	विशाखपट्टणम पोर्ट प्राधिकरण यांत्रिक एवं विद्युत अभियंता विभाग प्रशासनिक भवन, पोर्ट क्षेत्र विशाखपट्टणम – 530035 (आ.प्र.)	VISAKHAPTNAM PORT AUTHORITY MECH & ELECTRICAL ENG DEPARTMENT Administrative Building, Port Area Visakhapatnam – 5300035 (A.P)	SAGARMALA

EXPRESSION OF INTEREST

Budgetary offer for the following work (Non DSR items) are invited by the Chief Mechanical Engineer, Mechanical & Electrical Engineering Department, Visakhapatnam Port Authority, Visakhapatnam -530035 Phone No. 0891-2873193 on behalf of Chief Mechanical Engineer, Visakhapatnam Port Authority for estimation purpose from the eligible Soft Starter Manufacturers.

Visakhapatnam Port Authority has taken up the work of "Replacement of existing 3.3KV DOL starter panel with 3.3KV soft starter panels" for which soft starter arrangement is required. The details and specifications are as under.

Sr. No	Description	Qty.	Rate	Remarks
1	Design, manufacture, Supply, Erection, Testing & Commissioning of FCMA Neutral soft starter for 3.3KV, HT Motors of Vertical Turbine Pumps pertains to firefighting facilities of LPG Berth, Visakhapatnam Port Authority.			
a)	FCMA Neutral Soft starter Panel for 3.3 KV, 450 KW, HT Motor of Monitor Fire pump Technical Specification enclosed **Annexure.**	1 No.		
b)	FCMA Neutral Soft starter Panel for 3.3 KV, 385 KW, HT Motor of Hydrant Fire Pump Technical Specification enclosed **Annexure**.	1 No.		
Note :-	1. Name plate details of VT Pumps and 3.3 kV, HT motors are enclosed for reference. 2. Technical specification for 3.3 kV, 450 KW & 385 KW medium voltage soft starter.			

It is requested to send the budgetary offer mentioning rate with rate analysis for the same. The rates shall cover all taxes and duties applicable. The sealed budgetary offer should reach this office on or before **30.06.2026** Further it is requested to forward relevant Technical literature, broachers of equipment's and your comments if any in the matter.

This information is required for the purpose of framing of working estimates and hence the urgency.

22/6/26

Superintending Engineer (Elec.)-I

Address for communication:-

Chief Mechanical Engineer,
Mechanical & Electrical Engineering Department,
2nd Floor, AOB,
Visakhapatnam Port Authority,
Visakhapatnam -530 035.

ANNEXURE:

ELECTRICAL OPERATED FIRE FIGHTING HYDRANT PUMP DETAILS:-

PUMP DETAILS		MOTOR DETAILS	
DESCRIPTION OF EQUIPMENT	Vertical Turbine Pump LPG (P-04)	DESCRIPTION OF EQUIPMENT	Motor-1
MAKE	KBL	Make	BHEL
Prime mover	KIRLOSKAR	Type	Squirrel Cage Induction Motor
MODEL	BHR 4STG 50 –2 STG	Rating	385 kW
ENGINE NO.	1532700001	Voltage	3.3 kV
CAPACITY	12000 LPM	Current	84.0 A
BHP/RPM	333.60/1484	Speed	1484 RPM
SO.NO.	08GOF6030/03-00	Frequency	50 Hz
BSFC	AS PER U/A SPL	Protection	IP55
BOWL HEAD	95.68 M	Insulation	Class F
DISCHARGE	303.3LPS	Rotor Type	Cage
SIZE	350 DIA	D.E. Bearing	6222 C3
YEAR	2001	N.D.E. Bearing	7322 B

