Dockyard & Engineering Works Ltd.

Bangladesh Navy

Sonakanda, Bandar, Narayanganj-1413, Bangladesh

PABX: +88-02-223303512, Fax: +88-02-223303501

E-mail: plans@dewbn.gov.bd, Web: www.dewbn.gov.bd

Ref: 06.02.6758.165.44.407.26.**204** Date: **26** January 2026

EXPRESSION OF INTEREST (EOI)

1. Dockyard & Engineering Works Ltd, Bangladesh Navy, Sonakanda, Bandar, Narayanganj-1413 intends to have offer for **Supply and Installation of IC Workshop Equipment (Package-GD-32,Lot-3)** from a reputed OEM/OEM Authorized Agent/supplier. Short description of the tender is as follows:

a. **Name of Equipment and Quantity.** List of equipment under package GD-32 (Lot-3) as follows:

Ser.	Name Workshop	Name of the Equipment	Qty
(1)	ICE Shop	Valve Seat Grinding Machine.	1
(2)		Valve Spring Tester Machine.	1
(3)		Bench Grinding Machine.	1
(4)		Cylinder Head Water Pressure Test Machine.	1
(5)		Valve Seat Lapping Tools (Power).	1
(6)		POP Tester.	1
(7)		EFI Injector Test Bench.	1
(8)		Crankshaft Grinding Machine.	1
(9)		Universal Fuel Pump Test Bench.	1
(10)		Crankshaft Deflection Indicator.	1
(11)		Nozzle Repairing Bench.	1

b. **Country of Origin**. As described in the technical specification of individual items.

c. **Manufacturing Country**. As described in the technical specification of individual items.

d. **Basic Technical Specification**. As described in the technical specification of individual items.

e. **Standard**. The items/equipment are to be brand new and original design and constructed fulfilling the requirements of international standard of health and safety. The standard to which the quoted items comply with are to be clearly specified in details with the offer. Standard Class certifications to be attached.

f. **Qualification of Bidder**. The bidder is to be authorized by OEM/ OEM authorized agent/ dealer for the supply of the items as per this tender. In case of offer from OEM authorized agent/ dealer, certification of documents of such authorization/ agency/ dealership of OEM to the authorized agent/dealer is to be provided along with the offer. And also must have following documents:

(1) Import registration certificate.
(2) Attested copy of Valid Trade License or equivalent license.
(3) VAT/ Business Registration Certificate.
(4) Updated TIN/ equivalent certificate and Tax Payment Certificate.
(5) Bank Solvency Certificate etc.

Dockyard & Engineering Works Ltd.
Bangladesh Navy
Sonakanda, Bandar, Narayanganj-1413, Bangladesh
PABX: +88-02-223303512, Fax: +88-02-223303501
E-mail: plans@dewbn.gov.bd, Web: www.dewbn.gov.bd

2. nterested OEM/ OEM authorized agent/ Supplier are hereby requested to contact following person of Planning & Design (P&D) department of DEW:

MD SHAHADAT HOSSAIN RUBEL
Deputy Chief Engineer
Planning & Design Department
Dockyard &Engineering Works Ltd.
Bangladesh Navy
Sonakanda, Bandar, Narayanganj-1413.
Cell: +880 1769-719815
Email: dewltd.tender@gmail.com

3. Interested design firm/ shipbuilder/ supplier will have to submit all documents with signed and sealed by **29 January 2026** as per detailed Technical Specification of EOI (attached as enclosure).

4. Offer Validity: 120 days after submission.

5. DEW reserves all right to reject all or any part of the EOI prior to acceptance without showing any reason.

MD. TYEBUL ISLAM
Deputy Chief Engineer (Naval Architect)
For Managing Director

Enclosure:

1. Technical Specification - 34 (Thirty Four) pages

Section 7. TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATION ICE WORKSHOP EQUIPMENT

1. **Name of Equipment and Quantity.** List of equipment under package GD-32 (Lot-3) as follows:

Ser	Name Workshop	Name of the Equipment	Qty
a.	ICE Shop	Valve Seat Grinding Machine	1
b.		Valve Spring Tester Machine	1
c.		Bench Grinding Machine	1
d.		Cylinder Head Water Pressure Test Machine	1
e.		Valve Seat Lapping Tools (Power)	1
f.		POP Tester	1
g.		EFI Injector Test Bench	1
h.		Crankshaft Grinding Machine	1
i.		Universal Fuel Pump Test Bench	1
j.		Crankshaft Deflection Indicator	1
k.		Nozzle Repairing Bench	1

2. **Manufacturer**. Name, full address with e-mail and website of manufacturer are to be mentioned.

3. **Year of Manufacturing**. As described in the technical specification of individual items.

4. **Country of Origin**. As described in the technical specification of individual items.

5. **Manufacturing Country**. As described in the technical specification of individual items.

6. **Local Agent**. Name and Full address with e-mail of the local agent is to be mentioned (If any).

7. **Supplier/ Principal**. Name, Full address with e-mail and website of the supplier and manufacturer are to be mentioned.

8. **Standard**. The items/equipment are to be brand new and original design and constructed fulfilling the requirements of international standard of health and safety. The standard to which the quoted items comply with are to be clearly specified in details with the offer. Standard Class certifications to be attached.

9. **Qualification of Bidder**. The bidder is to be authorized by OEM/ OEM authorized agent/ dealer for the supply of the items as per this tender. In case of offer from OEM authorized agent/ dealer, certification of documents of such authorization/ agency/ dealership of OEM to the authorized agent/dealer is to be provided along with the offer.

10. **Certificate/Document of Authentication**. The bidder must provide the following certificate/ document with the offer/ quotation of items. Certificate/ document required for all items listed in paragraph 1.

(a). One certificate/ document by the manufacturer in favor of the bidder (in case of manufacturer as direct source).

(b). Two certificates/ documents, one by the manufacturer to authorized agent and other by the authorized agent to bidder (in case of authorized agent as immediate source).

(c). Three certificate/ documents, first one by the manufacturer to authorized agent, second one by authorized agent to sub-agent and third one by sub-agent to bidder (in case sub-agent as immediate source). If the bidder is unable to obtain the first certificate (by manufacturer to authorized agent), then it has to produce relevant document to prove agency-ship of its claimed agent of the recognized manufacturer.

11. **Scope of Supply**. The scope of supply is to include the followings:

a. Complete set of Valve Seat Grinding Machine, Valve Spring Tester Machine, Bench Grinding Machine, Cylinder Head Water Pressure Test Machine, Valve Seat Lapping Tools (Power), POP Tester, EFI Injector Test Bench, Crankshaft Grinding Machine, Universal Fuel Pump Test Bench, Crankshaft Deflection Indicator and Nozzle Repairing Bench as per technical specification with standard accessories including all fittings, fixtures mountings, and other necessary items whether mentioned or not make it practically functional for immediate operation.

b. Main items complete with all items necessary for immediate all types of operation without the requirement of any other items (attachments, accessories, consumables etc)

c. All types of Civil and Electrical works for anchoring and installation of the machines are to be done by supplier as per OEM drawing and directives.

d. Tools/ Special Tools

e. Spare parts and Consumables.

f. Documentation.

g. Local training for operation and routine maintenance.

h. Any other items/ accessories essential for the immediate operation of the items whether mentioned above or not are to be provided within the scope of supply.

i. Testing and inspection.
j. FAT/PSI/Foreign training in factory as applicable.

