Dairy Aseptic Systems

Training Document

This Training Document is intended for Training purposes only, and must not be used for any other purpose.

The Training Document does not replace any instructions or procedures (e.g. OM, MM, TeM, IM, SPC) intended for specific equipment, and must not be used as such.

Note!

For safe and proper procedures, refer to the equipment specific documentation.

Name:

Tetra Pak

Technical Training Centre
Lund, Sweden
WB-87-01
Issue 3/0611

1

Course Introduction

Information regarding Safety Regulations at the Technical Training Centre in Lund

This list summarizes a number of items which may concern you, as a participant in this training course. Read the list, and if anything remains less than clear, or if you have any questions, feel free to contact your instructor.

1. Study and follow the sections on Safety in the course literature, for instance the OM, MM and EM.
2. You are entitled to ask persons who have no business to be near the machine, to stay at distance, for safety reasons.
3. Never touch any other machines than those used in your own training course.
4. There may be cables which are still electrically live, although they have been disconnected from their terminals.
5. In some machines, safety switches may be bridged or disconnected, for training reasons.
6. Find out exactly where the emergency stop switches for the machine as well as the conveyor are located.
7. When starting a machine, the **person doing the starting** must make absolutely sure that this does not expose anyone else to danger.
8. Certain chemicals, used in your training course, may be hazardous to your health and constitute a danger of fire or explosion. Make sure you know how such chemicals are marked and how to handle them.
9. It is strictly prohibited to wear rings, watch, or necktie when working with the machine. This prohibition also applies to loose-fitting clothes or anything else that might get caught in the machinery.
10. A first aid kit and stretcher are kept in the machine hall.
11. Study the information on what to do in case of fire and which escape routes to follow. A diagram of escape and evacuation routes is posted in every classroom.
12. If you observe or discover anything that might jeopardize safety, immediately tell your instructor.

Information to Course Participants at the Technical Training Centre in Lund

Welcome to Technical Training Centre!

Here is some information which might be helpful to you as a course participant. If you need additional information or help, feel free to ask your instructor.

Start of course

Normally, the first day of your course begins at 08.30. Your instructor will meet and welcome you in the coffee room.

Daily time schedule

Classes	08.00 - 09.30
Breakfast	09.30 - 10.00
Classes	10.00 - 12.00
Lunch	12.00 - 13.00
Classes	13.00 - 16.00

Your instructor will tell you if there are any changes in the schedule.

Breakfast

Breakfast is free of charge and served in the restaurant, where a special area has been reserved for Technical Training Centre course participants. Breakfast consists of coffee or tea and bread rolls.
If you want anything in addition, for instance from the serving counters of the restaurant or cafeteria, you have to pay for it yourself. Your instructor will help you with the procedure.

Lunch

Lunch is served in the restaurant. You can choose among several dishes; menus are posted in the restaurant.
If you are a customer course participant, your instructor will give you a cash card. For participants other than customers, cash cards are for sale in the cafeteria. Your instructor will help you with the procedure.

Coffee room

You are invited to use the coffee room and the vending machine during all breaks in classes.

Smoking

The entire Tetra Pak plant, outdoors as well as indoors, is a no smoking area. Smoking is allowed though in special smoking areas.

Telephones

If you need to call long-distance within Sweden or abroad, please use the phone in the telephone room. When using the phone, please be brief, as there may be others who wish to make calls.

Computers There are a number of computers for the use of course participants. The computers access the Tetra Pak Intranet and the World Wide Web.

ID card On your first day you will receive an ID card. This card must be returned at the Tetra Pak Main reception at the end of the course. Anyone not handing the card back will be charged SEK 400.

Safety regulations At the start of the course, your instructor will go through the Safety Regulations (TM-00001). These regulations must be strictly observed. In case you are uncertain about anything in the regulations, you must have it clarified with your instructor.

Course evaluation You are requested to write down your comments on the Course Evaluation form. At the end of the course your instructor will collect all the forms.

Working clothes It is necessary to wear safety shoes in the Technical Training Centre, while working at the machines. If you didn't bring your own, safety shoes are for sale in the Support Centre. Your instructor will take you there. For your use during the course, you may borrow a set of coveralls.

Each participant is given a locker in the changing-room. The instructor will hand you the locker key. You may then select a set of coveralls from the cabinet in the changing-room. Your instructor will help you if needed.

You may exchange your coveralls for clean ones every Monday morning. Tell your instructor if you need to change at any other time. Used and soiled coveralls are to be placed in the laundry basket in the changing-room.

At the end of the course you have to empty and lock your locker and return the key to the instructor. If you wish to retain your locker for a subsequent training course, tell your instructor.

Valuables You are responsible for your own valuables.

Transport Certain hotels provide free of charge transport to and from Tetra Pak. Ask the hotel receptionist about this. If you wish to use this service, you must tell the receptionist the day before.

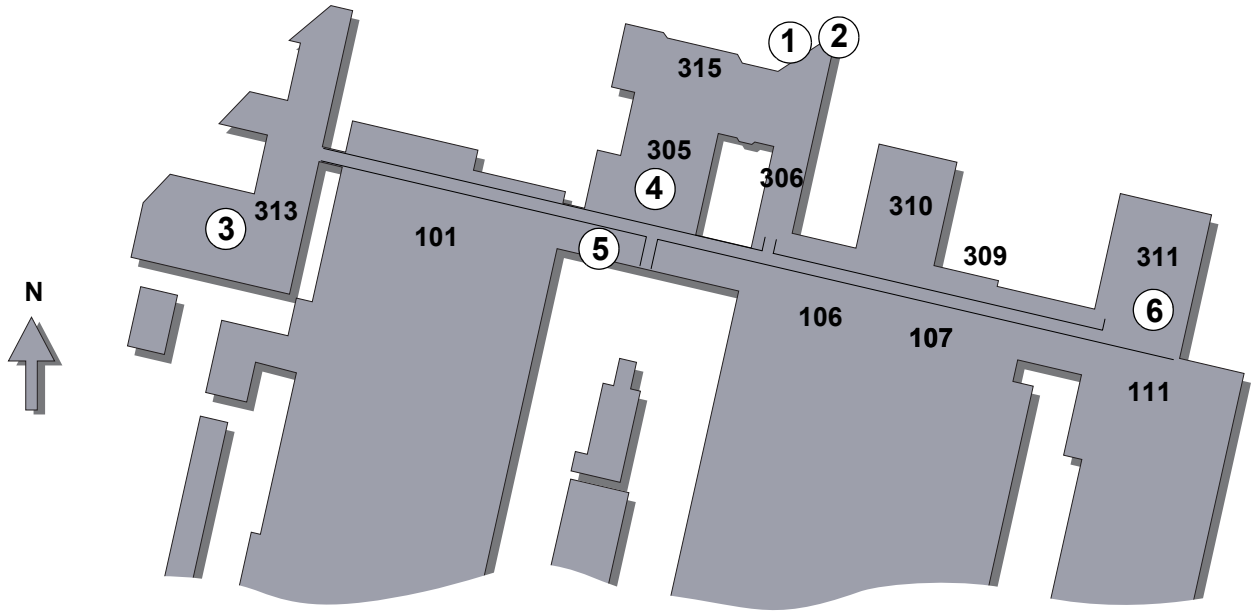
Medical care For medical care, unless it is an emergency situation, go to Carema Specialistvård Lund (Carema healthcare Lund), located in the centre of Lund.

Sport Centre Bookings for the Tetra Pak Sport Centre are free of charge and can be made at the Main Guard, located next to the Main Reception. If you visit the Sport Centre, you must enter and leave via the Main Guard.

Tetra Pak

Part of the plant at
Ruben Rausings gata
Lund

1. Main Reception
2. Main Guard
3. Technical Training Centre
4. Restaurant
5. Support Centre
6. Sport Centre



2

UHT Introduction

In flow processing of food

- Pasteurisation
- Retorting
- UHT

Tetra Pak Technical Training Centre 4/0506 TM-00871:1

In-Flow processing of food

Thermal heat processing of food products has been done for a long time, both in the household and industry. The purpose of industrial processing of foods is to obtain a safe, wholesome product with a prolonged shelf life. Thermal processing of food products (pasteurisation, retorting or UHT) requires holding the material at a given temperature for a specified time to ensure that both microbial and enzymatic inactivation is as intended. Three technologies have received wide application

- **Pasteurisation** is primarily intended to render the product safe from a public health view point, i.e., to kill all pathogenic, disease causing vegetative micro organisms that might be present in the product. In addition, the total microbial load is reduced and thus a prolonged refrigerated shelf life results. Relatively mild heating suffices.

2) - **Retorting** is intended to obtain a commercially sterile product by filling the product into a container that is subsequently hermetically sealed. Both container and product are heated together. Because of slow heat penetration, rather long holding times at elevated temperature are necessary to ensure commercial sterility of the product. The necessary rather severe heat treatment inflicts considerable chemical changes in the product.

3) - **The aseptic technology** is also intended to obtain a commercially sterile product, but the package and the product are sterilised separately. Since an in-flow heating procedure is used, the much faster heat transfer allows more rapid heating and shorter holding at sterilisation temperature and, consequently, results in less chemical changes.

Pasteurisation

Main purpose of pasteurisation is to kill all pathogenic microorganisms, i.e. render the product safe from a public health point of view

To maintain its original quality to the largest possible extent.

If handled under refrigeration, an increased shelf life is obtained simultaneously by a reduction of the total microbial count.

Process	Temperature, °C	Time
HTST pasteurisation of milk	72 – 75	15 – 20 s
HTST pasteurisation of cream etc.	> 80	1 – 5 s
Ultra pasteurisation	125 – 138	2 – 4 s

Tetra Pak Technical Training Centre 4/0506 TM-00871:2

Pasteurisation

Is primarily intended to render the product safe from a public health view point, i.e., to kill all pathogenic, disease causing vegetative microorganisms that might be present in the product. In addition, the total microbial load is reduced and thus a prolonged refigerated shelf life results. Relatively mild heating suffices.

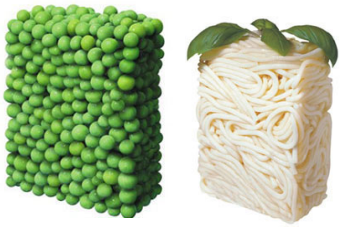
HTST is the abbreviation of *High Temperature Short Time*. The actual time/temperature combination varies according to the quality of the raw milk, the type of product treated, and the required keeping properties.

Ultra pasteurisation can be utilised when a particular shelf life is required. For some manufacturers, two extra days are enough, whereas others aim for a further 30 – 40 days on top of the 2 – 16 days which is traditionally associated with pasteurised products. The fundamental principle is to reduce the main causes of reinfection of the product during processing and packaging, so as to extend the shelf life of the product. This requires extremely high levels of production hygiene and a distribution temperature.

For any of above mentioned methods proper cold chain is necessary. After the product has been processed and it should then be maintained also for storage and distribution. The cold chain temperature is in most counties specified by legislation.

Retorting

Retorting is intended to obtain a commercially sterile product by filling the product into a container that is subsequently hermetically sealed. Both container and product are heated together.



Process	Temperature, °C	Time
Sterilisation in container	115 – 120	20 – 30 min

Tetra Pak Technical Training Centre 4/0506 TM-00871:3

Retorting

Because of slow heat penetration, rather long holding times at elevated temperature are necessary to ensure commercial sterility of the product. The necessary rather severe heat treatment inflicts considerable chemical changes in the product.

Tetra Recart is a new carton-based processing and packaging system for retorted, or “canned”, food developed by Tetra Pak. Using retorting technology, we are now able to offer an alternative packaging solution for a variety of food products that have traditionally been packed in cans or glass jars such as fruits, vegetables, ready meals and pet food

UHT

ULTRA HIGH TEMPERATURE

- Sterilisation of low acid foods requires that all living micro-organisms be inactivated, including the pathogens.
- Product remains fresh for months without refrigeration and preservatives

Process	Temperature, °C	Time
UHT (flow sterilisation) normally	135 – 140	a few seconds

Tetra Pak Technical Training Centre 4/0506 TM-00871:4

UHT

The purpose of Ultra High Temperature (UHT) treatment is to obtain a commercially sterile food product. UHT processing is a continuous in-flow sterilisation process in which the food product is rapidly heated to sterilisation temperature, held at that temperature for a short time, and quickly cooled down to ambient. It is based on the rapid heating of the product to sterilisation temperature, short holding and fast cooling. Full sterilisation efficiency requires rapid heat transfer, which is only possible in liquid systems. If powders are used in the formulation of a product to be UHT-treated, special attention has to be paid to proper soaking: all powder particles must be completely wetted through. Special attention is required when processing products containing sizeable particles. While heat transfer in the liquid phase proceeds rapidly, temperature penetration into the solid matter is much slower.The cause of death of microorganisms by heat is seen in the denaturation of proteins essential for life . It is often assumed that the killing effect in general and the sporicidal effect in particular takes place almost entirely in the product holding cell in which the product can be considered to be held at a fixed temperature for a minimum time. However, in a continuous UHT steriliser some product travels relatively slowly through the system and is subjected to a longer heating and holding time and consequently a higher load of heat while other product travels more rapidly receiving a less severe heat treatment. The spread of velocities depends, among others, on the degree of turbulence. As compared to turbulent flow, laminar flow conditions result in larger differences between the fastest and the slowest moving particles.

Available UHT systems

- Indirect systems
  - Plate heat exchangers
  - Tubular heat exchangers
  - Scraped heat exchangers
- Direct systems
  - Steam injection with subsequent flashing
  - Steam infusion with subsequent flashing

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UHT

In a modern **UHT plant** the milk is pumped through a closed system. On the way it is preheated, intensely heat treated at a high temperature, homogenised, cooled and packed aseptically. Low-acid (pH above 4.5 – for milk, value above pH 6.5) liquid products are usually treated at 135 – 150°C for a few seconds. High-acid (pH below 4.5) products such as juice are normally heated at 90 – 95°C for 15 – 30 seconds. All parts of the system downstream of the actual high heating section are of aseptic design to eliminate the risk of reinfection.

There are two main types of UHT systems on the market.

In the **direct systems** the product comes in direct contact with the heating medium, followed by flash cooling in a vacuum vessel and eventually by further indirect cooling to packaging temperature.

In the **indirect systems** the heat is transferred from the heating media to the product through a partition (plate or tubular wall). The indirect systems can be based on:

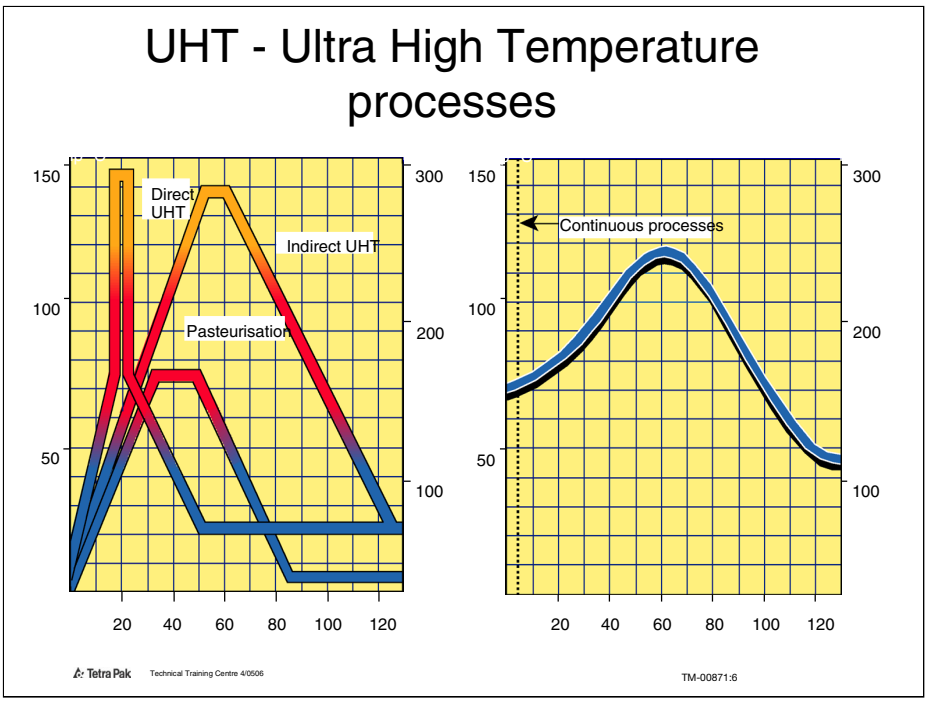
• Plate heat exchangers

• Tubular heat exchangers

• Scraped surface heat exchangers

Before the start of production the plant must be pre-sterilised in order to avoid reinfection of the treated product. Hot water of the same temperature as the product shall be used to sterilise the plant for a minimum time of 30 minutes.

Source: TP Dairy Processing Handbook



Temperature Graph

The graphs show the temperature/time curves for the two heat sterilisation systems most frequently utilised, direct and indirect UHT treatment. The figures also show that while the time for sterilisation of containers with non-sterile product is expressed in minutes, the corresponding time for UHT treatment is a matter of seconds.

Source: TP Dairy Processing Handbook

Examples of advantages and disadvantages of process types

	Advantages	Disadvantages
Indirect: Plate	Low capital cost High regeneration Lower running cost Variable capacity	Limited pressure acceptance Short process runs Gasket maintenance Non particulate solids
Indirect: Tube	Long process runs Higher pressure Particulate solids Lower maintenance	Lower regeneration Internal inspection difficult Throughput less flexible
Direct injection	Lower total heat load Less scaling More suitable for viscous products Increase stability vitamins	High quality steam supply Higher investment cost Poor in regenerative energy recovery. Technically more complicated

Tetra Pak Technical Training Centre 4/0506 TM-00871:7

UHT systems

Advantages of injection/infusion heating are:

a lower total heat load , as a result of which fewer chemical changes are inflicted on the product;

less scaling, particularly in the temperature range of 70C and above resulting in less fouling and consequently longer production runs (less frequent cleaning and plant sterilisation). In general and depending on raw milk quality, runs of four to eight hours may be expected before cleaning is required on indirect plants, and up to twelve hours for direct systems

the low oxygen content in the product increases stability of some vitamins and, during storage, reduces flavour changes caused by oxidation; and

more suitable for viscous products.

Disadvantages of steam injection and infusion heating systems are:

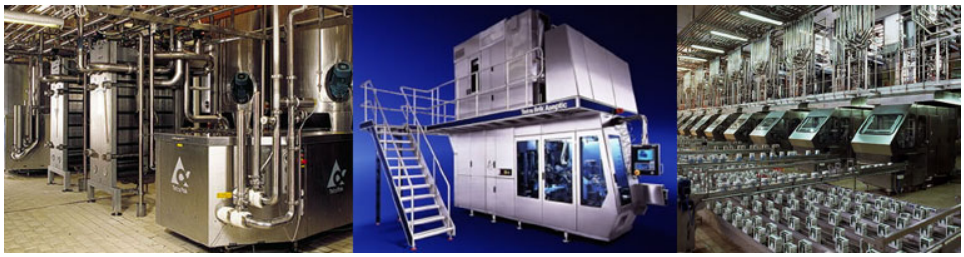
they are higher in investment cost;

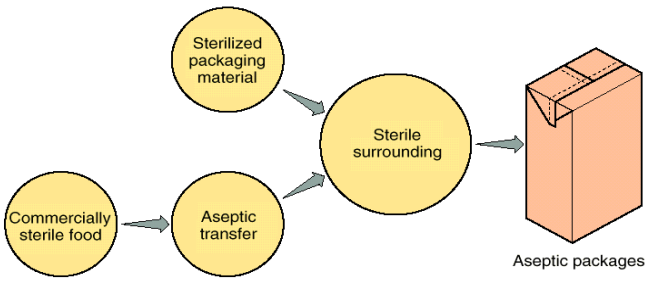
they are poor in regenerative energy recovery, usually not more than ~50%;

they are technically more complicated; and

as compared to indirect systems, they are less effective in enzyme inactivation since the total load of heat is lower.

Aseptic technology





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Aseptic food processing & packaging

The product is sterilised in equipment designed for inflow sterilisation then transferred to an aseptic filling equipment without being contaminated by micro-organisms.

“Aseptic transfer” covers the area between the steriliser holding cell and the aseptic filler.

The packaging material is sterilised in the filling machine a sterile surrounding is created while forming and filling the packages.

The package as a total must provide the barrier characteristics necessary for the intended shelf life of the product.

Commercial Sterility

- "free of viable microorganisms having public health significance
- free of microorganisms of non-health significance, capable of reproducing in the food under normal non-refrigerated conditions of storage and distribution".

Tetra Pak Technical Training Centre 4/0506 TM-00871:9

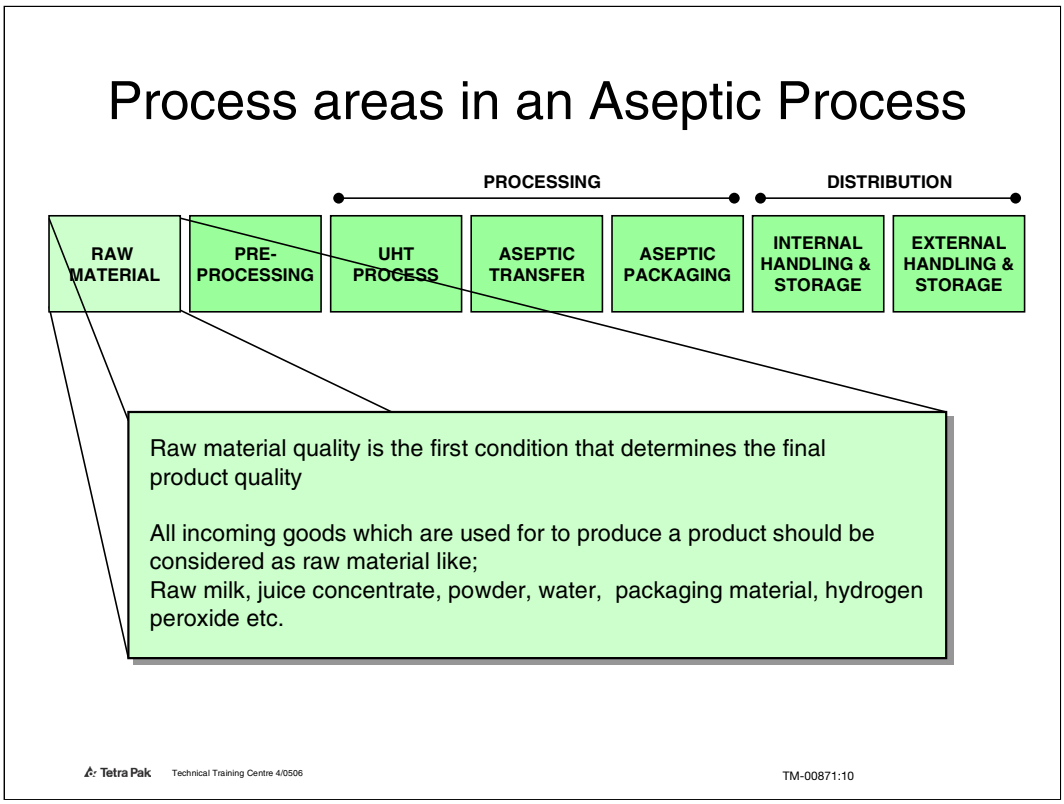
Commercial sterility

Increasing costs of energy and environmental aspects favour food products that can be handled outside the chain of refrigeration i.e. shelf stable food products. Such commodities must be free from microbiological activity i.e., commercially sterile, and guarded against physical, chemical and biochemical changes through out their intended shelf life. Commercially sterile food products have been on the market for a long time. The term 'commercial sterility' is controversial.

The US FDA (CFR 21, 113.3) defines "commercial sterility" of food, equipment and containers as the condition achieved by the application of heat, chemical sterilant(s), or other appropriate treatment that renders the food, equipment and containers

1. "free of viable microorganisms having public health significance.
2. free of microorganisms of non-health significance, capable of reproducing in the food under normal non-refrigerated conditions of storage and distribution".

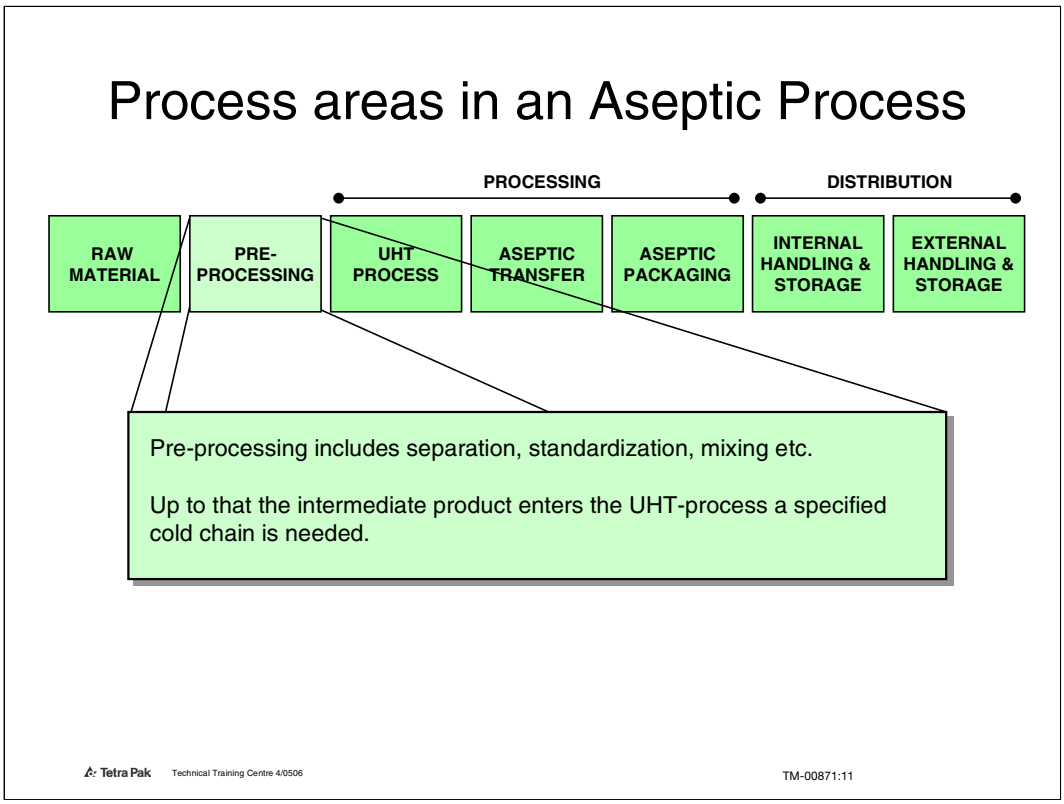
One of the problems with this definition is its adequate control, since it is impossible to prove the absence of something. The total lack of a characteristic in a large volume of product, whether in food or any other commodity, can only be ensured to a certain degree of probability! Therefore, it has been suggested to define 'commercial sterility' by a defect rate that is technically unavoidable and does not interfere with marketing. Such a definition corresponds to the practical conditions in a better way. However, it should be borne in mind that such a terminology is very difficult if not impossible to be accepted by legal authorities.



Raw Material

The decrease in the number of processing plants results in an increase in distance between raw material production and processing. Every other day delivery from farms, 5- and 4- day-a-week dairy plant operations and purchasing of milk only on shopping days have increased the age of milk before consumption. During the resulting prolonged periods of storage changes are taking place in the milk, some or all of which may have an effect on its quality. The quality in general and the microbiological quality of raw materials in particular do not improve with storage and handling. Long cold storage periods on farm level (2 to 4 days) resulted in a change of the micro-flora: psychrotrophic, proteolytic bacteria replaced the mesotrophic, acid producing flora in untreated milk. Prior to pasteurisation, additional cold storage of untreated milk in the dairy plant enhances the problem. Cold tolerant organisms cause “unclean”, “fruity” and “fermented” off-flavours when present in large numbers. Some psychrotrophic bacteria produce proteolytic and lipolytic enzymes that are heat-stable, survive pasteurisation and produce bitter or rancid flavour during storage.

A good manufacturing program will aim to preserve and extend the initial quality of raw materials. Food ingredients should, of course, be part of the HACCP (QACP) program.



Pre-process

Even with correct raw materials, the intermediate product quality,can be affected

After the Pre-process is the last point to decide whether an intermediate product should be continued to be processed and packed. The decision should be based on pre-stated specifications.

SPORE COUNT

pH

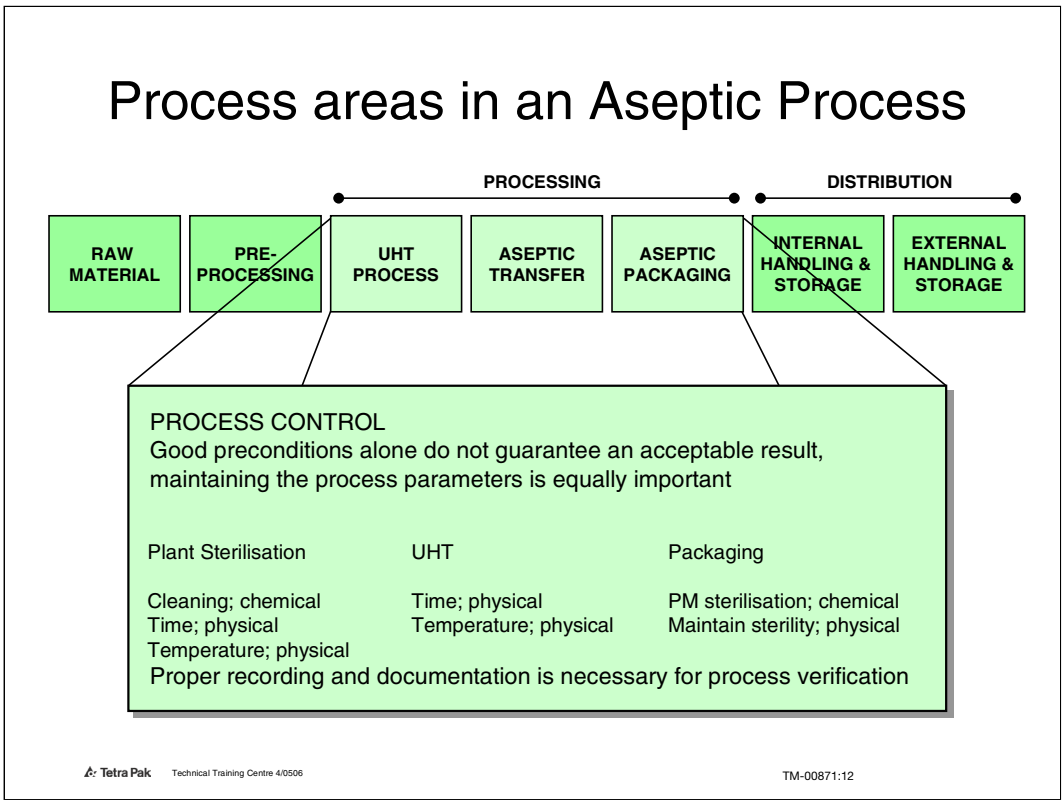
FLAVOUR

IMPURITIES

TEMPERATURE

ETC.

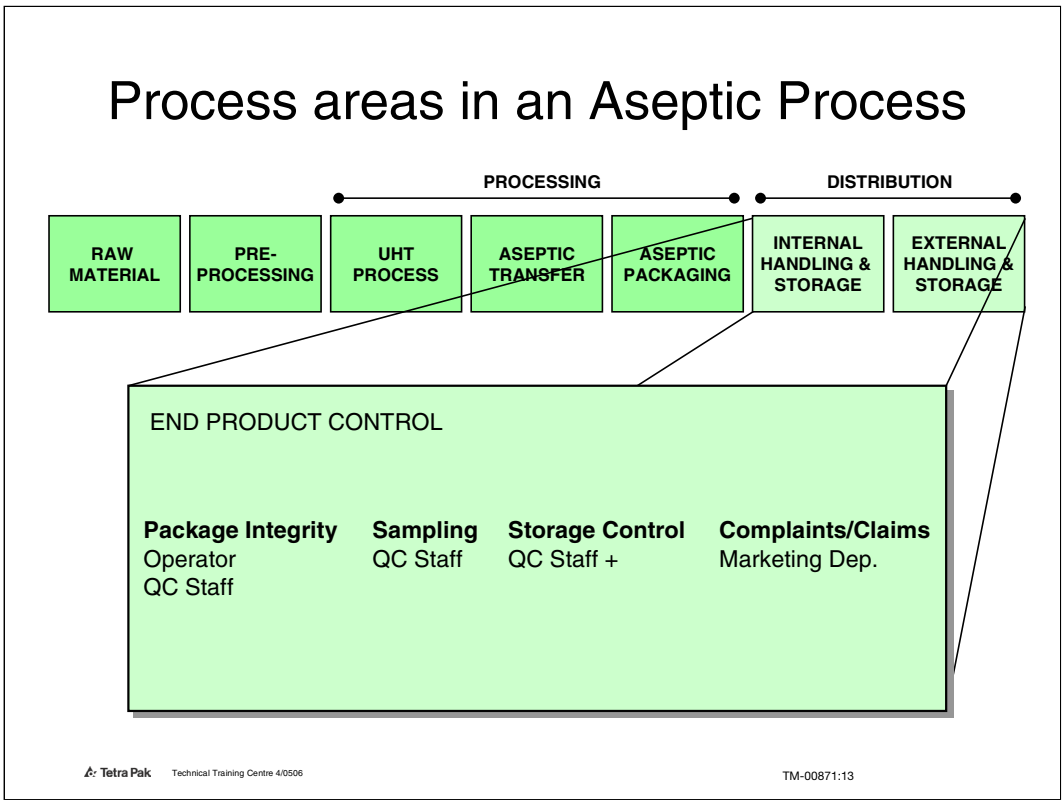
Quality specifications for the intermediate product are necessary to minimize the impact on the final product.



Processing

The ”heart” of the production line, good preconditions alone do not guarantee an acceptable result, maintaining the process parameters is equally important..

Proper recording and documentation is necessary for process verification



Distribution

End product control is acquiring a receipt that the total process has been able to meet the required quality.

Release & Quality specifications are necessary to assure that only product of an agreed upon quality is released to the market.

Feedback of Complaints and Claims is a pre-condition for optimal Quality Assurance.

3

TA Flex Introduction

Indirect UHT-treatment

Tetra Therm Aseptic Flex 1

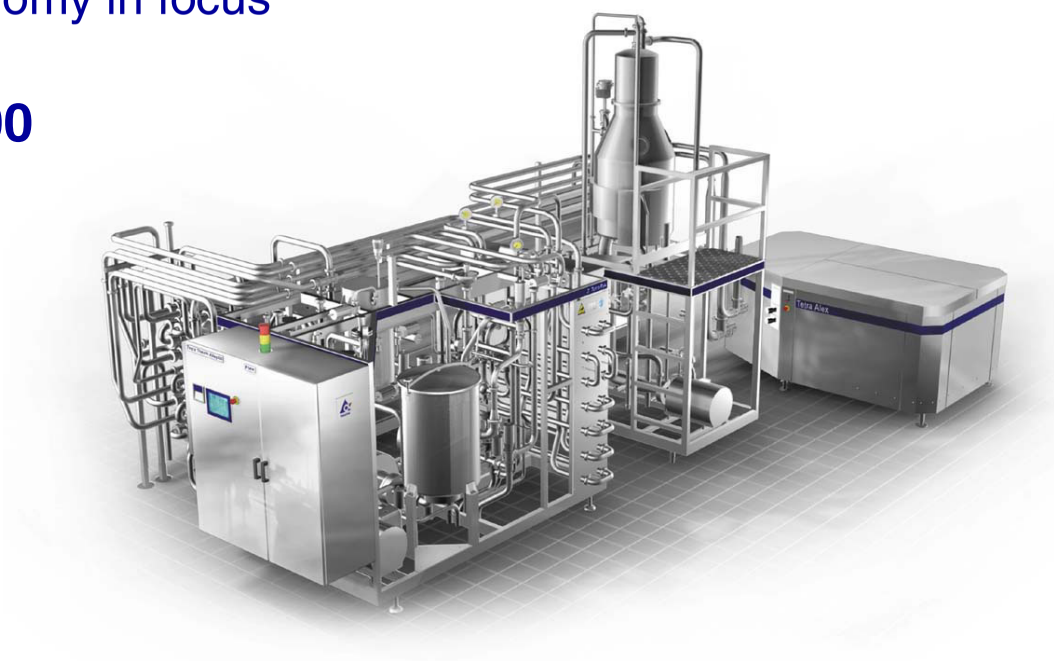
- An investment effective UHT module for emerging customers and new entrants

Tetra Therm Aseptic Flex 10

- A high performance UHT module with flexibility and production economy in focus

Tetra Therm Aseptic Flex 100

- A customised version to achieve special product quality or meet specific customer demands



Tetra Pak
protects what's good™

Tetra Therm® Aseptic Flex 1

Dedicated aseptic processing modules for indirect UHT treatment with a tubular heat exchanger (THE). 4 versions for 7 applications

- Milk
- Chocolate milk
- Recombined milk
- Soy milk
- Buffalo milk
- Tea
- Juice without fibres

Tetra Pak
protects what's good™

Tetra Therm® Aseptic Flex 10

UHT treatment in plate heat exchanger (PHE) or tubular heat exchanger (THE)

- Milk
- Flavoured milk products
- Cream
- Dairy desserts
- Yoghurt drinks
- Liquid baby food
- Other products
  - juice
  - nectar
  - tea

Tetra Pak
protects what's good™

Tetra Therm® Aseptic Flex 100

The flexible solution for individual needs

Tetra Therm Aseptic Flex 100 is our customised module solution to fulfil special product requirements.

- MTT turbo tubes for longer running times
- Combined plate and tubular heat exchangers for improved flexibility
- Split homogenization for improved stability and texture

Tetra Pak
protects what's good™

4

TA Flex Process Flowchart

Rev	Description	Designer	Appr. By	Date

FLOW DIAGRAM SYMBOLS

PIPING SYMBOLS

- PROCESS MEDIA, RED
- CLEANING MEDIA, MAGENTA
- SERVICE MEDIA, CYAN
- ELECTRICAL CONTROL, GREEN
- AIR CONTROL, BLUE
- LIQUID CONTROL, ORANGE
- FLEXIBLE HOSE
- PIPE WITH HEATING OR COOLING JACKET
- PIPE WITH HEATING OR COOLING COIL
- CAP ON PIPE END
- UNION
- INSULATED PIPE
- LIMIT OF DELIVERY
- ORIFICE

DENOMINATION

A	AIR
IA	INSTRUMENT AIR
SA	SANITARY AIR
C	CONDENSATE
D	DRAIN
S	STEAM
W	WATER
CW	COOLING WATER
HW	HOT WATER
IW	ICE WATER
SW	SOFTENED WATER
TW	TOWER WATER
GW	GLYCOL WATER
G	GAS
--R	RETURN
--C	CIRCULATION
CIP PR	CLEANING PRESSURE LINE
CIP R	CLEANING RETURN LINE

INSTRUMENTS

- COMMON INSTRUMENT LOCALLY MOUNTED
- COMMON INSTRUMENT PANEL MOUNTED OR SOFT-WARE FUNCTION
- DUMMY

FIRST LETTER

Measured or initiation variable

- D — DENSITY
- F — FLOWRATE (L/H), MASSFLOW (KG/H) OR VOLUME (L)
- G — POSITION
- L — LEVEL
- P — PRESSURE/VACUUM
- Pd — PRESSURE DIFFERENCE
- Q — QUALITY*
- T — TEMPERATURE
- W — WEIGHT
- S — FREQUENCY/SPEED

SECOND LETTER

Display of output function

- C — CONTROLLING
- E — SENSING ELEMENT
- I — INDICATING
- R — RECORDING
- S — SWITCHING
- T — TRANSMITTING
- X — CONVERTING

THIRD LETTER

Qualifying letter

- H — HIGH
- M — MEDIUM
- L — LOW

*TYPE OF QUALITY

- BRIX — BRIX
- PH — pH
- COND — CONDUCTIVITY
- TURB — TURBIDITY

HYGIENIC VALVES

- ASEPTIC VALVE GENERAL SYMBOL
- MANUAL PLUG COCK 2-WAY
- MANUAL PLUG COCK 3-WAY
- MANUAL SANITARY CONTROL VALVE
- FLOW CONTROL VALVE
- SANITARY MODULATING VALVE
- SANITARY NON-RETURN VALVE
- SANITARY MANUAL VALVE
- SANITARY AUTOMATIC VALVE
- SANITARY MANUAL BUTTERFLY VALVE
- SANITARY AUTOMATIC BUTTERFLY VALVE NORMALLY CLOSED, NC
- SANITARY AUTOMATIC BUTTERFLY VALVE NORMALLY OPEN, NO
- SANITARY MIXPROOF VALVE CLEANING OF SPINDLE AND CHAMBER
- SANITARY MIXPROOF VALVE
- SANITARY MIXPROOF VALVE TANK OUTLET
- ASEPTIC SAMPLING VALVE
- SANITARY SAMPLING VALVE
- AIR BLOW VALVE

NON-HYGIENIC VALVES

- NORMALLY OPEN VALVE WAY
- NORMALLY CLOSED VALVE WAY
- MANUAL SHUT-OFF VALVE
- MANUAL CHANGE-OVER VALVE
- MANUAL CONTROL VALVE
- AIR RELEASE VALVE
- VACUUM RELEASE VALVE
- PRESSURE RELEASE VALVE
- CONSTANT FLOW/PRESSURE VALVE
- NON-RETURN VALVE
- AUTOMATIC SHUT-OFF VALVE
- AUTOMATIC CHANGE- OVER VALVE
- AUTOMATIC MODULATING VALVE 2-WAY
- AUTOMATIC MODULATING VALVE 3-WAY
- SOLENOID VALVE

ACTUATOR FUNCTIONS

- HAND ACTUATOR
- MODULATING ACTUATOR
- ON/OFF ACTUATOR
- SOLENOID ACTUATOR
- ELECTRIC MOTOR
- SPRING
- FLOAT
- TOP UNIT
- FEEDBACK UNIT

PUMPS

- CENTRIFUGAL PUMP
- POSITIVE PUMP
- VACUUM PUMP
- LIQUID RING PUMP
- SCREW PUMP

COMPONENTS

- STEAM TRAP
- FILTER, STRAINER
- SIGHT GLASS
- AGITATOR
- CLEANING DEVICE
- EJECTOR/INJECTOR
- DRAIN/FUNNEL
- EXPANSION VESSEL
- SILENCER
- PLATE HEAT EXCHANGER
- TUBULAR HEAT EXCHANGER
- STATIC MIXER

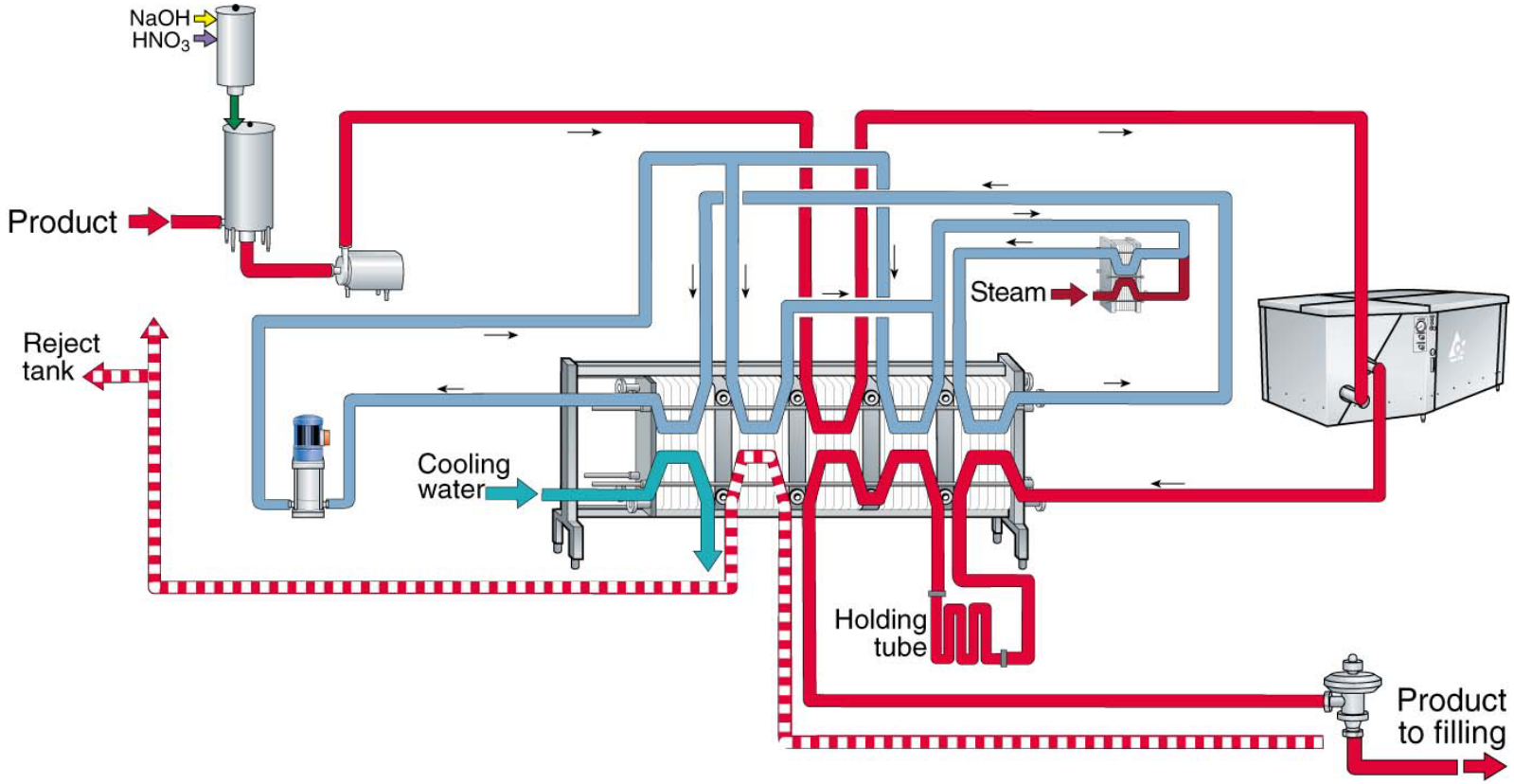
Flow Diagram Symbols

Machine No	Designer	Appr. By	Date	File Name
	MBN		2001-10-04	
Company		Format	Template	
		A2		
Tetra Pak		Scale	Document No	Revision
			Doc No 1213349-01	

Tetra Therm® Aseptic Flex 10

Based on PHE

Standard temperature programme for Milk
5(10)°C – 75°C – homogenization – 137°C/4 sec – 20/25°C

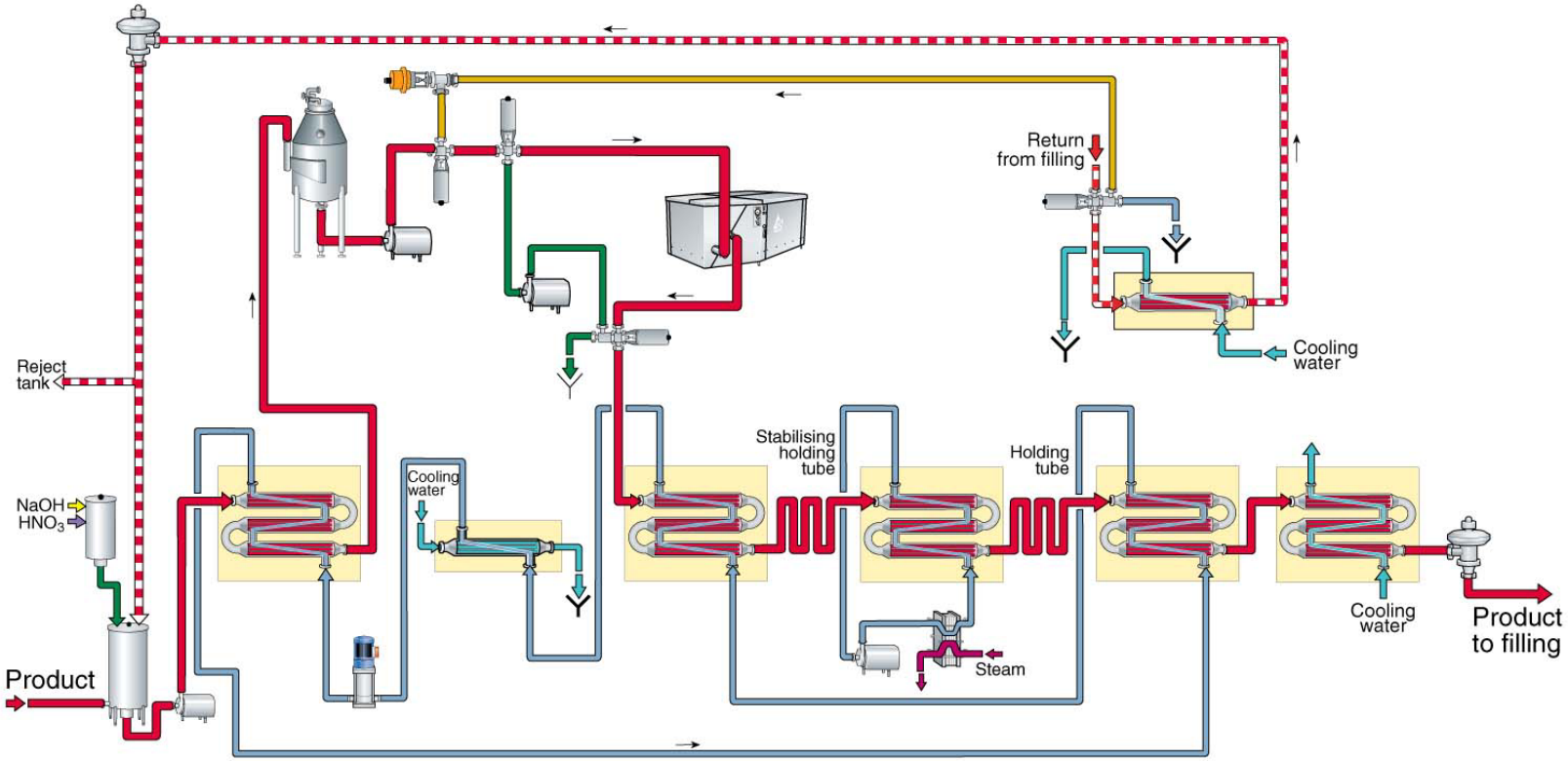


Tetra Pak
protects what's good™

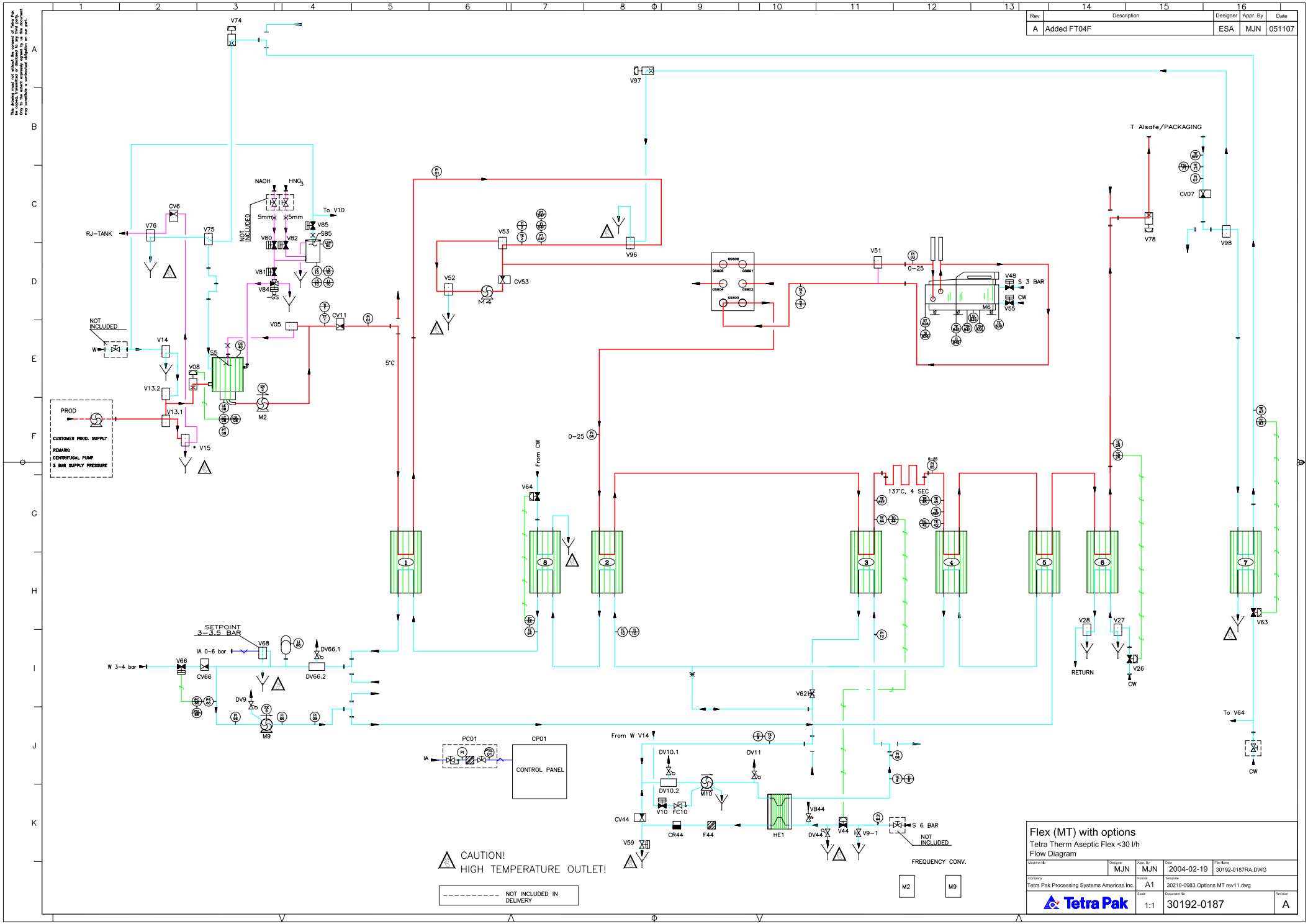
Tetra Therm® Aseptic Flex 10

Based on THE

Standard temperature programme for Milk
5(10)°C – 75°C – homogenization – 137°C/4 sec – 20/25°C



Tetra Pak
protects what's good™



Rev	Description	Designer	Appr. By	Date
A	Added FT04F	ESA	MJN	051107

Flex (MT) with options

Tetra Therm Aseptic Flex <30 l/h

Flow Diagram

Machine No	Designer: MJN	Appr. By: MJN	Date: 2004-02-19	File Name: 30192-0187RA.DWG
Company: Tetra Pak Processing Systems Americas Inc.	Format: A1	Template: 30210-0983 Options MT rev11.dwg		
Tetra Pak	Scale: 1:1	Document No: 30192-0187		Revision: A

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TA Flex X-Chart Sequences

Tetra Therm Aseptic FLEX THE

Rev. no	Appr.	Date	Descr.

STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M4	M6A	M9	M10	M12	M13	Y822/823	V8	V13.1	V13.2	V14	V15	V22	V27	V44	V46	V48	V51	V52	V53	V55	V59	V63	V64	V66	V67	V74	V75	V76	V78	V96	V97	V98	
									V10										V28																				
	STERILE WATER																																						
ACT. VALVES	1/7	1	N75:1	R1									X		X	X	*12				*2	X	*14	X	B	X		X	X	*5		A							1
ACT.PUMPS	1/7	2	N75:2	R2	X			X					X		X	X	*12				*2	X	*14	X	B	X		X	X	*5		A							2
FILL UP PLANT	1/7	3	N75:3	R3	X	X	*2	X	X				X		X	X	*12				*2	X	*14	X	B	X		X	X	*5		A							3
ACT. STEAM	1	4	N75:4	R4	X	X	*2	X	X				X		X	X	*12			X	*2	X	*14	X	B	X		X		*5		A				X	X	X	4
HEATING	1	5	TS71		X	X	*2	*18	X				X		X	X	*12			X	*2	X	*14	X	B	X		X		*5		A	X			X	X	X	5
STERILIZING	1	6	N75:6	R6	X	X	*2		X				X		X	X	*12			X	*2	X	*14	X	B	X	*19	X		*5		A	X			X	X	X	6
COOLING 1	1	7	N75:7	R7	X	X	*2		X				X		X	X	*12			X	*2	X	*14	X	B	X	*19	X		*5		A	X			X	X	X	7
COOLING 2	1	10	N75:10	R10	X	X	*2	X	X				X		X	X	*12			X	*2	X	*14	X	B	X	*19	X	X	*5		A	X			X	X	X	10
COOLING 3	1	11	N75:11	R11	X	X	*2	X	X				X		X	X	*12			X	*2	X	*14	X	B	X	*19	X	X	*5		A	X		X	X	X	X	11
STABILISING	1	12	N75:12	R12	X	X	*2	X	X				X		X	X	*12	*10		X	*2	X	*14	X	B	X	*19	X	X	*5	X	B			X				12
STERILE WATER	2	17			X	X	*2	X	X				X		X	X	*12	*10		X	*2	X	*14	X	B	X	*19	X	X	*5	X	B	X		X				17
	PRODUCTION																																						
BTD EMPTYING	3	20	LSL 8		X	X	*2	X	X				X				*12	*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B			X				20
PREP.PROD	3	21	TS71	R21	X	X	*2	X	X				X		X	X	*12	*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B			X				21
BTD EMPTYING	3	22	LSL 8		X	X	*2	X	X				X				*12	*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B			X				22
PROD. TO LL	3	23	!LSL 8		X	X	*2	X	X				X	*6				*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B			X				23
FILL TO DRAIN	3	24	N75:24	R24	X	X	*2	X	X			*1	X	X				*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B			X				24
FILL TO REJECT	3	25	N75:25	R25	X	X	*2	X	X			*2	X	X				*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B		X	X				25
PRODUCTION	3	27			X	X	*2	X	X			*2	X	X				*10	*2	X	*2	X	*14	X	B	X	*19	*7	X	*5	X	B	X		X				27
BTD EMPTYING	3	40	LSL 8		X	X	*2	X	X			*2	X					*10	*2	X	*2	X	*14	X	B	X	*19	*7	X	*5	X	B		X	X				40
PROD OUT	3	41	N75:41	R41	X	X	*2	X	X			*2	X		*8	*8		*10	*2	X	*2	X	*14	X	B	X	*19	*7	X	*5	X	B		X	X				41
PROD. TO REJ.	3	42	N75:42	R42	X	X	*2	X	X			*2	X		X	X		*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B		X	X				42
RINSING	3	43	N75:43	R43	X	X	*2	X	X				X		*8	*8		*10	*2	X	*2	X	*14	X	B	X	*19		X	*5	X	B			X				43
STERILE WATER	2	17			X	X	*2	X	X				X		X	X	*12	*10		X	*2	X	*14	X	B	X	*19	X	X	*5	X	B	X		X				17
	ASEPTIC INTERMEDIATE CLEANING																																						
WAIT. FOR MET	4	51	LT10		X	X	*2	X	X				X		X	X	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X		X		X				51
CAUSTIC DOS	4	52	N75:52	R52	X	X	*2	X	X	X			X		*4	*4	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X		*6		X				52
CAUSTIC CIRC.	4	53	N75:53	R53	X	X	*2	X	X				X		*4	*4	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X		X		X				53
BTD EMPTYING	4	54	LSL 8		X	X	*2	X	X				X				*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X				X				54
RINSING (+ MET.)	4	55	N75:55	R55	X	X	*2	X	X				X		*8	*8	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X				X				55
WAIT. FOR MET	4	56	LT10		X	X	*2	X	X				X		X	X	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X		X		X				56
ACID DOS	4	57	N75:57	R57	X	X	*2	X	X		X		X		*4	*4	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X		*6		X				57
ACID RINSE	4	60	N75:60	R60	X	X	*2	X	X				X		*4	*4	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X				X				60
BTD EMPTYING	4	61	LSL 8		X	X	*2	X	X				X				*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X				X				61
RINSING	4	62	N75:62	R62	X	X	*2	X	X				X		*8	*8	*12			X	*2	X	*14	X	B	X	*19	X	X	*5	X				X				62
STERILE WATER	2	17			X	X	*2	X	X				X		X	X	*12	*10		X	*2	X	*14	X	B	X	*19	X	X	*5	X	B	X		X				17
	SHUT DOWN																																						
BTD EMPTYING	6/7	70	LSL 8		X	X	*2	X	X				X				*12				*2	X	*14	X	B	X		X	X	*5					X				70
RINSING	6/7	71	N75:71	R71	X	X	*2	*6	*6				X		X	X	*12				*2	X	*14	X	B	X		X	*6	*5					X				71
									V10										V28																			
STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M4	M6A	M9	M10	M12	M13	Y822/823	V8	V13.1	V13.2	V14	V15	V22	V27	V44	V46	V48	V51	V52	V53	V55	V59	V63	V64	V66	V67	V74	V75	V76	V78	V96	V97	V98	

Tetra Therm Aseptic FLEX THE

Rev. no	Appr.	Date	Descr.

STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M4	M6A	M9	M10	M12	M13	Y822/823	V8	V13.1	V13.2	V14	V15	V22	V27	V44	V46	V48	V51	V52	V53	V55	V59	V63	V64	V66	V67	V74	V75	V76	V78	V96	V97	V98	
									V10										V28																				
	FULL CLEANING																																						
ACT. VALVES	5	101	N75:101	R81									X		X	X	*12				*2	X	B	X	B	X		X	X	*5	X								101
ACT.PUMPS	5	102	N75:102	R82	X			X					X		X	X	*12				*2	X	B	X	B	X		X	X	*5	X								102
FILL UP PLANT	5	103	N75:103	R83	X	X	*2	X	X				X		X	X	*12				*2	X	B	X	B	X		X	X	*5	X								103
ACT. STEAM	5	104	N75:104	R84	X	X	*2	X	X				X		X	X	*12			X	*2	X	B	X	B	X		X	X	*5	X								104
RINSING + MET.	5	111	N75:111	R91	X	X	*2	X	X				X		*8	*8	*12			X	*2	X	B	X	B	X		X	X	*5	X								111
WAIT. FOR MET	5	112	LT10		X	X	*2	X	X				X		X	X	*12			X	*2	X	B	X	B	X	*19	X	X	*5	X		X						112
CAUSTIC DOS	5	113	N75:113	R93	X	X	*2	X	X	X			X		*4	*4	*12			X	*2	X	B	X	B	X	*19	X	X	*5	X		*6						113
CAUSTIC CIRC.	5	114	N75:114	R94	X	X	*2	X	X				X		*16	*4	*12			X	*2	X	B	X	B	X	*19	X	X	*5	X		X						114
BTD EMPTYING	5	115	LSL 8		X	X	*2	*20	X				X				*12			X	*2	X	B	X	B	X	*19	X	X	*5	X							X	115
RINSING + MET.	5	121	N75:121	R101	X	X	*2	*20	X				X		*8	*8	*12			X	*2	X	B	X	B	X		X		*5								*17	121
WAIT. FOR MET	5	123	LT10		X	X	*2		X				X		X	X	*12			X	*2	X	B	X	B	X		X		*5			X						123
ACID DOS	5	124	N75:124	R104	X	X	*2		X		X		X		*4	*4	*12			X	*2	X	B	X	B	X		X		*5			*6						124
ACID CIRC.	5	125	N75:125	R105	X	X	*2		X				X		*16	*4	*12			X	*2	X	B	X	B	X		X		*5			X						125
BTD EMPTYING	5	126	LSL 8		X	X	*2		X				X				*12			X	*2	X	B	X	B	X		X		*5								X	126
RINSING	5	146	N75:146	R126	X	X	*2		X				X		*8	*8	*12			X	*2	X	B	X	B	X		X		*5								*17	146
RINSING	5	147	N75:147	R127	X	X	*2		X				X		X	X	*12				*2	X	B	X	B	X		X		*5								*17	147
									V10										V28																			
STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M4	M6A	M9	M10	M12	M13	Y822/823	V8	V13.1	V13.2	V14	V15	V22	V27	V44	V46	V48	V51	V52	V53	V55	V59	V63	V64	V66	V67	V74	V75	V76	V78	V96	V97	V98	

*1 = Homogeniser pressurised after a time delay
*2 = Activated if selected
*3 = Deactivated if temp. fault or Homogenizer fault.
*4 = Time activated if BTD LL.
*5 = Activated if PSL in watercircuit
*6 = Activated on timer.
*7 = Activated if AFM fault.
*8 = Empty BTD two times before activate valve continiusly
*9 = Activated 20 sec. after 1 min. delay
*10 = B Activated at low capacity, A activated a time when change from low to high capacity
*11 = Activated on timer if selected
*12 = Activated when to drain or to reject selected or pulsed from reject to drain for 5 sec. every 5 min. if CIP supply line selected
*13 = Activated if homogenizer fault
*14 = A normally activated, if homog. fault B activated instead
*15 = When V14 is closed
*16 = Flip
*17 = Deactivated on timer
*18 = When TT71< 70degr. C or max. timer
*19 = Not Low-temp products
*20 = Deact when TT44 < 100° C
*21 = Deactivated if hibernation active
*22 = A activated if high cap, B activated if low cap

	SUBPROGRAM FOR CIP HEADERBATCH																
STEPNAME	STEP	COND	REG No	M12	M13	V80	V81	V82	V84	V85							
READY	500	Req+LL															
METERING	501	LT10		*26	*27	*23		*24	X								
DOSING	502	LL					*25		X								
WAITING	503	N76:3	R163				X		X								
FLUSH 1 TO BTD	504	N76:4	R164				X		X	X							
PAUSE 1	505	N76:5	R165				X		X								
FLUSH 2 TO BTD	506	N76:6	R166				X		X	X							
PAUSE 2	507	N76:7	R167				X		X								
TO DRAIN	510	N76:10	R170				X										
FLUSH 1 TO DRAIN	511	N76:11	R171				X			X							
PAUSE 3	512	N76:12	R172				X										
FLUSH 2 TO DRAIN	513	N76:13	R173				X			X							
PAUSE 4	514	N76:14	R174				X										
READY	500																
	STEP	COND	REG No	M12	M13	V80	V81	V82	V84	V85							
	*23= If caustic requested and not level reached																
	*24= If acid requested and not level reached																
	*25= If level higher than calculated set-point																
	*26= After time if caustic requested and not level reached																
	*27= After time if acid requested and not level reached																

Register	Address	Symbol	Comment	Original	Changed
0	N91:0		0 N75:0		
1	N91:1		1 N75:1 S_STEP1_TIME	5	
2	N91:2		2 N75:2 S_STEP2_TIME	5	
3	N91:3		3 N75:3 S_STEP3_TIME	90	
4	N91:4		4 N75:4 S_STEP4_TIME	25	
5	N91:5		5 N75:5 S_STEP5_TIME	10	
6	N91:6		6 N75:6 S_STEP6_TIME	1800	
7	N91:7		7 N75:7 S_STEP7_TIME	200	
8	N91:8		8 N75:8		
9	N91:9		9 N75:9		
10	N91:10		10 N75:10 S_STEP10_TIME	300	
11	N91:11		11 N75:11 S_STEP11_TIME	400	
12	N91:12		12 N75:12 S_STEP12_TIME	240	
13	N91:13		13 N75:13		
14	N91:14		14 N75:14		
15	N91:15		15 N75:15		
16	N91:16		16 N75:16		
17	N91:17		17 N75:17 S_STEP17_TIME		
18	N91:18		18 N75:18		
19	N91:19		19 N75:19		
20	N91:20		20 N75:20 S_STEP20_TIME		
21	N91:21		21 N75:21 S_STEP21_TIME	600	
22	N91:22		22 N75:22 S_STEP22_TIME		
23	N91:23		23 N75:23 S_STEP23_TIME	3	
24	N91:24		24 N75:24 S_STEP24_TIME calc. on volume	300	
25	N91:25		25 N75:25 S_STEP25_TIME calc. on volume	300	
26	N91:26		26 N75:26		
27	N91:27		27 N75:27 S_STEP27_TIME		
28	N91:28		28 N75:28		
29	N91:29		29 N75:29		
30	N91:30		30 N75:30		
31	N91:31		31 N75:31		
32	N91:32		32 N75:32		
33	N91:33		33 N75:33		
34	N91:34		34 N75:34		
35	N91:35		35 N75:35		
36	N91:36		36 N75:36		
37	N91:37		37 N75:37		
38	N91:38		38 N75:38		
39	N91:39		39 N75:39		
40	N91:40		40 N75:40 S_STEP40_TIME		
41	N91:41		41 N75:41 S_STEP41_TIME calc. on volume	200	
42	N91:42		42 N75:42 S_STEP42_TIME Calc. on volume	200	
43	N91:43		43 N75:43 S_STEP43_TIME Calc. on volume		
44	N91:44		44 N75:44		
45	N91:45		45 N75:45		
46	N91:46		46 N75:46		
47	N91:47		47 N75:47		
48	N91:48		48 N75:48		
49	N91:49		49 N75:49		
50	N91:50		50 N75:50		
51	N91:51		51 N75:51 S_STEP51_TIME		
52	N91:52		52 N75:52 S_STEP52_TIME Calc. on volume		
53	N91:53		53 N75:53 S_STEP53_TIME	1200	
54	N91:54		54 N75:54 S_STEP54_TIME		
55	N91:55		55 N75:55 S_STEP55_TIME	200	
56	N91:56		56 N75:56 S_STEP56_TIME		
57	N91:57		57 N75:57 S_STEP57_TIME Calc. on volume		
58	N91:58		58 N75:58		

Register	Address	Symbol	Comment	Original	Changed
59	N91:59		59 N75:59		
60	N91:60		60 N75:60 S_STEP60_TIME		
61	N91:61		61 N75:61 S_STEP61_TIME		
62	N91:62		62 N75:62 S_STEP62_TIME	600	
63	N91:63		63 N75:63		
64	N91:64		64 N75:64		
65	N91:65		65 N75:65		
66	N91:66		66 N75:66		
67	N91:67		67 N75:67		
68	N91:68		68 N75:68		
69	N91:69		69 N75:69		
70	N91:70		70 N75:70 S_STEP70_TIME		
71	N91:71		71 N75:71 S_STEP71_TIME	600	
72	N91:72		72 N75:72		
73	N91:73		73 N75:73		
74	N91:74		74 N75:74		
75	N91:75		75		
76	N91:76		76		
77	N91:77		77		
78	N91:78		78		
79	N91:79		79		
80	N91:80		80 N75:100		
81	N91:81		81 N75:101 S_STEP101_TIME	5	
82	N91:82		82 N75:102 S_STEP102_TIME	5	
83	N91:83		83 N75:103 S_STEP103_TIME	180	
84	N91:84		84 N75:104 S_STEP104_TIME	25	
85	N91:85		85 N75:105		
86	N91:86		86 N75:106		
87	N91:87		87 N75:107		
88	N91:88		88 N75:108		
89	N91:89		89 N75:109		
90	N91:90		90 N75:110		
91	N91:91		91 N75:111 S_STEP111_TIME Calc. on volume		
92	N91:92		92 N75:112 S_STEP112_TIME		
93	N91:93		93 N75:113 S_STEP113_TIME	370	
94	N91:94		94 N75:114 STEP114_TIME if iCIP option calc v	1500	
95	N91:95		95 N75:115 S_STEP115_TIME		
96	N91:96		96 N75:116		
97	N91:97		97 N75:117		
98	N91:98		98 N75:118		
99	N91:99		99 N75:119		
100	N91:100		100 N75:120		
101	N91:101		101 N75:121 S_STEP121_TIME Calc. on volum	370	
102	N91:102		102 N75:122 S_STEP122_TIME	30	
103	N91:103		103 N75:123 S_STEP123_TIME		
104	N91:104		104 N75:124 S_STEP124_TIME	370	
105	N91:105		105 N75:125 STEP125_TIME If iCIP option calc	1200	
106	N91:106		106 N75:126 S_STEP126_TIME		
107	N91:107		107 N75:127		
108	N91:108		108 N75:128		
109	N91:109		109 N75:129		
110	N91:110		110 N75:130		
111	N91:111		111 N75:131 S_STEP131_TIME Calc. on volum		
112	N91:112		112 N75:132 S_STEP132_TIME		
113	N91:113		113 N75:133 S_STEP133_TIME	370	
114	N91:114		114 N75:134 STEP134_TIME If iCIP option calc	1200	
115	N91:115		115 N75:135 S_STEP135_TIME		
116	N91:116		116 N75:136		
117	N91:117		117 N75:137		
118	N91:118		118 N75:138		

Register	Address	Symbol	Comment	Original	Changed
119	N91:119		119 N75:139		
120	N91:120		120 N75:140		
121	N91:121		121 N75:141 S_STEP141_TIME Calc. on volum	295	
122	N91:122		122 N75:142 S_STEP142_TIME		
123	N91:123		123 N75:143 S_STEP143_TIME	370	
124	N91:124		124 N75:144 STEP144_TIME If iCIP option calc	1200	
125	N91:125		125 N75:145 S_STEP145_TIME		
126	N91:126		126 N75:146 S_STEP146_TIME	300	
127	N91:127		127 N75:147 S_STEP147_TIME N93:220-229	400	
128	N91:128		128 N75:148		
129	N91:129		129 N75:149		
130	N91:130		130 N75:150		
131	N91:131		131 N75:151 S_STEP151_TIME	10	
132	N91:132		132 N75:152 S_STEP152_TIME	12	
133	N91:133		133 N75:153 S_STEP153_TIME	16	
134	N91:134		134 N75:154 S_STEP154_TIME	20	
135	N91:135		135 N75:155 S_STEP155_TIME		
136	N91:136		136 N75:156		
137	N91:137		137 N75:157		
138	N91:138		138 N75:158		
139	N91:139		139 N75:159		
140	N91:140		140		
141	N91:141		141 N40:147 NON AS HOMOCAP 1	13000	
142	N91:142		142 N40:148 NON AS HOMOCAP 2	11000	
143	N91:143		143 N40:149 NON AS HOMOCAP 3	10000	
144	N91:144		144 N40:150 NON AS HOMOCAP 4	8000	
145	N91:145		145 N40:151 NON AS HOMOCAP 5	7000	
146	N91:146		146 N40:152 NON AS HOMOCAP 6	6500	
147	N91:147		147		
148	N91:148		148		
149	N91:149		149		
150	N91:150		150		
151	N91:151		151 N40:207 AS HOMOCAP 1	13000	
152	N91:152		152 N40:208 AS HOMOCAP 2	11000	
153	N91:153		153 N40:209 AS HOMOCAP 3	10000	
154	N91:154		154 N40:210 AS HOMOCAP 4	8000	
155	N91:155		155 N40:211 AS HOMOCAP 5	7000	
156	N91:156		156 N40:212 AS HOMOCAP 6	6500	
157	N91:157		157		
158	N91:158		158		
159	N91:159		159		
160	N91:160		160 N76:0 S_STEP500_TIME		
161	N91:161		161 N76:1 S_STEP501_TIME		
162	N91:162		162 N76:2 S_STEP502_TIME		
163	N91:163		163 N76:3 S_STEP503_TIME	5	
164	N91:164		164 N76:4 S_STEP504_TIME	15	
165	N91:165		165 N76:5 S_STEP505_TIME	30	
166	N91:166		166 N76:6 S_STEP506_TIME	15	
167	N91:167		167 N76:7 S_STEP507_TIME	30	
168	N91:168		168 N76:8		
169	N91:169		169 N76:9		
170	N91:170		170 N76:10 S_STEP510_TIME	5	
171	N91:171		171 N76:11 S_STEP511_TIME	15	
172	N91:172		172 N76:12 S_STEP512_TIME	30	
173	N91:173		173 N76:13 S_STEP513_TIME	15	
174	N91:174		174 N76:14 S_STEP514_TIME	30	
175	N91:175		175		
176	N91:176		176		
177	N91:177		177		
178	N91:178		178		

Register	Address	Symbol	Comment	Original	Changed
179	N91:179		179		
180	N91:180		180 N77:0		
181	N91:181		181 N77:1 S_STEP201_TIME N93:225-239		
182	N91:182		182 N77:2 S_STEP202_TIME	5	
183	N91:183		183 N77:3 S_STEP203_TIME	15	
184	N91:184		184 N77:4 S_STEP204_TIME	3	
185	N91:185		185 N77:5 S_STEP205_TIME N93:230-239		
186	N91:186		186 N77:6 S_STEP206_TIME	15	
187	N91:187		187 N77:7 S_STEP207_TIME	3	
188	N91:188		188 N77:8		
189	N91:189		189 N77:9		
190	N91:190	S_FLIPTIME_V13_2	190	90	
191	N91:191	S_HOMO_DEL_ST24	191 DELAY HOMO IN ST 24	25	
192	N91:192	S_ASHOMO_DEL_ST24	192 DELAY AS.HOMO ST 24	25	
193	N91:193	S_SP_TIMER_V22A	193 SETPOINT TIMER ACT V22A RAMP UPP F	30	
194	N91:194	S_SP_TEMP_V61A_B_ST5	194 SETPOINT FOR CHANGE A to B IN STEP	800	
195	N91:195	S_TIM_DLY_V34_COOL	195 TIMER PRE DELAY V34 COOLING	40	
196	N91:196			900	
197	N91:197	START_HW_CIRCUIT	197 Step 71 when rem. time < Xs	75	
198	N91:198	S_CIP_V98_ON_TIME	198 Time in rinse step when V98 is activated.	30	
199	N91:199	S_LOG_OUT_TIME	199 Max log in timer	3600	
200	N91:200	S_SP1_LL_BTD	200 WATER IN PRODUCT BTD	50	
201	N91:201	S_SP2_LL_BTD	201 PRODUCT IN PROD BTD	50	
202	N91:202	S_SP3_LL_BTD	202 CAUSTIC IN PROD BTD	50	
203	N91:203	S_SP4_LL_BTD	203 ACID IN PROD BTD	50	
204	N91:204	S_SP5_LL_BTD	204 Setpoint when flush V08 in end of circ step	380	
205	N91:205	S_CT76_CIRC	205 DETERGENT AT V75	500	
206	N91:206		206		
207	N91:207	S_RATIO_SP_V_P	207		
208	N91:208	S_SP_STOP_DEAR_VC	208 Set point for stop deaeration of VC TT3< ap	110	
209	N91:209	S_TIM_V61A_ACT_ST_11	209 Time for V61A in beginning of step 11.	45	
210	N91:210	S_SWITCH_PNT_V22	210	9000	
211	N91:211	S_HYST_LOCAP_V22	211	50	
212	N91:212	S_DLY_ALARM_FLMETR	212 Delay time (S). mA signal fault Product flow	15	
213	N91:213	S_PR_FLOWM_RANGE	213 Range on product flow meter	20000	
214	N91:214	S_FL_DIFF_VAL	214 MAX FLOW DIFF BEF AL	1000	
215	N91:215	S_FLOW_DEV_PER_CENT	215 Flow deviation alarm % of flow range 0-100	50	
216	N91:216	S_LV_DIF_VAL	216 MAX LEV DIFF VAC VES	100	
217	N91:217		217		
218	N91:218	S_CORR_LEV_VAC	218 CORR FACT LEVEL VAC. VESEL	7350	
219	N91:219	S_SP_PSLL_66	219 Set point Alarm PSLL 66 0 - 100 (0 - 10.0 ba	15	
220	N91:220	S_SP_PSL_66	220 Set point Act V66 0 - 100 (0 - 10.0 bar)	21	
221	N91:221	S_SP_PSH_66	221 Set point DeAct V66 0 - 100 (0 - 10.0 bar)	23	
222	N91:222	S_SP_PSHH_66	222 Set point Alarm PSLH 66 0 - 100 (0 - 10.0 b	26	
223	N91:223	S_SP_PSL_10	223 Set point Alarm PSL 10 0 - 100 (0 - 10.0 bar	20	
224	N91:224	S_PT100_RANGE	224 Range of PT100	1600	
225	N91:225		225		
226	N91:226	S_PRESS_PT_RANGE	226 Range of Pt04, 10,30,48,61,62 63,66 for Ind	100	
227	N91:227	S_PRESS_PT78_RANGE	227 Range of PT78 for Indication	100	
228	N91:228	S_PRESS_PT60_RANGE	228 Range of PT60 for Indication	400	
229	N91:229		229		
230	N91:230	S_HYST_V81	230	10	
231	N91:231	S_ADD_DE_CAUHB	231 ADD CAUSTIC DEA SEL 0-1000	100	
232	N91:232	S_ADD_DE_ACHB	232 ADD ACID DEA SEL 0-1000	100	
233	N91:233	S_ADD_HC_CAUHB	233 ADD CAUSTIC HC60 SEL 0-1000	100	
234	N91:234	S_ADD_HC_ACHB	234 ADD ACID HC60 SEL 0-1000	100	
235	N91:235	S_ADD_SH_HC_CAUHB	235 ADD CAUSTIC HC30 SEL 0-1000	100	
236	N91:236	S_ADD_SH_HC_ACHB	236 ADD ACID HC30 SEL 0-1000	100	
237	N91:237		237		
238	N91:238		238		

Register	Address	Symbol	Comment	Original	Changed
239	N91:239		239		
240	N91:240		240		
241	N91:241		241	300	
242	N91:242		242	300	
243	N91:243		243	300	
244	N91:244		244	300	
245	N91:245		245	300	
246	N91:246		246	300	
247	N91:247		247		
248	N91:248		248	500	
249	N91:249		249	500	
250	N92:0	S_M2_CAP1	250	1000	
251	N92:1	S_M2_CAP2	251	900	
252	N92:2	S_M2_CAP3	252	800	
253	N92:3	S_M2_CAP4	253	700	
254	N92:4	S_M2_CAP5	254	600	
255	N92:5	S_M2_CAP6	255	500	
256	N92:6	S_M2_H_CIP	256	1000	
257	N92:7	S_M2_L_CIP	257	1000	
258	N92:8	S_M2_PRE_1_7	258	500	
259	N92:9	S_M2_10_11	259	500	
260	N92:10	S_M2_MANUAL	260 Pump is act by H/A	500	
261	N92:11	S_M2_HIBERNATION	261	400	
262	N92:12	S_M2_RAMP_CONST	262	20	
263	N92:13	S_M2_RAMP_CONST_DIV	263	10	
264	N92:14	S_M2_INC	264	10	
265	N92:15	S_M2_DEC	265	10	
266	N92:16		266		
267	N92:17		267		
268	N92:18	S_M2_ACT_SP	268		
269	N92:19	S_M2_SEL_SP	269	1000	
270	N92:20	S_Z_VAL_HC_PIPE	Z value pipe HC. 38727 100 = 10.0		
271	N92:21	S_EXPANSION_COND	Termal expansion & condensate. 1/100 % 180 =		
272	N92:22				
273	N92:23	S_VOLYME_HC_PIPE	Volume in holding cell. 38727 100 =10.0 l		
274	N92:24				
275	N92:25				
276	N92:26		276		
277	N92:27		277		
278	N92:28		278		
279	N92:29				
280	N92:30	S_M4_CAP1	280	1000	
281	N92:31	S_M4_CAP2	281	900	
282	N92:32	S_M4_CAP3	282	800	
283	N92:33	S_M4_CAP4	283	700	
284	N92:34	S_M4_CAP5	284	600	
285	N92:35	S_M4_CAP6	285	500	
286	N92:36	S_M4_H_CIP	286	1000	
287	N92:37	S_M4_L_CIP	287	1000	
288	N92:38	S_M4_PRE_1_7	288	500	
289	N92:39	S_M4_10_11	289	500	
290	N92:40	S_M4_MANUAL	290 Pump is act by H/A	500	
291	N92:41	S_M4_HIBERNATION	291	400	
292	N92:42	S_M4_RAMP_CONST	292	20	
293	N92:43	S_M4_RAMP_CONST_DIV	293	10	
294	N92:44	S_M4_INC	294	10	
295	N92:45	S_M4_DEC	295	10	
296	N92:46		296		
297	N92:47		297		
298	N92:48	S_M4_ACT_SP	298		

Register	Address	Symbol	Comment	Original	Changed
299	N92:49	S_M4_SEL_SP	299	1000	
300	N92:50		300		
301	N92:51		301		
302	N92:52		302		
303	N92:53		303		
304	N92:54		304		
305	N92:55		305		
306	N92:56		306		
307	N92:57		307		
308	N92:58		308		
309	N92:59		309		
310	N92:60	S_FIC6_CAP1_FS	310	1000	
311	N92:61	S_FIC6_CAP2_FS	311	900	
312	N92:62	S_FIC6_CAP3_FS	312	800	
313	N92:63	S_FIC6_CAP4_FS	313	700	
314	N92:64	S_FIC6_CAP5_FS	314	600	
315	N92:65	S_FIC6_CAP6_FS	315	500	
316	N92:66	S_FIC6_CIP_FS	316	1000	
317	N92:67	S_FIC6_LT_CIP_FS	317 Used in US Flex	1000	
318	N92:68	S_FIC6_PRE_STER_FS	318	500	
319	N92:69	S_FIC6_PRE_STER_2_FS	319 Used in US Flex	500	
320	N92:70	S_M6_MANUAL	320 Pump is act by toggel sw	500	
321	N92:71	S_M6_HIBERNATION	321	400	
322	N92:72	S_M6_RAMP_CONST	322	20	
323	N92:73	S_M6_RAMP_CONST_DIV	323	10	
324	N92:74	S_M6_INC	324	10	
325	N92:75	S_M6_DEC	325	10	
326	N92:76		326		
327	N92:77		327		
328	N92:78	S_M6_SEL_SP	328	1000	
329	N92:79	S_M6_ACT_SP	329	1000	
330	N92:80		330		
331	N92:81		331	13000	
332	N92:82		332	11000	
333	N92:83		333	10000	
334	N92:84		334	8000	
335	N92:85		335	7000	
336	N92:86		336	6500	
337	N92:87		337	6500	
338	N92:88		338	14000	
339	N92:89		339		
340	N92:90	S_FIC6A_CAP1_FS	340	1000	
341	N92:91	S_FIC6A_CAP2_FS	341	900	
342	N92:92	S_FIC6A_CAP3_FS	342	800	
343	N92:93	S_FIC6A_CAP4_FS	343	700	
344	N92:94	S_FIC6A_CAP5_FS	344	600	
345	N92:95	S_FIC6A_CAP6_FS	345	500	
346	N92:96	S_FIC6A_CIP_FS	346	1000	
347	N92:97	S_FIC6A_LT_CIP_FS	347 Used i US Flex	1000	
348	N92:98	S_FIC6A_PRE_STER_FS	348	500	
349	N92:99	S_FIC6A_PRE_STER2_FS	349 Used in US Flex	500	
350	N92:100	S_M6A_MANUAL	350 Pump is act by H/A	500	
351	N92:101	S_M6A_HIBERNATION	351	400	
352	N92:102	S_M6A_RAMP_CONST	352	20	
353	N92:103	S_M6A_RAMP_CONST_DIV	353	10	
354	N92:104	S_M6A_INC	354	10	
355	N92:105	S_M6A_DEC	355	10	
356	N92:106		356		
357	N92:107		357		
358	N92:108	S_M6A_ACT_SP	358		

Register	Address	Symbol	Comment	Original	Changed
359	N92:109	S_M6A_SEL_SP	359		
360	N92:110		360		
361	N92:111		361	13000	
362	N92:112		362	11000	
363	N92:113		363	10000	
364	N92:114		364	8000	
365	N92:115		365	7000	
366	N92:116		366	6500	
367	N92:117		367	6500	
368	N92:118		368	14000	
369	N92:119		369		
370	N92:120	S_M9_CAP1	370 FLEX R see N95:11-20	1000	
371	N92:121	S_M9_CAP2	371 FLEX R see N95:21-30	900	
372	N92:122	S_M9_CAP3	372 FLEX R see N95:31-40	800	
373	N92:123	S_M9_CAP4	373 FLEX R see N95:41-50	700	
374	N92:124	S_M9_CAP5	374 FLEX R see N95:51-60	600	
375	N92:125	S_M9_CAP6	375 FLEX R see N95:61-70	500	
376	N92:126	S_M9_H_CIP	376	1000	
377	N92:127	S_M9_L_CIP	377	1000	
378	N92:128	S_M9_PRE_1_7	378	500	
379	N92:129	S_M9_10_11	379	500	
380	N92:130	S_M9_MANUAL	380 Pump is act by H/A	500	
381	N92:131	S_M9_HIBERNATION	381	400	
382	N92:132	S_M9_RAMP_CONST	382	20	
383	N92:133	S_M9_RAMP_CONST_DIV	383	10	
384	N92:134	S_M9_INC	384	10	
385	N92:135	S_M9_DEC	385	10	
386	N92:136		386		
387	N92:137		387		
388	N92:138	S_M9_ACT_SP	388		
389	N92:139	S_M9_SEL_SP	389	1000	
390	N92:140	S_SP_OILTEMP_HOMO	390 OPT. 18 HOMO OIL TEMP		
391	N92:141	S_SP_DLY_LS02_C_1	391 SET POINT TO T4:22 PRE US STER	5	
392	N92:142	S_SP_DLY_LS02_C_2	392 SET POINT TO T4:22 PRE US STER	5	
393	N92:143	S_SP_DLY_LS02_C_3	393 SET POINT TO T4:22 PRE US STER	5	
394	N92:144	S_SP_DLY_LS02_C_4	394 SET POINT TO T4:22 PRE US STER	5	
395	N92:145	S_SP_DLY_LS02_C_5	395 SET POINT TO T4:22 PRE US STER	5	
396	N92:146	S_SP_DLY_LS02_C_6	396 SET POINT TO T4:22 PRE US STER	5	
397	N92:147	S_SP_DLY_LS02_STER	397 SET POINT TO T4:22 PRE US STER	5	
398	N92:148	S_SP_DLY_LS02_CIP	398 SET POINT TO T4:22 PRE US STER	5	
399	N92:149		399		
400	N92:150	S_M10_CAP1	400 FLEX R see N95:111-120	1000	
401	N92:151	S_M10_CAP2	401 FLEX R see N95:121-130	900	
402	N92:152	S_M10_CAP3	402 FLEX R see N95:131-140	800	
403	N92:153	S_M10_CAP4	403 FLEX R see N95:141-150	700	
404	N92:154	S_M10_CAP5	404 FLEX R see N95:151-160	600	
405	N92:155	S_M10_CAP6	405 FLEX R see N95:161-170	500	
406	N92:156	S_M10_H_CIP	406	1000	
407	N92:157	S_M10_L_CIP	407	1000	
408	N92:158	S_M10_PRE_1_7	408	500	
409	N92:159	S_M10_10_11	409	500	
410	N92:160	S_M10_MANUAL	410 Pump is act by H/A	500	
411	N92:161	S_M10_HIBERNATION	411	400	
412	N92:162	S_M10_RAMP_CONST	412	20	
413	N92:163	S_M10_RAMP_CONST_DIV	413	10	
414	N92:164	S_M10_INC	414	10	
415	N92:165	S_M10_DEC	415	10	
416	N92:166		416		
417	N92:167		417		
418	N92:168	S_M10_ACT_SP	418		

Register	Address	Symbol	Comment	Original	Changed
419	N92:169	S_M10_SEL_SP	419	1000	
420	N92:170		420		
421	N92:171	S_M6_MIN_C1	431		
422	N92:172	S_M6_MIN_C2	432		
423	N92:173	S_M6_MIN_C3	433		
424	N92:174	S_M6_MIN_C4	434		
425	N92:175	S_M6_MIN_C5	435		
426	N92:176	S_M6_MIN_C6	436		
427	N92:177		427		
428	N92:178		428		
429	N92:179		429		
430	N92:180	S_FLASH_COOL_ACID	430 % of acid CIP step with flash cooling (max5(	40	
431	N92:181				
432	N92:182	S_MAN_OUT_STEP_7	432 LC504 out value in start of step 7 0 - 1000 ((	400	
433	N92:183	S_LC504_ST7_PRE	433 Pre set time when LIC504 is put in MAN mo	30	
434	N92:184	S_INCR_SP_LC504_F_E	434 % ADDED TO SP LIC504 IN FILL / EMPT 1	50	
435	N92:185	S_MAX_PR_V44_2B	435 MAX PRESSURE IN INFUSER BEFORE RI	57	
436	N92:186	S_HYST_PR_V44_2B	436 MIN PRESSURE IN INFUSER FOR RESTR	48	
437	N92:187	S_TERM_EXP_PROD	437 Thermal expansion % product at ster temp 1	60	
438	N92:188	S_SP_SPRAY_INFUSER	438 SET POINT SPRAY INFUSER % OF CIP S	50	
439	N92:189	S_SPRAY_INFUSER_LIM	439 % of CIP Step tim.		
440	N92:190	S_HC_EFF_OP	440 HOLDING CELLS EFF. FROM TPOP IN %	85	
441	N92:191	S_HIGH_LEV_INFUSER	441 MAX LEVEL INFUSER LSH 504	970	
442	N92:192	S_FLIP_V505_HEATING	442 Lim < TT 44.2B Flip V505 in heating.	1100	
443	N92:193	S_MIN_T_F_V505_TT502	443 Min temp TT44.2B for flip V505 if low temp T	1230	
444	N92:194	S_FLIP_TT502_LOW	444 Lim > TT502 flip V505 in sterilising.	1250	
445	N92:195	S_HYST_TEMP_ACT_V535	445 HYST. ACT V535 IF TT504 < TT44.2B	10	
446	N92:196	S_LOW_TEMP_PROD_INF	446 0 - 1600 or (0 - 3500 US)	1300	
447	N92:197	S_LC504_RMP_ADD		180	
448	N92:198	S_LC504_END_ST6_MAN	448 remaining time in step 6 when LIC504 increa	100	
449	N92:199	S_ADD_TIC44_2_B_COL	449 ADD TO SET POINT TIC 44.2 B IN COOLIN	30	
450	N92:200	S_V30_CAP1	450	1000	
451	N92:201	S_V30_CAP2	451	900	
452	N92:202	S_V30_CAP3	452	800	
453	N92:203	S_V30_CAP4	453	900	
454	N92:204	S_V30_CAP5	454	600	
455	N92:205	S_V30_CAP6	455	500	
456	N92:206	S_V30_H_CIP	456	1000	
457	N92:207	S_V30_L_CIP	457	1000	
458	N92:208	S_V30_PRE_1_5	458	500	
459	N92:209	S_V30_6_11	459	500	
460	N92:210		460		
461	N92:211	S_V30_HIBERNATION	461	400	
462	N92:212	S_V30_RAMP_CONST	462	20	
463	N92:213	S_V30_RAMP_CONST_DIV	463	10	
464	N92:214	S_V30_INC	464	10	
465	N92:215	S_V30_DEC	465	10	
466	N92:216		466		
467	N92:217	S_V30_INV	467		
468	N92:218	S_V30_ACT_SP	468		
469	N92:219	S_V30_SEL_SP	469		
470	N92:220	S_V54_CAP1	470	1000	
471	N92:221	S_V54_CAP2	471	900	
472	N92:222	S_V54_CAP3	472	800	
473	N92:223	S_V54_CAP4	473	900	
474	N92:224	S_V54_CAP5	474	600	
475	N92:225	S_V54_CAP6	475	500	
476	N92:226	S_V54_H_CIP	476	1000	
477	N92:227	S_V54_L_CIP	477	1000	
478	N92:228	S_V54_PRE_1_7	478	500	

Register	Address	Symbol	Comment	Original	Changed
479	N92:229	S_V54_10_11	479	500	
480	N92:230		480		
481	N92:231	S_V54_HIBERNATION	481	400	
482	N92:232	S_V54_RAMP_CONST	482	20	
483	N92:233	S_V54_RAMP_CONST_DIV	483	10	
484	N92:234	S_V54_INC	484	10	
485	N92:235	S_V54_DEC	485	10	
486	N92:236		486		
487	N92:237	S_V54_INV	487		
488	N92:238	S_V54_ACT_SP	488		
489	N92:239	S_V54_SEL_SP	489		
490	N92:240		490		
491	N92:241		491		
492	N92:242		492		
493	N92:243		493		
494	N92:244		494		
495	N92:245		495		
496	N92:246		496		
497	N92:247		497		
498	N92:248		498		
499	N92:249		499		
500	N93:0	S_V62CAP1	500	750	
501	N93:1	S_V62CAP2	501	600	
502	N93:2	S_V62CAP3	502	700	
503	N93:3	S_V62CAP4	503	700	
504	N93:4	S_V62CAP5	504	700	
505	N93:5	S_V62CAP6	505	700	
506	N93:6	S_V62_H_CIP	506	950	
507	N93:7	S_V62_L_CIP	507	950	
508	N93:8	S_V62_PRE_1_7	508	530	
509	N93:9	S_V62_10_11	509	460	
510	N93:10		510		
511	N93:11		511		
512	N93:12	S_V62_RAMP_CONST	512	20	
513	N93:13	S_V62_RAMP_CONST_DIV	513	10	
514	N93:14	S_V62_INC	514	10	
515	N93:15	S_V62_DEC	515	10	
516	N93:16		516		
517	N93:17	S_V62_INV	517		
518	N93:18	S_V62_ACT_SP	518		
519	N93:19	S_V62_SEL_SP	519		
520	N93:20	S_V65_CAP1	520	660	
521	N93:21	S_V65_CAP2	521	430	
522	N93:22	S_V65_CAP3	522	700	
523	N93:23	S_V65_CAP4	523	700	
524	N93:24	S_V65_CAP5	524	700	
525	N93:25	S_V65_CAP6	525	700	
526	N93:26	S_V65_H_CIP	526	750	
527	N93:27	S_V65_L_CIP	527	750	
528	N93:28	S_V65_PRE_1_7	528	450	
529	N93:29	S_V65_10_11	529	450	
530	N93:30		530		
531	N93:31		531		
532	N93:32	S_V65_RAMP_CONST	532	20	
533	N93:33	S_V65_RAMP_CONST_DIV	533	10	
534	N93:34	S_V65_INC	534	10	
535	N93:35	S_V65_DEC	535	10	
536	N93:36		536		
537	N93:37	S_V65_INV	537		
538	N93:38	S_V65_ACT_SP	538		

Register	Address	Symbol	Comment	Original	Changed
539	N93:39	S_V65_SEL_SP	539		
540	N93:40	S_V67_CAP1	540	700	
541	N93:41	S_V67_CAP2	541	700	
542	N93:42	S_V67_CAP3	542	700	
543	N93:43	S_V67_CAP4	543	700	
544	N93:44	S_V67_CAP5	544	700	
545	N93:45	S_V67_CAP6	545	700	
546	N93:46	S_V67_H_CIP	546	700	
547	N93:47	S_V67_L_CIP	547	700	
548	N93:48	S_V67_PRE_1_7	548	700	
549	N93:49	S_V67_10_11	549	700	
550	N93:50		550		
551	N93:51		551		
552	N93:52	S_V67_RAMP_CONST	552	20	
553	N93:53	S_V67_RAMP_CONST_DIV	553	10	
554	N93:54	S_V67_INC	554	10	
555	N93:55	S_V67_DEC	555	10	
556	N93:56		556		
557	N93:57	S_V67_INV	557		
558	N93:58	S_V67_ACT_SP	558		
559	N93:59	S_V67_SEL_SP	559		
560	N93:60	S_V97_SP_1	560 HEAT PRE-ST.Step 4-6	700	
561	N93:61	S_V97_SP_2	561 COOLING 1 Step 7	700	
562	N93:62	S_V97_SP_3	562 COOLING 2 Step 10	700	
563	N93:63	S_V97_SP_4	563 COOLING 3 Step 11	700	
564	N93:64	S_V97_SP_5	564	700	
565	N93:65	S_V97_SP_6	565	700	
566	N93:66	S_V97_SP_7	566	700	
567	N93:67	S_V97_SP_8	567	700	
568	N93:68	S_V97_SP_9	568	700	
569	N93:69	S_V97_SP_10	569	700	
570	N93:70		570		
571	N93:71		571		
572	N93:72	S_V97_RAMP_CONST	572	20	
573	N93:73	S_V97_RAMP_CONST_DIV	573	10	
574	N93:74	S_V97_INC	574	10	
575	N93:75	S_V97_DEC	575	10	
576	N93:76		576		
577	N93:77	S_V97_INV	577	1000	
578	N93:78	S_V97_ACT_SP	578		
579	N93:79	S_V97_SEL_SP	579		
580	N93:80	TIC44_2_RAMPSP_UP	580		
581	N93:81	TC44_2_FF_GAIN	581 Gain feed forward function		
582	N93:82	TC44_2_FF_DIF_TT2	582 Diff temp norm value - TT2		
583	N93:83	TC44_2_FF_TT2_NORM	583 TT2 norm value for feed forward calc		
584	N93:84	TIC44_2_RAMP_UP	584	10	
585	N93:85	TIC44_2_RAMP_UPSLOW	585	5	
586	N93:86	TIC44_2_RAMPV44_STOP	586	1100	
587	N93:87	TIC44_2_MAXOUT_1	587	100	
588	N93:88	TIC44_2_MAXOUT_2	588	100	
589	N93:89	TIC44_2_ACT_MINOUT	589		
590	N93:90		590		
591	N93:91	S_AFM1_CAP	591 Nominal cap.	6000	
592	N93:92	S_AFM2_CAP	592 Nominal cap.	6000	
593	N93:93	S_AFM3_CAP	593 Nominal cap.	3600	
594	N93:94	S_AFM4_CAP	594 Nominal cap.	1500	
595	N93:95		595		
596	N93:96		596		
597	N93:97		597		
598	N93:98		598		

Register	Address	Symbol	Comment	Original	Changed
599	N93:99	S_VOLUME_P_PULSE	599 Volume / pulse Flow meter	2	
600	N93:100	S_BASE_VOLUME_A	600 Volume in steriliser from M2 up to AFM / Als	600	
601	N93:101	S_ADD_VOLUME_A	601 Total volume for connected extra equipment		
602	N93:102	S_TOTAL_VOLUME_A	602 Total volume from M2 up to AFM / Alsafe	600	
603	N93:103		603	575	
604	N93:104		604	810	
605	N93:105	S_VOLUME_B	605 Volume in pipe from AFM / Alsafe and back	125	
606	N93:106	S_VOLUME_C	606 Volume in pipe from V75 to reclaim tank	150	
607	N93:107	S_VOLUME_D	607 Volume in pipe between reclaim tank and W	100	
608	N93:108		608		
609	N93:109		609		
610	N93:110	S_VOLUME_E_FILL	607 Total mix volume filling e1 + e2.	75	
611	N93:111	S_VOLUME_E1_WW_FILL	611 E1 = white water volume filling	45	
612	N93:112	S_VOLUME_E2_REC_FILL	612 E2 = reclaim volume filling	30	
613	N93:113	S_VOLUME_E_EMPTY	613 Total mix volume emptying e3 + e4.	70	
614	N93:114	S_VOLUME_E3_REC_EMPT	614 E3 = reclaim volume emptying	30	
615	N93:115	S_VOLUME_E4_WW_EMPT	615 E4 = white water volume emptying	40	
616	N93:116		616		
617	N93:117		617		
618	N93:118		618		
619	N93:119		619		
620	N93:120	S_VOL_HC_30S	620 Volume to be added if Short HC 30s connec	25	
621	N93:121	S_VOL_HC_60S	621 Volume to be added if long HC 60s connecte	50	
622	N93:122	S_VOL_EXTRA_COOL_1	622 Volume to be added if Extra cooler 1 (norma	25	
623	N93:123	S_VOL_EXTRA_COOL_2	623 Volume to be added if Extra cooler 2 (norma	30	
624	N93:124	S_VOL_DEAREATOR	624 Volume to be added if Dearator connected	18	
625	N93:125	S_VOL_INFUSER	625 Volume to be added if Infuser connected	30	
626	N93:126	S_VOL_SPARE_1	626 Volume to be added if Spare 1 connected		
627	N93:127	S_VOL_SPARE_2	627 Volume to be added if Spare 2 connected		
628	N93:128	S_VOL_SPARE_3	628 Volume to be added if Spare 3 connected		
629	N93:129	S_VOL_SPARE_4	629 Volume to be added if Spare 4 connected		
630	N93:130		630		
631	N93:131		631		
632	N93:132		632		
633	N93:133		633		
634	N93:134		634		
635	N93:135		635		
636	N93:136		636		
637	N93:137		637		
638	N93:138		638		
639	N93:139		639		
640	N93:140		640		
641	N93:141		641	20	
642	N93:142		642	40	
643	N93:143		643	60	
644	N93:144	S_SAFETY_B_UP_EMPTY	644 Back up constant emptying steps 100 = 100	80	
645	N93:145	S_SAFETY_B_UP_FILL	645 Back up constant Filling steps 100 = 100%	105	
646	N93:146	S_SAFETY_BACK_UP_W	646 Back up constant water steps 100 = 100%	120	
647	N93:147	S_DLY_TIM_VCL_ALSAFE	647 Delay time in Alsafe for open VCL default 80	50	
648	N93:148	S_GAIN_FILL_UP_VOL	648 Gain faktor fill up vol G *(A + B) [100 = 100%	50	
649	N93:149	S_GAIN_RINSE_CIP_VOL	649 Gain faktor rinse vol G *(A + B) [100 = 100%	50	
650	N93:150	S_VOL_COND_STEP_3	650 Actual volume condition step 3 calc vol (A +	363	
651	N93:151	S_VOL_COND_STEP_XX	651 Actual volume condition step xx	285	
652	N93:152	S_VOL_COND_STEP_XY	652 Actual volume condition step xx	355	
653	N93:153	S_VOL_COND_STEP_24	653 Actual volume condition step 24	600	
654	N93:154	S_VOL_COND_STEP_25	654 Actual volume condition step 25	75	
655	N93:155	S_VOL_COND_STEP_41	655 Actual volume condition step 41	530	
656	N93:156	S_VOL_COND_STEP_42	656 Actual volume condition step 42	445	
657	N93:157	S_VOL_COND_STEP_43	657 Actual volume condition step 43	725	
658	N93:158	S_VOL_COND_STEP_52	658 Actual volume condition step 52	1475	

Register	Address	Symbol	Comment	Original	Changed
659	N93:159	S_VOL_COND_STEP_55	659 Actual volume condition step 55	363	
660	N93:160	S_VOL_COND_STEP_57	660 Actual volume condition step 57	1450	
661	N93:161	S_VOL_COND_STEP_60	661 Actual volume condition step 60		
662	N93:162	S_VOL_COND_STEP_62	662 Actual volume condition step 62	363	
663	N93:163	S_VOL_COND_STEP_YY	663 Actual volume condition step xx	500	
664	N93:164	S_VOL_COND_STEP_103	664 Actual volume condition step 103	363	
665	N93:165	S_VOL_COND_STEP_111	665 Actual volume condition step 111	363	
666	N93:166	S_VOL_COND_STEP_113	666 Actual volume condition step 113	1475	
667	N93:167	S_VOL_COND_STEP_121	667 Actual volume condition step 121	363	
668	N93:168	S_VOL_COND_STEP_124	668 Actual volume condition step 124	1450	
669	N93:169	S_VOL_COND_STEP_131	669 Actual volume condition step 131	363	
670	N93:170	S_VOL_COND_STEP_133	670 Actual volume condition step 133	1475	
671	N93:171	S_VOL_COND_STEP_141	671 Actual volume condition step 141	363	
672	N93:172	S_VOL_COND_STEP_143	672 Actual volume condition step 143	1450	
673	N93:173	S_VOL_COND_STEP_146	673 Actual volume condition step 146	363	
674	N93:174	S_VOL_COND_STEP_YX	674 Actual volume condition step xx	25	
675	N93:175		675	30	
676	N93:176		676	35	
677	N93:177		677		
678	N93:178		678		
679	N93:179		679		
680	N93:180	S_EXTR_DOS_ST52	680 Extra dosing to drain step 52	25	
681	N93:181	S_EXTR_DOS_STXX	681 Extra dosing to drain step Spare	10	
682	N93:182	S_EXTR_DOS_ST113	682 Extra dosing to drain step 113	25	
683	N93:183	S_EXTR_DOS_ST124	683 Extra dosing to drain step 124		
684	N93:184	S_EXTR_DOS_ST133	684 Extra dosing to drain step 133	25	
685	N93:185	S_EXTR_DOS_ST143	685 Extra dosing to drain step 143		
686	N93:186	S_ACT_EXTR_VOL_DOS	686 Actual extra volume in dosing		
687	N93:187		687		
688	N93:188		688		
689	N93:189		689		
690	N93:190		690		
691	N93:191		691	5	
692	N93:192		692	10	
693	N93:193		693	15	
694	N93:194		694	20	
695	N93:195		695	25	
696	N93:196		696	30	
697	N93:197		697	50	
698	N93:198		698		
699	N93:199		699		
700	N93:200		700		
701	N93:201		701	20	
702	N93:202		702	40	
703	N93:203		703	60	
704	N93:204		704	80	
705	N93:205		705	100	
706	N93:206		706	120	
707	N93:207		707	50	
708	N93:208		708		
709	N93:209		709		
710	N93:210		710	370	
711	N93:211		711	500	
712	N93:212		712		
713	N93:213		713		
714	N93:214		714		
715	N93:215		715		
716	N93:216		716	370	
717	N93:217		717	500	
718	N93:218		718		

Register	Address	Symbol	Comment	Original	Changed
719	N93:219		719		
720	N93:220		720	370	
721	N93:221		721	370	
722	N93:222		722	300	
723	N93:223		723	295	
724	N93:224		724	400	
725	N93:225		725	500	
726	N93:226		726	400	
727	N93:227		727	400	
728	N93:228		728	400	
729	N93:229		729	500	
730	N93:230	S_NO_BF_ST_111	730 NUMBER OF BF St.111	4	
731	N93:231	S_TOT_BF_ST_111	731 TOTAL TIME BACK-FLOW	160	
732	N93:232	S_NO_BF_ST_121	732 NUMBER OF BF St. 121	3	
733	N93:233	S_TOT_BF_ST_121	733 TOTAL TIME BACK-FLOW	120	
734	N93:234	S_NO_BF_ST_131	734 NUMBER OF BF St. 131	3	
735	N93:235	S_TOT_BF_ST_131	735 TOTAL TIME BACK-FLOW	120	
736	N93:236	S_NO_BF_ST_141	736 NUMBER OF BF St. 141	3	
737	N93:237	S_TOT_BF_ST_141	737 TOTAL TIME BACK-FLOW	120	
738	N93:238	S_NO_BF_ST_147	738 NUMBER OF BF St. 147	4	
739	N93:239	S_TOT_BF_ST_147	739 TOTAL TIME BACK-FLOW	160	
740	N93:240		740		
741	N93:241		741		
742	N93:242		742		
743	N93:243		743		
744	N93:244		744		
745	N93:245	S_BACK_FL_TEMP	745	900	
746	N93:246		746		
747	N93:247		747		
748	N93:248		748		
749	N93:249		749		
750	N94:0	FIC2_RAMPSP_UP	750	50	
751	N94:1	FIC2_RAMPSP_DOWN	751	50	
752	N94:2	FIC2_RAMPSP_UPFAST	752	1	
753	N94:3	FIC2_RAMPSP_DOWNFAS	753	1	
754	N94:4	FIC2_RAMPV44_UP	754 not used		
755	N94:5	FIC2_RAMPV44_UPSLOW	755 not used		
756	N94:6	FIC2_RAMPV44_STOP	756 not used		
757	N94:7	FIC2_MAXOUT_1	757 not used		
758	N94:8	FIC2_MAXOUT_2	758 not used		
759	N94:9	FIC2_ACT_MINOUT	759 not used		
760	N94:10	FIC4_RAMPSP_UP	760	50	
761	N94:11	FIC4_RAMPSP_DOWN	761	50	
762	N94:12	FIC4_RAMPSP_UPFAST	762	1	
763	N94:13	FIC4_RAMPSP_DOWNFAS	763	1	
764	N94:14	FIC4_RAMPV44_UP	764 not used		
765	N94:15	FIC4_RAMPV44_UPSLOW	765 not used		
766	N94:16	FIC4_RAMPV44_STOP	766 not used		
767	N94:17	FIC4_MAXOUT_1	767 not used		
768	N94:18	FIC4_MAXOUT_2	768 not used		
769	N94:19	FIC4_ACT_MINOUT	769 not used		
770	N94:20	FIC6_RAMPSP_UP	770	50	
771	N94:21	FIC6_RAMPSP_DOWN	771	50	
772	N94:22	FIC6_RAMPSP_UPFAST	772	1	
773	N94:23	FIC6_RAMPSP_DOWNFAS	773	1	
774	N94:24		774		
775	N94:25	FIC6_FB_ADD	775	10	
776	N94:26	FIC6_FB_ADD_FAST	776	20	
777	N94:27	FIC6_FB_SUB	777	10	
778	N94:28	FIC6_FB_SUB_FAST	778	20	

Register	Address	Symbol	Comment	Original	Changed
779	N94:29		779		
780	N94:30	FIC6A_RAMPSP_UP	780	50	
781	N94:31	FIC6A_RAMPSP_DOWN	781	50	
782	N94:32	FIC6A_RAMPSP_UPFAST	782	1	
783	N94:33	FIC6A_RAMPSP_DOWNFA	783	1	
784	N94:34		784		
785	N94:35	FIC6A_FB_ADD	785	10	
786	N94:36	FIC6A_FB_ADD_FAST	786	20	
787	N94:37	FIC6A_FB_SUB	787	10	
788	N94:38	FIC6A_FB_SUB_FAST	788	20	
789	N94:39		789		
790	N94:40	FIC9_RAMPSP_UP	790	50	
791	N94:41	FIC9_RAMPSP_DOWN	791	50	
792	N94:42	FIC9_RAMPSP_UPFAST	792	1	
793	N94:43	FIC9_RAMPSP_DOWNFAS	793	1	
794	N94:44		794		
795	N94:45		795		
796	N94:46		796		
797	N94:47		797		
798	N94:48		798		
799	N94:49		799		
800	N94:50	FIC10_RAMPSP_UP	800	50	
801	N94:51	FIC10_RAMPSP_DOWN	801	50	
802	N94:52	FIC10_RAMPSP_UPFAST	802	1	
803	N94:53	FIC10_RAMPSP_DOWNFA	803	1	
804	N94:54		804		
805	N94:55		805		
806	N94:56		806		
807	N94:57		807		
808	N94:58		808		
809	N94:59		809		
810	N94:60	TIC44_2B_PROD1_TEMP	810	20	
811	N94:61	TIC44_2B_PROD2_TEMP	811	20	
812	N94:62	TIC44_2B_PROD3_TEMP	812	20	
813	N94:63	TIC44_2B_PROD4_TEMP	813	20	
814	N94:64	TIC44_2B_PROD5_TEMP	814	20	
815	N94:65	TIC44_2B_PROD6_TEMP	815	20	
816	N94:66	TIC44_2B_ADD_SP_FILL	816 % of fill step when SP is increased	61	
817	N94:67		817		
818	N94:68		818		
819	N94:69		819		
820	N94:70	LIC6_FILTER_KONST	Filter time in mS	500	
821	N94:71		821		
822	N94:72		822		
823	N94:73		823		
824	N94:74	TIC43_RAMPV43_UP	824	5	
825	N94:75	TIC43_RAMPV43_UPSLOW	825	1	
826	N94:76	TIC43_RAMPV43_STOP	826	600	
827	N94:77	TIC43_MAXOUT_1	827	100	
828	N94:78	TIC43_MAXOUT_2	828	100	
829	N94:79	TIC43_ACT_MINOUT	829		
830	N94:80	TIC44_RAMPSP_UP	830 not used	50	
831	N94:81	TC44_FF_GAIN	831 Gain feed forward function		
832	N94:82	TC44_FF_DIF_TT9	Diff temp norm value - TT9	1	
833	N94:83	TC44_FF_TT9_NORM	833 TT9 norm value for feed forward calc 0 - 16	1200	
834	N94:84	TIC44_RAMPV44_UP	834	10	
835	N94:85	TIC44_RAMPV44_UPSLOW	835	1	
836	N94:86	TIC44_RAMPV44_STOP	836	700	
837	N94:87	TIC44_MAXOUT_1	837	100	
838	N94:88	TIC44_MAXOUT_2	838	100	

Register	Address	Symbol	Comment	Original	Changed
839	N94:89	TIC44_ACT_MINOUT	839		
840	N94:90		840		
841	N94:91		841		
842	N94:92		842		
843	N94:93		843		
844	N94:94	PIC78_RAMPV78_UP	844	5	
845	N94:95	PIC78_RAMPV78_UPSLOW	845	1	
846	N94:96	PIC78_RAMPV78_STOP	846	900	
847	N94:97		847		
848	N94:98		848		
849	N94:99		849		
850	N94:100		850		
851	N94:101		851		
852	N94:102		852		
853	N94:103		853		
854	N94:104	TIC60_RAMPV60_UP	854	5	
855	N94:105	TIC60_RAMPV60_UPSLOW	855	1	
856	N94:106		856		
857	N94:107		857		
858	N94:108		858		
859	N94:109		859		
860	N94:110		860		
861	N94:111		861		
862	N94:112		862		
863	N94:113		863		
864	N94:114	TIC62_RAMPV62_UP	864	50	
865	N94:115	TIC62_RAMPV62_UPSLOW	865	50	
866	N94:116	TIC62_RAMPV62_STOP	866	1150	
867	N94:117	TIC62_RAMP_STOP_US	RAMP SP OUTPUT TIC62 0 - 1000 0 - 100,0 %	320	
868	N94:118		868		
869	N94:119		869		
870	N94:120		870		
871	N94:121		871	30	
872	N94:122		872	40	
873	N94:123		873	50	
874	N94:124		874	60	
875	N94:125		875	70	
876	N94:126		876	80	
877	N94:127		877	50	
878	N94:128		878		
879	N94:129		879		
880	N94:130	S_M_T_ADD_SP_IN_ST12	MAXI REMAINING TIME IN STEP 12 WHEN ST		
881	N94:131	S_MAXI_TEMP_GOTO_10	881	350	
882	N94:132	S_MAXI_TEMP_GOTO_11	882	1250	
883	N94:133	S_MAXI_TEMP_GOTO_12	883	950	
884	N94:134	S_VTIS_TEMP_GOTO_10	884	1100	
885	N94:135	S_VTIS_TEMP_GOTO_11	885	850	
886	N94:136	S_VTIS_TEMP_GOTO_12	886	900	
887	N94:137		887		
888	N94:138		888		
889	N94:139		889		
890	N94:140		890		
891	N94:141		891	1000	
892	N94:142		892		
893	N94:143		893		
894	N94:144		894		
895	N94:145		895		
896	N94:146		896		
897	N94:147		897		
898	N94:148		898		

Register	Address	Symbol	Comment	Original	Changed
899	N94:149		899		
900	N94:150		900		
901	N94:151		901	500	
902	N94:152		902		
903	N94:153		903		
904	N94:154	TIC44_2BRMP_V_UP	904	7	
905	N94:155	TIC44_2BRMP_V_UPSL	905	30	
906	N94:156	TIC44_2BRAMP_V_STP	906	1200	
907	N94:157		907		
908	N94:158		908		
909	N94:159		909 Base volyme to e without extra equipment		
910	N94:160	S_DELAY_TIME_HIB	196 Delay in sec Auto start Hibernation	900	
911	N94:161	S_TEMP_RED_HC_HIB	911 HC temp reduction during hibernation 1/2 ca	30	
912	N94:162	S_TEMP_INCR_TC44_HIB	912 Temp incr TC44 during hibernation 1/10 ° (1	40	
913	N94:163	S_TEMP_INCR_TC62_HIB	913 Temp incr TC62 during hibernation 1/10 ° (1	50	
914	N94:164	S_RAMP_SPEED_TC44_2	914 Ramp interval change 0.1°	60	
915	N94:165	S_RAMP_SPEED_TC44	915 Ramp interval change 0.1°	70	
916	N94:166	S_RAMP_SPEED_TC62	916 Ramp interval change 0.1°	80	
917	N94:167	S_RAMP_SPEED_TC49	917 Ramp interval change 0.1°		
918	N94:168		918		
919	N94:169		919		
920	N94:170		920		
921	N94:171		921	30	
922	N94:172		922	40	
923	N94:173		923	50	
924	N94:174		924	60	
925	N94:175		925	70	
926	N94:176		926	80	
927	N94:177		927		
928	N94:178		928		
929	N94:179		929		
930	N94:180		930		
931	N94:181		931	30	
932	N94:182		932	40	
933	N94:183		933	50	
934	N94:184		934	60	
935	N94:185		935	70	
936	N94:186		936	80	
937	N94:187		937	50	
938	N94:188		938		
939	N94:189		939		
940	N94:190	S_SP_PSH_60_CAP1	940 Set point high back pressure alarm cap 1		
941	N94:191	S_SP_PSH_60_CAP2	941 Set point high back pressure alarm cap 2		
942	N94:192	S_SP_PSH_60_CAP3	942 Set point high back pressure alarm cap 3		
943	N94:193	S_SP_PSH_60_CAP4	943 Set point high back pressure alarm cap 4		
944	N94:194	S_SP_PSH_60_CAP5	944 Set point high back pressure alarm cap 5		
945	N94:195	S_SP_PSH_60_CAP6	945 Set point high back pressure alarm cap 6		
946	N94:196		946		
947	N94:197		947		
948	N94:198		948		
949	N94:199	S_SP_PSH_60_ACT	949 Actual set point high back pressure alarm		
950	N94:200	S_V78_CAP1	950	1000	
951	N94:201	S_V78_CAP2	951	900	
952	N94:202	S_V78_CAP3	952	800	
953	N94:203	S_V78_CAP4	953	700	
954	N94:204	S_V78_CAP5	954	600	
955	N94:205	S_V78_CAP6	955	500	
956	N94:206	S_V78_H_CIP	956	1000	
957	N94:207	S_V78_L_CIP	957	1000	
958	N94:208	S_V78_PRE_1_7	958	500	

