



# Steam Equipments USA Inc.

## **Corporate Presentation**

USA Plant and Office Steam Equipments USA Inc. +1 732 343 5113 sales@steamequipmentusa.com 59 Winthrop road, Edison, NJ 08817, United States of America.



## **Company Profile**



#### **Steam Equipments Journey over the years**

- 2003 : Started with Zero Capital in 2003 with vision of Global Presence
- 2003 : Started System integrator for ABB for Steam And Water Analysis System.
- 2004 : Registered as Pvt Ltd Company
- 2004 : Analyser Integration with ABB, Honeywell for export projects)
- 2005 : Exported to Saudi Arabia, USA
- 2006 : Major Exports to South Korea, Malaysia, and Indonesia
- 2007 : Developed rectifier cooling systems for Caustic Soda plants with ABB
- 2008 : Developed water / Gas Sampling systems for Teledyne
- 2009 : Developed Quench Water Systems for Sabic with Yokogawa, Baharain
- 2012 : Product development : Degas Cond, VRTS and TSV with automatic reset
- 2016 : Analyser Development (Steam Wetness, CEMS, De-Gas conductivity )
- 2017 : Development and manufacturing of Shelters , Chillers, and HVAC (Safe /
- Atex) 2017 : Steam Engineering Products (Steam Traps , Valves, Fittings and
- Manifolds) 2018 : New factory dedicated for 100% export projects : Area: 60000 Sq.
- 2020 : Digital SWAS with new changes in systems design
- 2022 : ATEX approved Chillers for O&G industries (in process)
- 2024: Steam Equipment USA Inc. Joint Venture Plant & Office opened NJ. USA

## **Facilities and Presence**

USA Plant and Office Steam Equipments USA Inc. +1 732 343 5113 sales@steamequipmentusa.com 59 Winthrop road, Edison, NJ 08817, United States

Plant I: Steam Equipments Pvt Ltd. Plot no. 44, Tiny Industrial Estate, Kondhwa Budruk, Pune – 411048 Maharshtra, India

Plant II: Steam Equipments Pvt Ltd. Plot No – SEZ-9 , Kesurdi Ph-1 (SEZ) Industrial Area, MIDC, Satara -412801, Maharashtra. India.

South Africa: Steam Equipments Africa Pty. Ltd. Office Park, Gauteng Province, South Africa

Jeddah, Saudi Arabia Steam Equipment Representatives Jeddah, Saudi Arabia.

Subsidiary ZYCOR SYSTEMS LIMITED Pegasus house 463A, Glossop road Sheffield S10 2QD United Kingdom









## Our expertise in System Integration/Projects

- Steam & Water Analysis System (SWAS) & Analyser Shelters
- Process Gas Analyser systems (Hydrogen Purity /O2 /ASU/Steel, Oil and Gas)
- Flue Gas Analysers (CEMS) with Unique Design and Technology (UV+TDLAS)
- Water, Wastewater & Effluent Monitoring Systems (WQMS)
- Ambient Air Quality Monitoring Systems (AAQMS)
- Moisture, Dew Point & Portable Analyzers
- Vibration Monitoring Systems (VMS),
- Steam Engineering, Pressure reducing stations and Process Boilers.



## **Core Products**

- Steam Sampling Iso-Kinetic Probes upto 4500 Class (800MW)
- Sampling System Core Components : Sample coolers, Pressure Reducers, Thermal Shut-off valve, Back pressure regulators, Flow meters, Resin Columns
- Chillers and Close circuit cooling water systems
- High Pressure Globe and Ball Valves and Compression Fittings (STEAMLOK<sup>®</sup>)
- Degas Conductivity, Steam Wetness Analyzer, Sample Sequencer,
- Steam Traps, Ball float Traps, Piston Valves, Steam Manifolds & Strainers
- Steam Engineering and Condensate Recovery systems
- Quench Water Sampling system.
- Shelters & Close loop sampling systems



# **Company Vision and Profile**

# Vision

Best in Class Analytical Solution provider for Gas, Steam and Water Analysis systems which will meet customer quality and safety standards

- Established in 2004 with team of technocrats to solve process industries problem
- Current Manufacturing facilities with area of 100000 Sq. Ft including special Economic Zone manufacturing plant
- Growing with employees strength of 180+



#### PLOT NO. 44, TINY COOPERATIVE INDUSTRIAL ESTATE, PISOLI ROAD, KONDHWA BUDRUK, PUNE - 411 048, MAHARASHTRA, INDIA.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System Standard detailed below.

Standard

## ISO 9001:2015

Scope of certification

DESIGN, DEVELOPMENT, MANUFACTURE, SUPPLY AND AFTER SALES SERVICE OF GAS AND LIQUID ANALYTICAL SYSTEMS INCLUDING STEAM AND WATER ANALYSIS SYSTEMS, WATER QUALITY AND GAS ANALYSERS, CEMS, DEGAS CONDUCTIVITY, SHELTER, HVAC, CHILLER AND SAMPLE COOLERS USED IN REFINERIES, POWER PLANTS AND PROCESS INDUSTRIES.



## MANUFACTURING

#### Manufacturing Facilities







## Sales and Support Network

#### India

Pune, Mumbai, Surat, Jamshedpur, Ranchi, Kolkata, Lucknow, Delhi, Chandigarh, Bhopal, Hyderabad, Vizag, Chennai, Bangalore, Goa, Bhubaneshwar, Assam

#### International (Plant's, Offices, Distributors and Representatives)

USA, UAE, S. Africa, Japan, Russia, S. Korea, Indonesia, Malaysia, Egypt, UK, Canada, Bahrain, Oman, Qatar, Kuwait, Saudi Arabia, Bangladesh, Spain, Brazil, Italy, Thailand, Australia, Philipines, Singapore, Nigeria, Mexico, Vietnam, Pakistan, Srilanka. Kenya, Uganda etc.



## Customers in India





























## List of Global Customers





# Steam and Water Analysis System Critical Components Presentation



# Steam and Water Analysis System Critical Components Presentation







## SEPL Core Components And Features









Without a properly functioning sampling system, analytical accuracy suffers—and plant chemistry or operations teams are left to make decisions based on unverified data.



### Isokinetic Sampling Probe

- Recommended by EPRI Standards
- Fully Forged SS-316 H Body Material
- Design Temp : 650°C & Pressure :400Bar
- Designed as per EPRI and ASME Standards
- Completed designed and validated by Creep Calculations
- Installed in 800 MW Thermal power plant
- 4500 Class Compact Globe valve for easy control





## Sample coolers

- Design Temp : 650°C & Pressure :400Bar
- Compact Design, Very Close Approach Temp, Truly Counter-flow design
- Designed as per International standards ASTM, ASME, GDCD
- Fully Stainless steel material
- Removable coil & Shell, No Welded Joints
- Global Exports to 50 Plus countries,
- More than twenty thousand coolers installed globally
- Monel / Superduplex / Inconel wetted parts as per plant requirements
- Supplied to Saudi Aramco, KOC, KNPC, Petronas, Sabic, ESKOM, NTPC



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#### Automatic Flow controlled Pressure Reducers (Patent Applied) – AUTO-VRTS



Motorized, Fully Automatic control
Flow adjustments through DCS or Controller
Fails Safe Alarms
Over-tight protection interlock
Contactless flow sensors,
Rod-in-Tube type design as per recommendations of ASME PTC 19.11
Design Temp : 550°C & Pressure :400Bar
Flow and pressure adjustable through DCS
Built-in Thermal Shutoff valve, Buil-In relief Valve
Automatic Cleaning incase of Chocking



#### Features Pressure Reducers (Patent Applied)



Rod-in-Tube type design as per recommendations of ASME PTC 19.11

Design Temp : 550°C & Pressure :400Bar

Outlet pressure 0-30 Bar Adjustable

Built-in Thermal Shutoff valve, Buil-In relief Valve

Built in Lab sample valve, Built-in Sample Flushing Valve

On-Line cleaning using line pressure without removing any components

Monel / Superduplex / Inconel wetted parts as per plant requirements

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# Features of Thermal Shutoff Valve with Contacts

- Replaced traditional swiches and solenoid valves, MCB etc
- Fully Stainless Steel Construction
- Automatic Reset, No Manual intervention required
- High Flow rates and various temperature setting options
- Suitable for Water, Gas and other process industries
- No Electrical power supply required. Great savings on Hazardous area
- Operates in any orientation
- Ram type Plug provides Tight Shutoff
- Manpower saving on electrical and switches maintenance





## Chillers & Close Circuit Cooling Systems

- 100% Standby compressors and Pumps
- Real time Chiller performance Monitoring
- Fully HMI Controlled
- Easy to Operate
- Designed as per International standards ASTM, ASME, GDCD
- Fully Stainless steel material
- Closed circuit systems are recommended if cooling water quality is very poor





# Steam and Water Analysis System System Integration All New Digital SWAS Presentation





# Degas Conductivity:-

- Digital Sensors
- Faster plant startup and turbine safety
- Better understanding avoiding sudden breakdown of plant
- No external cooling water required
- Dual exchange columns quick change over design for sample redundancy
- Multiparameter transmitter with single screen display of all measurements
- High accuracy at all stages
- Ergonomic sample conditioning layout
- Integrated flow sensor with automatic heater shut off when flow stops
- Emergency stop button
- Color indication of cation resin ,differential conductivity alarm (optional)







#### **Sampling Systems supplied to South Africa**



















# Safety and HSE Compliance (Is your operators are safe)

- Fire extingushers
- Safety showers
- Eye wash
- Thermal Shock protection
- Smoke detection
- LEL detection
- Oxygen Detectors
- High room temperature alarm
- Emergency Buzzer and Becon
- Emergency system shutdown switch



## Steam & Water Analysis System (SWAS)

#### WHAT WE NEED FROM YOU

- 1. Sampling line upto shelter
- 2. Power supply connection upto shelter
- 3. Signal cable (Multi core) from shelter
- 4. Cooling water supply
- 5. Drain connections
- Shelter door will be opened only after completion of above. Safety / security / damage etc. is fully under control













### **CHANGES IN DIGITAL SWAS SYSTEM**







#### **Benefits of Digital SWAS**

- Reduced maintenance cost
- Very less Maintenance time
- Very Low Running cost
- Nominal of spares and easily replicable parts
- No calibration cost.
- Can identify Route Cause for components failures and solve probles remotely
- Nominal electrical items and less safety Hazard
- Compact system
- No Junk Electronics
- Performance Monitoring and Alerts
- Data Analytics, Real Time Visibility
- Many More..... Benifits



#### DIGITAL SWAS ENSURES DATA VISIBILITY, DATA RECORDING, DATA MONITORING





#### DIGITAL SWAS ENSURES DATA VISIBILITY, DATA RECORDING, DATA MONITORING



MEASUREMENT PARAMETER NAMES
MEASUREMENT RANGES
MEASUREMENT UPPER LIMIT ALARM GENERATION
DEDICATED MEASUREMENT DISPLAY AS PER STREAMS
TRENDS AND HISTORICAL


