Indo Anushka
Steam Technologies.

Condensate Heat Recovery Systems

"PROVIDING VALUE FOR MONEY IN STEAM ENGINEERING"

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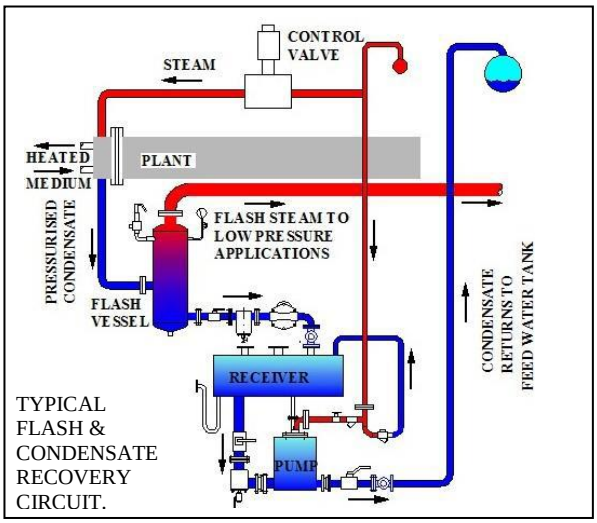
IN THE PRESENT SCENARIO,

- Fuel prices are rising at alarming rates ……solid fuels are facing shortages.
- Cost of steam...Rs. 4/kg for liquid fuel fired generation ….Rs. 2/kg for gas/solid fuel fired generation
- Waste of steam or hot condensate spells into direct losses.

The prime challenge or question facing every industry is

- How to reduce fuel bills ?
- How to reduce fresh water bills ?
- How to reduce ETP bills. ?

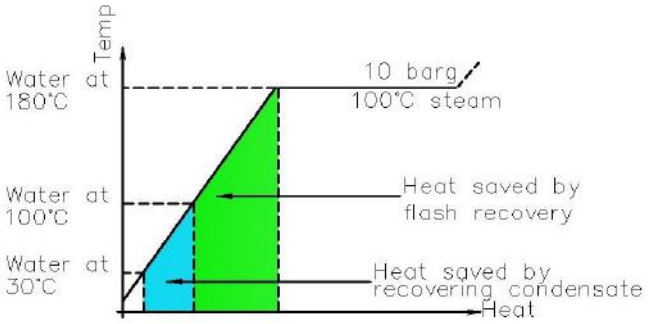
The answer --
Heat Recovery from Condensate .



TYPICAL FLASH & CONDENSATE RECOVERY CIRCUIT.

WHY HEAT RECOVERY FROM CONDENSATE ?

Condensate is the steam that has condensed to water after giving away its latent heat in the heating process. Being condensed from steam it is pure water and the best possible source of feed water for the boiler. This quality feed water directly results into reduction of blow downs, the resultant heat losses through blowdowns and reduces other scale related challenges in the boiler.



In addition to this the most important feature of Medium or high pressure condensate is that it carries with it a significant amount amount of sensible heat which gets wasted the moment we drain the condensate. This heat, as shown in the demonstrative graph alongside, is nearly about **20% of the total heat of the steam** and can be recovered by **controlled flashing** and **return of the condensate** to the boiler feed water tank **at 100 deg.C.**

Create substantial savings by recovering heat from condensate....

Consider

- Cost of steam at just Rs. 2 per kg,
- Condensate pressure 3.5 kg/cm^2 …p1
- Flash recovery at 0.5kg/cm^2 pressure …p2
- Condensate to be recovered. only 1000 kg/hr

recoverable flash = ((sensible ht at p1 - sensible ht at p2) / latent ht at p2) X 100
= ((148 – 109.5) / 533) X 100 = 7.2% = 72kg/hr of steam recovery
Money saved = 72 X 2 = Rs. 144 per hr.
By returning balance condensateto boiler feed water tank at 100 deg. C
equivalent steam saved = ((100-35) X1000) / 540) = 120 kg/hr
Money saved = 120 X 2 = Rs. 240 per hr.
Therefore total money saved = 240 +144 = Rs 388 per hr.

Therefore by recovering heat from just 1000 kg/hr condensate the savings created is

Rs. 388 per hr or Rs. 9312 per day or Rs 27,93,600 per year..

