impeller shaft with keys, taper bushings or lock nuts made of stainless steel. The running clearance for impeller shall be compatible with the deflection of shaft under operating conditions. In order to avoid internal resonance, the number of vanes on diffuser may not be equal to or be a multiple of number of vanes on impeller. Impeller shall be dynamically balanced with relevant standard. Bell mouth to provide smooth streamlined water entry to the impeller shall be of ST ST ASTMA 351/351M-CF8M.

2. Pump casings (discharge bowl)

Pump casing shall be suitable designed for maximum hydraulic efficiency. Pump shall be manufactured from cast iron. All flanges shall be machined on face and edge and be spot faced at the back and shall be spigotted to facilitate alignment. Wearing rings at the points of running clearance with the impeller wearing rings. The casing shall be provided with impeller guide manufactured from stainless steel compatible with impeller.

3. Column pipes

Column pipes shall be manufactured in mild steel as per relevant standards. The column pipe thickness shall be minimum 8 mm. They shall be in suitable lengths not exceeding 2.5 metres. Column pipes will have suitable flange joints sealing arrangements. All pipe lengths shall be stress relieved after welding, machined on flange faces. All flange faces shall be perfectly true and square and true with the axis of the pipe. Flanges shall have tapped holes to facilitate handling. All column pipes shall be machined on mating flange surfaces to maintain parallelism concentricity and perpendicularity and be suitably machined to accommodate line shaft bearing spiders. Alternately, if adopted in design, separate spacer rings of adequate depth suitably machined to accommodate bearing spiders shall be provided. Also allowable values of parallelism concentricity, perpendicularity etc. is to be furnished by Contractor for approval. The column pipe mating flanges and any spacer rings or other type of arrangement for spiders shall be suitably spigotted with optimum diametrical clearances such that the concentricity with respect to axis of shaft is maintained within 0.05 mm.

The column pipe portion at the branching of discharge tee shall have suitable reinforcement. The flange face of the discharge branch shall be parallel to the axis of shaft within 0.05 mm/m vertically. The lifting arrangement shall be provided to column pipes to facilitate the handling of entire assembly. The column pipes shall be dowelled after erection with suitable taper dowel pins between various sections and base plate to maintain angular alignments with discharge piping during erection/ maintenance. The pipe shall be painted for submerged conditions internally and externally. All bolts holes in column pipes shall be accurately drilled parallel to pump axis and spot faced. The pipes shall be furnished in interchangeable lengths.

4. Line Shafts and Line Shaft Couplings.

Line shafts and shaft couplings shall be manufactured from high tensile strength corrosion resistant stainless steel relevant standards. The shafts shall be furnished in interchangeable sections having nominal length not exceeding 2.5 metres. The line

shafts shall be machined over the entire length to obtain a smooth surface finish and to ensure trueness within 0.1 mm(100 Microns) / metre. The line shafts shall be provided with sleeves where they pass through thordon bearings, mechanical seal and bowl assembly. The TIR of shafts on such sleeved portions and such provision areas where impellers, precision journal bearings, thrust collars are to be fitted, shall not exceed 0.1 mm(100 Microns)/metre. The line shafts shall be provided with suitable muff couplings. The fasteners and spring washers shall be fitted in counter bores. The bores of muff couplings shall be concentric and true. The shafts and couplings shall be tested on assembly to demonstrate that they are true and can be easily dismantled and reassembled.

The shaft ends shall be suitably machined with suitable recesses around the periphery to receive a pair of split lock rings or a corresponding shoulder on coupling halves to secure the shaft ends with each other and to bring them to alignment. All sharp corners and ends of muff couplings will be rounded off. Adequately sized spider bearings shall be included in order to ensure smooth operation of pumps.

5. Shaft bearings

Shaft bearings shall be suitable for self-water & force water (by the water being pumped by the pump) lubrication. The material of the bearings shall be of rubber type. The bearings and spiders shall be held in cast iron housing held between the column pipes. The bearings and spiders shall be spaced at intervals of not more than 2.5 m.

6. Thrust bearings

The weight of the pump rotating parts and hydraulic thrust shall be taken on oil lubricated water cooled thrust bearings. The bearings which may be spherical roller anti-friction thrust type and shall be of ample size to be able to take all loads

7. Bearing Housing

The housings shall be complete with oil level gauges, suitably positioned temperature probes, drains and vents.