Register	Address	Symbol	Comment	Original	Changed
959	N94:209	S_V78_10_11	959	500	
960	N94:210		960		
961	N94:211	S_V78_HIBERNATION	961	400	
962	N94:212	S_V78_RAMP_CONST	962	20	
963	N94:213	S_V78_RAMP_CONST_DIV	963	10	
964	N94:214	S_V78_INC	964	10	
965	N94:215	S_V78_DEC	965	10	
966	N94:216		966		
967	N94:217	S_V78_INV	967		
968	N94:218	S_V78_ACT_SP	968		
969	N94:219	S_V78_SEL_SP	969		
970	N94:220	S_NORUN_REP	970	48	
971	N94:221	S_NOFILL_REP	971	48	
972	N94:222	S_FILLED_REP	972		
973	N94:223	S_AF1_PROD_REP	973		
974	N94:224	S_AF2_PROD_REP	974		
975	N94:225	S_AF3_PROD_REP	975		
976	N94:226	S_AF4_PROD_REP	976		
977	N94:227	S_REPORTED_HOUR	977	16	
978	N94:228	S_REPORTED_MIN	978	14	
979	N94:229		979		
980	N94:230	S_NORUN_LAST_REP1	980		
981	N94:231	S_NOFILL_LAST_REP1	981		
982	N94:232	S_FILLED_LAST_REP1	982		
983	N94:233	S_AF1_PROD_LAST_REP1	983		
984	N94:234	S_AF2_PROD_LAST_REP1	984		
985	N94:235	S_AF3_PROD_LAST_REP1	985		
986	N94:236	S_AF4_PROD_LAST_REP1	986		
987	N94:237	S_HOUR_TO_REPORT	987	23	
988	N94:238	S_MIN_TO_REPORT	988	55	
989	N94:239	S_F0_VALUE_INFUSER	989 Calculated F0 value with 1 decimal (10 = 1,0		
990	N94:240	S_NO_OF_SEQ_IN_RINSE	990	3	
991	N94:241	S_TIME_DLY_RINSE_SEQ	991		
992	N94:242	S_NO_OF_RINSE_INTERV	992		
993	N94:243		993		
994	N94:244		994		
995	N94:245	S_NO_OF_SEQ_IN_CIRC	995	3	
996	N94:246	S_TIME_DLY_CIRC_SEQ	996		
997	N94:247	S_NO_OF_CIRC_INTERV	997		
998	N94:248		998		
999	N94:249		999		
1000	N95:0		1000		
1001	N95:1		1001		
1002	N95:2		1002		
1003	N95:3		1003		
1004	N95:4		1004		
1005	N95:5		1005		
1006	N95:6		1006		
1007	N95:7		1007		
1008	N95:8		1008		
1009	N95:9		1009		
1010	N95:10		1010		
1011	N95:11	S_SP_M9_C1_P1	1011 FLEX R CAP1 PROD1	1000	
1012	N95:12	S_SP_M9_C1_P2	1012 FLEX R CAP1 PROD2	1000	
1013	N95:13	S_SP_M9_C1_P3	1013 FLEX R CAP1 PROD3	1000	
1014	N95:14	S_SP_M9_C1_P4	1014 FLEX R CAP1 PROD4	1000	
1015	N95:15	S_SP_M9_C1_P5	1015 FLEX R CAP1 PROD5	1000	
1016	N95:16		1016		
1017	N95:17		1017		
1018	N95:18		1018		

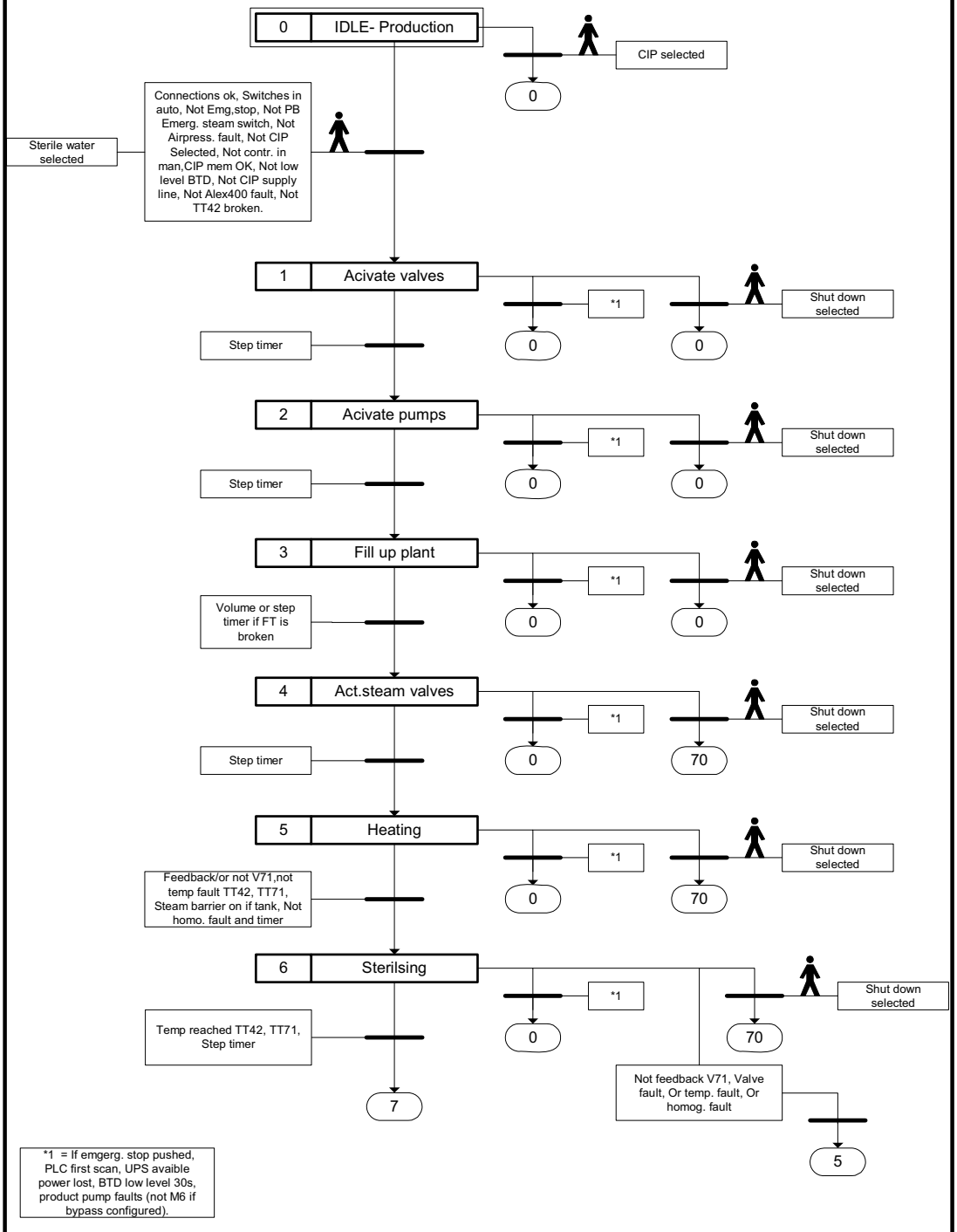
Register	Address	Symbol	Comment	Original	Changed
1019	N95:19		1019		
1020	N95:20		1020		
1021	N95:21	S_SP_M9_C2_P1	1021 FLEX R CAP2 PROD1	900	
1022	N95:22	S_SP_M9_C2_P2	1022 FLEX R CAP2 PROD2	900	
1023	N95:23	S_SP_M9_C2_P3	1023 FLEX R CAP2 PROD3	900	
1024	N95:24	S_SP_M9_C2_P4	1024 FLEX R CAP2 PROD4	900	
1025	N95:25	S_SP_M9_C2_P5	1025 FLEX R CAP2 PROD5	900	
1026	N95:26		1026		
1027	N95:27		1027		
1028	N95:28		1028		
1029	N95:29		1029		
1030	N95:30		1030		
1031	N95:31	S_SP_M9_C3_P1	1031 FLEX R CAP3 PROD1	800	
1032	N95:32	S_SP_M9_C3_P2	1032 FLEX R CAP3 PROD2	800	
1033	N95:33	S_SP_M9_C3_P3	1033 FLEX R CAP3 PROD3	800	
1034	N95:34	S_SP_M9_C3_P4	1034 FLEX R CAP3 PROD4	800	
1035	N95:35	S_SP_M9_C3_P5	1035 FLEX R CAP3 PROD5	800	
1036	N95:36		1036		
1037	N95:37		1037		
1038	N95:38		1038		
1039	N95:39		1039		
1040	N95:40		1040		
1041	N95:41	S_SP_M9_C4_P1	1041 FLEX R CAP4 PROD1	700	
1042	N95:42	S_SP_M9_C4_P2	1042 FLEX R CAP4 PROD2	700	
1043	N95:43	S_SP_M9_C4_P3	1043 FLEX R CAP4 PROD3	700	
1044	N95:44	S_SP_M9_C4_P4	1044 FLEX R CAP4 PROD4	700	
1045	N95:45	S_SP_M9_C4_P5	1045 FLEX R CAP4 PROD5	700	
1046	N95:46		1046		
1047	N95:47		1047		
1048	N95:48		1048		
1049	N95:49		1049		
1050	N95:50		1050		
1051	N95:51	S_SP_M9_C5_P1	1051 FLEX R CAP5 PROD1	600	
1052	N95:52	S_SP_M9_C5_P2	1052 FLEX R CAP5 PROD2	600	
1053	N95:53	S_SP_M9_C5_P3	1053 FLEX R CAP5 PROD3	600	
1054	N95:54	S_SP_M9_C5_P4	1054 FLEX R CAP5 PROD4	600	
1055	N95:55	S_SP_M9_C5_P5	1055 FLEX R CAP5 PROD5	600	
1056	N95:56		1056		
1057	N95:57		1057		
1058	N95:58		1058		
1059	N95:59		1059		
1060	N95:60		1060		
1061	N95:61	S_SP_M9_C6_P1	1061 FLEX R CAP6 PROD1	500	
1062	N95:62	S_SP_M9_C6_P2	1062 FLEX R CAP6 PROD2	500	
1063	N95:63	S_SP_M9_C6_P3	1063 FLEX R CAP6 PROD3	500	
1064	N95:64	S_SP_M9_C6_P4	1064 FLEX R CAP6 PROD4	500	
1065	N95:65	S_SP_M9_C6_P5	1065 FLEX R CAP6 PROD5	500	
1066	N95:66		1066		
1067	N95:67		1067		
1068	N95:68		1068		
1069	N95:69		1069		
1070	N95:70	S_H_ST1_P1	1070 SP Homo pr.st.1 Prod.1	500	
1071	N95:71	S_H_ST1_P2	1071 SP Homo pr.st.1 Prod.2	500	
1072	N95:72	S_H_ST1_P3	1072 SP Homo pr.st.1 Prod.3	500	
1073	N95:73	S_H_ST1_P4	1073 SP Homo pr.st.1 Prod.4	450	
1074	N95:74	S_H_ST1_P5	1074 SP Homo pr.st.1 Prod.5	450	
1075	N95:75		1075		
1076	N95:76		1076		
1077	N95:77		1077		
1078	N95:78		1078		

Register	Address	Symbol	Comment	Original	Changed
1079	N95:79		1079		
1080	N95:80		1080		
1081	N95:81		1081		
1082	N95:82	S_H_ST1_RAMP_C	1082 RAMP CONSTANT	100	
1083	N95:83	S_H_ST1_RAMP_C_DIV	1083 RAMP CONSTANT DIV	10	
1084	N95:84	S_H_ST1_INC	1084	10	
1085	N95:85	S_H_ST1_DEC	1085	10	
1086	N95:86		1086		
1087	N95:87		1087		
1088	N95:88	S_H_ST1_ACT_SP	1088		
1089	N95:89	S_H_ST1_SEL_SP	1089	500	
1090	N95:90	S_H_ST2_P1	1090 Homo pr.st.2 Prod.1	350	
1091	N95:91	S_H_ST2_P2	1091 Homo pr.st.2 Prod.2	350	
1092	N95:92	S_H_ST2_P3	1092 Homo pr.st.2 Prod.3	350	
1093	N95:93	S_H_ST2_P4	1093 Homo pr.st.2 Prod.4	300	
1094	N95:94	S_H_ST2_P5	1094 Homo pr.st.2 Prod.5	300	
1095	N95:95		1095		
1096	N95:96		1096		
1097	N95:97		1097		
1098	N95:98		1098		
1099	N95:99		1099		
1100	N95:100		1100		
1101	N95:101		1101		
1102	N95:102	S_H_ST2_RAMP_C	1102 RAMP CONSTANT	100	
1103	N95:103	S_H_ST2_RAMP_C_DIV	1103 RAMP CONSTANT DIV	10	
1104	N95:104	S_H_ST2_INC	1104	10	
1105	N95:105	S_H_ST2_DEC	1105	10	
1106	N95:106		1106		
1107	N95:107		1107		
1108	N95:108	S_H_ST2_ACT_SP	1108		
1109	N95:109	S_H_ST2_SEL_SP	1109	350	
1110	N95:110		1110		
1111	N95:111	S_SP_M10_C1_P1	1111 FLEX R CAP1 PROD1	1000	
1112	N95:112	S_SP_M10_C1_P2	1112 FLEX R CAP1 PROD2	1000	
1113	N95:113	S_SP_M10_C1_P3	1113 FLEX R CAP1 PROD3	1000	
1114	N95:114	S_SP_M10_C1_P4	1114 FLEX R CAP1 PROD4	1000	
1115	N95:115	S_SP_M10_C1_P5	1115 FLEX R CAP1 PROD5	1000	
1116	N95:116		1116		
1117	N95:117		1117		
1118	N95:118		1118		
1119	N95:119		1119		
1120	N95:120		1120		
1121	N95:121	S_SP_M10_C2_P1	1121 FLEX R CAP2 PROD1	900	
1122	N95:122	S_SP_M10_C2_P2	1122 FLEX R CAP2 PROD2	900	
1123	N95:123	S_SP_M10_C2_P3	1123 FLEX R CAP2 PROD3	900	
1124	N95:124	S_SP_M10_C2_P4	1124 FLEX R CAP2 PROD4	900	
1125	N95:125	S_SP_M10_C2_P5	1125 FLEX R CAP2 PROD5	900	
1126	N95:126		1126		
1127	N95:127		1127		
1128	N95:128		1128		
1129	N95:129		1129		
1130	N95:130		1130		
1131	N95:131	S_SP_M10_C3_P1	1131 FLEX R CAP3 PROD1	800	
1132	N95:132	S_SP_M10_C3_P2	1132 FLEX R CAP3 PROD2	800	
1133	N95:133	S_SP_M10_C3_P3	1133 FLEX R CAP3 PROD3	800	
1134	N95:134	S_SP_M10_C3_P4	1134 FLEX R CAP3 PROD4	800	
1135	N95:135	S_SP_M10_C3_P5	1135 FLEX R CAP3 PROD5	800	
1136	N95:136		1136		
1137	N95:137		1137		
1138	N95:138		1138		

Register	Address	Symbol	Comment	Original	Changed
1139	N95:139		1139		
1140	N95:140				
1141	N95:141	S_SP_M10_C4_P1	1141 FLEX R CAP4 PROD1	700	
1142	N95:142	S_SP_M10_C4_P2	1142 FLEX R CAP4 PROD2	700	
1143	N95:143	S_SP_M10_C4_P3	1143 FLEX R CAP4 PROD3	700	
1144	N95:144	S_SP_M10_C4_P4	1144 FLEX R CAP4 PROD4	700	
1145	N95:145	S_SP_M10_C4_P5	1145 FLEX R CAP4 PROD5	700	
1146	N95:146		1146		
1147	N95:147		1147		
1148	N95:148		1148		
1149	N95:149		1149		
1150	N95:150		1150		
1151	N95:151	S_SP_M10_C5_P1	1151 FLEX R CAP5 PROD1	600	
1152	N95:152	S_SP_M10_C5_P2	1152 FLEX R CAP5 PROD2	600	
1153	N95:153	S_SP_M10_C5_P3	1153 FLEX R CAP5 PROD3	600	
1154	N95:154	S_SP_M10_C5_P4	1154 FLEX R CAP5 PROD4	600	
1155	N95:155	S_SP_M10_C5_P5	1155 FLEX R CAP5 PROD5	600	
1156	N95:156		1156		
1157	N95:157		1157		
1158	N95:158		1158		
1159	N95:159		1159		
1160	N95:160		1160		
1161	N95:161	S_SP_M10_C6_P1	1161 FLEX R CAP6 PROD1	500	
1162	N95:162	S_SP_M10_C6_P2	1162 FLEX R CAP6 PROD2	500	
1163	N95:163	S_SP_M10_C6_P3	1163 FLEX R CAP6 PROD3	500	
1164	N95:164	S_SP_M10_C6_P4	1164 FLEX R CAP6 PROD4	500	
1165	N95:165	S_SP_M10_C6_P5	1165 FLEX R CAP6 PROD5	500	
1166	N95:166		1166		
1167	N95:167		1167		
1168	N95:168		1168		
1169	N95:169		1169		
1170	N95:170	S_ICIP_AC_PR_INDEX	1170 Actual CIP index product 5 - 15 (0.5 - 1.5)	10	
1171	N95:171	S_ICIP_PR_INDEX_1	1171 CIP index for product 1 38852 (0.5 - 1.5)	10	
1172	N95:172	S_ICIP_PR_INDEX_2	1172 CIP index for product 2 38852 (0.5 - 1.5)	10	
1173	N95:173	S_ICIP_PR_INDEX_3	1173 CIP index for product 3 38852 (0.5 - 1.5)	10	
1174	N95:174	S_ICIP_PR_INDEX_4	1174 CIP index for product 4 38852 (0.5 - 1.5)	10	
1175	N95:175	S_ICIP_PR_INDEX_5	1175 CIP index for product 5 38852 (0.5 - 1.5)	10	
1176	N95:176	S_ICIP_PR_INDEX_6	1176 CIP index for product 6 38852 (0.5 - 1.5)	10	
1177	N95:177	S_ICIP_PR_INDEX_7	1177 CIP index for product 7 38852 (0.5 - 1.5)	10	
1178	N95:178	S_ICIP_PR_INDEX_8	1178 CIP index for product 8 38852 (0.5 - 1.5)	10	
1179	N95:179	S_ICIP_PR_INDEX_9	1179 CIP index for product 9 38852 (0.5 - 1.5)	10	
1180	N95:180	S_ICIP_PR_INDEX_10	1180 CIP index for product 10 38852 (0.5 - 1.5)	10	
1181	N95:181	S_ICIP_PR_INDEX_11	1181 CIP index for product 11 38852 (0.5 - 1.5)	10	
1182	N95:182	S_ICIP_PR_INDEX_12	1182 CIP index for product 12 38852 (0.5 - 1.5)	10	
1183	N95:183	S_ICIP_PR_INDEX_13	1183 CIP index for product 13 38852 (0.5 - 1.5)	10	
1184	N95:184	S_ICIP_PR_INDEX_14	1184 CIP index for product 14 38852 (0.5 - 1.5)	10	
1185	N95:185	S_ICIP_PR_INDEX_15	1185 CIP index for product 15 38852 (0.5 - 1.5)	10	
1186	N95:186		1186		
1187	N95:187	S_CAUST_1_CIRC_PART	1187 % of total circ. time to be used for caustic c	10	
1188	N95:188	S_ACID_1_CIRC_PART	1188 % of total circ. time to be used for acid circ.		
1189	N95:189		1189		
1190	N95:190	S_NO_ICIP_TIM_ST114	1190 circulation time step 114 when not iCIP	1500	
1191	N95:191	S_NO_ICIP_TIM_ST125	1191 circulation time step 125 when not iCIP	1200	
1192	N95:192	S_NO_ICIP_TIM_ST134	1192 circulation time step 134 when not iCIP	1200	
1193	N95:193	S_NO_ICIP_TIM_ST144	1193 circulation time step 144 when not iCIP	1200	
1194	N95:194		1194		
1195	N95:195		1195		
1196	N95:196		1196		
1197	N95:197		1197		
1198	N95:198		1198		

Register	Address	Symbol	Comment	Original	Changed
1199	N95:199		1199		
1200	N95:200		1200		
1201	N95:201		1201		
1202	N95:202		1202		
1203	N95:203		1203		
1204	N95:204		1204		
1205	N95:205		1205		
1206	N95:206		1206		
1207	N95:207		1207		
1208	N95:208		1208		
1209	N95:209		1209		
1210	N95:210		1210		
1211	N95:211		1211		
1212	N95:212		1212		
1213	N95:213		1213		
1214	N95:214		1214		
1215	N95:215		1215		
1216	N95:216		1216		
1217	N95:217		1217		
1218	N95:218		1218		
1219	N95:219	S_VOL_DIV_1000	1219		
1220	N95:220		1220		
1221	N95:221		1221		
1222	N95:222		1222		
1223	N95:223		1223		
1224	N95:224		1224		
1225	N95:225		1225		
1226	N95:226		1226		
1227	N95:227		1227		
1228	N95:228		1228		
1229	N95:229		1229		
1230	N95:230		1230		
1231	N95:231		1231		
1232	N95:232		1232		
1233	N95:233		1233		
1234	N95:234		1234		
1235	N95:235		1235		
1236	N95:236		1236		
1237	N95:237		1237		
1238	N95:238		1238		
1239	N95:239		1239		
1240	N95:240	S_M5_SP_CAP1	1170 Fixed speed to M5 while LIC6 in auto.	700	
1241	N95:241	S_M5_SP_CAP2	1171 Fixed speed to M5 while LIC6 in auto.	650	
1242	N95:242	S_M5_SP_CAP3	1172 Fixed speed to M5 while LIC6 in auto.	600	
1243	N95:243	S_M5_SP_CAP4	1173 Fixed speed to M5 while LIC6 in auto.	550	
1244	N95:244	S_M5_SP_CAP5	1174 Fixed speed to M5 while LIC6 in auto.	500	
1245	N95:245	S_M5_SP_CAP6	1175 Fixed speed to M5 while LIC6 in auto.	450	
1246	N95:246	S_M5_SP_CAP7	1176 Fixed speed to M5 while LIC6 in auto.	700	
1247	N95:247	S_M5_SP_CAP8_CIP	1177 Fixed speed to M5 while LIC6 in auto.	700	
1248	N95:248	S_M5_SP_CAP9	1178 Fixed speed to M5 while LIC6 in auto.	700	
1249	N95:249	S_M5_SP_CAP10	1179 Fixed speed to M5 while LIC6 in auto.	700	

STERILISING



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

FLEX Rev.A

Pre sterilising Step 1 - 6

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

Dept.	Design/Drawn	Appr.	Date	
Ambient			**7/17/2006**	

Tetra Pak

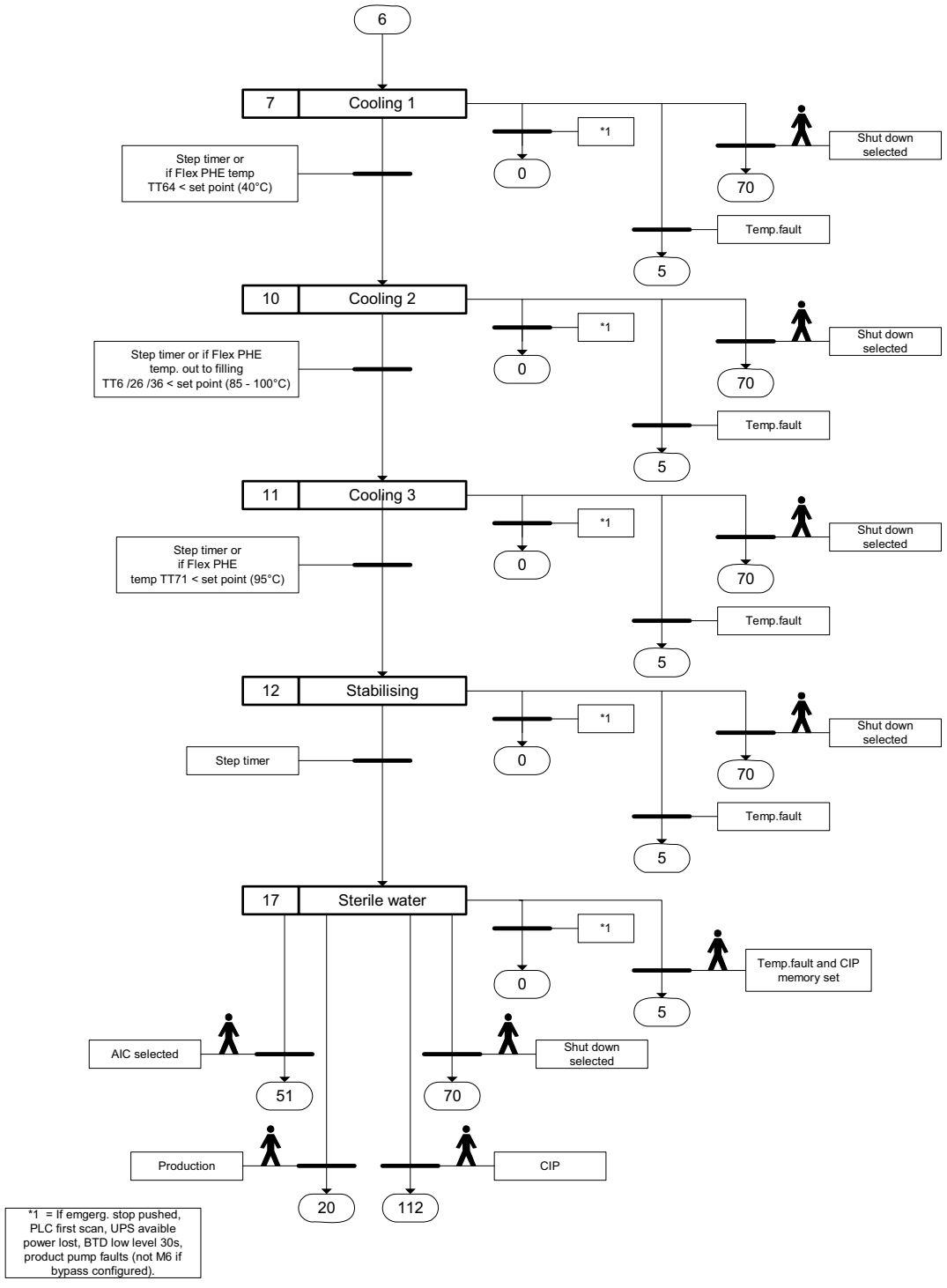
Tetra Pak Dairy & Beverage

Machine No.

T5844130453

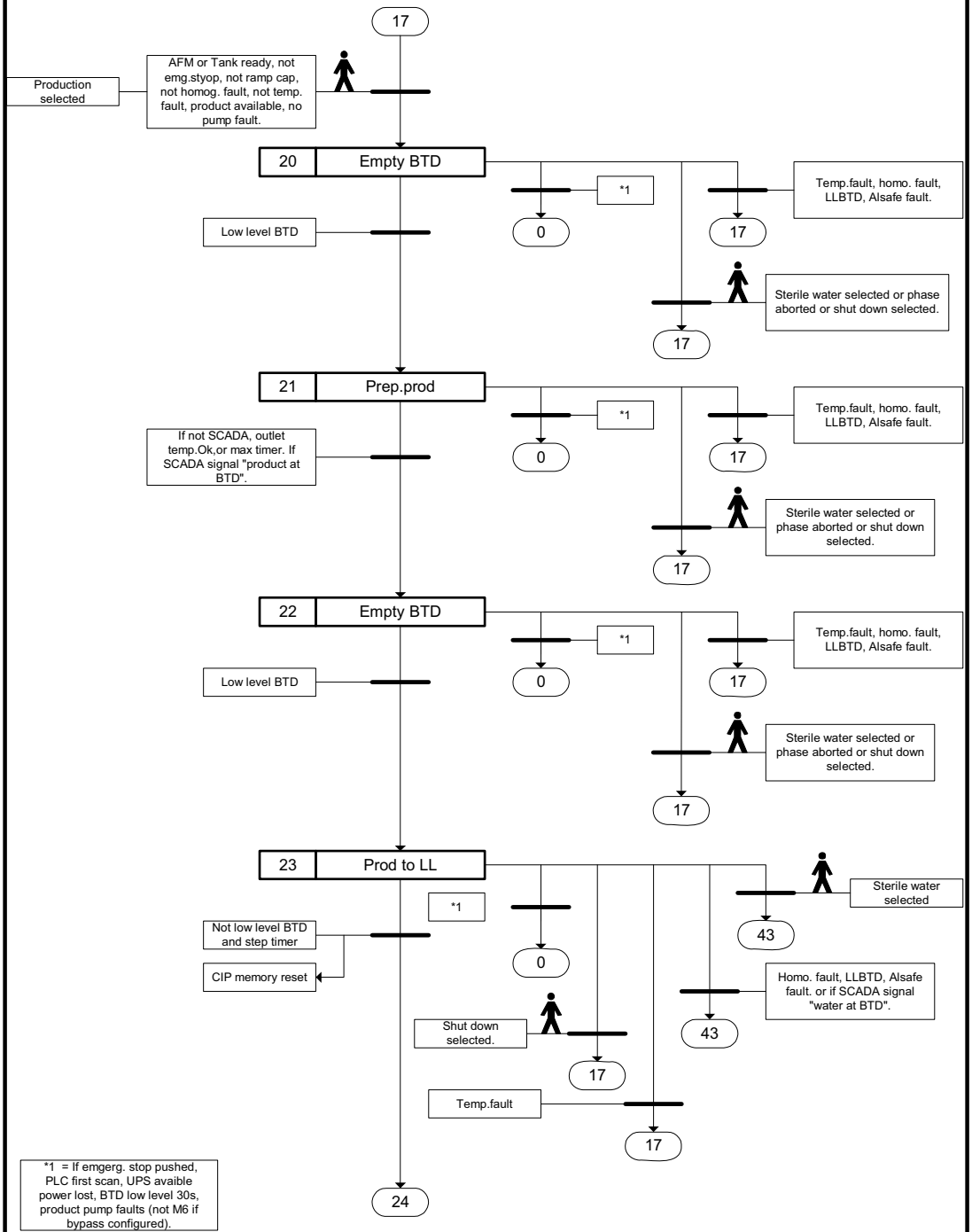
Doc. No.

SD584413.453



Rev.	Date/ Sign.	Description	FLEX Rev.A					Tetra Pak Dairy & Beverage
			Pre sterilising Step 7 - 17					Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				T5844130453
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
A	7/17/2006/JT	Step cond. on volume	Ambient			7/17/2006		SD584413.453

PRODUCTION



Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

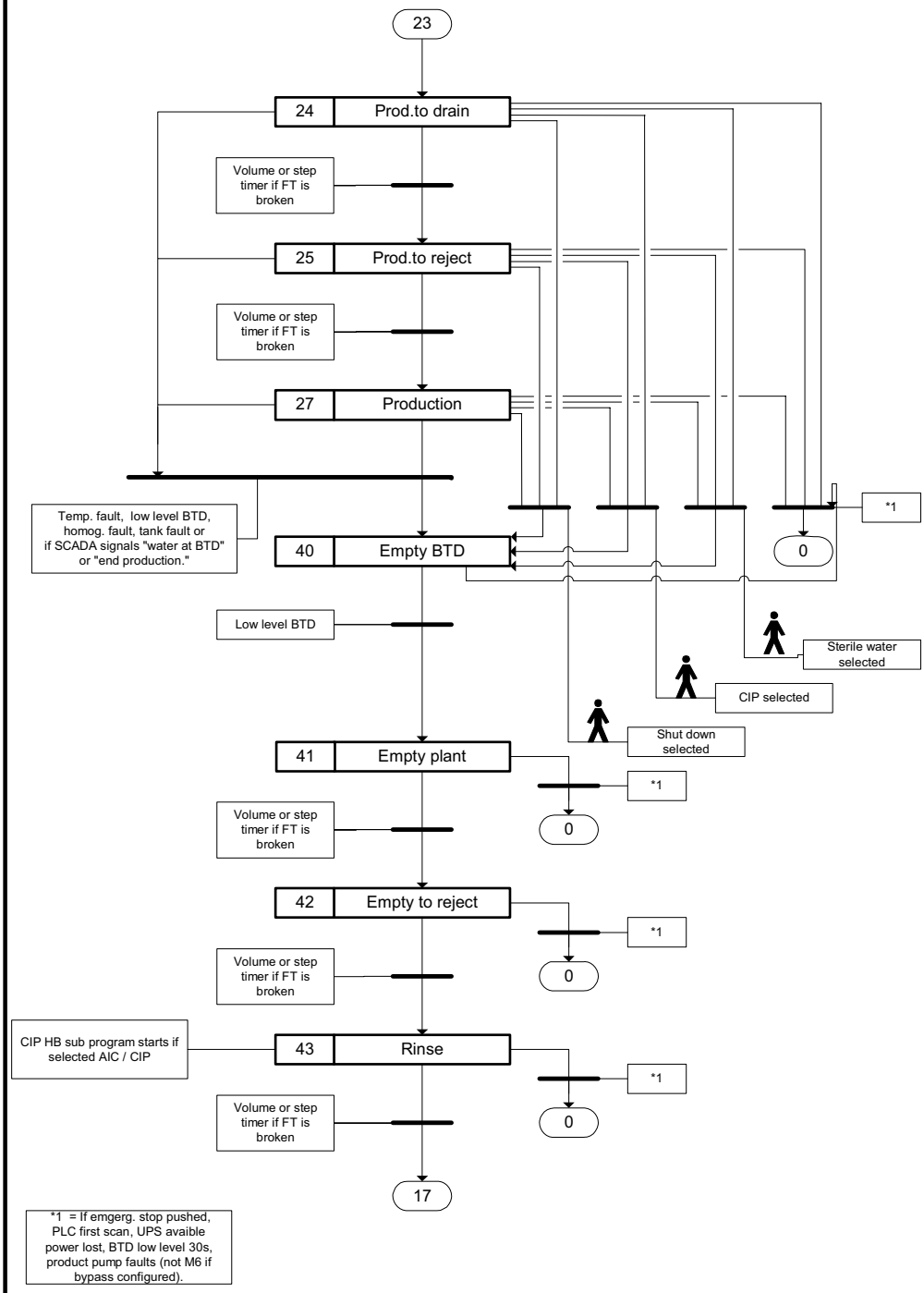
FLEX Rev.A

Prod. sequence Step 17 - 23

Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD584413.453**

Tetra Pak Dairy & Beverage

Machine No. **T5844130453**



Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

FLEX Rev.A

Prod. sequence Step 24-43

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

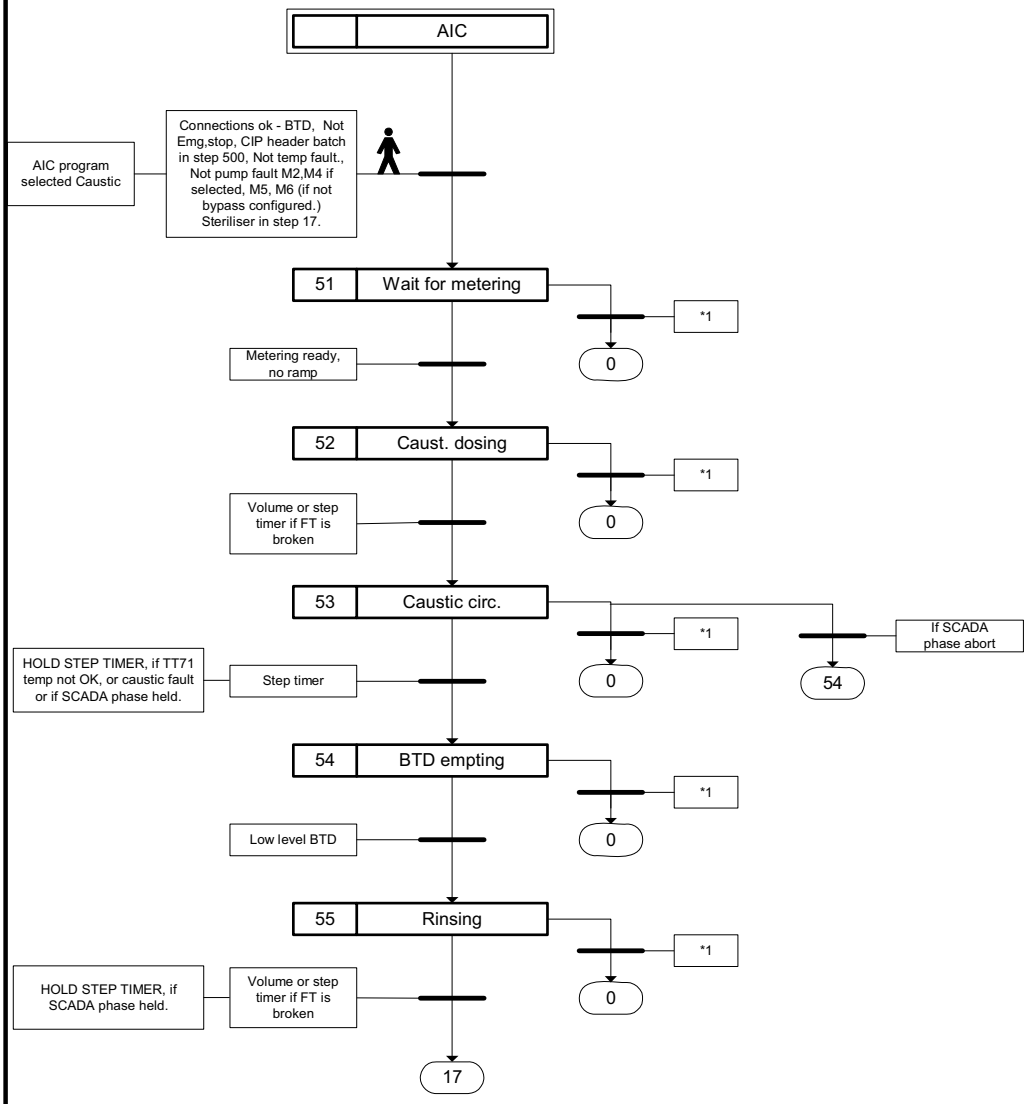
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD584413.453**

Tetra Pak

Tetra Pak Dairy & Beverage

Machine No.

T5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

FLEX Rev.A

AIC C sequence Step 51 - 55

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

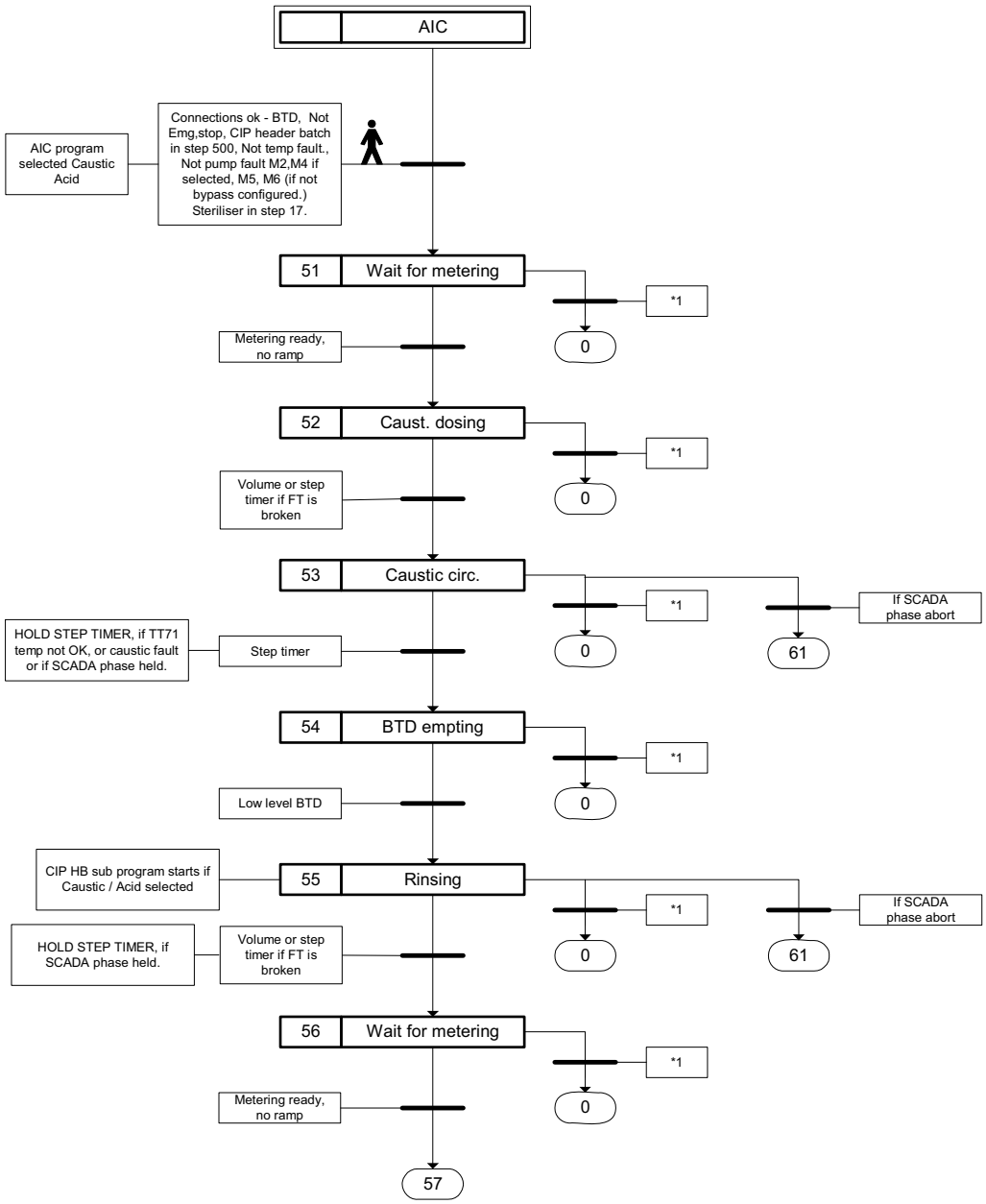
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD584413.453**

Tetra Pak

Tetra Pak Dairy & Beverage

Machine No.

T5844130453



Rev.	Date/ Sign.	Description

FLEX Rev.A

AIC C - A sequence Step 51 - 56

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

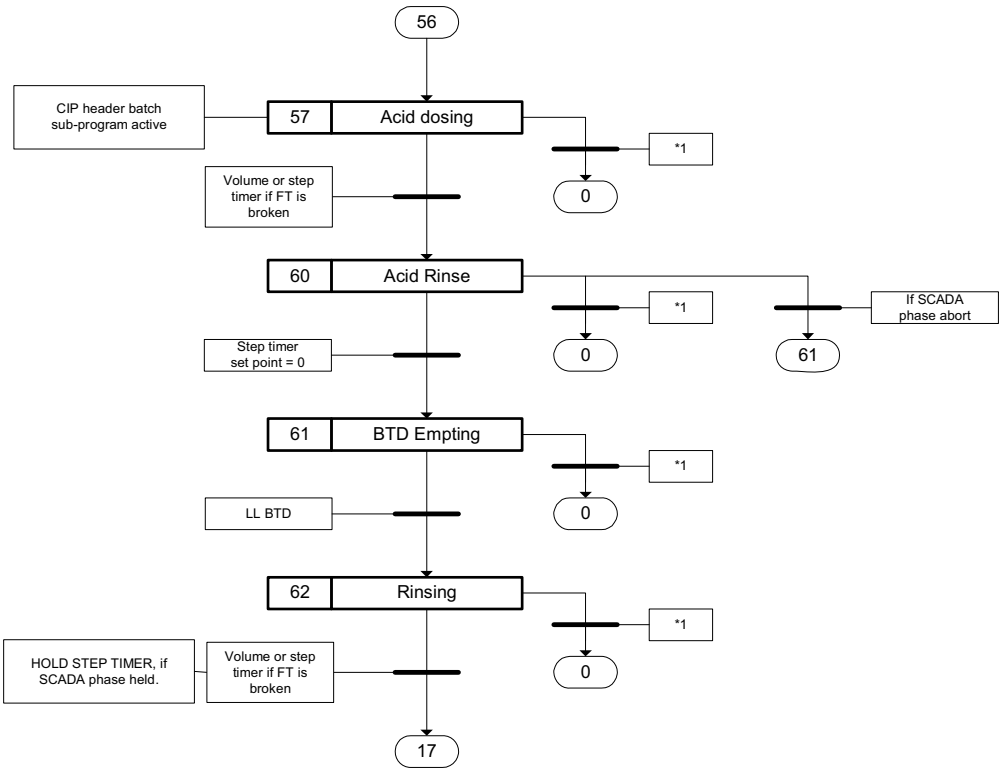
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD584413.453**

Tetra Pak

Tetra Pak Dairy & Beverage

Machine No.

T5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description

FLEX Rev.A

AIC C - A sequence Step 57- 62

Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				
Dept.	Design/Drawn	Appr.	Date		
Ambient			**7/17/2006**		

Tetra Pak

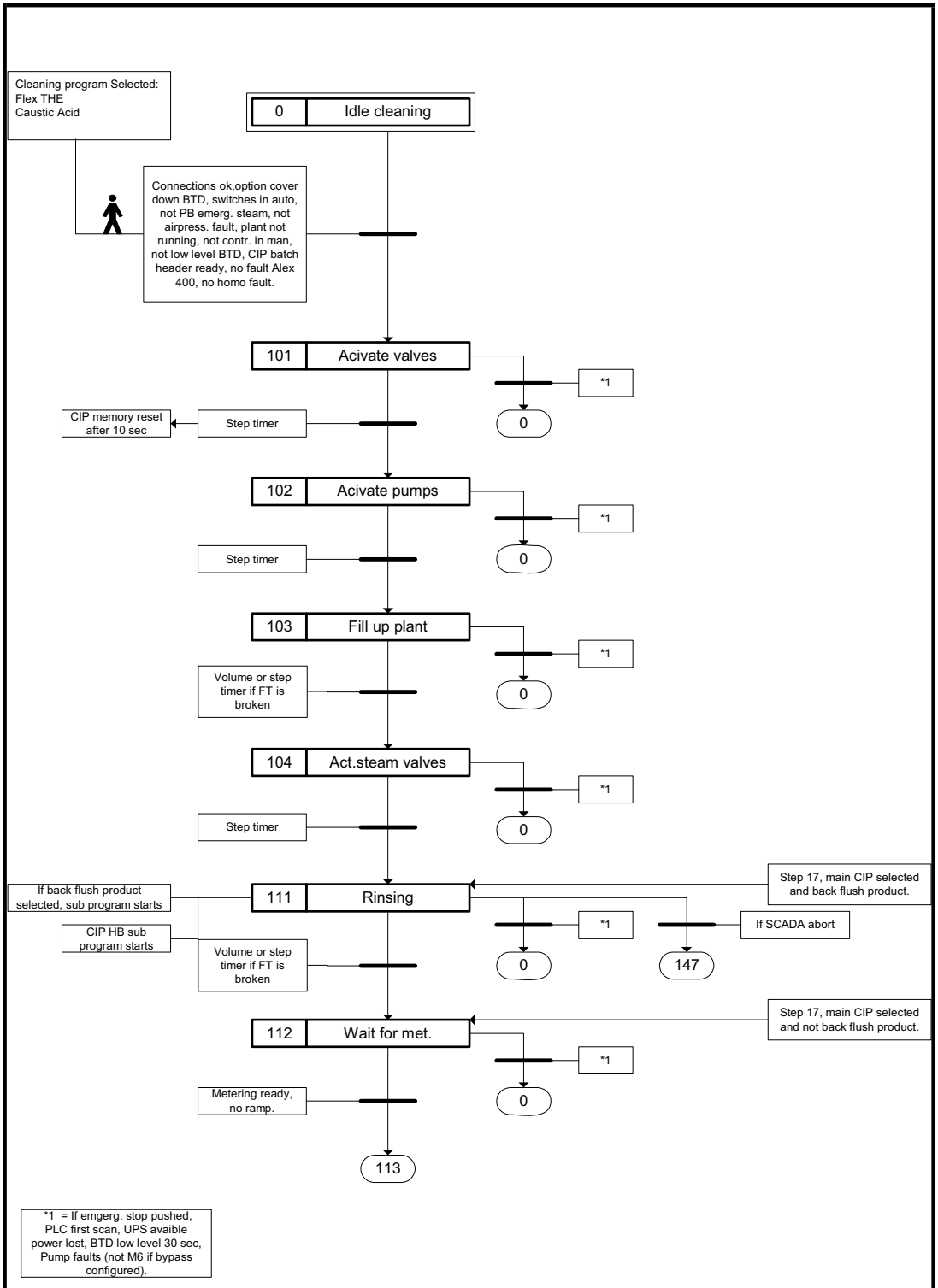
Tetra Pak Dairy & Beverage

Machine No.

T5844130453

Doc. No.

SD584413.453



Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

FLEX Rev.A

CIP C-A sequence Step 101 -112

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

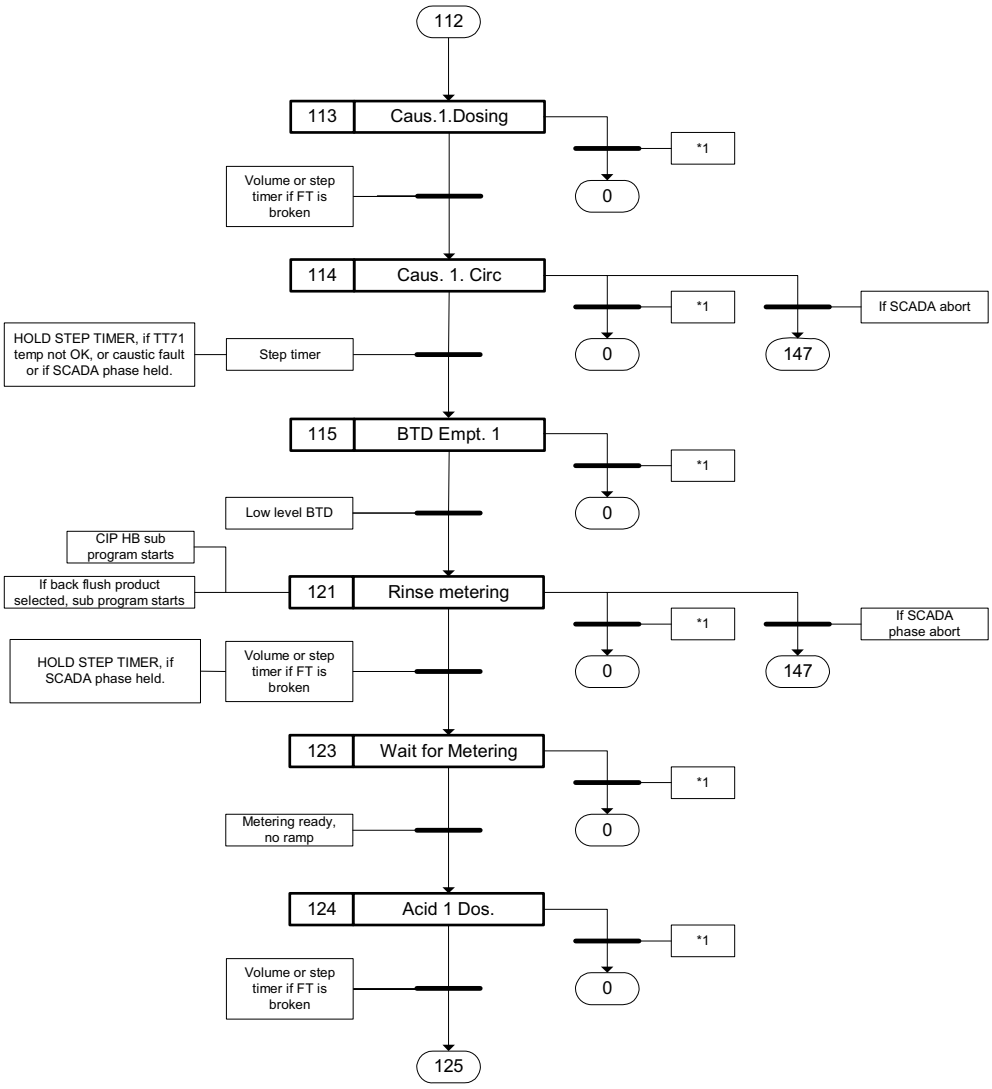
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD584413.453**

Tetra Pak

Tetra Pak Dairy & Beverage

Machine No.

T5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30 sec, Pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

FLEX Rev.A

CIP C-A sequence Step 113- 124

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

Dept.	Design/Drawn	Appr.	Date	
Ambient			**7/17/2006**	

Tetra Pak

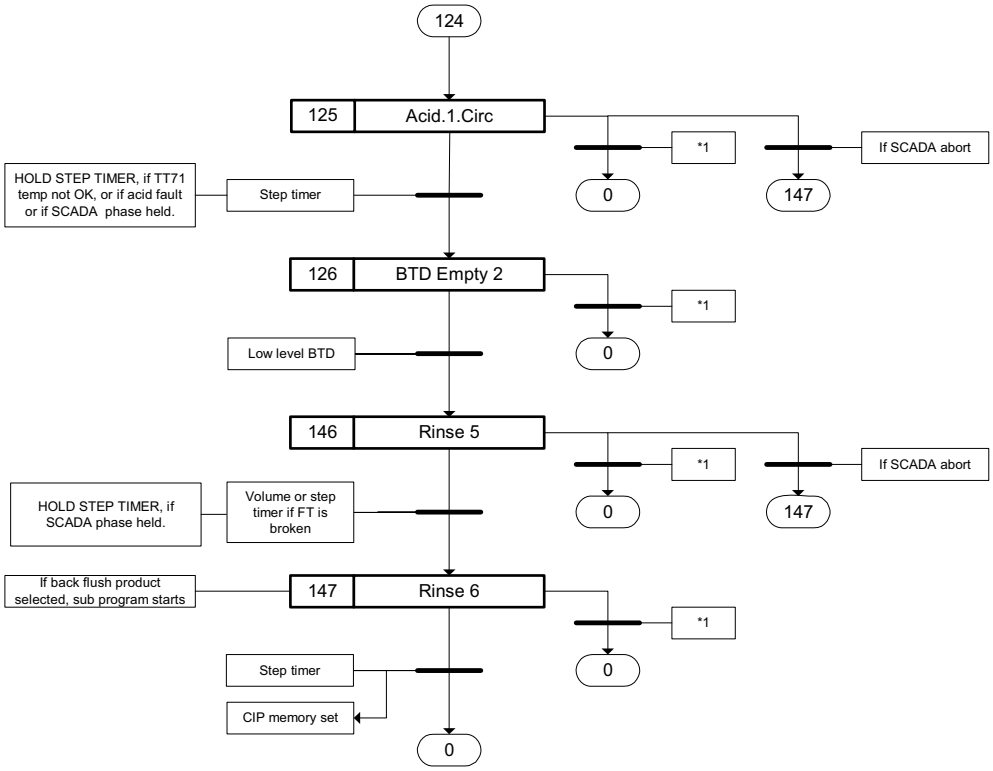
Tetra Pak Dairy & Beverage

Machine No.

T5844130453

Doc. No.

SD584413.453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

FLEX Rev.A

CIP C-A sequence Step 125-147

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

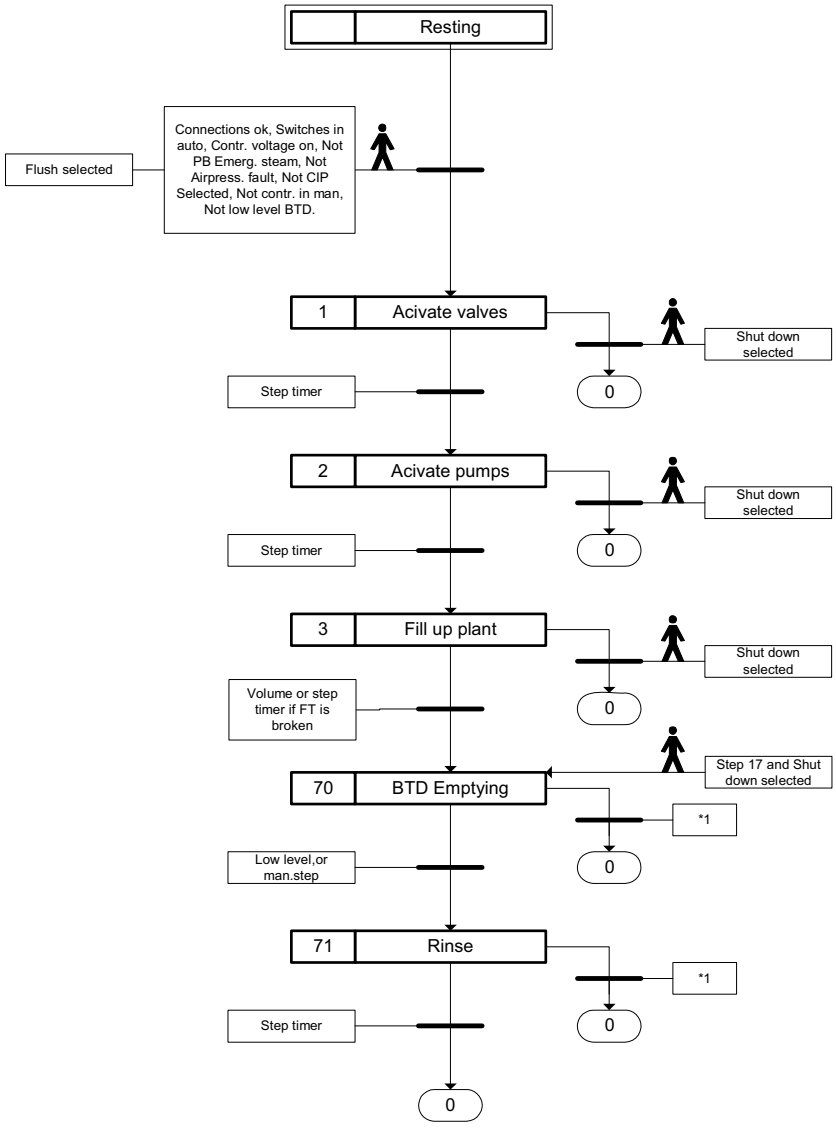
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD584413.453**

Tetra Pak

Tetra Pak Dairy & Beverage

Machine No.

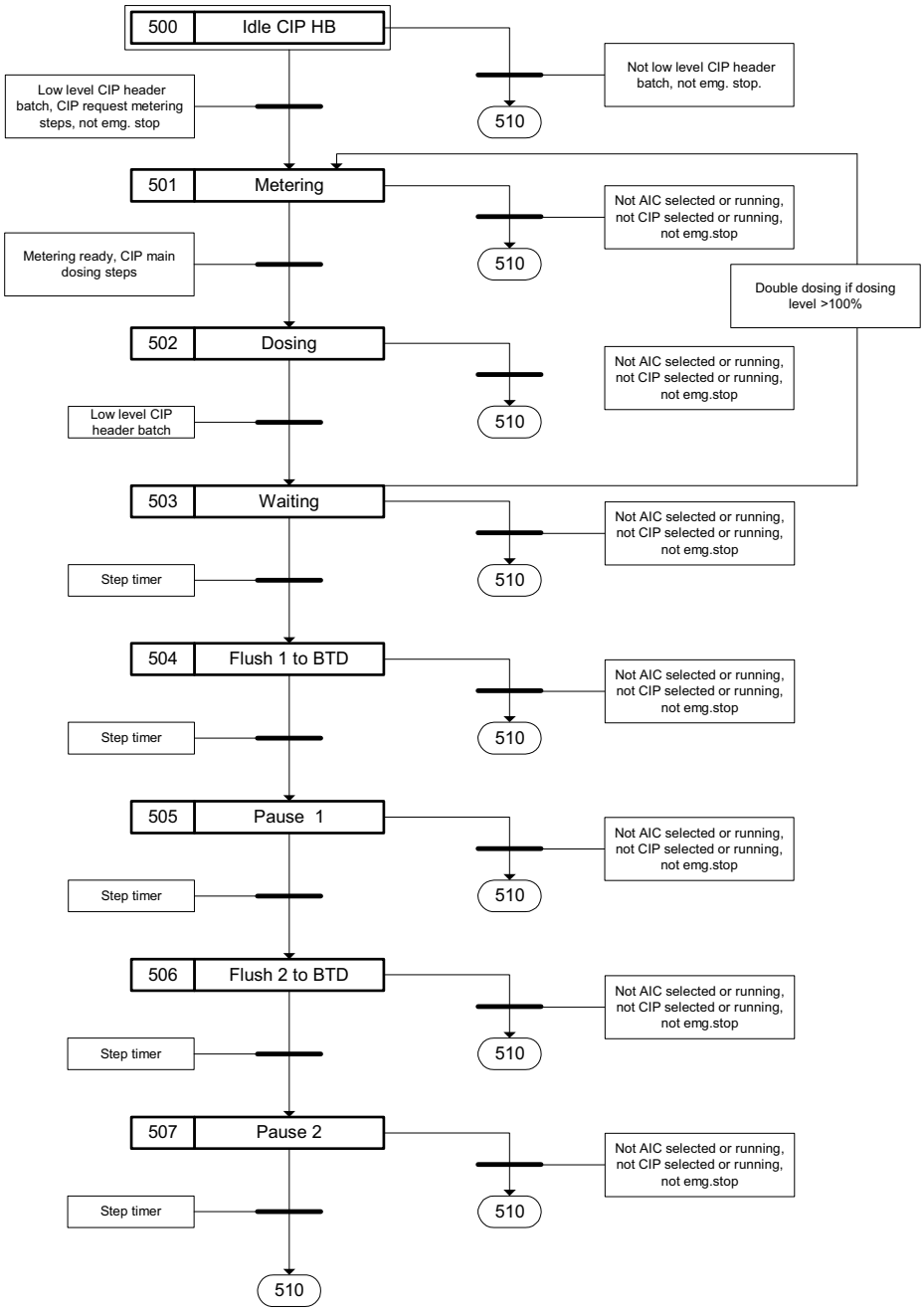
T5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description	FLEX Rev.A					Tetra Pak Dairy & Beverage
			Shut down sequence Step 1-71					Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				T5844130453
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
A	7/17/2006/JT	Step cond. on volume	Ambient			7/17/2006		SD584413.453

CIP HEADER BATCH
SEQUENCE



Rev.	Date/ Sign.	Description

FLEX Rev.A

Header batch seq. Step 500- 507

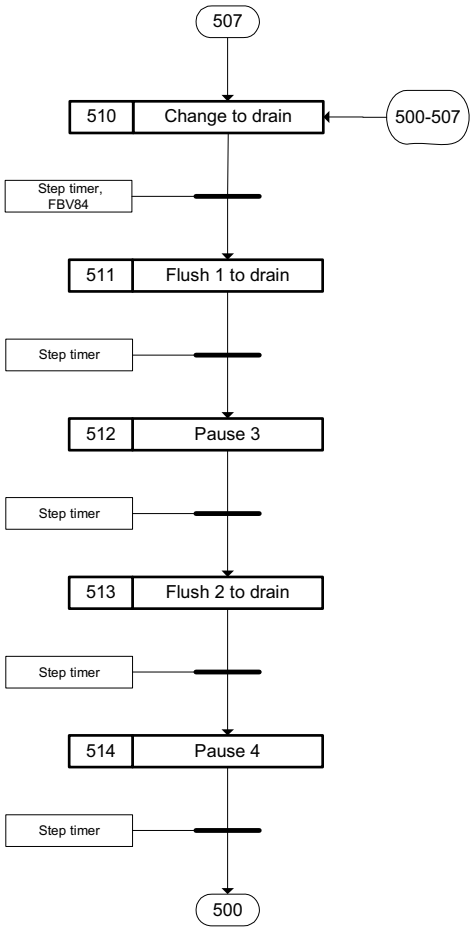
Doc.type: FUNCTION DESCRIPTION Sequence Diagram

Dept.	Design/Drawn	Appr.	Date	File
Ambient			**7/17/2006**	

Tetra Pak
Tetra Pak Dairy & Beverage

Machine No.
T5844130453

Doc. No.
SD584413.453



Rev.	Date/ Sign.	Description	FLEX Rev.A					Tetra Pak Dairy & Beverage
			Header batch seq. Step 510-514					Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				T5844130453
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
			Ambient			7/17/2006		SD584413.453

6

TA VTIS Introduction

Direct UHT-treatment

Tetra Therm Aseptic VTIS 10

- A high performance UHT module with focus on superior quality.

