

**TASHAN-TASHION ANEFT.
(PETROLEUM PRODUCTS
INFRASTRUCTURES).**

**ADDITION OF A FIRE FIGHT WATER
DIESEL PUMP
TO THE HAIFA PORT TASHAN FACILITIES**

Project No.

2282

Project Specification No.

164703-PR-SP-001

**SPECIFICATION FOR
NFPA 20
VERTICAL DIESEL PUMP**

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1. BACKGROUND

- 1.1 TASHAN – The Israeli petroleum products infrastructures company intends to add a new NFPA 20 diesel operated firefighting water pump in their Haifa port facilities.
- 1.2 Ludan Engineering Israel Ltd. was nominated to support TASHAN in this project.
- 1.3 This specification covers the requirements for design, fabrication and supply of new NFPA 20 diesel vertical shaft turbine pump for TASHAN, Israel.

2. GENERAL

This document defines the minimum requirements for the design, fabrication and supply of NFPA 20 diesel vertical shaft turbine pump unit.

- 2.1 The pump unit shall be mounted on the steel construction supported from the jetty – see Appendix B.
- 2.2 The pump's intake is the shallow water from the open sea as shown in Appendix "B". The sea bottom is covered by sand, which can be an issue for the pumping. The proposed pump shall be suitable to overcome this issue.
- 2.3 The pump shall be designed for outdoors operation in naval service.
- 2.4 The documents/specifications/standards listed in these technical requirements including all appendices and attached documents are considered an integral part of the contract requirements.

3. PROCESS DATA

- 3.1 A new pump should develop 120 m head at 800 m³/hr flowrate. See Appendix "A" for the process conditions.

4. SCOPE OF SUPPLY

- 4.1 Design and supply of one (1) NFPA 20 diesel vertical shaft turbine pump (refer to Appendix "A" for complete data sheet).
- 4.2 NFPA 20 vertical shaft turbine pump suitable for naval application (sea water pumping)
- 4.3 NFPA 20 diesel engine driving the pump.
- 4.4 Common pump frame for assembly of pump and diesel engine.
- 4.5 Weather Proof Container (included)
- 4.6 Diesel fuel tank (included).
- 4.7 Shipping plugs for all connections.
- 4.8 Couplings guards at all couplings.
- 4.9 Plugged connections for drain, vent and gauges.

- 4.10 Maximum allowable forces and moments on pump nozzles (see also the item 4.16.4).
- 4.11 All materials shall be properly boxed in wood crates.
- 4.12 Chemical and physical certificates of materials.
- 4.13 Internal tests for pumps with release of certificates.
- 4.14 Special tools (if required) necessary for the installation, maintenance and overhaul of each complete unit, including any required maintenance lifting equipment.
- 4.15 Spare parts for commissioning & start-up.
- 4.16 Contract documentation:
 - 1. Completed data sheet.
 - 2. Engine data sheet and curve.
 - 3. Certified General Arrangement, foundation loading and cross-sectional drawings for all supplied components, showing all relevant instruments and piping. The drawings shall include all equipment, instruments and piping, as well as all necessary dimensions required for piping design, for civil engineering and erection.
 - 4. Maximum allowable forces and moments on all nozzles of all equipment shall be clearly indicated in vendor's drawings.
 - 5. Equipment Installation, Operation and Maintenance Manuals. The manuals shall include a list of special tools for equipment maintenance and maintenance instructions including how to use the tools. The manuals shall also include field test procedures.
 - 6. A list of deviations from this specification.

5. DESIGN AND TECHNICAL REQUIREMENTS

- 5.1 The pumps and auxiliary equipment shall be designed by the vendor according to the process conditions (Paragraph 3).
- 5.2 The vendor design shall consider the suction of open sea water (**tropical conditions**) as shown in the Appendix B. **The vendor design shall consider the sandy sea bottom with raised sand clouds from impellers of nearby anchoring ships.**
- 5.3 All steel fittings and flanges shall be designed in accordance with ASME B31.3 and B16.5 standards. Bolt holes on flanges shall straddle main centerlines.
- 5.4 All connections for vent, drain, manholes etc. that are not piped up, shall be provided with bolted blind flanges.
- 5.5 Pump manufacturer shall specify on discharge nozzles the torque required for bolting the piping to the equipment nozzles as well as the bolting sequence required. Pump manufacturer shall specify where hot bolting is required, the hot bolting torque and sequence of hot bolting as well.