The cooling water pipes of 1" dia at a rate of 10 US GPM pump at 48 MWC (37.85 LPM) is available of existing pump for cooling of the bearing housing.

The oil filter and oil level gauges for the thrust bearing oil bath shall be positioned so as to be readily accessible, plainly visible and safe for accidental damages.

8. Sole Plate

The existing sole plate used for the pump is of size 2850 x 1850 mm having opening of 3000 x 2000 mm. Contractor shall supply the suitable dimensioned sole plate, which can be erected in place of the existing sole plate without alteration to the existing civil structure of the pumping station. The contractor shall use the new sole plate for pump and shall remove the existing sole plate without damaging the civil structure and clear the opening. The pockets for anchoring the new sole plate shall be made accordingly and grouted subsequently during erection.

A curb ring base or sole plates shall be used for resting the pump base. It shall be made as a unitary integral rectangular frame so that the pump can rest squarely all around on the sole plate for uniform weight distribution. The sole plates shall be made of mild steel and shall be machined true and parallel on top surface. The machining of bottom surface of sole plate parallel to top surface within 0.05 mm/ metre accuracy would be mandatory, if sole plate is designed to be erected on packers and shims and wedges left in concrete. The contractor shall provide all such packers and shims, foundation liners, machined taper wedges etc. as required for erection as part of his supply. The packers shall be of mild steel and shims stock of stainless steel. Suitable jack screws/ leveling screws spaced for stability shall be provided on the outside perimeter of sole plates numerous enough to carry the weight of sole plate. In any case, no less than four screws shall be provided.

The sole plate shall be provided with adequate number of anchor fasteners/hold down fasteners and welded members to lock the sole plate positively inside the grout to resist upward movement of sole plate during grouting or subsequent operations. The pumps vendor shall take this into account while designing the anchor bolts. Any additional hold down/ anchor bolts shall be precisely positioned and grouted independently before leveling of the sole plates. Contractor shall make the efforts to use the existing grout openings as far as possible, otherwise adequate number of grout openings not lesser than 75 mm diameter shall be made at suitable intervals on all sides of sole plates.

The top machined surface where the base plates are to rest shall be true within 0.05 mm/ metre in any direction and the surface finish shall be within 0.8 micro meters root mean square to facilitate blue matching to 80% with the base plates.

The sole plate shall be adequately rigid and be manufactured in deep section so that they can be adequately grouted into concrete and that they will not buckle due to self weight during erection and tightening of anchor fasteners before grouting.

The sole plate shall be post weld heat treated to applicable standards prior to machining.

9. Pump Base

The pump base shall be of fabricated steel and shall be of heavy sections. It shall incorporate a lower flange with integral machined surface on the underside, where the base plate is to rest on a curb ring base or sole plate and an integral top flange with machined surfaces for locating the motor stool and machined spigots for locating other pump components like gland and bearing housings. The pump base shall be welded integrally with a section of column pipe barrel and/ or suitably spigotted for locating the column pipes concentric to the bore in the pump base with respect to the gland and bearing housings.

The underside of the pump base which is to rest on sole plate, the top machined surface for seating motor stool, spigots and recesses for attaching the gland and bearing housings, the column pipes etc., shall all be machined parallel and true and surface trueness shall be within 0.05 mm per metre in any direction. All locating spigots formatting components shall be machined concentric with respect to the pump axis to close tolerances. The mating diametrical clearances between spigots and guides on integral column pipe barrel or spigots for column pipes and respective mounting and housing for bearing and glands etc. shall be within 0.25 mm maximum in order that various pump components like top radial and thrust bearings, gland, rubber bearings of shafts etc. can all be aligned within specified tolerance. The surface finish of the sole plates and the underside of pump base, where it rests on sole plate shall be within 0.8 microns root mean square to facilitate blue matching of the mounting surfaces during subsequent erection. No shimming shall be permitted between the base plate and the sole plate. The base plate shall incorporate 4 Nos. of alignment positioning screws to facilitate adjustments of motor stool for radial alignment of pump and motor shaft couplings on assembly. The guides for motor stool shall be such to facilitate such adjustments. All bearings housings, gland mounting plates etc. shall preferably be doweled at vendor's shop on assembly after due check up of alignments and TIR to facilitate maintaining of such alignments on pump components during erection and maintenance. However, doweling of motor base to sole plate and motor stool to pump base shall be done during erection after due alignment.

