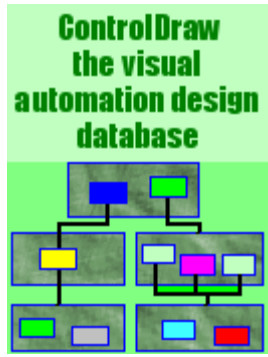


This document is an example of the output from a ControlDraw model, in this case the Milkshake plant demo.
It has been produced entirely in the ControlDraw Print and Review software.

The model itself contains portions of text from the original EBF working group. The model has now been developed follow the developments in ControlDraw and in experience gained with it's deployment on many projects.

The model is part of a suite of sample models that are arnnchored in a single reference model. These are not just demonstrations, they are usable libraries of process automation objects.

Table of Contents

The Milkshake plant model

This was originally developed for the European Batch Forum Working Group 3.
It is now being developed by ControlDraw ltd as a sample model.
This version of the model follows substantial development of the modularisation, the routing and CIP systems, this is not yet complete, contributions invited.
Objects, text and images copied from this model can be freely used elsewhere provided the source is acknowledged in documents and publications that use them.

The New Milkshake model

Introduction

When originally conceived, the intention was to illustrate a realistic process that 'challenged' S88 and then to show how the standard can be interpreted to meet these challenges. These challenges are identified below. Further on this document describes where the milkshake plant shows examples of them.
The ControlDraw model presented here provides workable solutions to a number of these issues.
These are not the only answers, but they are we think they are good ones.
They are based on the work done by experts and represent typical good practise.
The model also demonstrates many of the advanced features of ControlDraw.
The model is not yet complete

The challenges:

The CIP issue

There is a common perception among CIP specialists that CIP does not 'fit' S88. This is illustrated in part by the CIP process description that was provided by GEA for the originally EBF working Group.
It is possible to view CIP processes as Servers to the Process Units, so that when a unit wants to be cleaned it can call on the CIP Common Resource to carry out the clean. However this seems unnatural - the cleaner when cleaning must be completely in charge of the equipment. What about a line clean, where is the unit in that?

What is a Storage Tank?

Is it a Unit - or a Common Resource?
This topic can cause a considerable amount of lively discussion in a group of batch specialists.
It's not a Unit because although Tanks can have a batch in them, they also often have a mix of batches. Of course a proper S88 Unit never has a mix of batches in it, so this type is not a unit under the present definition
Arguably if it only stores one batch and does something to look after the batch (even just monitoring it) then such a tank could be a unit.

Continuous processing equipment with the batch

Often there are parts of a batch process that are really continuous in operation

Handling of material routing Equipment

Often this is a major challenge in plants especially where multiple routes are required.

Boundaries between S88 objects

Often it is not clear where the boundaries, should these be placed, in fact sometimes there seem to be alternative boundaries depending what is happening , eg CIP or production.

Efficient modularisation

How best to split the process into modules and to make the modules re-usable

Features of the Milkshake plant

This section briefly describes some feature of the plant that illustrate the above issues

CIP

This plant includes multiple CIP 'units', numerous line cleans and tank cleans. To further complicate the issue, the CIP 'unit' can run two cleans at once, and shares the Water, Acid and Caustic tanks

Storage Tanks

The milk silos operate on a continuous cycle whereby they are filled repeatedly during the day and then cleaned at night, when no milk deliveries are expected.
A similar concept applies to the product tanks except here the rules are that different products should obviously not be mixed.

Continuous processing equipment

The homogenisers are examples of continuous 'units' in the process.

Material routing

The milkshake plant, like many dairies, breweries and other liquid food processes uses valve manifolds

Difficult Boundaries

For example in our milkshake plant units such as the Batch Vessels, have things around them (the inlet valves are a good example) that intuitively seem to belong to the units.
However, the 4 port valves can carry both process fluids and cleaning fluids. Whilst they are under the control of a cleaning program it seems equally reasonable that they should belong to the CIP system as to the Unit or line that is being cleaned.

The Milkshake Model Solutions

CIP

In the model, CIP is treated as the master - a Unit whose function is to clean a collection of 'dumb' equipment.
In fact the model contains two CIP units, each sharing the same collection of

Storage Tanks

The milk silos operate on a continuous cycle whereby they are filled repeatedly during the day and then cleaned at night, when no milk deliveries are expected.
A similar concept applies to the product tanks except here the rules are that different products should obviously not be mixed.

Continuous processing equipment

The homogenisers are examples of continuous 'units' in the process.

Material routing

The milkshake plant, like many dairies, breweries and other liquid food processes uses valve manifolds for CIP and process routing.

