



## Cooling & Heating Division



# TACTS

*plus & ultra series*  
*intelligent pump with **Z**ero moving parts*

**Improving your business  
is our business**

Thermax offers products, systems and solutions in energy and environment engineering to industrial and commercial establishments around the world. Its business expertise covers heating, cooling, waste heat recovery, captive power, water treatment & recycling, air pollution control & waste management and performance chemicals. Thermax brings to customers extensive experience in industrial applications, and expertise through technology partnerships and strategic alliances.

Operating from its headquarters in Pune (Western India), Thermax has built an international sales & service network spread over South East Asia, Middle East, Africa, Russia, UK and the US. It has a full fledged manufacturing set up that is certified for ISO 9001:2000, ISO 14001 and safety management according to OSHAS (ISO 18000).

In **process heat**, Thermax offers a wide range of steam boilers, thermal oil heaters and hot water generators. It has expertise in a wide range of fuels - oil, gas, solid and agro-waste/ biomass. Supporting a broad array of industries in generating, transferring and conserving heat across a host of applications, Thermax process heat products and systems are exported to North and South America, South East Asia, Middle East, Africa, Europe, CIS, Australia, Antarctica and SAARC.

# Thermax Automatic Condensate Transfer Pump TACTS

## Introduction to condensate recovery

Condensate is formed when steam liberates heat and converts from vapor to liquid phase. This heat if recovered shall reduce fuel consumption of boiler to the extent of 20%. In addition to fuel savings, boiler quality water is also recovered and is used in boiler. This has the effect of reduced cost of water and water treatment chemicals. Further good quality boiler feed water reduces the blowdown losses resulting in fuel savings. To summarize the above, the efficient condensate recovery system will ensure :-

- High temperature feed water
- Good quality boiler feed water
- Lower blowdown losses
- Lower water treatment cost

Thermax's CRS is an integrated system comprising of a flash steam generator, steam operated condensate transfer pump and a deaerator unit with immersion tube.

## Thermax Automatic Condensate Transfer Pump - TACTS<sup>plus</sup> and TACTS<sup>ultra</sup>

This pump is capable of pumping huge quantities of condensate effectively utilizing motive steam consuming approximately 3 kg per 1000 kg of condensate. The condensate is one of the purest forms of water having conductivity of the order of 3.5ppm of TDS ( $5\mu\text{S}/\text{cm}$ ). The conductivity based level controller used in TACTS<sup>plus</sup> and TACTS<sup>ultra</sup> is capable of sensing very low conductivity even up to 0.35ppm of TDS ( $0.5\mu\text{S}/\text{cm}$ ). This controller makes TACTS<sup>plus</sup> and TACTS<sup>ultra</sup>, a FIT and FORGET pump with no moving part, ensuring zero maintenance.

## Working principle

Condensate flows from receiver to pump. The level in the pump increases and reaches the high level, which activates the motive steam inlet valve and steam enters the pump at high pressure. This pressure keeps on building until it overcomes the back pressure of the delivery side of the system, transferring the condensate out of the pump. As soon as the condensate level reaches the low level position, the inlet valve for motive steam is deactivated and the pump is depressurized. The pump again starts filling the condensate and the cycle continues.

Material of construction		Utilities requirement	
Receiver	IS-2062 GR-B/ SA 285	Motive Steam	TACTS <sup>plus</sup> 2-6 kg/cm <sup>2</sup> (g) TACTS <sup>ultra</sup> 2-10 kg/cm <sup>2</sup> (g)
Pump Body	IS-2062 GR-B/ SA 285	Compressed Air	4-6 kg/cm <sup>2</sup> (g)
Dished Ends	IS-2062 GR-B/ SA 285	Electricity	230 Volts $\pm$ 5%, 1 phase, AC 50 Hz
Nozzles (seamless)	ASTM 106		

Design specifications	
Design Code	ASME, BPVC Sec VIII Div 1
Design Pressure - Receiver	3.5 kg/cm <sup>2</sup> g
Design Pressure - Pump	11 kg/cm <sup>2</sup> g
Design Temperature	187°C
Discharge volume per stroke	50 litres (135 litres for model TACTS 600i)
Steam Consumption	3 kg/1000 kg of condensate

## TACTS<sup>plus</sup> and TACTS<sup>ultra</sup> with Flow Totalizer

- Head mounted conductivity based level controller is available with a flow totalizer locally mounted as a packaged system.

