

HTST Specification and Operational Assessment Sheet

THIS IS A 2 PAGE SAMPLE OF THE 7 PAGE HTST ASSESSMENT

Plant: Any Plant	
Location: Any Where USA	
HTST Designation: HTST #1	
Product: High speed: Milk Low Speed: N/A	
Yes = Y, No = N, Good = G, Bad = B Not Applicable = N/A, Note = (#)	

Balance Tank

Balance Tank volume	175 gal	System volume	256 gal
		Will lid open if balance tank overflows?	Y
Are all inlet lines 2 1/2 pipe diameters above overflow?	Y		

Plate Unit

Plate unit manufacturer	APV	Plate stack Min. / Max.	81 3/4" 83 1/2"
Maximum working pressure	200 psi	Plate stack dimension	80 5/8" (1)
Serial #		Number of plates	298 298
Model	Royal Paraflow	Product flow rate: High Speed	106 gpm 95.1 gpm
Mfg. date	?	Product flow rate: Low speed	N/A
Latest revision date	7/21/2005	CIP flow rate 1.25 times Product flow	104 gpm (2)
Frame size	8	Are dead legs more than 1 pipe diameter from full product flow?	N
Plate style	R51	Are utility Thermometers and gauges functional and accurate?	N (3)
Total liquid volume	211 gal		
Take Up Style: Man/ Auto	Manual		

Regenerator Section #1

	Spec.	Actual	Do all deflector plates have 3/16" drain holes in bottom of blocked port?	?
Dimension of plate stack	46 7/16"	44 3/4"		
Number of plates	178	178		
Raw product temperature in	42°F	36.7°F	Is raw inlet line at bottom of press?	Y
Raw Product Temperature out	145.8°F	136°F	Is bottom of regenerator section above overflow of balance tank?	Y
Raw product pressure drop	14.3 psi			
Pasteurized product temperature in	156.3°F	?	Does raw inlet line drain back to balance tank?	Y
Pasteurized product temp. out	52.5°F	?		
Pasteurized product pressure drop	14.2 psi		Product Volume	

Differential Pressure Switch #1

	N/A		Raw	Past
MFG	Anderson	Homo Pressures	15 psi	70 psi
Model		Skim Pressures	2 psi	70 psi
		CIP Pressures Forward Flow	64 psi	33 psi
		CIP Pressures Diverted Flow	13 psi	1 psi

Booster Pump

MFG	Alfa Laval	Discharge size	2"
Model	LKH 10	Discharge head Req. / Aval. @ 60 Hz	29 psi 70 psi
Horsepower	7.5 hp	Booster Pump can only operate:	
RPM	3,500 rpm	If forward flow has been attained.	Y
Hertz: Product / CIP	49 Hz 60 Hz	If pasteurized pressure is 1 psi.	Y
Product / CIP Pressure	60 psi	above raw (4 psi. is recommended).	
Impeller size	165 mm	If 10 min. CIP timer is satisfied.	Y
Inlet size	2 1/2"		

Regen By Pass Valve

MFG	Tri Clover	Condition of valve plug?	?
Model	371	Is valve close coupled to eliminate possible dead leg?	Y
Size	2 1/2"	Is 1" air gap between valve/actuator?	Y
Condition of stem seals?	?	Does valve operate smoothly?	Y

Stuffing Pump

MFG	Alfa Laval	Inlet size	2 1/2"
Model	LKH 10	Discharge size	2"
Horsepower	5 hp	Impeller size	139 mm (5)(6)
RPM	3450 rpm	Discharge head Req. / Aval. @ 60 Hz	45 psi 47.6 psi
Hertz: product / CIP	55 Hz 60 Hz		
Product / CIP Pressure	45 psi		

Separator Feed Control Valve

MFG	Tri Clover	Is 1" air gap between valve/actuator?	Y
Model	371	Condition of stem seals?	?
Size	2"	Condition of valve plug?	?

Separator Bypass Valve

MFG	Tri Clover	Is 1" air gap between valve/actuator?	Y
Model	371	Condition of stem seals	?
Size	2 1/2"	Condition of valve plug	?