Difficult Boundaries

In our milkshake model, the Batch Mixing Unit and the silos contain 'shared' equipment modules. Taking the example of the inlet valves, these are arranged so that whilst they are taking part in the mixing unit procedure they are under control of the Mixing Unit, however when running a CIP or a transfer then they are in effect controlled by the CIP.
How this is achieved is explained

Project Information

Item	Value
File:	F:\cdArchive\milkshake2.cnd667
Client:	The World Batch Forum
Date Created:	20/02/2001 00:33:00
Last Author:	Francis Lovering
Date Edited:	19/04/2004 11:10:28
Date Printed:	19/04/2004
Issue	0G
Base Model Version:	150

Issue History

Date	Issue	Version	Author	Details
19/04/2004	Minor Issue - 0G	666	Francis Lovering	Update for Web, diagrams sorted with referenced at the end
31/10/2003	Minor Issue - 0F	558	Francis	Update for web
26/10/2003	Minor Issue - 0E	546	Francis Lovering	Further development of Milkshake and CIP recipes and of Manifold handling
23/10/2003	Minor Issue - 0D	520	Francis Lovering	Issue for interim Web site publishiing
09/10/2003	Minor Issue - 0C	409	Francis Lovering	The model has now been developed following developments in ControlDraw and experience gained in it's deployment on many projects. The model contains portions of text from the original EBF working group, and is designed to address the issues raised.
08/08/2003	Minor Issue - 0B	328	Francis Lovering	Added CIP state and pulsing to silos
13/05/2001	Issue Reset	0	Francis Lovering	Cleared Model History

Notes from original EBF work

Milkshake Process description

Additive Deliveries
On arrival of a lorry at the Additives reception bay the pallets of additives are unloaded by fork lift truck and taken to the Additive Warehouse.
A procedure is required to register the arrival, which should match an expected delivery as scheduled in the MES
Additive Warehouse
The Additive Warehouse stores palettes of Flavour additives. Each pallet contains a number of sacks or additives A system to control the location of materials and to ensure that they are used in an appropriate order, such as first-in first out or according to use by dates will be required. This document does not explore these areas of functionality.
Solids Processing
Flavour additives materials are depalletised then the sacks are slit, the contents extracted and then pneumatically conveyed into the Additive Silo.
Additives are then milled, sieved and then weighed into IBC's
This is driven by the production campaign requirements so that the right additives in the right quantities are processed.
Intermediate Product Store
The Intermediate Product Store provides a buffer which is used to store IBC's which have been prepared in advance of when they are needed or in case of a hold up in the liquids processing.
Milk Reception
On arrival of a tanker at the mile reception bay the tanker is connected up to one of the three possible unloading points. Milk is then pumped from the tanker into one of the 3 milk silos
On completion of the unloading of the tanker a clean is carried out of the tanker and the pipework which routes the milk from the tanker to the silos.
The milk silos operate on a continuous cycle whereby they are filled repeatedly during the day and then cleaned at night, when no milk deliveries are expected.
Only one tanker is unloaded at one time and generally to only one milk silo.
However, operators can in exceptions unload into one silo until it is full and then the next
CIP Chemical Deliveries
On arrival of a lorry at the CIP chemicals reception bay the drums are unloaded by fork lift truck and taken to the CIP Chemical Store.
A procedure is required to register the arrival, which should match an expected delivery as scheduled in the MES
CIP Chemical Store
The CIP Chemical Store stores drums of cleaning chemicals
A system to control the location of the drums and to ensure that they are used in an appropriate order, such as first-in first out or according to use by dates will be required. This document does not explore these areas of functionality.
CIP Generation System
The Clean In Place system provides rinse water and also doses the cleaning chemicals into the water to make cleaning liquids
The system also takes the returned liquids and can store the final rinse water for use in subsequent first rinses
Liquids Processing Building
Batch Mixing Processes are carried out to make batches of the various products. Certain products are then homogenised on their way to the Product Silos.
A typical mixing process comprises

Add Milk Start qty
Add Milk and Additive
Add Final Milk Qty
Mix
Mix and Heat
Transfer Out

Packaging Building
In the packaging building liquid product from one of the product silo's is filled intobottles and then labelled and packed into pallets - further details are given below.
The operation of the packaging lines is organised in terms of Work Orders.
A Work Order is characterised by:

- The number of bottles to be packed
- The labelling on the bottle - one work order per label type
- The customer - a single customer per work order

A single work order may be made up from one or more Product Silo
Bottles
Bottles are supplied to the filling line in boxes of pallets. A depalletising machine takes the boxes from each pallet, and the de-boxer takes bottles from the boxes. Bottles are then fed onto an accumulation conveyor which feeds into the filling machine.

