PMT TANK BROCHURE

PMT Tank is an Efficient and Advanced Tool for Storage Tank Design & Engineering

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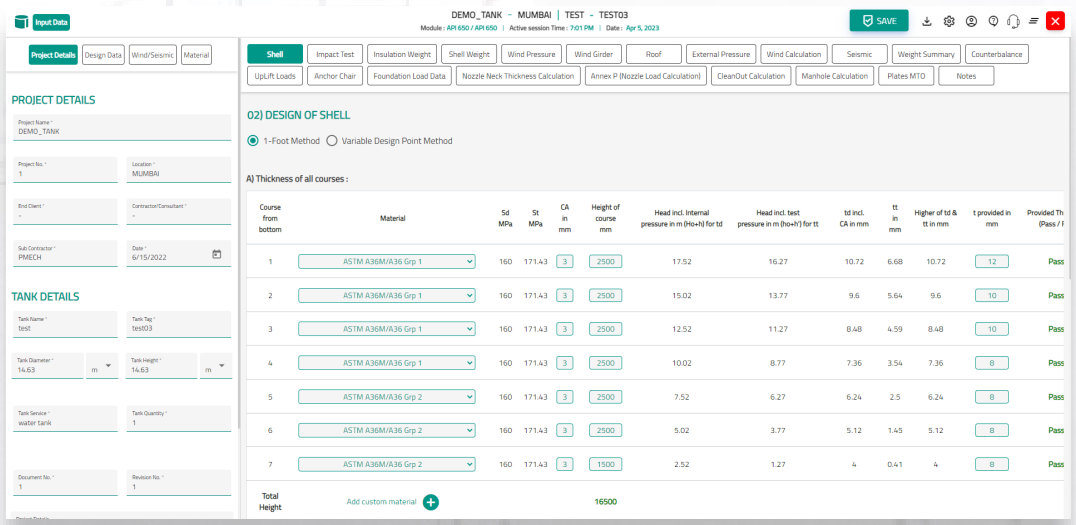
FEATURES/CAPABILITIES

1. Welded Storage Tank Design
2. API 650 – 13th Edition
3. API 650 – 13th Edition, Annex A
4. API 650 – 13th Edition, Annex S
5. API 650 – 13th Edition, Annex J
6. Shell Course thickness calculations(1-Foot Method / Variable-Design-Point Method)
7. Wind Pressure calculation (API 650 as well as using different codes)
8. Wind girder Design calculations
9. External Pressure Design calculations
10. Wind calculations
11. Seismic calculations (API 650 as well as using different codes)
12. Self-supported / Supported Cone & Dome Roof Design calculations
13. Uplift and Anchor Design calculations
14. Insulation Weight calculation
15. Counterbalance calculation
16. Foundation load data
17. Nozzle Neck thickness calculations
18. Nozzle Local Load Calculations as per Annex P API 650
19. Impact testing check as per API 650 guidelines
20. (Standard / Custom) Material Library
21. Step by Step Detailed Calculations
22. Proper Code References with Clauses, Tables & Flow charts
23. Calculations performed in real time quickly responding to input change.
24. Dark mode for effective visibility

INPUT DATA

Input Data has been organized in such a way that, the user has to input minimal data to design the storage tank, which would be linked automatically to dependent sections wherever required. It also enables the quick definition of input for the accurate design of oil storage tanks to the American Petroleum Institute (API) 650 standard.



TANK SHELL DESIGN METHODS

The software has capabilities of performing shell thickness calculations as per the 1-foot Method including Annex A, S & J guidelines as well as variable design point method as required by API 650 code. The user has the ability of selected the design the of shell thickness calculation method, based on which required shell thickness evaluation and calculations would be performed.