ELECTRICAL OPERATED FIRE FIGHTING MONITOR PUMP DETAILS:-

PUMP DETAILS		MOTOR DETAILS	
DESCRIPTION OF EQUIPMENT	Vertical Turbine Pump LPG (P-02)	DESCRIPTION OF EQUIPMENT	Motor-1
MAKE	KIRLOSKAR	Make	BHEL
MODEL	BHR 42-22.5 DEG /4 STG	Type	Squirrel Cage Induction Motor
ENGINE NO.	1532400006	Rating	450 kW
CAPACITY	18000 LPM	Voltage	3.3 kV
BHP/RPM	383.70/1485	Current	98.4 A
SO.NO.	08GOF6030/01-00	Speed	1485 RPM
BSFC	AS PER U/A SPL	Frequency	50 Hz
BOWL HEAD	155.40 M	Protection	IP55
DISCHARGE	18000 LPM/303.38 LPS	Insulation	Class F
SIZE	300 DIA	Rotor Type	Cage
YEAR	2001	D.E. Bearing	6222 C3
DESCRIPTION OF EQUIPMENT	Vertical Turbine Pump LPG (P-02)	N.D.E. Bearing	7322 B

Superintending Engineer (Elec)-I

Cable Entry	Bottom Entry
Earthing Bus	50 mm × 5 mm Copper Earth Bus

. The enclosure shall have separate:

TECHNICAL SPECIFICATION FOR 3.3 kV, 450 kW MEDIUM VOLTAGE SOFT STARTER:

1. **Scope:**

The scope shall cover design, engineering, manufacture, testing, supply, installation supervision, commissioning and performance testing of one complete Medium Voltage Digital Soft Starter suitable for starting and stopping of 3.3 kV, 450 kW squirrel cage induction motor driving a Vertical Turbine Pump.
The Soft Starter shall be suitable for continuous operation under tropical coastal environmental conditions prevailing at Visakhapatnam Port Authority.

2. **Applicable Standards:**

The equipment shall conform to the latest editions of:

- IEC 60947
- IEC 62271
- IEC 60694
- IEC 60034
- IEC 60529
- EN 50178
- HD 625.1 S1
- Relevant IS/IEC standards for Medium Voltage Equipment

In case of conflict, the more stringent requirement shall prevail.

3. **System Particulars:**

Parameter	Requirement
System Voltage	3.3 kV ±10%
Frequency	50 Hz ±2%
Motor Ratings	450 KW & 385 KW
Motor Type	Squirrel Cage Induction Motor
Application	Vertical Turbine Pump
Duty	Continuous (S1)
Starting Method	Soft Starting
System Earthing	Solidly Earthed
Installation	Indoor

4. **Soft Starter Construction:**

The Soft Starter shall be:

- Microprocessor based digital type.
- Fibre optic controlled firing system.
- Thyristor controlled Medium Voltage Soft Starter.
- Suitable for 3.3 kV operation.
- Designed for minimum maintenance.
- Modular construction for ease of replacement and maintenance.
- Equipped with Line Contactor and Bypass Vacuum Contactor.
- Provided with segregated HV and LV compartments.

The starter shall be capable of smooth acceleration and deceleration of the motor without imposing excessive electrical or mechanical stresses.

5. **Enclosure:**

Item	Requirement
Degree of Protection	Minimum IP32
Type	Floor Mounted
Material	CRCA Sheet Steel
Finish	Epoxy Polyester Powder Coated
Colour	RAL 7032 or equivalent
Cable Entry	Bottom Entry
Earthing Bus	50 mm × 5 mm Copper Earth Bus

The enclosure shall have separate:

HV Compartment
Containing:

- Thyristor power stacks
- Firing circuits
- Vacuum contactors
- Power terminals

LV Compartment
Containing:

- Control electronics
- Protection relays
- Indications
- Push buttons
- Communication modules

LV compartment shall be accessible without opening the HV section.

6. **Starting and Stopping Functions**

The Soft Starter shall provide:
Adjustable Initial Voltage

- 10% to 50% of rated voltage
- Extendable up to 80%

Current Limit

- Adjustable from 100% to 400% FLC
- Extendable up to 500% FLC

Ramp-Up Time

- Adjustable from 1 to 30 seconds
- Extendable up to 90 seconds

Ramp-Down Time

- Adjustable from 1 to 30 seconds
- Extendable up to 90 seconds

Pulse Start

- 80% Voltage Pulse
- Adjustable 0.1 to 1 second

Dual Parameter Set

- Two independent starting profiles.