#### DIGITAL SWAS ENSURES DATA VISIBILITY, DATA RECORDING, DATA MONITORING

STEAM Equipments	Utility	Steam Equipmen	ts Monitoring Uti	lity	
ta View Reports					
	DW DOWN WATER	НР МА	IN STEAM	FEED	WATER
EMPERATURE	7.00175 Deg C	TEMPERATURE	0.875 Deg C	TEMPERATURE	4.375 Deg C
RESSURE	10.5 Kg/Cm2	PRESSURE	3.5 Kg/Cm2	PRESSURE	5.25 Kg/Cm2
FLOW	300 mL/min	FLOW	400 mL/min	FLOW	500 mL/min
LOW	300 mL/min	FLOW	400 mL/min	FLOW	500 mUmin
LOW	300 mL/min SATURA TEMPERATURE	FLOW TED STEAM -3.29525 Deg C	400 mL/min LP S TEMPERATURE	FLOW TEAM 10.5 Deg C	500 mL/min
FLOW	300 mL/min SATURA TEMPERATURE PRESSURE	FLOW TED STEAM -3.29525 Deg C -3.5 Kg/Cm2	400 mL/min LP S TEMPERATURE PRESSURE	FLOW TEAM 10.5 Deg C 7 Kg/Cm2	500 mL/min



#### DIGITAL SWAS ENSURES DATA VISIBILITY, DATA RECORDING, DATA MONITORING

Steam Monitoring Utility

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STEAM Equipments

Steam Equipments Monitoring Utility

Data View Reports

LogDateTime	Tag1	Tag2	Tag3	Tag4	Tag5	Tag6	Tag7	Tag8						
7/20/2021 7:54:00 PM	7	611.28125	3.5	250	7	250	7	250	~	From	2021-06-01	15	То	2021-07-25
7/20/2021 8:33:00 PM	7	753.625	3.5	250	7	250	7	250						
7/20/2021 9:54:00 PM	7	876.5625	3.5	250	7	250	7	250						
7/20/2021 9:55:00 PM	7	880.3125	3.5	250	7	250	7	250		Step Size	1 Minute	~		
7/20/2021 9:56:00 PM	7	884.03125	3.5	250	7	250	7	250						
7/20/2021 9:57:00 PM	7	887.78125	3.5	250	7	250	7	250						
7/20/2021 9:58:00 PM	7	891.53125	3.5	250	7	250	7	250			Query	Save	2	
7/20/2021 9:59:00 PM	7	894.65625	3.5	250	7	250	7	250						
7/20/2021 10:00:00 PM	7	898.375	3.5	250	7	250	7	250						
7/20/2021 10:01:00 PM	7	-1145.875	3.5	250	7	250	7	250						
7/20/2021 10:02:00 PM	7	-1142.125	3.5	250	7	250	7	250						
7/20/2021 10:03:00 PM	7	-1138.40625	3.5	250	7	250	7	250						
7/20/2021 10:04:00 PM	7	-1134.65625	3.5	250	7	250	7	250	_					
7/20/2021 10:05:00 PM	7	-1130.90625	3.5	250	7	250	7	250	_					
7/20/2021 10:06:00 PM	7	-1127.1875	3.5	250	7	250	7	250						
7/20/2021 10:07:00 PM	7	-1123.4375	3.5	250	7	250	7	250						
7/20/2021 10:08:00 PM	7	-1120.3125	3.5	250	7	250	7	250						
7/20/2021 10:09:00 PM	7	-1116.59375	3.5	250	7	250	7	250						
7/20/2021 10:10:00 PM	7	-1112.84375	3.5	250	7	250	7	250						
7/20/2021 10:11:00 PM	7	-1109.125	3.5	250	7	250	7	250						
7/20/2021 10:12:00 PM	7	-1105.375	3.5	250	7	250	7	250						
7/20/2021 10:13:00 PM	7	-1101.625	3.5	250	7	250	7	250						
7/20/2021 10:14:00 PM	7	-1097.90625	3.5	250	7	250	7	250						
7/20/2021 10.15.00 PM	7	-1094 15625	35	250	7	250	7	250	$\sim$					



#### DIGITAL SWAS ENSURES DATA VISIBILITY, DATA RECORDING, DATA MONITORING























#### Sampling Systems supplied to South Africa









Al-Ghanim Kuwait





NFL, Guna, Panipat and Nangal (Shelter with HVAC, Chiller)







## **Sampling system to JORDAN**





#### Sampling Systems supplied to South Africa







User feedback and Installation reference

Unique Concept Launched by Steam Equipments



### **Success Stories - India**

Tata Power, Mundra	<ul> <li>5 X 800MW SWAS, CEMS, AAQMS</li> </ul>
• GE – NTPC TELENGANA	• 2 X 800 MW SWAS
Alstom Power – NTPC Mouda & Shol	apur • 4 X 660 MW SWAS – NTPC
Siemens – NTPC Meja	• 2 X 660 MW SWAS - NTPC
Jindal Power and Steel	• 2 X 500 MW SWAS
Essar Power Vadinar	• 4 X 210 MW SWAS
• NTPC – Kahalgaun	• 5 X 210 MW SWAS
NTPC, Singrauli	• 2 X 500 MW – NTPC
• NTPC - Farakka	• 2 X 210 MW – GEB
BHEL, EDN Bangalore	• 1 X 500 MW – Parli
BHEL, EDN Bangalore	• 4 X 600 MW - JSW
BHEL, EDN Bangalore	• SWAS – 2x210MW
Tuticorian TPS	• SWAS, CEMS, LIE/LIRs
• TATA power, Jojobera	• SWAS – 2X210MW
• MSEB, Khaperkheda	• SWAS – 4X210MW
• TNEB, Mettur	• 1 X 210 MW – GEB
• UPSEB, Anpara	• 6 X 210 MW, 2 X 210MW,
• Many More 500 + Systems	



### **Success Stories - Exports**

- POSCO EPC Power Korea
   2 X 500MW SWAS
- Kusile, ESKOM, S. Africa
   6 X 800MW SWAS
  - Paju Power, Korea 1 X 500 MW SWAS
- Asan Bae-Bang 1, Korea
- Lotte CES, Korea

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- Pangyo Power, Korea
- Posco Power II
   2 X 500 MW SWAS
- Asan Bae-Bang II, Korea
- Posco Steel Unit1, II and III
- KAFR EL DAWAR ,Egypt,
- E-Sindus Spain
- Columbia Power
- Hitachi Zozen, Japan
- Petrofac Sharjah
- Saudi Aramco (A/c Jal)

- 1 X 210 MW SWAS, CEMS, H2 Purity
- 1 X 210 MW

• 1 X 210 MW

• 3 X 60 MW CPP

2 X 210 MW SWAS

2 X 500 MW SWAS

1 X 500 MW SWAS

- CPP
- Sampling system with analysers
- Sampling system with Shelter
- 172 Nos Sampling systems



# **Steam Accessories**





# **TYPICAL STEAM NETWORK**

- GENERATION
- DISTRIBUTION
- UTILISATION
- RECOVERY





# Generation

- Product Portfolio in our Basket:
- Ecogen
- Automatic Blowdown Control System
- TT
- Online Oxygen Analyzer
- Steam Flow meter
- Water flow meter
- Deaerator head
- Boiler Feed water tank level control



# Design / Patent Registrations

Controller General of Patents, Designs & Trade Marks S.M.Road,Antop Hill, Mumbai-400037 Tel No. (091)(022) 241377010,24141026 Fax No. 022 24130387 E-mail: mumbai-patent@nic.ln Web Site: www.lpindla.gov.ln

Docket No 47761

To Shrinidhi Chandrashekhar Raste

123/2 Flat No.-6, Renuka Apartment, Fattelal path. off Law college road, erandwane pune 411052, Maharashtra India

Sr. No.	Ref. No./Application No.	App. Number	Amount Paid	C.B.R. No.	Form Name	Remarks
1	201921034974	E-5/1249/2020/MUM	0		FORM 5	
2	201921034974	E-3/12009/2020/MUM	0		FORM 3	
3	201921034974	E-2/1382/2020/MUM	0		FORM 2	

Total Amount · ₹ 0



सत्यमेव जयते



Date/Time 17/08/2020

User Id: sraste





# **THERMODYNAMIC STEAM TRAP #SLTT76**





• SS # 304 Construction:

Long Trap life. No problem of corrosion.

• Maintainable Seat Design :

Easy Maintenance. 5 Min Maintenance Life of Trap is Life of the Plant.

• Vacuum Hardening :

This Special process gives Extended life to the Trap.











# THERMODYNAMIC TRAP MODULE

It consists of

- Thermodynamic Steam Trap with Maintainable seat, Model No.: SLTT 76, MOC: CF 8 – 1No
- Piston Valve Model No: SLPV 35, MOC: ASTM A 105 – 2 Nos.
- Interconnecting Piping







# THERMODYNAMIC TRAP (SLTT- 87)

- Uniquely designed seat
- Easy maintainable trap
- Stainless steel construction
- Vacuum heat treated seat and disc
- Functional test 100% on steam



SIZE (NB)	МОС	PMA	TMA	END CONNECTION
15	F22	100 bar (g)	540°C	Socket Weld, Butt Weld
20	F22	100 bar (g)	540°C	ASA600, ASA1500
25	F22	100 bar (g)	540°C	





# STEAM UTILISATION- PROCESS TRAPS

#### Correct Selection of traps- Steamlok Make BALL FLOAT TRAP SLFT75

- ➤Continuous Discharge trap.
- ➢ Removes Condensate as it is formed.
- ➢ Process temperature being achieved as per design.
- > Operator able to see condensate being discharged.
- Confidence on trap working therefore By-pass remains closed.
- >ZERO STEAM LEAKAGE TRAP







### **BALL FLOAT STEAM TRAP # SLFT75** MOC: SG Iron

	Ductile Iron	Cast Iron	S. San	A STAND
DEFINITION	Ductile iron is an alloy of iron, which is rich with graphite.	Cast iron is an alloy of iron, which we can readily cast in a mould.		
COMPOSITION	Contains iron, carbon, silicon, manganese, magnesium, etc. along with copper or tin.	Contains iron, carbon, silicon, manganese along with trace amounts of sulfur and phosphorous as well.	DUCTILE IRON	CAST IRON
DUCTILITY	Highly ductile	Less ductile	BENEFITS of SGI Vs CI	
		The second second second	Can take more Pressure	More pressure & Temp.
			and Temperature	
CARBON CONTENT	About 3.2 to 3.6% carbon	About 2 to 4% carbon	Erosion properties much	No Leaks in long term.
			better	
SILICON CONTENT	About 2.5% silicon	About 1 to 3% silicon	SGI is Safe in Water hamm Ductile and not Brittle as	ner conditions as is more CI.







• Unique Replaceable SS Seat plate :

Unique replaceable SS seat design comprising of valve seat, float mechanism holding arrangement & SLR seat unlike any other Trap in the world.

- Eliminates Erosion.
- Longer Life.
- Maintenance Friendly.
- Improved Uptime of Plant.









Rotating / Self Seating / Self cleaning Design for Zero Leak Float Trap.