Customers
Milko Ltd supplies to a large number of customers including the premium Supermarkets, MilkoLtd's own brand and some others. Milko also has a strategy to be able to supply new customers in response to order placed over the phone or the Internet when the customers usual supplier is unable to meet the demand or has a production problem. The pricing of such orders is a strategic decision made by Milko's senior management - sometimes the cost will be high in order to make sure that the costs of the disruption to the schedule are more than covered, however sometimes the work is done at cost or even at a loss if the new customer is considered strategically important enough.

Rework
Just occasionally, and notwithstanding the highly effective scheduling system ,a batch is made which does not meet the critical quality standards of Milko Ltd.
This can happen when there is an equipment failure - in general equipment failures can be tolerated by putting the process into hold, repairing the failed item, and then re-starting.
However, sometimes there are failures which cannot be fixed in time to allow the batch to be completed.
In these cases it is highly preferable to be able to re-use the batch if possible. This is far more acceptable than disposing of the batch down the effluent system, and can be achieved by using small percentages of the batch in subsequent batches of similar products provided this is done in time.
This practise is accepted to a greater or lesser degree by the customers.
The pipework in the plant makes it possible to divert a failed batch back into one of the milk silos for subsequent rework.

A further issue with rework is that when a problem does occur and some rework is needed , it can become necessary to change the production schedule to make product which can use up the reclaimed batch. (It may also require that the current schedule is altered in order to free space in a Milk Silo to hold the batch.)

Recipes
The plant produces a large number of products, in a variety of packages.
There are three basic types of recipe
Splodge Drinks

These include Banana, Strawberry and other fruit based milkshakes
Fudge Drinks
These include Chocolate and other cocoa based drinks
Alchoshake
These are the hot sellers, Milko Ltd's latest introduction of milk shake alcoholic drinks have taken the club drinks market by storm since their introduction.

Recipe Characteristics
Each type of products is made in a different way

Within each general recipe type there are a large number of specific recipes. The Premium Supermarkets, and Milko themselves each have their own recipes but the lower price customers all use exactly the same recipe.

Rework is handled by a rework substitution algorithm - this is a set of recipe parameter which define how much of a particular type of rework batch can be added. For example, small parts of banana milkshake can be added to all other product which also contain banana, no rework which contains alcohol can be used in any non-alcoholic products etc.
Packaging
The product is packed in a variety of ways. Each customer has their own labels for the bottles or cartons which are use. Alcoshake is provided in bottles with child-proof caps. And each customer has their ownbarcode standard.
Homogenisation
Homogenisation is essentially a mixing process which ensures that the various constituents of a batch are deeply mixed. The depth of the mix is determined by the physical properties of the batch and the pressure and flow through the homogeniser.
Homogenisation, if required, takes place in the process of transferring a batch from a**Batch vessel to the Product Silos.**
The process of starting up a homogeniser is a complicated by the mechanical problems of raising the pressure, which can be very high and the fact that it is possible to physically damage the equipment by running it empty. h The homogeniser supplier provides a control system specifically for this equipment and refuses to guarantee it if this system is not used. Consequently Milko has bought the homogeniser and it's control system as a complete package. The vendors system includes a serial interface so that all of the control parameters that the vendor considers relevant can be set from a supervising system.

GEA P.T. Automation Ltd.

Milkshake Plant
CIP Process Descriptions
2 April, 1997

Table of Contents

1. Introduction

The CIP Station for the milk shake plant essentially consists of one Fresh Water Tank, one Return Water Tank, one Hot Caustic Tank, one Acid Tank and two feed and return lines.

The CIP station is used to clean the Milk Silos area, the Liquids Processing area and the Product Silos. These are two types of CIP sequences, line CIP and tank CIP.

2. Download original document

<http://www.controldraw.co.uk/ForumWorkingGroup/cipmshk.doc>

3. CIP Process Description

3.1. Line CIP

The normal sequence for a line CIP is as follows;

1	Pre-Rinse	Return Water Tank to drain at CIP station via selected line
2	Push Out Water with Caustic	Caustic Tank to drain at CIP station via selected line
3	Caustic Wash	Caustic Tank to Caustic Tank via selected line
4	Push Out Caustic with Water	Fresh Water Tank to Caustic Tank via selected line
5	Post Caustic Wash	Fresh Water Tank to Return Water Tank via selected line
6	Push Out Water with Acid	Acid Tank to Return Water Tank via selected line
7	Acid Wash	Acid Tank to Acid Tank via selected line
8	Push Out Acid with Water	Fresh Water Tank to Acid Tank via selected line
9	Final Rinse	Fresh Water Tank to drain via selected line

