



OPERATION QUALIFICATION PROTOCOL FOR HOT WATER GENERATOR

CUSTOMER:

EQUIPMENT: HOT WATER GENERATOR

SUBMITTED BY:

PHARMA ENGINEERS

PLOT NO. 113/A/1, LANE 8, PHASE II,
IDA CHERLAPALLI, HYDERABAD- 500051.

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OPERATION QUALIFICATION PROTOCOL APPROVAL

This document is prepared by the documentation team of **M/S. PHARMA ENGINEERS** for

EQUIPMENT : HOT WATER GENERATOR

PLANT /PROJECT :

CLIENT :

Hence this document before being effective shall be approved by **Client / Customer**

M/s. PHARMA ENGINEERS:

| | Name | Designation | Signature | Date |
|-------------|------|-------------|-----------|------|
| Prepared By | | | | |
| Reviewed By | | | | |

CLIENT / CUSTOMER:

| | Name | Designation | Signature | Date |
|-------------|------|-------------|-----------|------|
| Reviewed By | | | | |
| | | | | |
| | | | | |
| Approved By | | | | |

Client:

Supplier/ Manufacturer: PHARMA ENGINEERS, HYDERABAD

Equipment: HOT WATER GENERATOR

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OPERATION QUALIFICATION (OQ)

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MASTER DOCUMENT

Client:

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OPERATION QUALIFICATION (OQ)

1. OBJECTIVE

The objective of this document is to qualify and certify the functionality and performance of Hot Water Generator _____ with due considerations as specified in DQ.

2. TEST OF ALARMS & INTERLOCKS:

| Sr.no | Method of testing | Acceptance criteria | Observations |
|-------|-------------------------------------------------------------------|------------------------------------------------------|--------------|
| 1. | Adjust pressure switch to zero pressure | Pump shall not start | |
| 2. | Simulate the set value and ensure the steam valve is open & close | Steam valve shall respond according to the set value | |
| 3. | Increase/Decrease the speed in VFD | Pump shall respond as per VFD speed | |

REMARKS (IF ANY):

Test Conducted By

Test Witnessed By

Client:

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OPERATION QUALIFICATION (OQ)

3. HEATING PERFORMANCE:

PURPOSE

This test is to know the performance of Heat Exchanger

TEST METHOD

- Run the pump
- Ensure the safety Interlocks are working
- Ensure the flow rate as per the design
- Observe the discharge pressure gauge readings across the pipe, the minimum pressure shall be 3bar
- Ensure the minimum pressure will be 3bar across the heat exchanger
- Observe the water inlet temperature i.e., Return line of hot water
- Observe the water outlet temperature i.e., Supply line of hot water
- The performance can be observed at different Inlet Pressure of feed water (Hot water inlet)

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OPERATION QUALIFICATION (OQ)

| Sr. No. | HEAT EXCHANGER | | | | | CRITERIAL FULFILLED (YES / NO) |
|---------|----------------------|-----------------------|-------------------------|--------------------------|---------------------------|--------------------------------|
| | Water Inlet Pressure | Water Outlet Pressure | Water Inlet Temperature | Water Outlet Temperature | Difference of Temperature | |
| 1. | | | | | 5°C | |
| 2. | | | | | 5°C | |
| 3. | | | | | 5°C | |
| 4. | | | | | 5°C | |
| 5. | | | | | 5°C | |

ACCEPTANCE CRITERIA

The difference of inlet & outlet temperature should be 5°C

However, the acceptance is up to the judgment of experts if any deviations in the readings

REMARKS (IF ANY):

Test Conducted By

Test Witnessed By