The pump base shall be of adequate strength to carry and transmit hydraulic thrust under worst conditions. The entire pump set over its entire column length shall be aligned within 0.1 mm vertical and 0.02 mm/ metre horizontally checked on mounting reference surfaces.

The welded pump base shall be stress relieved post weld heat treated to relevant code requirements after completion of all welding before undertaking all machining operations.

The motor stool should have large openings adequate for maintenance of gland packing, thrust bearing unit and coupling. The motor stool shall be rigidly designed with due consideration of pump & existing motor for optimum diameter to height ratio, to minimise vibration. Four numbers of alignment positioning screws shall be provided for radial alignment purposes. Specification for materials, fabrication, machining tolerances and finishes etc. shall be similar to in use for pump base.

10. Main Couplings

The main couplings between pump and motor shaft shall be of pin bush type flexible coupling to take care of axial and radial misalignment that might develop during operation. The cylindrical fits of coupling halves shall be such to facilitate removal without heating. The coupling halves shall be machined smooth over the entire surface and on all sides. The couplings shall be made of high tensile cast steel.

11. Bolts, Nuts and Washers

All bolts and nuts and washers shall be of stainless steel grade as per relevant standards. The fasteners on column pipes, shaft enclosing tubes and such parts, shall be of stainless steel.

The opening in the sole plates and the base frame shall be of sufficient diameter to pass the pump assembly including suction bell. (The opening in base frame of the motor shall be of sufficient diameter to pass the pump assembly with discharge head. Only applicable when pumps and drive motor is mounted on separate floor of pump house.) The erection and dismantling of both the pumps and motor shall be possible from the motor floor with E.O.T crane available in motor hall. The motor or the pump discharge head shall not be rested either on the pump floor or motor floor, while erecting or dismantling on places other than respective base frames / sole plates the above components should always be carried from, or to the service base directly, while assembling or dismantling. The contractor shall be responsible to get designed from the pump manufacturers and approved by the Mechanical Engineer-in-charge (M) the steel base frames fabricated from plated together with machined bottom pieces, sole plates, all anchoring arrangement support, etc. for pump and motor mounting. These component shall be from pump manufacturers only.

The complete assembly consisting of steel base frames, sole plate, bottom pieces shall be stress relieved after fabrication and before machining. Test certificate from manufacturer regarding stress relieving with observation sheets for column pipe, discharge head, base frame, motor stools etc. shall be furnished. The contractor for the

prior approval and to keep necessary pockets in civil works shall furnish all necessary details regarding pump and motor mounting well in advance.

Work of erection of pumps, motors, including laying of foundation, grouting shaft alignment, doweling and painting etc. shall be done by the contractor at his own cost as per general and miscellaneous specifications mentioned earlier.

The thrust bearing shall be anti-friction heavy duty type. The bearing shall be designed to accommodate all possible loads under normal operation or shut off condition and shall be suitable for reverse rotation upto at least 1.5 times the normal forward speed. The bearing shall be oil lubricated type and shall be provided with oil level gauge and temperature measuring and sensing system and cooling systems as given.

Vibration and noise:

The pump and motor assembly shall be designed and manufactured to ensure smooth and vibration free operation. Vibration shall comply with the applicable requirements of ANSI/HI 9.6.4 / ISO 10816-7 and shall be measured in RMS velocity (mm/s) under rated operating conditions. The noise level of the complete pump set shall not exceed 85 dB(A) at 1 m under rated operating conditions.

Inspection and testing facility:

The manufacturer shall have adequate in-house inspection and testing facilities commensurate with the offered pump range, including dimensional inspection, material verification, dynamic balancing, hydrostatic pressure testing, pump performance testing, vibration and noise measurement. All measuring and testing instruments shall be duly calibrated. The manufacturer shall provide valid calibration certificates and test records for verification during factory inspection.