- Zero Steam Leak.
- Automatic Dirt Removal.
- Even Wear & Tear.
- Extended Life of Float Trap.
- Improved Up Time of the Plant.

Patent Reg. No. 201921034975







Steam Lock Release with Unique Self Aligning Stem & Seat Design :

- Zero Steam Leak.
- Extended Life of the Float Trap.
- Easy Operation of SLR.
- Improved Up Time of the Plant.
- Patent Reg. No. 201921034974







#### Float trap with Integral Strainer and Sight Glass

- Integral Strainer gives protection to the trap.
- Integral Glass gives Visual System for Trap
- Monitoring.
- Easy Maintenance of Float Trap.
- Easy Installation.
- Saving of space.
- Leakage Joints reduced.







### Float trap with Integral Blow down valve

- Integral Blow down valve provides online & Easy Flushing of Strainer.
- Reduces down time



# BALL FLOAT TRAP (SLFT-76) Now in SS304

- Maintainable strainer design
- Sight glass as standard feature
- Functional test-100% on steam





SIZE (NB)	РМА	ТМА	END CONNECTION
15	49 bar (g)	538°C	ASA 150
20			ASA 300
25			





## BALL FLOAT TRAP (SLFT-25)

- Dual Sight glass as standard feature for easy monitoring
- Inbuilt filter for additional safety of valve assembly
- Functional test-100% on steam



SIZE (NB)	PMA	ТМА	END CONNECTION
40	51 bar (g)	425°C	ASA 150
50			ASA 300





### **BALL FLOAT STEAM TRAP # SLFT75** Available Sizes & Diff. Pressure

**15NB - SCREWED BSPT - SLR** 015SLFT75-MGXN - 5bar pressure 015SLFT75-MBXN - 10bar pressure 015SLFT75-MHXN - 14bar pressure 20NB - SCREWED BSPT - SLR 020SLFT75-MGXN - 5bar pressure 020SLFT75-MBXN - 10bar pressure 020SLFT75-MHXN - 14bar pressure

- 25NB SCREWED BSPT SLR
- 025SLFT75-MGXN 5bar pressure
- 025SLFT75-MBXN 10bar pressure
- 025SLFT75-MHXN 14bar pressure





### STEAM DISTRIBUTION-PISTON VALVE

### **Differences with Globe and Gate Valve.**

GLOBE AND GATE VALVE	PISTON VALVE
Generally Metal to Metal seating and asbestos contains gland packing.	Piston valves are glandless and seatless valves
These valves are designed for Class II leakage.	Piston valves are designed for Class VI leakage.
Due to Class II leakage through ports is 0.5% of the rated flow.	Piston are ZERO leakage Valves
Due to gland design the life of the gland is limited.	They are long-life valves.

### 10% of Globe / Gate Vales leaking from Gland in any plant





# PISTON VALVE (SLPV-35)

- Unique sealing arrangement for extended life of valve
- Heat resistance hand wheel
- Wear & erosion resistance for most of the fluids
- Class VI leakage valve
- Use of belleville washer to compensate thermal expansion





SIZE (NB)	PMA	ТМА	END CONNECTION
15	20	425	BSP
20	31.6	425	BSPT/NPT
25	76.4	425	SOCKET WELD
32	13.8	200	ASA 150
40	34.7	400	ASA 300





# PISTON VALVE (SLPV-25)

- Unique sealing arrangement for extended life of valve
- Wear & Erosion resistance for most of the fluids
- Class VI leakage valve
- Use of Belleville washer to compensate thermal expansion



SIZE (NB)	РМА	ТМА	END CONNECTION
50, 65, 80	19.6 bar (g) 5.5 bar (g)	-29 to 38°C 425°C	ASA 150
100, 125, 150	51.1 bar (g) 28.8 bar (g)	-29 to 38°C 425°C	ASA 300
200			





# STRAINER (SLSTR-25)

- Bolted strainer cap above 40 NB size for ease of maintenance
- Drain plug as an optional feature for easy upkeep of strainer



SIZE (NB)	МОС	END CONNECTION
15, 20, 25, 40, 50	WCB	BSP/BSPT/NPT/SWE/ASA150/ASA 300




# STRAINER (SLSTR-25)

- Bolted strainer cap above 40 NB size for ease of maintenance
- Drain plug as an optional feature for easy upkeep of strainer



SIZE (NB)	MOC	END CONNECTION
50,80,100,150,200NB	WCB	ASA150/ASA 300





# MOISTURE SPERATOR

- Baffle type construction for enhanced condensate removal efficiency
- Suitable for both steam and compressed air



SIZE (NB)	РМА	ТМА	END CONNECTION
25, 40, 50, 65, 80,	19.6 bar (g) 5.5 bar (g)	-29 to 38°C 425°C	ASA 150
100, 125, 150, 200	51.1 bar (g) 28.8 bar (g)	-29 to 38°C 425°C	ASA 300



# DISK CHECK VALVE (SLDCV-77)

- Compact design
- Light weight
- Disc check valve must be fitted between flanges as per flow direction indicated on body
- Have to ensure proper fitment of gaskets between body & flanges





SIZE (NB)	РМА	ТМА	END CONNECTION
15, 20, 25, 40,	49.6 bar (g) at 38°C	425°C at 29.1 bar (g)	Between two flanges ASA
50, 80, 100			150 or ASA 300





# PRESSURE REDUCING STATION (PRS/PRDSH)

- Complete solution for pressure reduction, de superheating & temperature control
- Pneumatic actuated control valves
- Piston valves as isolation valves
- IBR approvals







# CONTROL VALVE (PRV/TCV)

- High flow capacity and rangeability
- Large variety of trim design
- Top entry for ease of inspection and maintenance
- Tight closing for reliable control even when changes in pressure / temperature are sudden and extreme
- Wide selection of actuators to meet most system requirement
- Rigorously proven on-site performance







# FLASH VESSEL

- Maximum flash steam recovery
- Zero maintenance product
- Customised to customer requirement
- Available in IBR also as special







## **CONDENSATE RECOVERY**

- ➢ Boiler Investment Cost much lesser than annual FUEL BILL
- **EVERY 6Deg C Rise in FEEDWATER TANK TEMPERATURE = 1% FUEL SAVING**
- > Average Condensate Recovery % 60- 70%
- Conventional Condensate Collection tank results in huge temperature drop
- Centrifugal Pump pumps condensate temperature up to 80 DegC
- Steamlok make Steam operated Pump- No electricity required
- Condensate return temperature 95Deg C
- **FEEDWATER TANK TEMPERATURE Close to 90DEG C**







### **CONDENSATE RECOVERY PUMP**



www.steamequipmentusa.com





#### AUTOMATIC PUMPING TRAP

#### Working Principle:

### This is a specially designed combination of steam operated pump and trapping mechanism for effective condensate removal from heat exchangers/ Reboilers.

This automatic pump trap is designed to make a compact pump work in tandem with a float trap mechanism. It operates like a pumping trap which works as a simple trap under normal pressure conditions of the heat exchanger and works as a pump to pump the condensate out during system stalling conditions of the heat exchanger. Therefore, prevents steam loss on one hand and water hammer and associated gasket and plate damages on the other hand, in the heat exchanger by effectively removing condensate under all operating conditions.

A steam supply of maximum 7.0 kg/cm<sup>2</sup> pressure only is to be connected to the motive steam inlet for operating the *pump trap*.

This automatically senses the stalling or normal conditions of the system and shifts to trap mode or pumping mode accordingly all by itself

Available Sizes: 25, 40 & 50 NB as standard size. End Connections: Flanged to ANSI 150# as Standard. Limiting conditions: Max Operating pressure – 14 kg/cm<sup>2</sup>. Max Temperature – 200 <sup>0</sup>C. Cold Hyd. Test Pressure – 21 bars. Max motive steam supply pressure: 7.0 bars.







# WASH DOWN STATION

- Safe operation auto shutoff of steam if cold water supply is interrupted
- Internal steam and water check valve to prevent backflow
- Integral steam water venturi mixer for consistent mixing
- Manually operated flow proportioning control valve
- Stainless steel thermometer
- Globe valve and stainless steel hose
- Rack are standard







## CONDENSATE CONTAMINATION DETECTION SYSTEM (CCDS)

- TELEDYNE USA make Ph ANALYSER
- Higher accuracy of control
- High temperature exposure of sensor eliminated by use of sample cooler therefore life of sensor is more
- Sample cooler with SS316 coil material
- High temperature sample isolation and blowdown valves
- Manual grab tundish







# STEAM MANIFOLD (SLM-35)

- Forged body design for better strength
- Unique piston & spindle design for ease of operation
- Heat resistant hand wheel



SIZE (NB)	РМА	ТМА	END CONNECTIONS
15, 20	51 bar (g) at 38°C	425°C at 28.8 bar (g)	BSP, BSPT, NPT





# **PIPELINE CONNECTOR(SLUTM-76)**



SLUTM-76 is an uniquely designed universal trap module in stainless steel construction (CF8)



#### SIZE

15 NB, 20 NB

#### PIPE CONNECTIONS

Screawed - BSP, BSPT, NPT

Socket weld

#### **DESIGN CONDITIONS**

- Max. Allowable Pressure (PMA) - 48.9 Bar (g)
- Max. Allowable Temp (TMA) - 538° C











### ECONOMIC BLOW DOWN CONTROL ECO-BLOW



- Timer Based / TDS Based Blow Down system: Gives protection and longer life to the Boilers.
- Robust and Safe Blow Down System. Maintenance Free system.
- Powered by Siemens Controller. Reliable Control system.

High Temperature Steamlok make Ball Valve and Rotex actuator.

Timer Based ECO-BLOW developed specifically for Gulf Customer who use Blowdown Water for Gardening





### **DEAERATOR HEAD**







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#### STEAM SURVEY @ OPTIMUM UTILISATION AND ZERO LEAK PLANT

In today's scenario where products have become global, the only avenue to cut costs to by reducing manufacturing costs. With most cost heads, from raw material to other over heads being foed, reducing feel bill directly impacts the bottom line. Fuel prices are beyond our control. Fuel Cost conditions almost 65% of the annual ranning cost of a boller. So, steam energy unocertains is only way to bring in savings and improve bottom lines. Steamt ok certified energy auditors team have expertise in process plants field and its and also having more than 25 years of hands-on field experience.

#### Expenditure over a Solid Fuel Fired Boiler:



#### Objective:

- · Finding the saving potential from complete steam and condensate network in Generation, Distribution, Process and Recovery.
- Adopting all Good Engineering Practices.
- Making a ZERO leak plant and using high quality steam in process.
- Good housekseping with happy steam systems.
- · Creating invariances and training at plant level.

#### Generation

- Black or white smoke emitted from the busiler chimney indicates inadequate combastion leading in excess fuel consumption. To check boiler painmeters and settings with actual trials.
- Implantation of Feed water task management evaluate.
- study of TDS level in boiler and charactal during TRACTOR.