Separator				
MFG	Westfallia		Skim	Homo
Model	MSA200 01 076	Product Inlet pressure	20	20
Serial #	1661537	Product back pressure	43 (8)	43 (8)
Horsepower		Butter fat		
Drive style	VFD	Cream back pressure		
Time needed to achieve full RPM	?	Cream butter fat	?	
RPM	4,700 rpm	Oil change frequency	?	
CIP inlet pressure	20 psi	Overhaul frequency	?	
CIP skim back pressure	43 psi (7)	Vibration, will nickel stand on edge?		Y
Product desludge timing	40 min (9)			
CIP desludge timing	10 min			
Skim Hold Back Valve				
MFG	Tri Clover	Automatic or Manual	Automatic	
Model	371	If Auto how is it controlled?	PLC	
Size	2 1/2"			
Cream Hold Back Valve				
MFG	Tri Clover	Automatic of Manual?	Automatic	
Model	371	If Auto how is it controlled?	PLC	
Size	1"			
Holding Tube				
Diameter	3"	Is outlet reducer eccentric with flat	Y	
Length	75'	section on top?		
Holding time	16.3 sec	Does holding tube slope up continually	Y	
Is inlet reducer eccentric with flat	N/A	1/4" per ft. from inlet to discharge?		
section on bottom?		Does frame maintain slope of holding tube?	Y	
Flow Diversion / Leak Detect Valves				
MFG	Tri Clover	Are drain lines pitched 1/4" to	Y	
Model	371	balance tank?		
Size	2 1/2"	Are restrictions in either line to	N	
Condition of stem seals	G	balance tank?		
Condition of valve plug	G	Are indicating and recording bulbs	N	
Condition of wiring & micro switches	G	more than 18" from FDV?		
Does FDV shift in 1 sec. or less?	Y	Are there quick disconnects in air	N	
Is 1" air gap between valve/actuator?	Y	lines on FDV & LDV?		
Is sight glass clear?	Y			
Notes				
1. The press is compressed 1 1/8" below minimum compression.				
2. Running the glycol temperature this low can reduce the cooling efficiency by building an ice layer on the milk side of the plate.				
3. CIP flow rate should be a minimum of 1.25 times the processing flow rate and 1.5 times is preferred.				
4. The temperature indicator at the discharge of the press reads 33°F and the display on the screen reads 36.8°F				
5. The impeller in the Stuffing pump is worn down from coming in contact with the pump casing. This could be due to a front bearing going bad in the pump motor.				
6. There is a pipe cut off at floor level under the stuffing pump that needs to be filled with epoxy. It is a serious crap trap as it is now.				
7. The Skim back pressure is set to 43 psi during CIP. The overflow point is 58 to 60 psi during CIP. If the back pressure is not run up close to overflow during CIP the underside of the disk stack and the skim pump area will not get fully cleaned.				
8. The skim back pressure should be set by bringing the separator to the overflow point at each product and backing off 3 psi. If the back pressure is run too low then the separator can incorporate air into the product through the overflow holes located between the skim and cream pumps.				
9. The desludge on this separator is so long that it is causing the homogenizer amperage to drop below the alarm set point and putting the system into recycle. There is an extreme amount of solid build up in the desludge drain. The separator may not be getting clean causing the bowl to close slowly.				
10. The cream cooler was a triple tube system that is now bypassed. The cream circulation pump is a centrifugal which now sends cream to the cream silo tanks. This pump should be converted to a positive displacement style. Pumping cream with a centrifugal can damage the cream and cause foam.				
11. The homogenizer is designed to operate with no less than 45 psi suction. When running skim the suction pressure is between 2 and 7 psi. Running this low of a suction pressure is not only hard on the machine but it is a serious opportunity to suck air into the product				
12. The homogenizer is now being fed through a 2 1/2" line into one side of the head. This has the product coming into the head at around 7' per second. The optimum would be to use a 3" split flow line feeding into both sides of the head which would let the product come into the head at around 3' per second. This is much easier on the product and machine both.				
13. The homogenizing pressure is running 1,500 psi. A Micro Gap valve is designed to give good efficiency at 1,100 psi. If the pressure is run this high in order to get good efficiency then the valve plates are most likely worn out. Running this high is a waste of horsepower and offsets the advantage of the Micro Gap valve. There should be a P.M schedule to disassemble and inspect the Micro Gap Valve quarterly.				
14. There is no orifice on the discharge of the Micro Gap valve to operate as a second stage homogenizing valve. This orifice is normally sized to create 150 psi back pressure on the discharge of the Micro Gap Valve to discourage clumping of fat.				
15. The system pressures and booster pump speed was very erratic. The valves were checked and 3 suction valves and 1 discharge valves were replaced. The system pressures and booster pump speed are now stable.				