12. **Operating Environment**. Goods with accessories are to be designed to operate in the following ambient condition:

Ser	Description	Specification
a.	Air temperature	5^0 C to 45^0 C
b.	Water temperature	5^0 C to 40^0 C
c.	Relative humidity	Up to 95 % (Non-condensing)
d.	Location	On the east bank of Meghna River at Gazaria, Munshigonj, Bangladesh
e.	Wind Speed	Average wind speed 4.5 m/sec (round the year) and Max. sustained wind speed 57.1 m/sec (Non operating).
f.	Exposure	C
g.	Seismic Zone	Zone-02

13. **Necessary Accessories**. Main item with manufacturer recommended all standard and necessary accessories and attachments for smooth and immediate operation of the machine without the requirement of any other items (attachments, accessories, consumables, etc.) to be supplied with the required goods. A list of standard and necessary accessories should be submitted with the offer.

14. **Spare Parts**. A list of recommended fast moving spare parts with item wise price for machineries is to be provided with the quotation.

15. **Design and Record of Sales.** The quoted items should be newly made, latest model and up to date design incorporating modern technology. The original catalogue/brochure in support of the offered item is to be submitted with the quotation.

16. **Tools/ Special Tools.** 01 (one) set of tools and 01 (one) set of special tools for the operation, maintenance and repair of the machineries are to be supplied by supplier (price included in the total price).

17. **Optional Spares.** A list of optional spare parts is to be quoted separately with item wise price. The price of optional item will not be included with main offer.

18. **Documents**. Two (02) sets of following documents (in English language) are to be provided free of cost along with the machine:

a. Operation and maintenance manual.
b. Workshop level repair manual (including various repair instruction, clearance, tolerance, material specifications, etc).
c. Installation instruction and drawings.
d. Parts catalogue for all supplied items.

19. **Warranty**.

a. Minimum 12 (Twelve) Month's warranty for trouble free operation is to be provided by the supplier/ manufacturer for the item from the date of acceptance by the buyer after satisfactory test trial and issuing of acceptance certificate. If any component of the supplied items becomes defective during the warranty period, the warranty shall be extended automatically (for relevant component) for the period of the subject component remains defective.

b. For warranty repair/ replacement, the supplier will collect the defective item from Bangladesh Coast Guard Dockyard, Gozaria, Munshigonj, Bangladesh (as applicable) and re-supply the same to collecting place after warranty repair or for replacement within 90 (ninety) days from the date of defect at no cost to the purchaser.

20. **Guarantee**. The supplier is to give guarantee to supply service support and spare parts for at least 10 years at reasonable price.

21. **Technical Support**. Technical support is to be provided to solve any maintenance and operational problem arising with the item during the warranty period at free of cost.

22. **Quality Assurance Certificate**. Quality assurance certificate and factory test certificate in respect of the associated equipment in regard to its manufacturing and performance is to be provided at the time of delivery of the items. ISO/CE/equivalent certification need to be provided.

23. **Safety standard.** All tools must comply with an internationally recognized safety standard. The standard to which it complies must be mentioned with the offer.

24. **Test, trial and Acceptance**.

a. Factory Acceptance Test (FAT).

b. Site Acceptance Test (SAT): Valve Seat Grinding Machine, Valve Spring Tester Machine, Bench Grinding Machine, Cylinder Head Water Pressure Test Machine, Valve Seat Lapping Tools (Power), POP Tester, EFI Injector Test Bench, Crankshaft Grinding Machine, Universal Fuel Pump Test Bench, Crankshaft Deflection Indicator and Nozzle Repairing Bench will be jointly tested at site after successful installation and commissioning with load (SWL), overload and dynamic condition.

c. After satisfactory test trials an acceptance certificate will be provided by the Chief Inspector & Quality Control (CI & QC) of Bangladesh Coast Guard.

d. Cost of test/trials and commissioning of all items have to be provided by the supplier. However, for the test trail the required materials has to be provided by Supplier.

25. **Local Service Support**. The supplier must ensure the availability of a local service support team in Bangladesh for maintenance, troubleshooting, and after-sales service.

The team shall:

a. Respond to service calls within 3 working days

b. Provide on-site support at BCG Dockyard, Gazaria

The offer must include:

a. Details of the local service provider (name, address, contact)

b. CV of key technical personnel (at least 3 in number 5 years experienced engineer)

26. **Shipment & Delivery**.

a. The equipment and all other required items are to be delivered within 06 Months from the date of signing the contract to the following consignee:

Project Director

"Establishment of Logistics and Fleet Maintenance Facilities for Bangladesh Coast Guard" project

Headquarters

Bangladesh Coast Guard

Agargaon Administrative Area

Sher-E-Bangla Nagor, Dhaka-1207

b. All items with all other associated accessories has to be delivered to the installation site at Bangladesh Coast Guard Dockyard at Gazaria, Munshiganj.

c. Initial inspection will be carried out by Chief Inspector & Quality Control (CI & QC) of BCG.

d. All items are to be delivered in sea worthy packing to ensure safe transit by sea.

e. All packages are to have packing notes showing their contents in detail and all packages shall be marked with the name and address of the consignee and gross weight.

27. **Port of Shipment.** Valve Seat Grinding Machine, Valve Spring Tester Machine, Bench Grinding Machine, Cylinder Head Water Pressure Test Machine, Valve Seat Lapping Tools (Power), POP Tester, EFI Injector Test Bench, Crankshaft Grinding Machine, Universal Fuel Pump Test Bench, Crankshaft Deflection Indicator and Nozzle Repairing Bench must be shipped from any port from the Country of Manufacturer or Country of Origin (Relevant document is to be submitted prior to shipment of the items).

28. **Local training**. Operation and Maintenance Training will be provided by OEM/authorized representative for 05 (Five) working days. All expenditure related to trainer will be borne by supplier.

29. **Condition for Acceptance of Quotation**. Quotation may not be considered if detailed information/ specifications, original maker's books and catalogue about the same model of the offered item, accessories, scope of supply etc. are not provided.

30. **Audio visual presentation**. It shall be better, the bidder provides sufficient audio-visual presentation like videos, online contents, ppt etc. for explaining the general and technical specification of the equipment (If applicable).

31. **Terms of payment**. After satisfactory test, trial and acceptance by Chief Inspector & Quality Control (CI & QC) of BCG payment will be made in local currency as per the existing rule.