MATERIALS OF CONSTRUCTION FOR VT PUMPS:

Sr No	Pump Part	Description
1	Pump bowls	C.I. conforming relevant standard
2	Stator Bowl	C.I. conforming relevant standard
3	Bell mouth	Stainless steel ASTM A 351/351M CF8M
4	Impellers	Stainless steel ASTM A 351/351M CF8M
5	Impeller guide piece	Stainless steel ASTM A 351/351M CF8M
6	Head shaft & intermediate shafts	Stainless steel ASTM A 276-316 ANLD
7	Impellers shaft	Stainless steel ASTM A 276-316 ANLD
8	Column Pipes.	Mild steel IS 2062 E250 A
9	Line shaft protection tubes	Seamless M.S. Pipe
10	Flexible coupling.	Forged steel conforming to relevant standard
11	Impeller Wearing rings	ST ST ASTM A 240/240M 316(UNS S 31600)
12	Casing Wearing rings	ST ST ASTM A 276/240 Type 410(250-280 BHN)
13	Column Flanges	Mild steel IS 2062
14	Nut bolts and washers up to bottom of discharge head	Stainless steel AISI 304 / 316
15	Line shaft	Stainless steel ASTM A 276-316 ANLD
16	Line shaft coupling	Stainless steel ASTM A 276-316 ANLD
17	Line shaft bearing	Nitrile Rubber having brass shell
18	Bowl bearings	Nitrile Rubber having brass shell
19	Discharge Tee	Mild steel IS 2062 E250 A
20	Shaft sleeves	Stainless steel ASTM A 479/479 M -316

Note:

The above technical specifications are indicative in nature. Final technical specifications shall be provided at the time of quotation / tender.

Manufacturers offering VT & HSCF / End case pumps that are similar or equivalent to the above indicative technical specifications are encouraged to participate in this EOI. Minor variations may be considered subject to technical evaluation and acceptance by BMC.

BMC reserves the right to modify, amend, or revise the technical specifications, scope of work, and other terms and conditions at any stage of the EOI without prior notice.

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Chapter 5

After Approval

1. **Guarantee** - The manufacturers shall sale the pumps with a guarantee of minimum **3 (three) years**. During the said guarantee period, if any manufacturing defects are observed then same shall be rectified by the pump manufacturer and if necessary, the pump shall be replaced by the manufacturer without any additional cost to consumer.
2. If the manufacturers fail to protect the user department interest and / or breach the guarantee period condition then he shall be delisted from the empanelment.
3. The repair / Maintenance facilities shall be locally made available by the approved pump manufacturers at reasonable rates. This shall be one of the criteria while empanelment of the pump manufacturer.
4. A Technical Approval Committee will periodically i.e. half yearly scrutinize the new applications and performance of approved makes and shall notify inclusion / exclusion in the approved list of makes / brands.

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Chapter 6

Annexures

• The eligible applicant shall submit the list of documents / information as per the table mentioned below:

Sr.No	Description	Annexure No
1	Factory Information	Annexure I
2	Manufacturing Process	Annexure II
3	List of Clients during last Five years	Annexure III
4	List of Man Power	Annexure IV
5	List of Machineries / Lab Equipment / Measuring Instruments	Annexure V
6	List of In House Material Handling Facilities	Annexure VI
7	List of Testing Facilities	Annexure VII
8	List of suppliers of Raw Material	Annexure VIII
9	Material of Construction (HSCF Pump)	Annexure IX
10	Material of Construction (Vertical turbine pump)	Annexure X

**Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP
department in BMC**

ANNEXURE -I

E.O.I./ ____ / ____ / ____

Date:-.....

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

Factory Information			
Sr. No.	Description		Offered Details Enclosed / not enclosed
1	Name of the Factory	:	
2	Type of Organization	:	
3	Nature of Business	:	
4	Year of Commencement of Manufacture	:	
5	GST Registration Certificate	:	
6	PAN	:	
7	Address (Factory)	:	
	Address (Office)	:	
8	Factory Contact Details	:	
	Email	:	
	Website	:	
	Telephone (Office)	:	
	Telephone (Factory)	:	
	Fax	:	

Sr. No.	Description		Offered Details Enclosed / not enclosed
9	Name of Person to be contacted	:	
	Designation	:	
	Contact Number (Office/Residence)	:	
	Postal Address	:	
10	Nature of the Company/Firm	:	
	Is it partnership concern? If so, name of each partner	:	1. 2. 3. 4.
	Partner sheep deed and copy of registration certificate (To be enclosed, if any)	:	
	Power of Attormey (To be enclosed, if any)	:	
	Memorandum of Association and Article of Association (To be enclosed)	:	
11	Area of the Factory Premises	:	
	Land Area (In Sq. Mtr)	:	
	Built up Area (In Sq. Mtr)	:	
12	ISO Registration Certificate (To be enclosed)	:	
13	SSI Registration Certificate (To be enclosed)	:	
14	NSIC Registration Certificate (To be enclosed)	:	
15	BIS Registration Certificate (To be enclosed)	:	