- 5.6 Vibration severity shall not exceed the guidance levels as stipulated in table 2, of the latest ISO 10816 edition.
- 5.7 All components shall be painted with a proper protective paint in accordance with vendor's standards. The protective paint shall be suitable for site conditions.

5.8 Materials of construction

1. Material of construction shall be suitable for the pump naval service (**tropical** sea water pumping)

5.9 Codes and standards

1. The design, fabrication, installation, inspection and testing of the equipment shall be in accordance with the following codes and standards, including all addendum in effect at the time of proposal date. The list includes, without being limited to, the following:

- National Fire Protection Agency (NFPA)
- American National Standards Institute (ANSI)
- American Society of Mechanical Engineering (ASME)
- American Society for Testing on Material (ASTM)
- American Welding Society (AWS)
- Instrument Society of America (ISA)
- Steel Structures Painting Council (SSPC)

Other codes, equivalent to the above list may be used, provided that the Vendor states the equivalence and approved the proposed code by the client in writing.

In case of a conflict between documents, the order of precedence shall be:

- a. The pump's data sheet (Appendix "A").
 - b. This specification.
 - c. Other standards mentioned in this specification.
2. Material and fabrication of piping sections will be in accordance with the ASME, AWS and ANSI codes as applicable.
3. The vendor shall be responsible for the compliance with any other effective local laws or code. The vendor shall inform TASHAN if any requirement of this specification or its attachments is in conflict with them for TASHAN resolution in writing.
4. All codes and standards mentioned in this document shall be considered at the latest revision in force at the date of proposal and must include all corrections, revisions, additions published until the above date.

5. The vendor is solely responsible for requesting any TASHAN document called for herein which TASHAN may have unintentionally omitted and distribute.

5.10 All drawings, documentation, etc., should be in English or Hebrew and in metric unit system except for nominal piping dimensions that shall be in inches.

5.11 Primary handling of all engineering information will be by e-mail, with CD and paper back-up.

6. GUARANTEE

6.1 Performance guarantee

Vendor shall guarantee to meet the requirements shown in Paragraph 3 and will comply with all Standards and Codes.

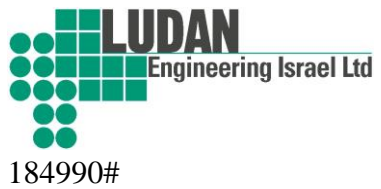
In the event that the equipment fails to meet such guarantees after performance test, the vendor shall undertake all remedial measures to enable the plant to perform as specified in the performance guarantee.

Vendor shall submit a procedure for carrying out of a performance test to verify that the unit supplied meets the required performance. This procedure will be subject to approval by purchaser.

7. QUOTATION

The Proposal shall include:

1. Full specifications and details of the equipment, including technical description and materials of construction.
2. Technical drawing of the complete system including part list.
3. General dimensions drawing including shaft length.
4. Clear details of any exceptions or clarifications to this.
5. Completed pump data sheet.
6. All drawings, documentation, etc., should be in English and in metric unit system.
7. Signed schedule of engineering documents issue and equipment delivery.
8. FOB price, including seaworthy packing and FOB location – "Global" is unacceptable.
9. Best delivery time and Terms of Payment.
10. List of recommended spare parts for two years operation with itemized prices (separate list).
11. List of recommended spare parts for commissioning and start-up (included in total price).



Appendix "A" – DATA SHEET

Attached "164703-PR-DS-001_1_diesel_FF_pump.pdf"

Appendix "B" – MOUNTING DETAILS

Attached "MOUNTING_DETAILS.pdf"

DRG 164703-CV-CD-001

DRG 164703-CV-CD-005

DRG 164703-CV-CD-004

DRG 164703-CV-CD-003