3.2. Tank CIP

The normal sequence for a tank CIP is as follows;

1	Pre-Rinse	Return Water Tank to drain at CIP station via selected line
2	Empty Tank	Empty Tank to drain at CIP station via selected line
3	Push Out Water with Caustic	Caustic Tank to drain at CIP station via selected line
4	Caustic Wash	Caustic Tank to Caustic Tank via selected line
5	Empty Tank	Empty Tank to Caustic Tank via selected line
6	Push Out Caustic with Water	Fresh Water Tank to Caustic Tank via selected line
7	Post Caustic Wash	Fresh Water Tank to Return Water Tank via selected line
8	Empty Tank	Empty Tank to Return Water Tank via selected line
9	Push Out Water with Acid	Acid Tank to Return Water Tank via selected line
10	Acid Wash	Acid Tank to Acid Tank via selected line
11	Empty Tank	Empty Tank to Acid Tank via selected line

12 Push Out Acid with Water Fresh Water Tank to Acid Tank via selected line
13 Final Rinse Fresh Water Tank to drain via selected line
14 Empty Tank Empty Tank to drain via selected line

The line and tank CIP's in the milkshake plant would usually only include the acid wash once a week or once a fortnight. If the acid wash is not included then steps 7 through 12 are skipped.

The sequence for cleaning the Batch Mixing tanks will probably include some additional steps. During wash steps it would also be necessary to pulse sample valves etc..

Assuming that there are two feed and return lines then two CIP's can operate in parallel. This means that one of the mix tanks could be cleaned at the same time as one of the tanker intake lines and that the liquid from one of the CIP tanks (e.g. acid) could be circulated through the intake line and the mix tank at that time.

In the post caustic wash fresh water is recovered to the return water tank. This leaves the possibility for cross contamination.

3.3. CIP Tank Make-Up

The normal sequence for a CIP Tank Make-Up is as follows;

1 Dump Tank Contents Transfer contents of CIP tank to effluent plant
2 Fill Tank with Water Fill Tank to High Level with Fresh Water
3 Dose Chemical Concentrate Empty Tank to drain at CIP station via selected line
4 Heat Tank Caustic Tank to drain at CIP station via selected line

Fresh Water Tank requires only step 1.
Cold Caustic and Acid Tank only require steps 1 and 2.
Hot Caustic Tank requires steps 1, 2 and 3.

4. CIP Recipe

The recipe for a CIP will usually consist only of a set of times for each wash step and a single on/off bit to decide whether to include an acid wash in the CIP sequence.

It is possible to include additional items such as pre-set values for watch dog timers for push out and emptying steps etc.. to allow the operator to tune the CIP's. It would also be possible to allow the sequence of steps to be modified as part of the recipe but this is not really necessary.

Therefore a CIP recipe can essentially be reduced to the following

1 With Acid Y/N 1 / 0
2 Pre-Rinse 10 minutes
3 Caustic Wash 20 minutes
4 Post Caustic Wash 8 minutes
5 Acid Wash 15 minutes
6 Final Rinse 15 minutes

5. The Physical Model

The CIP station is not a process cell, it is not a unit, the individual CIP vessels are not units either as they do not perform any batch processing (unless we consider the make-up process).
If we look at the CIP station in terms of the CIP feed and return lines rather than in terms of the CIP vessels the CIP station can be viewed in a similar way to any other utility. The CIP feed lines supply the required liquids to the various units and transfer lines in the plant. Therefore the CIP Station is probably best viewed as shared resource even though the procedural control for cleaning a unit is associated with the CIP station rather than the unit in question.

The CIP station will be required to clean not only other units (such as the batch mixing vessels) but also other vessels which might not even be defined as units. For example the CIP station will be used to clean a milk silo and neither the CIP station nor the

Note : If we assume that the CIP station for the Milkshake Plant was delivered with it's own control system then it would require the above recipe to be downloaded from the MES (or SCADA) it would carry out the sequencing through prerinse, caustic wash etc..
and deliver the cleaning media to the various units.

6. CIP Batch and CIP Batch Scheduling

A CIP sequence is not a Batch as defined in S88.01.

A CIP batch could be included in the batch recipe for each product. In this case the CIP unit procedure would form part of the procedure for producing "Spladge Drink".

In the Milkshake plant it would be necessary to schedule a CIP of a Batch Mixing Tank before producing any "Splodge Drink" if the previous batch had been an "Alchoshake" batch, however if the previous batch had been a "Splodge Drink" batch no CIP would be required.