- Chemical Incoment of Imake-up water increases TDB levels in the build, leading to increased blowdown, Returning condumnic reduces the TDSlevels and thus blowdown, leading to fact servings. Typically 8-10% saving potential enists in besler Interact
- · Distribute steam at high possible pressure to reduce piping cast and distribution losues. An incruise in steam pressure decreases its volume. allowing use of smeller pipes.
- Study of entire distribution network and suggesting all commend products systems.
- Typically 2-5% saving potential exists in distribution in treach.

#### Process:

- Correct application based steam trap selection on process aquipments can save 7-8% of steams commention.
- Study of group trapping vs individual trapping and ite irraniant.
- Checking all process trags string, selection and installation.
- Study of process parameters requirement vs steam pressure and temperature control systems.

#### Recovery:

- Every 6<sup>th</sup>Crise in boiler field water temperature. reduces fuel hill by 1%s.
- Return hot condenante from steam using processes. Bender saving 2976 of fuel hill, it reduces water teners and entire food walkin treatment bills.
- Returning IT hr of condensate saves: Ra. 3,30,000 - annually in one's water business
- and. Ra. 6,70,008 - annually in RO mater cross. 1.
- 7929 T water annually.
- 247 T of rice hask per year. Condensate forms at slearn temperatures. So, theh A condensate both should be recovered.

Hence in a process plant saving potential from complete steam & condensate network is possible in tune of 37-43% of fuel bill annually,

#### Steamlok EXPERT TEAM TEAM AT WORK And that indeed income and stimute and magnetics in ers & representing field of PERFORMANCE LETTER OUR FEW RECENT SURVEYS AND IMPLEMENTATIONS AT... AMBIKA PLYWOOD GLAND PHARMA UMITTID Pidilite BISWAN KHURD TANDOUR - SITAPUR ay a TO WHOM SO EVER IT MAY CONCERN Mylan Apollo VINATE OBLIANDCE LIMPTED Party star Parasiana and 1988 million and 1988 FEW REFERENCES...

- ht a Pharmacoutical industry, setting identified .
- of Rs. 24,13 LFA against investment of Rs. 14,84 Later for a payback pared of 8 Months! In a Pharmacoutical Industry, saving identified
- of Rs. 34.743.P.A against investment of Rs. 18.30 Lars for a payback period of 7 Maniful In a Paper mill, variant identified somether, 356,
- 1.P.A support of Ra. 05.7 Luking for a the back part of the About the
- A ARP or Dorsholds having first bill of Rev 2444 LPA serving identified was Re. 40, 14, FA and ROB of 4 3 hunths?

STEAMLOK ENGINEERING PRIVATE LIMITED

Plot No. C-27, MIDC - Phase - U. Mahalungs, Chakan, Pune. 410501, Maharamtra, India. Cantact +01-8007017290 / +01 47/1908130. Email: sale of size ministering time a new staamickunglineering com-



Advancement indexes \$1,50000 prices for

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STATISTICS AND INCOME.

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diversity when index over

# Distribution: # Marchainter







#### INNOVATIVE STEAM SOLUTIONS @ PAPER MILLS

A typical waste Paper Mill requires steam for paper machine as well as starch preparation. Major consumpton is indirect in paper machine, while some minor amount of steam is used in starch preparation. Let us take an example of average mill and a good mill.

#### CASE STUDY:

Here we are taking a 100TPD Kraft Paper Mill of Uttar Pradesh. It is manufacturing Kraft Paper of different GSM ranging from 80 to 180 GSM.

#### Base Line data:

- Fuel Type: Rice Husk
- Average Cost of Eucl: Rs. 3/Kg
- · Cost of Steam: Rs. 1.2/kg
- Fuel Consumption: 53TPD
- Food Bill: 5.2 Crores P.A.
- Feed Water Temperature: 70-80°C
- Operating days: 330 days

We had the following observations and solutions:

#### Boller House:

- It was observed that Steam is generated below the design pressure i.e. only 6-7 bar (g) however, the boiler design pressure is 10.54 bar (g). Since, lower pressure increases entrainment of water in the stram thereby reducing its dryness, the solution was to operate the boiler at its maximum design pressure and use pressure reducing station at the usage point.
- Installation of Moisture Separator on the boiler outlet line ensures dry saturated steam to the process.
- Maintain water level of Boiler feed water tank in automatic mode with help of online automatic level indicator and control system. So, the Feed water temperature will increase to 98-100°C.
- Avoid excess chemical dosing by Automatic Blow down Control System (Eco-Blow) to ensure always optimum

level of TDS of the water inside the boiler and correct blowdown ensuring steam saving of 1 TPD.

· Ensure GEP are strictly being followed.

#### Distribution:

During the Steam Audit it was found that:

- 30% of the traps were leaking and 20% were choked
- Identified no trap locations
- At dead ends no traps and Air vents were installed.
- No Pressure Reducing Station installed.

 No Good Engineering Practices were adopted So, the distribution loss of 11 TPD can be reduced up-to 4 TPD. Hence, steam saving potential of 7 TPD in distribution network.

#### Process;

- Steam Consumption on paper machine was 168TPD which can be reduced up-to 138 TPD by correcting the trapping system. Based on the machine speed condensate evacuation system should be selected.
- With proper temperature control system. Steam Consumption in starch cooker can be 10 TPD from 12 TPD.

So, total steam saving potential from process was about 32 TPD.

#### Flash Recovery:

The Flash Steam which is about 5 TPD can be utilized in Starch Cooker process, hence reducing consumption of 5TPD live Steam.

#### Hence, the total steam saving potential is 45 TPD which is about 1.78 Crores P.A. in Fuel bill.

#### A Paper Mill with Conventional Steam Systems

SL Steamlok



#### A Good Paper Mill with Modern Steam Systems and adopting all Good Engineering Practices



#### www.steamequipmentusa.com







#### INNOVATIVE STEAM SOLUTIONS @ RICE PLANT

The Parboiled Rice is rise that has been partially boiled in the bask. The three basic steaps of Par-boiling are Saaking. Steaming and Drying. The steaming employs the tice to about numericats and changes the starch so that it cooles into a firmer, less sticky dish of rice than regular raw rice.

#### SPECIFIC STEAM COSUMPTION:



#### Advantages of Par boiled rice:

- · Parboiled race is highly matrifemally richer than raw rice and is less stickly
- Due to hardening of grain, more find it more difficult to indext.
- Rich in minerals as a contains The Caleman, Postausium, Zing, Iron and Magnessium.
- It loses less starch daring avolating. Oney moked, it stands for long time and stays fieldy

#### Customer Needs:

- . Increase in drying rate to increase productivity.
- Reduction is grain breakage percentage and faci-
- consumption. Uniformity in pakki and Kacehi steaming.

#### Areas of Concern:

#### Againal Pressure Profile across Trag-



#### TYPICAL STEAM CONSUMPTION IN DRYER

Deper Capacity (T)	Normal Pask Steam Communities	Intest Prok. Steam Commission
10	4500	128
24	-1000	1040
10	2200	200
-41		149

#### Pre-Mounting Karolal/Past Steaming Pakkfi:

- Deated temperature-100°C & Pressure-3.5 ftar Tesh.
- Actual temperature-130°C & Promise-ti-7 her (g)trapped on grain color variation due to different
- to reportation profile across tank Program builty lead fluctuation due to high steam and the owner of the owner.

#### Second to pro-

- . Elestred temperature - 68PC.
- Actual temperature n0-70%:
- Variation in soulding time as per the water temperature.
- Excess steam consemption due to manual apartations.

#### Dry had

- Desired temperature for hasmati rice 120-10°C ٠ and for non-burnati in 120-100°C.
- Actual temperature for hustight rice 100-60°C and fire non-barranti to 100-80°C.
- Variation in 74 grain booken due to uncontrolled air fattercratters.
- Inclusived Match timing disc its improper pring transferent.
- High steam concernption A less internate STATISTICS.

## Steamlok

#### A typical Steam & Condensate Circuit for Rice Plant



#### SteamLok Deliverables

- Enhanced Productivity Chieoptimization of steam system.
- Improvement in product quality Piccied temperature profile helps to control % of rice grain broken.
- Energy conservation Efficient Drying System due to properly selected trapping system reduces steam consumption and batch timinta

#### Steam Constation

- · Installation of Moistury separator at the boiler outlet ensures dry saturated steam to the process.
- . Eco-Blow down climinates unnecessary chemical doning & has to maintain TDS Level.
- Automatic Level Indicator and control helps to enhance Field water temporature.

#### Steam Distribution

 Proper steam distribution network with correct line sizing, Good Engineering Practices followed for Air venting, Steam

Hence, the total steam saving potential for a typical rice mill identified is 20% on Annual Fuel Bill.

trapping at expansion hands and Deal ands. genugers.

#### Process.

KacehitPakki: Use of right pressure dry submitted stuam is vital for-

- Achieving right menoture content.
- Better quality rice Hard and uniform color-
  - Loss breakage.
  - Better flavor and more mentional value
  - . Less paidy odeur.
  - More bran oil.

Dryer: Replacing group trapping by properly sized individual traps on each dryer helps to maintain uniform gradual temperature profile in each zone of dryer. It gives good quality and high head recovery of Fieldy

#### Condensate & Flash Steam Residency

Proper emplemente evanantion from process and recovery of condensate as well as flash steam help to get CRP up to 75%.

#### www.steamequipmentusa.com







#### INNOVATIVE STEAM SOLUTIONS @ SEP

Rising material and utility costs coupled with increased global competition is forcing the solvent industry to trim its and of manufacture. Steam, i.e. boiler fiel, accounts for 30-40% of the total processing cost of this industry. Steam is mainly used in Equipments like DT (desolventining taster), cooker, radiator coils, distillation column heaters, preparatory section and ejectors.

#### SPECIFIC STEAM CONSUMPTION:

#### STEAM CONSUMPTION IN PROCESS:

500 400	130 300	
300 300 100		
0	35C (Ag of slauts/Ton of free Dran)	ř.
	e forrage	Best Achievest . Best Passible

#### CASE STUDY:

A solvent extraction plant in Barabanki, U.P. processor norbran and has an installed capacity of 300 TF13 with an annual fact bill of Ro 2.6 correct Annual. Base Line data:

- Operating days of Pull Local 200 days.
- Average Control Park Ra. 4/Kg of Hush.
- OCV of rud: 3200 kent kg.
- · Average cash of Steam: No. 1.2/Kg of Steam.

We had the following observations and solutions:

#### Boiler House:

\*It was observed that Steam is generated below the design pressure i.e. only 12 har (g) however the design pressure is 17.5 har (g). Since, lower pressure increases enhancement of water in the steam thereby reducing its dryncss, the solution was to operate the boiler at its maximum design prossure and use pressure reducing station at the usage point.
\*Maintain water level of Boiler feel water tank in

automatic made with help of online automatic level judicator and control to ensure max variation of boder feed water temperature is by 4-2°C.

\*Avoid excess chemical doining by Automatic Blow down Control System to crossre alwages optimant level of TDS of the water inside the boiler: \*Ensure CALT are structly being followed.