32. **Pre-Shipment Inspection (PSI) / FAT/Foreign Training.** Factory acceptance test (FAT)/ pre-shipment inspection (PSI)/ Foreign Training in factory will be carried out for **EFI Injector Test Bench, Crankshaft Grinding Machine, Universal Fuel Pump Test Bench**. FAT /PSI/Foreign Training by a team of three (03) Officers (Engineering background) for a duration of total three (03) days excluding journey. The supplier shall inform the buyer about the date and schedule of FAT /PSI/foreign training at least 08 (eight) weeks prior to the date of commencement of the said FAT /PSI/foreign training. After inspection a joint inspection report will be prepared and singed by both the seller and buyer's representatives. All costs related to FAT /PSI/Foreign Training has to be quoted separately with the offer. **The Relevant cost of FAT/PSI/foreign training Must be included in Final offered Price.**

33. **Compliance Statement**. A compliance statement fulfilling the entire requirement mentioned above to be meticulously prepared by supplier and submitted for proper evaluation of offer. Any deviation from the specification is also to be mentioned in the offer. Mentioning of "Yes/ No/ Complied" will not be enough. An incomplete compliance statement may attribute to cancellation of the offer. Necessary brochures/ catalogues are to be submitted with the offer to validate compliance statement.

34. **Site Visit.** To ensure a clear understanding of the installation environment and logistical conditions, interested bidders are encouraged to visit the project site at Bangladesh Coast Guard Dockyard, Gazaria, Munshiganj, prior to submitting their offer.

Note: The detail technical specification of the individual items is given in the subsequent paragraphs.

A. SPECIFICATION OF VALVE SEAT GRINDING MACHINE

1. **Name of Equipment.** Valve Seat Grinding Machine.

2. **Purpose.** For precision grinding, refacing, and reconditioning of valve seats of internal-combustion engines (marine, industrial, diesel and petrol), ensuring accurate geometry, concentricity, and proper sealing between valve and seat.

3. **Quantity.** 01 (one) in number Set.

4. **Year of Manufacture.** 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan, South Korea Turkey and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, South Korea, Singapore, Turkey, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Valve Seat Grinding Machine
2.0	Brand/ Model	To be mentioned.
3.0	Type / Configuration	Bench-type or portable precision valve-seat grinding machine with high-speed spindle, micrometric feed control, and adjustable angular setting for multi-angle seat machining.
4.0	Working Range (Valve Seat Ø)	Up to 180 mm or better for large diesel and marine engine applications.
5.0	Spindle Drive Motor	As per OEM standard. Details to be mentioned. (with thermal protection preferred)
6.0	Grinding Wheel Speed	As per OEM standard. Details to be mentioned.; electronically controlled stepless speed regulation for optimal finish on different valve seat materials (steel, cast iron, bronze etc.).
7.0	Valve Seat Angle Machining Range	**Continuously adjustable from up to 90°**, allowing machining of any desired seat angle for intake and exhaust valves. Angle adjustment shall have graduated scale and locking arrangement for repeatable precision.
8.0	Valve Seat Length of Cut	Adjustable stroke up to 60 mm (minimum) or better to suit different seat diameters and depths.
9.0	Spindle Feed	As per OEM standard. Details to be mentioned.
10.0	Holders and Tooling	Supplied with complete set of pilots, holders, and grinding stones for various seat diameters and materials; grinding

		stones of corundum, CBN or diamond type or as per OEM standard. Details to be mentioned. It must be high-yield and wear-resistant.
11.0	Control Unit	As per OEM standard. Details to be mentioned; stepless speed variation through electronic frequency inverter.
12.0	Construction	Heavy-duty, rigid, vibration-damped structure manufactured from cast iron or steel, ensuring concentricity and long-term dimensional stability.
13.0	Ease of Use	Quick-mount system for pilots and holders; rapid angle setting; ergonomic controls and compact design for user comfort and efficient operation.
14.0	Accuracy / Repeatability	As per OEM standard. Details to be mentioned.
15.0	Noise Level	As per OEM standard. Details to be mentioned.
16.0	Safety Features	OEM standard safety features are to be provided limited to. Details are to be mentioned.
17.0	Dimensions / Weight	As per OEM standard. Details to be mentioned.
18.0	Power Supply	220 V ± 10 %, 50 Hz (single phase) or 415 V ± 10 %, 50 Hz (three phase), as per OEM design.
19.0	Standard Accessories	OEM standard accessories are to be provided for safe immediate operation including Complete set of grinding but not limited to: stones, holders, pilots, dressers, extension shafts, and maintenance tool kit for standard operation.
20.0	Optional Accessories	OEM standard accessories are to be provided and quoted separately.
21.0	Documentation	Operation and Maintenance Manual, Spare Parts List, Calibration Certificate (if applicable), and OEM Warranty Certificate.
22.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
23.0	Packaging	OEM-recommended, fully sealed, seaworthy wooden box with shock-absorbent lining and anti-corrosion protection.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Valve Seat Grinding Machine (Only for information purpose and may differ from actual products)

B. SPECIFICATION OF VALVE SPRING TESTER MACHINE

1. **Name of Equipment.** Valve Spring Tester Machine.

2. **Purpose.** For precise testing and measurement of valve spring tension, compression rate, and load at specified heights of internal combustion engine valve springs. Suitable for workshop, marine, and industrial applications.

3. **Quantity.** 01 (One) in number

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan, Turkey and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, Turkey, Singapore, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Valve Spring Tester Machine
2.0	Brand/ Model	To be mentioned.
3.0	Type / Configuration	Bench-mounted or portable digital valve spring tester with precision digital load and travel readout. Heavy-duty, workshop-grade construction.
4.0	**Technical Parameters**	
4.1	Spring Capacity	Minimum up to 2 inches (≈ 50 mm) compression range
4.2	Load Measurement Range	Up to at least 1000 lbs (≈ 450 kgf) with accuracy ± 1 % or better
4.3	Load Cell	High-precision electronic load cell with factory calibration certificate
4.4	Travel Capacity	Minimum 5 inches (≈ 125 mm) adjustable stroke
4.5	Readout System	Digital display for **load (kgf / lbf / N)** and **travel (mm / inch)** with real-time readings
4.6	Measurement Unit Selection	Selectable **kgf / lbf / N** (pound-to-kg switchable)
4.7	Resolution /	As per OEM standard. Details to be mentioned.