Simultaneously reduce your fresh water bills by consuming less feed water and reduce ETP bills by discharging less water.

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Experience of nearly two decades and a vision to develop customer friendly solutions has helped us "**Indo Anushka Steam Technologies**" to succeed in creating products and provide a range of value added but economical solutions in this field of heat recovery from condensate.

"MUTINY"
STEAM OPERATED CONDENSATE RETURN PUMPS

● Simple in construction ● Operated by steam, so highly economical & energy efficient ● pumps hot condensate practically at 100° C - so high on energy saving ● supplied as a self sustaining skid mounted system with all required accessories like receiver tank, valves, strainers etc & motive steam inlet connection.

COMPACT MODEL
SIZE : 25, 40, 50NB

MATERIAL OF CONSTRUCTION :

No.	Item	Material	
1	Pump body, frame assly, receiver body	M.S.	IS 2062
2	Mainteno ONLINE CLEANING STRAINER	M.S.	With SS304 internals
3	Disc check valve	S.S.	
4	Ball Valve	C.I.	SS 304 internals
5	All pipng - condensate inlet & return, exhaust, overflow, steam inlet.	M.S.	IS 1239 CLASS C
6	Steam trap	S.S 420	
7	Pump internals	SS304	

TECHNICAL SPECIFICATIONS :

Available sizes : 25NB, 40NB, 50NB, 80x50NB
Max op. Pr : 7 bar
Max op. Temp : 180 deg C
End connection ratings : 150# Flanged.
Pump internals : Float based, spring loaded snapshut mechanism, fully mechanical and automatic.

ENHANCED CAPACITY
SIZE : 80NB x 50NB

CAPACITY TABLE :

CAPACITY TABLE FOR HOT CONDENSATE, kg/hr.							
SR NO	OP. INLET PR. Bar.	BACK PR. Bar	PUMP SIZE				
			25NB	40NB	50NB	80 x 50NB	MUTINY MINI
1	7.0	1	1065	1875	2700	4570	650
2	7.0	2.8	980	1715	2490	4250	500
3	7.0	4.2	900	1475	2370	4040	450
4	3.5	0.7	980	1635	2615	4500	600
5	3.5	1.75	940	1510	2370	4000	500
6	3.5	2.8	815	1305	1960	3350	400

Ask for the economic Mutiny – VFM series.
VFM series Mutiny pumps are supplied with normal strainers and without the motive steam inlet trap modle.

MUTINY-mini - A low capacity basic mini pump to return small quantities of condensate even from remote locations with minimum capital investment.

"MUTINY" PUMPS USE NO INSTRUMENTATION – NO ELECTRICITY.

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Mutiny- PTC

The MUTINY-PTC is a specially designed combination of steam operated pump and trapping mechanism for effective condensate removal from heat exchangers.

The ***MUTINY-PTC*** is designed to make a compact pump work in tamdem 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.

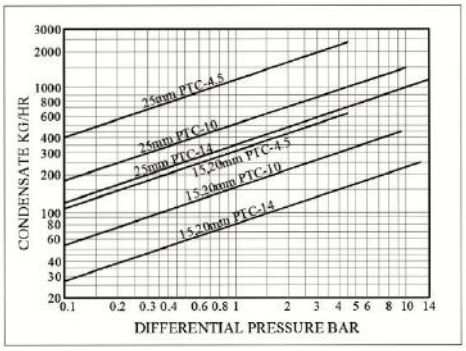
The ***MUTINY-PTC*** therefore prevents steam loss on one hand and water hammer and associated gasket and plate damages on the other hand, in the heat exchanger by effectively removing condensate under all operating conditions.

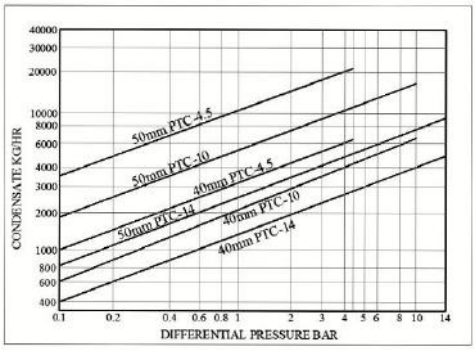
A steam supply of maximum 7.0 kg/cm^2 pressure only is to be connected to the motive steam inlet for operating the ***MUTINY-PTC*** .