Equipment	Typical Average Plant SSC (kg/Ton)	Best Possible SSC (kg/Ton)
Prop wie Pallen Onier	100-120	80-008
Prop with Pallet Drier	130-190	100-120
Distillation	89-130	79-80
DT.	129-120	80-100
Total	300-430	139-308

#### Distribution & Process:

\*During the Steam Andit it was found that in PREF Section there was no ateam trap installed in Cooker Steam Distribution Hander and One Mointure Suparator installed in the plant. So, there was avoings of 9.02Lacs F.A., whereas the servings achieved by arresting the losses through bypass opening of traps and replacement of leaking traps not installered.

<sup>6</sup>In DT sectors since PRS was bypass as in place of 8blagters<sup>2</sup>, 11-12 kg/ant<sup>2</sup> sharm was being used in DT helders of each compariment. So, the saving considered by providing desired pressure through PRS was L82 Lace P.A.

#### Steam Trapping in Processes:

The detailed study of the installed steam maps was combined based on their good working condition, passing, group requiring and waterlogged maps. The estimated navong by all corrections and adapting CIUP was furned to be 37.91 Lacs P.A.

#### Condensate & Flash Recovery:

Condensate was being fully recovered from all the process but fluids steam (g) but (g) that arecent to 200kg by was constitued and was creating back pressure in the unities circuit because of low pressure. The suggested achieves of fluids utilization by ogening it muanticy builds (Re-builer), the saving estimated was Re-16.50 Lase FA.

Hence, the total savings potential of the plant was Rs. 68.20 Lacs P.A.



#### Proper Condensate Recovery gives Proper Heat Transfer:

Selection of proper trap as per load. SteamLok make Ball Plout Steam Traps for 100% removal of condensate, for higher AT compartments 1 and 2, 4088 preferred and for remaining lower AT compartments, 2088 preferred which has tobalt Meaner. On-line trap performance manipuring resolution and On-Tex: Bashing facility. The installation of Pumping Trap Conditionation (PTC) for Beater 1,2 and Re-boler 2, which embles proper evacuation of condensate which helps in energy conversion of Sofreet plant.

#### Utilization of Flash Steam in Process:







### SL Steamlok

#### INNOVATIVE STEAM SOLUTIONS @ CHEMICAL INDUSTRY

#### Introduction

- · The chemical industry comprises the companies that produce industrial chemicals. Central to the modern world commy, it converts raw materials (oil, natural ras, air, water and minerals) into more than 70,000 different conducts.
- · While many of the products from the industry, such an detergents, surges and performent, are purchased directly by the customer others are used as intermediates to make other products, for example, 70% of chemical manufactural are used to make products by other industries including other branches of chemical industry itself.
- · With increasing competition worldwide, immention remains crucial is finding new ways for the industry to satisfy it's excreasingly sophisticated, demanding and environmentally concerns continumers.
- . So, focus on the energy conversation can play a vital role for all chemical industries.

#### Objective

- The main objective is he find out saving potential in the annual feel bill of the boiler. Steamtok would like to elaborate the saving potential in
- entire steam and condensate loop with the help of survey done for 850 chemical industries. Survey Base Line Data
- During survey, for all #50 plants boiler capacity was in the tange of 2-24 TPH
- Design pressure: 10.54 kg/cm<sup>2</sup>(g)
- Fuel Coul
- Average CV: 4500keat/kg
- Average working days: 300 days
- · Average cost of steam: Bs. 1.5/kg

#### Generation a Manuel Station

With sample data study of all \$50 damacal plants following observations noticed in builer house:

- · Smillet Boler capacity 1 TPH Peak and Minimum load: 0.7 and 0.21711 Highest Boiler Capacity! 24 TPH Feak and Minimum load 13.5 and UTFH With above data the load is varying from 10% to 50%. so there was frequent on off-operation in boiler(10-15 times ner hour)
- Gap between Direct & Infinist efficiency: 10%
- STEAMLOS ENGINEERINIS PRIVATE LIMITED

Pint Nai, C-27, M(DC – Phase – I, Martalunge, Chakari, Pinn, 410501, Martanauhtra, malia. Cantact: -93-0007007202200 / +91-9271090550. Email: sales@internationargineering.com ...www.steermonergheering.com

Radiation losses in range of 2-476

Earpe of Blow-down TDS: 1000-2000 ppm

#### Warmenternetterfrent

- · Its very important to focus on the builer land management, so continuous receiptor and controlling entical parameters in boiler operation is necessary. Adopting all CIEP in boiler house.
- · Installation of Motature Senarator at the boiler outlet ensures iby saturated steam to the process.
- Eco-Blow down, which is automatic blow down control. system, climinates unsecessary chemical dusing & help to maintain TDB Level. So blowdown loss can be climinated
- · Beiler Seal water tank management followed by Automatic Level Indicator and control. Atmospheric De-service head plays a vital role to increase the boiler Feed water temperature as well as mixing of condensate, flosh and make-up water
- Typically 8-10% saying rotantial exists in Generation.

#### Distribution

- Distribute mean at high possible pressure to reduce piping cust and distribution losses. An increase in shears pressure deritates its volume, allowing use of smaller minute.
- · No proper selection and sizing of itapping system resulting in huge steam loss.
- Study of entire distribution network and suggesting all required products/systems.
- At all strategic locations, Meinture Separator, PRS. Strainer, Main line traps, air vents, vacuum breakers corceially for jacketed pans, heat exchangers, etc., should be properly installed.
- · Ensure GEP are strictly being followed.
- · Typically by initialing modern steam equipments at all strategic locations can lead us to 3-5% naving potential in domination network.

#### Utilization

- The equipments used to carry out the process are. · Reboilers
- Evanoraties
- Jackstedball mactors
- Batch/Rotary/Vacuum/Tray Depens ticat exchangers

#### Observation

- Steamlok did the survey of entire process section in all plants. Some common observations and scope of increase and in an follows:
- It was noticed that on different process components 48% traps were thermodynamic traps, 345% float traps and 1874 Inverted backet maps were installed, resulting to opening of bypass values for thermodynamic and inverted backet traps causing excess steam commetium
- · During audit we could reduce batch time from 3.5 hrs to 2.5 hrs on few processes by shears iran correction. So, scope of improvement by conneting process traps is
- approximately 11% on fact ball. Steamlok found on various processes a hig gap between
- theoretical and actual steam consumption. It was in rature of 7-5874 Ex: First crop purification: Theoretically sicure
- consumption should be 228 kg/batch while during malit it was consuming 245 kg/hatch which is about 7%

Similary in Chlorofom distillation (For report Thearetically steam consumption should be 41 kg/hatch while it was assuming 65 kg/hatch which is about 58% mire.

- Following factors are responsible for difference in theimitical va actual consumption in different processes
- Stepply elcam pressure variation: 10% cases
- Improver imp selection: 6676 cases
- · Temperature overclooit / undershoot problem: 50%
- CHIER Automatic Air vents and Automatic Vacuum breakers noi provided: 30% cares.
- Returning IT he of condemnate payor: · Rs. 3.06.006 -annually in water incatment cost. . Hs. 6,09,000- annually in IDO water costs
  - · 7200 T water annually

and cuts feed water treatment hills.

be fed in Boiler PWT or used in process-

· 100 T of fiel per year

Steamlok

Pumping Trap Combination, Automatic Air Vents,

Automatic Vacuum Breakers, Universal Process war

reneration sylencifor different processes.

Recommendation

annual ford hitt

Observation

Condensate & Flash Recovery

Example of communications: 20% coses

condensate: 50% enses

Look of an armonic 20% cases

availant to address tanger.

condemate recovery system.

distance is too far

fact bill by 178.

fullowing data

Recommendation

STEAMLON ENGINEERING PRIVATE LIMITED Plat No. C 27, MIDC – Phase – I, Watailunge, Chaban, Pune. 402101, Maharashina, India. Cantazi: 463-8007012208 / vEI-8231286230, Small: salar@eneantotiongineening.com - www.steambikongineering.com



· Initialiation of process Ploat traps, Pressure reducing Hence in a chemical industry saving potential from complete steam and condensate network is stations, Automatic Temperature Control System,

in tune of 35-39%.

A Good Chemical Industry with all modern steam solutions and adopted GEP



#### STEAMLOR ENGINEERING PRIVATE LIMITED

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www.steameguipmentusa.com





### SL Steamlok

dill.

Distribution of Indian Pharma Industry

# Plantailorano # thill firm

Balk drug: They are the key ingredients that form the

Clean Steam Usage: WPI Steam, also referred to as clean

steam, high purity steam, sanitary clean steam,

phannaccutical clean steam. GMP clean steam and

nyrogen frix steam, however, the resulting couldmate

must meet the numburds of USP grade water for injection

(WTB and contain no hacteria or pyrogens. Fure steam

must be produced by a pure steam generator; which is

boiler and it will be varying due to peak loads and

running loads in multiple processes. Thus, its very

basic new material for the manufacture of formulations.

combination of different balk drugs.

#### INNOVATIVE STEAM SOLUTIONS @ PHARMACEUTICAL INDUSTRY

#### Introduction

- > A compound manufactured for use as a medicinal drug or companies manufacturing medicinal drugs. A drug can be defined as an agent used for the diagnosia. mitigation, treatment, care or prevention of disease.
- > A pharmacentical preparation is a branded or unbranded domage form for a drug, such as a painhilling tablet or a cough medicine.
- > A current profile of the Indian allopathia pharmaceutical industry (APT) in India is the world's third largest in terms of volume & stands 14" in terms of value, indian drug prices are aroung the lowest in the world.
- > The phannaceutical manufacturing muccas has process requirements and manufacturing midelines in term of quality.

#### Objective

The main objective is to reduce annual fast full of the boder which can be claborated as follows:

- · Make a model plant with Zern back and high quality Adapting Good Engineering Practices to optimize
- distribution loss. · With precise manitoring & control implementing all
- innivative solutions in process. Maximize CRP percentage up to 95%



STEAMAINE ENGINEERING PRIVATE LIMITED

Piot No. C-27, MIDC - Phase - I, Mahalunge, Cheken, Pure. 410501, Metarashtre, India. 

merution

#### SL Steamlok Installation of Moisture semanator at the boiler mailet Equipments used in Process:

- ensures dry saturated steam to the process · Eco-Blow down, which is automatic blow down
- control system, eliminates unnecessary chemical doning & help to maintain TDS Level. · Boiler field water tank management followed by
- Automatic Level indicator and control, utmorgheric De-acrature head plays a vital role to increase the builer Feed water temperature as well as mining of condensate, flack and make-up water.
- Typically 8% saying potential exists in Ocheration

- · Distribute steam at high possible pressure to radice Formulation: Particular mixture of a bulk drug or a presing cost and distribution losses. An increase in steam pressure decreases its volume, allowing use of smaller pipes
  - Study of entire distribution network and suggesting all required products/eveneme
  - At all strategic locations, Mointure Separator, PRS. Seninger, Main line traps, clean steam cunimments like iclean staam ingts, clean steam stminer, separator, valves, safety valves), air vents, vacuum breakers specially for jucketual pano, heat exchangers, etc., should be properly Ind Street
  - Typically 3% saving potential exists in distributions.