Optional:

- Special EPDM insulation jacket available
- Ex proof version available on request
- Pumps without compressed air requirement also available

## Features & Benefits

- Highest reliability and availability due to zero moving parts.
- High motive inlet pressure up to 10 kg/cm<sup>2</sup> for TACTS<sup>ultra</sup>. No need of pressure reducing till 10 kg/cm<sup>2</sup> where low pressure steam is not available, hence saving of installation cost.
- High discharge of 50 litres (135 litres for model TACTS 600i) per stroke - Discharges more volume/ stroke. Hence less wear and tear of parts.
- High condensate temperature return - no cavitation problem as compared to electrical pumps.
- Skid mounted system - easy to install.
- CE approved level controller - a stringent quality and design process followed in European market to ensure safe operation.
- Weather proof IP 65 design - suitable for outdoor installations.
- A large LED display with 8 digit flow totalizer to display the volume displaced up to 99,999m<sup>3</sup>. This does not require to reset the totalizer for 2-3 years.
- Flow Totalizer designed with SMPS power supply can work with a wide voltage variation from 90 - 270 V.
- Energy efficient pump - steam trap drain and pump vent taken back to the receiver tank to minimize vent losses and save precious fuel.

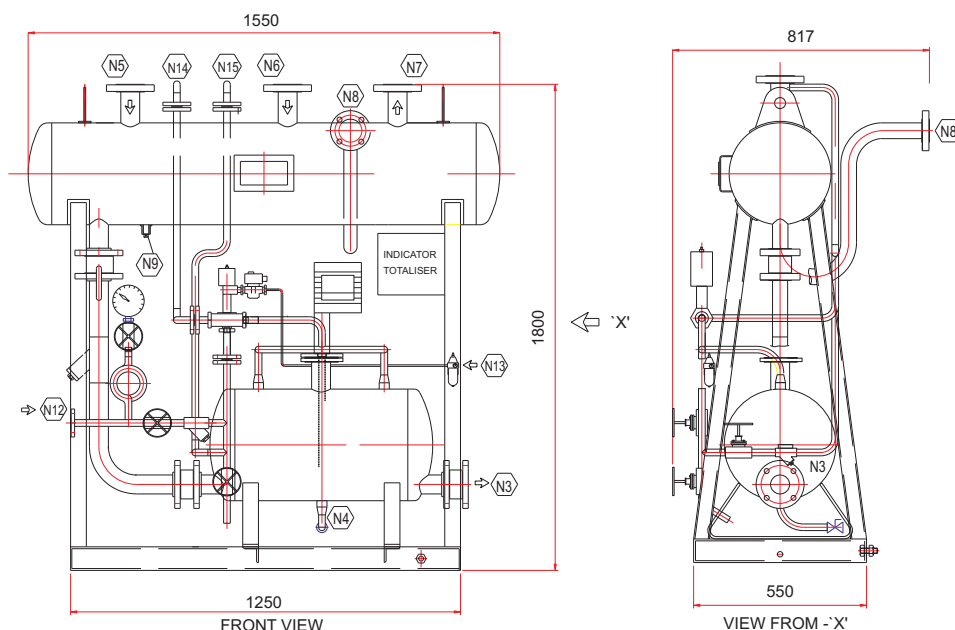


Conductivity based level controller

## Models & end connections

Model	Condensate Inlet to receiver (N5, N6)	Condensate Outlet from pump (N3)	Motive Steam Inlet (N12)	Receiver Vent (N7)	Pump Drain (N4)	Over flow (N8)	Trap line (N15)	Pump Vent (N14)
TACTS <sup>Plus</sup> 200i/ TACTS <sup>Ultra</sup> 200i	50 NB X 2	25 NB	15 NB	50 NB	25 NB, Scr BSP	40 NB	15 NB	15 NB
TACTS <sup>Plus</sup> 300i/ TACTS <sup>Ultra</sup> 300i	50 NB X 2	40 NB	15 NB	50 NB	25 NB, Scr BSP	40 NB	15 NB	15 NB
TACTS <sup>Plus</sup> 400i/ TACTS <sup>Ultra</sup> 400i	50 NB X 2	50 NB	15 NB	80 NB	25 NB, Scr BSP	40 NB	15 NB	15 NB
TACTS <sup>Plus</sup> 500i/ TACTS <sup>Ultra</sup> 500i	50 NB X 2	80 NB	15 NB	80 NB	25 NB, Scr BSP	40 NB	15 NB	15 NB
TACTS <sup>Plus</sup> 600i/ TACTS <sup>Ultra</sup> 600i	80 NB X 2	100 NB	25 NB	100 NB	25 NB, Scr BSP	40 NB	15 NB	25 NB