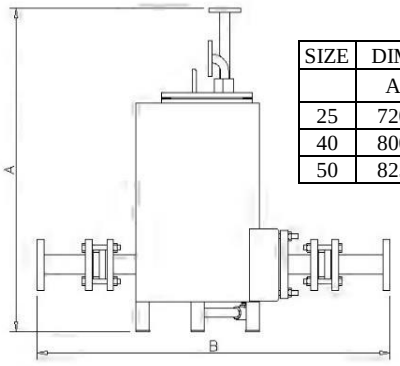
The ***MUTINY-PTC*** automatically senses the stalling or normal conditions of the system and shifts to trap mode or pumping mode accordingly all by itself.

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^2.
Max Temperature – 200 ^{0}C.
Cold Hyd. Test Pressure – 21 bars.
Max motive steam supply pressure: 7.0 bars.

CAPACITY CHARTS :-







SIZE	DIMENSION	
	A	B
25	720	745
40	800	800
50	825	800

PART LIST OF CUSTOMERS USING OUR CONDENSATE HEAT RECOVERY SYSTEMS FOR FLASH STEAM RECOVERY AND CONDENSATE RETURN.

Sr.no	customer name	capacity in terms of load of condensate handled	location
1	Industrial Solvants	22000 kg/hr (22TPH)	Ankleshwar
2	Sunpharma	6000 kg/hr	Panoli
3	Sunpharma	2000 kg/hr	Ankleshwar
4	Heubach colors (unit 1)	2000 kg/hr	Ankleshwar
5	Heubach colors (unit 2)	4000 kg/hr	Ankleshwar
6	Heubach colors (unit 3)	4000 kg/hr	Ankleshwar
7	UPL (unit 2)	1400 kg/hr	Ankleshwar
8	Farmson analgesics	4000 kg/hr	Vadodara
9	Farmson Pharmateuticals	4000 kg/hr	Vadodara
10	BMS CHEMIE	1000 kg/hr	Vadodara
11	Synergy Chlorination	2000 kg/hr	Vadodara
12	Biotor Industries	11000 kg/hr (11TPH)	Vadodara
13	Bhagwati chemicals	1400 kg/hr	Chatral
14	kiridyes and chemicals	9000 kg/hr	Khadakdi
15	Bodal chemicals	5000 kg/hr	Khadakdi

……And the list is growing rapidly……

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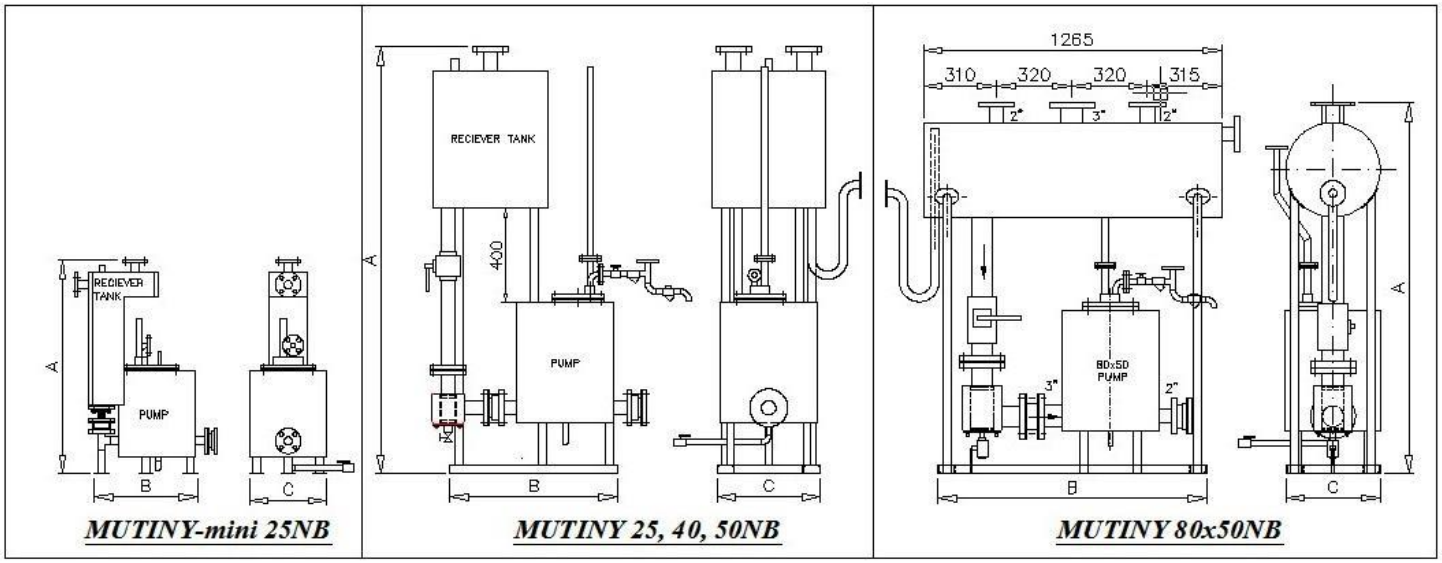