- Allopathy
- Malti Effect Dyammater/ETF
- Driver
- filmerhoology
- Multi Effect Evagement UTF
- Annenate
- important to initiall steam accumulator to take care of Jacketerl vessels



Flist Nu. C-33, MIDC - Phase - I, Mattalange, Otskart, Pane, 410301, Maharashtra, India. Contain +81-8007017280 / +81-8171806330. Email: sales@uteacelickergineering.com. www.statorlickergineering.com

We would like to explain conventional and modern steam systems for various processes as follows:

#### SRP/Multi utility reactors Temp Required: 109°C @ hottom & 65-65°C @ http

- in distillizioni conference
- Actual Pressure: 3-3.5 kg/cm<sup>1</sup> (g) Reinstein Pressure: 2 hatens<sup>2</sup>(a)

Conventional system | Our recommendation \*Drainage of condensate "L'PAG inversal Frences share the first of Minhole i and CC 198 41 Interestinguests Contemporation Detection Bystom) contina putt could make terror these climitating faar of A loop and the lot of the \*PHD based temperatury "No presse investigation control system mource. optionum temperature sitting and margin "Invial air south success TNO AN TUBE VALUE breaker, safety volve, etc. breaker, safety valve for invest functioning of

removal manipulate.

#### < MEE/ETP

 Pressure Required: 7-8 kg/cm2(g) Effluent treatment east is very high which is about Rs.

MIH. 56, energy conservation for this process is very intervielland. Conventional system Our recommendation This employ to mechanics \*PID based temperators encoder of mattest evotem consures. optimum lattercature acting and longs "My objectived that there \*installation of correctly were 48% of TD train. adminul and sized 90 Yets 14% first traps & 18% figal trag modules for Inverted bucket traps proper concustion of installed scatting bypas and the second second heing kept open causing mashe waters concernation

Hot Water Generators Conventional system Our recommendation Direct stores Install Eco-Deat with injection jucket hand hot FHI hased Temperature water anderms. control evolution for accurate temperature. control Survey time for last worker preparation.

- Dryer (PBD, BCVD, TD, VTD)
- Actual Pressure: 3-3.5 kg/cm2 (g) · Remitted Pressure: 2 km/cm2 (g)
- Conventional system Our recommendation "Nii presma temperatura "TID based temperature install countries produces addresses. antilitenett futtete metette ectting and mogs. Thermodynamic "heated latters all connectify Intertal backet train scheeted and sured theat installed so bypow nead trap modules for proper to kept open resulting in excatmentions left accende hear steam loss and memory is hatch notice

#### Air Handling Units

 Temperature required: 60°C -50°C · Pressure required 1-L5 kg/cm<sup>2</sup> (g)

Conventional system	Our recommendation
Themislynamic Invertal	"Installation of Basit
bucket trup not capable to	Brap commo 20076
surnite condensate.	condemate enamation.

#### ✓ VAM/VAC

· Required Pressure: 7kg/cm2(g)

Conventional system	Our recommendation	
"Not provide protours control	*Properly stand Pressure Rochecting Station should be installed.	
* Inverted backer maps installed as bygans near to kept open resulting as hear securities and near securities and means.	<sup>9</sup> Initialization of conversity inducted and seed 20 NB float trap modules for proper cranation of condensation.	

STEAMEON ENDINEESSING PRIVATE LIMITED

Part No. C-37, MIDC -- Phase -- 1, Mattaliango, Chatcan, Paris. 430301, Matamattica, India. Contact: +81-6007017260 / +81-6271888530. Email: sale-off-te-antickongine-sting.com . www.staamiakungine-sting.com

#### SL Steamlok Bio-technology the fermentation technology makes it possible to grow a member of Furni in large tanks and, in a matter of days, a

have quantity can be produced

#### Avurveda

Avuryuda is the oldest existing medical system on the planet - the word Ayarvede means the science of life or lining

#### Manufacturing Process

A built drug for Asservable medicine is a herb or ation of horhy. These horby are boiled in a yeard Fiacheted yeased wherein there is steam in tacket and herba water maile the vessel).

#### Boiling vessel

- Temperature required: 185°C
- · Pressure required 2-2.5kg/cm<sup>2</sup> (g)

Conventional system *No practic temperature emittal	Our recommendation "PDD based fomperature control system accurace optimum temperature unage
*Incorrect Inscission of the pro- ormalised as bypener need to kept open conditing in importance loss and memory in batch tuning.	*Installation of Boat strap ansares 108% condensate evacuation from the process.

Taking into account all the processes, the saving neterial is materia accounts for 9%.

#### Condemnate & Flash Recovery:

- · Proper condensate evicention from process and recovery of condensate as well as flash steam help to get Best CRP up to 95% against average figure which has been seen 40-4574. Remons for Cap-
- · In most elaris flash steam is not recovered, which tone by field to PWT or used in success.

- terminal Textual bird
- network

#### Process

- SRP/Multi-utility reactors
- Hist water generators
- Vapor absorption machine (Chiller)

#### AIIU

- used multing lower capacity adjustion, so poor BRP.Multi-utility formation
- efficiency. It has been also noticed that due to batch type processes steam head will not constant on the
  - Hot water generators
  - Vapor absorption machine (Chiller)
- all the reak hands and adverting GEP for builty Hot water generation







Return hot condensate from steam using moces

usage and cuts feed water incatinent bills.

Besides saving potential of 20%, it reduces water

### SL Steamlok

#### INNOVATIVE STEAM SOLUTIONS @ PLYWOOD INDUSTRY



- Plywood is a material manufactured from thin layers or "plics" of wood vencer that are glacd together with adjacent layers having their wood grain rotated up to 90° to one intofher. It is an engineered wood from the family of manufactured boards which include medium-density fiberboard and particle board.
- · The ourcasing focus of the povernment for low cost housing and inframentary development, emploid with the growth in the construction and furniture industry in the country is believed to benefit the expansion of the todian plywood and luminates mathet
- · Rising demand for both and table linen products. increasing demand for premium quality window coverings such as curtain fabric and blinds, and right trend of using wallnungs and wall-decals over traditional names & custimes are some of the major factors driving adoption of home furnishing multants in the country.
- In India, home furnishing market has undergone radical changes in terms of organized retailing over the past few years. Onusing adoption of laxery home furnishing products in India across various industries such as healthcare, hose-stality, fixed services and commercial set-ups, rising adoption of hranded products, surging purchasing power of summers, growing poverament focus to primote domestic numificturing are all huge positives for the country's home furnishing market, which as expected to grow through 2020.

Piri Ne. C-27, MIDC - Phese - L Maholunge, Challen, Pure, 430501, Maharantura, Iralia. Camiast: -03.0007017200 / +01-0771066550. Email: sales@sisamlakenghearing.com . www.steamlakengineering.com

ETEAMLOK ENGINEERING PRIVATE LIMITED

#### The growth of the Indian plywood and laminates market depends on increasing demand for physicoil and lansinates

in various and user industries, such as · Furniture industry.

· Real cotate industry. · Ranid orbanization in the country

Indian Plywood and Laminute market



Indian 1	Plywood at %), by App	sit Landmate ilication (20)	murfalt 9-2027)
175	5.67%	1.874	•
• Piese • Buld • Tacks	tors ing interior : ging	and construction	

Phywood is the highest in terms of production with 3.15 million m3 in year of 2013 at an annual growth rate of 9.3476



---- Production (Thousand CUM)

### SL Steamlok

Heating/Cooling Press (Densified) During Audit Our recommendation During audit the installation of complete Givern was morely statemention system for it Higher mitti Heating Choling prose We obtrind the counted following production per shift Twite Fils. of 12 hrs you 10-17 · Drastic decrease in the batch time to 26-29 Inada. thatch time observed Mim. tras 42-45 minu. · Production increased up to 20-21 limits per tlectic manual operation of four 1000 shuttering Ply Quality valica. Steam & condensate & Strength immuned. loss to conline topics. Elimination of failure Chances of cooling of flexible hose pupes. Efficient, Reliable Sale & Systematic whittin leading to better control .8. uncoth speciation of pricise No unter bearing & curing time. hence better undin ply and rubacid rejection percantage. Condensate &

> Cooling water separation takes place automatically which reduces live steam lions he conduct water metlet. Brating & Cooling Automatics System in

belying in by intreasing proper-Combinate Receivery, Reducing Live Steam Loss and Builet make up water Complete process

control with PLC

distance from process plant to builer house will never modern condensate recovery system.

tunk by installing a flash vessel.

12002110	The second second		

Plet No. C-37, MIDC - Phase - L Mathalunge, Chalan, Pune, 410301, Maharashtre, India.

Carriage: +81-8007017780 / +81-8771006250. Email: asles@ideaminkengineering.org . www.staaminkengineering.care

#### With the help of automation system, following plant actual data of few load cycles were obtained:

these app these app to 145°C (to notice)	Holding time (br mins)	Conflug filme api for 45% (in mino)	Total fine (mine)	Pressure (ka/vm <sup>2</sup> (st)	10.10
n	-11	10	11	.8	1
6.2	.11	10	26.5	7.9	
1	11	10	28		

#### · Gluc Kettle

For any plynoid industry, the provided glue kattles are important to crisk plumit-formaldehyde rasis which is used as adhesive to bisail two sheets of ply. The glue is heated here with the help of steam.

During Audit Our recommendation · Installation of It was observed that correctly selected and the condensate from this plue kettle wa merel florat trans module below for being drained which 100% condensate can also be receivened evacuation. and no team loan installed.

#### So, the saving potential from all the process will account for 8-1076.

#### Condensate & Flash recovery Observations:

- . In this short we observed that the condemant from for off process like chambers & dryer was being drained locally due to fear of large distances.
- · We also observed that the flash steam was completely vented to atmosphere resulting for huge loss. The condensate recovery factor was only 45%.
- Recommendations · By installing Strambsk make modern Condensate
- receivery system (SLCRF 75), condensate from all the process was pumped up-to builes tread Water tank even if the distance was too far.
- · Vertical height of feed water task and Humanntal
- be the limitation in the case of Steamlok designed The flash steam was recovered to boiler field water

STEAMEON ENGINEERING PROVATE LINETED

Pist No. C-37, NIDC - Phase - I, Mahalunge, Chatan, Pure, 430501, Maharashtra, India. Contact =01-6007017380 / +01-0371986530. Fmail: color@ningmiskinginaering.com . www.stuamickungbaering.com

#### SL Steamlok

· 42 T of fuel per year.

Since there is no direct injection of steam in an process so 100% condensate recovery is possible in any plywood plant. The CRP% of this plant was increased to 95% by adopting modern steam Returning 17/hr of condensate saves: solutions and GEP. No. 3.00.000 - annually in water treatment cost. · 7200 T water annually

importance of the condensate can be anderstood with the allowing data Every #\*C rise in builet feed water temperature

reduces fuel bill by 1%

Hence in a Plywood industry saying potential from complete steam and condensate network is in tune of 41-47%.



water mixing to condensate side. A lot of wider Incomparing an frequent leakage of flexible hour pipes fittitititititititi 1-2 per month). / Heavy mine in each cycle twice due to stater hammering.