	Accuracy	
4.8	Construction Material	Rigid anodized **aluminum** or equivalent corrosion-resistant steel frame
4.9	Operation	Manual compression using precision lead-screw and hand wheel with synchronized digital reading
4.10	Power Supply (if applicable)	AC 220 V ± 10 %, 50 Hz single-phase or internal battery-operated or as per OEM design
4.11	Calibration	Factory calibrated with traceable calibration certificate. Must be comply with international standard.
4.12	Safety Features	As per OEM standard safety features are to be provided but not limited to. Details to be mentioned.
4.13	Display / Control Panel	As per OEM standard. Details to be mentioned.
5.0	Accessories & Consumables	OEM recommended standard accessories are to be provided for immediate safe operation including, but not limited to: adapters, fixtures, power cable, calibration tools, and operation manual.
6.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
7.0	Overall Dimension & Weight	As per OEM standard. Details to be mentioned.
8.0	Packaging	OEM-recommended, fully sealed, seaworthy, shock-protected package with all accessories and manuals.
9.0	Standards & Compliance	Shall comply with relevant international standards (ISO / ASTM / EN or equivalent) for spring-testing instruments.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Valve Spring Tester Machine (Only for information purpose and may differ from actual products)

C. SPECIFICATION OF BENCH GRINDING MACHINE

1. **Name of Equipment.** Bench Grinding Machine.

2. **Purpose.** For precision grinding, sharpening, deburring, and finishing of cutting tools and components in general workshop and maintenance applications.

3. **Quantity.** 01 (One) in number

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan, China, Singapore, Turkey and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, China, Turkey, Singapore, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	**Description**	**Specification (Minimum Requirement)**
1.0	Name of Equipment	Bench Grinding Machine
2.0	Brand/ Model	To be mentioned.
3.0	Type / Configuration	Heavy-duty **Double-Wheel Bench Grinder**, bench or pedestal mountable, industrial grade.
4.0	Wheel Size (Diameter × Width)	Approx. 200 × 25 mm or better
5.0	No-Load Speed	Up to 3000 RPM or better. (to be mentioned)
6.0	Motor Power	As per OEM standard. Details to be mentioned. It is to be copper-wound induction motor, continuous duty.
7.0	Power Supply	220–240 V, 50 Hz, Single Phase AC.
8.0	Axle / Shaft Diameter	As per OEM standard. Details to be mentioned.
9.0	Grinding Wheels	Two aluminous oxide wheels – As per OEM standard. Details to be mentioned.

10.0	Tool Rest	Adjustable, precision-ground tool rests on both sides.
11.0	Safety Features	OEM recommended safety features are to be provided including, but not limited to: Adjustable spark guards, transparent eye shields, full wheel guards, anti-vibration rubber mounts, and overload protection etc.
12.0	Switch / Control	Industrial ON/OFF switch with dust protection and no-voltage release.
13.0	Construction	Rigid cast-iron or cast-aluminum body; dynamically balanced rotor for vibration-free operation.
14.0	Standard Accessories	OEM recommended standard accessories are to be provided but limited to for safe immediate operation including Coarse & fine grinding wheels, eye shields, tool rests, spark arrestors, 3-pin plug & cable, operator manual.
15.0	Optional Accessories	OEM recommended optional accessories are to be provided and quoted separately
16.0	Noise Level	As per OEM standard. Details to be mentioned.
17.0	Standards & Compliance	Must be complied with international standard. Details to be mentioned.
18.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
19.0	Testing & Acceptance	Factory tested for balance, insulation, and no-load operation; inspection report to be provided.
20.0	Packaging	OEM-recommended, fully sealed, seaworthy package including all accessories.
21.0	Weight and Dimension	As per OEM standard. Details to be mentioned.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Bench Grinding Machine (Only for information purpose and may differ from actual products)

D. SPECIFICATION OF CYLINDER HEAD WATER PRESSURE TEST MACHINE

1. **Name of Equipment.** Cylinder Head Water Pressure Test Machine.

2. **Purpose**. For precision testing of internal-combustion-engine cylinder heads and blocks under adjustable air and water pressure to detect cracks, porosity, or leakage in cooling or oil passages.

3. **Quantity.** 01 (One) in number set.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, South Korea, Japan and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, South Korea, Singapore, Japan, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Cylinder Head Water Pressure Test Machine
2.0	Brand/ Model	To be mentioned.
3.0	Machine Type / Configuration	Electrically heated, hydraulically operated **Cylinder Head Water Pressure Testing Machine** with adjustable mounting cradle, 360° motorized rotation, and submerged leak-testing in a thermostatically controlled stainless-steel tank. Compact, floor-mounted, ergonomic design.
4.0	Technical Parameters	
4.1	Cylinder Head Size Capacity (L × W × H)	Minimum **1350 × 380 × 300 mm** or larger (to accommodate medium and large diesel heads).
4.2	Maximum Cylinder Head Weight	To be mentioned
4.3	Test Pressure Range (Adjustable)	**0 – 10 bar** adjustable with precision pressure regulator and gauge.
4.4	Working Temperature Range (Adjustable)	Ambient to **90 °C**, controlled by digital thermostat and display.
4.5	Vertical Travel of Cradle / Fixture	Minimum **550 mm**, hydraulically operated with smooth travel and safety lock.
4.6	Rotation of Cradle /	**360° motorized rotation**, approx. 4 rpm, allowing

	Basket	complete visual inspection under water.
4.7	Water Tank Capacity	As per OEM standard. Details to be mentioned.
4.8	Heating Power	As per OEM standard with immersion heaters with automatic temperature control and safety cut-off.
4.9	Hydraulic Power Unit	As per OEM standard. Details to be mentioned.
4.10	Rotation Gear Motor	As per OEM standard. Details to be mentioned.
4.11	Total Connected Power	To be mentioned as per local regulation. (at 3 Phase 415 V (±10%), 50 Hz).
4.12	Control System	As per OEM standard. Details to be mentioned.
4.13	Leak Detection Method	As per OEM standard. Details to be mentioned.
5.0	Tank Construction	Heavy-gauge stainless-steel tank with heat insulation, corrosion resistant finish, bottom drain valve, and removable filter screen.
6.0	Safety Features	OEM recommended safety features are to be provided but not limited to.
7.0	Standard Accessories (Supplied with Machine)	OEM recommended all necessary standard accessories are to be provided for safe immediate operation including, but not limited to: hoses, clamps, fixtures, sealing adaptors, pressure regulator, gauges, hooks etc. Necessary civil and electrical works for anchoring and installation are to be done by supplier.
8.0	Optional Accessories (Quoted Separately)	OEM recommended all necessary optional accessories are to be provided and quoted separately
9.0	Overall Dimensions / Weight	Exact figures to be declared by manufacturer.
10.0	Documentation & Marking	Operator's manual, maintenance instructions, electrical diagram, hydraulic schematic, and calibration certificate to be provided. All nameplates shall bear model, serial no., voltage, and OEM name.
11.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
12.0	Packaging & Delivery	OEM-recommended, fully sealed, sea-worthy wooden box complete with protective packing and all accessories.
13.0	Standards & Compliance	Shall conform to international standard including for safety and electrical standards. Details to be mentioned. All pressure vessels and fittings to comply with ASME / EN or equivalent pressure equipment directives.

Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.

Picture of Cylinder Head Water Pressure Test Machine (Only for information purpose and may differ from actual products)

E. SPECIFICATION OF VALVE SEAT LAPPING TOOLS (POWER)

1. **Name of Equipment.** Valve Seat Lapping Tools (Power).