Tetra Therm Aseptic VTIS 100

- A customised version to achieve a specific product quality or meet specific customer demands.

  This includes combined heating solutions as well.

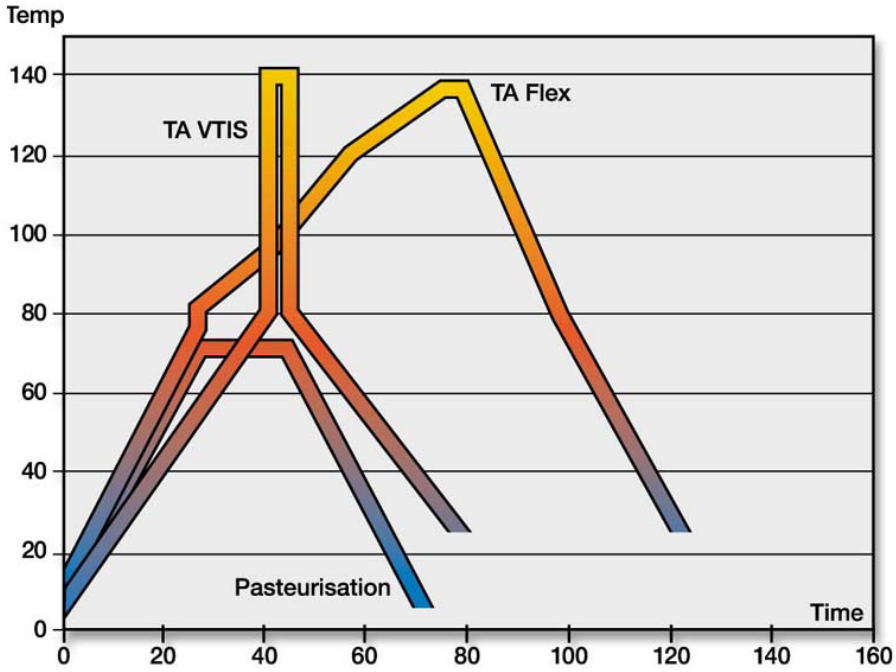
Tetra Pak
protects what's good™

Tetra Therm® Aseptic VTIS 10

Direct heat treatment

Rapid heating and cooling with Tetra Therm Aseptic VTIS 10

- Superior quality
- Uniformity
- Low operating costs
- Long uptime

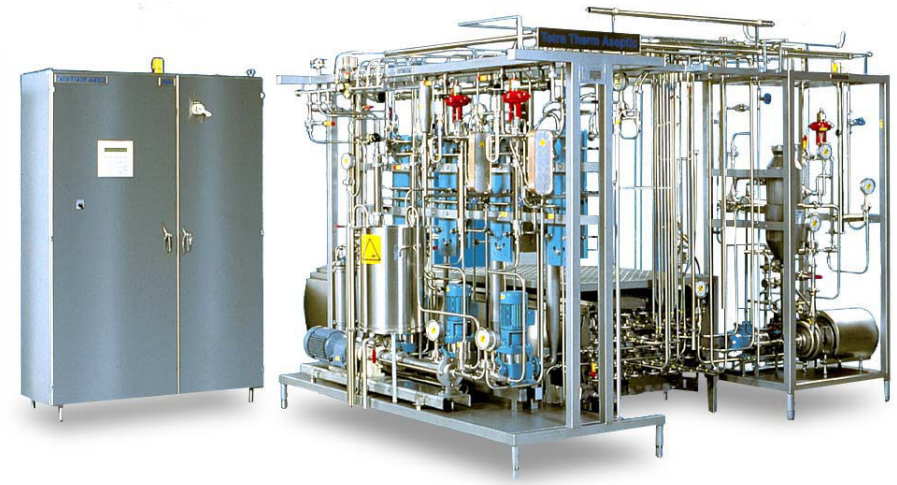


Tetra Pak
protects what's good™

Tetra Therm® Aseptic Pilot

The Pilot plant

- This small-scale equipment can be used to fully mimic our branded products, e.g. Tetra Therm Flex and Tetra Therm VTIS, yet the low capacity of the Tetra Therm Pilot means that the quantities of the products used for such tests are greatly reduced. With the Tetra Therm Pilot, accurate results can be obtained for up-scaling purposes.



Tetra Pak
protects what's good™

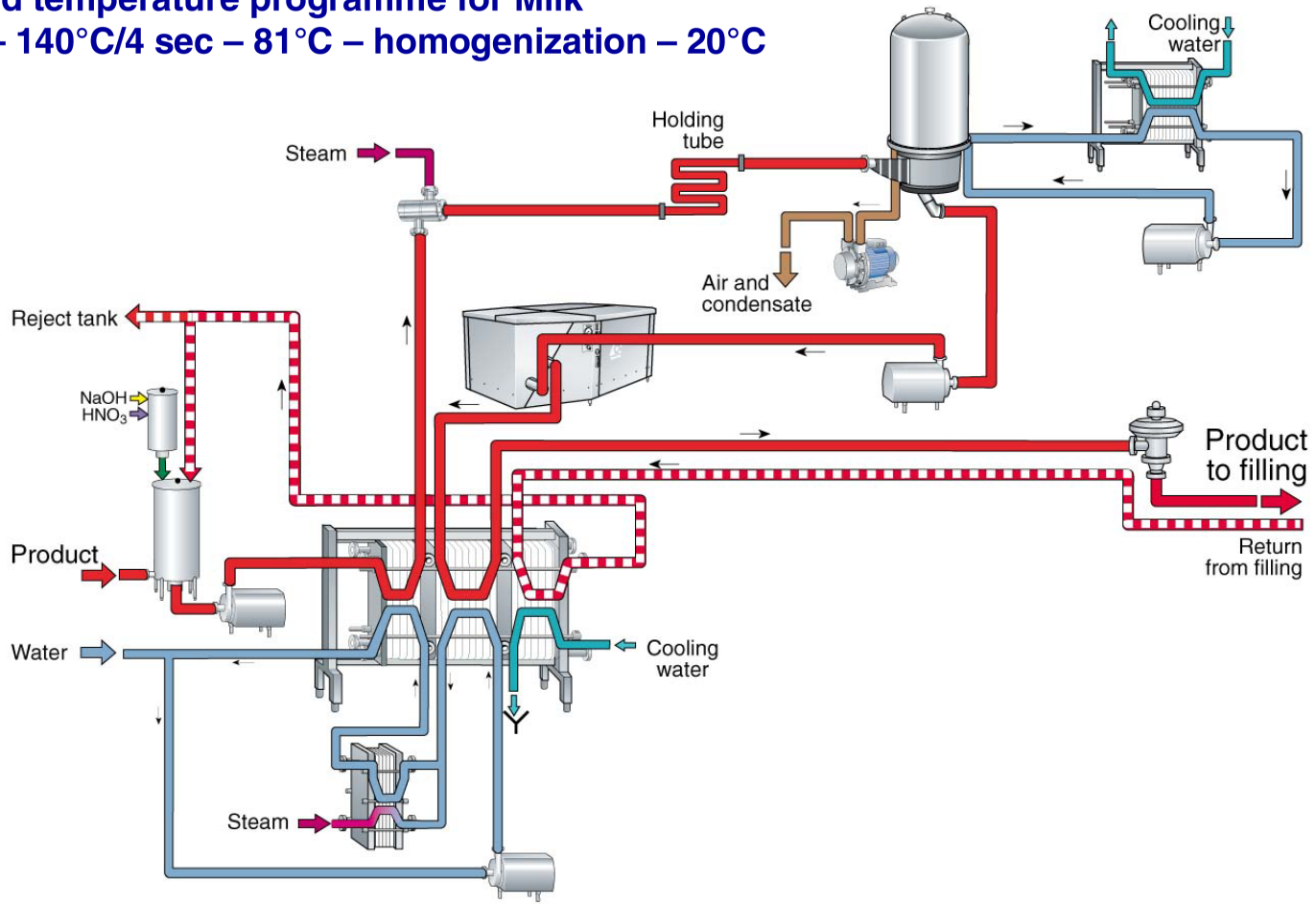
7

TA VTIS Process Flowchart

Tetra Therm® Aseptic VTIS 10

Based on PHE

Standard temperature programme for Milk
5°– 80°– 140°C/4 sec – 81°C – homogenization – 20°C

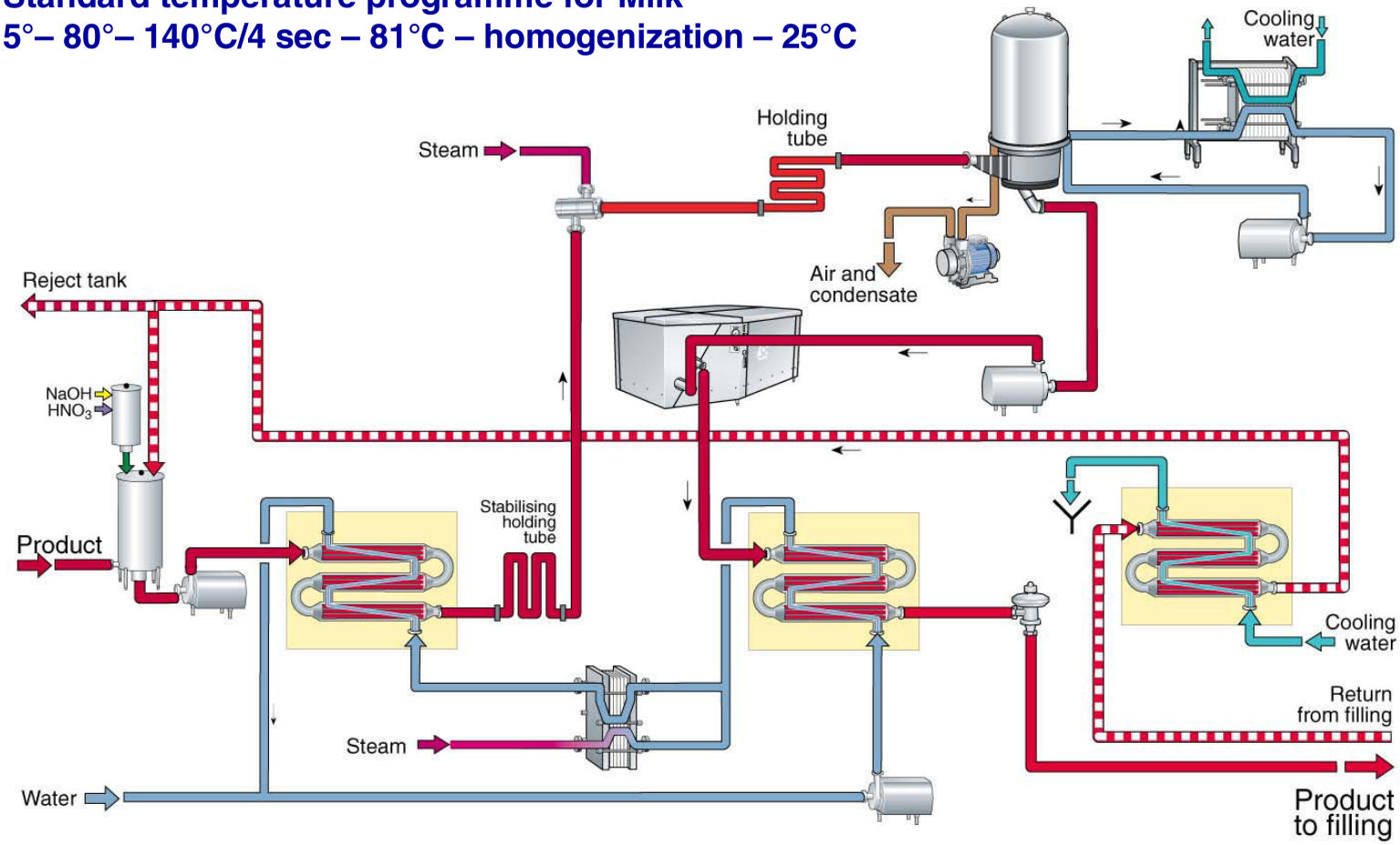


Tetra Pak
protects what's good™

Tetra Therm® Aseptic VTIS 10

Based on THE

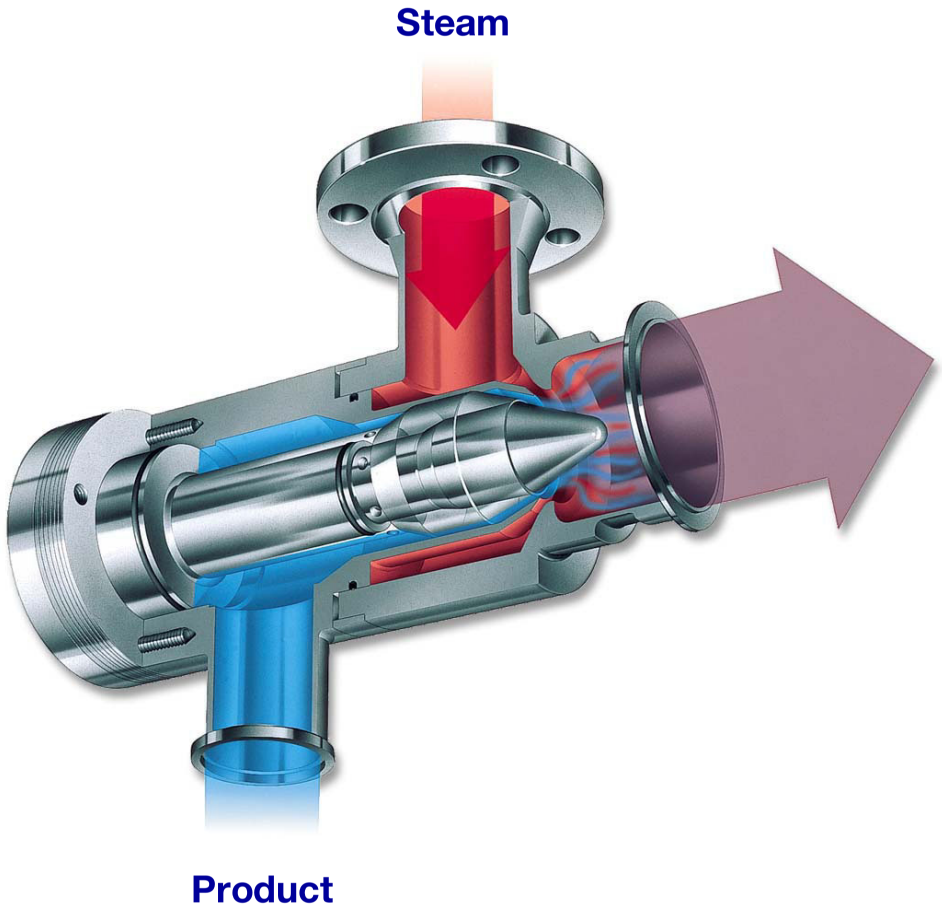
Standard temperature programme for Milk
5°– 80°– 140°C/4 sec – 81°C – homogenization – 25°C



Tetra Pak
protects what's good™

Tetra Therm® Aseptic VTIS 10

Steam injection



Tetra Pak
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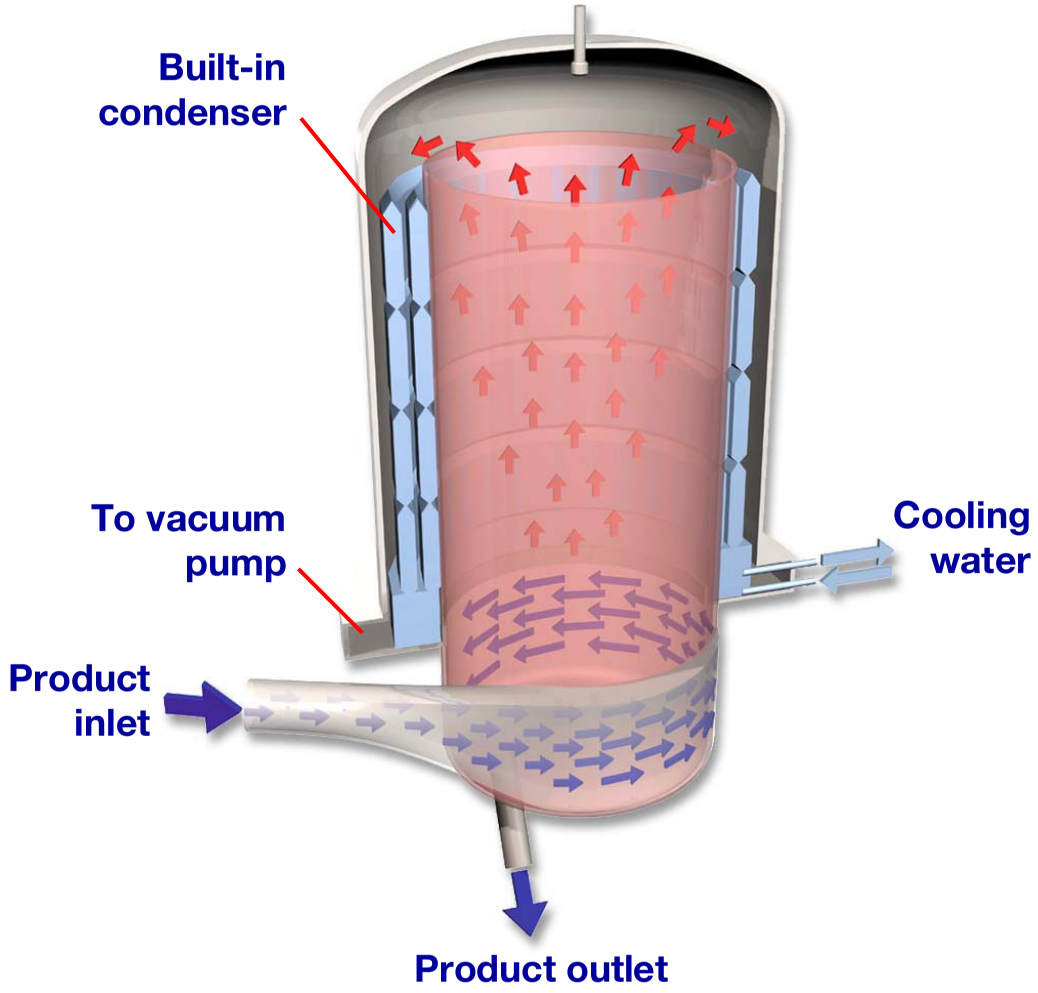
Tetra Therm® Aseptic VTIS 10

Flash cooling



Tetra Pak
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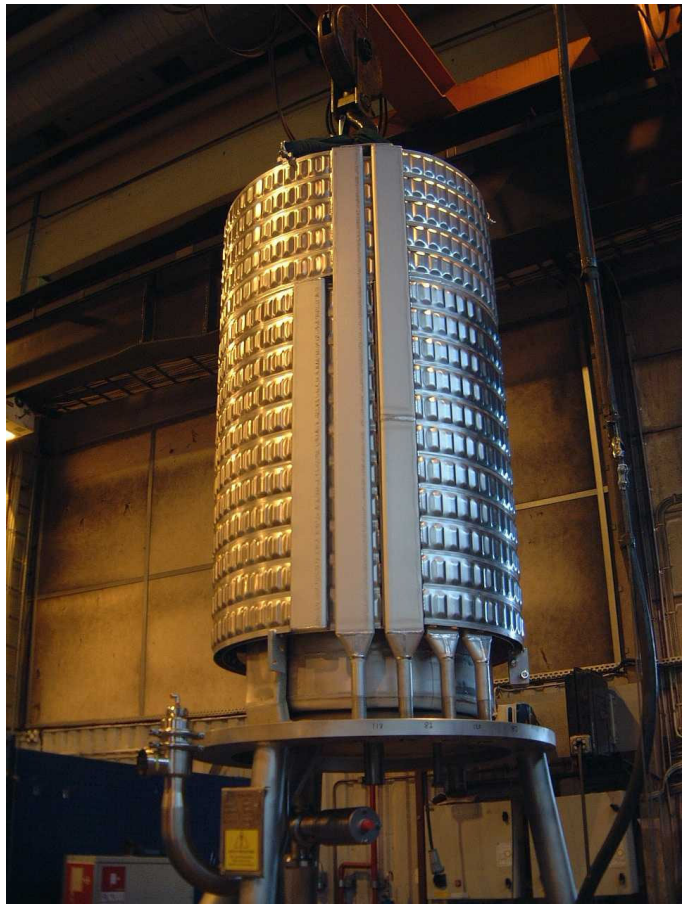
Tetra Therm® Aseptic VTIS Condenser



Tetra Pak
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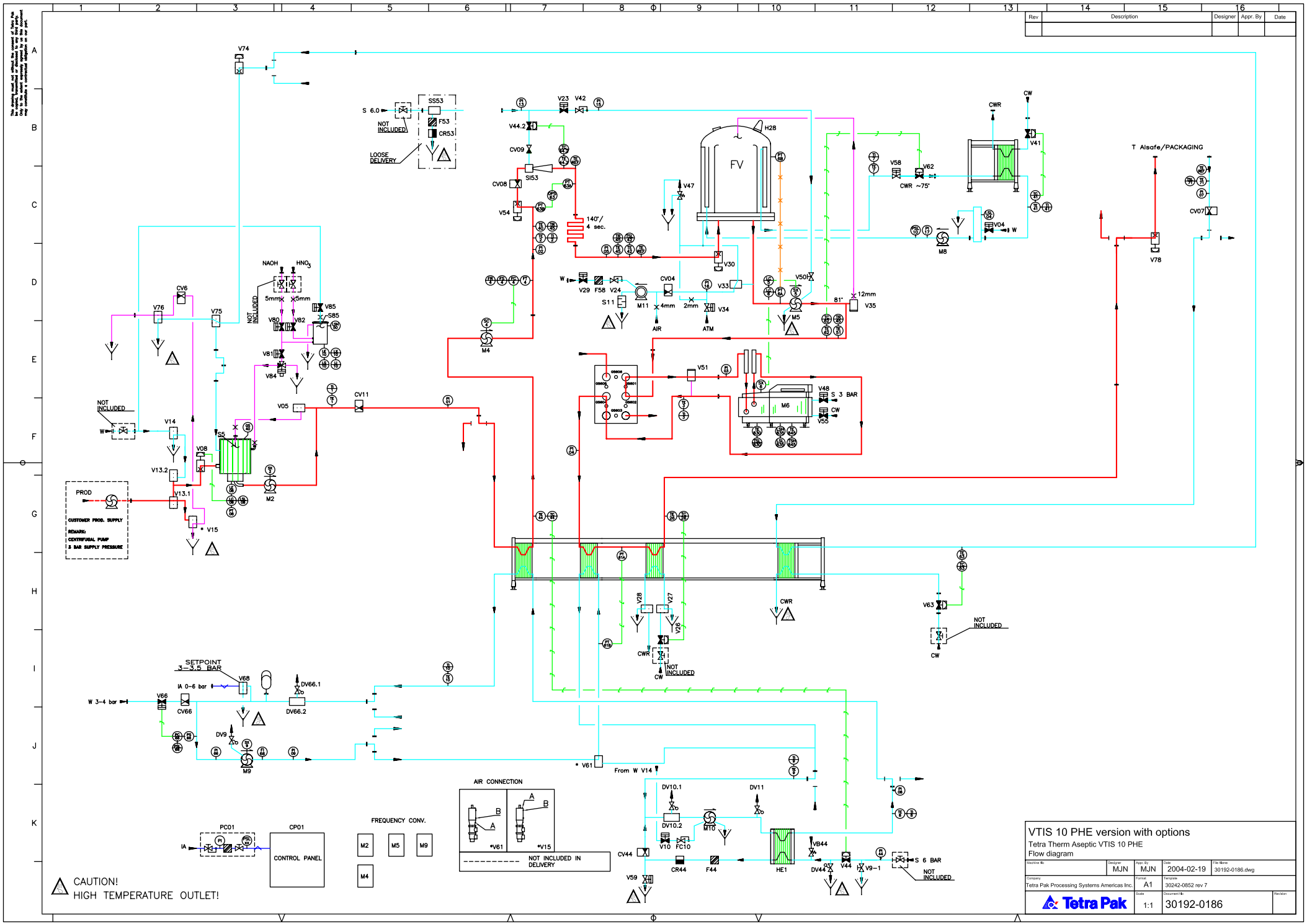


Rev	Description	Designer	Appr. By	Date

VTIS 10 PHE version with options

Tetra Therm Aseptic VTIS 10 PHE

Flow diagram

Machine No	Designer: MJN	Appr. By: MJN	Date: 2004-02-19	File Name: 30192-0186.dwg
Company: Tetra Pak Processing Systems Americas Inc.		Format: A1	Template: 30242-0852 rev 7	
Tetra Pak		Scale: 1:1	Document No: 30192-0186	Revision

8

TA VTIS X-Chart Sequences

Rev. no	Appr.	Date	Descr.

STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M5	M6	M8	M9	M11	Y2-3	V4	V5	V8	V13.1	V13.2	V14	V15	V26	V27	V30	V33	V34	V35	V40	V41	V44	V44.2	V48	V51	V54	V55	V58	V59	V61	V62	V63	V66	V74	V75	V76	V78	
						V23				V29										V28																							
	STERILE WATER																																										
ACT. VALVES	1/7	1	N75:1	R1										X		X	X	*12										X	X		X					X	*5					1
ACT.PUMPS	1/7	2	N75:2	R2	X	X		X	X			*19		X		X	X	*12										X	X		X					X	*5					2
FILL UP PLANT	1/7	3	N75:3	R3	X	X	X	X	X			*19		X		X	X	*12			X							X	X	X	X				X	X	*5					3
ACT. STEAM	1	4	N75:4	R4	X	X	X	X	X			*19		X		X	X	*12			X						*11	X	X	X	X	X			X	X	*5					4
HEATING	1	5	TS71		X	X	X	X	X			*19		X		X	X	*12			X	*35		*35			X	X	X	X	X	X		A*33/B		X	*5	*18	X			5
STERILIZING	1	6	N75:6	R6	X	X	X	X	X			*19		X		X	X	*12			X	X		X			X	X	X	X	X	X		B		X	*5	A	X			6
COOLING 1	1	7	TS62	R7	X	X	X	X	X			*19		X		X	X	*12			X	X			X	X	X	X	X	*13	X	X			B	X	X	*5	A	X			7
COOLING 2	1	10	TS6	R10	X	X	X	X	X	X		*19		X		X	X	*12			X	*34	*6		X	X	X	X	X	*13	X	X			B	X	X	*5	A	X			10
COOLING 3	1	11	TS71	R11	X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X			A*22	X	X	*5	A	X			11
STABILISING	1	12	N75:12	R12	X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5	B	X		X	12
STERILE WATER	2	17			X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5	B	X		X	17
	PRODUCTION																																										
BTD EMPTYING	3	20	LS8		X	X	X	X	X	X		*19		X				*12	*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B			X	20
PREP.PROD	3	21	TS71	R21	X	X	X	X	X	X		*19		X		X	X	*12	*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B			X	21
BTD EMPTYING	3	22	LS8		X	X	X	X	X	X		*19		X				*12	*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B			X	22
PROD. TO LL	3	23	!LS8		X	X	X	X	X	X		*19		X	*6				*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B			X	23
FILL TO DRAIN	3	24	N75:24	R24	X	X	X	X	X	X	*1	*19		X	X				*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B			X	24
FILL TO REJECT	3	25	N75:25	R25	X	X	X	X	X	X	*3	*19		X	X				*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B		X	X	25
PRODUCTION	3	27			X	X	X	X	X	X	*3	*19		X	X				*2	*2	X		X		X	X	X	X	X	*13	X	X				X	*7	*5	B			X	27
BTD EMPTYING	3	40	LS8		X	X	X	X	X	X	*3	*19		X					*2	*2	X		X		X	X	X	X	X	*13	X	X				X	*7	*5	B		X	X	40
PROD OUT	3	41	N75:41	R41	X	X	X	X	X	X	*3	*19		X		*8	*8		*2	*2	X		X		X	X	X	X	X	*13	X	X				X	*7	*5	B		X	X	41
PROD. TO REJ.	3	42	N75:42	R42	X	X	X	X	X	X	*3	*19		X		X	X		*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B		X	X	42
RINSING	3	43	N75:43	R43	X	X	X	X	X	X		*19		X		*8	*8		*2	*2	X		X		X	X	X	X	X	*13	X	X				X		*5	B			X	43
STERILE WATER	2	17			X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X				X		*5	B	X		X	17
	ASEPTIC INTERMEDIATE CLEANING																																										
WAIT. FOR MET	4	51	LT10		X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5		X		X	51
CAUSTIC DOS	4	52	N75:52	R52	X	X	X	X	X	X		*19		X		*4	*4	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5		*6		X	52
CAUSTIC CIRC.	4	53	N75:53	R53	X	X	X	X	X	X		*19		X		*4	*4	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5		X		X	53
BTD EMPTYING	4	54	LS8		X	X	X	X	X	X		*19		X				*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5				X	54
RINSING (+ MET.)	4	55	N75:55	R55	X	X	X	X	X	X		*19		X		*8	*8	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5				X	55
WAIT. FOR MET	4	56	LT10		X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5		X		X	56
ACID DOS	4	57	N75:57	R57	X	X	X	X	X	X		*19		X		*4	*4	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5		*6		X	57
ACID RINSE	4	60	N75:60	R60	X	X	X	X	X	X		*19		X		*4	*4	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5				X	60
BTD EMPTYING	4	61	LS8		X	X	X	X	X	X		*19		X				*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5				X	61
RINSING	4	62	N75:62	R62	X	X	X	X	X	X		*19		X		*8	*8	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5				X	62
STERILE WATER	2	17			X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X				X	X	*5	B	X		X	17
	SHUT DOWN																																										
BTD EMPTYING	6/7	70	LS8		X	X	X	X	X			*19		X				*12			X	X			X	X			X	*13	X	X				X	X	*5				X	70
RINSING	6/7	71	N75:71	R71	X	X	X	X	*6			*19		X		X	X	*12			X								X	*13	X	X				X	X	*5					71
						V23				V29										V27																							
STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M5	M6	M8	M9	M11	Y2-3	V4	V5	V8	V13.1	V13.2	V14	V15	V26	V28	V30	V33	V34	V35	V40	V41	V44	V44.2	V48	V51	V54	V55	V58	V59	V61	V62	V63	V66	V74	V75	V76	V78	

STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M5	M6	M8	M9	M11	Y2-3	V4	V5	V8	V13.1	V13.2	V14	V15	V26	V27	V30	V33	V34	V35	V40	V41	V44	V44.2	V48	V51	V54	V55	V58	V59	V61	V62	V63	V66	V74	V75	V76	V78	
						V23				V29										V28																							
	FULL CLEANING																																										
ACT. VALVES	5	101	N75:101	R81								*19		X		X	X	*12					X					X	X		X			B		X	*5					101
ACT.PUMPS	5	102	N75:102	R82	X	X		X	X			*19		X		X	X	*12					X					X	X		X			B		X	*5					102
FILL UP PLANT	5	103	N75:103	R83	X	X	X	X	X			*19		X		X	X	*12			X		X					X	X	X	X			B	X	X	*5					103
ACT. STEAM	5	104	N75:104	R84	X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	*11	X	*13	X	X			B	X	X	*5					104
RINSING + MET.	5	111	N75:111	R91	X	X	X	X	X	X		*19	*15	X		*8	*8	*12			X		X		X	X	X	X	X	*13	X	X			B	X	X	*5				X	111
WAIT. FOR MET	5	112	LT10		X	X	X	X	X	X		*19		X		X	X	*12			X		X		X	X	X	X	X	*13	X	X			B	X	X	*5		X		X	112
CAUSTIC DOS	5	113	N75:113	R93	X	X	X	X	X	X		*19		X		*4	*4	*12			X		X		X	X	X	X	X	*13	X	X			B	X	X	*5		*6		X	113
CAUSTIC CIRC.	5	114	N75:114	R94	X	X	X	X	X	X		*19		X		*16	*4	*12			X		X		X	X	X	X	X	*13	X	X			B	X	X	*5		X		X	114
RELEASE VACUUM	5	122	N75:122	R102	X	X	X		X			*19		X		X	X	*12									X		X	X	X	X			B		X	*5		X			122
CAUSTIC CIRC	5	134	N75:134	R114	X	X	X		X			*19		X		*16	*4	*12				X		*6			X		X	*16/*13		X			B		X	*5		X			134
BTD EMPTYING	5	135	LS8		X	X	X		X			*19	X	X				*12				X		*6			X		X	X		X			B		X	*5					135
RINSING + MET.	5	141	N75:141	R121	X	X	X		X			*19	*15	X		*8	*8	*12				X		*6			X		X	*16/*13		X			B		X	*5					141
WAIT. FOR MET	5	142	LT10		X	X	X		X			*19		X		*8	*8	*12				X		*6			X		X	X		X			B		X	*5		X			142
ACID DOS	5	143	N75:143	R123	X	X	X		X			*19		X		*4	*4	*12				X		*6			X		X	X		X			B		X	*5		*6			143
ACID CIRC. LT	5	144	N75:144	R124	X	X	X		X			*19		X		*16	*4	*12				X		*6			X		X	*16		X			B		X	*5		X			144
ACID CIRC. HT	5				X	X	X	X	X	X		*19		X		*16	*4	*12			X		X		X	X	X	*11	X	X	X	X			B	X	X	*5		X			
BTD EMPTYING	5	145	LS8		X	X	X	X	X	X		*19	X	X				*12			X		X		X	X	X	X	X	X	X	X			B	X	X	*5					145
RINSING HT	5	146	N75:146	R126	X	X	X	X	X	X		*19	*15	X		*8	*8	*12			X		X		X	X	X	X	X	X	X	X			B	X	X	*5					146
RINSING LT	5				X	X	X		X			*19	*15	X		*8	*8	*12				X		*6			X		X	*16		X			B		X	*5					
RINSING	5	147	N75:147	R127	X	X	X		X			*19	*9	X		X	X	*12				X		*6					X	X		X					X	*5					147
						V23				V29										V27																							
STEPNAME	S88-Ph.	STEP	COND	REG No	M2	M5	M6	M8	M9	M11	Y2-3	V4	V5	V8	V13.1	V13.2	V14	V15	V26	V28	V30	V33	V34	V35	V40	V41	V44	V44.2	V48	V51	V54	V55	V58	V59	V61	V62	V63	V66	V74	V75	V76	V78	

*1 = Homogeniser pressurised after a time delay
*2 = Activated if selected
*3 = Deactivated if temp. fault or Homogenizer fault.
*4 = Time activated if BTD LL.
*5 = Activated if LS66 indicates Low Level.
*6 = Activated on timer.
*7 = Activated if AFM fault.
*8 = Empty BTD two times before activate valve continiusly
*9 = Activated 20 sec. after 1 min. delay
*11 = Max. allowed open ramped from 0% - 100 % during appr. 2 min.

*12 = Activated to drain or reject depending of selection or pulsed from reject to drain for 5 sec. every 5 min. if CIP supply line selected
*13 = Activated if homogenizer fault
*14 = When TT41>95 degr. C
*15 = When V14 is closed
*16 = Flip
*18 = V74A when TT71>90 degr. C
*19 = Activated if LS4
*22 = Deactivated on timer
*33 = Activated when TT1 < 80 C°
*34 = Deactivated on timer after M11 start
*35 = Activated when TT3 > 110 C°

	SUBPROGRAM FOR CIP HEADERBATCH										
STEPNAME	STEP	COND	REG No	M12	M13	V80	V81	V82	V84	V85	
READY	500	Req+LL									
METERING	501	LT10		*26	*27	*23		*24	X		
DOSING	502	LL					*25		X		
WAITING	503	N76:3	R163				X		X		
FLUSH 1 TO BTD	504	N76:4	R164				X		X	X	
PAUSE 1	505	N76:5	R165				X		X		
FLUSH 2 TO BTD	506	N76:6	R166				X		X	X	
PAUSE 2	507	N76:7	R167				X		X		
TO DRAIN	510	N76:10	R170				X				
FLUSH 1 TO DRAIN	511	N76:11	R171				X			X	
PAUSE 3	512	N76:12	R172				X				
FLUSH 2 TO DRAIN	513	N76:13	R173				X			X	
PAUSE 4	514	N76:14	R174				X				
READY	500										
	STEP	COND	REG No	M12	M13	V80	V81	V82	V84	V85	
	*23= If caustic requested and not level reached										
	*24= If acid requested and not level reached										
	*25= If level higher than calculated set-point										
	*26= After time if caustic requested and not level reached										
	*27= After time if acid requested and not level reached										

Register	Address	Symbol	Comment	Original	Changed
0	N91:0		0 N75:0		
1	N91:1		1 N75:1 S_STEP1_TIME	5	
2	N91:2		2 N75:2 S_STEP2_TIME	5	
3	N91:3		3 N75:3 S_STEP3_TIME	90	
4	N91:4		4 N75:4 S_STEP4_TIME	25	
5	N91:5		5 N75:5 S_STEP5_TIME	10	
6	N91:6		6 N75:6 S_STEP6_TIME	1800	
7	N91:7		7 N75:7 S_STEP7_TIME	200	
8	N91:8		8 N75:8		
9	N91:9		9 N75:9		
10	N91:10		10 N75:10 S_STEP10_TIME	300	
11	N91:11		11 N75:11 S_STEP11_TIME	400	
12	N91:12		12 N75:12 S_STEP12_TIME	240	
13	N91:13		13 N75:13		
14	N91:14		14 N75:14		
15	N91:15		15 N75:15		
16	N91:16		16 N75:16		
17	N91:17		17 N75:17 S_STEP17_TIME		
18	N91:18		18 N75:18		
19	N91:19		19 N75:19		
20	N91:20		20 N75:20 S_STEP20_TIME		
21	N91:21		21 N75:21 S_STEP21_TIME	600	
22	N91:22		22 N75:22 S_STEP22_TIME		
23	N91:23		23 N75:23 S_STEP23_TIME	3	
24	N91:24		24 N75:24 S_STEP24_TIME calc. on volume	310	
25	N91:25		25 N75:25 S_STEP25_TIME calc. on volume	15	
26	N91:26		26 N75:26		
27	N91:27		27 N75:27 S_STEP27_TIME		
28	N91:28		28 N75:28		
29	N91:29		29 N75:29		
30	N91:30		30 N75:30		
31	N91:31		31 N75:31		
32	N91:32		32 N75:32		
33	N91:33		33 N75:33		
34	N91:34		34 N75:34		
35	N91:35		35 N75:35		
36	N91:36		36 N75:36		
37	N91:37		37 N75:37		
38	N91:38		38 N75:38		
39	N91:39		39 N75:39		
40	N91:40		40 N75:40 S_STEP40_TIME		
41	N91:41		41 N75:41 S_STEP41_TIME calc. on volume	340	
42	N91:42		42 N75:42 S_STEP42_TIME Calc. on volume	15	
43	N91:43		43 N75:43 S_STEP43_TIME Calc. on volume	450	
44	N91:44		44 N75:44		
45	N91:45		45 N75:45		
46	N91:46		46 N75:46		
47	N91:47		47 N75:47		
48	N91:48		48 N75:48		
49	N91:49		49 N75:49		
50	N91:50		50 N75:50		
51	N91:51		51 N75:51 S_STEP51_TIME		
52	N91:52		52 N75:52 S_STEP52_TIME Calc. on volume	360	
53	N91:53		53 N75:53 S_STEP53_TIME	1200	
54	N91:54		54 N75:54 S_STEP54_TIME		
55	N91:55		55 N75:55 S_STEP55_TIME	200	
56	N91:56		56 N75:56 S_STEP56_TIME		
57	N91:57		57 N75:57 S_STEP57_TIME Calc. on volume	360	
58	N91:58		58 N75:58		

Register	Address	Symbol	Comment	Original	Changed
59	N91:59		59 N75:59		
60	N91:60		60 N75:60 S_STEP60_TIME		
61	N91:61		61 N75:61 S_STEP61_TIME		
62	N91:62		62 N75:62 S_STEP62_TIME	600	
63	N91:63		63 N75:63		
64	N91:64		64 N75:64		
65	N91:65		65 N75:65		
66	N91:66		66 N75:66		
67	N91:67		67 N75:67		
68	N91:68		68 N75:68		
69	N91:69		69 N75:69		
70	N91:70		70 N75:70 S_STEP70_TIME		
71	N91:71		71 N75:71 S_STEP71_TIME	600	
72	N91:72		72 N75:72		
73	N91:73		73 N75:73		
74	N91:74		74 N75:74		
75	N91:75		75		
76	N91:76		76		
77	N91:77		77		
78	N91:78		78		
79	N91:79		79		
80	N91:80		80 N75:100		
81	N91:81		81 N75:101 S_STEP101_TIME	5	
82	N91:82		82 N75:102 S_STEP102_TIME	5	
83	N91:83		83 N75:103 S_STEP103_TIME	180	
84	N91:84		84 N75:104 S_STEP104_TIME	25	
85	N91:85		85 N75:105		
86	N91:86		86 N75:106		
87	N91:87		87 N75:107		
88	N91:88		88 N75:108		
89	N91:89		89 N75:109		
90	N91:90		90 N75:110		
91	N91:91		91 N75:111 S_STEP111_TIME Calc. on volume	370	
92	N91:92		92 N75:112 S_STEP112_TIME		
93	N91:93		93 N75:113 S_STEP113_TIME	360	
94	N91:94		94 N75:114 STEP114_TIME if iCIP option calc v	2400	
95	N91:95		95 N75:115 S_STEP115_TIME		
96	N91:96		96 N75:116		
97	N91:97		97 N75:117		
98	N91:98		98 N75:118		
99	N91:99		99 N75:119		
100	N91:100		100 N75:120		
101	N91:101		101 N75:121 S_STEP121_TIME Calc. on volum	370	
102	N91:102		102 N75:122 S_STEP122_TIME	30	
103	N91:103		103 N75:123 S_STEP123_TIME		
104	N91:104		104 N75:124 S_STEP124_TIME	370	
105	N91:105		105 N75:125 STEP125_TIME If iCIP option calc	1200	
106	N91:106		106 N75:126 S_STEP126_TIME		
107	N91:107		107 N75:127		
108	N91:108		108 N75:128		
109	N91:109		109 N75:129		
110	N91:110		110 N75:130		
111	N91:111		111 N75:131 S_STEP131_TIME Calc. on volum	300	
112	N91:112		112 N75:132 S_STEP132_TIME		
113	N91:113		113 N75:133 S_STEP133_TIME	360	
114	N91:114		114 N75:134 STEP134_TIME If iCIP option calc	1200	
115	N91:115		115 N75:135 S_STEP135_TIME		
116	N91:116		116 N75:136		
117	N91:117		117 N75:137		
118	N91:118		118 N75:138		

Register	Address	Symbol	Comment	Original	Changed
119	N91:119		119 N75:139		
120	N91:120		120 N75:140		
121	N91:121		121 N75:141 S_STEP141_TIME Calc. on volum	295	
122	N91:122		122 N75:142 S_STEP142_TIME		
123	N91:123		123 N75:143 S_STEP143_TIME	370	
124	N91:124		124 N75:144 STEP144_TIME If iCIP option calc	1200	
125	N91:125		125 N75:145 S_STEP145_TIME		
126	N91:126		126 N75:146 S_STEP146_TIME	300	
127	N91:127		127 N75:147 S_STEP147_TIME N93:220-229	400	
128	N91:128		128 N75:148		
129	N91:129		129 N75:149		
130	N91:130		130 N75:150		
131	N91:131		131 N75:151 S_STEP151_TIME	10	
132	N91:132		132 N75:152 S_STEP152_TIME	12	
133	N91:133		133 N75:153 S_STEP153_TIME	16	
134	N91:134		134 N75:154 S_STEP154_TIME	20	
135	N91:135		135 N75:155 S_STEP155_TIME		
136	N91:136		136 N75:156		
137	N91:137		137 N75:157		
138	N91:138		138 N75:158		
139	N91:139		139 N75:159		
140	N91:140		140		
141	N91:141		141 N40:147 NON AS HOMOCAP 1	13000	
142	N91:142		142 N40:148 NON AS HOMOCAP 2	11000	
143	N91:143		143 N40:149 NON AS HOMOCAP 3	10000	
144	N91:144		144 N40:150 NON AS HOMOCAP 4	8000	
145	N91:145		145 N40:151 NON AS HOMOCAP 5	7000	
146	N91:146		146 N40:152 NON AS HOMOCAP 6	6500	
147	N91:147		147		
148	N91:148		148		
149	N91:149		149		
150	N91:150		150		
151	N91:151		151 N40:207 AS HOMOCAP 1	13000	
152	N91:152		152 N40:208 AS HOMOCAP 2	11000	
153	N91:153		153 N40:209 AS HOMOCAP 3	10000	
154	N91:154		154 N40:210 AS HOMOCAP 4	8000	
155	N91:155		155 N40:211 AS HOMOCAP 5	7000	
156	N91:156		156 N40:212 AS HOMOCAP 6	6500	
157	N91:157		157		
158	N91:158		158		
159	N91:159		159		
160	N91:160		160 N76:0 S_STEP500_TIME		
161	N91:161		161 N76:1 S_STEP501_TIME		
162	N91:162		162 N76:2 S_STEP502_TIME		
163	N91:163		163 N76:3 S_STEP503_TIME	5	
164	N91:164		164 N76:4 S_STEP504_TIME	15	
165	N91:165		165 N76:5 S_STEP505_TIME	30	
166	N91:166		166 N76:6 S_STEP506_TIME	15	
167	N91:167		167 N76:7 S_STEP507_TIME	30	
168	N91:168		168 N76:8		
169	N91:169		169 N76:9		
170	N91:170		170 N76:10 S_STEP510_TIME	5	
171	N91:171		171 N76:11 S_STEP511_TIME	15	
172	N91:172		172 N76:12 S_STEP512_TIME	30	
173	N91:173		173 N76:13 S_STEP513_TIME	15	
174	N91:174		174 N76:14 S_STEP514_TIME	30	
175	N91:175		175		
176	N91:176		176		
177	N91:177		177		
178	N91:178		178		

Register	Address	Symbol	Comment	Original	Changed
179	N91:179		179		
180	N91:180		180 N77:0		
181	N91:181		181 N77:1 S_STEP201_TIME N93:225-239		
182	N91:182		182 N77:2 S_STEP202_TIME	5	
183	N91:183		183 N77:3 S_STEP203_TIME	15	
184	N91:184		184 N77:4 S_STEP204_TIME	3	
185	N91:185		185 N77:5 S_STEP205_TIME N93:230-239		
186	N91:186		186 N77:6 S_STEP206_TIME	15	
187	N91:187		187 N77:7 S_STEP207_TIME	3	
188	N91:188		188 N77:8		
189	N91:189		189 N77:9		
190	N91:190	S_FLIPTIME_V13_2	190	90	
191	N91:191	S_HOMO_DEL_ST24	191 DELAY HOMO IN ST 24	25	
192	N91:192	S_ASHOMO_DEL_ST24	192 DELAY AS.HOMO ST 24	25	
193	N91:193	S_SP_TIMER_V22A	193 SETPOINT TIMER ACT V22A RAMP UPP F	30	
194	N91:194	S_SP_TEMP_V61A_B_ST5	194 SETPOINT FOR CHANGE A to B IN STEP	500	
195	N91:195	S_TIM_DLY_V34_COOL	195 TIMER PRE DELAY V34 COOLING	30	
196	N91:196			100	
197	N91:197	START_HW_CIRCUIT	197 Step 71 when rem. time < Xs	120	
198	N91:198	S_CIP_V98_ON_TIME	198 Time in rinse step when V98 is activated.	30	
199	N91:199	S_LOG_OUT_TIME	199 Max log in timer	3600	
200	N91:200	S_SP1_LL_BTD	200 WATER IN PRODUCT BTD	300	
201	N91:201	S_SP2_LL_BTD	201 PRODUCT IN PROD BTD	310	
202	N91:202	S_SP3_LL_BTD	202 CAUSTIC IN PROD BTD	350	
203	N91:203	S_SP4_LL_BTD	203 ACID IN PROD BTD	350	
204	N91:204	S_SP5_LL_BTD	204 Setpoint when flush V08 in end of circ step	380	
205	N91:205	S_CT76_CIRC	205 DETERGENT AT V75	500	
206	N91:206		206		
207	N91:207	S_RATIO_SP_V_P	207	10	
208	N91:208	S_SP_STOP_DEAR_VC	208 Set point for stop deaeration of VC TT3< ap	970	
209	N91:209	S_TIM_V61A_ACT_ST_11	209 Time for V61A in beginning of step 11.	60	
210	N91:210	S_SWITCH_PNT_V22	210	1300	
211	N91:211	S_HYST_LOCAP_V22	211	50	
212	N91:212	S_DLY_ALARM_FLMETR	212 Delay time (S). mA signal fault Product flow		
213	N91:213	S_PR_FLOWM_RANGE	213 Range on product flow meter	4000	
214	N91:214	S_FL_DIFF_VAL	214 MAX FLOW DIFF BEF AL	200	
215	N91:215	S_FLOW_DEV_PER_CENT	215 Flow deviation alarm % of flow range 0-100		
216	N91:216	S_LV_DIF_VAL	216 MAX LEV DIFF VAC VES	100	
217	N91:217		217		
218	N91:218	S_CORR_LEV_VAC	218 CORR FACT LEVEL VAC. VESEL	7350	
219	N91:219	S_SP_PSLL_66	219 Set point Alarm PSLL 66 0 - 100 (0 - 10.0 ba		
220	N91:220	S_SP_PSL_66	220 Set point Act V66 0 - 100 (0 - 10.0 bar)		
221	N91:221	S_SP_PSH_66	221 Set point DeAct V66 0 - 100 (0 - 10.0 bar)	20000	
222	N91:222	S_SP_PSHH_66	222 Set point Alarm PSLH 66 0 - 100 (0 - 10.0 b	20000	
223	N91:223	S_SP_PSL_10	223 Set point Alarm PSL 10 0 - 100 (0 - 10.0 bar		
224	N91:224	S_PT100_RANGE	224 Range of PT100	1600	
225	N91:225		225		
226	N91:226	S_PRESS_PT_RANGE	226 Range of Pt04, 10,30,48,61,62 63,66 for Ind	100	
227	N91:227	S_PRESS_PT78_RANGE	227 Range of PT78 for Indication	100	
228	N91:228	S_PRESS_PT60_RANGE	228 Range of PT60 for Indication		
229	N91:229		229		
230	N91:230	S_HYST_V81	230	10	
231	N91:231	S_ADD_DE_CAUHB	231 ADD CAUSTIC DEA SEL 0-1000	100	
232	N91:232	S_ADD_DE_ACHB	232 ADD ACID DEA SEL 0-1000	100	
233	N91:233	S_ADD_HC_CAUHB	233 ADD CAUSTIC HC60 SEL 0-1000	100	
234	N91:234	S_ADD_HC_ACHB	234 ADD ACID HC60 SEL 0-1000	100	
235	N91:235	S_ADD_SH_HC_CAUHB	235 ADD CAUSTIC HC30 SEL 0-1000	100	
236	N91:236	S_ADD_SH_HC_ACHB	236 ADD ACID HC30 SEL 0-1000	100	
237	N91:237		237		
238	N91:238		238		

Register	Address	Symbol	Comment	Original	Changed
239	N91:239		239		
240	N91:240		240		
241	N91:241		241	300	
242	N91:242		242	300	
243	N91:243		243	300	
244	N91:244		244	300	
245	N91:245		245	300	
246	N91:246		246	300	
247	N91:247		247		
248	N91:248		248	500	
249	N91:249		249	500	
250	N92:0	S_M2_CAP1	250	450	
251	N92:1	S_M2_CAP2	251	900	
252	N92:2	S_M2_CAP3	252	800	
253	N92:3	S_M2_CAP4	253	700	
254	N92:4	S_M2_CAP5	254	600	
255	N92:5	S_M2_CAP6	255	500	
256	N92:6	S_M2_H_CIP	256	700	
257	N92:7	S_M2_L_CIP	257	400	
258	N92:8	S_M2_PRE_1_7	258	450	
259	N92:9	S_M2_10_11	259	450	
260	N92:10	S_M2_MANUAL	260 Pump is act by H/A	500	
261	N92:11	S_M2_HIBERNATION	261		
262	N92:12	S_M2_RAMP_CONST	262	20	
263	N92:13	S_M2_RAMP_CONST_DIV	263	10	
264	N92:14	S_M2_INC	264	10	
265	N92:15	S_M2_DEC	265	10	
266	N92:16		266		
267	N92:17		267		
268	N92:18	S_M2_ACT_SP	268	400	
269	N92:19	S_M2_SEL_SP	269	450	
270	N92:20	S_Z_VAL_HC_PIPE	Z value pipe HC. 38727 100 = 10.0		
271	N92:21	S_EXPANSION_COND	Termal expansion & condensate. 1/100 % 180 =		
272	N92:22				
273	N92:23	S_VOLYME_HC_PIPE	Volume in holding cell. 38727 100 =10.0 l		
274	N92:24				
275	N92:25				
276	N92:26		276		
277	N92:27		277		
278	N92:28		278		
279	N92:29				
280	N92:30	S_M4_CAP1	280	1000	
281	N92:31	S_M4_CAP2	281	900	
282	N92:32	S_M4_CAP3	282	800	
283	N92:33	S_M4_CAP4	283	700	
284	N92:34	S_M4_CAP5	284	600	
285	N92:35	S_M4_CAP6	285	500	
286	N92:36	S_M4_H_CIP	286	1000	
287	N92:37	S_M4_L_CIP	287	1000	
288	N92:38	S_M4_PRE_1_7	288	500	
289	N92:39	S_M4_10_11	289	500	
290	N92:40	S_M4_MANUAL	290 Pump is act by H/A	500	
291	N92:41	S_M4_HIBERNATION	291		
292	N92:42	S_M4_RAMP_CONST	292	20	
293	N92:43	S_M4_RAMP_CONST_DIV	293	10	
294	N92:44	S_M4_INC	294	10	
295	N92:45	S_M4_DEC	295	10	
296	N92:46		296		
297	N92:47		297		
298	N92:48	S_M4_ACT_SP	298		

Register	Address	Symbol	Comment	Original	Changed
299	N92:49	S_M4_SEL_SP	299		
300	N92:50		300		
301	N92:51		301		
302	N92:52		302		
303	N92:53		303		
304	N92:54		304		
305	N92:55		305		
306	N92:56		306		
307	N92:57		307		
308	N92:58		308		
309	N92:59		309		
310	N92:60	S_FIC6_CAP1_FS	310	1000	
311	N92:61	S_FIC6_CAP2_FS	311	900	
312	N92:62	S_FIC6_CAP3_FS	312	800	
313	N92:63	S_FIC6_CAP4_FS	313	700	
314	N92:64	S_FIC6_CAP5_FS	314	600	
315	N92:65	S_FIC6_CAP6_FS	315	500	
316	N92:66	S_FIC6_CIP_FS	316	1000	
317	N92:67	S_FIC6_LT_CIP_FS	317 Used in US Flex	1000	
318	N92:68	S_FIC6_PRE_STER_FS	318	500	
319	N92:69	S_FIC6_PRE_STER_2_FS	319 Used in US Flex	500	
320	N92:70	S_M6_MANUAL	320 Pump is act by toggel sw	500	
321	N92:71	S_M6_HIBERNATION	321		
322	N92:72	S_M6_RAMP_CONST	322	20	
323	N92:73	S_M6_RAMP_CONST_DIV	323	10	
324	N92:74	S_M6_INC	324	10	
325	N92:75	S_M6_DEC	325	10	
326	N92:76		326		
327	N92:77		327		
328	N92:78	S_M6_SEL_SP	328		
329	N92:79	S_M6_ACT_SP	329		
330	N92:80		330		
331	N92:81		331	1500	
332	N92:82		332	1400	
333	N92:83		333	1300	
334	N92:84		334	1200	
335	N92:85		335	1100	
336	N92:86		336	1000	
337	N92:87		337	1600	
338	N92:88		338	2500	
339	N92:89		339		
340	N92:90	S_FIC6A_CAP1_FS	340	1000	
341	N92:91	S_FIC6A_CAP2_FS	341	900	
342	N92:92	S_FIC6A_CAP3_FS	342	800	
343	N92:93	S_FIC6A_CAP4_FS	343	700	
344	N92:94	S_FIC6A_CAP5_FS	344	600	
345	N92:95	S_FIC6A_CAP6_FS	345	500	
346	N92:96	S_FIC6A_CIP_FS	346	1000	
347	N92:97	S_FIC6A_LT_CIP_FS	347 Used i US Flex	1000	
348	N92:98	S_FIC6A_PRE_STER_FS	348	500	
349	N92:99	S_FIC6A_PRE_STER2_FS	349 Used in US Flex	500	
350	N92:100	S_M6A_MANUAL	350 Pump is act by H/A	500	
351	N92:101	S_M6A_HIBERNATION	351		
352	N92:102	S_M6A_RAMP_CONST	352	20	
353	N92:103	S_M6A_RAMP_CONST_DIV	353	10	
354	N92:104	S_M6A_INC	354	10	
355	N92:105	S_M6A_DEC	355	10	
356	N92:106		356		
357	N92:107		357		
358	N92:108	S_M6A_ACT_SP	358		

Register	Address	Symbol	Comment	Original	Changed
359	N92:109	S_M6A_SEL_SP	359		
360	N92:110		360		
361	N92:111		361	13000	
362	N92:112		362	1300	
363	N92:113		363	10000	
364	N92:114		364	8000	
365	N92:115		365	7000	
366	N92:116		366	6500	
367	N92:117		367	6500	
368	N92:118		368	14000	
369	N92:119		369		
370	N92:120	S_M9_CAP1	370 FLEX R see N95:11-20	410	
371	N92:121	S_M9_CAP2	371 FLEX R see N95:21-30	350	
372	N92:122	S_M9_CAP3	372 FLEX R see N95:31-40	300	
373	N92:123	S_M9_CAP4	373 FLEX R see N95:41-50	200	
374	N92:124	S_M9_CAP5	374 FLEX R see N95:51-60	100	
375	N92:125	S_M9_CAP6	375 FLEX R see N95:61-70	50	
376	N92:126	S_M9_H_CIP	376	100	
377	N92:127	S_M9_L_CIP	377	400	
378	N92:128	S_M9_PRE_1_7	378	250	
379	N92:129	S_M9_10_11	379	270	
380	N92:130	S_M9_MANUAL	380 Pump is act by H/A	500	
381	N92:131	S_M9_HIBERNATION	381		
382	N92:132	S_M9_RAMP_CONST	382	20	
383	N92:133	S_M9_RAMP_CONST_DIV	383	10	
384	N92:134	S_M9_INC	384	10	
385	N92:135	S_M9_DEC	385	10	
386	N92:136		386		
387	N92:137		387		
388	N92:138	S_M9_ACT_SP	388		
389	N92:139	S_M9_SEL_SP	389	410	
390	N92:140	S_SP_OILTEMP_HOMO	390 OPT. 18 HOMO OIL TEMP		
391	N92:141	S_SP_DLY_LS02_C_1	391 SET POINT TO T4:22 PRE US STER	5	
392	N92:142	S_SP_DLY_LS02_C_2	392 SET POINT TO T4:22 PRE US STER	5	
393	N92:143	S_SP_DLY_LS02_C_3	393 SET POINT TO T4:22 PRE US STER	5	
394	N92:144	S_SP_DLY_LS02_C_4	394 SET POINT TO T4:22 PRE US STER	5	
395	N92:145	S_SP_DLY_LS02_C_5	395 SET POINT TO T4:22 PRE US STER	5	
396	N92:146	S_SP_DLY_LS02_C_6	396 SET POINT TO T4:22 PRE US STER	5	
397	N92:147	S_SP_DLY_LS02_STER	397 SET POINT TO T4:22 PRE US STER	5	
398	N92:148	S_SP_DLY_LS02_CIP	398 SET POINT TO T4:22 PRE US STER	5	
399	N92:149		399		
400	N92:150	S_M10_CAP1	400 FLEX R see N95:111-120	1000	
401	N92:151	S_M10_CAP2	401 FLEX R see N95:121-130	900	
402	N92:152	S_M10_CAP3	402 FLEX R see N95:131-140	800	
403	N92:153	S_M10_CAP4	403 FLEX R see N95:141-150	700	
404	N92:154	S_M10_CAP5	404 FLEX R see N95:151-160	600	
405	N92:155	S_M10_CAP6	405 FLEX R see N95:161-170	500	
406	N92:156	S_M10_H_CIP	406	1000	
407	N92:157	S_M10_L_CIP	407	1000	
408	N92:158	S_M10_PRE_1_7	408	500	
409	N92:159	S_M10_10_11	409	500	
410	N92:160	S_M10_MANUAL	410 Pump is act by H/A	500	
411	N92:161	S_M10_HIBERNATION	411		
412	N92:162	S_M10_RAMP_CONST	412	20	
413	N92:163	S_M10_RAMP_CONST_DIV	413	10	
414	N92:164	S_M10_INC	414	10	
415	N92:165	S_M10_DEC	415	10	
416	N92:166		416		
417	N92:167		417		
418	N92:168	S_M10_ACT_SP	418		