Pump Control
Special pump control algorithm shall be provided to:

- Eliminate hydraulic shock.
- Prevent water hammer.
- Prevent over-pressure during starting.
- Provide smooth stopping.

Torque Control
Advanced torque control shall be provided throughout acceleration and deceleration.

7. **Control Supply**

The Soft Starter shall operate on:

- 230 V AC, 50 Hz control supply.

The control circuit shall be protected through MCBs.

8. **Control Features**

The starter shall be provided with:
Push Buttons

- START
- STOP
- RESET
- Emergency STOP (Mushroom Type)

Selector Switch

- Soft Starter
- OFF

- BYPASS

Indications

LED indications for:

- Control Power ON
- Soft Start
- Motor Running
- Soft Stop
- Bypass ON
- Fault
- Trip

9. **Human Machine Interface (HMI)**

The Soft Starter shall be provided with:

- Backlit LCD display.
- Minimum 2-line display.
- Keypad programming.
- Password protection.

Display shall indicate:

- Motor Current
- Motor Voltage
- Starter Status
- Fault Messages
- Running Hours
- Number of Starts
- Last Trip Information
- Statistical Data

10. **Communication**

The starter shall be supplied with:

- RS-485 Communication Port
- MODBUS RTU Protocol

Optional communication shall support:

- Profibus DP
- Modbus TCP/IP
- Ethernet

11. **Protection Functions**

The Soft Starter shall have built-in microprocessor based protection functions.

Motor Protection

- Thermal Overload Protection
- Stall Protection
- Locked Rotor Protection
- Excessive Start Protection
- Under Current Protection
- Current Imbalance Protection
- Phase Failure Protection
- Phase Reversal Protection

Starter Protection

- SCR Failure Detection
- Shorted SCR Protection
- Over Temperature Protection
- Bypass Contactor Failure Protection
- Control Supply Failure Protection

System Protection

- Ground Fault Protection
- Earth Leakage Protection
- External Trip Input
- No Start Signal Protection

12. **Contactors**

The starter shall include:

Line Contactor

- Vacuum type
- 3.3 kV rated

Bypass Contactor

- Vacuum type
- 3.3 kV rated
- Automatic transfer after successful starting

13. **Auxiliary Relays**

Minimum three programmable output relays:

1. Immediate Relay
2. End of Acceleration Relay
3. Fault Relay

Relay Contacts:

- 1 Changeover Contact
- 8 A at 250 VAC

14. **Safety Features**

The starter shall include:

- Door interlock arrangement.
- HV-LV compartment segregation.
- Earthing provisions.
- Anti-restart function after power restoration.
- Emergency stop circuit.
- Fibre optic isolation between control and power circuits.

15. **Testing**

The following tests shall be conducted at manufacturer's works:

Routine Tests

- Visual Inspection
- Wiring Verification
- Functional Test
- Insulation Resistance Test
- HV Withstand Test
- Operational Test
- Protection Verification

Special Tests

- Partial Discharge (Corona) Test
- Functional Simulation Test
- Control Logic Verification

Test certificates shall be submitted along with supply.

16. **Documents to be Submitted**

The bidder shall furnish:

- GA Drawing
- Schematic Diagram
- Terminal Diagram
- Bill of Materials
- Type Test Certificates
- Routine Test Certificates
- O&M Manual
- Commissioning Manual
- Spare Parts List

17. **Warranty**

The equipment shall be warranted for: 24 months from commissioning or 30 months from supply, whichever is earlier.

18. Make

Acceptable Makes:

- Solcon
- Toshiba
- Siemens
- ABB
- Schneider Electric
- Equivalent approved make

The offered equipment shall be technically equivalent or superior to the specified requirements.

Superintending Engineer (Elec)-I