2. **Purpose**. The equipment shall be used for precision finishing and polishing of valve-to-seat contact areas in internal combustion engines, ensuring airtight sealing and uniform contact to improve engine performance, compression, and efficiency.

3. **Quantity.** 01 (One) in number set.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, South Korea, Japan and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, South Korea, Singapore, Japan, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Valve Seat Lapping Tools (Power)
2.0	Brand/ Model	To be mentioned.
3.0	Type / Configuration	Portable, electrically operated, cordless or corded type, lightweight valve seat lapping tool set complete with accessories and consumables, suitable for precision reconditioning and finishing of valve seats of various engine sizes.
4.0	Main Features	The valve seat lapping tool shall be compact, lightweight, and ergonomically designed for precise finishing of valve seats in engines. It shall have a variable two-speed gearbox with adjustable torque control, smooth speed regulation, forward/reverse rotation, and low noise and vibration for operator comfort. The tool shall include a keyless chuck (8–10 mm), battery-level indicator, and safety features. It shall be compatible with standard lapping discs and adapters of various sizes and supplied with belt hook, charger, and accessories for efficient workshop and on-site use. Details to be mentioned.
5.0	Chuck Size	8–10 mm capacity, keyless precision chuck.
6.0	Drilling / Lapping Capability	Suitable for 8–10 mm drive spindles or adapters for metal surfaces; torque and speed adequate for precise valve seat finishing.
7.0	Torque (Min.)	24 Nm or higher.

8.0	No-Load Speed	As per OEM standard. Details to be mentioned.
9.0	Impact Rate (if applicable)	As per OEM standard. Details to be mentioned.
10.0	Power Source / Battery	Rechargeable Li-ion battery (minimum 12 V, 2.0 Ah or above), with one additional spare battery pack and standard charger.
11.0	Standard Accessories	OEM recommended standard accessories are to be provided for safe and immediate operation of the machine including, but not limited to a complete set of valve lapping adapters and discs of various sizes, extension shafts, valve holding and centering attachments, lapping compounds/paste, spare battery pack, battery charger, belt hook or storage clip, maintenance tools, and an English operation and maintenance manual — all packed in the OEM-supplied durable carrying case for safe handling and transport.
12.0	Overall Dimensions	As per OEM standard. Details to be mentioned.
13.0	Overall Weight	As per OEM standard. Details to be mentioned.
14.0	Noise Level	As per OEM standard. Details to be mentioned.
15.0	Safety Features	As per OEM standard safety features are to be provided but not limited to. Details to be mentioned.
16.0	Standards / Compliance	Conforming to relevant international standards. Details to be mentioned
17.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
18.0	Packaging	OEM-recommended, fully sealed, seaworthy export-grade packaging complete with all accessories.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Valve Seat Lapping Tools (Power) (Only for information purpose and may differ from actual products)

F. SPECIFICATION OF POP TESTER

1. **Name of Equipment.** Pop Tester.

2. **Purpose**. For precise testing and calibration of diesel fuel injector nozzles used in marine and industrial diesel engines. Capable of measuring opening (pop) pressure, spray pattern, atomization quality, leakage, and chatter test.

3. **Quantity.** 01 (one) in number set.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, South Korea, Japan and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, South Korea, Singapore, Japan, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	POP Tester
2.0	Brand/ Model	To be mentioned.
3.0	Applicable Standard	Must be complied with International standard for fuel injection testing equipment. Details to be mentioned.
4.0	Type / Configuration	Manual or semi-automatic precision injector pop tester with integrated gauge and fine-control hand lever; suitable for high-pressure injector testing up to 700 bar or more.
5.0	Maximum Test Pressure	Minimum 700 bar. Pressure gauge graduated in both bar and MPa.
6.0	Pump Output Volume	As per OEM standard. Details to be mentioned.
7.0	Pressure Adjustment Control	Fine-thread manual control with non-return valve ensuring smooth pressure rise for accurate reading.
8.0	Thread Size (Main Connection)	M22 × 1.5 mm (approx.) or OEM standard.
9.0	Additional Thread Sizes	Interchangeable adaptors for M24 × 1.5 mm, M27 × 1.5 mm, and M30 × 1.5 mm injector fittings (minimum one of each to be supplied) or OEM standard.
10.0	Functions / Tests Performed	It consists of fol functions, but not limited to: a) Opening (Pop) Pressure Test b) Spray Pattern Test c) Atomization / Chatter Test d) Seat Leakage Test e) Back Leakage Test.

11.0	Display / Indication	As per OEM standard. Details to be mentioned.
12.0	Filter & Return System	As per OEM standard. Details to be mentioned.
13.0	Fluid Reservoir Capacity	Made of corrosion-resistant steel or aluminum; compatible with standard calibration fluid. Capacity is to be as per OEM standard. Details to be mentioned.
14.0	Construction	As per OEM standard. Details to be mentioned.; all wetted parts corrosion-resistant.
15.0	Test Fluid Compatibility	As per OEM standard. Details to be mentioned.
16.0	Safety Features	OEM recommended safety feature are to be provided but not limited to.
17.0	Accessories & Consumables (Standard Supply)	OEM recommended standard accessories are to be provided including, but not limited to: Test pipes with connectors (M22 × 1.5, M24 × 1.5, M27 × 1.5, M30 × 1.5) or OEM standard , Set of sealing washers and O-rings c) 1/4" or OEM standard Bit Set and screws (minimum 100 pcs), Filter element (spare × 2), Calibration fluid – 1 liter bottle.
18.0	Optional Accessories (Quote Separately)	OEM recommended optional accessories are to be provided and quoted separately.
19.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
20.0	Overall Dimensions and Weight	As per OEM standard. Details to be mentioned.
21.0	Documentation	OEM test certificate, user manual, and spare parts list in English.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of POP Tester Bench (Only for information purpose and may differ from

actual products)

G. SPECIFICATION OF EFI INJECTOR TEST BENCH

1. **Name of the Equipment**. EFI Injector Test Bench.

2. **Purpose.** For precision testing, calibration, and performance evaluation of electronic diesel injectors and fuel-injection pumps used in marine, automotive, and industrial engines. Suitable for all diesel injection systems used in Bangladesh Coast Guard service machinery.