Register	Address	Symbol	Comment	Original	Changed
419	N92:169	S_M10_SEL_SP	419		
420	N92:170		420		
421	N92:171	S_M6_MIN_C1	431		
422	N92:172	S_M6_MIN_C2	432		
423	N92:173	S_M6_MIN_C3	433		
424	N92:174	S_M6_MIN_C4	434		
425	N92:175	S_M6_MIN_C5	435		
426	N92:176	S_M6_MIN_C6	436		
427	N92:177		427		
428	N92:178		428		
429	N92:179		429		
430	N92:180	S_FLASH_COOL_ACID	430 % of acid CIP step with flash cooling (max5(	40	
431	N92:181				
432	N92:182	S_MAN_OUT_STEP_7	432 LC504 out value in start of step 7 0 - 1000 ((		
433	N92:183	S_LC504_ST7_PRE	433 Pre set time when LIC504 is put in MAN mo(		
434	N92:184	S_INCR_SP_LC504_F_E	434 % ADDED TO SP LIC504 IN FILL / EMPT 1	50	
435	N92:185	S_MAX_PR_V44_2B	435 MAX PRESSURE IN INFUSER BEFORE RI	57	
436	N92:186	S_HYST_PR_V44_2B	436 MIN PRESSURE IN INFUSER FOR RESTR	48	
437	N92:187	S_TERM_EXP_PROD	437 Thermal expansion % product at ster temp 1	60	
438	N92:188	S_SP_SPRAY_INFUSER	438 SET POINT SPRAY INFUSER % OF CIP S1	50	
439	N92:189	S_SPRAY_INFUSER_LIM	439 % of CIP Step tim.		
440	N92:190	S_HC_EFF_OP	440 HOLDING CELLS EFF. FROM TPOP IN %	85	
441	N92:191	S_HIGH_LEV_INFUSER	441 MAX LEVEL INFUSER LSH 504	970	
442	N92:192	S_FLIP_V505_HEATING	442 Lim < TT 44.2B Flip V505 in heating.	1100	
443	N92:193	S_MIN_T_F_V505_TT502	443 Min temp TT44.2B for flip V505 if low temp T	1230	
444	N92:194	S_FLIP_TT502_LOW	444 Lim > TT502 flip V505 in sterilising.	1250	
445	N92:195	S_HYST_TEMP_ACT_V535	445 HYST. ACT V535 IF TT504 < TT44.2B	10	
446	N92:196	S_LOW_TEMP_PROD_INF	446 0 - 1600 or (0 - 3500 US)	1300	
447	N92:197	S_LC504_RMP_ADD		180	
448	N92:198	S_LC504_END_ST6_MAN	448 remaining time in step 6 when LIC504 increa	100	
449	N92:199	S_ADD_TIC44_2_B_COL	449 ADD TO SET POINT TIC 44.2 B IN COOLIN	30	
450	N92:200	S_V30_CAP1	450	590	
451	N92:201	S_V30_CAP2	451	900	
452	N92:202	S_V30_CAP3	452	800	
453	N92:203	S_V30_CAP4	453	900	
454	N92:204	S_V30_CAP5	454	600	
455	N92:205	S_V30_CAP6	455	500	
456	N92:206	S_V30_H_CIP	456	580	
457	N92:207	S_V30_L_CIP	457	1000	
458	N92:208	S_V30_PRE_1_5	458	570	
459	N92:209	S_V30_6_11	459	610	
460	N92:210		460		
461	N92:211	S_V30_HIBERNATION	461		
462	N92:212	S_V30_RAMP_CONST	462	20	
463	N92:213	S_V30_RAMP_CONST_DIV	463	10	
464	N92:214	S_V30_INC	464	10	
465	N92:215	S_V30_DEC	465	10	
466	N92:216		466		
467	N92:217	S_V30_INV	467		
468	N92:218	S_V30_ACT_SP	468	1000	
469	N92:219	S_V30_SEL_SP	469	590	
470	N92:220	S_V54_CAP1	470	440	
471	N92:221	S_V54_CAP2	471	900	
472	N92:222	S_V54_CAP3	472	800	
473	N92:223	S_V54_CAP4	473	900	
474	N92:224	S_V54_CAP5	474	600	
475	N92:225	S_V54_CAP6	475	500	
476	N92:226	S_V54_H_CIP	476	200	
477	N92:227	S_V54_L_CIP	477	1000	
478	N92:228	S_V54_PRE_1_7	478	440	

Register	Address	Symbol	Comment	Original	Changed
479	N92:229	S_V54_10_11	479	400	
480	N92:230		480		
481	N92:231	S_V54_HIBERNATION	481		
482	N92:232	S_V54_RAMP_CONST	482	20	
483	N92:233	S_V54_RAMP_CONST_DIV	483	10	
484	N92:234	S_V54_INC	484	10	
485	N92:235	S_V54_DEC	485	10	
486	N92:236		486		
487	N92:237	S_V54_INV	487		
488	N92:238	S_V54_ACT_SP	488	1000	
489	N92:239	S_V54_SEL_SP	489	440	
490	N92:240		490		
491	N92:241		491		
492	N92:242		492		
493	N92:243		493		
494	N92:244		494		
495	N92:245		495		
496	N92:246		496		
497	N92:247		497		
498	N92:248		498		
499	N92:249		499		
500	N93:0	S_V62CAP1	500	750	
501	N93:1	S_V62CAP2	501	600	
502	N93:2	S_V62CAP3	502	700	
503	N93:3	S_V62CAP4	503	700	
504	N93:4	S_V62CAP5	504	700	
505	N93:5	S_V62CAP6	505	700	
506	N93:6	S_V62_H_CIP	506	950	
507	N93:7	S_V62_L_CIP	507	950	
508	N93:8	S_V62_PRE_1_7	508	530	
509	N93:9	S_V62_10_11	509	460	
510	N93:10		510		
511	N93:11		511		
512	N93:12	S_V62_RAMP_CONST	512	20	
513	N93:13	S_V62_RAMP_CONST_DIV	513	10	
514	N93:14	S_V62_INC	514	10	
515	N93:15	S_V62_DEC	515	10	
516	N93:16		516		
517	N93:17	S_V62_INV	517		
518	N93:18	S_V62_ACT_SP	518		
519	N93:19	S_V62_SEL_SP	519		
520	N93:20	S_V65_CAP1	520	660	
521	N93:21	S_V65_CAP2	521	430	
522	N93:22	S_V65_CAP3	522	700	
523	N93:23	S_V65_CAP4	523	700	
524	N93:24	S_V65_CAP5	524	700	
525	N93:25	S_V65_CAP6	525	700	
526	N93:26	S_V65_H_CIP	526	750	
527	N93:27	S_V65_L_CIP	527	750	
528	N93:28	S_V65_PRE_1_7	528	450	
529	N93:29	S_V65_10_11	529	450	
530	N93:30		530		
531	N93:31		531		
532	N93:32	S_V65_RAMP_CONST	532	20	
533	N93:33	S_V65_RAMP_CONST_DIV	533	10	
534	N93:34	S_V65_INC	534	10	
535	N93:35	S_V65_DEC	535	10	
536	N93:36		536		
537	N93:37	S_V65_INV	537		
538	N93:38	S_V65_ACT_SP	538		

Register	Address	Symbol	Comment	Original	Changed
539	N93:39	S_V65_SEL_SP	539		
540	N93:40	S_V67_CAP1	540	700	
541	N93:41	S_V67_CAP2	541	700	
542	N93:42	S_V67_CAP3	542	700	
543	N93:43	S_V67_CAP4	543	700	
544	N93:44	S_V67_CAP5	544	700	
545	N93:45	S_V67_CAP6	545	700	
546	N93:46	S_V67_H_CIP	546	700	
547	N93:47	S_V67_L_CIP	547	700	
548	N93:48	S_V67_PRE_1_7	548	700	
549	N93:49	S_V67_10_11	549	700	
550	N93:50		550		
551	N93:51		551		
552	N93:52	S_V67_RAMP_CONST	552	20	
553	N93:53	S_V67_RAMP_CONST_DIV	553	10	
554	N93:54	S_V67_INC	554	10	
555	N93:55	S_V67_DEC	555	10	
556	N93:56		556		
557	N93:57	S_V67_INV	557		
558	N93:58	S_V67_ACT_SP	558		
559	N93:59	S_V67_SEL_SP	559		
560	N93:60	S_V97_SP_1	560 HEAT PRE-ST.Step 4-6	700	
561	N93:61	S_V97_SP_2	561 COOLING 1 Step 7	700	
562	N93:62	S_V97_SP_3	562 COOLING 2 Step 10	700	
563	N93:63	S_V97_SP_4	563 COOLING 3 Step 11	700	
564	N93:64	S_V97_SP_5	564	700	
565	N93:65	S_V97_SP_6	565	700	
566	N93:66	S_V97_SP_7	566	700	
567	N93:67	S_V97_SP_8	567	700	
568	N93:68	S_V97_SP_9	568	700	
569	N93:69	S_V97_SP_10	569	700	
570	N93:70		570		
571	N93:71		571		
572	N93:72	S_V97_RAMP_CONST	572	20	
573	N93:73	S_V97_RAMP_CONST_DIV	573	10	
574	N93:74	S_V97_INC	574	10	
575	N93:75	S_V97_DEC	575	10	
576	N93:76		576		
577	N93:77	S_V97_INV	577		
578	N93:78	S_V97_ACT_SP	578		
579	N93:79	S_V97_SEL_SP	579		
580	N93:80	TIC44_2_RAMPSP_UP	580		
581	N93:81	TC44_2_FF_GAIN	581 Gain feed forward function		
582	N93:82	TC44_2_FF_DIF_TT2	582 Diff temp norm value - TT2		
583	N93:83	TC44_2_FF_TT2_NORM	583 TT2 norm value for feed forward calc		
584	N93:84	TIC44_2_RAMP_UP	584	10	
585	N93:85	TIC44_2_RAMP_UPSLOW	585	5	
586	N93:86	TIC44_2_RAMPV44_STOP	586	1100	
587	N93:87	TIC44_2_MAXOUT_1	587	100	
588	N93:88	TIC44_2_MAXOUT_2	588	100	
589	N93:89	TIC44_2_ACT_MINOUT	589		
590	N93:90		590		
591	N93:91	S_AFM1_CAP	591 Nominal cap.	6000	
592	N93:92	S_AFM2_CAP	592 Nominal cap.	6000	
593	N93:93	S_AFM3_CAP	593 Nominal cap.	3600	
594	N93:94	S_AFM4_CAP	594 Nominal cap.	1500	
595	N93:95		595		
596	N93:96		596		
597	N93:97		597		
598	N93:98		598		

Register	Address	Symbol	Comment	Original	Changed
599	N93:99	S_VOLUME_P_PULSE	599 Volume / pulse Flow meter		
600	N93:100	S_BASE_VOLUME_A	600 Volume in steriliser from M2 up to AFM / Als		
601	N93:101	S_ADD_VOLUME_A	601 Total volume for connected extra equipment	310	
602	N93:102	S_TOTAL_VOLUME_A	602 Total volume from M2 up to AFM / Alsafe	150	
603	N93:103		603	180	
604	N93:104		604	210	
605	N93:105	S_VOLUME_B	605 Volume in pipe from AFM / Alsafe and back	240	
606	N93:106	S_VOLUME_C	606 Volume in pipe from V75 to reclaim tank	270	
607	N93:107	S_VOLUME_D	607 Volume in pipe between reclaim tank and W		
608	N93:108		608		
609	N93:109		609		
610	N93:110	S_VOLUME_E_FILL	607 Total mix volume filling e1 + e2.		
611	N93:111	S_VOLUME_E1_WW_FILL	611 E1 = white water volume filling	15	
612	N93:112	S_VOLUME_E2_REC_FILL	612 E2 = reclaim volume filling	20	
613	N93:113	S_VOLUME_E_EMPTY	613 Total mix volume emptying e3 + e4.	25	
614	N93:114	S_VOLUME_E3_REC_EMPT	614 E3 = reclaim volume emptying	30	
615	N93:115	S_VOLUME_E4_WW_EMPT	615 E4 = white water volume emptying	35	
616	N93:116		616	40	
617	N93:117		617		
618	N93:118		618		
619	N93:119		619		
620	N93:120	S_VOL_HC_30S	620 Volume to be added if Short HC 30s connec		
621	N93:121	S_VOL_HC_60S	621 Volume to be added if long HC 60s connecte	10	
622	N93:122	S_VOL_EXTRA_COOL_1	622 Volume to be added if Extra cooler 1 (norma	20	
623	N93:123	S_VOL_EXTRA_COOL_2	623 Volume to be added if Extra cooler 2 (norma	30	
624	N93:124	S_VOL_DEAREATOR	624 Volume to be added if Dearator connected	40	
625	N93:125	S_VOL_INFUSER	625 Volume to be added if Infuser connected	50	
626	N93:126	S_VOL_SPARE_1	626 Volume to be added if Spare 1 connected	60	
627	N93:127	S_VOL_SPARE_2	627 Volume to be added if Spare 2 connected	50	
628	N93:128	S_VOL_SPARE_3	628 Volume to be added if Spare 3 connected		
629	N93:129	S_VOL_SPARE_4	629 Volume to be added if Spare 4 connected		
630	N93:130		630		
631	N93:131		631	5	
632	N93:132		632	10	
633	N93:133		633	15	
634	N93:134		634	20	
635	N93:135		635	25	
636	N93:136		636	30	
637	N93:137		637	50	
638	N93:138		638		
639	N93:139		639		
640	N93:140		640		
641	N93:141		641	20	
642	N93:142		642	40	
643	N93:143		643	60	
644	N93:144	S_SAFETY_B_UP_EMPTY	644 Back up constant emptying steps 100 = 100	80	
645	N93:145	S_SAFETY_B_UP_FILL	645 Back up constant Filling steps 100 = 100%	100	
646	N93:146	S_SAFETY_BACK_UP_W	646 Back up constant water steps 100 = 100%	120	
647	N93:147	S_DLY_TIM_VCL_ALSAFE	647 Delay time in Alsafe for open VCL default 80	50	
648	N93:148	S_GAIN_FILL_UP_VOL	648 Gain faktor fill up vol G *(A + B) [100 = 100%		
649	N93:149	S_GAIN_RINSE_CIP_VOL	649 Gain faktor rinse vol G *(A + B) [100 = 100%		
650	N93:150	S_VOL_COND_STEP_3	650 Actual volume condition step 3 calc vol (A +		
651	N93:151	S_VOL_COND_STEP_XX	651 Actual volume condition step xx	450	
652	N93:152	S_VOL_COND_STEP_XY	652 Actual volume condition step xx	150	
653	N93:153	S_VOL_COND_STEP_24	653 Actual volume condition step 24	180	
654	N93:154	S_VOL_COND_STEP_25	654 Actual volume condition step 25	210	
655	N93:155	S_VOL_COND_STEP_41	655 Actual volume condition step 41	240	
656	N93:156	S_VOL_COND_STEP_42	656 Actual volume condition step 42	270	
657	N93:157	S_VOL_COND_STEP_43	657 Actual volume condition step 43		
658	N93:158	S_VOL_COND_STEP_52	658 Actual volume condition step 52		

Register	Address	Symbol	Comment	Original	Changed
659	N93:159	S_VOL_COND_STEP_55	659 Actual volume condition step 55		
660	N93:160	S_VOL_COND_STEP_57	660 Actual volume condition step 57		
661	N93:161	S_VOL_COND_STEP_60	661 Actual volume condition step 60	340	
662	N93:162	S_VOL_COND_STEP_62	662 Actual volume condition step 62	150	
663	N93:163	S_VOL_COND_STEP_YY	663 Actual volume condition step xx	180	
664	N93:164	S_VOL_COND_STEP_103	664 Actual volume condition step 103	210	
665	N93:165	S_VOL_COND_STEP_111	665 Actual volume condition step 111	240	
666	N93:166	S_VOL_COND_STEP_113	666 Actual volume condition step 113	270	
667	N93:167	S_VOL_COND_STEP_121	667 Actual volume condition step 121		
668	N93:168	S_VOL_COND_STEP_124	668 Actual volume condition step 124		
669	N93:169	S_VOL_COND_STEP_131	669 Actual volume condition step 131		
670	N93:170	S_VOL_COND_STEP_133	670 Actual volume condition step 133		
671	N93:171	S_VOL_COND_STEP_141	671 Actual volume condition step 141	15	
672	N93:172	S_VOL_COND_STEP_143	672 Actual volume condition step 143	20	
673	N93:173	S_VOL_COND_STEP_146	673 Actual volume condition step 146	25	
674	N93:174	S_VOL_COND_STEP_YX	674 Actual volume condition step xx	30	
675	N93:175		675	35	
676	N93:176		676	40	
677	N93:177		677		
678	N93:178		678		
679	N93:179		679		
680	N93:180	S_EXTR_DOS_ST52	680 Extra dosing to drain step 52		
681	N93:181	S_EXTR_DOS_STXX	681 Extra dosing to drain step Spare	10	
682	N93:182	S_EXTR_DOS_ST113	682 Extra dosing to drain step 113	20	
683	N93:183	S_EXTR_DOS_ST124	683 Extra dosing to drain step 124	30	
684	N93:184	S_EXTR_DOS_ST133	684 Extra dosing to drain step 133	40	
685	N93:185	S_EXTR_DOS_ST143	685 Extra dosing to drain step 143	50	
686	N93:186	S_ACT_EXTR_VOL_DOS	686 Actual extra volume in dosing	60	
687	N93:187		687	50	
688	N93:188		688		
689	N93:189		689		
690	N93:190		690		
691	N93:191		691	5	
692	N93:192		692	10	
693	N93:193		693	15	
694	N93:194		694	20	
695	N93:195		695	25	
696	N93:196		696	30	
697	N93:197		697	50	
698	N93:198		698		
699	N93:199		699		
700	N93:200		700		
701	N93:201		701	20	
702	N93:202		702	40	
703	N93:203		703	60	
704	N93:204		704	80	
705	N93:205		705	100	
706	N93:206		706	120	
707	N93:207		707	50	
708	N93:208		708		
709	N93:209		709		
710	N93:210		710	360	
711	N93:211		711	500	
712	N93:212		712		
713	N93:213		713		
714	N93:214		714		
715	N93:215		715		
716	N93:216		716	360	
717	N93:217		717	500	
718	N93:218		718		

Register	Address	Symbol	Comment	Original	Changed
719	N93:219		719		
720	N93:220		720	370	
721	N93:221		721	370	
722	N93:222		722	300	
723	N93:223		723	295	
724	N93:224		724	400	
725	N93:225		725	500	
726	N93:226		726	400	
727	N93:227		727	400	
728	N93:228		728	400	
729	N93:229		729	500	
730	N93:230	S_NO_BF_ST_111	730 NUMBER OF BF St.111	4	
731	N93:231	S_TOT_BF_ST_111	731 TOTAL TIME BACK-FLOW	160	
732	N93:232	S_NO_BF_ST_121	732 NUMBER OF BF St. 121	3	
733	N93:233	S_TOT_BF_ST_121	733 TOTAL TIME BACK-FLOW	120	
734	N93:234	S_NO_BF_ST_131	734 NUMBER OF BF St. 131	3	
735	N93:235	S_TOT_BF_ST_131	735 TOTAL TIME BACK-FLOW	120	
736	N93:236	S_NO_BF_ST_141	736 NUMBER OF BF St. 141	3	
737	N93:237	S_TOT_BF_ST_141	737 TOTAL TIME BACK-FLOW	120	
738	N93:238	S_NO_BF_ST_147	738 NUMBER OF BF St. 147	4	
739	N93:239	S_TOT_BF_ST_147	739 TOTAL TIME BACK-FLOW	160	
740	N93:240		740		
741	N93:241		741		
742	N93:242		742		
743	N93:243		743		
744	N93:244		744		
745	N93:245	S_BACK_FL_TEMP	745	900	
746	N93:246		746		
747	N93:247		747		
748	N93:248		748		
749	N93:249		749		
750	N94:0	FIC2_RAMPSP_UP	750	50	
751	N94:1	FIC2_RAMPSP_DOWN	751	50	
752	N94:2	FIC2_RAMPSP_UPFAST	752	1	
753	N94:3	FIC2_RAMPSP_DOWNFAS	753	1	
754	N94:4	FIC2_RAMPV44_UP	754 not used		
755	N94:5	FIC2_RAMPV44_UPSLOW	755 not used		
756	N94:6	FIC2_RAMPV44_STOP	756 not used		
757	N94:7	FIC2_MAXOUT_1	757 not used		
758	N94:8	FIC2_MAXOUT_2	758 not used		
759	N94:9	FIC2_ACT_MINOUT	759 not used		
760	N94:10	FIC4_RAMPSP_UP	760	50	
761	N94:11	FIC4_RAMPSP_DOWN	761	50	
762	N94:12	FIC4_RAMPSP_UPFAST	762	1	
763	N94:13	FIC4_RAMPSP_DOWNFAS	763	1	
764	N94:14	FIC4_RAMPV44_UP	764 not used		
765	N94:15	FIC4_RAMPV44_UPSLOW	765 not used		
766	N94:16	FIC4_RAMPV44_STOP	766 not used		
767	N94:17	FIC4_MAXOUT_1	767 not used		
768	N94:18	FIC4_MAXOUT_2	768 not used		
769	N94:19	FIC4_ACT_MINOUT	769 not used		
770	N94:20	FIC6_RAMPSP_UP	770	50	
771	N94:21	FIC6_RAMPSP_DOWN	771	50	
772	N94:22	FIC6_RAMPSP_UPFAST	772	1	
773	N94:23	FIC6_RAMPSP_DOWNFAS	773	1	
774	N94:24		774		
775	N94:25	FIC6_FB_ADD	775	10	
776	N94:26	FIC6_FB_ADD_FAST	776	20	
777	N94:27	FIC6_FB_SUB	777	10	
778	N94:28	FIC6_FB_SUB_FAST	778	20	

Register	Address	Symbol	Comment	Original	Changed
779	N94:29		779		
780	N94:30	FIC6A_RAMPSP_UP	780	50	
781	N94:31	FIC6A_RAMPSP_DOWN	781	50	
782	N94:32	FIC6A_RAMPSP_UPFAST	782	1	
783	N94:33	FIC6A_RAMPSP_DOWNFA	783	1	
784	N94:34		784		
785	N94:35	FIC6A_FB_ADD	785	10	
786	N94:36	FIC6A_FB_ADD_FAST	786	20	
787	N94:37	FIC6A_FB_SUB	787	10	
788	N94:38	FIC6A_FB_SUB_FAST	788	20	
789	N94:39		789		
790	N94:40	FIC9_RAMPSP_UP	790	50	
791	N94:41	FIC9_RAMPSP_DOWN	791	50	
792	N94:42	FIC9_RAMPSP_UPFAST	792	1	
793	N94:43	FIC9_RAMPSP_DOWNFAS	793	1	
794	N94:44		794		
795	N94:45		795		
796	N94:46		796		
797	N94:47		797		
798	N94:48		798		
799	N94:49		799		
800	N94:50	FIC10_RAMPSP_UP	800	50	
801	N94:51	FIC10_RAMPSP_DOWN	801	50	
802	N94:52	FIC10_RAMPSP_UPFAST	802	1	
803	N94:53	FIC10_RAMPSP_DOWNFA	803	1	
804	N94:54		804		
805	N94:55		805		
806	N94:56		806		
807	N94:57		807		
808	N94:58		808		
809	N94:59		809		
810	N94:60	TIC44_2B_PROD1_TEMP	810	20	
811	N94:61	TIC44_2B_PROD2_TEMP	811	20	
812	N94:62	TIC44_2B_PROD3_TEMP	812	20	
813	N94:63	TIC44_2B_PROD4_TEMP	813	20	
814	N94:64	TIC44_2B_PROD5_TEMP	814	20	
815	N94:65	TIC44_2B_PROD6_TEMP	815	20	
816	N94:66	TIC44_2B_ADD_SP_FILL	816 % of fill step when SP is increased	61	
817	N94:67		817		
818	N94:68		818		
819	N94:69		819		
820	N94:70	LIC6_FILTER_KONST	Filter time in mS	500	
821	N94:71		821		
822	N94:72		822		
823	N94:73		823		
824	N94:74	TIC43_RAMPV43_UP	824	5	
825	N94:75	TIC43_RAMPV43_UPSLOW	825	1	
826	N94:76	TIC43_RAMPV43_STOP	826	600	
827	N94:77	TIC43_MAXOUT_1	827	100	
828	N94:78	TIC43_MAXOUT_2	828	100	
829	N94:79	TIC43_ACT_MINOUT	829		
830	N94:80	TIC44_RAMPSP_UP	830 not used	50	
831	N94:81	TC44_FF_GAIN	831 Gain feed forward function		
832	N94:82	TC44_FF_DIF_TT9	Diff temp norm value - TT9	808	
833	N94:83	TC44_FF_TT9_NORM	833 TT9 norm value for feed forward calc 0 - 16	1200	
834	N94:84	TIC44_RAMPV44_UP	834	10	
835	N94:85	TIC44_RAMPV44_UPSLOW	835	1	
836	N94:86	TIC44_RAMPV44_STOP	836	450	
837	N94:87	TIC44_MAXOUT_1	837	100	
838	N94:88	TIC44_MAXOUT_2	838	100	

Register	Address	Symbol	Comment	Original	Changed
839	N94:89	TIC44_ACT_MINOUT	839		
840	N94:90		840		
841	N94:91		841		
842	N94:92		842		
843	N94:93		843		
844	N94:94	PIC78_RAMPV78_UP	844	5	
845	N94:95	PIC78_RAMPV78_UPSLOW	845	1	
846	N94:96	PIC78_RAMPV78_STOP	846	900	
847	N94:97		847		
848	N94:98		848		
849	N94:99		849		
850	N94:100		850		
851	N94:101		851		
852	N94:102		852		
853	N94:103		853		
854	N94:104	TIC60_RAMPV60_UP	854	5	
855	N94:105	TIC60_RAMPV60_UPSLOW	855	1	
856	N94:106		856		
857	N94:107		857		
858	N94:108		858		
859	N94:109		859		
860	N94:110		860		
861	N94:111		861		
862	N94:112		862		
863	N94:113		863		
864	N94:114	TIC62_RAMPV62_UP	864	5	
865	N94:115	TIC62_RAMPV62_UPSLOW	865	10	
866	N94:116	TIC62_RAMPV62_STOP	866	850	
867	N94:117	TIC62_RAMP_STOP_US	RAMP SP OUTPUT TIC62 0 - 1000 0 - 100,0 %	320	
868	N94:118		868		
869	N94:119		869		
870	N94:120		870		
871	N94:121		871	30	
872	N94:122		872	40	
873	N94:123		873	50	
874	N94:124		874	60	
875	N94:125		875	70	
876	N94:126		876	80	
877	N94:127		877	50	
878	N94:128		878		
879	N94:129		879		
880	N94:130	S_M_T_ADD_SP_IN_ST12	MAXI REMAINING TIME IN STEP 12 WHEN ST		
881	N94:131	S_MAXI_TEMP_GOTO_10	881	350	
882	N94:132	S_MAXI_TEMP_GOTO_11	882	1250	
883	N94:133	S_MAXI_TEMP_GOTO_12	883	950	
884	N94:134	S_VTIS_TEMP_GOTO_10	884	1200	
885	N94:135	S_VTIS_TEMP_GOTO_11	885	930	
886	N94:136	S_VTIS_TEMP_GOTO_12	886	900	
887	N94:137		887		
888	N94:138		888		
889	N94:139		889		
890	N94:140		890		
891	N94:141		891	1000	
892	N94:142		892		
893	N94:143		893		
894	N94:144		894		
895	N94:145		895		
896	N94:146		896		
897	N94:147		897		
898	N94:148		898		

Register	Address	Symbol	Comment	Original	Changed
899	N94:149		899		
900	N94:150		900		
901	N94:151		901	500	
902	N94:152		902		
903	N94:153		903		
904	N94:154	TIC44_2BRMP_V_UP	904	7	
905	N94:155	TIC44_2BRMP_V_UPSL	905	30	
906	N94:156	TIC44_2BRAMP_V_STP	906	1200	
907	N94:157		907		
908	N94:158		908		
909	N94:159		909 Base volyme to e without extra equipment		
910	N94:160	S_DELAY_TIME_HIB	196 Delay in sec Auto start Hibernation		
911	N94:161	S_TEMP_RED_HC_HIB	911 HC temp reduction during hibernation 1/2 ca	30	
912	N94:162	S_TEMP_INCR_TC44_HIB	912 Temp incr TC44 during hibernation 1/10 ° (1	40	
913	N94:163	S_TEMP_INCR_TC62_HIB	913 Temp incr TC62 during hibernation 1/10 ° (1	50	
914	N94:164	S_RAMP_SPEED_TC44_2	914 Ramp interval change 0.1°	60	
915	N94:165	S_RAMP_SPEED_TC44	915 Ramp interval change 0.1°	70	
916	N94:166	S_RAMP_SPEED_TC62	916 Ramp interval change 0.1°	80	
917	N94:167	S_RAMP_SPEED_TC49	917 Ramp interval change 0.1°		
918	N94:168		918		
919	N94:169		919		
920	N94:170		920		
921	N94:171		921	30	
922	N94:172		922	40	
923	N94:173		923	50	
924	N94:174		924	60	
925	N94:175		925	70	
926	N94:176		926	80	
927	N94:177		927		
928	N94:178		928		
929	N94:179		929		
930	N94:180		930		
931	N94:181		931	30	
932	N94:182		932	40	
933	N94:183		933	50	
934	N94:184		934	60	
935	N94:185		935	70	
936	N94:186		936	80	
937	N94:187		937	50	
938	N94:188		938		
939	N94:189		939		
940	N94:190	S_SP_PSH_60_CAP1	940 Set point high back pressure alarm cap 1		
941	N94:191	S_SP_PSH_60_CAP2	941 Set point high back pressure alarm cap 2		
942	N94:192	S_SP_PSH_60_CAP3	942 Set point high back pressure alarm cap 3		
943	N94:193	S_SP_PSH_60_CAP4	943 Set point high back pressure alarm cap 4		
944	N94:194	S_SP_PSH_60_CAP5	944 Set point high back pressure alarm cap 5		
945	N94:195	S_SP_PSH_60_CAP6	945 Set point high back pressure alarm cap 6		
946	N94:196		946		
947	N94:197		947		
948	N94:198		948		
949	N94:199	S_SP_PSH_60_ACT	949 Actual set point high back pressure alarm		
950	N94:200	S_V78_CAP1	950	1000	
951	N94:201	S_V78_CAP2	951	900	
952	N94:202	S_V78_CAP3	952	800	
953	N94:203	S_V78_CAP4	953	700	
954	N94:204	S_V78_CAP5	954	600	
955	N94:205	S_V78_CAP6	955	500	
956	N94:206	S_V78_H_CIP	956	1000	
957	N94:207	S_V78_L_CIP	957	1000	
958	N94:208	S_V78_PRE_1_7	958	500	

Register	Address	Symbol	Comment	Original	Changed
959	N94:209	S_V78_10_11	959	500	
960	N94:210		960		
961	N94:211	S_V78_HIBERNATION	961		
962	N94:212	S_V78_RAMP_CONST	962	20	
963	N94:213	S_V78_RAMP_CONST_DIV	963	10	
964	N94:214	S_V78_INC	964	10	
965	N94:215	S_V78_DEC	965	10	
966	N94:216		966		
967	N94:217	S_V78_INV	967		
968	N94:218	S_V78_ACT_SP	968		
969	N94:219	S_V78_SEL_SP	969		
970	N94:220	S_NORUN_REP	970	16329	
971	N94:221	S_NOFILL_REP	971	17188	
972	N94:222	S_FILLED_REP	972	82	
973	N94:223	S_AF1_PROD_REP	973		
974	N94:224	S_AF2_PROD_REP	974		
975	N94:225	S_AF3_PROD_REP	975		
976	N94:226	S_AF4_PROD_REP	976		
977	N94:227	S_REPORTED_HOUR	977		
978	N94:228	S_REPORTED_MIN	978		
979	N94:229		979		
980	N94:230	S_NORUN_LAST_REP1	980	1174	
981	N94:231	S_NOFILL_LAST_REP1	981	1274	
982	N94:232	S_FILLED_LAST_REP1	982		
983	N94:233	S_AF1_PROD_LAST_REP1	983		
984	N94:234	S_AF2_PROD_LAST_REP1	984		
985	N94:235	S_AF3_PROD_LAST_REP1	985		
986	N94:236	S_AF4_PROD_LAST_REP1	986		
987	N94:237	S_HOUR_TO_REPORT	987	23	
988	N94:238	S_MIN_TO_REPORT	988	55	
989	N94:239	S_F0_VALUE_INFUSER	989 Calculated F0 value with 1 decimal (10 = 1,0		
990	N94:240	S_NO_OF_SEQ_IN_RINSE	990	3	
991	N94:241	S_TIME_DLY_RINSE_SEQ	991		
992	N94:242	S_NO_OF_RINSE_INTERV	992		
993	N94:243		993		
994	N94:244		994		
995	N94:245	S_NO_OF_SEQ_IN_CIRC	995	3	
996	N94:246	S_TIME_DLY_CIRC_SEQ	996		
997	N94:247	S_NO_OF_CIRC_INTERV	997		
998	N94:248		998		
999	N94:249		999		
1000	N95:0		1000		
1001	N95:1		1001		
1002	N95:2		1002		
1003	N95:3		1003		
1004	N95:4		1004		
1005	N95:5		1005		
1006	N95:6		1006		
1007	N95:7		1007		
1008	N95:8		1008		
1009	N95:9		1009		
1010	N95:10		1010		
1011	N95:11	S_SP_M9_C1_P1	1011 FLEX R CAP1 PROD1	1000	
1012	N95:12	S_SP_M9_C1_P2	1012 FLEX R CAP1 PROD2	1000	
1013	N95:13	S_SP_M9_C1_P3	1013 FLEX R CAP1 PROD3	1000	
1014	N95:14	S_SP_M9_C1_P4	1014 FLEX R CAP1 PROD4	1000	
1015	N95:15	S_SP_M9_C1_P5	1015 FLEX R CAP1 PROD5	1000	
1016	N95:16		1016		
1017	N95:17		1017		
1018	N95:18		1018		

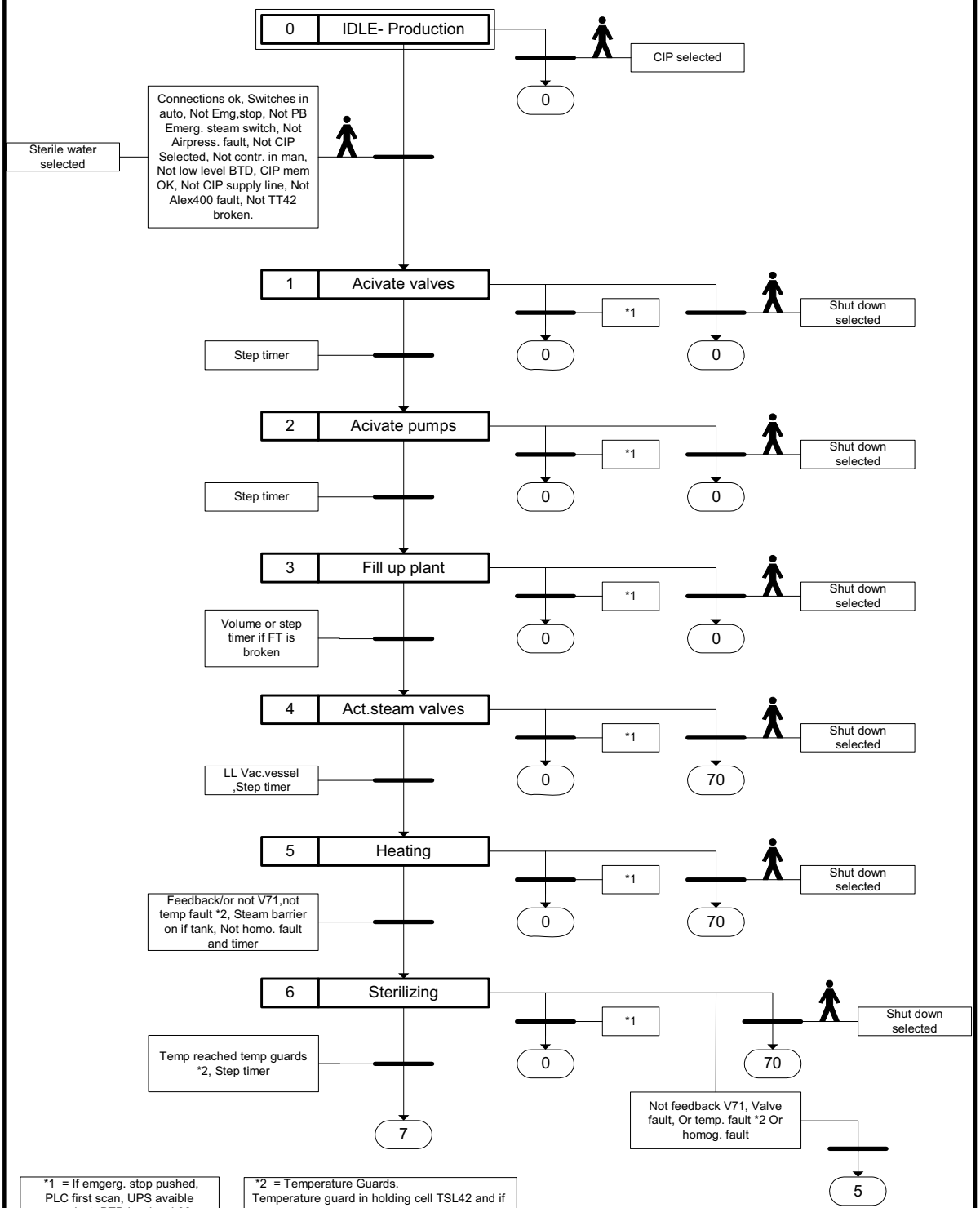
Register	Address	Symbol	Comment	Original	Changed
1019	N95:19		1019		
1020	N95:20		1020		
1021	N95:21	S_SP_M9_C2_P1	1021 FLEX R CAP2 PROD1	900	
1022	N95:22	S_SP_M9_C2_P2	1022 FLEX R CAP2 PROD2	900	
1023	N95:23	S_SP_M9_C2_P3	1023 FLEX R CAP2 PROD3	900	
1024	N95:24	S_SP_M9_C2_P4	1024 FLEX R CAP2 PROD4	900	
1025	N95:25	S_SP_M9_C2_P5	1025 FLEX R CAP2 PROD5	900	
1026	N95:26		1026		
1027	N95:27		1027		
1028	N95:28		1028		
1029	N95:29		1029		
1030	N95:30		1030		
1031	N95:31	S_SP_M9_C3_P1	1031 FLEX R CAP3 PROD1	800	
1032	N95:32	S_SP_M9_C3_P2	1032 FLEX R CAP3 PROD2	800	
1033	N95:33	S_SP_M9_C3_P3	1033 FLEX R CAP3 PROD3	800	
1034	N95:34	S_SP_M9_C3_P4	1034 FLEX R CAP3 PROD4	800	
1035	N95:35	S_SP_M9_C3_P5	1035 FLEX R CAP3 PROD5	800	
1036	N95:36		1036		
1037	N95:37		1037		
1038	N95:38		1038		
1039	N95:39		1039		
1040	N95:40		1040		
1041	N95:41	S_SP_M9_C4_P1	1041 FLEX R CAP4 PROD1	700	
1042	N95:42	S_SP_M9_C4_P2	1042 FLEX R CAP4 PROD2	700	
1043	N95:43	S_SP_M9_C4_P3	1043 FLEX R CAP4 PROD3	700	
1044	N95:44	S_SP_M9_C4_P4	1044 FLEX R CAP4 PROD4	700	
1045	N95:45	S_SP_M9_C4_P5	1045 FLEX R CAP4 PROD5	700	
1046	N95:46		1046		
1047	N95:47		1047		
1048	N95:48		1048		
1049	N95:49		1049		
1050	N95:50		1050		
1051	N95:51	S_SP_M9_C5_P1	1051 FLEX R CAP5 PROD1	600	
1052	N95:52	S_SP_M9_C5_P2	1052 FLEX R CAP5 PROD2	600	
1053	N95:53	S_SP_M9_C5_P3	1053 FLEX R CAP5 PROD3	600	
1054	N95:54	S_SP_M9_C5_P4	1054 FLEX R CAP5 PROD4	600	
1055	N95:55	S_SP_M9_C5_P5	1055 FLEX R CAP5 PROD5	600	
1056	N95:56		1056		
1057	N95:57		1057		
1058	N95:58		1058		
1059	N95:59		1059		
1060	N95:60		1060		
1061	N95:61	S_SP_M9_C6_P1	1061 FLEX R CAP6 PROD1	500	
1062	N95:62	S_SP_M9_C6_P2	1062 FLEX R CAP6 PROD2	500	
1063	N95:63	S_SP_M9_C6_P3	1063 FLEX R CAP6 PROD3	500	
1064	N95:64	S_SP_M9_C6_P4	1064 FLEX R CAP6 PROD4	500	
1065	N95:65	S_SP_M9_C6_P5	1065 FLEX R CAP6 PROD5	500	
1066	N95:66		1066		
1067	N95:67		1067		
1068	N95:68		1068		
1069	N95:69		1069		
1070	N95:70	S_H_ST1_P1	1070 SP Homo pr.st.1 Prod.1	500	
1071	N95:71	S_H_ST1_P2	1071 SP Homo pr.st.1 Prod.2	500	
1072	N95:72	S_H_ST1_P3	1072 SP Homo pr.st.1 Prod.3	500	
1073	N95:73	S_H_ST1_P4	1073 SP Homo pr.st.1 Prod.4	450	
1074	N95:74	S_H_ST1_P5	1074 SP Homo pr.st.1 Prod.5	450	
1075	N95:75		1075		
1076	N95:76		1076		
1077	N95:77		1077		
1078	N95:78		1078		

Register	Address	Symbol	Comment	Original	Changed
1079	N95:79		1079		
1080	N95:80		1080		
1081	N95:81		1081		
1082	N95:82	S_H_ST1_RAMP_C	1082 RAMP CONSTANT	100	
1083	N95:83	S_H_ST1_RAMP_C_DIV	1083 RAMP CONSTANT DIV	10	
1084	N95:84	S_H_ST1_INC	1084	10	
1085	N95:85	S_H_ST1_DEC	1085	10	
1086	N95:86		1086		
1087	N95:87		1087		
1088	N95:88	S_H_ST1_ACT_SP	1088		
1089	N95:89	S_H_ST1_SEL_SP	1089		
1090	N95:90	S_H_ST2_P1	1090 Homo pr.st.2 Prod.1	350	
1091	N95:91	S_H_ST2_P2	1091 Homo pr.st.2 Prod.2	350	
1092	N95:92	S_H_ST2_P3	1092 Homo pr.st.2 Prod.3	350	
1093	N95:93	S_H_ST2_P4	1093 Homo pr.st.2 Prod.4	300	
1094	N95:94	S_H_ST2_P5	1094 Homo pr.st.2 Prod.5	300	
1095	N95:95		1095		
1096	N95:96		1096		
1097	N95:97		1097		
1098	N95:98		1098		
1099	N95:99		1099		
1100	N95:100		1100		
1101	N95:101		1101		
1102	N95:102	S_H_ST2_RAMP_C	1102 RAMP CONSTANT	100	
1103	N95:103	S_H_ST2_RAMP_C_DIV	1103 RAMP CONSTANT DIV	10	
1104	N95:104	S_H_ST2_INC	1104	10	
1105	N95:105	S_H_ST2_DEC	1105	10	
1106	N95:106		1106		
1107	N95:107		1107		
1108	N95:108	S_H_ST2_ACT_SP	1108		
1109	N95:109	S_H_ST2_SEL_SP	1109		
1110	N95:110		1110		
1111	N95:111	S_SP_M10_C1_P1	1111 FLEX R CAP1 PROD1	1000	
1112	N95:112	S_SP_M10_C1_P2	1112 FLEX R CAP1 PROD2	1000	
1113	N95:113	S_SP_M10_C1_P3	1113 FLEX R CAP1 PROD3	1000	
1114	N95:114	S_SP_M10_C1_P4	1114 FLEX R CAP1 PROD4	1000	
1115	N95:115	S_SP_M10_C1_P5	1115 FLEX R CAP1 PROD5	1000	
1116	N95:116		1116		
1117	N95:117		1117		
1118	N95:118		1118		
1119	N95:119		1119		
1120	N95:120		1120		
1121	N95:121	S_SP_M10_C2_P1	1121 FLEX R CAP2 PROD1	900	
1122	N95:122	S_SP_M10_C2_P2	1122 FLEX R CAP2 PROD2	900	
1123	N95:123	S_SP_M10_C2_P3	1123 FLEX R CAP2 PROD3	900	
1124	N95:124	S_SP_M10_C2_P4	1124 FLEX R CAP2 PROD4	900	
1125	N95:125	S_SP_M10_C2_P5	1125 FLEX R CAP2 PROD5	900	
1126	N95:126		1126		
1127	N95:127		1127		
1128	N95:128		1128		
1129	N95:129		1129		
1130	N95:130		1130		
1131	N95:131	S_SP_M10_C3_P1	1131 FLEX R CAP3 PROD1	800	
1132	N95:132	S_SP_M10_C3_P2	1132 FLEX R CAP3 PROD2	800	
1133	N95:133	S_SP_M10_C3_P3	1133 FLEX R CAP3 PROD3	800	
1134	N95:134	S_SP_M10_C3_P4	1134 FLEX R CAP3 PROD4	800	
1135	N95:135	S_SP_M10_C3_P5	1135 FLEX R CAP3 PROD5	800	
1136	N95:136		1136		
1137	N95:137		1137		
1138	N95:138		1138		

Register	Address	Symbol	Comment	Original	Changed
1139	N95:139		1139		
1140	N95:140				
1141	N95:141	S_SP_M10_C4_P1	1141 FLEX R CAP4 PROD1	700	
1142	N95:142	S_SP_M10_C4_P2	1142 FLEX R CAP4 PROD2	700	
1143	N95:143	S_SP_M10_C4_P3	1143 FLEX R CAP4 PROD3	700	
1144	N95:144	S_SP_M10_C4_P4	1144 FLEX R CAP4 PROD4	700	
1145	N95:145	S_SP_M10_C4_P5	1145 FLEX R CAP4 PROD5	700	
1146	N95:146		1146		
1147	N95:147		1147		
1148	N95:148		1148		
1149	N95:149		1149		
1150	N95:150		1150		
1151	N95:151	S_SP_M10_C5_P1	1151 FLEX R CAP5 PROD1	600	
1152	N95:152	S_SP_M10_C5_P2	1152 FLEX R CAP5 PROD2	600	
1153	N95:153	S_SP_M10_C5_P3	1153 FLEX R CAP5 PROD3	600	
1154	N95:154	S_SP_M10_C5_P4	1154 FLEX R CAP5 PROD4	600	
1155	N95:155	S_SP_M10_C5_P5	1155 FLEX R CAP5 PROD5	600	
1156	N95:156		1156		
1157	N95:157		1157		
1158	N95:158		1158		
1159	N95:159		1159		
1160	N95:160		1160		
1161	N95:161	S_SP_M10_C6_P1	1161 FLEX R CAP6 PROD1	500	
1162	N95:162	S_SP_M10_C6_P2	1162 FLEX R CAP6 PROD2	500	
1163	N95:163	S_SP_M10_C6_P3	1163 FLEX R CAP6 PROD3	500	
1164	N95:164	S_SP_M10_C6_P4	1164 FLEX R CAP6 PROD4	500	
1165	N95:165	S_SP_M10_C6_P5	1165 FLEX R CAP6 PROD5	500	
1166	N95:166		1166		
1167	N95:167		1167		
1168	N95:168		1168		
1169	N95:169		1169		
1170	N95:170	S_ICIP_AC_PR_INDEX	1170 Actual CIP index product 5 - 15 (0.5 - 1.5)		
1171	N95:171	S_ICIP_PR_INDEX_1	1171 CIP index for product 1 38852 (0.5 - 1.5)		
1172	N95:172	S_ICIP_PR_INDEX_2	1172 CIP index for product 2 38852 (0.5 - 1.5)		
1173	N95:173	S_ICIP_PR_INDEX_3	1173 CIP index for product 3 38852 (0.5 - 1.5)		
1174	N95:174	S_ICIP_PR_INDEX_4	1174 CIP index for product 4 38852 (0.5 - 1.5)		
1175	N95:175	S_ICIP_PR_INDEX_5	1175 CIP index for product 5 38852 (0.5 - 1.5)		
1176	N95:176	S_ICIP_PR_INDEX_6	1176 CIP index for product 6 38852 (0.5 - 1.5)		
1177	N95:177	S_ICIP_PR_INDEX_7	1177 CIP index for product 7 38852 (0.5 - 1.5)	10	
1178	N95:178	S_ICIP_PR_INDEX_8	1178 CIP index for product 8 38852 (0.5 - 1.5)		
1179	N95:179	S_ICIP_PR_INDEX_9	1179 CIP index for product 9 38852 (0.5 - 1.5)		
1180	N95:180	S_ICIP_PR_INDEX_10	1180 CIP index for product 10 38852 (0.5 - 1.5)		
1181	N95:181	S_ICIP_PR_INDEX_11	1181 CIP index for product 11 38852 (0.5 - 1.5)		
1182	N95:182	S_ICIP_PR_INDEX_12	1182 CIP index for product 12 38852 (0.5 - 1.5)		
1183	N95:183	S_ICIP_PR_INDEX_13	1183 CIP index for product 13 38852 (0.5 - 1.5)		
1184	N95:184	S_ICIP_PR_INDEX_14	1184 CIP index for product 14 38852 (0.5 - 1.5)		
1185	N95:185	S_ICIP_PR_INDEX_15	1185 CIP index for product 15 38852 (0.5 - 1.5)		
1186	N95:186		1186		
1187	N95:187	S_CAUST_1_CIRC_PART	1187 % of total circ. time to be used for caustic c	10	
1188	N95:188	S_ACID_1_CIRC_PART	1188 % of total circ. time to be used for acid circ.		
1189	N95:189		1189		
1190	N95:190	S_NO_ICIP_TIM_ST114	1190 circulation time step 114 when not iCIP		
1191	N95:191	S_NO_ICIP_TIM_ST125	1191 circulation time step 125 when not iCIP		
1192	N95:192	S_NO_ICIP_TIM_ST134	1192 circulation time step 134 when not iCIP		
1193	N95:193	S_NO_ICIP_TIM_ST144	1193 circulation time step 144 when not iCIP		
1194	N95:194		1194		
1195	N95:195		1195		
1196	N95:196		1196		
1197	N95:197		1197		
1198	N95:198		1198		

Register	Address	Symbol	Comment	Original	Changed
1199	N95:199		1199		
1200	N95:200		1200		
1201	N95:201		1201		
1202	N95:202		1202		
1203	N95:203		1203		
1204	N95:204		1204		
1205	N95:205		1205		
1206	N95:206		1206		
1207	N95:207		1207		
1208	N95:208		1208		
1209	N95:209		1209		
1210	N95:210		1210		
1211	N95:211		1211		
1212	N95:212		1212		
1213	N95:213		1213		
1214	N95:214		1214		
1215	N95:215		1215		
1216	N95:216		1216		
1217	N95:217		1217		
1218	N95:218		1218		
1219	N95:219	S_VOL_DIV_1000	1219		
1220	N95:220		1220		
1221	N95:221		1221		
1222	N95:222		1222		
1223	N95:223		1223		
1224	N95:224		1224		
1225	N95:225		1225		
1226	N95:226		1226		
1227	N95:227		1227		
1228	N95:228		1228		
1229	N95:229		1229		
1230	N95:230		1230		
1231	N95:231		1231		
1232	N95:232		1232		
1233	N95:233		1233		
1234	N95:234		1234		
1235	N95:235		1235		
1236	N95:236		1236		
1237	N95:237		1237		
1238	N95:238		1238		
1239	N95:239		1239		
1240	N95:240	S_M5_SP_CAP1	1170 Fixed speed to M5 while LIC6 in auto.	750	
1241	N95:241	S_M5_SP_CAP2	1171 Fixed speed to M5 while LIC6 in auto.	650	
1242	N95:242	S_M5_SP_CAP3	1172 Fixed speed to M5 while LIC6 in auto.	600	
1243	N95:243	S_M5_SP_CAP4	1173 Fixed speed to M5 while LIC6 in auto.	550	
1244	N95:244	S_M5_SP_CAP5	1174 Fixed speed to M5 while LIC6 in auto.	500	
1245	N95:245	S_M5_SP_CAP6	1175 Fixed speed to M5 while LIC6 in auto.	450	
1246	N95:246	S_M5_SP_CAP7	1176 Fixed speed to M5 while LIC6 in auto.	650	
1247	N95:247	S_M5_SP_CAP8_CIP	1177 Fixed speed to M5 while LIC6 in auto.	500	
1248	N95:248	S_M5_SP_CAP9	1178 Fixed speed to M5 while LIC6 in auto.	700	
1249	N95:249	S_M5_SP_CAP10	1179 Fixed speed to M5 while LIC6 in auto.	700	

STERILISING

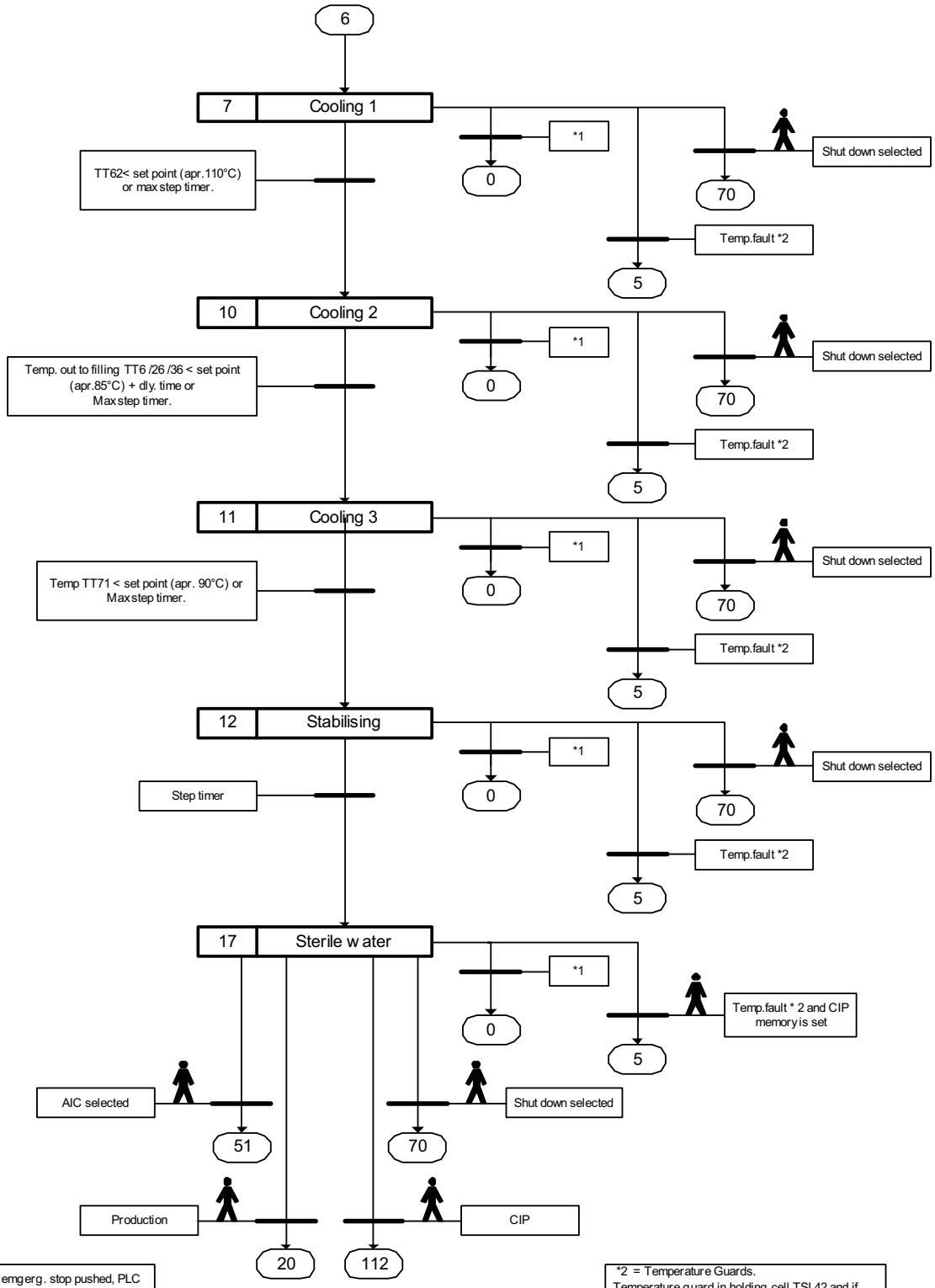


*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

*2 = Temperature Guards. Temperature guard in holding cell TSL42 and if Infusion also holding cell time. Presterilisation guards TSL71 and options TSL46, TSL47, Infusion TSL502, TSL504.

Rev.	Date/ Sign.	Description						
			Pre sterilising		**Step 1 - 6**			Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				**T5844130453**
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
A	7/17/2006/JT	Step cond. on volume	**Ambient**			**7/17/2006**		**SD5844130453**

Tetra Pak
Tetra Pak Dairy & Beverage



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

*2 = Temperature Guards.
Temperature guard in holding cell TSL42 and if Infusion also holding cell time.
Presterilisation guards TSL71 and options TSL46, TSL47, Infusion TSL502, TSL504.

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

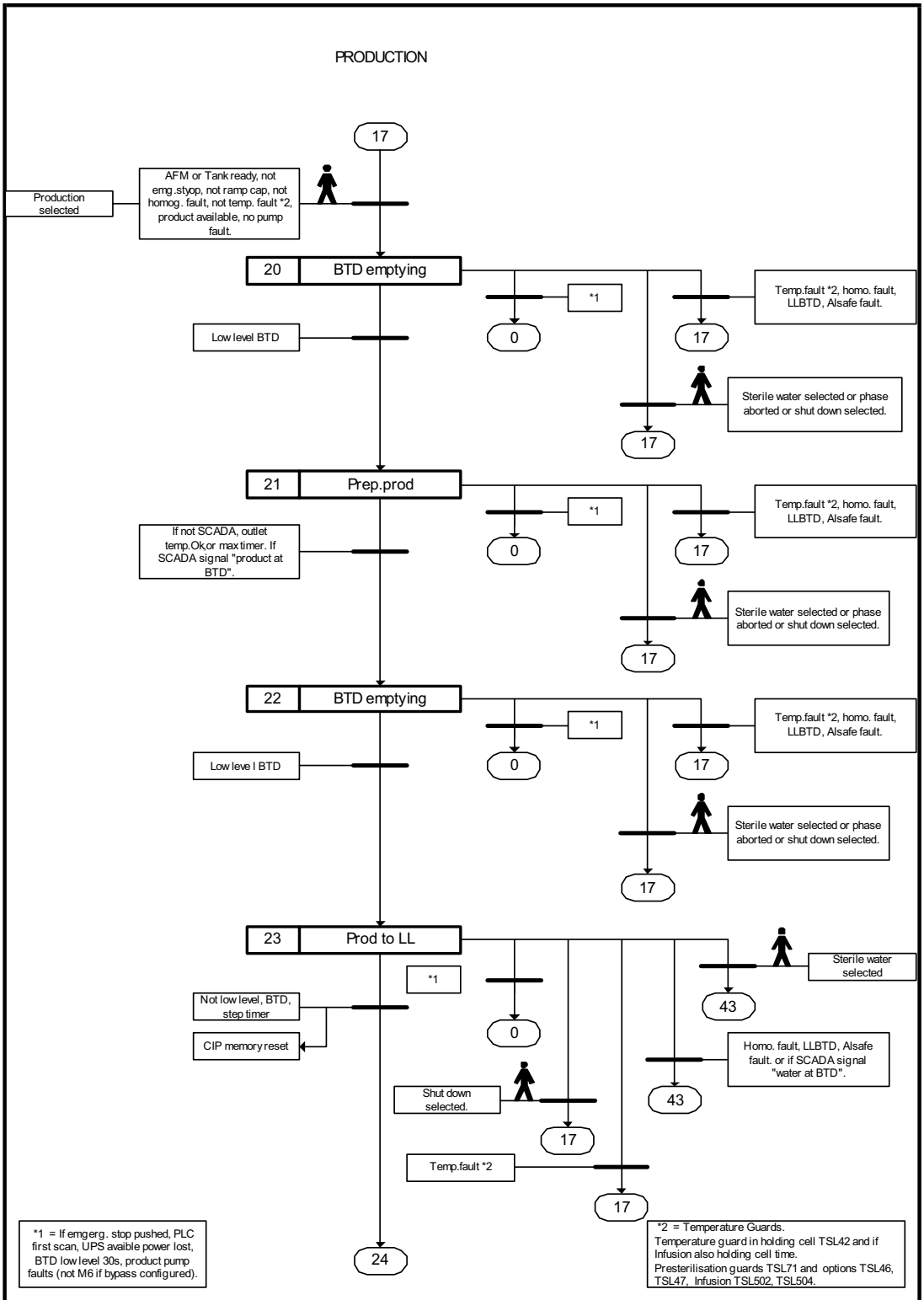
Pre sterilising Step 7 - 17

Tetra Pak
Tetra Pak Dairy & Beverage

Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				
Dept.	Design/Drawn	Appr.	Date		
Ambient			**7/17/2006**		

Machine No.: **T5844130453**

Doc. No.: **SD5844130453**



Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

Prod. sequence Step 17 - 23

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

Dept.	Design/Drawn	Appr.	Date	
Ambient			**7/17/2006**	

Tetra Pak

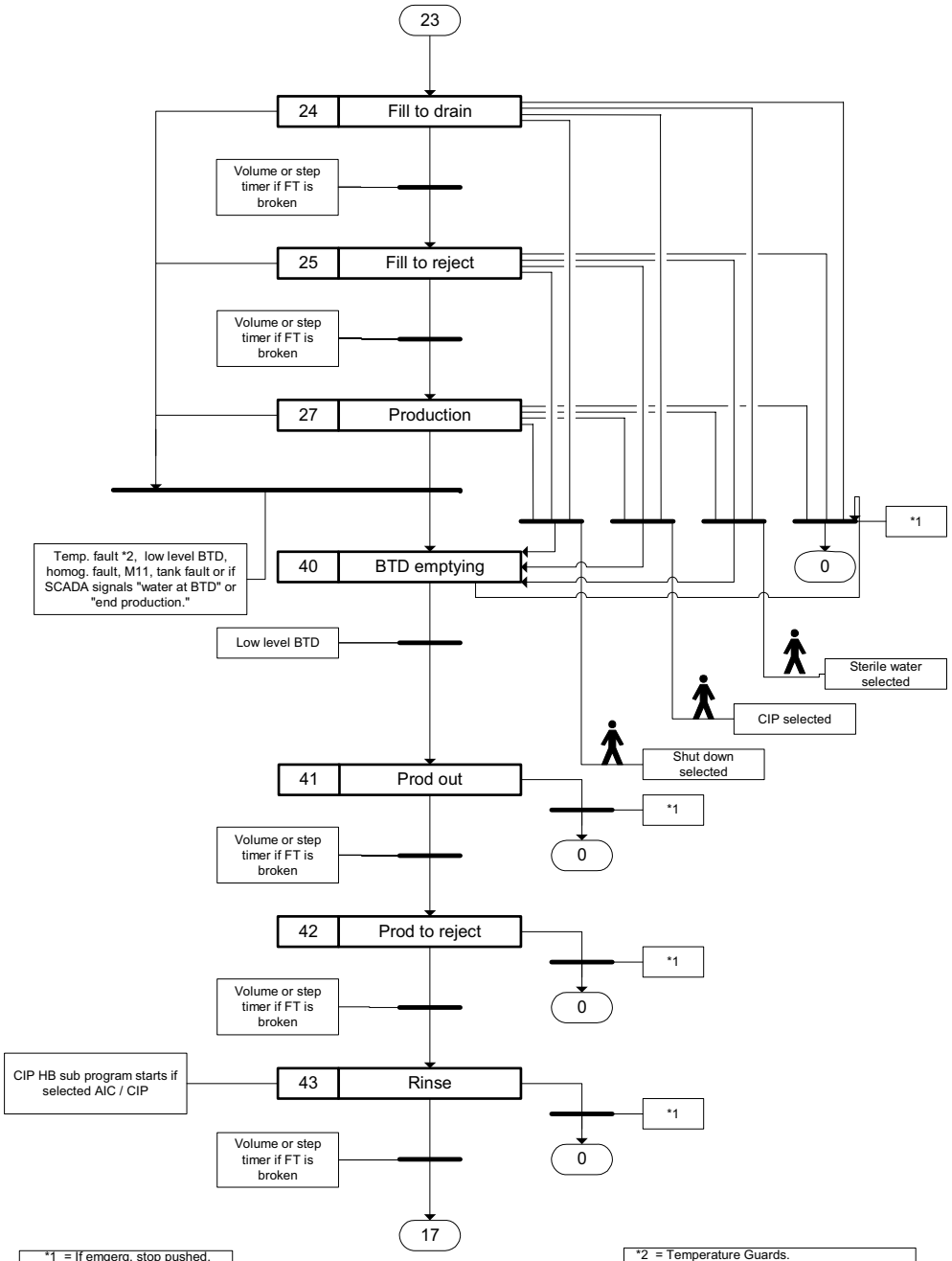
Tetra Pak Dairy & Beverage

Machine No.