End Connections : Flanged To ANSI B 16.5 Class # 150



(All dimensions in mm apply for TACTS<sup>Plus/Ultra</sup> 200i - 500i)

## Capacity chart for TACTS<sup>plus</sup> and TACTS<sup>ultra</sup>

		TACTS 200i		TACTS 300i		TACTS 400i		TACTS 500i		TACTS 600i		
		Operating Inlet Motive Pressure	Total Lift/back pressure	Plus	Ultra	Plus	Ultra	Plus	Ultra	Plus	Ultra	
TACTS <i>plus</i>	kg/cm <sup>2</sup> g	kg/cm <sup>2</sup> g	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH	LPH
	2	0.5	1100	1190	2380	2860	3315	3790	5150	5400	9180	12285
		1.0	1035	1150	2075	2550	2910	3460	4355	4520	8370	11070
	3	0.5	1180	1260	2500	3000	3505	4080	5655	5980	10260	13770
		1.0	1140	1200	2335	2770	3335	3830	4850	5100	9315	12555
		1.5	1110	1170	2170	2560	3130	3600	4670	4840	8775	11745
		2.0	1030	1050	1920	2320	2905	3410	4250	4350	7695	10260
	4	0.5	1240	1300	2625	3100	3995	4290	5915	6390	11070	14850
		1.0	1170	1240	2480	2920	3800	4090	5275	5510	10125	13500
		1.5	1135	1200	2240	2670	3455	3790	4905	5200	9180	12285
		2.0	1060	1090	2040	2460	3145	3520	4160	4570	8370	11205
		3.0	890	940	1765	2090	2670	2880	2530	2810	7560	10125
5	1.0	1215	1270	2560	3030	4040	4290	5570	5830	10665	14175	
	1.5	1165	1230	2285	2760	3815	3950	5190	5480	8910	12015	
	2.0	1095	1130	2170	2560	3385	3600	4342	4743	8100	10935	
	3.0	955	980	1940	2230	2945	3040	3140	3260	8100	10800	
6	1.0	1240	1300	2665	3130	4235	4460	5745	6090	11070	14850	
	1.5	1190	1250	2430	2830	3900	4070	5415	5700	10530	14040	
	2.0	1100	1150	2260	2650	3479	3670	4600	4880	9450	12555	
	3.0	970	1020	1995	2340	3009	3170	3430	3620	8640	11475	
	4.0	960	990	1710	1980	2520	2630	3300	3530	8505	11340	
TACTS <i>ultra</i>	7	1.0		1320		3210		4210		6310		15255
		1.5		1270		2890		4170		5900		14445
		2.0		1180		2720		3720		5000		13095
		3.0		1050		2440		3280		3930		12015
		4.0		1020		2030		2680		3630		11880
	8	1.0		1340		3280		4320		6400		15795
		1.5		1280		2940		4260		6070		14985
		2.0		1200		2780		3770		5100		13500
		3.0		1070		2520		3380		4200		12420
		4.0		1040		2080		2720		3710		12285
	9	1.0		1350		3340		4420		6510		16200
		1.5		1290		2980		4340		6210		15390
		2.0		1220		2840		3820		5190		13905
		3.0		1100		2600		3460		4440		12825
		4.0		1060		2120		2760		3780		12690
	10	1.0		1370		3400		4510		6620		16470
		1.5		1310		3020		4410		6340		15795
		2.0		1230		2890		3850		5270		14310
		3.0		1120		2660		3540		4647		13230
		4.0		1080		2150		2800		3850		13095

For the pump operating without compressed air option, the condensate displacement capacity has to be verified from HO

For more information, please get in touch with your nearest Thermax Representative. You can also mail us at [info.c&hservices@thermaxindia.com](mailto:info.c&hservices@thermaxindia.com) Visit us at: [www.thermaxindia.com](http://www.thermaxindia.com)

In view of our constant endeavour to improve the quality of our products, we reserve the right to alter or change specifications without prior notice. All photographs shown in this publication are representative in purpose, and to be used for reference only. For actual details and specifications, please refer to Thermax offer document.



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Sustainable Solutions in  
Energy & Environment

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