3. **Quantity**. 01 (One) in number set.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan Turkey and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, Turkey, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	EFI Injector Test Bench
2.0	Brand/ Model	To be mentioned.
3.0	Type / Configuration	Computerized, multi-functional diesel injector and pump test bench of handling all modern electronics pumps and injectors.
4.0	Drive Motor	Minimum 20 HP or better.
5.0	Speed Range	As per OEM standard. Details to be mentioned
6.0	Control & Display System	Integrated with machine or as per OEM standard. Details to be mentioned
7.0	Metering System	Built in electric metering system as per OEM standard. Details to be mentioned
8.0	Test Oil Supply Pump	Minimum 500 L/h capacity with filtration and automatic pressure regulation.
9.0	Test Oil Feed Pressure	Up to 25 bar or better
10.0	Test Oil Phasing	Up to 35 bar or better

	Pressure	
11.0	Flow Meters	As per OEM standard. Details to be mentioned
12.0	Tachometer	As per OEM standard. Details to be mentioned
13.0	Cooling / Water Supply Requirement	Integrated cooling system is to be provide water as per OEM standard. Details to be mentioned
14.0	Temperature Control	Automatic control as per OEM standard. Details to be mentioned.
15.0	Calibration Fluid	As per OEM standard. Details to be mentioned. Must be international standard.
16.0	Work Table Height	As per OEM standard. Details to be mentioned
17.0	Test Oil Tank Capacity	As per OEM standard. Details to be mentioned
18.0	Injector Coding	To be provided.
19.0	Display	Built in to be provided.
20.0	Dual Rail System	To be provided.
21.0	Control System	The machine shall be equipped with a state-of-the-art NC or PLC or CNC-based control system for precise, repeatable, and safe operation. The system shall include a color LCD/LED display for real-time status. The control system shall operate through both stand-alone mode (local operation independent) and integrated mode. It shall have minimum storage capacity of 100 programs and data backup facility. The Supplier shall supply free software support, firmware updates or upgrades for a minimum of 15 years from commissioning, ensuring continued compatibility and performance enhancement without additional cost.
22.0	Diesel System Testing Capability	The bench shall be capable of testing, calibrating, and analyzing all major types of diesel fuel-injection systems used in modern automotive, industrial, and marine engines. It shall support testing of **common-rail pumps and injectors**, **unit injectors (EUI)**, **unit pumps (EUP)**, **hydraulic-electronic unit injectors/pumps (HEUI / HUEP)**, **high-pressure injection (HPI)**, **electronic control (E3 or equivalent)**, and **mechanically / electronically governed inline and distributor pumps**. The system shall measure and display injection pressure, fuel delivery rate, back-leak flow, injection timing, and solenoid response, and shall simulate various engine conditions (idle, partial load, full load) for diagnostic and calibration purposes.
23.0	Standard Accessories	OEM recommended accessories are to be provided but not limited to for safe accurate and immediate operation of the

	(Supplied with Bench)	machine including fol: • Common-rail pump mounting bracket • Standard common-rail injector set • HEUI pump and injector kits • EUI Cambox assembly • HPI test kit • E3 controller • PT pump and injector kits • 1 × 20 L calibration fluid container • All connection hoses, couplings, fixtures and tool sets required for operation etc.
24.0	Additional Kit	In addition, 5 types Injector kit to be provided which are available in Bangladesh Coast Guard Boats/Ships for versatile operation of the machine. Size, dimension and exact photo to be mentioned. Price is to be included within the offer.
25.0	Safety Features	OEM recommended safety features are to be provided including, but not limited to: Emergency stop switch, motor overload protection, temperature and pressure alarm system, leak detection shutdown, transparent safety shield around test area, and anti-vibration mounts.
26.0	Noise Level	OEM recommended accessories are to be provided
27.0	Weight (Approx.)	As per OEM standard. Details to be mentioned
28.0	Dimensions (Approx.)	As per OEM standard. Details to be mentioned
29.0	Power Supply	415 V ((± 10 %) AC, 50 Hz, 3-Phase with protective earthing and surge protection.
30.0	Construction & Finish	Heavy-duty welded steel frame with powder-coated, corrosion-resistant finish suitable for marine workshop environment.
31.0	Software & Data Handling	Built-in controller with programmable test profiles, automatic data logging as per OEM standard. Details to be mentioned. Updated software support is to be provided with free of cost.
32.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
33.0	Packaging & Delivery	OEM-recommended seaworthy packaging including all standard accessories, user manuals, electrical drawings, and calibration certificates.
34.0	Standards & Compliance	Conforming to international standards such as ISO (Fuel Calibration Fluid), IEC (Machine Safety), and CE Machinery Directive or equivalent. Details to be mentioned. All components shall be from proven industrial sources with long-term spare availability.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of EFI Injector Test Bench (Only for information purpose and may differ from actual products)

H. SPECIFICATION OF CRANKSHAFT GRINDING MACHINE

1. **Name of Equipment.** Crankshaft Grinding Machine.

2. **Purpose**. The machine shall be used for precision grinding, reconditioning, and restoration of crankshaft journals, pins, and fillets of marine and industrial diesel engines to original geometrical accuracy, ensuring proper roundness, surface finish, and dimensional tolerance.

3. **Quantity.** 01(One) in number set.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, South Korea, Japan and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, South Korea, Singapore, Japan, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Crankshaft Grinding Machine
2.0	Brand/ Model	To be mentioned.
3.0	Machine Type / Configuration	Heavy-duty, floor-mounted, precision crankshaft grinding machine with rigid cast-iron bed,

		dynamically balanced workhead and tailstock, independent variable speed control, automatic lubrication, and coolant system.
4.0	Technical Parameters	
4.1	Distance Between Centres	Minimum 2500 mm
4.2	Swing Over Table	Minimum 690mm
4.3	Stroke (Twice Offset of Centres)	Minimum 280 mm
4.4	Steady Rest Capacity	As per OEM standard. Details to be mentioned.
4.5	Maximum Workpiece Diameter (New Wheel)	Up to 600 mm
4.6	Maximum Workpiece Diameter (Workhead/Chuck)	Up to 250 mm
4.7	Maximum Workpiece Diameter (Tailstock/Chuck)	As per OEM standard. Details to be mentioned.
4.8	Workpiece Spindle Speed (Variable / Stepless)	As per OEM standard. Details to be mentioned.
4.9	Table Traverse Speed (Manual)	As per OEM standard. Details to be mentioned.
4.10	Table Traverse Speed (Automatic / Stepless)	As per OEM standard. Details to be mentioned.
4.11	Wheel Slide Rapid Traverse	As per OEM standard. Details to be mentioned.
4.12	Grinding Wheel Diameter	As per OEM standard. Details to be mentioned.
4.13	Grinding Wheel Width	As per OEM standard. Details to be mentioned.
4.14	Grinding Wheel Speed	As per OEM standard. Details to be mentioned.
4.15	Height – Floor to Spindle Centre	As per OEM standard. Details to be mentioned.
4.16	Motor Ratings (Minimum)	As per OEM standard. Details to be mentioned.
4.17	Power Supply	415 V ± 10%, 50 Hz, 3-Phase AC
4.18	Machine Controls	Digital or electromechanical controls for feed, speed, and traverse; safety interlocks; emergency stop; and precision adjustment for both journal and pin grinding.
5.0	Control System	The machine shall be equipped with a state-of-the-art NC or PLC or CNC-based control system for precise, repeatable, and safe operation. The system shall include a color LCD/LED display for real-time status. The control system shall operate through both stand-alone mode (local operation independent) and