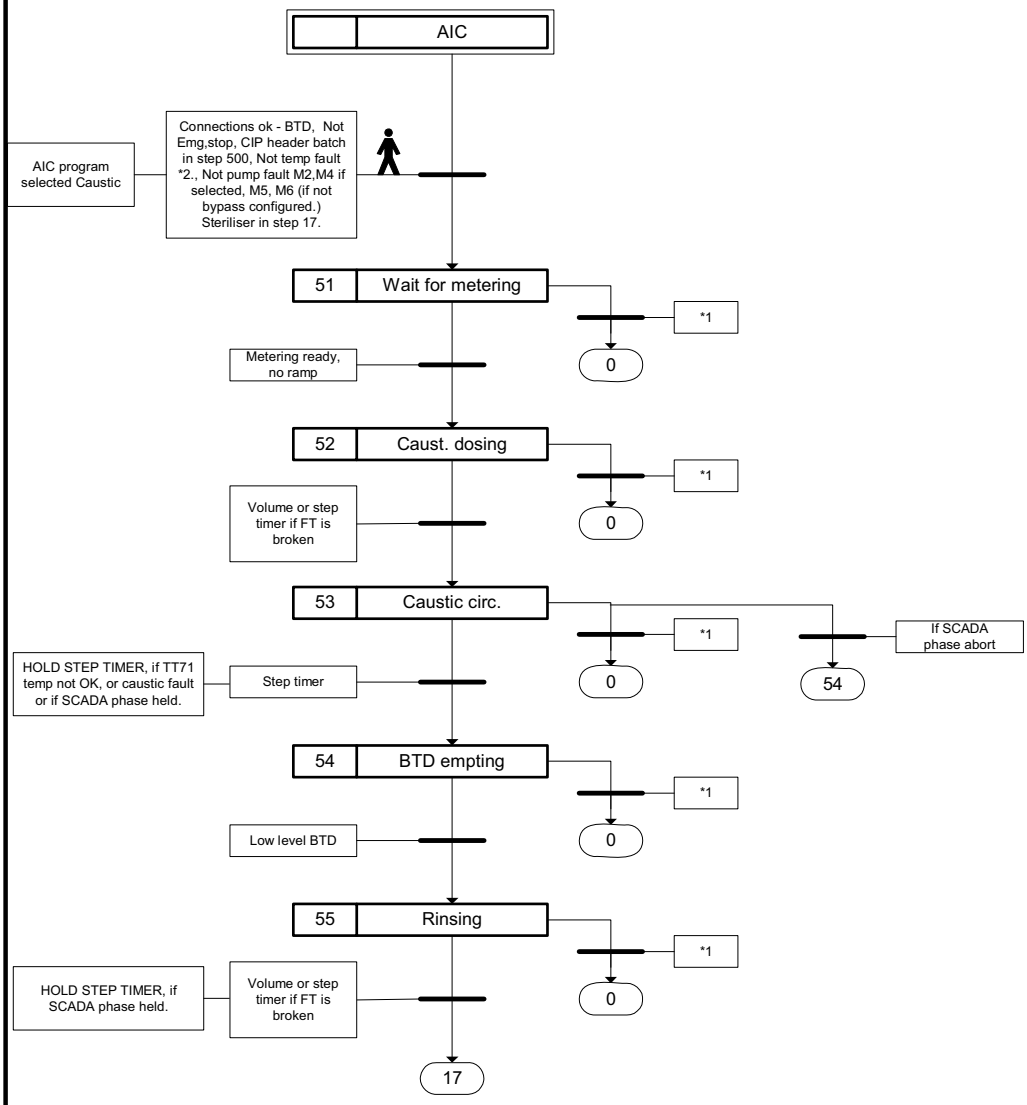
T5844130453

Doc. No.

SD5844130453



Rev.	Date/ Sign.	Description	VTIS Rev.A					Tetra Pak Dairy & Beverage
			Prod. sequence Step 24-43					Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				T5844130453
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
A	7/17/2006/JT	Step cond. on volume	Ambient			7/17/2006		SD5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

*2 = Temperature Guards. Temperature guard in holding cell TSL42 and if Infusion also holding cell time. Presterilisation guards TSL71 and options TSL46, TSL47, Infusion TSL502, TSL504.

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

AIC C sequence Step 51 - 55

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

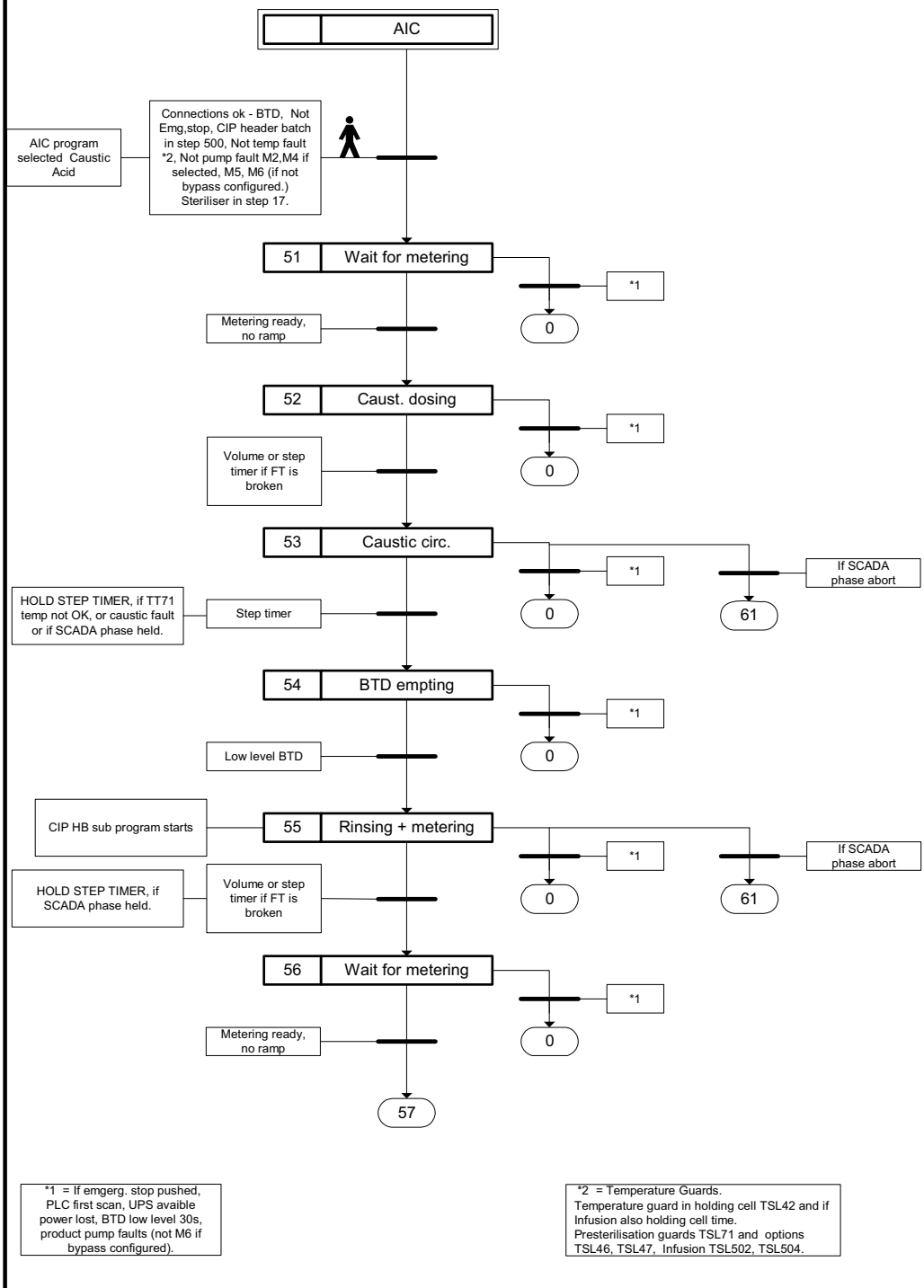
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD5844130453**

Tetra Pak

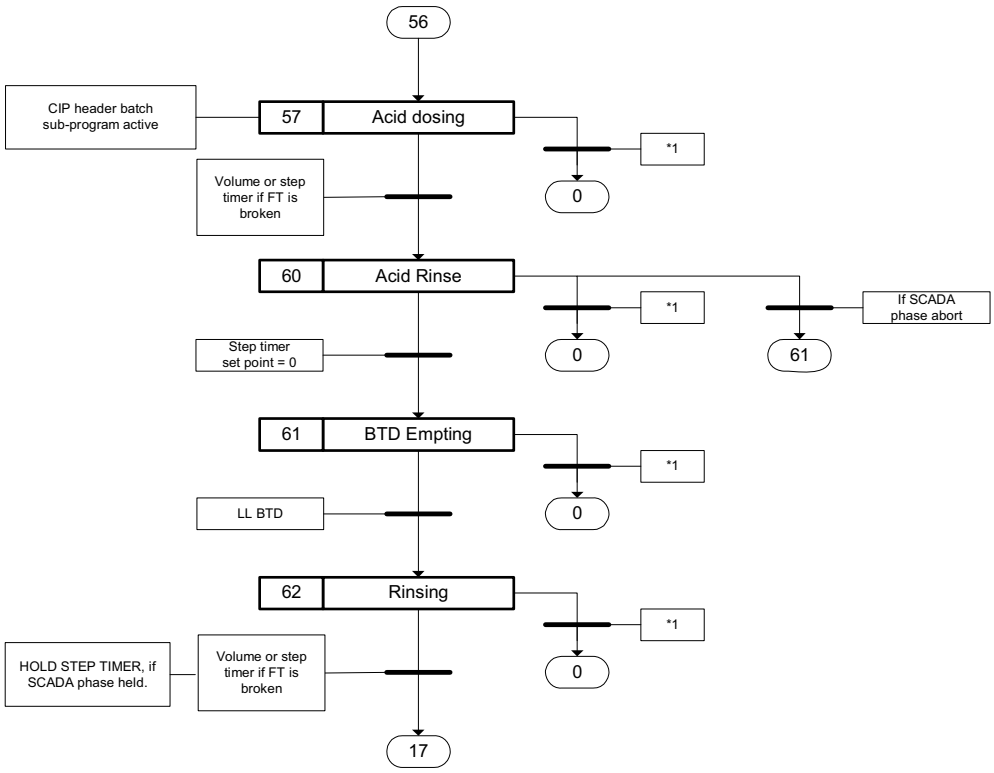
Tetra Pak Dairy & Beverage

Machine No.

T5844130453



Rev.	Date/ Sign.	Description	VTIS Rev.A					Tetra Pak Dairy & Beverage
			AIC C - A sequence Step 51 - 56					Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				T5844130453
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
A	7/17/2006/JT	Step cond. on volume	Ambient			7/17/2006		SD5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

AIC C - A sequence Step 57- 62

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

Dept.	Design/Drawn	Appr.	Date		
Ambient			**7/17/2006**		

Tetra Pak

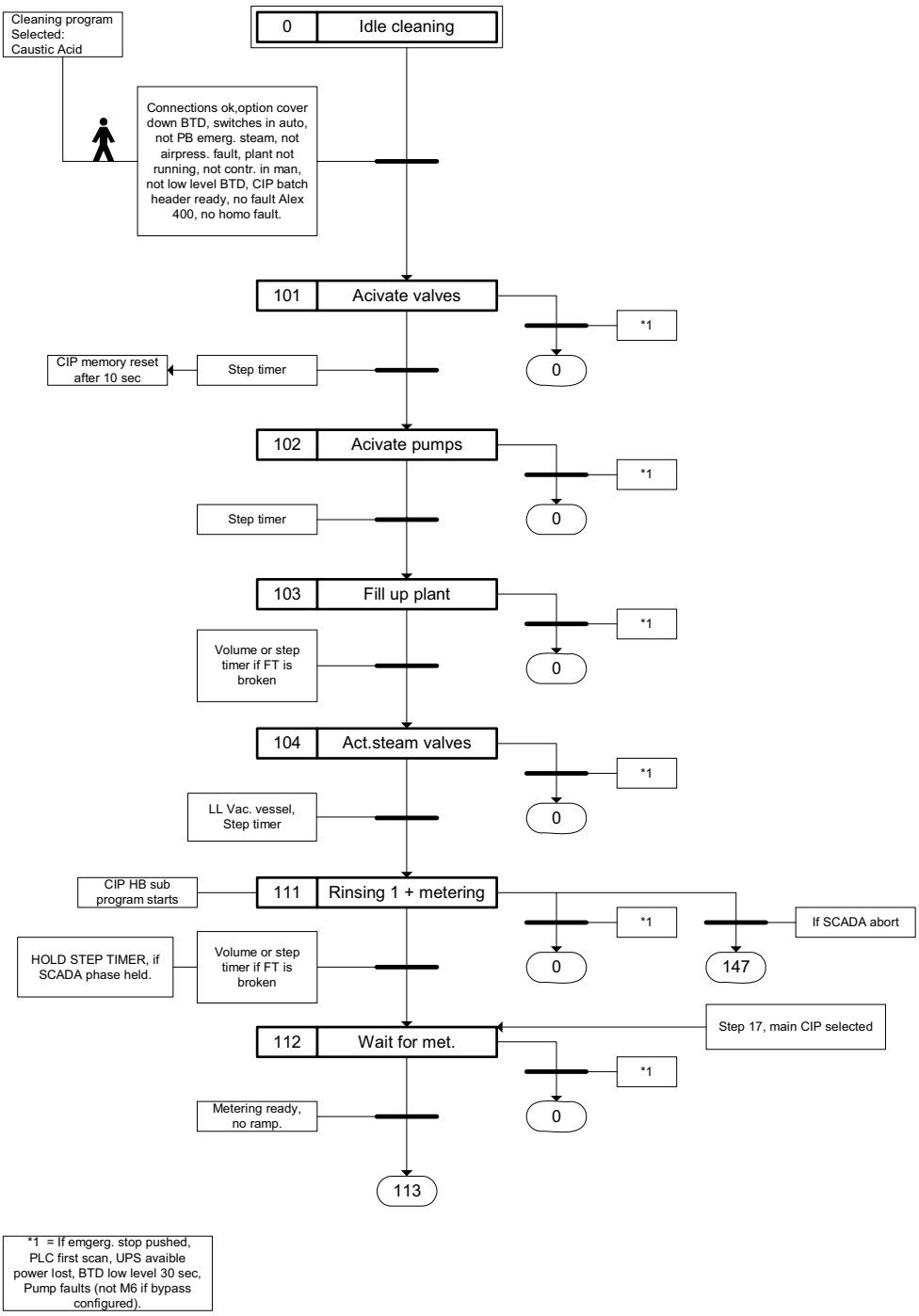
Tetra Pak Dairy & Beverage

Machine No.

T5844130453

Doc. No.

SD5844130453



Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

CIP C-A sequence Step 101 -112

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

Dept.	Design/Drawn	Appr.	Date	
Ambient			**7/17/2006**	

Tetra Pak

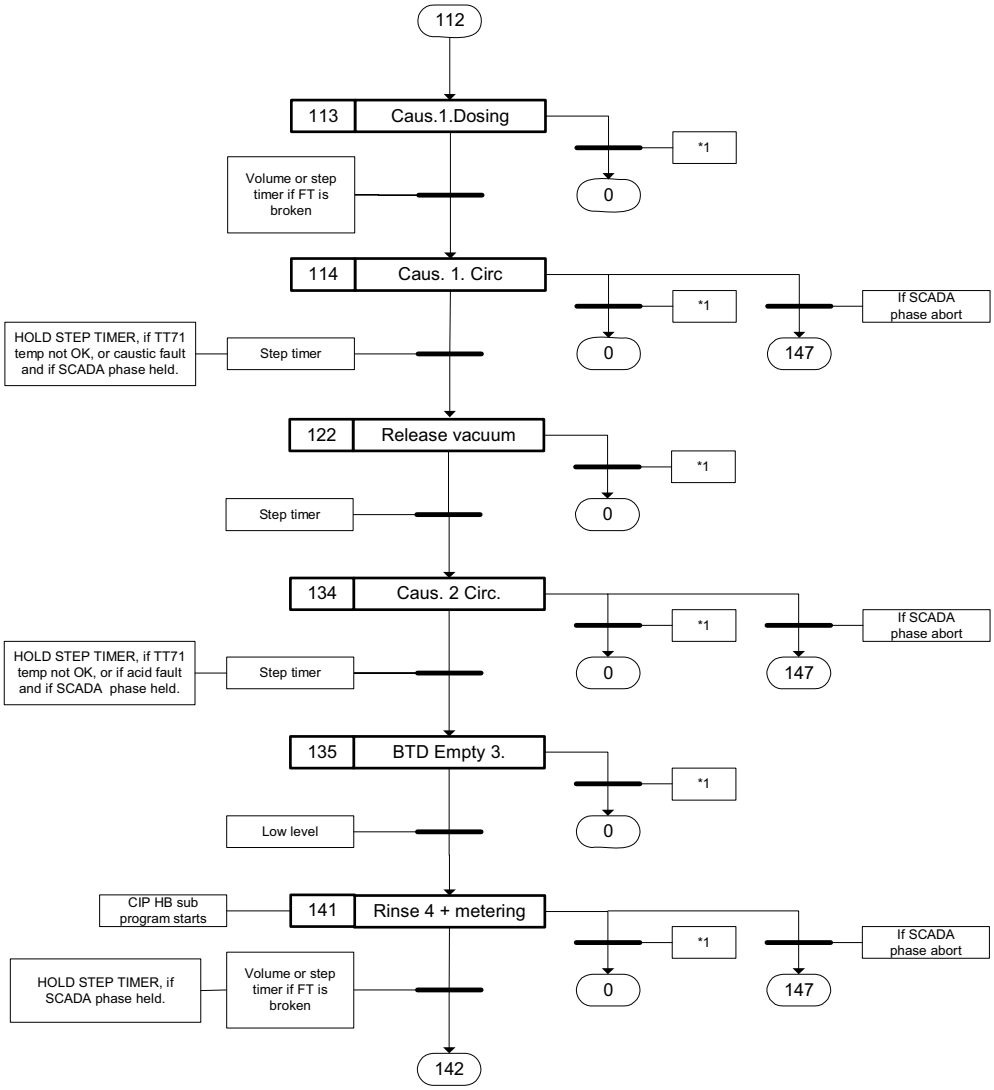
Tetra Pak Dairy & Beverage

Machine No.

T5844130453

Doc. No.

SD5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30 sec, Pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

CIP C-A sequence Step 113- 135

Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				
Dept.	Design/Drawn	Appr.	Date		
Ambient			**7/17/2006**		

Tetra Pak

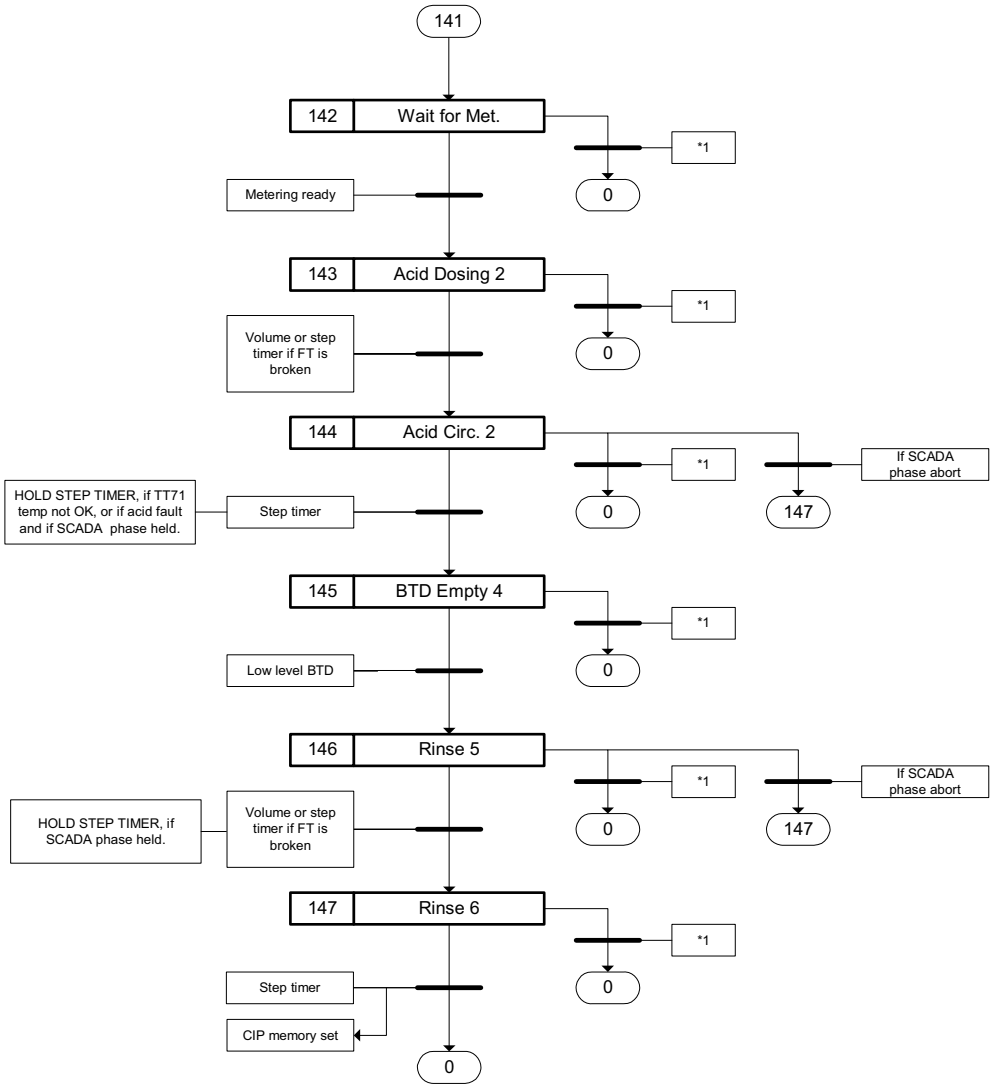
Tetra Pak Dairy & Beverage

Machine No.

T5844130453

Doc. No.

SD5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description
A	7/17/2006/JT	Step cond. on volume

VTIS Rev.A

CIP C-A sequence Step 141-147

Doc.type: FUNCTION DESCRIPTION Sequence Diagram

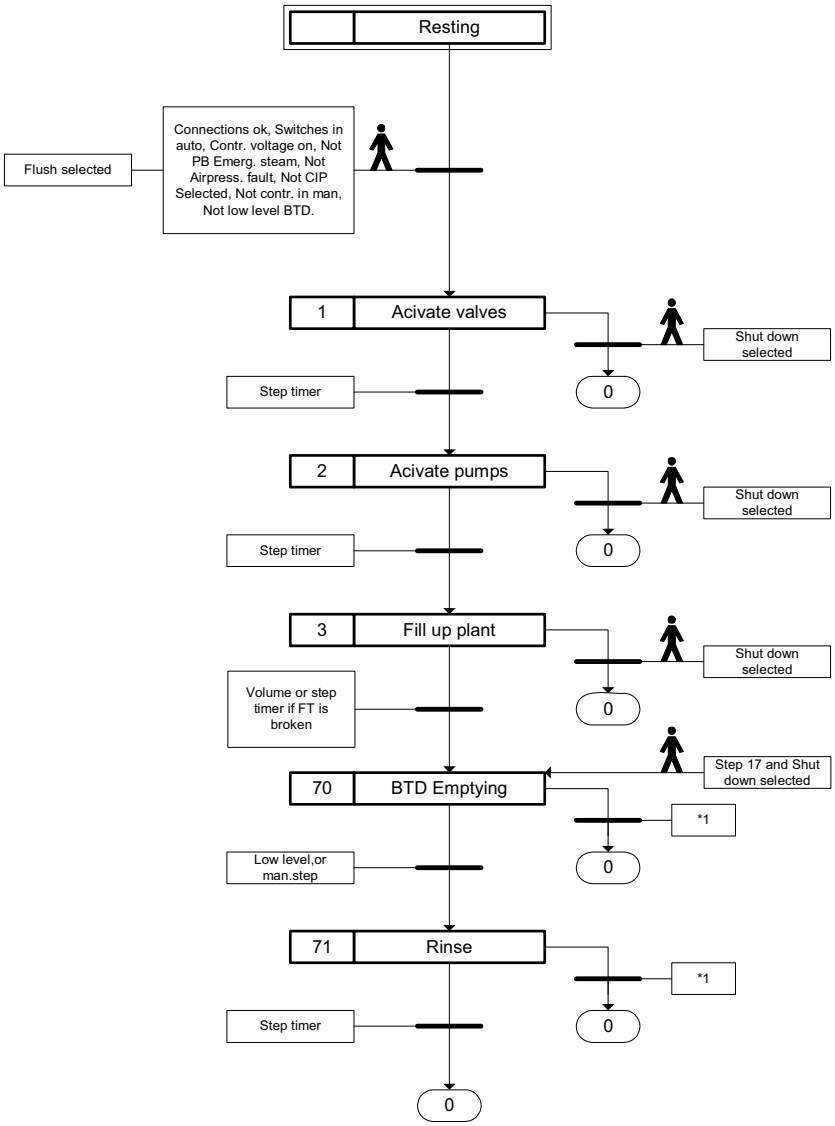
Dept.	Design/Drawn	Appr.	Date		Doc. No.
Ambient			**7/17/2006**		**SD5844130453**

Tetra Pak

Tetra Pak Dairy & Beverage

Machine No.

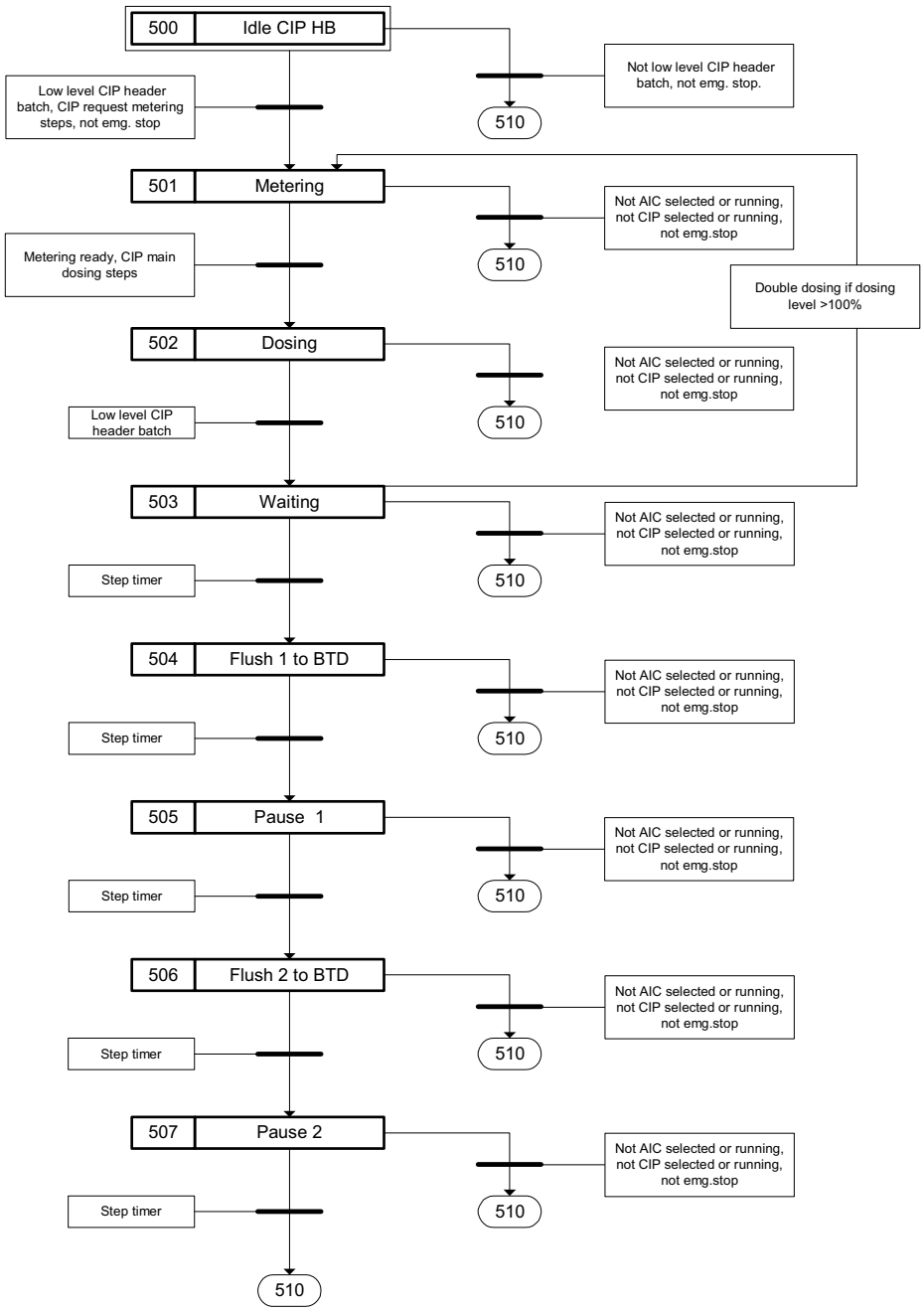
T5844130453



*1 = If emgerg. stop pushed, PLC first scan, UPS avaible power lost, BTD low level 30s, product pump faults (not M6 if bypass configured).

Rev.	Date/ Sign.	Description	VTIS Rev.A					Tetra Pak Dairy & Beverage
			Shut down sequence Step 1-71					Machine No.
			Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				T5844130453
			Dept.	Design/Drawn	Appr.	Date		Doc. No.
A	7/17/2006/JT	Step cond. on volume	Ambient			7/17/2006		SD5844130453

CIP HEADER BATCH
SEQUENCE



Rev.	Date/ Sign.	Description

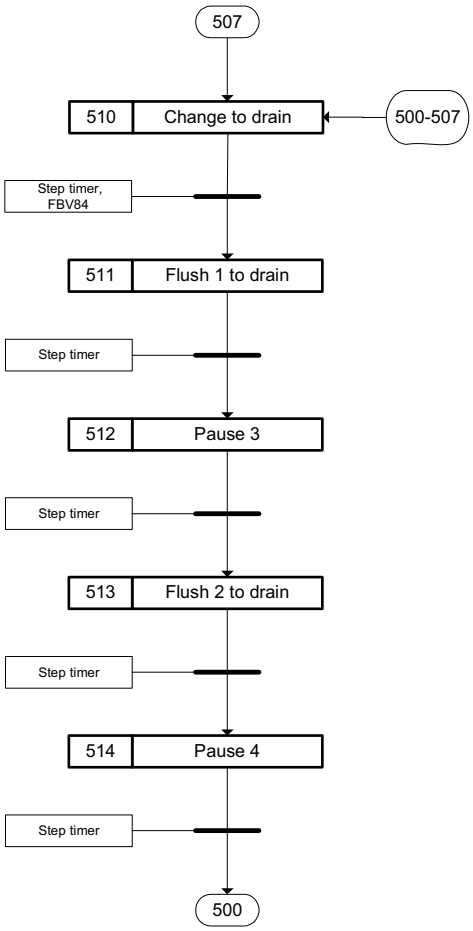
VTIS Rev.A

Header batch seq. Step 500- 507

Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				
Dept.	Design/Drawn	Appr.	Date	File	Doc. No.
Ambient			**7/17/2006**		**SD5844130453**

Tetra Pak
Tetra Pak Dairy & Beverage

Machine No.
T5844130453



Rev.	Date/ Sign.	Description

VTIS Rev.A

Header batch seq. Step 510-514

Doc.type:	FUNCTION DESCRIPTION Sequence Diagram				
Dept.	Design/Drawn	Appr.	Date		
Ambient			**7/17/2006**		

Tetra Pak
Tetra Pak Dairy & Beverage

Machine No.
T5844130453

Doc. No.
SD5844130453

9

Heat Exchangers

Manufacturing no.	30103-38624	Date	011025 AK
Plate Heat Exchanger type	C6-SM	Quantity	1
Drawing no.	32200-9341		

Customer
ULTIMA
FRANCE

Ref.

Agent
TETRA PAK DAIRY AB
Sverige

Ref.
506225/K111216-02

Supplier
Alfa-Laval Thermal

Ref.
T313888
TO nr.313888

Plates with parallel flow.

The plate pack is tightened to 727 mm

Always observe plate from its gasket side. A ten figure part number plus one letter are stamped on the upper part of the plate.

The plates are assembled, counting from the frame plate to the pressure plate, in sequence stated below with the gasket side facing the pressure plate.

For information about installation, running, cleaning etc. see the instruction book.

Measurements (see drawing) mm

A =	727	AA =	201
LT=	1460	AB =	183
B =	1535	AC =	288
		AD =	55
C =	1635		

: Net weight
: 489 kg
:
: Liquid volume
: 80 l
:
: Design pressure
: 16.0 BAR

Connection standard
SMS 51

Remarks

Test pressure : 21,0 BAR
Design temp : 140 C

Bolts :
DRAINING HOLES 8 MM TO BE DRILLED IN TURNING PLATES

Section no 1 /AA----------

Media	->Cream 40%	=>HW
Flow rate	1900 kg/h	1900 kg/h
Temp. program	50.0 to 80.0 C	82.0 to 58.0 C
Pressure drop	43.00 kPa	34.00 kPa
Liquid volume	12,8 l	12,8 l
Location of connections		
inlet	A14	S1
outlet	S4	A11V
Material in connections		
Plates material	AISI 316	
thickness	0.60 mm	
Gasket material	EPDMF	CLIP-ON
Heat transfer surface	6,30 m2	
Plate grouping	6*3 MH	

	6*3 ML	

Section no 2 /AB----------

Media	->Cream 40%	=>IW
Flow rate	1900 kg/h	1478 kg/h
Temp. program	60.0 to 20.0 C	2.0 to 43.0 C
Pressure drop	40.00 kPa	6.000 kPa
Liquid volume	8,5 l	9,2 l
Location of connections		
inlet	A24P	A11
outlet	A14V	A22
Material in connections		
Plates material	AISI 316	
thickness	0.60 mm	
Gasket material	EPDMF	CLIP-ON
Heat transfer surface	4,32 m2	
Plate grouping	4*3 MH	

	2*4+1*5 ML	

Section no 3 /AC----------

Media	->Cream 40%	=>HW
Flow rate	1900 kg/h	1900 kg/h
Temp. program	81.0 to 59.0 C	58.0 to 76.0 C
Pressure drop	58.00 kPa	46.00 kPa
Liquid volume	17,0 l	17,0 l
Location of connections		
inlet	A34	A21V
outlet	A24P	A31
Material in connections		
Plates material	AISI 316	
thickness	0.60 mm	
Gasket material	EPDMF	CLIP-ON
Heat transfer surface	8,46 m2	
Plate grouping	8*3 MH	

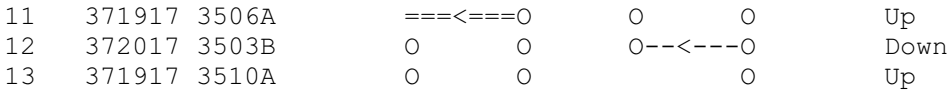
	8*3 ML	

Section no 4 /AD----------

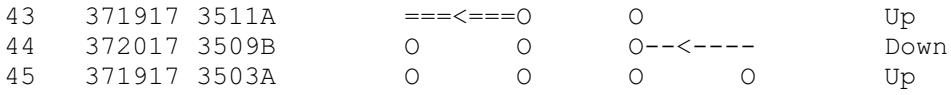
Media	->ZW	=>CW
Flow rate	1900 kg/h	2521 kg/h
Temp. program	140.0 to 85.0 C	25.0 to 67.0 C
Pressure drop	6.000 kPa	11.00 kPa
Liquid volume	1,4 l	1,4 l
Location of connections		
inlet	A33	T1
outlet	T4	A32
Material in connections		
Plates material	AISI 316	
thickness	0.60 mm	
Gasket material	EPDMF	CLIP-ON
Heat transfer surface	0,54 m2	
Plate grouping	1*2 L	

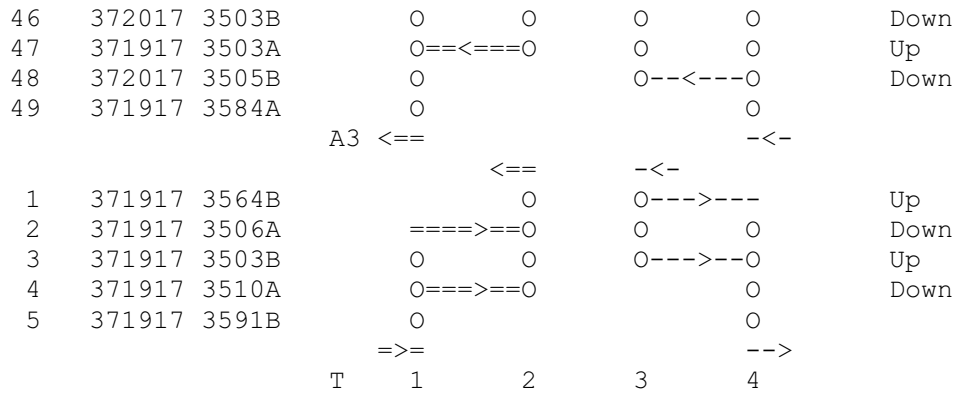
	1*2 L	

Plate no.	Plate code no.	Punched corner of the plate: upper left	lower left	lower right	upper right	Flow direction on the gasket side of the plate
	S	1	2	3	4	
		=>=			-->	
1	371917 3564A	O===>===			O	Down
2	372017 3506B	O	O	---->	--O	Up
3	371917 3503A	O	O	O	O	Down
4	372017 3503B	O	O	O	O	Up
5	371917 3503A	O===>==O		O	O	Down
6	372017 3510B		O	O--->	--O	Up
7	371917 3511A	===<===O		O		Up
8	372017 3509B	O	O	O--<	----	Down
9	371917 3503A	O	O	O	O	Up
10	372017 3503B	O	O	O	O	Down
11	371917 3503A	O==<===O		O	O	Up
12	372017 3505B	O		O--<	---O	Down
13	371917 3504A	O===>===			O	Down
14	372017 3506B	O	O	---->	--O	Up
15	371917 3503A	O	O	O	O	Down
16	372017 3503B	O	O	O	O	Up
17	371917 3503A	O===>==O		O	O	Down
18	372017 3510B		O	O--->	--O	Up
19	371917 3511A	===<===O		O		Up
20	372017 3509B	O	O	O--<	----	Down
21	371917 3503A	O	O	O	O	Up
22	372017 3503B	O	O	O	O	Down
23	371917 3503A	O==<===O		O	O	Up
24	372017 3505B	O		O--<	---O	Down
25	371917 3504A	O===>===			O	Down
26	372017 3506B	O	O	---->	--O	Up
27	371917 3503A	O	O	O	O	Down
28	372017 3503B	O	O	O	O	Up
29	371917 3503A	O===>==O		O	O	Down
30	372017 3510B		O	O--->	--O	Up
31	371917 3511A	===<===O		O		Up
32	372017 3509B	O	O	O--<	----	Down
33	371917 3503A	O	O	O	O	Up
34	372017 3503B	O	O	O	O	Down
35	371917 3503A	O==<===O		O	O	Up
36	372017 3505B	O		O--<	---O	Down
37	371917 3584A	O			O	
	A1	<=V			-<-	
		=>=			V->	
1	371917 3564A	O===>===			O	Down
2	372017 3506B	O	O	---->	--O	Up
3	371917 3503A	O	O	O	O	Down
4	372017 3503B	O	O	O	O	Up
5	371917 3503A	O	O	O	O	Down
6	372017 3503B	O	O	O--->	--O	Up
7	371917 3505A	O	O	O		Down
8	372017 3509B	O	O	O--<	----	Down
9	371917 3503A	O===>==O		O	O	Down
10	372017 3503B	O	O	O	O	Down


11 371917 3506A ===<===O O O Up
12 372017 3503B O O O--<---O Down
13 371917 3510A O O O Up

```
 14   372017 3506B        O      O      ---->--O        Up
 15   371917 3503A        O      O      O      O        Up
 16   372017 3503B        O      O      O      O        Up
 17   371917 3503A        O==<===O      O      O        Up
 18   372017 3503B        O      O      O--->--O        Up
 19   371917 3515A        O===>==*      O               Down
 20   372017 3509B        O      O      O--<----        Down
 21   371917 3503A        O      O      O      O        Down
 22   372017 3503B        O      O      O      O        Down
 23   371917 3503A        O      O      O      O        Down
 24   372017 3503B        O      O      O--<---O        Down
 25   371917 3510A        O===>==O             O        Down
 26   372017 3594B               O             O
                     A2        <==            :
                    =>V                       :
  1   371917 3564A        O===>===             O        Down
  2   372017 3506B        O      O      ---->--O        Up
  3   371917 3503A        O      O      O      O        Down
  4   372017 3503B        O      O      O      O        Up
  5   371917 3503A        O===>==O      O      O        Down
  6   372017 3510B               O      O--->--O        Up
  7   371917 3511A        ===<===O      O               Up
  8   372017 3509B        O      O      O--<----        Down
  9   371917 3503A        O      O      O      O        Up
 10   372017 3503B        O      O      O      O        Down
 11   371917 3503A        O==<===O      O      O        Up
 12   372017 3505B        O             O--<---O        Down
 13   371917 3504A        O===>===             O        Down
 14   372017 3506B        O      O      ---->--O        Up
 15   371917 3503A        O      O      O      O        Down
 16   372017 3503B        O      O      O      O        Up
 17   371917 3503A        O===>==O      O      O        Down
 18   372017 3510B               O      O--->--O        Up
 19   371917 3511A        ===<===O      O               Up
 20   372017 3509B        O      O      O--<----        Down
 21   371917 3503A        O      O      O      O        Up
 22   372017 3503B        O      O      O      O        Down
 23   371917 3503A        O==<===O      O      O        Up
 24   372017 3505B        O             O--<---O        Down
 25   371917 3504A        O===>===             O        Down
 26   372017 3506B        O      O      ---->--O        Up
 27   371917 3503A        O      O      O      O        Down
 28   372017 3503B        O      O      O      O        Up
 29   371917 3503A        O===>==O      O      O        Down
 30   372017 3510B               O      O--->--O        Up
 31   371917 3511A        ===<===O      O               Up
 32   372017 3509B        O      O      O--<----        Down
 33   371917 3503A        O      O      O      O        Up
 34   372017 3503B        O      O      O      O        Down
 35   371917 3503A        O==<===O      O      O        Up
 36   372017 3505B        O             O--<---O        Down
 37   371917 3504A        O===>===             O        Down
 38   372017 3506B        O      O      ---->--O        Up
 39   371917 3503A        O      O      O      O        Down
 40   372017 3503B        O      O      O      O        Up
 41   371917 3503A        O===>==O      O      O        Down
 42   372017 3510B               O      O--->--O        Up
```


43 371917 3511A ===<===O O Up
44 372017 3509B O O O--<---- Down
45 371917 3503A O O O O Up



* = Unholed port with drilled hole for drainage.

DATUM : 011025

30103-38624 Ed. 1

Platt-behov till TO-nr : 313888 FO-nummer : T313888-01

CLIP6 AISI 316 0.60 EPDMF CLIP-ON

PLATTNUMMER	ANTAL
371917 3503	36
371917 3504	5
371917 3505	1
371917 3506	2
371917 3510	3
371917 3511	7
371917 3515	1
371917 3564	4
371917 3584	2
371917 3591	1
372017 3503	22
372017 3505	7
372017 3506	9
372017 3509	9
372017 3510	7
372017 3594	1
TOTALT (KPL+ŽPL)	117

MEASUREMENTS

Manufacturing no. 30103-38624 Date 011025
AK

Plate Heat Exchanger type C6-SM Quantity 1
Drawing no. 32200-9341

MC - orderno. Orderno.
506225/K111216-02 T313888
TO nr.313888

A-MEAS.TOTAL	727 mm	TOTAL WEIGHT	489 KG
A+FREE SPACE	950 mm	TOTAL VOLUME	80,2 L
B - MEASURE	1535 mm		
C - MEASURE	1635 mm		
CONN.STD	SMS 51		

PER SECTION

SECT. NO.	PLATE AREA m2	VOLUME IN LTR. SIDE 1 / SIDE 2	A-MEASURE (mm)
1	6,30	12,8 / 12,8	201 (AA)
2	4,32	8,5 / 9,2	183 (AB)
3	8,46	17,0 / 17,0	288 (AC)
4	0,54	1,4 / 1,4	55 (AD)

CARRYING BARS

CARR.BAR L. 1500 mm EST. MIN.LENGTH 1200 mm
EXTENDIBLE BY : PLATE QUANT. / FREE HANGING
47 PCS / 300 mm

TIGHTENING BOLTS

TIGHT.BOLT L. 1460 mm EST. MIN.LENGTH 1160 mm
TIGHT.BOLT DIM.
EXTENDIBLE BY : PLATE QUANT. / FREE HANGING
47 PCS / 300 mm

CENTRE OF GRAVITY	EMPTY	FILLED	(mm)
HORIZONTAL	426	420	(from the outside of the frame plate)
VERTICAL	830	830	(from the underside foot or frame)

FOUNDATION LOAD	OPENED	OPERATING (N)
SUPP. COLUMN SIDE	2834	1530
FRAME SIDE	3462	4050

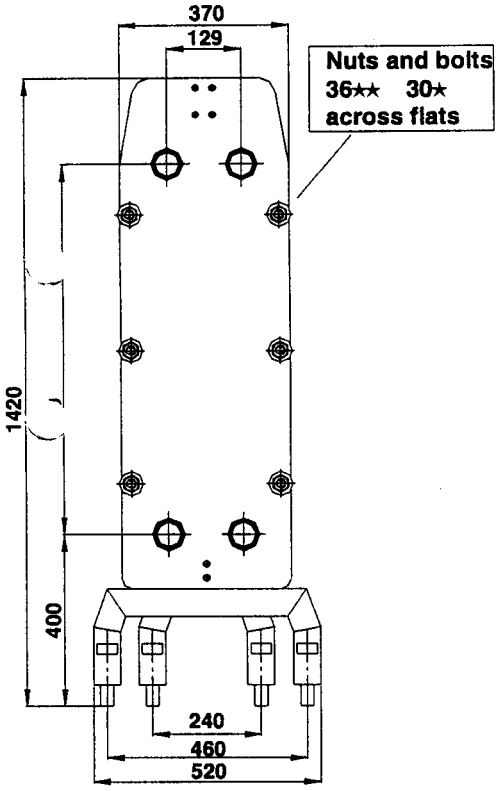
DIMENSION DRAWING

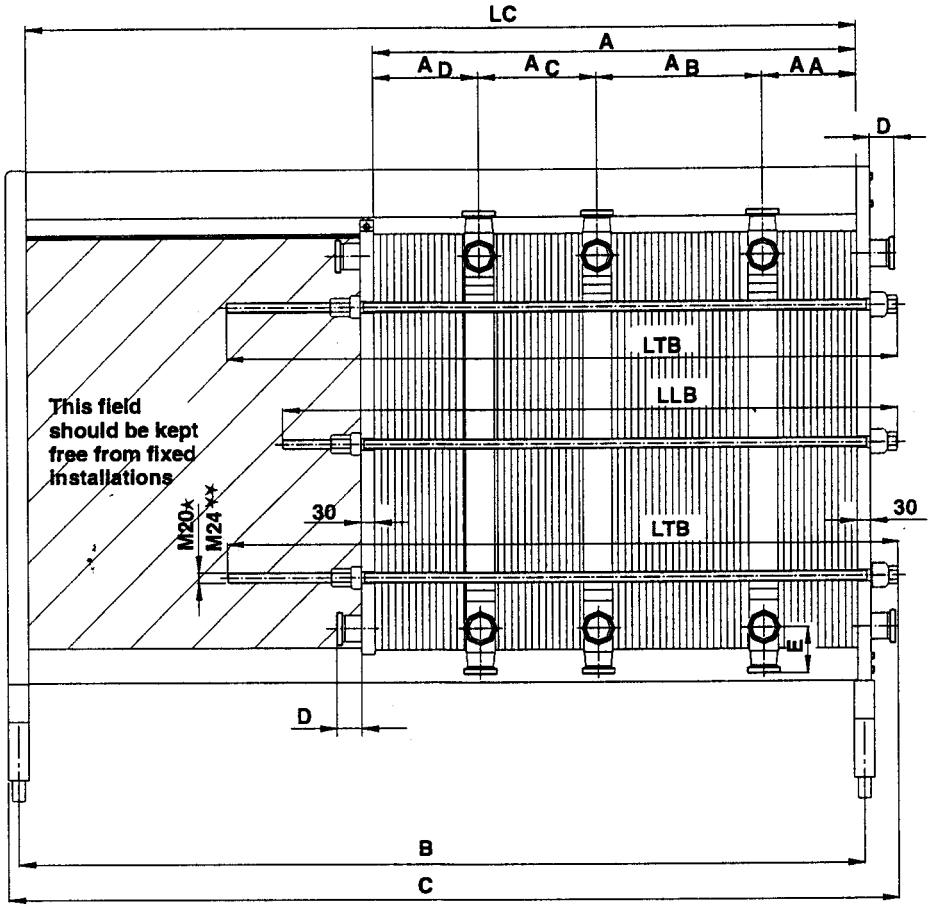
PHE–TYPE C6-SM

3 CONNECTION PLATES

No. 32200–9341	
Date	0005
Edition	1
Dept.	TPI–SU

All dimensions in mm



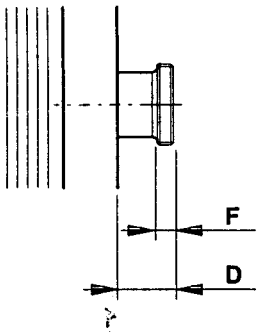


★★TÜV
★ SA

For actual measures (A, B, C, etc.)
please see computer printed specification.

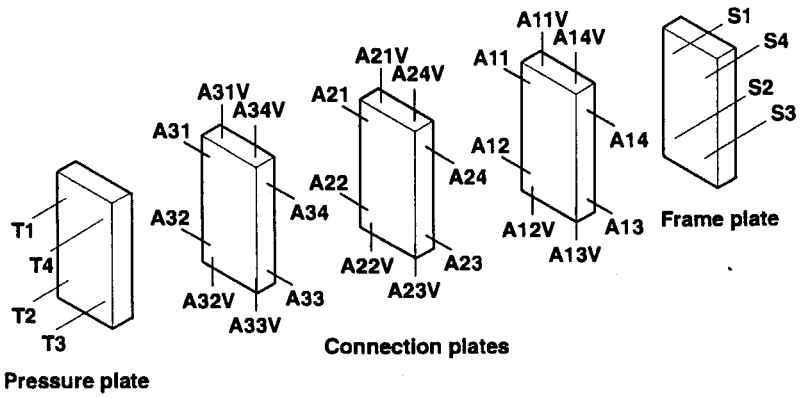
CONNECTION TYPE

1. Connection of stainless steel Ø51 mm



STANDARD	SMS	DIN	IDF	RJT	CLAMP
D	50	52	51.5	57	51.5
E	100	102	101.5	107	101.5
F	24	30	21.5	27	21.5

CONNECTION LOCATIONS



NOTES!

- Connections with male part only.

Manufacturing no.	30103-38622	Date 011025 AK
Plate Heat Exchanger type	MS6-SR	Quantity 1
Drawing no.	32200-8211	
Customer ULTIMA FRANCE		Ref.
Agent TETRA PAK DAIRY AB Sverige		Ref. 506225/K111216-01
Supplier Alfa-Laval Thermal		Ref. T313886 TO nr.313886

Plates with parallel flow.

The plate pack is tightened to 137 mm

Always observe plate from its gasket side. A ten figure part number plus one letter are stamped on the upper part of the plate.

The plates are assembled, counting from the frame plate to the pressure plate, in sequence stated below with the gasket side facing the frame plate.

For information about installation, running, cleaning etc. see the instruction book.

Measurements (see drawing) mm	: Net weight
	: 167 kg
A = 137	:
LT= 600	: Liquid volume
	: 16 l
	:
C = 895	: Design pressure
	: 10.0 BAR

Connection standard
SMS 51

Remarks

Test pressure : 13,0 BAR
Design temp : 110 C

Circ. water : T2->S1
CW : S4=>T3

Bolts : M20

Media	->Circ. water	=>CW
Flow rate	2850 kg/h	5986 kg/h
Temp. program	76.0 to 30.0 C	25.0 to 47.0 C
Pressure drop	33.00 kPa	5.000 kPa
Liquid volume	7,7 l	8,2 l
Location of connections		
inlet	T2	S4
outlet	S1	T3

Material in connections

Plates material	AISI 316
thickness	0.50 mm
Gasket material	NBRP CLIP-ON
Heat transfer surface	5,04 m2
Plate grouping	3*6 H ------ 1*19 H

Plate no.	Plate code no.	Punched corner of the plate: upper left	lower left	lower right	upper right	Flow direction on the gasket side of the plate
		S 1	2	3	4	
		<--			=<=	
1	364217 0491B	O			O	
2	364217 0410A	O		O==<===O		Down
3	364217 4403B	O--<---O		O	O	Up
4	364217 4403A	O	O	O	O	Down
5	364217 4403B	O	O	O	O	Up
6	364217 4403A	O	O	O	O	Down
7	364217 4403B	O	O	O	O	Up
8	364217 4403A	O	O	O	O	Down
9	364217 4403B	O	O	O	O	Up
10	364217 4403A	O	O	O	O	Down
11	364217 4403B	O	O	O	O	Up
12	364217 4403A	O	O	O	O	Down
13	364217 0409B	---<---O		O	O	Up
14	364217 0405A		O	O	O	Down
15	364217 4403B	O--->--O		O	O	Down
16	364217 4403A	O	O	O	O	Down
17	364217 4403B	O	O	O	O	Down
18	364217 4403A	O	O	O	O	Down
19	364217 4403B	O	O	O	O	Down
20	364217 4403A	O	O	O	O	Down
21	364217 4403B	O	O	O	O	Down
22	364217 4403A	O	O	O	O	Down
23	364217 4403B	O	O	O	O	Down
24	364217 4403A	O	O	O	O	Down
25	364217 0406B	O--->---		O	O	Down
26	364217 0410A	O		O	O	Down
27	364217 4403B	O--<---O		O	O	Up
28	364217 4403A	O	O	O	O	Down
29	364217 4403B	O	O	O	O	Up
30	364217 4403A	O	O	O	O	Down
31	364217 4403B	O	O	O	O	Up
32	364217 4403A	O	O	O	O	Down
33	364217 4403B	O	O	O	O	Up
34	364217 4403A	O	O	O	O	Down
35	364217 4403B	O	O	O	O	Up
36	364217 4403A	O	O	O	O	Down
37	364217 0409B	---<---O		O	O	Up
38	364217 0411A		O	O==<====		Down
	364217 0444B		O	O		
			->-	==>		
		T 1	2	3	4	

DATE : 011025

30103-38622 Ed. 1

Plate-req. for manuf.order: 313886 Orderno. : T313886-01

M6 M AISI 316 0.50 NBRP CLIP-ON

PLATE NUMBER	QUANTITY
364217 0405	1
364217 0406	1
364217 0409	2
364217 0410	2
364217 0411	1
364217 0444	1
364217 0491	1
364217 4403	30
TOTAL (CHANNELPL.+ENDPL.)	38
(TRANSITION PL./DIST. SHEET)	1

MEASUREMENTS

Manufacturing no. 30103-38622 Date 011025
AK

Plate Heat Exchanger type MS6-SR Quantity 1
Drawing no. 32200-8211

MC - orderno.
506225/K111216-01

Orderno.
T313886
TO nr.313886

A-MEAS.TOTAL	137 mm	TOTAL WEIGHT	167 KG
A+FREE SPACE	195 mm	TOTAL VOLUME	15,9 L
C - MEASURE	895 mm		
CONN.STD	SMS 51		

PER SECTION

SECT. NO.	PLATE AREA m2	VOLUME IN LTR. SIDE 1 / SIDE 2	A-MEASURE (mm)
1	5,04	7,7 / 8,2	137

CARRYING BARS

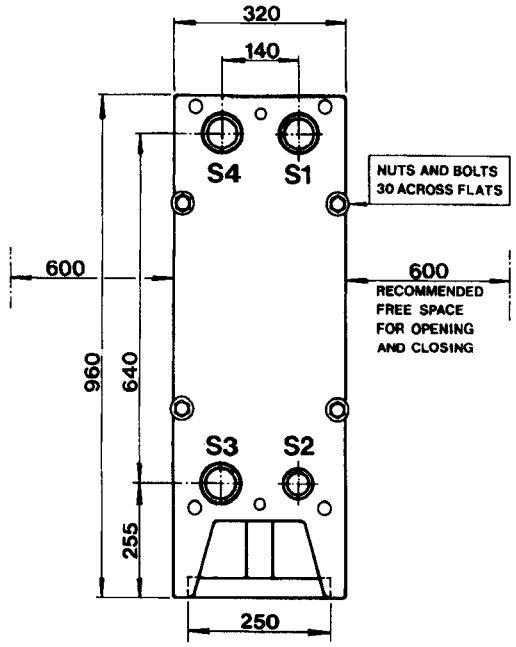
CARR.BAR L.	700 mm	EST. MIN.LENGTH	470 mm
EXTENDIBLE BY :	PLATE QUANT. / FREE HANGING		
	46 PCS / 230 mm		

TIGHTENING BOLTS

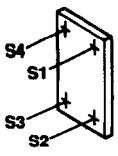
TIGHT.BOLT L.	600 mm	EST. MIN.LENGTH	345 mm
TIGHT.BOLT DIM.	M20		
EXTENDIBLE BY :	PLATE QUANT. / FREE HANGING		
	51 PCS / 255 mm		

CENTRE OF GRAVITY	EMPTY	FILLED	(mm)
HORIZONTAL	136	131	(from the outside of the frame plate)
VERTICAL	575	575	(from the underside foot or frame)

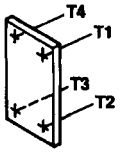
FOUNDATION LOAD	OPENED	OPERATING (N)
SUPP. COLUMN SIDE	922	314
FRAME SIDE	1334	1471



CONNECTION LOCATIONS

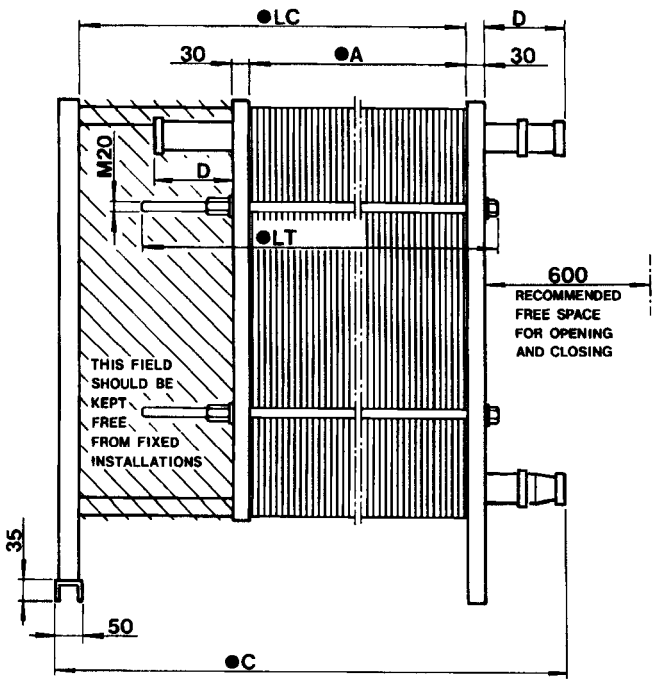


Frame plate



Pressure plate

LOCATION	MEDIA	CONN.TYPE

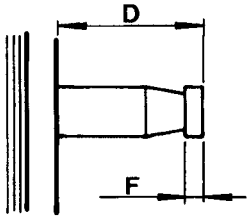


● WHEN THIS DRAWING IS USED AS DESIGN DRAWING, PLEASE FIND DIMENSIONS ON DATA PRINT

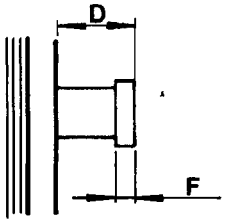
ALL DIMENSIONS IN MILLIMETERS

CONNECTION TYPES

1. Connection of stainless steel ø 51 - 38 with union.



2. Connection of stainless steel ø 51 with union.



With or without thermometer pocket.