51





# STEAMLOK RECENT SURVEYS & IMPLEMENTAIONS AT .....



# 







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### STEAM TRAP SURVEY IN A PHARMA PLANT

Steam Trap Summary					
Sl no	Item description	No. of traps			
1	Total number of traps studied	58			
2	Number of traps found ok	42			
3	Number of traps chocked	8			
4	Number of traps passing	8			
	Total Steam Loss from passing traps	176 Kg/hr			
	Losses in Rs./year	22,80,960/-			
	Investment in 8nos SLTT76	32,000/-			

#### **NO. OF TRAPS**

- Total number of traps studied
- Number of traps found ok
- Number of traps chocked
- Number of traps passing







## CASE STUDY FOR CONDENSATE RECOVERY

Condensate Recovery Savings					
Avg. Condensate	5000	Kg/hr			
Pressure of incoming Condensate	3	Kg/cm2g			
Ambeint Water Temp	30	DegC			
Fuel GCV	3500	Kcal/kg			
Cost of Fuel	5	Rs./kg			
Boiler Efficiency	0.7				
Operating hours per year	7200				
Cost of Water	50	Rs./KL			
Cost of water treatment	25	Rs./KL			
Total Heat Savings	75000	Kcal/hr			
Total Fuel Cost Savings	153	Rs./hr			
Annual Savings	1102041	Rs. /year			
Investment to recover all this	500000	Rs.	Approx.		
Payback Period	6	months !			

Calculations Basis Total Saving - Avg qty of condensate X Temp. Difference(Condensate Temperature difference of 15 DegC)X cost of Fuel / GCV of Fuel X Boiler Efficeincy Total Saving - 5000X(15)X5/(3500X0.7) Total Savings = 153 Rs./hr Annual Savings- 153X7200 = 1102041 Rs. /year







### **STEAM SAVING PROPOSED**

Summary of BOM with Payback Period						
Sr. No.	Item Description	Size	Qty	Investment Rs.	Savings Rs.	Plan
1	Boiler Automatic Blow down	15NB	1	160000	171000	<mark>Mid Term</mark>
2	TD Traps Module, SLTT-95	20NB	2			
3	TD Traps Module, SLTT-95	25NB	5	221200	1140480	Immediate
4	Ball Float Traps, SLFT-75	25NB	6	221290		
5	Ball Float Traps, SLFT-25	50NB	1			
6	ECO-CRS 25 Condensate Recovery Pump	25NB	2		1102041	<mark>Short Term</mark>
7	ECO-CRS 40 Condensate Recovery Pump	40NB	1	985800		
8	ECO-CRS 50 Condensate Recovery Pump	50NB	1			
9	De-aerator Head	200NB	1			
10	Safety Valve	25X40	2	37500	NA	
		Total Investment Rs. 1404		1404590		
		Total Savings Rs.		2413521		
		Payback Period (Months)			7 - 8	





### STEAM SAVING PROPOSED IN A TYRE PLANT

Summary of BOM with Payback Period							
Sr. No.	Item Description	Size	Qty	Investment Rs. Lacs	Savings Rs. Lacs		
1	TD Trap	15 NB	11	0.45	15 60		
2	Ball Float Trap	20 NB	24	2.3	12.08		
		15 NB	3		8.8		
3	Piston Valve	20 NB	7	0.58			
		25 NB	3				
		Total Investment Rs. 3.38		3.38			
		Total Savings Rs.		24.48			
		Payback Period (Months)			2		





### DETAILED BIFURCATION OF STEAM TRAP WORKING STATUS



![](_page_101_Picture_0.jpeg)

![](_page_101_Picture_1.jpeg)

# CASE STUDY FOR CORRUGATION INDUSTRY-KCL

#### BENEFITS ON INSTALLATION OF STEAMLOK MAKE PID VALVES AND TRAPS ON THE CORRUGATOR

- Earlier the steam supply from the boiler was given directly
- No PRV /TCV for different GSM on SINGLE FACERS AS WELL AS THE DOUBLE BACKER HOT PLATE ZONES
- This created too much down time as well as waste and a limitation on output.
- With the Installation it became extremely user friendly controlling Temperatures from as low as 90 degrees to 180 degrees with the click of fingers.
- 3 Ply which could not be controlled individually now became an ease of setting. 5 Ply too became as easy as running a HOT KNIFE THROUGH BUTTER.

![](_page_101_Picture_9.jpeg)

![](_page_101_Picture_10.jpeg)

![](_page_102_Picture_0.jpeg)

![](_page_102_Picture_1.jpeg)

# CASE STUDY FOR CORRUGATION INDUSTRY-KCL

### • BEFORE- with no controls

![](_page_102_Picture_4.jpeg)

• AFTER- with precise controls

![](_page_102_Picture_6.jpeg)

![](_page_102_Picture_7.jpeg)

![](_page_103_Picture_0.jpeg)

![](_page_103_Picture_1.jpeg)

# CASE STUDY FOR CORRUGATION INDUSTRY-KCL

- Before Group Trapping
- A single trap was installed for 4 different pressure & temp zones.
- This was leading to condensate hold up and material wastage.

• After - Individual Trapping

![](_page_103_Picture_7.jpeg)

![](_page_104_Picture_0.jpeg)

![](_page_104_Picture_1.jpeg)

# CASE STUDY FOR CORRUGATION INDUSTRY-CL

The Installation of the above saw a VIVID improvement, as well as the below new advantages.

- 1) FLATTER AND IMPROVED BOARD QUALITY.
- 2) ELIMINATION OF DELAMINATED AND WRINKLED BOARDS.
- 3) REDUCTION OF WASTE BY 1.5 %.
- 4) INCREASE IN THROUGHPUT OF 5 PLY FROM 80 LM/MIN TO 120 LM/MIN
- 5) OVERALL INCREASE IN THROUGHPUT BY 14 TO 16 %.

Overall the Investment in installation of the same has brought

an ROI Within a month.

![](_page_105_Picture_0.jpeg)

![](_page_105_Picture_1.jpeg)

# CASE STUDY FOR CORRUGATION INDUSTRY-ALIGN COMPONENTS

Summary of BOM with payback period							
SI. No.	Item description	Size	Quantity	Location	Investment (in Rs.)	Savings (in Rs.)	
1	Temperature control valve	40NB	3	Hot plates	3,75,000	2,59,200	
2	Ball float trap SLFT-75	15NB	1	Hot plate	9600	2,16,000	
3	Ball float trap SLFT- 75	20NB	8	SF(A) and SF(B)	76,800	2,16,000	
4	Temperature control valve	50NB	1	SF(A)	1,32,000	86,400	
5	Temperature control valve	50NB	1	SF(B)	1,32,000	86,400	
6	Steamlok make flash vessel	200NB	1	CRS	1,00,000	4,91,040	
7	De-aerator head	150NB	1	FWT	90,000		
8	SteamLok make condensate recovery pump	50NB	1	CRS	2,63,250		
Total investment 11,78,650							
Total savings						13,55,040	
Payback period (in months)					10		

![](_page_106_Picture_0.jpeg)

![](_page_106_Picture_1.jpeg)

![](_page_106_Picture_2.jpeg)

#### TO The Attention of MR GIRISH PATTENCHERRU,

STEAMLOK PVT LTD

20/02/2020

#### Dear Sir,

We would like to inform you that the Installation of PID Valves, with Controllers Fitted on The Corrugator at ALIGN COMPONENTS PVT LTD, in Aurangabad about a month ago, these were installed at various sections of the Corrugator ( SINGLE FACERS, HOT PLATES ETC) to control and maintain SET TEMPERATURES for efficient output and performance, as well as reduce waste,

Since the implementation of the same around a month now has seen tremendous benefits, some to mention INCREASE IN THROUGHPUT BY ABOUT 15%, REDUCTION IN WASTE, REDUCTION IN MANPOWER .FOR THE FIRST MONTH WE HAVE CLOCKED SAVINGS OF RS 45,000/=We expect an annual

Savings of Plus 6 Lacs with the current set up.

The same is under monitoring on a daily basis, as the ROI worked out is about a year from time of Commencement of operations. STEAMLOK along with its team and expertise has carried out a wonderful Job , the second in a FULL FLEDGED CORRUGATOR PLANT, The earlier one being KCL LIMITED IN SRI CITY.I take this opportunity in thanking you and your team for the timely supply and Installation , which was the main fruit of

THANK YOU VERY MUCH ONCE AGAIN & hope you can be of greater services to us in the coming future.

REGARDS

RUSSEL IAN DUARTE GROUP HEAD (TECHNICAL & OPERATIONS)

www.steamequipmentusa.com

![](_page_107_Picture_0.jpeg)

![](_page_107_Picture_1.jpeg)

### **PLYWOOD PRESS AUTOMATION**

![](_page_107_Figure_3.jpeg)

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## **PRESS AUTOMATION**

Summary of BOM with payback period							
Sl. No.	Item description	Size	Quantity	Location			
1	SteamLok Temperature control valve for on/off application Flanged to ASA 150	80 NB	1	Steam Inlet			
2	SteamLok Piston Actuated Valve	50 NB	1	Condensate outlet line			
3	SteamLok Shut off valve for inlet water	100 NB	1	Cooling water inlet			
4	SteamLok Shut off valve for outlet water	100 NB	1	Cooling water inlet			
5	SteamLok Piston Actuated Valve	50NB	1	Steam trap Bypass			
6	Temperature element without TW. Along with Temperature transmitter with head type		1	Daylight			
7	Temperature element with TW. Along with Temperature transmitter without head		1	Condensate outlet header			
8	SteamLok make Ball float Steam Trap with inbuilt Strainers and sight glass for online monitoring of condensate	25 NB	3				
9	SteamLok make Disc check valve SLDCV 77	25 NB	3				
10	SteamLok make Piston Valve SLPV35	25 NB	3				
11	Pressure transmitter on steam inlet line to have record of the same		1				
12	Customised software proprietary SteamLok		1				
13	SteamLok Intelligent Process Automation System housed in a panel along with one Human Machine Interface						





## **PRESS AUTOMATION**

### Savings from automation module for presses:

Considering steam cost: Rs. 1/kg

Optimal pressure: 8 bar g

Cooling valve size – 150 NB

Even if the cooling valve remain open extra for 2 min

The losses will be = 240 kg of steam per load (Based on flow through 150 NB valve at 8 Bar and at flow of 7200 kg/hr.)