Sr. No.	Description		Offered Details Enclosed / not enclosed
16	Approved EHS (Environment Health and Safety) Plan (To be enclosed)		
17	Details of License obtained (ISI, ISO etc.) (To be enclosed)	:	
18	Factory License (To be enclosed)	:	
19	Details of Shop floor, office, Store, Laboratory buildings etc.	:	
20	Annual Production Capacity	:	
21	Details of Electric Power: (Sanctioned and Installed)	:	
22	Water Supply and Sewerage Facilities	:	
23	Fire Fighting/ Escape	:	
24	Ventilation / Lighting	:	
25	Security	:	
26	ISO 9001 certificate for vender (foundry)		
27	Details of Furnace (if any) capacity, type etc. (Inhouse or Outsource)	:	
28	Present / similar jobs in hand (with name of organization) (To be enclosed)	:	
29	An average annual financial turnover of three years as certified by "Chartered Accountant" (To be enclosed)	:	
30	Bankers (Name of Bank & Branch name)	:	
31	Remarks / other information, if any.	:	

Note : Separate sheet/s can be attached for detail submission

Manufacturers Signature & Office Stamp

**Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP
department in BMC**

ANNEXURE -II

E.O.I./ ____ / ____ / ____

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

Manufacturing Process		
Sr. No.	Description	Offered Details Enclosed / not enclosed
1	Organization Chart (To be enclosed)	:
2	Process Layout Sketch (To be enclosed)	:
3	Manufacturing Flow Chart (To be enclosed)	:
4	Product Catalogues (To be enclosed)	:
5	Product Certificate (To be enclosed)	:
6	Product range with applicable standard (To be enclosed)	:
7	Quality Assurance Plan for bought out items (To be enclosed)	:
8	Quality Assurance Plan for manufactured items (To be enclosed)	:
9	List of Clients (To be enclosed as per Annexure-III in EOI)	:
10	List of Man Power / Staff (To be enclosed as per Annexure-IV in EOI)	:
11	List of machineries used & Capacity / details of each (To be attached as per Annexure-V in EOI)	:
12	List of Inspection and Testing facilities / equipments used (To be attached as per Annexure-VII in EOI)	:
13	List of Material Handling Equipments used & capacity / details of each (To be enclosed as per Annexure-VI in EOI)	:
14	List of Sources of raw material and availability (To be enclosed as per Annexure-VIII in EOI)	:
15	Third party inspection if any	:
16	Quality Checks adopted :-	:
	i) For Raw Materials	:
	ii) For Materials in process	:
	iii) For Finished Items	:
Manufacturers Signature & Office Stamp		

Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP department in BMC

ANNEXURE -III

E.O.I./ ____ / ____ / ____

Date:-.....

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

List of clients during last Five years									
Sr. No.	Name of client	Pump type	Capacity	Head	Motor rating	Quantity supplied	Year of supply	Operating status	Completion / Performance Certificate Enclosed ?
									Yes / No
Manufacturers Signature & Office Stamp									

**Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP
department in BMC**

ANNEXURE -IV

E.O.I./ ____ / ____ / ____

Date:-.....

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

List of Man Power				
Sr. No.	Name	Qualification	Designation	Department
Manufacturers Signature & Office Stamp				

department in BMC

ANNEXURE -V

E.O.I./ /

Date:-.....

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

List of Machineries / Lab Equipment / Measuring Instruments				
Sr. No.	Description of Machine / Equipment / Measuring Instruments	Range / Size / Capacity	OEM	Quantity

Manufacturers Signature & Office Stamp

Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP department in BMC		
ANNEXURE -VII		
E.O.I./____/ ____ /_____		
Date:-.....		
NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary		
Pump Testing Facilities		
Sr. No.	Item Description	Yes / No
1	Flow measurement facility	
2	Head / pressure measurement	
3	Power measurement	
4	RPM measurement	
5	Pump efficiency measurement	
6	Vibration measurement	
7	Noise measurement	
8	Hydrostatic pressure testing facility	
9	NPSH testing facility, whether applicable	
Manufacturers Signature & Office Stamp		

Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP department in BMC

ANNEXURE -VIII

E.O.I./_____/_____/_____

Date:-.....

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

List of suppliers of Raw Material

[illegible]

Manufacturers Signature & Office Stamp

Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP department in BMC

ANNEXURE -IX

E.O.I./ ____ / ____ / ____

Date:-.....