		integrated mode. It shall have minimum storage capacity of 100 programs and data backup facility. The Supplier shall supply free software support, firmware updates or upgrades for a minimum of 15 years from commissioning, ensuring continued compatibility and performance enhancement without additional cost.
6.0	Standard Accessories (to be supplied)	OEM recommended standard accessories are to be provided for safe, accurate, and immediate operation, including but not limited to: • Steady rests (small, medium, large) • Wheel dresser with diamond tool • Balancing stand and arbor • Set of grinding wheels • Lubrication system • Splash guards and wheel guards • Maintenance tool kit and foundation bolts etc. • All kind of civil and electrical works are to be done by supplier for anchoring and installation of the machine.
7.0	Optional Accessories (Quoted Separately)	OEM recommended optional accessories are to be provided and quoted separately.
8.0	Safety Features	OEM recommended safety features are to be provided including, but not limited to: Emergency stop switch, overload protection, spindle guard, interlocked panels, earthing provision etc
9.0	Testing & Calibration	Machine shall be factory-tested for geometrical accuracy, vibration, and run-out as per ISO/DIN/ equivalent standards. Test certificate and calibration documents to be provided by OEM.
10.0	Documentation	Operator's manual, maintenance manual, and spare-parts catalogue in English.
11.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
12.0	Overall Dimensions & Weight	To be mentioned by bidder
13.0	Packing & Delivery	OEM-recommended, fully sealed, seaworthy wooden crate with moisture protection, rust preventive coating, and shock-absorbent packing.
14.0	Compliance Standard	As per OEM standard. Details to be mentioned.
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Crankshaft Grinding Machine (Only for information purpose and may differ from actual products)

I. SPECIFICATION OF UNIVERSAL FUEL PUMP TEST BENCH

1. **Name of Equipment.** Universal Fuel Pump Test Bench.

2. **Purpose**. The test bench shall be used for calibration, functional testing, and performance verification of larger single and multi-cylinder diesel fuel injection pumps used in marine, industrial and heavy-duty machinery. It shall be capable of testing in-line, distributor and electronically controlled injection systems.

3. **Quantity.** 01(One) in number.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan, Turkey and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, Turkey, Singapore, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Universal Fuel Pump Test Bench
2.0	Brand/ Model	To be mentioned.
3.0	Type / Configuration	Heavy-duty, floor-mounted, electronically controlled test bench with digital measurement and display for fuel quantity, speed, temperature, and pressure. Capable of forward and reverse rotation with precise speed and torque control.
4.0	Motor Power	Min 35 KW or better. Details to be mentioned.
5.0	Drive System	As per OEM standard. Details to be mentioned.
6.0	Drive Coupling	As per OEM standard. Details to be mentioned. It may have standard twin-dog or equivalent coupling arrangement with wear-resistant discs, allowing fast and secure mounting of various pump types.
7.0	Worktable & Construction	Rigid and vibration-free frame with drive shaft center height approximately 300 mm or better from the test bed. The bench shall be mounted on adjustable anti-vibration feet. The main spindle shall carry a balanced flywheel with minimum inertia of 50 $kg \cdot m^2$ for stable running.
8.0	Control & Safety	Centralized control panel with start/stop, speed control, pressure regulation, temperature setting, and digital parameter display. Fitted with emergency stop switch, overload, and over-temperature protection.
9.0	Control System	The machine shall be equipped with a state-of-the-art NC or PLC or CNC-based control system for precise, repeatable, and safe operation. The system shall include a color LCD/LED display for real-time status. The control system shall operate through both stand-alone mode (local operation independent) and integrated mode. It shall have minimum storage capacity of 100 programs and data backup facility. The Supplier shall supply free software support, firmware updates or upgrades for a minimum of 15 years from commissioning, ensuring continued compatibility and performance enhancement without additional cost.
10.0	Digital Display Parameters	As per OEM standard. Details to be mentioned.
11.0	Temperature Control System	As per OEM standard. Details to be mentioned.
12.0	Test Oil Tank	As per OEM standard. Details to be mentioned.

13.0	Fuel Supply System	As per OEM standard. Details to be mentioned.
14.0	Filtration	As per OEM standard. Details to be mentioned.
15.0	Lube Oil System	As per OEM standard. Details to be mentioned.
16.0	Pulsation Dampers	As per OEM standard. Details to be mentioned.
17.0	Power Supply Requirement	415 V ± 10%, 50 Hz, three-phase AC supply.
18.0	Working Capacity	Suitable for testing fuel injection pumps up to 18 cylinders. The bench shall deliver maximum test oil pressure up to 40 bar and maximum output torque not less than 300 N·m at full speed. Speed range approx. 30 – 1600 rpm in both directions. Capable of continuous duty operation at rated speed for long-duration tests. OEM standard must be mentioned.
19.0	Standard Accessories	OEM recommended standard accessories are to be provided but not limited to for safe, accurate and immediate operation including fol: a) Standard cambox or equivalent drive fixture b) Injector/pump mounting kit for various pump types c) Calibration rig for pump testing d) Multi-cylinder pump mounting adapter (minimum 18 cylinders) e) One drum (200–210 L) of calibration fluid meeting ISO or equivalent standard etc. f) All necessary civil and electrical works are to be done by supplier for anchoring and installation.
20.0	Measurement Accuracy	As per OEM standard. Details to be mentioned.
21.0	Standards & Compliance	The equipment shall conform to CE, ISO, or DIN/EN mechanical and electrical safety standards including IEC or equivalent (Electrical Equipment of Machines). Details to be mentioned.
22.0	Dimensions & Weight	To be stated by manufacturer; suitable for heavy-duty industrial workshop use.
23.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
24.0	Packaging & Transportation	OEM-recommended, fully sealed, seaworthy packing with all accessories.
25.0	Warranty & After-Sales Support	Minimum 12-month comprehensive warranty from the date of commissioning. Supplier shall ensure availability of local service support and spare parts for at least 10 years.
26.0	Optional Accessories	A list of optional accessories are to be provided and quoted separately.

	(Quoted Separately)	
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Universal Fuel Pump Test Bench (Only for information purpose and may differ from actual products)

J. SPECIFICATION OF CRANK SHAFT DEFLECTION INDICATOR

1. **Name of Equipment.** Crank Shaft Deflection Indicator.

2. **Purpose**. For precise measurement of crankshaft web deflection in marine and stationary diesel engines to assess alignment, bearing wear, and structural integrity.

3. **Quantity.** 01(One) in number set.