**Savings** = 240 kgs x No. of batches/day x No. of working days /month x steam cost

= 240 x 40 x 25 x 1 = INR 2,40,000/month = INR 28,80,000/ANNUM





## **PRESS AUTOMATION**

#### A TYPICAL PROCESS PARAMETERS PROFILE FOR SHUTERING PLY--- HEATING/ COOLING PRESS-15/20 DAYLIGHT--30 KG PRODUCTION



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## STEAMLOK PROJECT PACKAGE AT GLOBAL INFRA

FIRST AMENDMENT
220 MW (GAS) / 212 MW (HSD) (NET) COMBINED CYCLE POWER PROJECT
AT BHOLA, BANGLADESH
EQUIPMENT SUPPLY CONTRACT
BETWEEN
GLOBAL INFRA FZCO
AND
STEAMLOK ENGINEERING PVT. LTD
FOR
STRAINERS
AND
AIR RELEASE VALVES, SAFETY AND THERMAL RELIEF VALVES, FOOT VALVES, SIGHT FLOW GLASS, RESTRICTION ORIFICE AND FLEXIBLE HOSES [Contract Reference No. OSS-2018-36]
A THE PARTY OF A THE

S. N.	Package description	Price EA (in USD)	Quantity	Total Price (in USD)	
1.	Strainer's of the Equipment as per Schedule 2 (Technical Specifications) of the Contract	101,750	26 Nos. (mentioned in Exhibit A)	101,750	
2.	Mandatory Spare Parts of the Strainer's as per Schedule 2 (Technical Specifications) of the Contract	8,250	LS	8,250	
3.	Sub-Total (Strainer's)			110,000	
4.	Air release valves, Safety and thermal relief valves, Foot valves, Sight flow glass and Restriction Orifice of the Equipment as per Schedule 2 (Technical Specifications) of the Contract	31,661	55 Nos. (mentioned in Exhibit A)	31,661	
5.	Mandatory Spare Parts of the Air release valves and Sight flow glass as per Schedule 2 (Technical Specifications) of the Contract	3,839	LS	3,839	
6.	Sub-Total (Air release valves, Safety and thermal relief valves, Foot valves, Sight flow glass and Restriction Orifice)			35,500	
7.	Flexible Hoses of the Equipment as per Schedule 2 (Technical Specifications) of the Contract	38,040	28 Nos. (mentioned in Exhibit A)	38,040	
8,	Sub-Total (Flexible Hoses)	1		38,040	
9.	Contract Price (S.N. 3 + S.N. 6 + S.N. 8)	USD 183,54 (US Dollars One Hundred Eighty-Siz Thousand Five Hundred and Forty only)			





Domestic-Major Customer List					
Sl No	Customer Name	Products Provided	Location		
1	B.G.CHITALE	Hose down Station	SANGLI, MAHARASHTRA		
2	KCL LIMITED.	Deaerator Head, Pison Valve & Ball Float trap	SHRI CITY, ANDHRA PRADESH		
3	GE TRIVENI LIMITED	Pumping Trap BEN			
4	M.E ENERGY PRIVATE LIMITED	TALUKA KHED, PUNE			
5	GIVAUDAN (INDIA) PVT LTD	RANJANGAON MIDC, SHIRUR			
6	KURLON LIMITED	MALANPUR, MADHYA PRADESH.			
7	LUPIN LIMITED ( NAGPUR - SEZ )	Pneumatic Control Valve	Aurangabad, MAHARASHTRA		
8	BRITCHIP FOODS LIMITED - RANJANGAON	FOODS LIMITED - RANJANGAON Water monitoring & control system, Ball valve			
9	SCHREIBER DYNAMIX DAIRIES PRIVATE LIMITED	HREIBER DYNAMIX DAIRIES PRIVATE LIMITED Hose down station, Ball float trap			
10	GOVIND MILK & MILK PRODUCTS PVT LTD	Thermodynamic steam trap	SATARA, MAHARASHTRA		
11	PIDILITE INDUSTRIES LIMITED	Automatic Pumping Trap, Strainer.	MUMBAI, MAHARASHTRA		
12	SABARKANTHA DISTRICT CO-OPERATIVE MILK PRODUCERS' UNION LIMITED	Disc check valve, Thermodynamic syeam trap	AHMEDABAD, GUJARAT		
13	RANDEN ENGINEERING PVT. LTD.		MUMBAI, MAHARASHTRA		
14	AGRAWAL VIDYUT	Thermodynamic steam trap	RAIPUR, GUIRAT		
15	ESBEE POWER SOLUTIONS PVT LTD	Ball Float steam trap	PUNE, MAHARASHTRA.		
16	TRIVENI ENGINEERING AND INDUSTRIES LIMITED	Thermodynamic steam trap	SABITGARH, UTTAR PRADESH		
17	MAXIMA BOILERS PVT LTD	Disc check valve, Piston valve	MUMBAI, MAHARASHTRA		
18	8 VINATI ORGANICS LTD Thermodynamic steam trap, Piston Valve, Globe Valve, Flash Vessel		MUMBAI, MAHARASHTRA		
19	SOLAR INDUSTRIES INDIA LTD	Flowmeter	NAGPUR, MAHARASHTRA		
20	ENMAX ENGINEERING	AUTOMATIC CONTINOUS BLOW DOWN SYSTEM	HYDERABAD, TELANGANA,		





	Export - Major Customer List						
SI No	Customer Name	Products Provided	Location SRILANKA				
1	TULIP TECHNOLOGIES (PVT) LTD	Thermodynamic steam trap, Piston Valve, Float Trap , Disc check Valves					
2	SUNBEAM TRADING & CONTRACTING CO. WLL	Disc Check Vlave	BAHRAIN				
3	BATA	Thermodynamic steam trap, Piston Valve, Float Trap , Disc check Valves, Hose down station	KENYA				
4	RENEWABLE ENERGY SYSTEMS CO. LLC	Disc Check Vlave, Automaic Blowdown control System, Pressure reducing station	OMAN				
5	MEFSCO	Thermodynamic Steam trap, Ball float trap, Disc check valve, Moisture seperator	RIYADH, KINGDOM OF SAUDIA ARABIA				
6	FLUOR ENGINEERING NV	Thermal shut off valve	NETHERLANDS				
7	GLOBAL INFRA FZCO	Strainer, Air releae valce, flexible hose, sight glass, safety valve.	DUBAI (UAE)				

And Many more.....





#### STEAM EQUIPMENTS SWAS REFERENCE LIST - OVERSEAS



Steam Equipments Pvt. Ltd

SL	CUSTOMER	PROJECT	OFFERED	CAPACITY	SETS	CONSULTANT / EPC	SECTOR	YEAR	COUNTRY
1	MOTT MACDONALD CONTRACTING( PTY) LIMITED ( acquited to PDNA Industrial Protects Pty Ltd)	KUSILE POWER STATION	SWA5 + WTF	6 s 800 MW	0	Black & Veach	POWER	2011 (PO)	SOUTH AFRICA
2	MOTT MACDONALD CONTRACTING( PTV) LIMITED ( acquited to PDNA Industrial Protects Ptv Ltd)	KUSILE POWER STATION	SWAS	UNIT - 1	1	Black & Veach	POWER	2017 ( Commissioned )	SOUTH AFRICA
3	MOTT MACDONALD CONTRACTING( PTV) LIMITED ( acquiled to PDNA Industrial Projects Pty Ltd)	RUSILE POWER STATION	SWAS	UNIT -2	1	Black & Veach	POWER	2018 ( Commissioned )	SOUTH AFRICA
4	MOTT MACDONALD CONTRACTING( PTY) LIMITED ( acquiled to PDNA Industrial Protects Pty Ltd)	KUSILE POWER STATION	SWAS	UNIT -3	1	Black & Veach	POWER	2018 ( Commissioning)	SOUTH AFRICA
5	MOTT MACDONALD CONTRACTING( PTY) LIMITED ( acquited to PDNA Industrial Projects Pty Ltd)	KUSILE POWER STATION	SWAS	UNIT-4	1	Black & Veach	POWER	2018 ( Under Manufacturing)	SOUTH AFRICA
6	MOTT MACDONALD CONTRACTING( PTY) LIMITED ( acquited to PDNA Industrial Protects Pty Ltd)	KUSILE POWER STATION	SWAS	UNETS & 6	2	Black & Veach	POWER	2018 ( Under Engineering	SOUTH AFFLICA
7	YOKOGAWA MIDDLE EAST & AFRICA B.S.C. O	JORDAN SAMARA ELECTRICAL POWER COMPANY PHASE IV (NEPCD): COMBINED CYCLE	SWAS+ SHELTER+HVAC	140 MW	1	SEPCO III , UAE	POWER	2018 ( Commissioned )	JONDAN (ME)
8	YOKOGAWA MIDDLE EAST & AFRICA B.S.C. ()	SHARJAH ELECTRICITY AND WATER AUTHORITY, LAYYAH	SWAS	2x55 MW	2		POWER.	2018 ( Commissioned )	UAE (ME)
9	HITACHI ZOSEN CORPORATION, JAPAN	SMART WTE SYSTEM	SWAS	100 MW	(1)		ENERGY TO WASTE	2018 ( Commissioned)	MALAYSIA
10	HITACHI ZOSEN CORPORATION, JAPAN	SMART WTE SYSTEM	SWAS	100 MW	1		ENERGY TO WASTE	2018 ( Commissioning)	MALAYSEA
11	ESINDUS, S.A. SPAIN	KANGAN UTILITY AND OFFSHORE PROJECT( KANGAN PETRO REFINING COMPANY)	SWAS	CAPTIVE POWER PLANT	1	EIED( Energy Industries	POWER(CPP)-GAS	2018 ( Commissioning)	SPAIN
12	ESINDUS, S.A. SPAIN	SDC 196 DAP ENAP ACONCAGUA RIFINERY	SWAS	CAPTIVE POWER PLANT	1	DURO FEGUERA, S.A.	REFINERY	2018 ( Commissioned)	CHILE
13	PT. ABB INDONESIA	KERAMASAN ( PLN)	SWAS	250MW	1		POWER	2013 ( Commissioned )	INDONESIA
14	PT, ABB INDONESIA	KERAMASAN-2 ( PLN)	SWAS		1		POWER	2013 ( Commissioned )	INDONESIA
15	PT. CONTROLTECH INDONESIA	BATAM	SWAS+CEMS		1		POWER	2018 ( Commissioned)	INDONESIA
10	CONCEPT POWER ( PT. E N H INDONESIA)	SURYA BORNED PROJECT	SWAS	CCPP	2		POWER	2017 ( Commissioned)	INDONESIA
17	CONCEPT POWER ( INDONESIA)	PLTU BARAU	SWAS	2x7MW	2		POWER	2018 ( Commissioned)	INDONESIA
18	CONCEPT POWER ( INDONESIA)	PLTU OMEILAN	SWAS		2		POWER	2018 ( Commissioned)	INDONESIA
19	CONCEPT POWER ( INDONESIA)	PLTU LONTAR	CEMS		1		POWER.	2018 ( Commissioned)	INDONESIA
20	PT, CONSERVETECH INDONESIA	MDARATAWAR	CEMS		1		POWER	2017 ( Commissioned)	INDONESIA
21	CONCEPT POWER ( INDONESIA)	PT GRESIK	SWAS		1		POWER	2017 ( Commissioned)	INDONESIA
22	CONCEPT POWER ( INDONESIA)	SINTANG	SWAS		3		PO/WER.	2017 ( Commissioned)	INDONESIA





# **THANK YOU !**



## **USA Plant and Office**

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