STANDARD	Ø51-38 D	Ø51 ☆D	F
SMS	120	120	20
DIN, IDF, RJT, CLAMP	122	122	22

☆ 70mm shorter without thermometer pocket.

QUOTATION NO. ORDER NO.		
ITEM NO.		
CALCULATION NO.		
PREPARED	CHECKED	APPROVED

MS6-SR

DATE 9008

32200-8211

Quotation
TPPSA

Customer: TPPSA
Project: TPPSA
Item: Training Module
Quoted by: Henry Tsui
Date: 7/28/2006

Description: Tetra Plex type C6-SM
Customer price: 33307EUR RCPL PHE EUR 06.1 TP
Deduct factor:

Transfer List Price: 11317EUR Lund Hygienic 06.1 TP
Transfer price: 11317EUR
Supplier: LUND_SEH Lund Hygienic 06.1 TP

Block list:

CLIP6 FRH FP24
CLIP6 FRH PP25
CLIP6 FRH BA03 (LC=1500.0mm)
CLIP6 FRH SC01
CLIP6 FRH TB23 (LT=1160.0mm) Boltprotection
CLIP6 FRH FX01
CLIP6 FRH NP16 (=TETRA PAK ENG. SS)
CLIP6 FRH YP03 (=SKID BASE)
CLIP6 FRH FO01 (=LOW ADJ.)
Common fitting standard - CLAMP 51
S1 - CLIP6 FRH CF01 (= SS_FOOD)
S1 - CLIP6 FRH FI12 (= CLAMP 51)
S4 - CLIP6 FRH CF01 (= SS_FOOD)
S4 - CLIP6 FRH FI12 (= CLAMP 51)
T2 - CLIP6 FRH CP01 (= SS_FOOD)
T2 - CLIP6 FRH FI12 (= CLAMP 51)
T3 - CLIP6 FRH CP01 (= SS_FOOD)
T3 - CLIP6 FRH FI12 (= CLAMP 51)

Section I : 37 * CLIP6 CH08 (=ALLOY 316, 0.60 mm, EPDMFF CLIP-ON)
CLIP6 FRH PR09 (=Protection sheet)
A1 CLIP6 FRH CC01(=Connection plate)
A11 CLIP6 FRH CO08 (=Corner)
A11H CLIP6 FRH FI12 (=CLAMP 51)
A11V CLIP6 FRH FI12 (=CLAMP 51)
A12 CLIP6 FRH CO01 (=Corner)
A13 CLIP6 FRH CO01 (=Corner)
A14 CLIP6 FRH CO07 (=Corner)
A14H CLIP6 FRH FI12 (=CLAMP 51)
A14V CLIP6 FRH FI12 (=CLAMP 51)

Section II :		26 * CLIP6 CH08 (=ALLOY 316, 0.60 mm, EPDMFF CLIP-ON)
		CLIP6 FRH PR11 (=Protection sheet)
	A2	CLIP6 FRH CC01(=Connection plate)
	A21	CLIP6 FRH CO06 (=Corner)
	A21H	CLIP6 FRH FI12 (=CLAMP 51)
	A22	CLIP6 FRH CO06 (=Corner)
	A22H	CLIP6 FRH FI12 (=CLAMP 51)
	A23	CLIP6 FRH CO01 (=Corner)
	A24	CLIP6 FRH CO02 (=Corner)
Section III :		49 * CLIP6 CH08 (=ALLOY 316, 0.60 mm, EPDMFF CLIP-ON)
		CLIP6 FRH PR11 (=Protection sheet)
	A3	CLIP6 FRH CC01(=Connection plate)
	A31	CLIP6 FRH CO08 (=Corner)
	A31H	CLIP6 FRH FI12 (=CLAMP 51)
	A31V	CLIP6 FRH FI12 (=CLAMP 51)
	A32	CLIP6 FRH CO01 (=Corner)
	A33	CLIP6 FRH CO01 (=Corner)
	A34	CLIP6 FRH CO07 (=Corner)
	A34H	CLIP6 FRH FI12 (=CLAMP 51)
	A34V	CLIP6 FRH FI12 (=CLAMP 51)
Section IV :		5 * CLIP6 CH08 (=ALLOY 316, 0.60 mm, EPDMFF CLIP-ON)
		CLIP6 FRH PR09 (=Protection sheet)

Number of units: 1
Number of plates: 117

Tetra Plex type C6-SM

End Customer/country	Date	Handled by	Project no
TPPSA, USA	**7/31/2006**	HTI	**Training System**
Order no	Representative		Item no
	1234		**Main PHE**

Section I is closest to the frame plate.

Section	Flowrate (kg/h)	Media	Temperature progr. (°C)	dP (kPa)	Grouping
I	**1750**	**Water (Media)**	**22 <- 87**	**29**	**6*3MH**
	1750	**Water (Product)**	**15 -> 80**	**29**	**6*3ML**
II	**945**	**Water (chilled)**	**24 <- 15**	**3**	**1*5MH + 2*4MH**
	1750	**Water (Product)**	**25 -> 20**	**19**	**4*3ML**
III	**1900**	**Water (Media)**	**74 <- 22**	**45**	**8*3MH**
	1750	**Water (Product)**	**81 -> 25**	**39**	**8*3ML**
IV	**1804**	**Water (Cooling)**	**15 -> 69**	**6**	**1*2L**
	1750	**Water (Str. water)**	**85 <- 140**	**5**	**1*2L**

PLATES

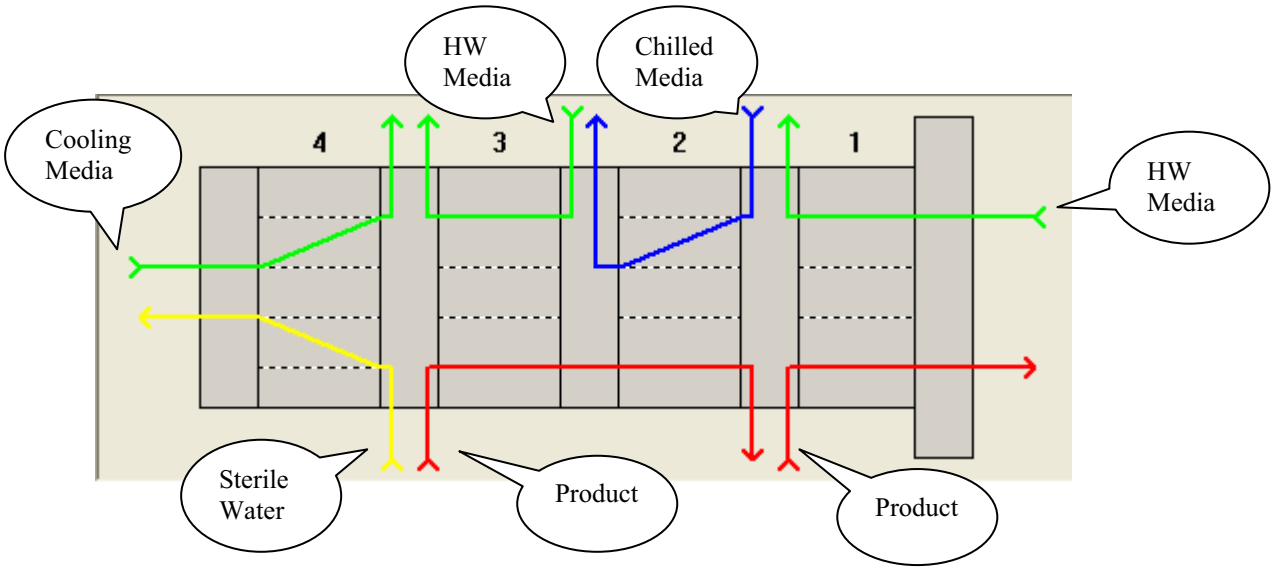
(Gaskets are CLIP-ON if not otherwise mentioned)

Section	Quantity	Material	Thickness	Gasket
All	117	ALLOY 316	0.60 mm	EPDMFF

FRAME

PV Code	Connection standard	Lengths		Accessories included
PED	CLAMP 51	LC:	1500 mm	Friction spanner
	❑ Other (state below):	LT:	1160 mm	Protection sheet
		Total length:	1635 mm	Bolt protection
	.....	Plate pack:	727 mm	Feet: LOW ADJ.
		Net weight:	522 kg	

Max. working pressure: 16 barg **Test pressure: 21 barg** **Design temp.: 140 °C**



Comments: Regenerative: %, Cleaning data (Min): Flow l/h Press drop kPa

Tetra Pak

Tetra Pak Processing Systems Americas Inc.

Our ref. **Training Module THE**
Revision A

Your ref.

Tetra Spiraflo®

Technical specification **Case 1**

Recommended min. CIP flow:	**3300 kg/h**
CIP pressure drop:	**485 kPa**

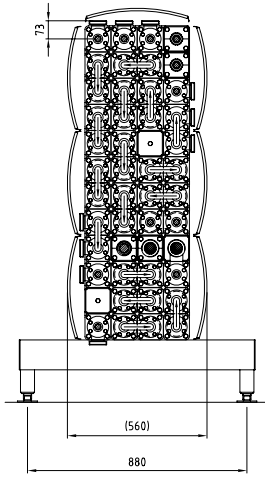
Summary of pressure drop
kPa

Section	Flow kg/h	Tube side Shell side	Temp.prog. °C			Press.drop kPa	Tube type Number of tubes	Tube material Shell material
	2000	Water	15	→	74	80	MT 57/4x16C-3	AISI 316
1	2000	Water	26	←	85	20	10	AISI 304
	2000	Water	74	→	114	15	MT 57/4x16S-3	AISI 316
2	2000	Water	87	←	127	5	6	AISI 304
	2000	Water	114	→	137	10	MT 57/4x16S-3	AISI 316
3	4000	Water	129	←	140	10	4	AISI 304
	2000	Water	137	→	89	20	MT 57/4x16S-3	AISI 316
4	2000	Water	126	←	77	10	8	AISI 304
	2000	Water	89	→	38	60	MT 57/4x16C-3	AISI 316
5	2000	Water	77	←	26	15	8	AISI 304
	2000	Water	38	→	25	20	MT 57/4x16C-3	AISI 316
6	3200	Water	23	←	15	10	2	AISI 304
	2000	Water	137	→	85	15	MT 57/4x16C-3	AISI 316
7	1300	Water	95	←	15	5	2	AISI 304
	100	Water	20	→	50	5	MT 57/1x25S-3	AISI 316
8	2000	Water	85	←	87	5	1	AISI 304
	2000	Water	137	→		5	HT 25S (MT 57) double	AISI 316
9							1x2d (3 s)	

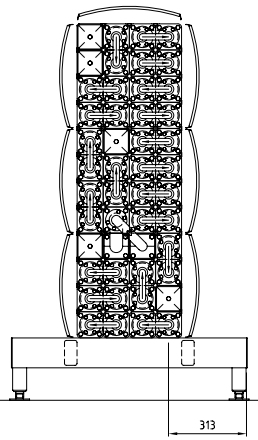
Tetra Pak Processing Systems Americas Inc.
200 South Park Boulevard
Greenwood
IN 46143
USA

Henry Tsui
Phone : 403-208-0830
Fax :
Vat No.

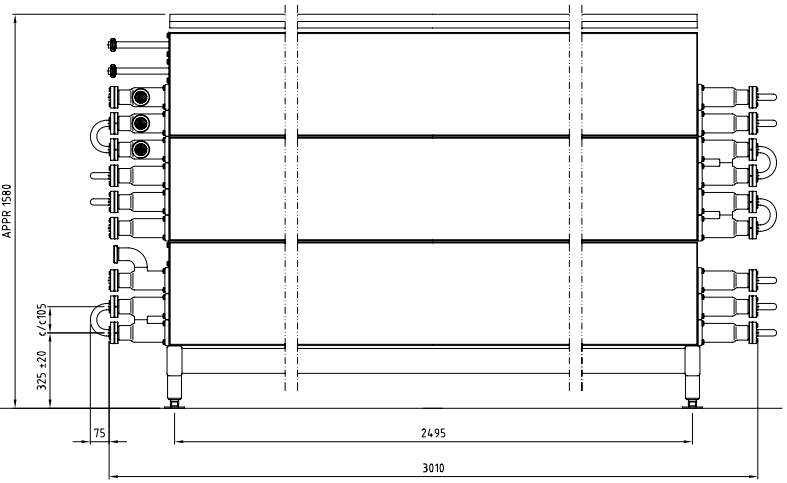
Drawing No. S104 3210-01



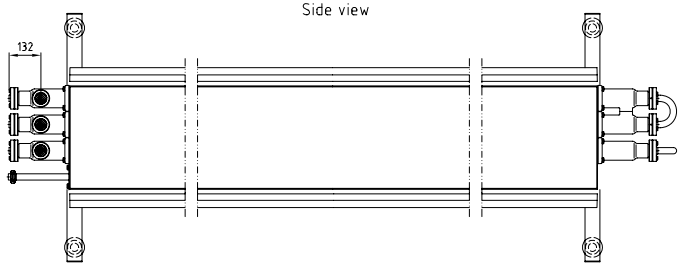
Front view



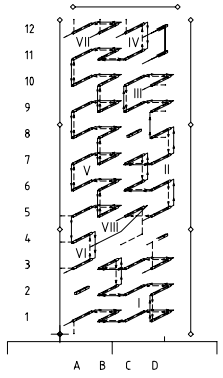
Back view



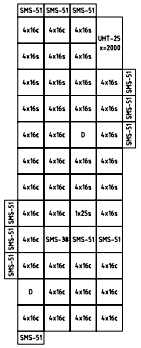
Side view



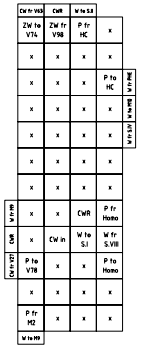
Top view



Isometric view



Configuration front view



Connections front view

Counter fittings	
Multitubes	ϕ25.4x1.25
Monotubes	ϕ25.4x1.25, ϕ38x1.5
Holdingtubes	ϕ38.6x1.55, ϕ51.6x1.55

Torque		
M8	16	Nm.
M10	32	Nm.
M12	56	Nm.

Volume & Weight		
Prod.vol.	90	Lit.
Net weight	780	Kg.
Gross weight	1060	Kg.

Replaces drawing No.	Revision	Date	Revised	Checked	Appr.
Rev No.					

Revision No.

Qty.	Item	Article No.	Name/Designation	Material (final condition) Blank	Pattern No./Note
	Assembly No.				

Title
MT-57
Isometric and Layout drawing
Order: 2004092

Tetra Pak
LUND SWEDEN

Special requirements

Surface roughness indicated by R_a value.

Scale	Dept.	Date
1:10	CHT	040504

First angle projection Method E

Drawn	Checked

Designed	Appr.
MLI	MLI

Class No.

Complementary doc. No.
Orderspecification

Drawing No.
S104 3210-01

10

Workshop Test Installation Commissioning

CR 5844150880 Rev:

Order No: **2437459** Machine No: **T5844150880** Rev date:

Project, country: **MD Youngdong, Korea** Product/model: **TA Flex**

Issued by: *Mats Hjerthén, 5815* Department: *TPD&B* Date: *2006-04-05*

1. BASIC DATA

When using this form, the corresponding “Instruction for the Commissioning report“ has to be followed.

Customer	Maeil dairy Youngdong
Contact person at site	
Address	Hyundai Ansung Tower 7F, 737-35, Hannam-dong, Yongsan-gu, Seoul, Korea
Phone	
Fax	
Contact person Tetra Pak	Thomas An, +82 2 799 2355
Started	
Finished	

2. CONTROL POINTS

Action	Date/Sign.	Action	Date/Sign.
PHE/THE connections		Timers and CIP levels preset	
Valves tested		AIC test protocol filled in	
Motors set and tested		Sterilising high temperature	
Homogeniser set and tested		Production test protocol high temp. Filled in	
Transmitters tested		Ramp up/down tested. Max-min values set	
Indicators checked		CIP test protocol filled in	
Communication tested		Temperature guards set	
Media lines flushed		Water run during 30 minutes to	
Commissioning and spare parts kit checked		Performance protocol filled in	
Flow and pressure adjusted for all program steps and capacities		Settings recorded	
Sterilising test protocol low temp. Filled in		Training of personnel performed	
Production test protocol low temp. Filled in		All configurations of products/options tested	
Ramp up/down tested. Max-min values set		Production protocol for all products/options filled in	

Date :		Product :				Production selections :					
	Item	Unit	Step	Step	Step	Step	Step	Step	Step	Step	Step
Product side											
Temp. product BTD	TE 1	°C									
Temp. product after sect.1	TE 2	°C									
Temp. before dearator	TE 43	°C									
Temp. after homog.	TE 3	°C									
Temp. after stab.holdcell	TE 4	°C									
Temp. before final heating	TE 49	°C									
Temp. before holdcell	TE 44	°C									
Temp. after holdcell	TE 45	°C									
Temp. guard holdcell	TE 42	°C									
Temp. after section 7	TE 99	°C									

Temp. to filling	TE 26	°C									
Temp. to filling	TE 6	°C									
Temp. from filling	TE 71	°C									
Temp. return to BTD	TE 63	°C									
Press. after sect.1	PI 01	Bar									
Press. after dearator	PI 02	Bar									
Press. before homog.	PI 03	Bar									
Press. after homog./M4	PI 60	Bar									
Press. after holdcell	PI 05	Bar									
Press. from filling	PI 07	Bar									
Product flow	FT 04	l/h									
Pump M2	SX2	Hz									
Pump M2	SX2	A									
Timing pump M4	SX4	Hz									
Timing pump M4	SX4	A									
Homogeniser M6	SX6	Hz									
Homogeniser M6	SX6	A									
Water side											
Temp. before M9	TE 64	°C									
Temp. after preheating	TE 10	°C									
Temp. before final heating	TE 8	°C									
Temp. after final heating	TE 9	°C									
Press. after M9	PI 09	Bar									
Press. before M9	PI 66	Bar									
Press. after M10	PI 08	Bar									
Water flow secondary side	FI 66	l/h									
Pump M9	SX9	Hz									
Pump M9	SX9	A									
Pump M9	M9	%									
Water flow primary side	FI 10	l/h									
Pump M10	SX10	Hz									
Pump M10	SX10	A									
V63 open		%									
V64 open		%									
V99 open		%									
V26 open		%									
Steam											
Press. before V44	PI 44	Bar									
V44 open		%									
V43 open		%									
V49 open		%									
Air regulators											
PC 68		Bar									
PC 78		Bar									
PC 74A		Bar									
PC 74B		Bar									

3. CLEANING

AIC - Intermediate cleaning											
Cleaning started					Cleaning finished						
Stepname	Step	Time of step (s)	Temp stab HC		Temp TSL 42		Temp TSL 71	Flow l/h	Test 1 Conc.%	Test 2 Conc.%	Test 3 Conc.%
Rinsing	51										
Caustic circ. 1	53										
Rinsing	55										
CIP - Full cleaning											
Cleaning started					Cleaning finished						
Stepname	Step	Time of step (s)	Temp stab HC		Temp TSL 42		Temp TSL 71	Flow l/h	Test 1 Conc.%	Test 2 Conc.%	Test 3 Conc.%
Rinsing	111										
Caustic circ. 1	114										
Rinsing	115										
Acid circ. 1	125										
Rinsing	131										
Caustic circ. 2	134										
Rinsing	141										
Acid circ. 2	144										
Rinsing	146										

Visual inspection	Y	N
Check if stabilisation HC is clean	☐	☐
Check if HC is clean	☐	☐
Check if cooler is clean	☐	☐
Check if A-valve at TBA is clean	☐	☐

Detergents			
Type of base being used		Concentration	0%
Type of acid being used			0%

Settings for CIP headerbatch						
Basic-no options	Deaerator	Stab.HC 95°C/60s	30s HC	Timing pump	PHE cooler	
% Caustic	% Caustic	% Caustic	% Caustic	% Caustic	% Caustic	
% Acid	% Acid	% Acid	% Acid	% Acid	% Acid	

Notes

4. LINE TEST WITH PRODUCT (see enclosed production protocols)

	Test required:				
Item no.	Item				Date
4.1	Temp. Program		Capacity	l/h	
	Options				
	Product		Amount	l	
	Packaging				
	Test method		Result		
Remarks					
4.2	Temp. Program		Capacity	l/h	
	Options				
	Product		Amount	l	
	Packaging				
	Test method		Result		
Remarks					
4.3	Temp. Program		Capacity	l/h	
	Options				
	Product		Amount	l	
	Packaging				
	Test method		Result		
Remarks					

5. SETTINGS

Item no.	Item			
5.1	Temperature guards			
		TSL 42 Sterilising	TSL 42 Production	TSL 71
	Product 1			
	Product 2			
	Product 3			
	Product 4			
	Product 5			
5.2	Restriction plates			
	Location	Dimenison pipe	Dimension hole	
5.3	Pressure controllers			
	PC1		PC2	
	CPM V74A		CPM V74B	
	CPM V78		CPM	
	PC		PC	
	PC		PC	
	PC		PC	

6. FINALISING

Item no.	Item	Date
6.1	PLC-program saved in back-up unit	
6.2		
6.3		
6.4		
6.5	Complete test report to archive in project file TP BU D&B	
6.6	Additional feedback report, registration number	

7. REMAINING

Notes	

8. REMARKS

Notes	

9. INTERNAL ENCLOSURES

No.	Comments

Technical Assistance Field Work Report

Visit Date (From- To)	Issuer / phone number		
Date of issue			
Mission			
Document title			
Distribution list			
TP Market Company	Customer	Country	
MC contact	Customer contact		
Machine type	Serial number		Year of delivery
Machine type	Serial number		Year of delivery
Machine type	Serial number		Year of delivery

Summary

Table of contents

Ctrl + Click on the line for the topic you want to read about

Introduction

Installation

Supply & Utilities

Mechanical installation

Sterility test

Production

Agreements regarding deviation in installation and utilities

Remaining items

Miscellaneous

Tetra Pak

Correction List CLW

Use the mouse or the Tab key to navigate between the entry fields.

Product / Model:	Serial Number:	Company Name: TP Dairy & Beverage Systems
Issued By:		Issue Date:
CLC or CLW - Site:	Project name:	Project country:
PLC Type:	HMI Type:	

- ☐ Contact taken with **PR before** test/commissioning.
- ☐ Contact taken with **AR before** test/commissioning.
- ☐ Meeting held with **PR after** test/commissioning. Deviations from specifications handed over.
- ☐ Meeting held with **AR after** test/commissioning. Deviations from specifications handed over.

Tetra Pak

Correction List CLC

Use the mouse or the Tab key to navigate between the entry fields.
Shortcut to copy from cell above: **Ctrl+d**
Shortcut to enter today's Date: **Ctrl+Shift+,**
Only one Fault Item per row, please. Note: the cells wrap.
TC = Template Change IL = Idea List

#	Fault Description	Fault Source	Corrected		Time Lost		TC	IL
			Date	Sign.	Hours	Min.	(x)	(x)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

Martin Rolf/Technical Assistance 2006-06-05

Instruction for using Correction List D&B MS 045

General information

The data from a completed correction list is automatically transferred to a database after it has been sent to D&B. It is vital that the list is filled out completely and in a correct way.

Preparations:

Open the document, answer "Enable Macros" at the security warning.
Serial number (T-number), Company name, Customer and Country can be copied automatically from the "PPP584XXXXXXX" document.
With the Correction List located in the folder: "6. Test&Comm" in the order file structure, click on the button "**Copy data from PPP-document**"
After data has been copied, the button "Copy data from PPP-document" will disappear.
Now click in the cell "CLC or CLW – Site:" Choose "CLC" if the document will be used for commissioning or "CLW" followed by the location for workshop test. Do not type anything else in this cell.
There is now enough information entered to create a file name so that the document can be saved.
Save the document in the correct location with the button "**Save CL**".

If the links for some reason do not work, just type the data manually into the cells.

How to fill out the "Basic data" page:

Start by clicking the "Product / Model" cell and selecting the correct module type, save. Then use the Tab-key to step through all the cells. Fill out the cell or select data from the pop-up windows. Never type additional data in cells with a pop-up window.

Cell name	**Explanation**
Product / Model	Type of module
Serial Number	Machine number without "T". Example: 5841234567
Company name	Company where you work
Issued by	Your name
Issue date	Date when you fill out the document.
CLC or CLW – site	CLC-Correction List Commissioning, CLW-Correction List Workshop + location of workshop
Project	Name of project which the module was manufactured for
Country	Name of country which the module was manufactured for
PLC Type	Type of PLC used in the module
HMI Type	Type of operating interface used in the module

Button	**Function**
Go to Fault Items	Switches to the next page
Save CL	Saves the correction list with the correct name automatically. Use only this button when saving list.
Print CL	Prints the CL with the correct layout. Use only this button when printing and creating PDF.
Email List to TPD&B	After finished test/commissioning always send document by clicking here. The document is verified before it is sent..

Now click on the button "Go to Fault Items".

How to fill out the "Fault items" page:

Use one row per fault. Do not leave any blank rows between rows already filled out.

Column Name	Description
Fault description	Use this line to describe the fault. Any type of text can be entered here. Text can have any length, cell adjusts automatically. If program fault, describe what the fault is and where in the program the fault is located (LAD and Rung etc).
Save CL	Saves the correction list with the correct name automatically. Use only this button when saving list.
Fault Source	Click to open pop-up window. First select Category of fault. Next select sub-category. Select the description that best fits the fault.
Corrected Date	Enter date when the fault was corrected. Shortcut to enter today's date: Ctrl+SHIFT+;
Corrected Sign.	Enter signature when the fault has been corrected.
Time Lost - Hours and Minutes	Enter time it took to correct the fault. Enter hours in one column and minutes in the other. Do not use decimal numbers.
TC	Template Change. Enter an "X" if fault is in template and a template change is necessary.
IL	Idea List. Enter an "X" if this is an idea for improvement.

Button	Function
Go to Basic Data	Switches to the previous page
Save CL	Saves the correction list with the correct name automatically. Use only this button when saving list.
Print CL	Prints the CL with the correct layout. Use only this button when printing and creating PDF.
Add 5 New Lines	Adds five lines after the last row.

Finalizing:

After test or commissioning has been completed, the Correction List must be sent to Dairy & Beverage:
Go to the Basic Data page and click on "Email List to TPD&B". The Correction List is verified for errors before it is automatically sent via mail to the Correction List Mailbox at D&B.
As usual, a PDF-document has to be created and manually placed on the server as well. Do that by clicking on "Print CL" and then select "Adobe PDF" as printer.

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CIP Information

Flow rates and Volumes in pipes

Flow rate Flow rates versus pipe diameters to achieve a flow velocity of 1,5 m/sec.

Pipe diameter (mm)	Inner pipe diameter (mm)	Flow rate (m^3/h)
25,4 (1'')	22,1	2,07
38,1 (1,5'')	34,8	5,1
50,8 (2'')	47,5	9,6
63,5 (2,5'')	60,2	15,4
76,2 (3'')	72,9	22,5
101,6 (4'')	97,4	40,2

Volumes in pipes Volumes in pipes and bends versus pipe diameters.

Pipe diameter	Volume in pipe (liter/meter)	Volume in bend (liter)
ISO (SMS)		
25 mm (1'')	0,398	0,040
38 mm (1,5'')	0,990	0,125
51 mm (2'')	1,847	0,268
63,5 mm (2,5'')	2,875	0,526
76 mm (3'')	4,072	0,803

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Tables

Steam table

Temperature, Absolute pressure and Gauge pressure.

TEMP (°C)	PRESSURE (A) (bar)	PRESSURE (G) (bar)
1	0.0036	-0.9964
2	0.0053	-0.9947
3	0.0067	-0.9933
4	0.0079	-0.9921
5	0.0089	-0.9911
6	0.0099	-0.9901
7	0.0108	-0.9892
8	0.0116	-0.9884
9	0.0124	-0.9876
10	0.0131	-0.9869
11	0.0139	-0.9861
12	0.0145	-0.9855
13	0.0152	-0.9848
14	0.0161	-0.9839
15	0.0175	-0.9825
16	0.0188	-0.9812
17	0.0202	-0.9798
18	0.0216	-0.9784
19	0.0230	-0.977
20	0.0244	-0.9756
21	0.0258	-0.9742
22	0.0272	-0.9728
23	0.0287	-0.9713
24	0.0301	-0.9699
25	0.0318	-0.9682
26	0.0339	-0.9661
27	0.0360	-0.964
28	0.0382	-0.9618
29	0.0405	-0.9595
30	0.0428	-0.9572
31	0.0451	-0.9549
32	0.0476	-0.9524
33	0.0505	-0.9495
34	0.0535	-0.9465
35	0.0565	-0.9435
36	0.0596	-0.9404
37	0.0629	-0.9371
38	0.0667	-0.9333
39	0.0708	-0.9292
40	0.0749	-0.9251
41	0.0792	-0.9208
42	0.0836	-0.9164
43	0.0881	-0.9119
44	0.0928	-0.9072

TEMP (°C)	PRESSURE (A) (bar)	PRESSURE (G)
45	0.0976	-0.9024
46	0.1025	-0.8975
47	0.1076	-0.8924
48	0.1128	-0.8872
49	0.1182	-0.8818
50	0.1236	-0.8764
51	0.1300	-0.87
52	0.1368	-0.8632
53	0.1437	-0.8563
54	0.1509	-0.8491
55	0.1583	-0.8417
56	0.1660	-0.834
57	0.1738	-0.8262
58	0.1819	-0.8181
59	0.1905	-0.8095
60	0.1997	-0.8003
61	0.2092	-0.7908
62	0.2191	-0.7809
63	0.2292	-0.7708
64	0.2396	-0.7604
65	0.2504	-0.7496
66	0.2620	-0.738
67	0.2739	-0.7261
68	0.2862	-0.7138
69	0.2989	-0.7011
70	0.3119	-0.6881
71	0.3258	-0.6742
72	0.3401	-0.6599
73	0.3549	-0.6451
74	0.3700	-0.63
75	0.3859	-0.6141
76	0.4024	-0.5976
77	0.4194	-0.5806
78	0.4369	-0.5631
79	0.4552	-0.5448
80	0.4741	-0.5259
81	0.4935	-0.5065
82	0.5137	-0.4863
83	0.5346	-0.4654
84	0.5561	-0.4439
85	0.5785	-0.4215
86	0.6016	-0.3984
87	0.6253	-0.3747
88	0.6499	-0.3501

TEMP (°C)	PRESSURE (A) (bar)	PRESSURE (G) (bar)
89	0.6753	-0.3247
90	0.7015	-0.2985
91	0.7286	-0.2714
92	0.7565	-0.2435
93	0.7853	-0.2147
94	0.8150	-0.185
95	0.8457	-0.1543
96	0.8772	-0.1228
97	0.9099	-0.0901
98	0.9434	-0.0566
99	0.9780	-0.022
100	1.0139	0.0139
101	1.0513	0.0513
102	1.0896	0.0896
103	1.1290	0.129
104	1.1694	0.1694
105	1.2108	0.2108
106	1.2533	0.2533
107	1.2968	0.2968
108	1.3415	0.3415
109	1.3872	0.3872
110	1.4341	0.4341
111	1.4821	0.4821
112	1.5323	0.5323
113	1.5843	0.5843
114	1.6376	0.6376
115	1.6922	0.6922
116	1.7482	0.7482
117	1.8055	0.8055
118	1.8641	0.8641
119	1.9242	0.9242
120	1.9857	0.9857
121	2.0496	1.0496
122	2.1153	1.1153
123	2.1826	1.1826
124	2.2514	1.2514
125	2.3218	1.3218
126	2.3939	1.3939
127	2.4676	1.4676
128	2.5436	1.5436
129	2.6218	1.6218
130	2.7018	1.7018
131	2.7836	1.7836
132	2.8672	1.8672

TEMP (°C)	PRESSURE (A) (bar)	PRESSURE (G) (bar)
133	2.9526	1.9526
134	3.0404	2.0404
135	3.1307	2.1307
136	3.2229	2.2229
137	3.3172	2.3172
138	3.4135	2.4135
139	3.5120	2.5120
140	3.6133	2.6133
141	3.7168	2.7168
142	3.8226	2.8226
143	3.9305	2.9305
144	4.0411	3.0411
145	4.1544	3.1544
146	4.2701	3.2701
147	4.3882	3.3882
148	4.5088	3.5088
149	4.6325	3.6325
150	4.7588	3.7588
151	4.8876	3.8876
152	5.0191	4.0191
153	5.1539	4.1539
154	5.2913	4.2913
155	5.4315	4.4315
156	5.5747	4.5747
157	5.7211	4.7211
158	5.8704	4.8704
159	6.0227	5.0227
160	6.1784	5.1784

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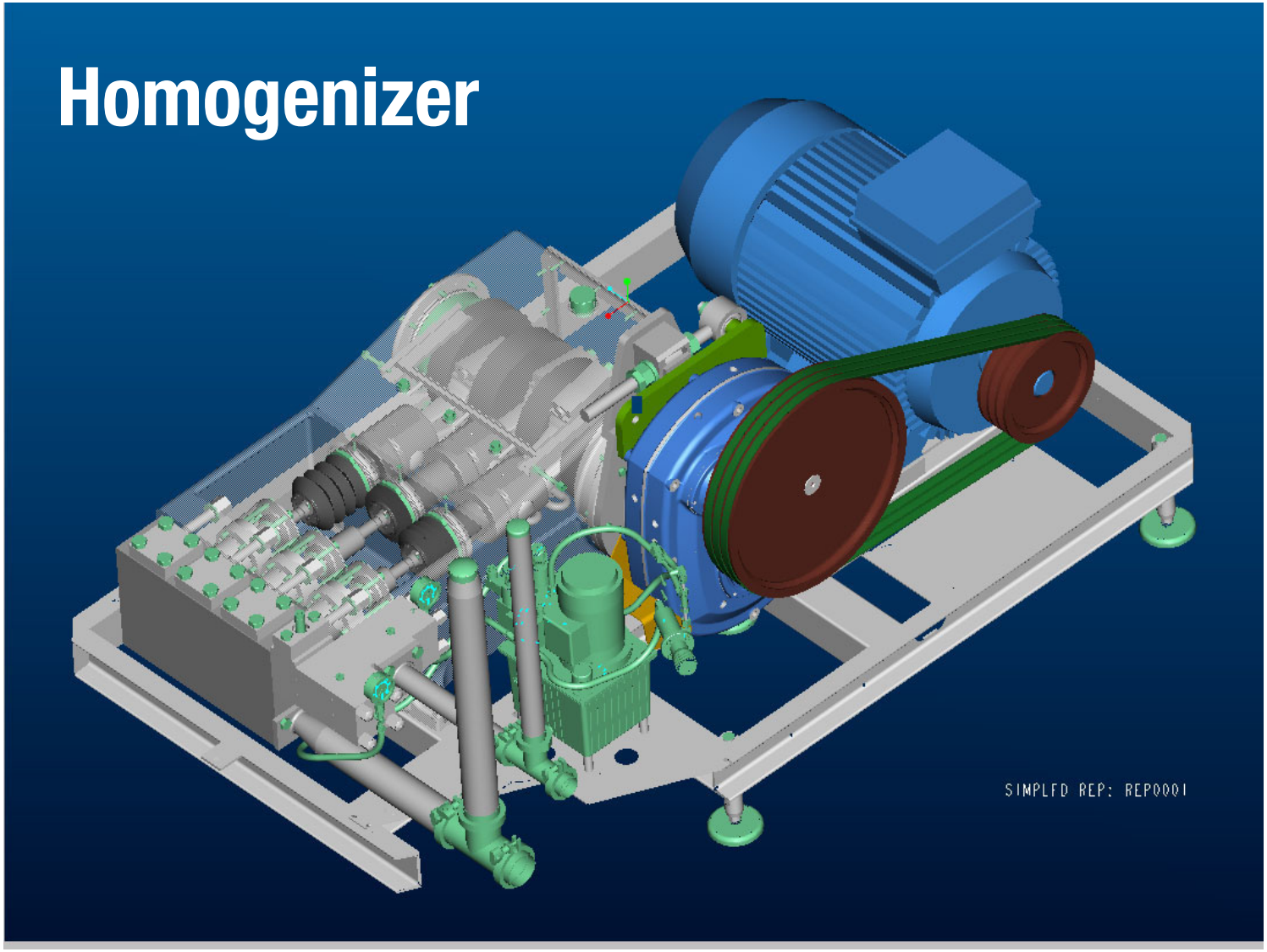
Deaerator

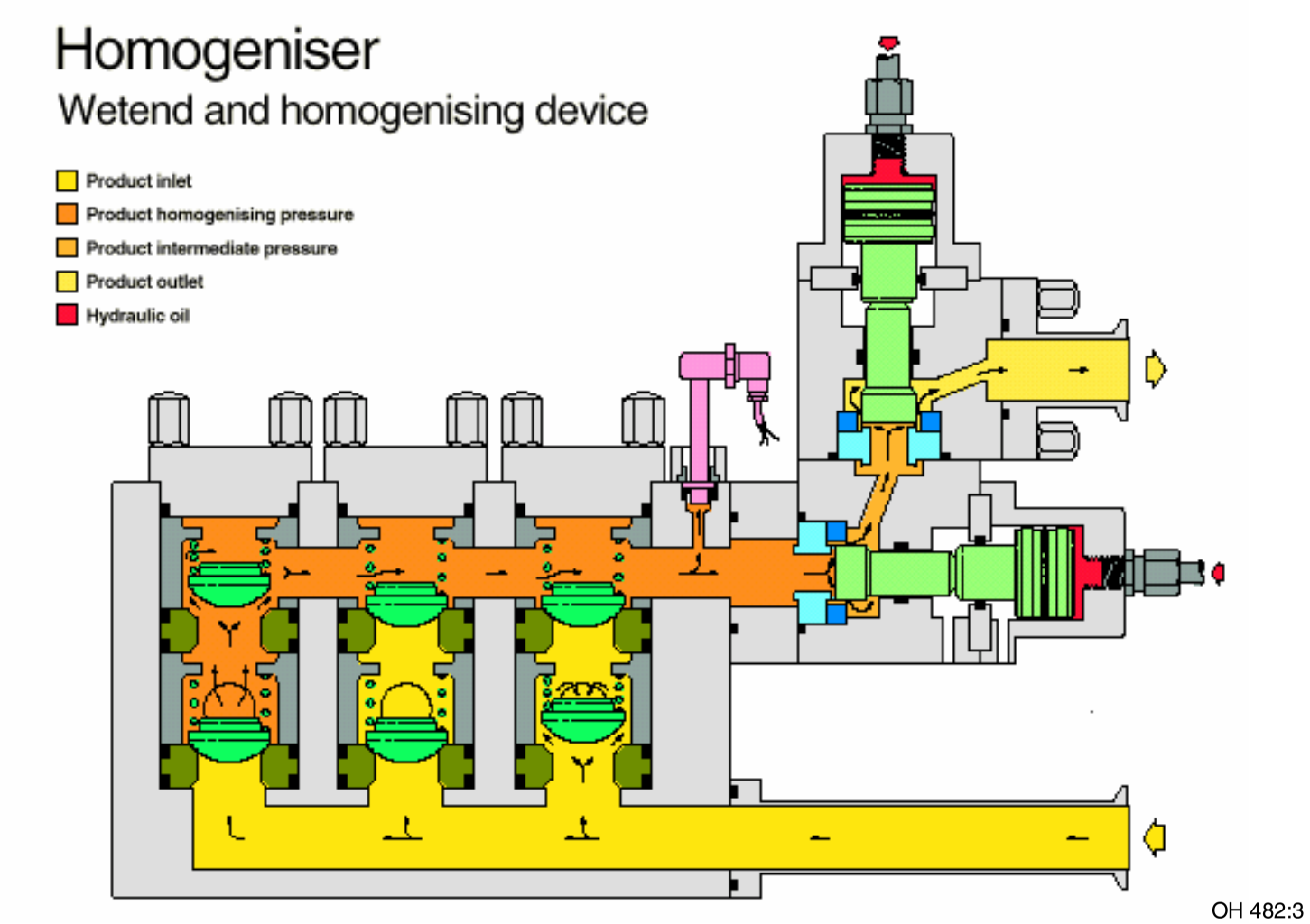
14

Homogerizer

Homogenizer

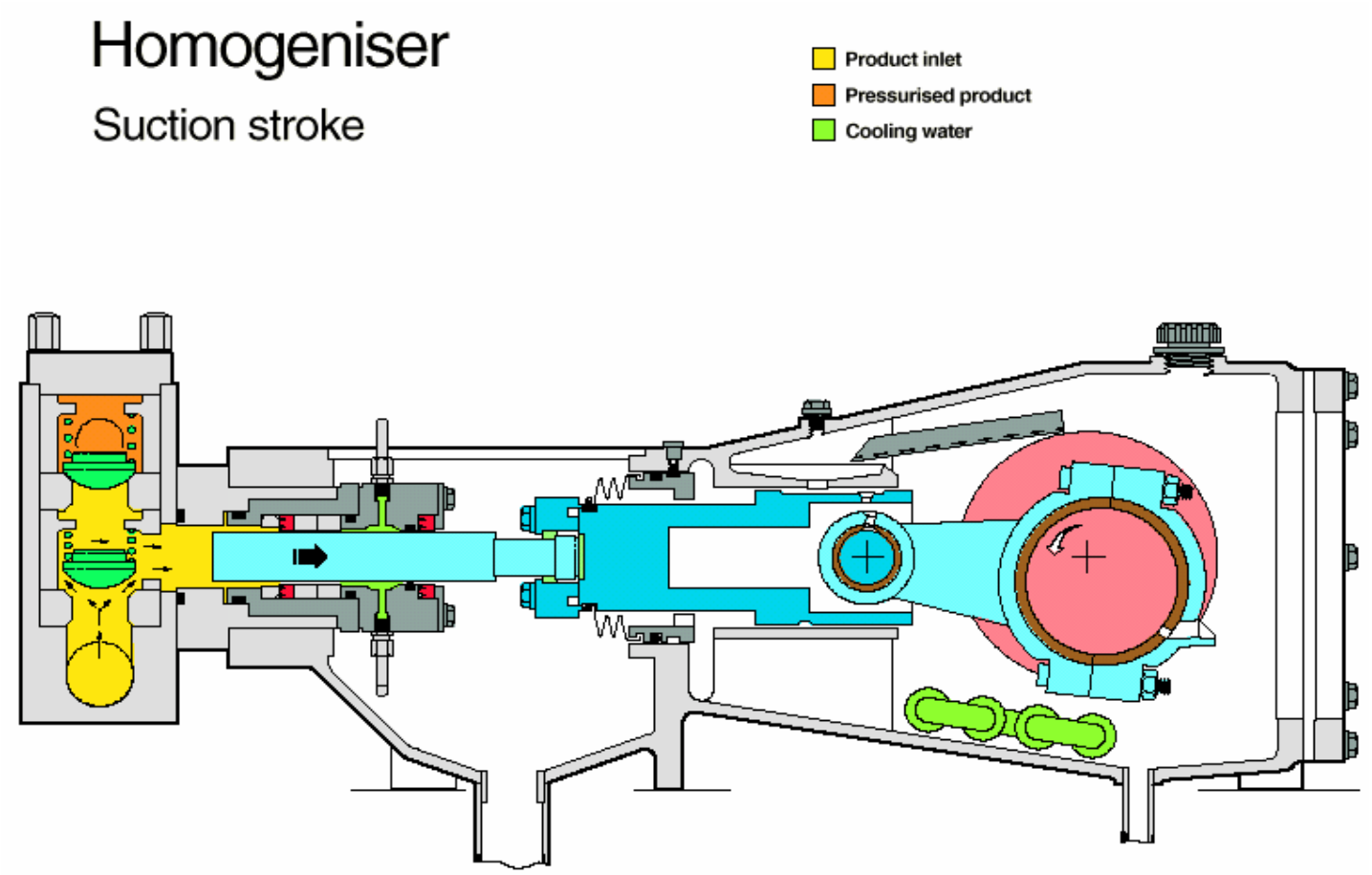


Wet end



OH 482:3

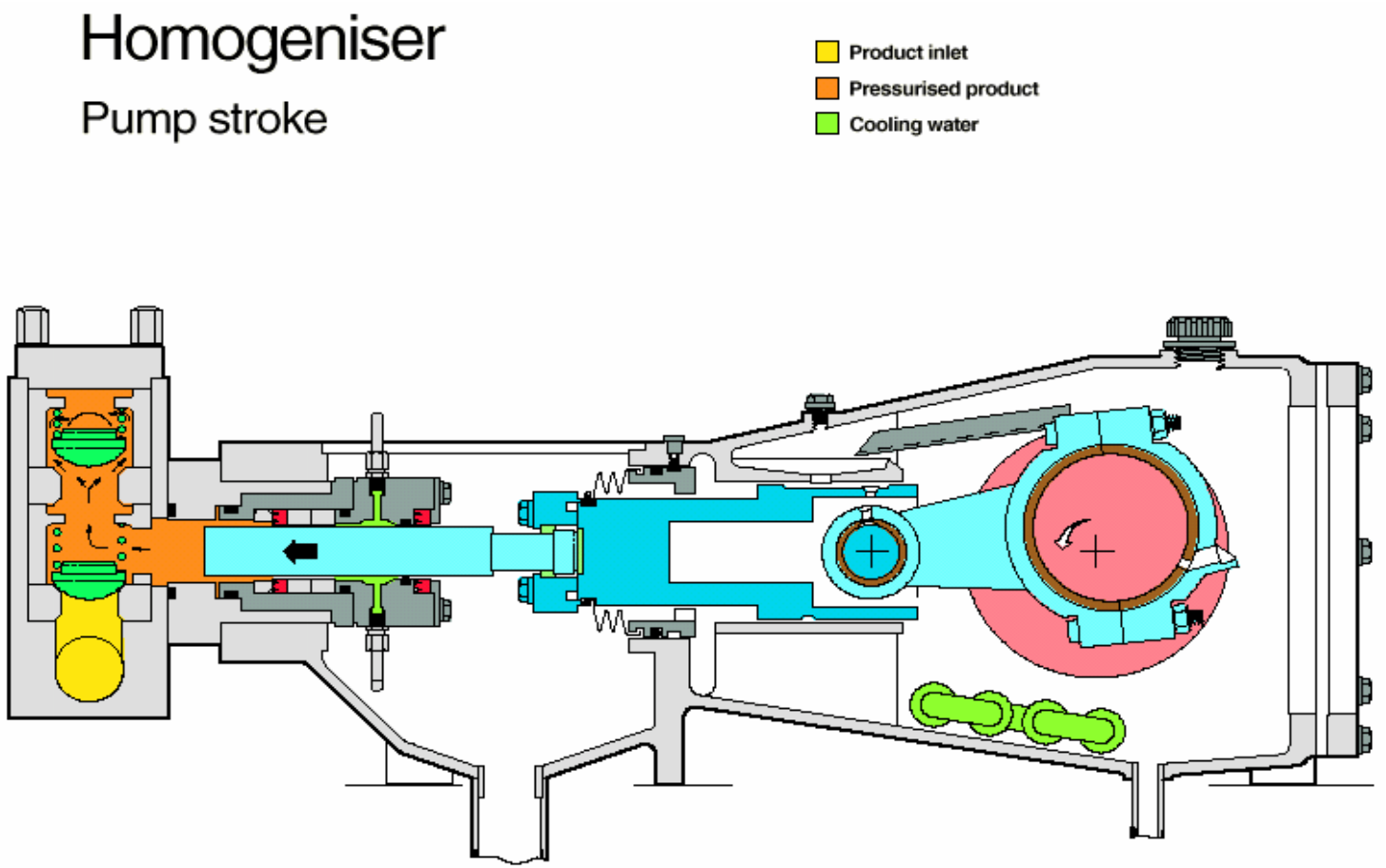
Suction stroke



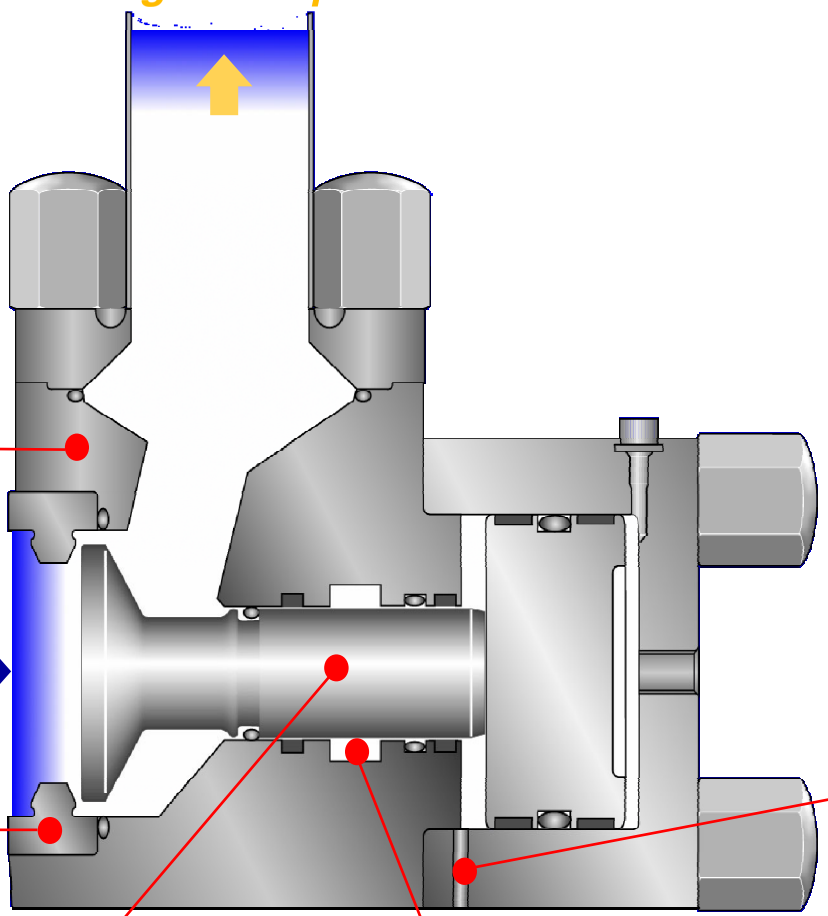
Pump stroke

Homogeniser

Pump stroke



Homogenizing device HD 100



Housing
- High quality one-piece block
- Corrosion resistant

Hydraulic system
- Double sealings for maximum security

Unhomogenized product

Seat with integrated impact ring
- Stellite
- Reversible for double lifetime

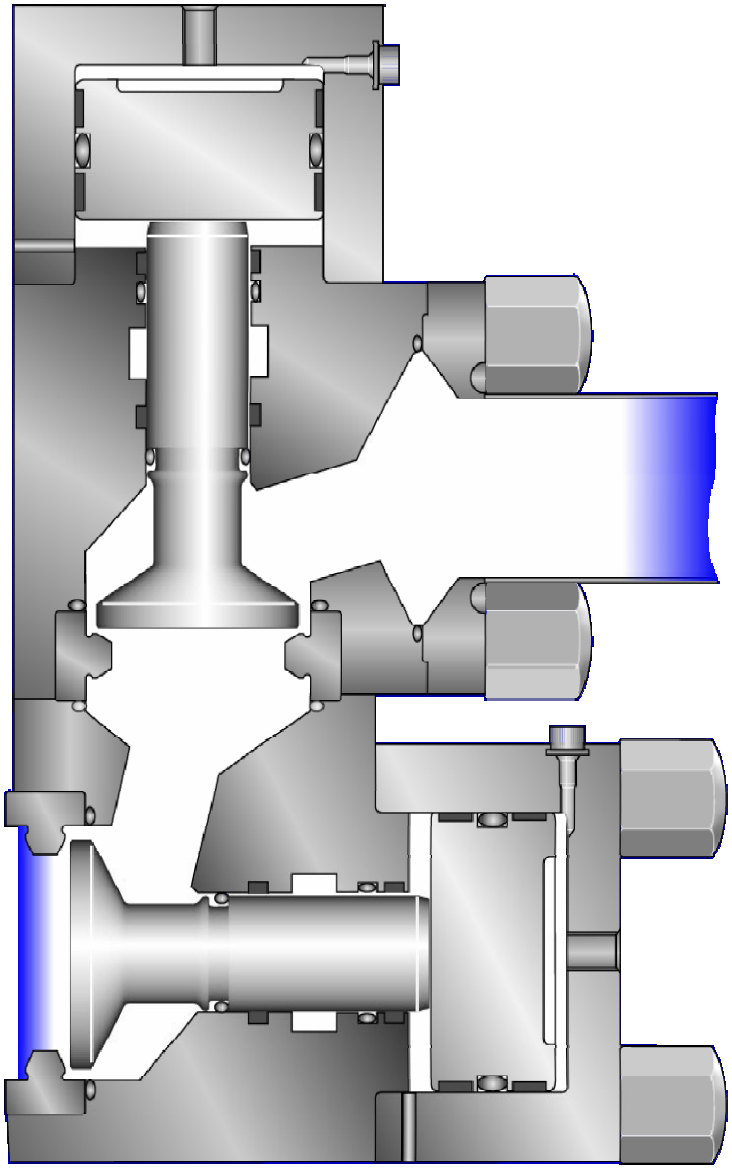
Leakage detection/ hydraulic
- Prevents pressure build up

Forcer
- Stellite
- Grindable for extended lifetime

Leakage detection/product
- Prevents pressure build up
- Aseptic barrier (optional)

Two-stage homogenization head

- Identical parts
- Hydralic pressure setting



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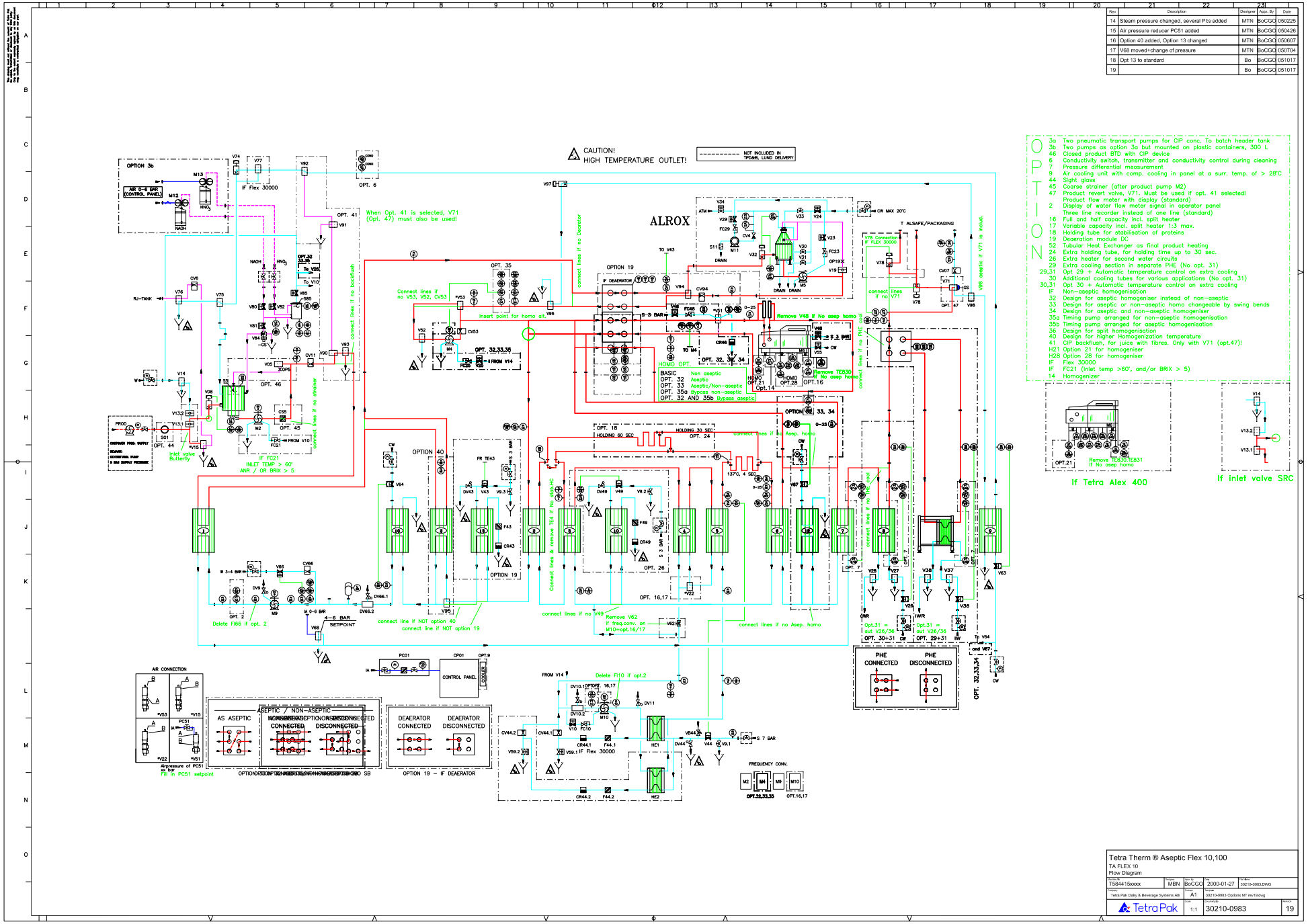
Options

Turn off 0_OPTION layer when optionlines shall not be seen.