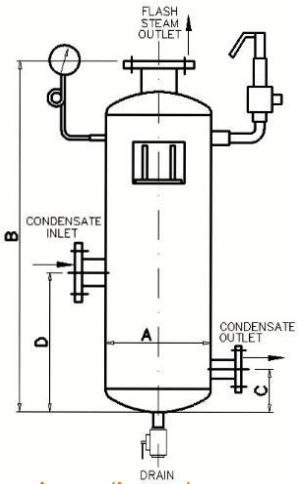
MUTINY-mini 25NB | *MUTINY 25, 40, 50NB* | *MUTINY 80x50NB*

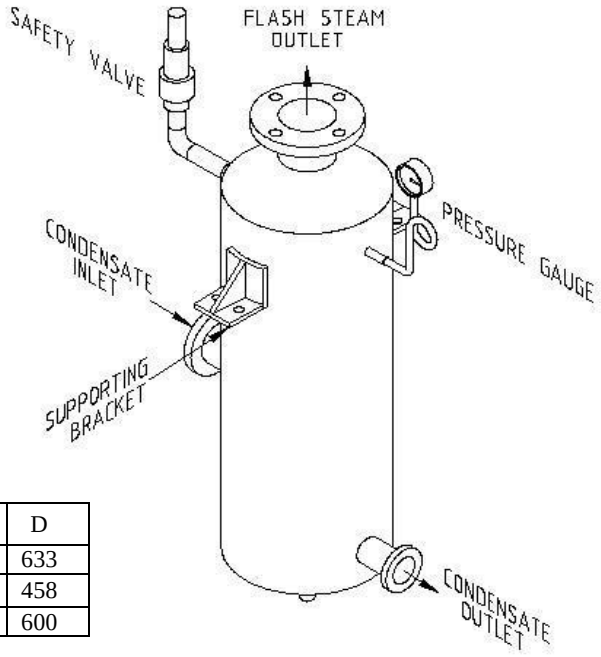
DIMENSIONAL DETAILS.

SR NO	SIZE	A	B	C
1	25 NB	1550 mm	610 mm	410 mm
2	40 NB	1650 mm	712 mm	440 mm
3	50 NB	1810 mm	712 mm	440 mm
4	80x50 NB	1610 mm	1140 mm	400 mm
5	Mutini-mini 25NB	910 mm	435 mm	330 mm

MAX –FLASH (steam separation flash vessels).

Recover heat from condensate by flashing the condensate using Indoanushka MAX-FLASH at a required low pressure. Designed based on the area of separation required for efficiently separating steam from condensate, Maxflash is used for separation of flash steam from high pressure condensate thereby generating useful low pressure steam totally free of cost. IndoAnushka make MAX-FLASH is supplied with all standard accessories like safety valve, pressure gauge, Valve, double window sight glass, steam trap and strainer.





Dimensions : (in mm).

SIZE	A	B	C	D
MF-40	219	1370	143	633
MF-70	324	1146	143	458
MF-130	400	1336	155	600

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Now, eliminate the requirement of onsite assly & erections of separate components.

INDOANUSHKA TRPS

(Thermal Recovery Package System)

A complete flash recovery & condensate return system pre-erected & pre-comissioned in our manufacturing unit & supplied as a single plant.

Single Pump Single Flash Vessel TRPS

Duplex Pump Single Flash Vessel TRPS

Triplex Pump double Flash Vessel TRPS