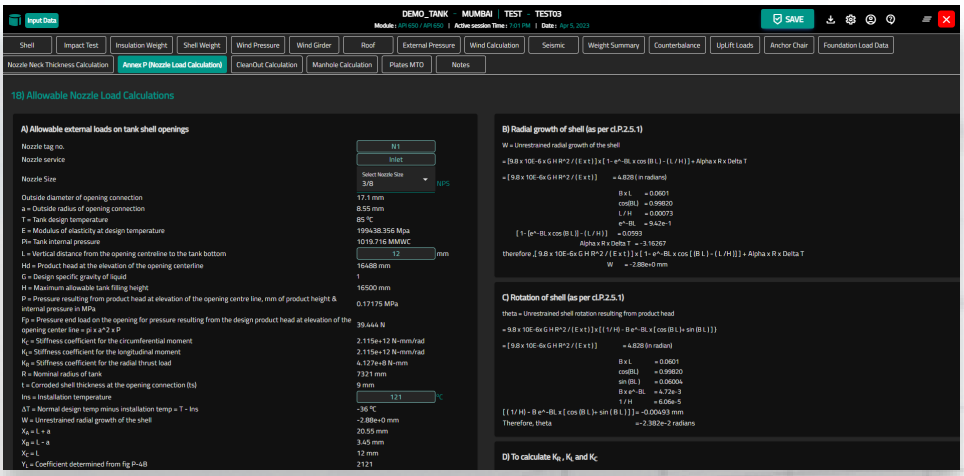
WIND AND SEISMIC CALCULATIONS

Wind pressure and wind calculations can be performed as per various codes and standards such as Indian (IS 875 Part 3), American (ASCE 7-05 / 7-10 / 7-16), UBC 1997 & BS 6399: Part 2. So, users can specify user-defined wind load and perform wind stability calculations as per API 650 guidelines.

Seismic calculations can be performed as per various codes and standards such as Indian (IS 1893), American (ASCE method), UBC 1997, Non-ASCE in line with Annex E API 650 requirements.

NOZZLE NECK THICKNESS AND LOCAL LOAD ANALYSIS

Additionally, the user can perform nozzle local analysis as per Annex P API 650 (if required) for shell nozzles located on the tank based on the same tank input parameters as per design calculation.
Also, nozzle neck required thickness calculations can be performed by software in line with API 650 code guidelines.



DYNAMIC DATA INPUT AND OUTPUT

The software has dynamic Input and Output capabilities. That means every change in user Input data has real-time output results with cascading effect. This enables the users to dynamically change Input data/ Parameters, if required in tank design later or prior, and thereby view updated calculations.

TANK DESIGN CONFIGURATIONS

This software supports a wide range of tank design configurations such as cone, dome, and open top floating roof. A most common type of cone and dome-roof configurations with curb angle (detail b & d) and compression ring (detail i & j) as per Annex F API 650 are also included for user selection. Also, the user has the simplicity of selecting a self-supported or supported cone/dome type of roof as per design requirements.

MATERIALS AND CODES

The Latest Edition of API 650 has been implemented in tank design software, complying with the material database as per Table 5.2a of API 650 standard. That is, this includes wide range of commonly used carbon steel materials such ASTM A36, ASTM A516 Gr.70, ASTM A537 Cl.2, EN 10025 S 275 J0/ J2, EN 10025 S355 J0/ J2/ K2, CSA G40.21M 260W/ 300W/ 350W, ISO 630 S275 Gr C/D, ISO 630 S355 Gr C/D, etc. for user selection.
Also to comply with Annex S material database as per Table S.1a of API 650 standards. That is commonly used stainless steel material such ASTM A 240M Type 201-1, 201LN, 304, 304L, 316, 316L, 317 & 317L for user selection.
The material database includes automatically calculated allowable stress values as well for both Design and Test conditions as per API 650 Code. Additional PMT Tank software has a feature and the ability to add user-defined custom material.

ANCHORAGE AND FOUNDATION LOAD DATA

Users can determine whether the tank would require anchor bolts or not based on uplift cases provided in API 650. Therefore, anchorage requirements are checked as per wind, seismic, and roof design calculations along with counterbalancing weight check (if required) as per API 650 code, and accordingly, the size and quantity of anchor bolts are evaluated. Anchor attachment design is also performed to check localized stresses as per AISI Steel Plate Engineering Volume II, Part V: Anchor Chair Design.

Accordingly, foundation load data would be generated for the storage tank, which will include the following loads for foundation design as software output.

a. Empty, Operating and Hydro test weight.
b. Horizontal wind shear forces on the shell, Vertical wind force on roof.
c. Total wind moment at the base.
d. Seismic shear force at the base.
e. Seismic ring wall and slab overturning moment at the base.

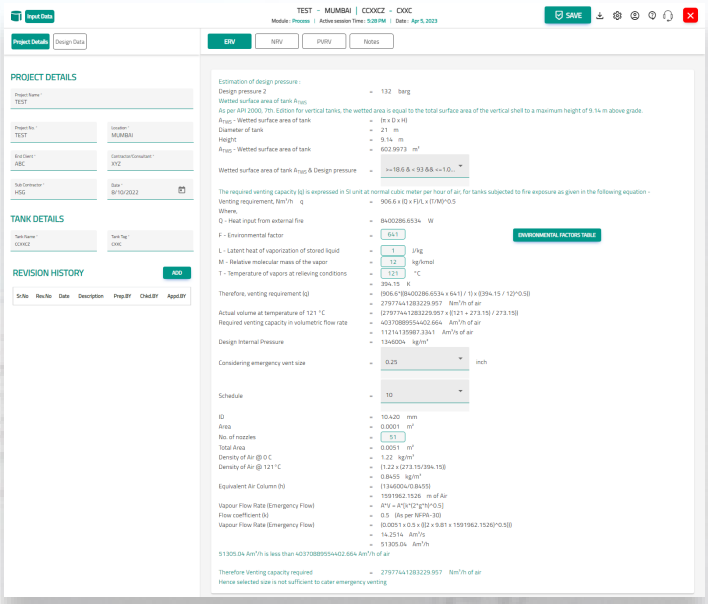
ANALYSIS OUTPUT AND REPORT GENERATION

Users can generate analysis output and report, which would include the entire summary of design calculations. Only applicable configurations and sections would be part of the report as per calculations.

