



DESIGN QUALIFICATION PROTOCOL FOR HOT WATER GENERATOR

CUSTOMER:

EQUIPMENT: HOT WATER GENERATOR

Nominal Flow Rate: 165 m³/hr
Nominal Heating Capacity: 960 kw

SUBMITTED BY:

PHARMA ENGINEERS

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

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DESIGN 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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DESIGN QUALIFICATION (DQ)

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DESIGN QUALIFICATION (DQ)

1. OBJECTIVE

The objective of this document is to comply with **URS** Document Number:

_____ pertaining to design specification of
Hot Water Generator.

2. SCOPE

Design Specifications of Hot Water Generator Comprising of the following main Equipments.

- Material of Construction
- Pumps
- Heat Exchanger
- PID panel



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3. RESPONSIBILITIES

M/s. Pharma Engineers:

1. Shall agree and follow the URS.
2. To Prepare the detailed engineering drawings.
3. To submit the technical details of equipment as per the scope of supply.
4. To ensure safe delivery of equipment
5. To Complete the equipment qualification.



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4. EQUIPMENT DESCRIPTION

Hot water generator skid is made from MS assembly with all the other items to produce the Hot Water that can be passed to the inlet of AHU's Hot water coil and utilized to maintain required conditions in the respective rooms.

Hot water generator skid was sized to accommodate different sections like split coupled vertical inline pump, heat exchanger, solenoid valve and related accessories.

The Vertical inline pump is used to increase the pressure and flow rate of Hot water.

Butterfly valves are used at the suction side and discharge side of the pumps

Pleat type Heat Exchanger is placed after the pumps and used to build for efficient heat transfer from steam to water.

5. SYSTEM ARCHITECTURE

Details of hot water supplied to respective areas is as follows

SR.NO	AREA	FLOW RATE (GPM)
1.	OSD Area	50 GPM
2.	Ware House Area	70 GPM
3.	600kg Line / Production Block	420 GPM
4.	Suppository Line / Liquid Line	40 GPM
	TOTAL CAPACITY	580 GPM (or) 165 m³/hr

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DESIGN QUALIFICATION (DQ)**6. TECHNICAL SPECIFICATIONS:**

NOMENCLATURE	
Manufacturers name	M/s Pharma Engineers
Nominal Flow Rate	165 m ³ /hr
Nominal Heating Capacity	960 Kw
CONSTRUCTION DETAILS	
Overall Dimensions (L X W)	2500 x 1500 mm
Type	Skid mounted
Construction	M.S
VERTICAL IN LINE PUMP	
Make	ARMSTRONG
Model Number	4300-100-200
Pump Flow rate	165 m ³ /hr
Quantity	2no's
Type	Centrifugal Split Coupled Type Vertical Pump
Fluid	Hot Water
Pump RPM / MOTOR RPM	2985 / 2920 RPM
Motor Capacity	18.5 KW
HEAT EXCHANGER	
Make	Kelvion India Pvt. ltd
Type	Plate Type
Model	VT20 HV CPS-7
Heat Exchanged	811508 kcal/hr (or) 960 kw
MANUAL BUTTERFLY VALVES FOR HOT WATER LINE	
Make	L&T
Size	150mm
Qty	4 Nos.
Location	At Suction and Discharge Line of Pumps
STRAINER	
Make	CREATIVE / SM INDUSTRIES
Size	150mm

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Qty	2 Nos.
Location	At Suction Line of Pumps
NON-RETURN BALL VALVE	
Make	NVR / IHM
Size	150mm
Location	After pump
Qty	02 No's
STEAM CONTROL VALVE	
Make	Siemens
Size	50mm
Model	VVF-32
Qty	1 No's
AIR VENT VALVE	
Make	TBS / ZOLOTO
Size	25mm
Quantity	1 Nos.
Location	Across Pipeline
PISTON VALVE	
Make	PRIME
Size	50mm
Qty	1 Nos.
Location	Entry of Heat exchanger
BALL FLOAT STEAM TRAP	
Make	ARI/AWH
Type	Ball Float
Size	25 mm
Qty	01 No's
VFD	
Make	DANFOSS
Model	VLTF-101P18K
Motor Rating	18.5 KW
Location	Control Panel

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STEAM CONTROL VALVE	
Make	Siemens
Size	50mm
Model	VVF-32
Qty	1 No's
PID CONTROLLER	
Make	Honey well
Model	DC 1040
Input	Universal
Out put	4-20mA / 0-10 V
Control mode	PID
Mounting	Panel
Location	Control Panel Door
ENCLOSURE-CONTROL PANEL	
Make	RITTAL
Protection	IP56 / IP 55
Material	Sheet steel
INSTRUMENTATION	
PRESSURE GAUGES	
Make	BAUMER
Range	0 to 7kg/cm ²
Quantity	4 Nos.
Location	Across Pipeline
PRESSURE SWITCH	
Make	DANFOSS
Model	KP36
Range	0-7bar
Quantity	01 No's
Location	Across the out let of Heat Exchanger
TEMPERATURE SENSOR	
Make	Radix
Model	PT 100

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Type	RTD Out put
Range	0-250°c
Location	Across the out let of Heat Exchanger
Qty	01 No's

7. UTILITIES REQUIRED

S.NO	DESCRIPTION	CONSUMPTION
1.	Electricity 3Ø	18.5 KW
2.	Steam Consumption	

8. LIST OF DRAWINGS AND DOCUMENTS ENCLOSED

S.NO	DRAWING NAME	ENCLOSED (YES / NO)
1.	GA DRAWING FOR HOT WATER GENERATOR	
2.	PID DRAWING FOR HOT WATER GENERATOR	