Freeze 0_INFO layer when green text shall not be seen ex. printing



Rev.	Description	Designed	Appr. By	Date
14	Steam pressure changed, several PI:s added	MTN	BoCGG	050225
15	Air pressure reducer PC51 added	MTN	BoCGG	050426
16	Option 40 added, Option 13 changed	MTN	BoCGG	050607
17	V68 moved+change of pressure	MTN	BoCGG	050704
18	Opt 13 to standard	Bo	BoCGG	051017
19		Bo	BoCGG	051017

OPTION

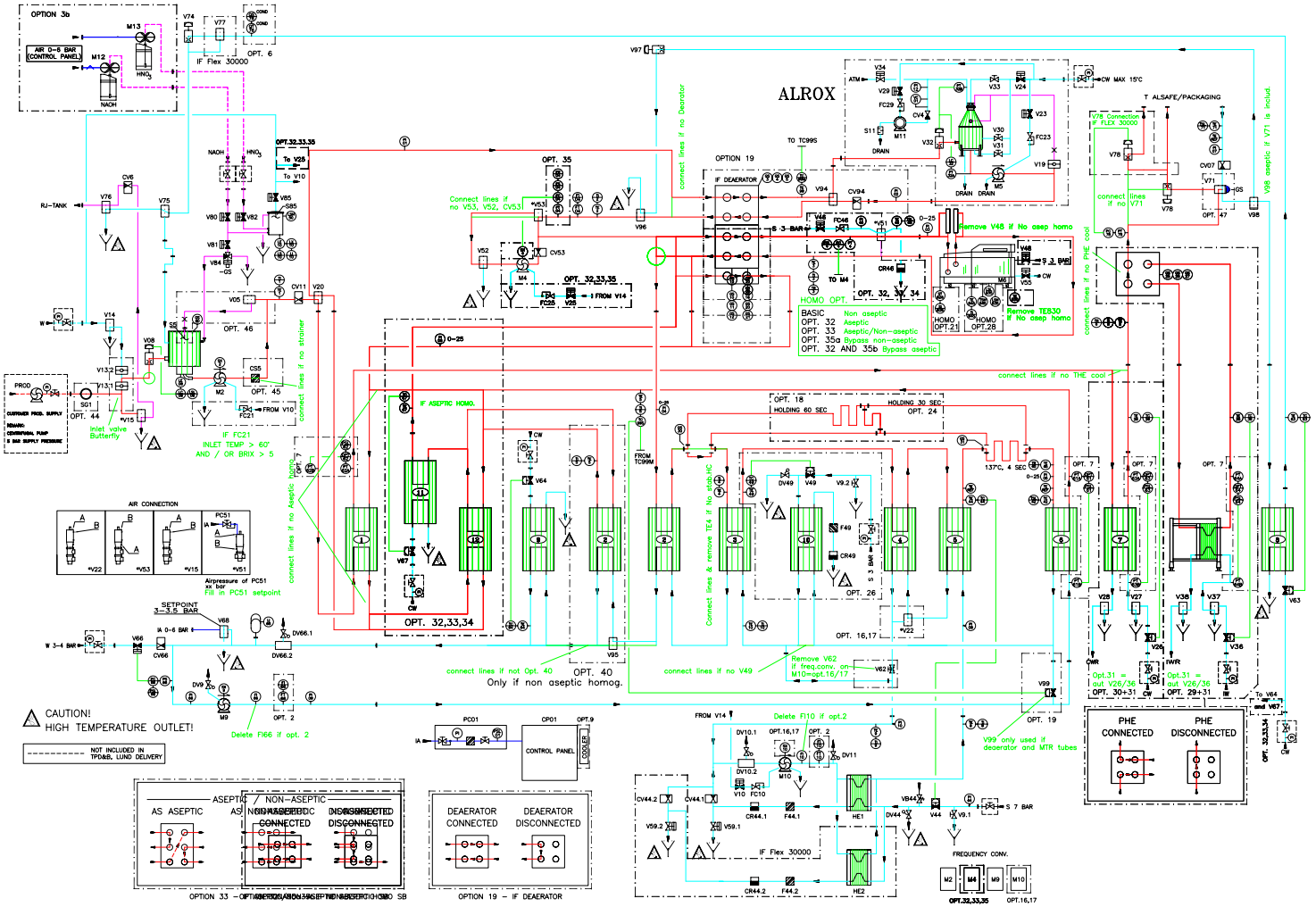
3a	Two pneumatic transport pumps for CIP conc. To batch header tank
3b	Two pumps as option 3a but mounted on plastic containers, 300 L
46	Closed product BTD with CIP device
6	Conductivity switch, transmitter and conductivity control during cleaning
7	Pressure differential measurement
9	Air cooling unit with comp. cooling in panel at a surr. temp. of > 28°C
44	Sight glass
45	Coarse strainer (after product pump M2)
47	Product revert valve, V71. Must be used if opt. 41 selected!
	Product flow meter with display (standard)
2	Display of water flow meter signal in operator panel
	Three line recorder instead of one line (standard)
16	Full and half capacity incl. split heater
17	Variable capacity incl. split heater 1:3 max.
18	Holding tube for stabilisation of proteins
19	Deaeration module DC
52	Tubular Heat Exchanger as final product heating
24	Extra holding tube, for holding time up to 30 sec.
26	Extra heater for second water circuits
29	Extra cooling section in separate PHE (No opt. 31)
29,31	Opt 29 + Automatic temperature control on extra cooling
30	Additional cooling tubes for various applications (No opt. 31)
30,31	Opt 30 + Automatic temperature control on extra cooling
IF	Non-aseptic homogenisation
32	Design for aseptic homogeniser instead of non-aseptic
33	Design for aseptic or non-aseptic homo changeable by swing bends
34	Design for aseptic and non-aseptic homogeniser
35a	Timing pump arranged for non-aseptic homogenisation
35b	Timing pump arranged for aseptic homogenisation
36	Design for split homogenisation
40	Design for higher Homogenization temperature
41	CIP backflush, for juice with fibres. Only with V71 (opt.47)!
H21	Option 21 for homogeniser
H28	Option 28 for homogeniser
IF	Flex 30000
IF	FC21 (Inlet temp >60', and/or BRIX > 5)
14	Homogenizer

Tetra Therm ® Aseptic Flex 10,100				
TA FLEX 10				
Flow Diagram				
T58441Sxxxx	MBN	BoCGG	2000-01-27	30210-0983.DWG
Tetra Pak Dairy & Beverage Systems AB		A1		30210-0983 Options MT rev19.dwg
Tetra Pak		1:1	30210-0983	19

Turn off 0_OPTION layer when option lines shall not be seen.

Freeze 0_INFO layer when green text shall not be seen ex. printing

Rev	Description	Designer	Appr. By	Date
15	Steam pressure changed, several PI:s added.	MTN	BoCGO	050223
16	Air reducer PC51 added	MTN	BoCGO	050426
17	Option 40 added, Option 13 changed	MTN	BoCGO	050607
18	Option 13 goes standad	MTN	BoCGO	051017



OPTIONS

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46	Closed product BTD with CIP device
6	Conductivity switch, transmitter and conductivity control during cleaning
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9	Air cooling unit with comp. cooling in panel at a surr. temp. of > 28°C
44	Sight glass
45	Coarse strainer (after product pump M2)
47	Product revert valve, V71 (not needed if filling via Aseptic tank)
	Product flow meter with display (std)
2	Display of water flow meter signal in operator panel
	Three line recorder instead of one line (std.)
16	Full and half capacity incl. split heater
17	Variable capacity incl. split heater 1:3 max.
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52	Tubular Heat Exchanger as final product heating
24	Extra holding tube, for holding time up to 30 sec.
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29,31	Opt. 29 + Automatic temperature control on extra cooling.
30	Additional cooling tubes for various applications (No opt. 31)
30,31	Opt. 30 + Automatic temperature control on extra cooling.
IF	Non-aseptic homogenisation
32	Design for aseptic homogeniser instead of non-aseptic
33	Design for aseptic or non-aseptic homo changeable by swing bends
34	Design for aseptic and non-aseptic homogeniser
35a	Timing pump arranged for non-aseptic homogenisation
35b	Timing pump arranged for aseptic homogenisation
36	Design for split homogenisation
40	Design for higher homogenisation temperature
H21	Option 21 for homogeniser
H28	Option 28 for homogeniser
IF	Flex 30000
IF	FC21 (Inlet temp >60°, and/or BRIX > 5)

Flex (MTR) with options

Tetra Therm Aseptic Flex <30' l/h

Flow Diagram

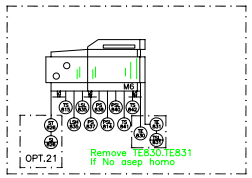
Designer	MBN	Appr. By	BoCGO
Date	2000-01-27	File Name	30210-0957.dwg
Company	Tetra Pak Dairy & Beverage Systems AB	Format	A1
Drawing File	30210-0957 Options MTR rev14.dwg		
Scale	1:1	Document No	30210-0957
		Version	18

Tetra Pak

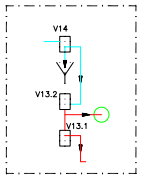
Turn off 0_OPTION layer when optionlines shall not be seen.

Turn off 0_INFO layer when green text shall not be seen ex. printing

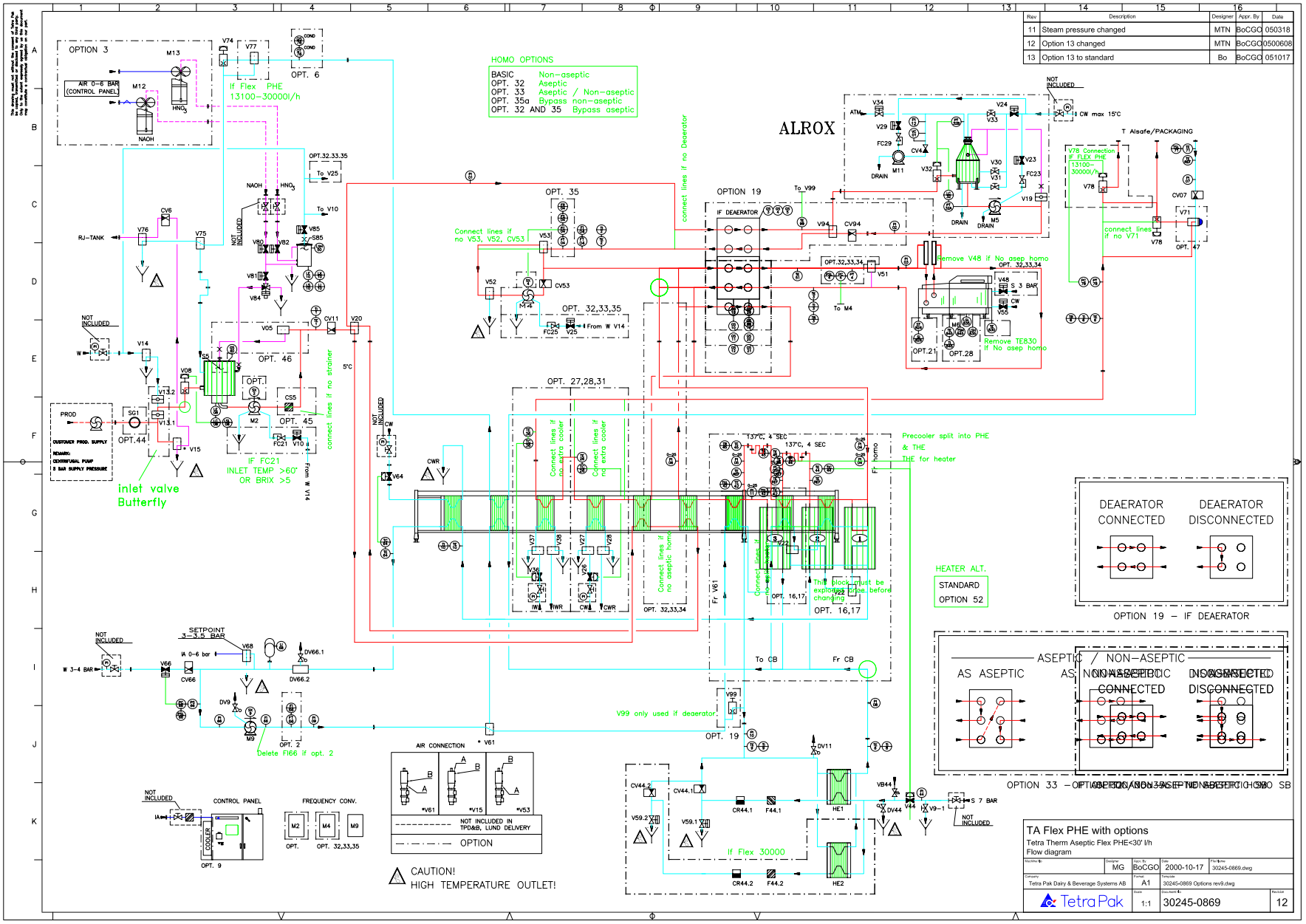
Draw everything with SNAP_MODE!!!



If Tetra Alex 400



If inlet valve SRC



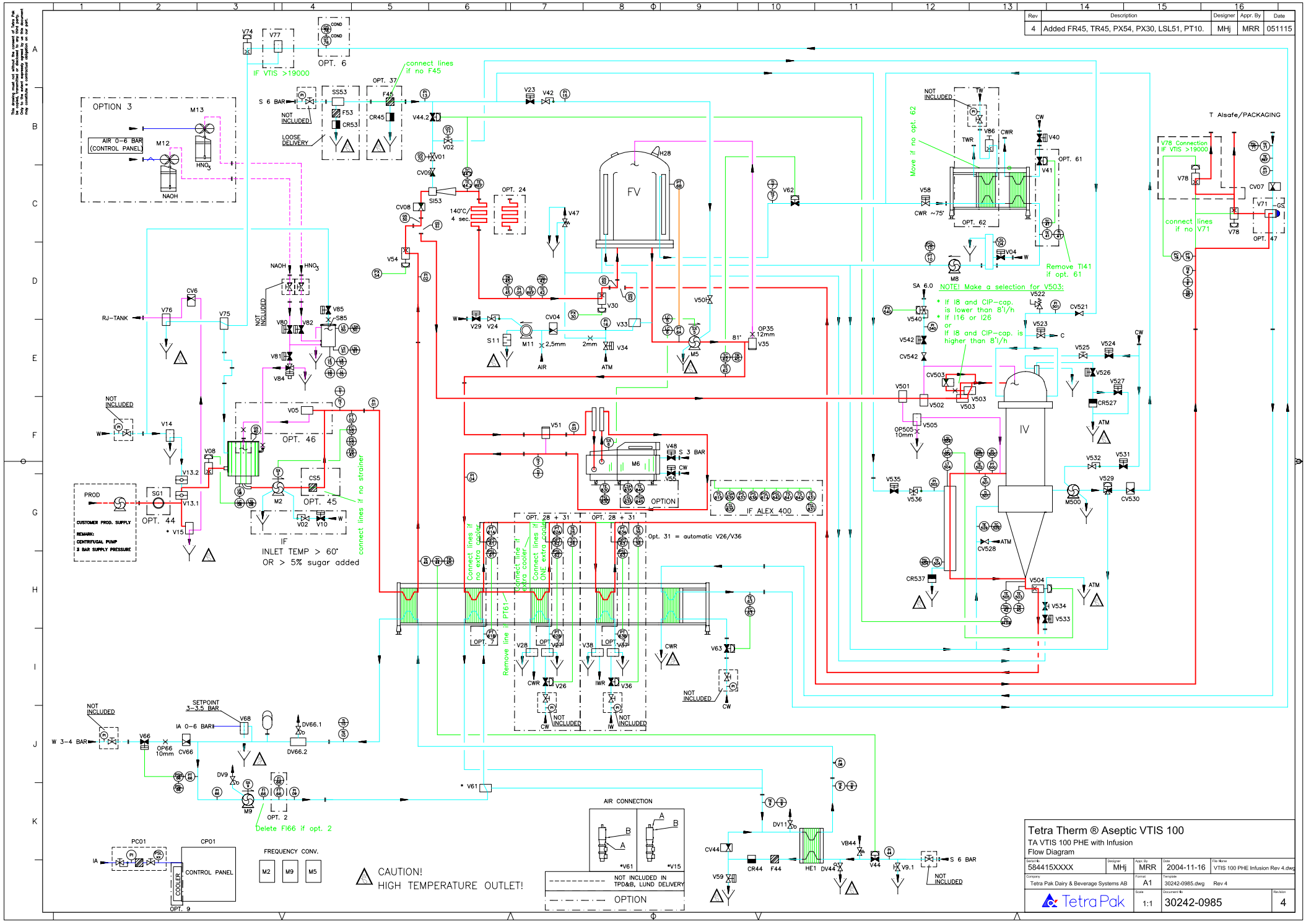
Rev	Description	Designer	Appr. By	Date
11	Steam pressure changed	MTN	BoCGO	050318
12	Option 13 changed	MTN	BoCGO	0500608
13	Option 13 to standard	Bo	BoCGO	051017

TA Flex PHE with options

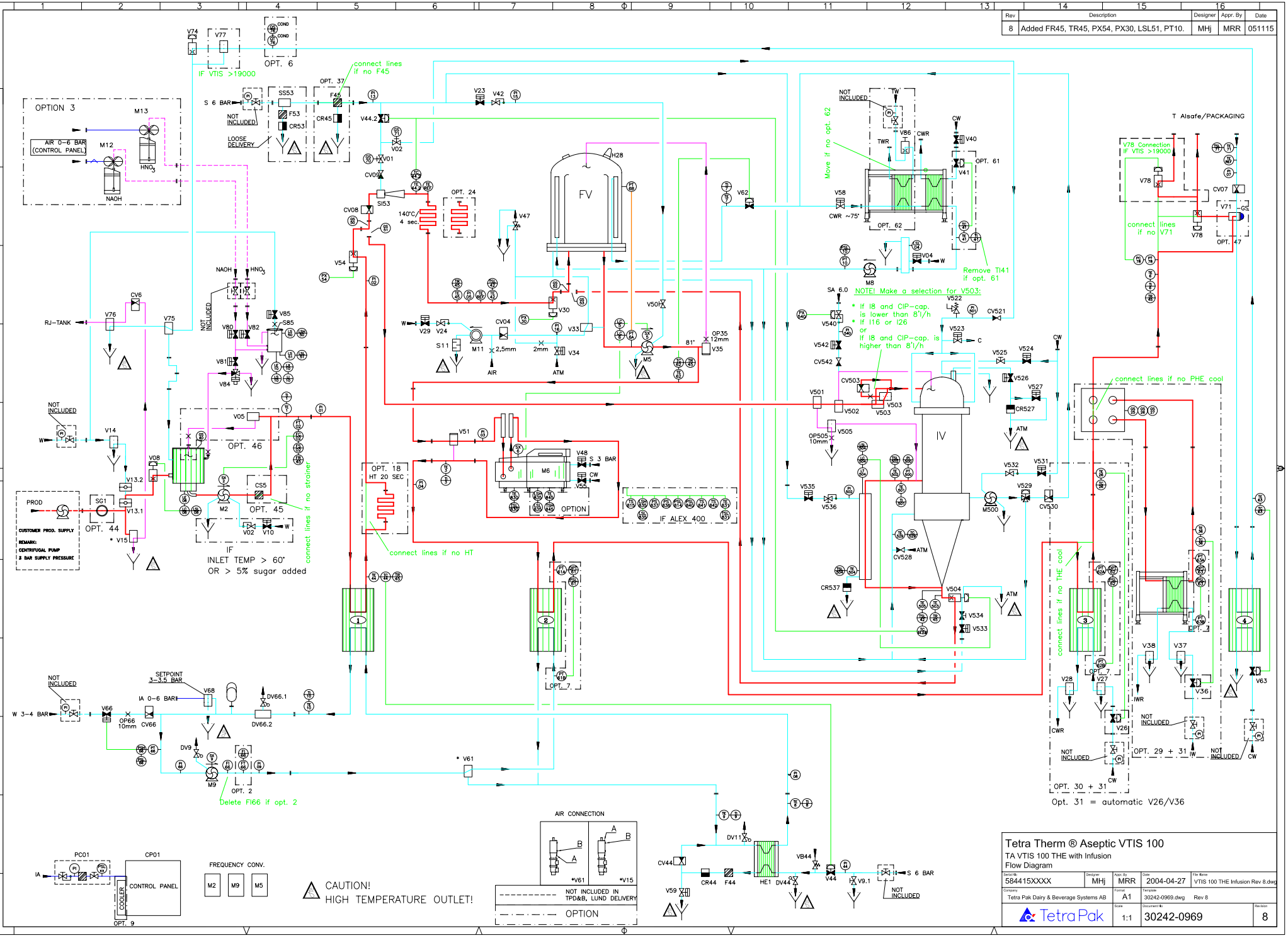
Tetra Therm Aseptic Flex PHE<30° l/h

Flow diagram

Machine No	Designer	Appr. By	Date	File Name
	MG	BoCGO	2000-10-17	30245-0869.dwg
Company	Format	Template		
Tetra Pak Dairy & Beverage Systems AB	A1	30245-0869 Options rev9.dwg		
Tetra Pak	Scale 1:1	Document No 30245-0869		Revision 12


Rev | Description | Designer | Appr. By | Date
4 | Added FR45, TR45, PX54, PX30, LSL51, PT10. | MHj | MRR | 051115
OPTION 3
AIR 0–6 BAR (CONTROL PANEL)
M13
M12
HNO3
NAOH
IF VTIS >19000
OPT. 6
connect lines if no F45
OPT. 37
S 6 BAR
NOT INCLUDED
LOOSE DELIVERY
SS53
F53
CR53
F45
CR45
V23
V42
V44.2
V02
V01
CV09
SI53
140°C/ 4 sec.
OPT. 24
CV08
V54
FV
H28
V47
V62
V30
V33
V34
V50
V29
V24
S11
M11
2,5mm
AIR
2mm
ATM
CV04
M5
81°
OP35 12mm
V35
NOT INCLUDED
TW
V86
CWR
TWR
V58
CWR ~75°
OPT. 61
V40
V41
OPT. 62
Move if no opt. 62
V04
M8
Remove TI41 if opt. 61
T Alsafe/PACKAGING
V78 Connection IF VTIS >19000
V78
CV07
V71
connect lines if no V71
OPT. 47
SA 6.0
NOTE! Make a selection for V503:
* If I8 and CIP-cap. is lower than 8 l/h
* If I16 or I26
or
If I8 and CIP-cap. is higher than 8 l/h
V540
V542
CV542
V522
CV521
V523
V524
V525
V526
V527
CR527
ATM
V501
V502
V503
CV503
OP505 10mm
V505
IV
V532
V531
V529
CV530
M500
V535
V536
CV528
CR537
V504
V534
V533
NAOH
HNO3
NOT INCLUDED
V80
V82
V85
S85
V81
V84
CV6
RJ-TANK
V76
V75
V14
W
V08
V13.2
V13.1
SG1
OPT. 44
* V15
PROD
CUSTOMER PROD. SUPPLY
REMARK:
CENTRIFUGAL PUMP
3 BAR SUPPLY PRESSURE
V05
OPT. 46
CS5
OPT. 45
M2
V02
V10
IF
INLET TEMP > 60°
OR > 5% sugar added
connect lines if no strainer
V51
V48
S 3 BAR
M6
CW
V55
OPTION
IF ALEX 400
OPT. 28 + 31
OPT. 28 + 31
Opt. 31 = automatic V26/V36
Connect lines if no extra cooler
Connect line if extra cooler
Connect lines if ONE extra cooler
Remove line if PT61
OPT. 7
V28
OPT.
V27
V38
OPT.
V37
CWR
V26
IWR
V36
NOT INCLUDED
CW
V63
NOT INCLUDED
CW
NOT INCLUDED
W 3-4 BAR
V66
OP66 10mm
CV66
SETPOINT 3-3,5 BAR
IA 0-6 BAR
V68
DV66.1
DV66.2
DV9
M9
OPT. 2
Delete FI66 if opt. 2
* V61
AIR CONNECTION
*V61
*V15
NOT INCLUDED IN TPD&B, LUND DELIVERY
OPTION
DV11
CV44
CR44
F44
HE1
DV44
VB44
V44
V9.1
V59
S 6 BAR
NOT INCLUDED
PC01
CP01
IA
CONTROL PANEL
COOLER
OPT. 9
FREQUENCY CONV.
M2
M9
M5
CAUTION!
HIGH TEMPERATURE OUTLET!
Tetra Therm ® Aseptic VTIS 100
TA VTIS 100 PHE with Infusion
Flow Diagram
Serial No 584415XXXX
Designer MHj
Appr. By MRR
Date 2004-11-16
File Name VTIS 100 PHE Infusion Rev 4.dwg
Company Tetra Pak Dairy & Beverage Systems AB
Format A1
Template 30242-0985.dwg
Rev 4
Tetra Pak
Scale 1:1
Document No 30242-0985
Revision 4

Rev	Description	Designer	Appr. By	Date
8	Added FR45, TR45, PX54, PX30, LSL51, PT10.	MHj	MRR	051115



Tetra Therm ® Aseptic VTIS 100

TA VTIS 100 THE with Infusion
Flow Diagram

Serial No	Designer	Appr. By	Date	File Name
584415XXXX	MHj	MRR	2004-04-27	VTIS 100 THE Infusion Rev 8.dwg
Company: Tetra Pak Dairy & Beverage Systems AB		Format: A1	Template: 30242-0969.dwg	Rev 8
Tetra Pak		Scale: 1:1	Document No: 30242-0969	Revision: 8

16

Up-grades

Tetra Pak Dairy & Beverage

Technical Sales & Service

Upgrade Services

Delivering value through increased performance

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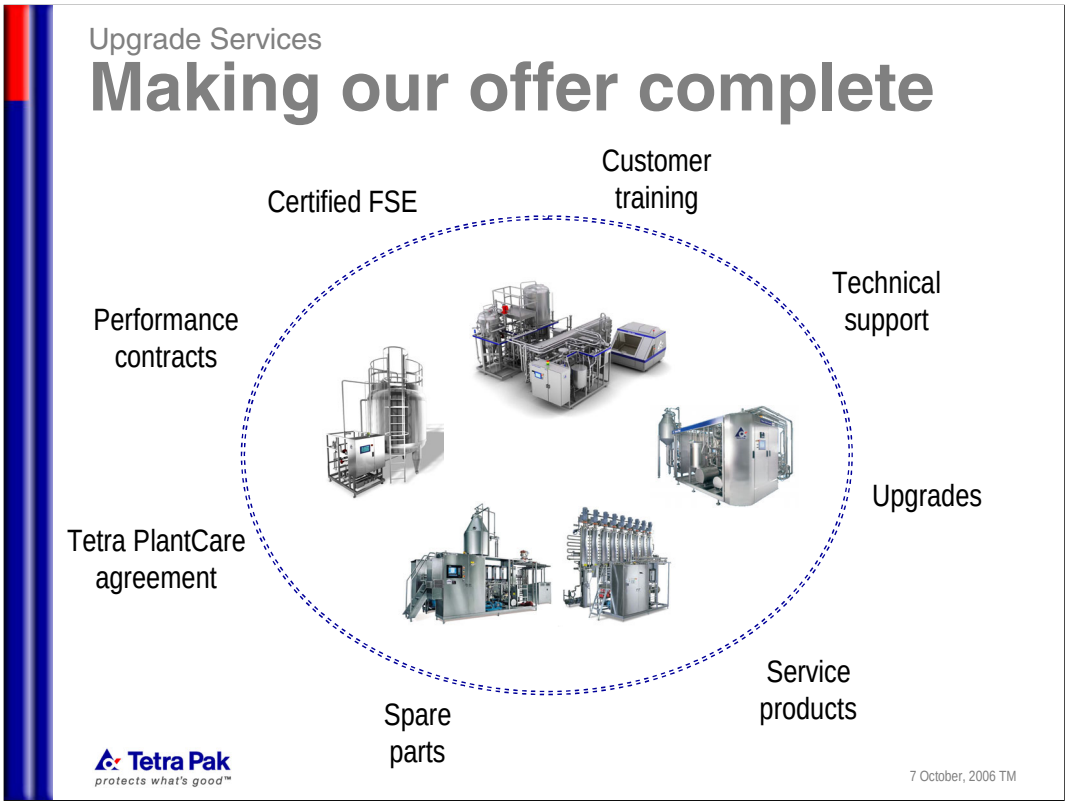

We have to think in a life cycle perspective and present a complete offer in the new sales phase.

Tetra Pak excels a life-cycle partnership by deliver equipment based on our customer needs, installation and start-up, all training required, maintenance and the operational fine-tuning needed to keep the customer's operation running at maximum profitability. This gives an increased value of the product.

Upgrade Services

Why Upgrade ?

- More than 10 000 branded processing modules installed
- Installed base benefits from new developments
- Tailored to the customers needs
- Lifecycle support…… and beyond
- Profitable business for Tetra Pak and the customer

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Customers need changes over time and Upgrade Services help them to improve their production efficiency by adding value-adding solutions.

By using a three-step approach –

Assessment, Installation and Follow-Up

– Tetra Pak assesses customer operations and identifies which upgrades can be installed and what value they will bring.

Assessment forms the basis of a sales Agreement.

Installation of the recommended upgrades is then performed by Tetra Pak service engineers based on a customer production schedule.

After installation, a follow-up is done to verify that the customer is receiving the expected value.

Benefits:

❑ We have a huge installed base just waiting to take advantage of our Upgrade solutions.

❑ Upgrade Services ensures benefit from ongoing technical advances. We're constantly developing new, better and more cost efficient ways of doing things. With pre-defined Upgrade kits, we can transfer these improvements into the customer plant.

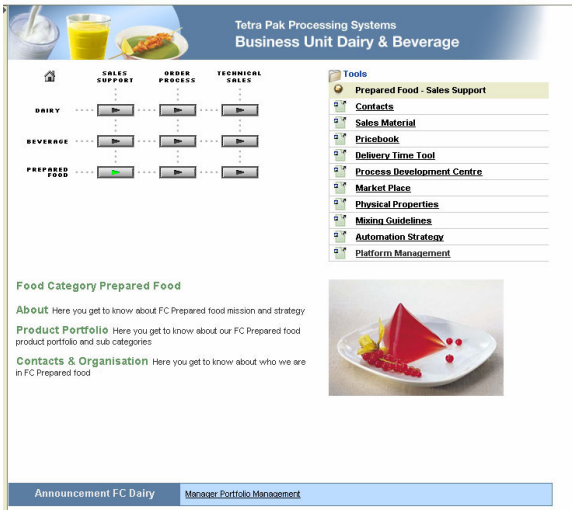
❑ We have to work for and with our customers to develop and deliver value- added Upgrade solutions to maintain and improve module performance. By using the UCCD (Understand – Create – Convey – Deliver) process we make sure that the customer gets exactly what is required.

❑ We take a life-cycle responsibility for our products

❑ By focus on total customer value in all our actions will ensure mutual profitability.

Upgrade Services

How to find your Upgrade kit



ORBIS – the site for information.

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All information of Upgrade Services could be found on Orbis.

Just click on Technical Sales for each category and all the information available will be shown in the list to the right.

The pre-defined Upgrade kits will be released later on this year (2006).

You will find the PD (product description) leafs in the Media Box on Orbis.

Link - http://mbox.lu.se.tetrapak.com/.

Most of the Upgrade kits will have a fixed price in the price book 2007.

Business Unit

The Business Unit responsibility is to develop new Upgrade kits, create pay-back tools and produce sales material to make sure that the marketing companies have all the material needed to be able to sell Upgrade solutions to our customers.

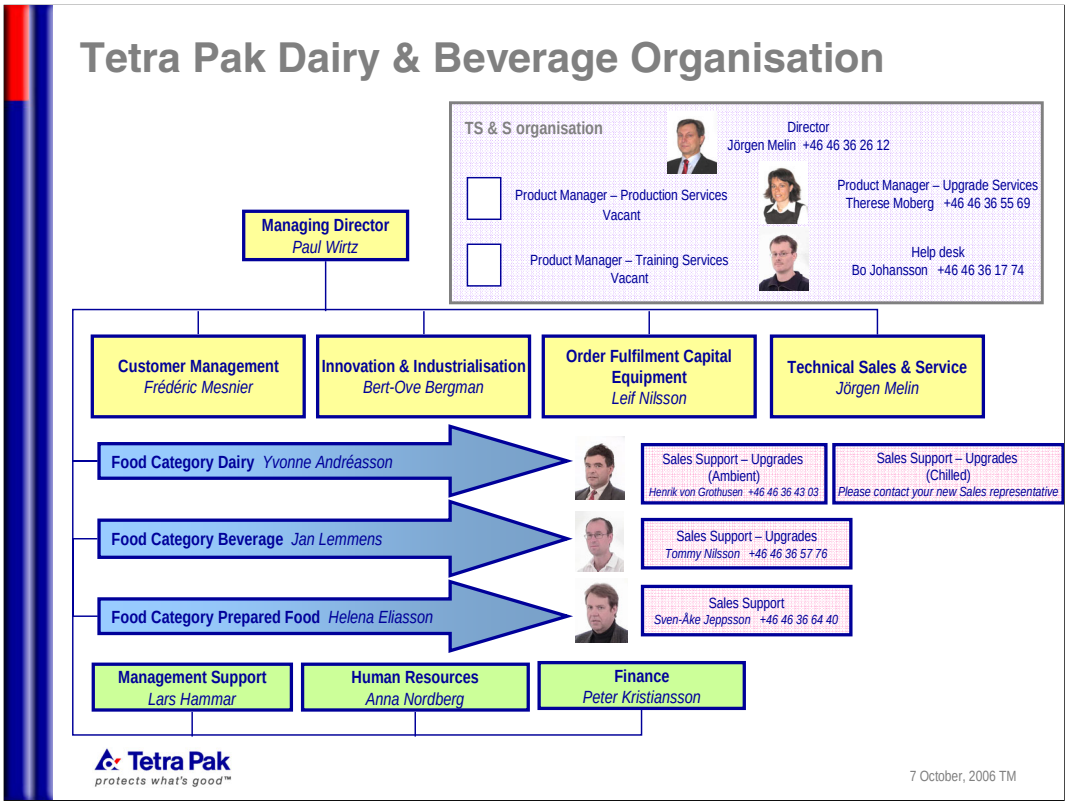
Each category will also have people within the Sales Support organisation that will support the marketing companies in the Upgrade sale process.

Marketing Companies

To be able to make Upgrade Services to a profitable business the people working in the marketing companies, both our Sales Managers but also our Service Engineers, have to take a pro-active roll to understand our customer needs and suggest Upgrade solutions which sustain improvements in the customer business performance.

The Marketing companies are the owners of the installed base and it is very important that the Business Unit gets feed back from the clusters about our customer needs to be able to create those Upgrade kits that are requested by the market. By working in partnership (Business Unit and Market Companies) we have to make sure that our activities works in the same direction with the same goal.

From 2006 the Upgrade business will have a special sub-number in R3 which make it possible to follow up the total Upgrade business all around the world.



Tetra Pak Dairy & Beverage Organisation

Sales Support for Upgrade Services are handle by our Product Sales Managers who work in the categories.

Both the category Dairy and Beverage have a dedicated person who only works with Upgrade Sales Support.

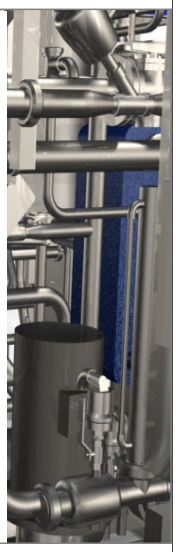
The Technical Sales & Service organisation works cross the categories to make sure that the working process within the Business Unit is the same for all the categories and to implement new products in the markets within the three areas Improvement Services, Production Service and Training Services.

Tetra Therm® Aseptic Flex 1

Upgrade Services

Selection guide

Tetra Therm Aseptic Flex 1 Upgrade Supply Capability	Allen Bradley / TPOP
Capacity Upgrade (Milk version - from 4.500 to 5.500 l/h)	■
Capacity Upgrade (Chocolate version - from 4.500 to 5.500 l/h)	■
Capacity Upgrade (Recombined version - from 4.500 to 5.500 l/h)	■
Capacity Upgrade (Buffalo version - from 4.500 to 5.500 l/h)	■
Version Upgrade (Milk 4.500 l/h to Chocolate 4.500 l/h)	■
Version Upgrade (Milk 4.500 l/h to Recombined 4.500 l/h)	■
Version Upgrade (Chocolate 4.500 l/h to Recombined 4.500 l/h)	■
Version Upgrade (Milk 5.500 l/h to Chocolate 5.500 l/h)	■
Version Upgrade (Milk 5.500 l/h to Recombined 5.500 l/h)	■
Version Upgrade (Chocolate 5.500 l/h to Recombined 5.500 l/h)	■



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■ Upgrade kit with fixed price

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Tetra Therm® Aseptic Flex

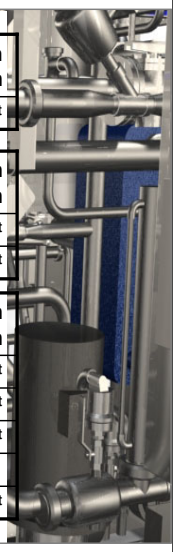
Upgrade Services

Selection guide (Not valid for TA Flex 1)

Tetra Therm Aseptic Flex Upgrade Food Safety	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Differential Pressure Measuring	■	■	■	On request	On request

Tetra Therm Aseptic Flex Upgrade Food Quality	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Direct Heating Module	■	■	On request		On request
Tetra Alrox deaeration module	■	■	On request		On request

Tetra Therm Aseptic Flex Upgrade Operational Efficiency & Costs	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Improved Running Time	■	■	■	On request	On request
Low Loss Balance Tank	■	■	■	On request	On request
Aseptic Hibernation	■	■	On request		On request
IntelliCIP	■	■			
Pressurised pre-sterilisation	■	■	On request		On request



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Tetra Therm® Aseptic Flex

Upgrade Services

Selection guide (Not valid for TA Flex 1)

Tetra Therm Aseptic Flex Upgrade Supply Capability	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Increased Capacity	On request	On request	On request	On request	On request
Add New Product	On request	On request	On request	On request	On request

Tetra Therm Aseptic Flex Upgrade Enviroment, Health & Safety	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
HMI Replacement (OPC5 to TPOP)				■	
Control Panel (AB SLC 500 or Siemens S7)	■	■	■	■	■

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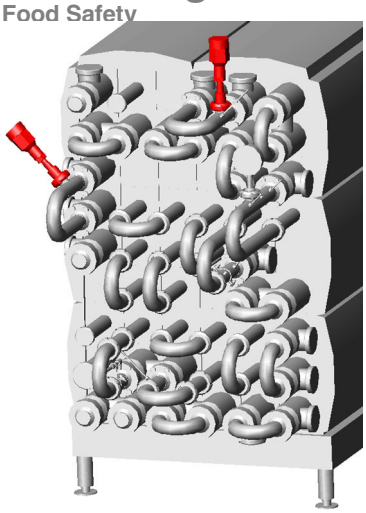
Tetra Therm® Aseptic Flex

UPGRADE KIT – Differential Pressure Measuring

Food Safety



Indicative release date: 2006

Description:

Pressure Differential Measurement ensures that the pressure is higher on the aseptic product side than the heating / cooling media or product (if product / product regeneration).

Benefits:

- ❑ Improved food safety
- ❑ To follow local legal requirements

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Tetra Therm® Aseptic Flex

UPGRADE KIT – Direct Heating Module

Food Quality

Indicative release date: 2006

Description:

Upgrade the existing indirect system by adding a Direct Heating Module which gives you the possibility for direct steam injection operation.

Superior product quality and product diversification is a given.

Benefits:

- ❑ Improved product quality
- ❑ Flexibility
- ❑ Increased running time

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Tetra Therm® Aseptic Flex

UPGRADE KIT – Tetra Alrox Deaeration Module

Food Quality

Indicative release date: 2006

Description:

The deaerator module, Tetra Alrox, removes air and undesirable gases in the product which provides a better product treatment and improves the final product quality.

Benefits:

- ❑ Improved product quality
- ❑ Enhanced taste
- ❑ Increased homogenisation efficiency

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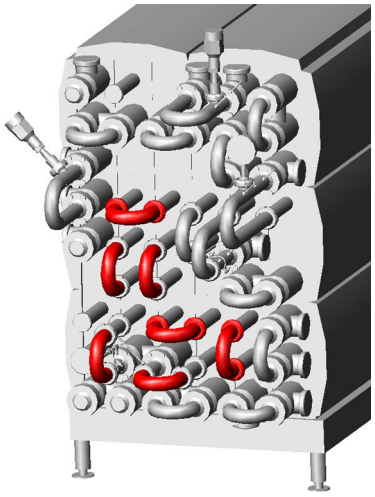
Tetra Therm® Aseptic Flex

UPGRADE KIT – Improved Running Time

Operational Efficiency And Cost



Indicative release date: 2006

Description:

This Upgrade kit will improve the running time during white milk production.

On a tubular Tetra Therm Aseptic Flex, the maximum production time is increased by having a protein stabilization holding tube at 95°C / 1 minute, combined with improved accuracy of the temperature control of both the holding tube and other points of the module.

Benefits:

- ❑ Increased running time
- ❑ Higher machine availability
- ❑ Higher operational efficiency

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Tetra Therm® Aseptic Flex

UPGRADE KIT – Low Loss Balance Tank

Operational Efficiency And Cost

Indicative release date: 2006

Description:

To minimize the product looses during the mix phase, the existing Balance Tank can be replaced by a special designed Low Loss Balance Tank.

The tank is equipped with a valve solution, level control and a product bowl.

Benefits:

- ❑ Decrease product looses
- ❑ Improve operational efficiency and costs
- ❑ Improved product quality

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Tetra Therm® Aseptic Flex

UPGRADE KIT – Aseptic Hibernation

Operational Efficiency And Cost

Indicative release date: 2006

Description:

Water is circulated in the module during the stand by phase until the production starts again.

With the Aseptic Hibernation software program the module will automatically (or by manual operation) after a set time go into Aseptic Hibernation mode.

During this mode the flow rate decreases and the total amount of energy consumption (electrical power, steam and cooling water) can be reduced up to 75%.

Benefits:

- ❑ Improve operational efficiency
- ❑ Improve operational cost
- ❑ Optimize running sequences

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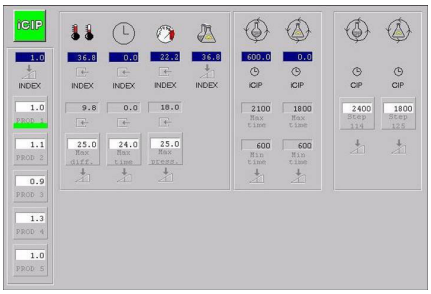
Tetra Therm® Aseptic Flex

UPGRADE KIT – IntelliCIP

Operational Efficiency And Cost



Indicative release date: 2006

Description:

IntelliCIP is a software tool that adjusts the cleaning sequence to what is required, not more not less.

With the IntelliCIP function product parameters are continuously monitored and the adequate CIP program is calculated. This function will maximize the uptime and safeguard the CIP result.

Benefits:

- ❑ Improve operational efficiency
- ❑ Improve operational efficiency
- ❑ Increase availability

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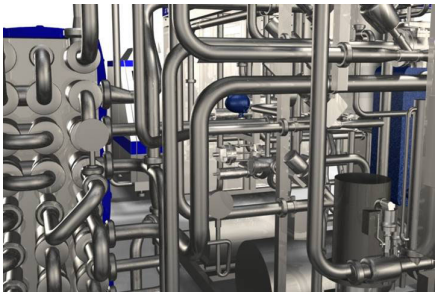
Tetra Therm® Aseptic Flex

UPGRADE KIT – Pressurised pre-sterilisation

Operational Efficiency And Cost



Indicative release date: 2006

Description:

During the pre-sterilisation hot water is circulated in the module. By directing the hot water over the pressurized side as a closed loop, no cooling in the return line is required.

Benefits:

- ❑ Reduction of steam consumption
- ❑ Reduction of water consumption
- ❑ Short start up time

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7 October, 2006 TM

Tetra Therm® Aseptic Flex

UPGRADE KIT – Increased capacity

Supply Flexibility

Indicative release date: 2006

Description:

By re-designing the Tetra Therm Aseptic Flex we can increase the capacity. Thus, enable the customer to tailor make his production schedule, making it easier to introduce new filling machines.

Benefits:

- ❑ Flexibility
- ❑ Improved utilization
- ❑ Short pay back time

Tetra Pak
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7 October, 2006 TM

Tetra Therm® Aseptic Flex

UPGRADE KIT – Add new product

Supply Flexibility

Indicative release date: 2006

Description:

Adding a new product or changing the product specification increases the module´s performance and optimize the flexibility.

Various changes have to be made to the existing module depending on the demands of the new product. By this upgrade the time to introduce a new product in the market is short, which improves the customers business

Benefits:

- ❑ Increased flexibility
- ❑ Improved utilization
- ❑ Short pay back time

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7 October, 2006 TM

Tetra Therm® Aseptic VTIS

Upgrade Services

Selection guide

Tetra Therm Aseptic VTIS Upgrade Food Safety	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Differential Pressure Measuring	■	■	■	On request	On request

Tetra Therm Aseptic VTIS Upgrade Food Quality	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Fo Control	■	■			

Tetra Therm Aseptic VTIS Upgrade Operational Efficiency & Costs	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Flex / VTIS mode	■	■	On request		On request
Low Loss Balance Tank	■	■	■	On request	On request
Aseptic Hibernation	■	■	On request		On request
IntelliCIP	■	■			

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■ Upgrade kit with fixed price

7 October, 2006 TM

Tetra Therm® Aseptic VTIS

Upgrade Services

Selection guide

Tetra Therm Aseptic VTIS Upgrade Supply Capability	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
Increased Capacity	On request	On request	On request	On request	On request
Add New Product	On request	On request	On request	On request	On request

Tetra Therm Aseptic VTIS Upgrade Enviroment, Health & Safety	Allen Bradley / TPOP	Siemens / TPOP	SattCon / TPOP	SattCon / OPC5	SattCon / Xycom
HMI Replacement (OPC5 to TPOP)				■	
Control Panel (AB SLC 500 or Siemens S7)	■	■	■	■	■

Tetra Pak
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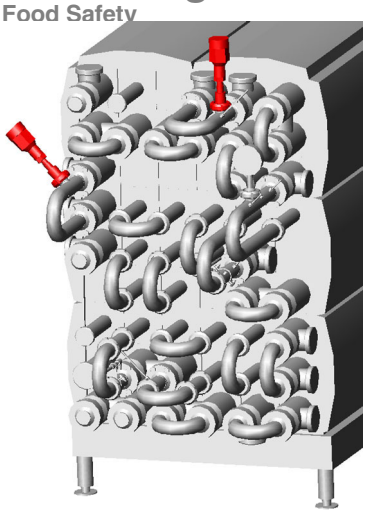
■ Upgrade kit with fixed price

7 October, 2006 TM

Tetra Therm® Aseptic VTIS

UPGRADE KIT – Differential Pressure Measuring

Food Safety



Indicative release date: 2006

Description:

Pressure Differential Measurement ensures that the pressure is higher on the aseptic product side than the cooling media.

Benefits:

- ❑ Improved food safety
- ❑ To follow local legal requirements

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7 October, 2006 TM

Tetra Therm® Aseptic VTIS

UPGRADE KIT – Fo control

Food Quality

Indicative release date: 2006

Description:

Fo Control reduces the steam consumption and minimizes the difference in product quality at reduced capacities.

The holding time for a TA VTIS with variable capacity will increase as the capacity is reduced. By automatically control the Fo-value the longer holding time is compensated by a reduction in the temperature and the Fo-value is kept constant.

Benefits:

- ❑ Consistent production quality
- ❑ Decreased energy and cooling water consumption

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UPGRADE KIT – Flex / VTIS mode

Operational Efficiency And Cost

Indicative release date: 2006

Description:

By upgrading the existing TA VTIS with indirect Flex mode the customer can optimize the modules performance and reduce the energy and utility consumptions for those products that are produced in Flex mode.

Benefits:

- ❑ Reduce energy and utility consumption
- ❑ Improve operational efficiency
- ❑ Increased flexibility

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UPGRADE KIT – Low Loss Balance Tank

Operational Efficiency And Cost

Indicative release date: 2006

Description:

To minimize the product looses during the mix phase, the existing Balance Tank can be replaced by a special designed Low Loss Balance Tank.

The tank is equipped with a valve solution, level control and a product bowl.

Benefits:

- ❑ Decrease product looses
- ❑ Improve operational efficiency and costs
- ❑ Improved product quality

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UPGRADE KIT – Aseptic Hibernation

Operational Efficiency And Cost

Indicative release date: 2006

Description:

Water is circulated in the module during the stand by phase until the production starts again.

With the Aseptic Hibernation software program the module will automatically (or manually) after a set time go into Aseptic Hibernation mode.

During this mode the flow rate decreases and the total amount of energy consumption (electrical power, steam and cooling water) can be reduced up to 60%.

Benefits:

- ❑ Improve operational efficiency
- ❑ Improve operational cost
- ❑ Optimize running sequences

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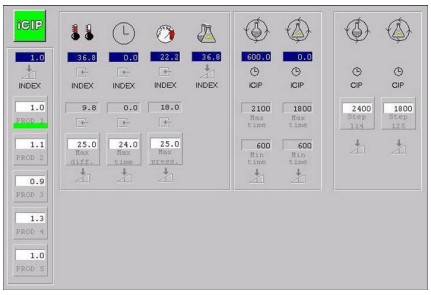
UPGRADE KIT – IntelliCIP

Operational Efficiency And Cost



Indicative release date: 2006

Description:

IntelliCIP is a software tool that adjusts the cleaning sequence to what is required, not more not less.

With the IntelliCIP function product parameters are continuously monitored and the adequate CIP program is calculated. This function will maximize the uptime and safeguard the CIP result.

Benefits:

- ❑ Improve operational efficiency
- ❑ Improve operational efficiency
- ❑ Increase availability

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Tetra Therm® Aseptic VTIS

UPGRADE KIT – Increased capacity

Supply Flexibility

Indicative release date: 2006

Description:

By re-designing the Tetra Therm Aseptic VTIS we can increase the capacity. Thus, enable the customer to tailor make his production schedule, making it easier to introduce new filling machines.

Benefits:

- ❑ Flexibility
- ❑ Improved utilization
- ❑ Short pay back time

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Tetra Therm® Aseptic VTIS

UPGRADE KIT – Add new product

Supply Flexibility

Indicative release date: 2006

Description:

Adding a new product or changing the product specification increases the module´s performance and optimize the flexibility.

Various changes have to be made to the existing module depending on the demands of the new product. By this upgrade the time to introduce a new product in the market is short, which improves the customers business

Benefits:

- ❑ Increased flexibility
- ❑ Improved utilization
- ❑ Short pay back time

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Regulations

Critical Parameters & Regulatory Legislation

VTIS / Flex Systems

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International Guidelines

International Dairy Federation
(IDF)

Bulletins published for many years to give countries without national regulations some guidelines on how to produce diary products safely and efficiently.

#200 - Pasteurized Milk
#292 - Hygienic Mfgr. of Milk Products
#328 - Fouling & Cleaning of Heat Treatment Equipment

European Regulations

Regulations

Traditionally, European regulations have been very general, requiring manufacturers to produce food products that meet certain quality standards. The method of production has been left to the producer.

Today, the regulations are becoming more defined and proscriptive.

EU Directives:	92/46	Processing of Milk & Milk Products
	94/42	Hygiene Requirements for Food

European Regulations

Recommendations / Guidelines

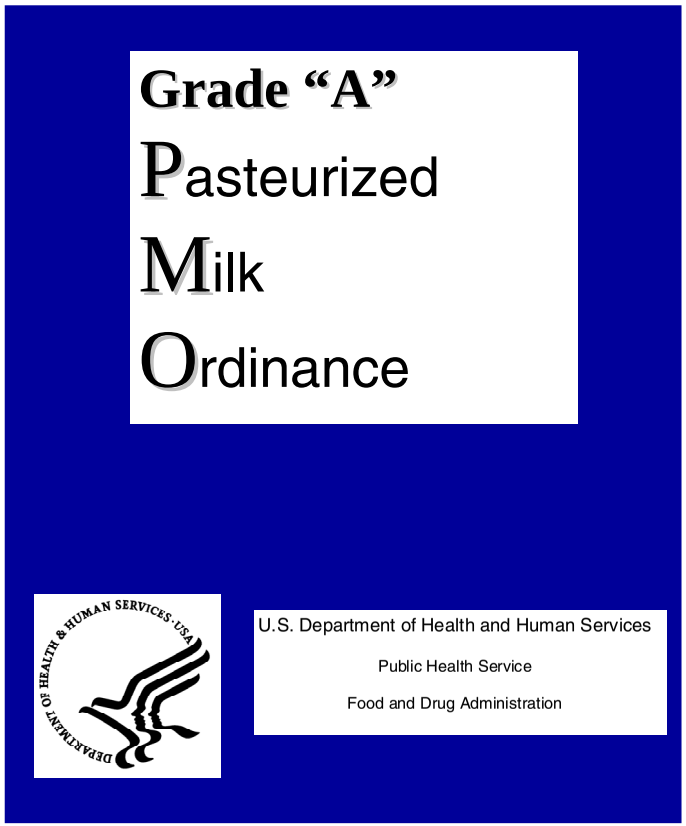
European Hygiene Engineering & Design Group (EHEDG)

Producing guideline documents to help the dairy industry meet the generalized regulations to produce a “safe” product.
For example:

Doc. 1 – Pasteurization
Doc. 2 – Assessment of CIPability
Doc. 6 – Sterilization
Doc. 17 – Hygienic Design of Pumps

U.S. Regulations

Pasteurized Milk Ordinance (PMO)



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U.S. Regulations

Pasteurized Milk Ordinance (PMO)

- document to standardize dairy inspections
- applicable to both pasteurized and aseptic
- detailed specifications of equipment and system design (more “how” than expected result)
- quarterly inspections by state inspectors
  detailed tests to verify compliance (appendix I)

U.S. Regulations

Pasteurized Milk Ordinance (PMO)

- regulations from the cow to the consumer

  Farm conditions for cattle
  Milking equipment
  Water supplies
  Antibiotics / additives / supplements
  Raw milk hauling and inspection
  Raw milk storage in dairy
  Processing (section 16P)
  Cooling and storage of pasteurized milk

U.S. Regulations

U.S. Food & Drug Administration (FDA)

21CFR113 (21CFR108, 21CFR110)
Regulations for Low Acid Aseptic Processing

- Administered by Low Acid Canned Foods group.
- Based on compliance with CFR rules & certification of the process by a Process Authority
- System operated according to the Scheduled Process

U.S. Regulations

SCHEDULED PROCESS (Process Filing)

Detailed description of the aseptic processes and how critical factors will be monitored and controlled.

Includes:

- design parameters for each critical control point.
- scientific justification for the selected process parameters.
- description of quality control testing to be done.
- listing of records to be maintained.
- procedures and science used to validate the system.
- recall procedures.

U.S. Regulations

SCHEDULED PROCESS

Process Instrumentation: FLOW

Control the flow rate so all product receives the minimum holding time.

- Meter Based Timing System (1)
  - Product pump(s)
  - Magnetic flow meter
  - Flow rate recorder with high/lo alarms and event pen

Feedback to control pump speed is not part of legal controls

U.S. Regulations

SCHEDULED PROCESS

Process Instrumentation: PRESSURE

Control the pressures to prevent contamination and to control the flow rate in the holding tube.

- Regenerator differential pressure (2)
  - Pressure sensors at low product press. and high media press.
  - Alarm switch on low differential
  - Differential pressure recorder

U.S. Regulations

SCHEDULED PROCESS

Process Instrumentation: PRESSURE

- Hold tube pressure [3]
  - Maintain minimum pressure to keep product in holding tube liquid
  - Alarm switch for low pressure
- Injector differential pressure [4]
  - Assures that the feed pump is motive force for the product
  - Helps assure that steam condenses rapidly
  - Alarm switch for low differential pressure

U.S. Regulations

SCHEDULED PROCESS

Process Instrumentation: TEMPERATURE

Pre-sterilization of process system. Control the processing temperature to assure all product reaches proper thermal treatment.

- Hold tube temperature (inlet & outlet) (5) (6)
  - Maintain minimum product temperatures for sterilization
  - Recorder with alarm switch for low temperature and event pen
- Vacuum vessel temperature (coldest point) (7)
  - Indication that vessel has reached sterilization temp.

U.S. Regulations

SCHEDULED PROCESS

Process Instrumentation: TEMPERATURE

- End of line temperature [8]
  - Indication that system has reached sterilization temp.
- Pre-heat / Flash temperatures [9] [10]
  - Indication that all water added as steam has been removed
  - Temperature difference to be determined during commissioning

U.S. Regulations

SCHEDULED PROCESS

Process Instrumentation: TEMPERATURE

- Flow diversion valve temperature (Ultra-past. only)
  Indication that system has reached pasteurization temp.
- Sequence Logic
  Control logic used to establish initial sterilization (or pasteurization) of the system
  Requires re-sterilization (re-pasteurization) of the system before product is brought into the system after a fault

U.S. Regulations

PROCESS AUTHORITY

Key element in establishing the regulatory approval for the aseptic process

Must have recognized expertise in aseptic processing and packaging - usually a consultant hired by the processor

Assists in the creation of a detailed description of the process and procedures to be filed with FDA

Works with the processor to evaluate any deviations from the defined process - determines disposition of under-processed product

U.S. Regulations

3-A STANDARDS & PRACTICES

3-A Standards & Accepted Practices are recommended equipment specifications developed by the dairy industry and regulatory representatives to provide a hygienic standard for equipment design.

Standards for individual designs of pumps, valves, heat exchangers, etc.

Accepted Practices for system designs such as pasteurization, CIP, culinary steam, etc.

U.S. Regulations

3-A STANDARDS & PRACTICES

The Standards are intended to specify equipment that will be easy to clean / easy to inspect to verify cleaning.

3-A Standards are accepted by the regulatory agencies as meeting the requirement that product contact surfaces be easily cleanable.

Some states adopt 3-A Standards as their evaluation criteria for equipment acceptance.

Regulatory Links / Contacts

Site on ORBIS with links to different regulations:

http://cartonambient.tetrapak.com/Interface.aspx?Action=GetPage&PageID=6931

Access to FDA, EHEDG, EU, 3-A, PMO
Also access to Tetra Pak hygienic design standards

Tetra Pak Regulatory Contacts:

Chuck Meek (Greenwood)
Leif Seye Larsen (Lund)

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Exercises

BU Dairy & Beverage

Process Parameter List

Product name :	Flex Mode Training Module USA				**Process Respons. (PR)**			Magnus Jansson			
Order Number :					**Test Responsible (TR) :**						
Machine number :					**Product :**						
Customer name :	TPPSA Greenwood				**Product selections :**			2000 l/h			
Country :	USA				**Date :**						
Measured point/Time			15 min pre-ster-ilisation	15 min sterile water	15 min hiber nation	15 min prod.	45 min prod.	60 min prod.	10 min AIC	20 min CIP Caustic	15 min CIP Acid
	Item	Unit	Step	Step	Step	Step	Step	Step	Step	Step	Step
Product side			6	17	17	27	27	27	53	114	
Temp. product BTD	TE 1	°C									
Temp. before homog.	TE 2	°C									
Temp. after homog.	TE 3	°C									
Temp. before holdcell	TE 44	°C									
Temp. holdcell (Recorder)	TE 45	°C									
Temp. guard holdcell	TE 42	°C									
Temp. to filling	TE 26	°C									
Temp. from filling	TE 71	°C									
Temp. return to BTD	TE 63	°C									
Press. after sect.1	PI 01	Bar									
Press. before homog.	PI 03	Bar									
Press. after homog./M4	PI 04	Bar									
Press. after holdcell	PI 05	Bar									
Press. from filling	PI 07	Bar									
Product flow	FIC06	l/h									
BTD level	LIC08	%									
Homogenizing pressure											
Pump M2		%									
Pump M2	SX2	Hz									
Pump M2	SX2	A									
Pump M6		%									
Pump M6		Hz									
Pump M6		A									
V8		%									
V26 open		%									
V63 open		%									
Water side											
Temp. after corr cooler	TE 64	°C									
Temp. after preheating	TE 10	°C									
Temp. before final heating	TE 8	°C									
Temp. after final heating	TE 9	°C									
Press. after M9	PI 09	Bar									
Press. before M9	PI 66	Bar									
Press. after M10	PI 08	Bar									
Water flow secondary side	FI 66	l/h									
Pump M9		%									
Pump M9	SX9	Hz									
Pump M9	SX9	A									
V62 open		Turns									
V64 open		%									
Steam											
Press. before V44	PI 44	Bar									
V44 open		%									
Air regulators											
PC 68		Bar									
PC 78		Bar									
PC 74A		Bar									
PC 74B		Bar									

BU Dairy & Beverage

Process Parameter List

Product name :	VTIS Mode Training Module US				**Process Respons. (PR)**	Magnus Jansson					
Order Number :					**Test Responsible (TR) :**						
Machine number :					**Product :**						
Customer name :	TPPSA Greenwood				**Product selections :**	1750 l/h					
Country :	USA				**Date :**						
Measured point/Time			15 min pre-ster-ilisation	15 min sterile water	15 min hiber nation	15 min prod.	45 min prod.	60 min prod.	10 min AIC	10 min CIP Caustic	15 min CIP Acid
	Item	Unit	Step	Step	Step	Step	Step	Step	Step	Step	Step
Product side			6	17	17	27	27	27	53	114	144
Temp. product BTD	TE 1	°C									
Temp. preheater	TE 44	°C									
Temp.before injector	TE 2	°C									
Temp. preheater(recorder)	TE40	°C									
Temp. holdcell	TE 44.2	°C									
Temp holdcell (recorder)	TE 45	°C									
Temp. guard holdcell	TE 42	°C									
Temp.after flashvessel	TE 62	°C									
Temp.after flashvessel (recorde	TE 51	°C									
Temp.after homogeniser	TE 3	°C									
Temp. to filling	TE 26	°C									
Temp. from filling	TE 71	°C									
Temp. return to BTD	TE 63	°C									
Press.before sect.1	PI 01	Bar									
Press.before injector	PI 02	Bar									
Press. holdcell	PI 05	Bar									
Press.before homog.	PI 03	Bar									
Press. after homog.	PI 04	Bar									
Press. from filling	PI 07	Bar									
Product flow	FT 04	l/h									
Product flow (recorder)	FT04	l/h									
Level in BTD	LC08	%									
Level flashvessel	LC 5/6	%									
Speed M6		%									
Pump M2		%									
Pump M2	SX2	Hz									
Pump M2	SX2	A									
Pump M4		%									
Pump M4	SX4	Hz									
Pump M4	SX4	A									
Pump M5		%									
Pump M5	SX5	Hz									
Pump M5	SX5	A									
V8		%									
V 30		%									
V 54		%									
V 62 open		%									
V26 open		%									
V63 open		%									
Water side											
Temp. before M9	TE 10	°C									
Temp. after M10	TE 8	°C									
Temp. after sect.2	TE 9	°C									

Temp. After condenser	TE 7	°C									
Temp. before condenser	TE 41	°C									
Press. after M9	PI 09	Bar									
Press. before M9	PI 66	Bar									
Press. after M10	PI 08	Bar									
Press. Flashvessel (vaccum)	PI 16	Bar									
Press.condenser circuit	PI 17	Bar									
Water flow secondary side	FI 66	l/h									
Speed M9		%									
Pump M9	SX9	Hz									
Pump M9	SX9	A									
V 41 open		%									
Steam											
Press. before V44.2	PI 13	Bar									
Press. before V44	PI 44	Bar									
Pressure before M5	PI15	Bar									
V44.2 open		%									
V44 open		%									
Air regulators											
PC 68		Bar									
PC 78		Bar									
PC 74A		Bar									
PC 74B		Bar									

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Notes

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