ADD-ON MODULE PROCESS

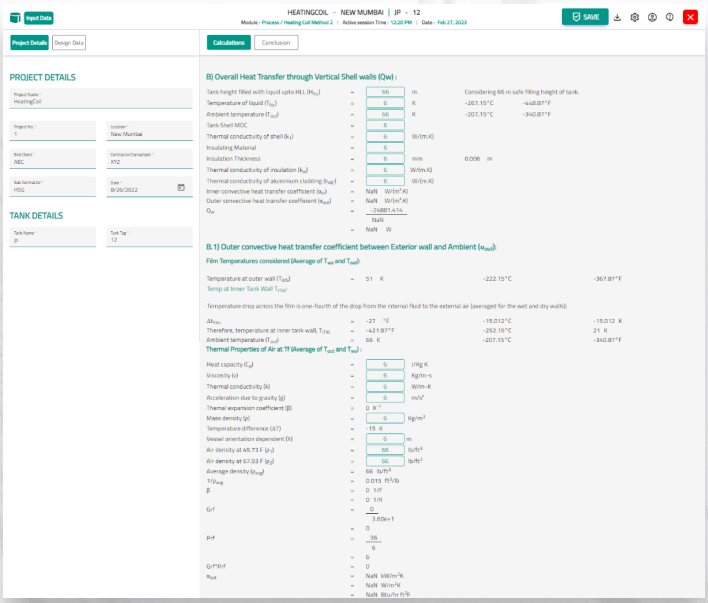
Venting

1. As per API - 2000 (7th Edition)
2. Emergency venting (ERV)
3. Normal venting (NRV)
4. Pressure vaccum relief vent (PVRV)
5. Venting capacity output
6. Preliminary vent size