4. **Year of Manufacture**. 2025 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan, South Korea, Singapore, Turkey and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, South Korea, Singapore, Turkey, EU Countries and GCC Countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Specification (Minimum Requirement)
1.0	Name of Equipment	Crankshaft Deflection Indicator
2.0	Brand/ Model	To be mentioned.
3.0	Type	Digital / Electronic Crankshaft Deflection Indicator
4.0	Display Type	Large digital LCD/LED display with backlight for clear visibility in engine room conditions
5.0	Application	Marine and industrial diesel engine crankshaft deflection measurement
6.0	Measuring Range	±2.000 mm (minimum) or better
7.0	Resolution / Accuracy	0.001 mm or better
8.0	Zero Balance Range	±2.000 mm (minimum) or better
9.0	Zero Drift	As per OEM standard. Details to be mentioned.
10.0	Measurement Span	Suitable for engine crank throws ranging from Minimum 90 mm to 550 mm or better or as per OEM standard. Details to be mentioned.
11.0	Power Supply / Battery	Rechargeable lithium-ion battery
12.0	Extension Rods / Bars	Supplied with standard extension bars: 10 mm, 20 mm, 40 mm, 80 mm, and 2 × 160 mm (or equivalent combinations) or as per OEM standard. Details to be mentioned.
13.0	Cable Length (if applicable)	Min. 5meters, flexible and oil-resistant
14.0	Automation Grade	Automatic zero calibration and data stabilization
15.0	Data Output (Optional)	As per OEM standard. Details to be mentioned.
16.0	Protection Class	Shock- and vibration-resistant; IP-54 or better protection
17.0	Material / Finish	High-strength corrosion-resistant aluminum or stainless-steel housing; suitable for marine environment
18.0	Accessories / Consumables	All OEM-recommended accessories, consumables, charger, cables, and carrying case etc are to be provided included, but not limited to for immediate safe and accurate operation.
19.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will

		provide necessary technical support, warranty, and after-sales service.
20.0	Overall Dimensions / Weight	Compact and lightweight for handheld or stand-mounted operation (to be mentioned by bidder)
21.0	Packaging	OEM-recommended fully sealed, seaworthy package including protective carrying case and accessories
22.0	Standard Compliance	Shall comply with ISO 9, CE, or equivalent international standard for measuring instruments
Note: If any above-mentioned dimensions are not commercially available at time of the offer period in that case nearly commercially available dimensions can be offered.		

Picture of Crank Shaft Deflection Indicator (Only for information purpose and may differ from actual products)

K. SPECIFICATION OF NOZZLE REPAIRING BENCH

1. **Name of Equipment.** Nozzle Repairing Bench.

2. **Purpose**. For precise reconditioning, lapping, and seat restoration of diesel fuel injector nozzles and multipliers used in common rail injection systems. The equipment shall ensure accurate sealing, alignment, and surface finish as per OEM tolerances.

3. **Quantity.** 01 (One) in number set.

4. **Year of Manufacture**. 2024 or later.

5. **Country of Origin**. USA, UK, Canada, Australia, Japan Turkey, Singapore and EU Countries.

6. **Manufacturing Country**. USA, UK, Canada, Australia, Japan, Italy, Turkey, Singapore, EU Countries and GCC countries.

7. **Technical Specification.**

Sl. No.	Clause / Sub-Clause	Generalized Specification (Minimum Requirement)
1.0	Name of Equipment	Nozzle Repairing Bench
2.0	Brand/ Model	To be mentioned
3.0	Type / Configuration	Heavy-duty, precision bench type with integrated translational and rotational lap mechanism for nozzle valve seat restoration. Capable of servicing common rail injectors systems.
4.0	Power Supply	415 V ± 10%, 50 Hz, 3 Phase AC (industrial standard).
5.0	Main Features	• Compact and rigid bench structure with vibration isolation system. • Enclosed protective casing for lapping and polishing mechanism. • Adjustable work table with screw-type fine positioning control. • Precision lap movement ensuring accurate concentricity and surface finish. • Maintenance-free drive system with smooth and consistent speed control. • Suitable for a wide range of common rail nozzle assemblies.
6.0	Restoration Principle	Seat restoration shall be achieved by the translational-rotational movement of a precision lap tool in a controlled abrasive medium, capable of achieving surface finish within OEM specification limits.
7.0	Precision Surface	A precision surface grinding machine shall be supplied

	Grinding Attachment (Included)	with the bench for lapping stone preparation and fine finishing. **Minimum Parameters:** • Motor Power: ≥ 0.36 kW • Working Stroke: ≥ 32 mm • Division Value: ≤ 1 µm • Surface Parallelism Tolerance: 0.002 – 0.004 mm or better • Power: 220 V ± 10%, 50 Hz, 1 Phase
8.0	Industrial Inspection Microscope (Included)	A digital industrial microscope system shall be provided for inspection and quality assurance. **Minimum Parameters:** • High-resolution OEM standard sensor, ≥ 37 MP or OEM standard or better • HDMI / USB output for live viewing and data storage • Zoom Range: 6.5× – 180× (C-mount lens) or OEM standard • Working Distance: up to 160 mm or better • Integrated LED lighting and monitor • Features: photo/video capture, image rotation, digital zoom, mirroring, measurement grid overlay • Supported Languages: English and major European/Asian languages.
9.0	Nozzle Valve Lapping Attachment (Included)	It is required for: a) Nozzle seat lapping, Needle valve lapping, Surface polishing / grinding, Nozzle calibration and spray inspection b) Work Table: Rigid, vibration-free, marine-grade stainless steel or treated alloy steel top; minimum size **900 × 600 mm**, height minimum **850mm** or OEM Standard, ergonomically designed. c) Lapping Plate: Precision-ground hardened steel plate with flatness tolerance. OEM standard to be mentioned.
10.0	Accessories and Tools (Mandatory Supply)	OEM recommended accessories are to be provided but not limited to and tools are to be provided for immediate all types of operation and tests including fol: • Complete Common Rail Injector Service Tool Kit (minimum 50 pcs). • Lapping and polishing tool sets for multiple nozzle types. • Surface grinding machine with consumables. • Digital industrial microscope with stand and display. • Nozzle valve seat restoration unit with attachments. • All required fixtures, adaptors, and software (if applicable).
11.0	Safety & Ergonomics	Equipment shall comply with industrial safety standards and include safety covers, overload protection, and

		ergonomic layout for operator comfort. OEM recommended safety features are to be provided but not limited to.
12.0	Certification & Compliance	OEM shall certify that the equipment complies with international standards (ISO/IEC/EN for machine safety and precision tools) and is supported by after-sales service and spare parts availability.
13.0	Dimensions and Weight	To be specified by the manufacturer; compact, bench-mounted configuration preferred.
14.0	OEM Certificate	The bidder shall submit an OEM Certificate issued by the Original Equipment Manufacturer (OEM) confirming that the offered item is manufactured by them and that they will provide necessary technical support, warranty, and after-sales service.
15.0	Packaging	OEM-recommended, fully sealed, seaworthy packaging including all accessories, spares, and documentation.
16.0	Notes	• Equivalent or superior parameters may be offered. • Equipment must be compatible with major injector brands. • Supplier shall submit catalogues and technical brochures confirming compliance

Picture of Nozzle Repairing Bench (Only for information purpose and may differ from actual products)