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

Material of Construction (HSCF Pump)

Sr. No.	Pump Part	Offer Details
1	Casing	
2	Impeller	
3	Shaft	
4	Shaft Sleeve	
5	Casing Ring	
6	Flexible Coupling	
7	Nuts, Bolts and Washers	
Manufacturers Signature & Office Stamp		

Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP department in BMC

ANNEXURE -X

E.O.I./ ____ / ____ / ____

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

Material of Construction (VT Pump)

Sr. No.	Pump Part	Offer Details
1	Pump bowls	
2	Stator Bowl	
3	Bell mouth	
4	Impellers	
5	Impeller guide piece	
6	Head shaft & intermediate shafts	
7	Impellers shaft	
8	Column Pipes.	
9	Line shaft protection tubes	
10	Flexible coupling.	
11	Impeller Wearing rings	
12	Casing Wearing rings	
13	Column Flanges	
14	Nut bolts and washers up to bottom of discharge head	
15	Line shaft	
16	Line shaft coupling	
17	Line shaft bearing	
18	Bowl bearings	
19	Discharge Tee	
20	Shaft sleeves	

Manufacturers Signature & Office Stamp

**Expression of Interest (EOI) for VT & HSCF/ End suction Pump Approval in HE & WSP
department in BMC**

ANNEXURE -XI

E.O.I./ ____ / ____ / ____

NOTE: Following information to be submitted along with EOI as detailed herein below on the letter head of the Applicant. Fill the necessary information. Put a tick mark where applicable. Write N.A. where not applicable. All fields are necessary

Similar Supply & Field experience

Sr. No.	Description	Offer Details
1	Client name	
2	Stator Bowl	
3	Bell mouth	
4	Impellers	
5	Impeller guide piece	
6	Head shaft & intermediate shafts	
7	Impellers shaft	
8	Column Pipes.	
9	Line shaft protection tubes	
10	Flexible coupling.	
11	Impeller Wearing rings	
12	Casing Wearing rings	
13	Column Flanges	
14	Nut bolts and washers up to bottom of discharge head	
15	Line shaft	
16	Line shaft coupling	
17	Line shaft bearing	
18	Bowl bearings	
19	Discharge Tee	
20	Shaft sleeves	

Manufacturers Signature & Office Stamp

Chapter 7

Undertaking to be issued by the Original Manufacturer to BMC

(To be executed on a non-judicial Stamp Paper of Rs 500 & original copy of the same shall be submitted on the letterhead of original meter manufacturer and same shall be signed in blue ink.)

We, the undersigned manufacturer, do hereby solemnly affirm and declare that the information, documents and particulars furnished by us in response to this Expression of Interest (EOI) are true, complete and correct in all respects to the best of our knowledge and belief.

We further undertake that the pumps offered by us shall strictly comply with the technical specifications, applicable Indian/International standards and performance requirements stipulated by the Brihanmumbai Municipal Corporation (BMC).

We further undertake that any change or modification in the design, materials or performance parameters of the offered pumps shall not be carried out without prior intimation to and written approval from the Brihanmumbai Municipal Corporation (BMC).

We confirm that we have the requisite experience, technical expertise, manufacturing facilities and quality assurance systems for design, manufacture, testing and supply of the pumps as specified in this EOI.

We undertake to ensure reliable and satisfactory performance of the supplied pumps under continuous operation conditions and shall be fully responsible and liable for any defects arising due to faulty design, inferior material, poor workmanship or non-performance during the stipulated period.

We further agree that in the event of any information submitted by us being found false, incorrect or misleading at any stage, our application shall be liable for rejection/termination and we shall be liable for appropriate action, including blacklisting, as deemed fit by BMC.

We hereby unequivocally accept that the Brihanmumbai Municipal Corporation (BMC). reserves the absolute right to accept or reject any or all applications without assigning any reason thereof and reserves the right to modify, amend or cancel the EOI process at any stage without prior notice and without any liability whatsoever.

We agree to abide by all the terms and conditions stipulated in this EOI and shall have no claim whatsoever against MCGM in respect of the EOI process or its outcome.

This Undertaking shall not be revoked till the Approval Period or Guarantee period, whichever is later is successfully completed.

Signature Details

For and on behalf of Manufacturer

Authorized Signatory: _____

Name: _____

Designation: _____

Contact No.: _____

Date: _____

Place: _____

(Company Seal / Stamp)