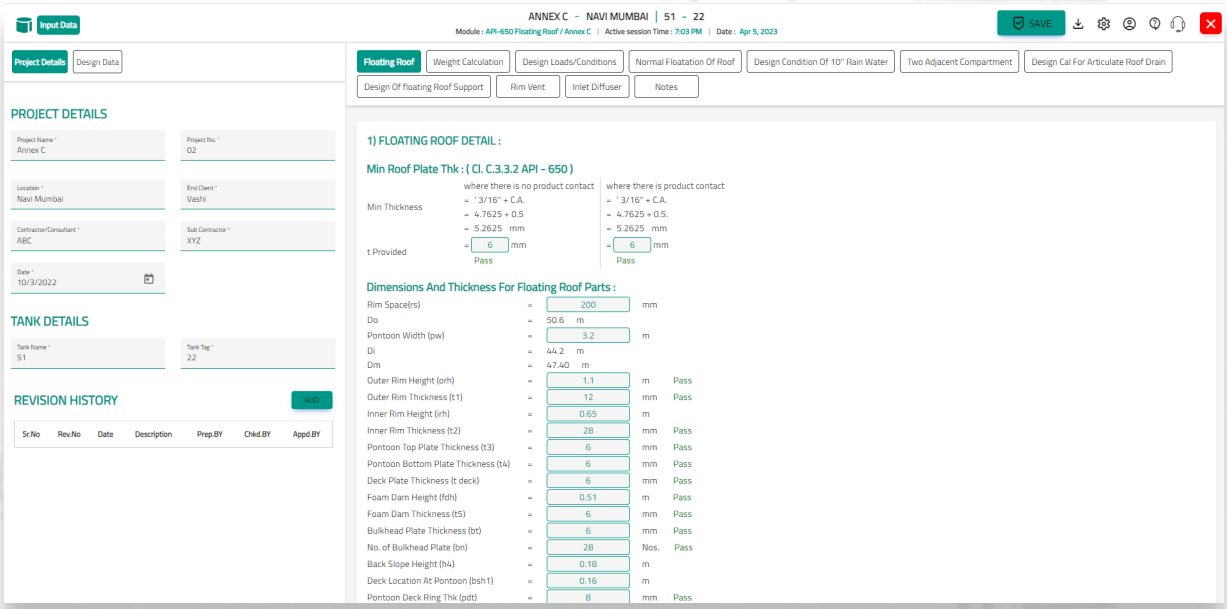
Heating Coil

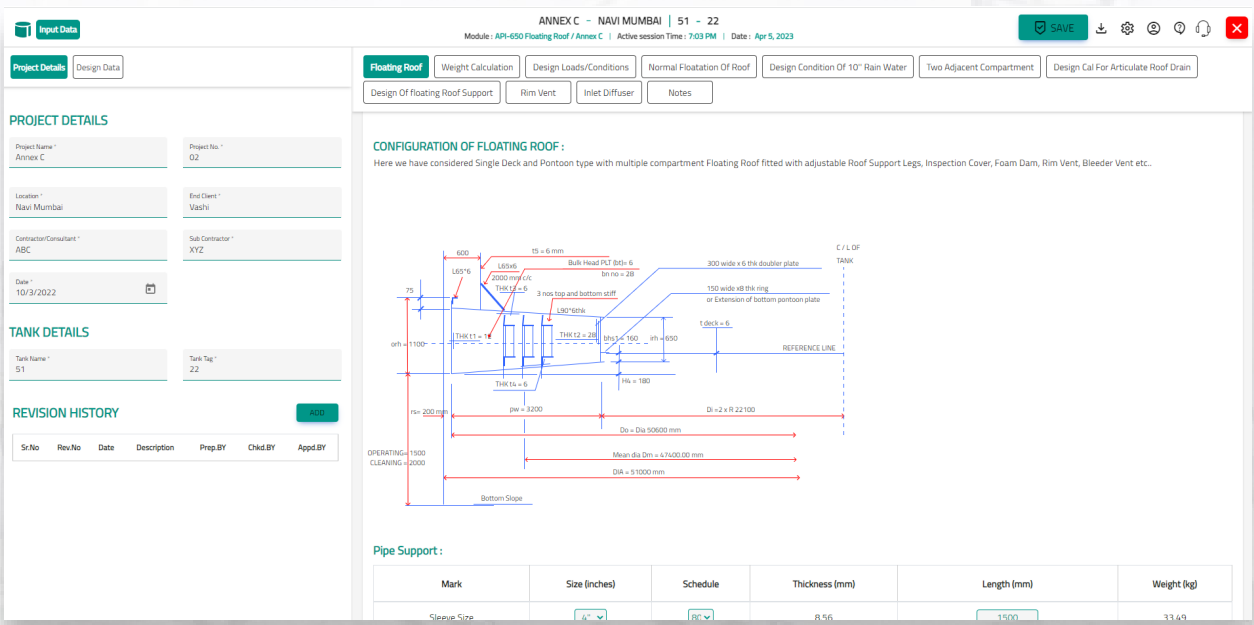
1. Heating coil length
2. Heating coil diameter
3. Quantum of heating medium required
4. Pressure drop in heating coil
5. Ref : Heat Transfer as per D.Q. Kern
6. Heating coil calculation
7. Heating coil calculation is also available as per J.P Homlan reference which includes good engineering practices for calculation
8. Detailed report output
9. Step by step calculation.



ADD-ON MODULE FLOATING ROOF

1. Welded Storage Tank Design
2. API 650 Latest Standard-13 Edition, Annex C
3. Open Floating Roof Design calculations
4. External Floating Roof Design calculations
5. Pontoon type Floating Roof Design calculations
6. Helps to generate Geometry of Pontoon type FR
7. Weight Calculations
8. Buoyancy calculations for normal operating conditions
9. Buoyancy calculations for 250 mm water accumulations and stresses
10. Tilting Calculations of floating roof while 2 compartment and deck is punctured. Stresses for these conditions
11. Floating roof pipe support design
12. (Standard/Custom) Material Library
13. Rim vent sizing and numbers
14. Proper Code References with Clauses, Tables & Flow charts
15. Calculation Report Output





WHY PMT TANK?

Improve Productivity

Expert Tank Engineers are always in short supply. PMT Tank helps make the most of Engineers valuable time by providing calculations as per code and inputs specified by clients.

Easy to Use

PMT Tank is designed to be user-friendly for a Tank Engineer who is well-versed with using computer systems. No special training is required.

High Accuracy

PMT Tank helps Engineers navigate through constant upskilling of Code revisions, good engineering practices, advances in computing, etc. and avoid Code related errors and omissions.

Save Time & Cost

A complete Tank design can be performed in less than 2 hours. Save costs upto 10 to 20 times of the cost incurred by using Traditional Design practises.

Flexible Subscription

Users can choose to opt for 3 months or 12 months' subscription based on their project requirement.

Download Reports

After completing a Design, user can download the entire Design output in Report format on click of a button.

INDUSTRIES SERVED

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- Fertilizer Plants
- Refinery & Petrochemicals
- Chemical Plants
- Pharmaceuticals

PMT
A SEAMLESS EXPERIENCE

ABOUT US

P-Mech Technologies, creates Design Software Products for Energy & Industrial Space globally; by augmenting human potential and bringing the finest technology to practice.

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