7. CIP Batch Reports

The milkshake plant owner would obviously require some reporting mechanism for the plant CIP. The CIP reports could be attached to batch report to show for example that a Batch Mixing Vessel had been cleaned before use.

Diagram Description 1 - Milkshake Plant Overview

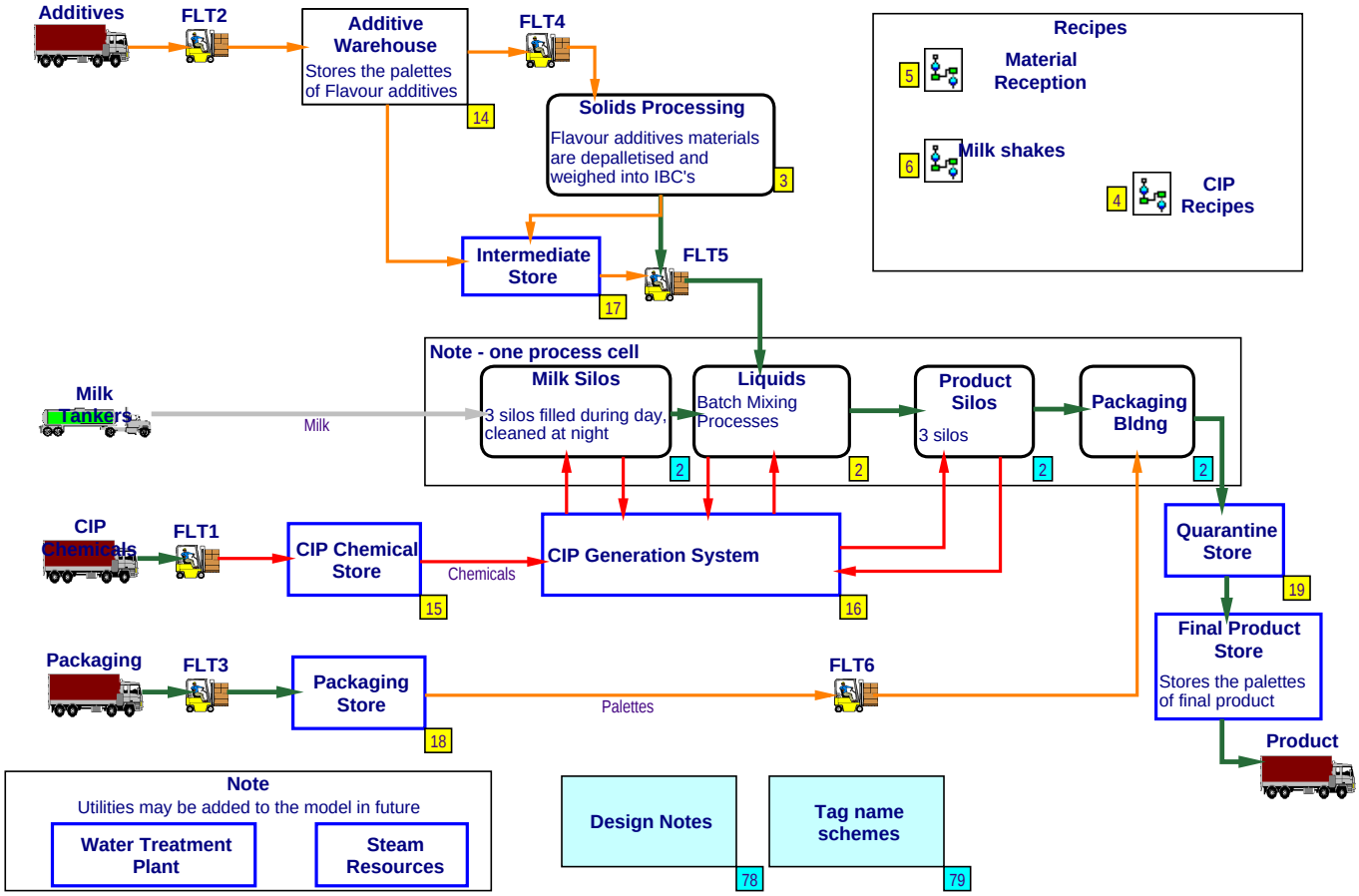


Diagram Description 2 - Liquids Processing overview

This Process cell is where the batches of product are produced.
Each batch mixing unit can be making a different product or being cleaned.

PCS Design point

The corresponding graphic in the PCS will be animated with the states of the main areas.

Diagram Version: 613 Class: Process Cell Diagram 2 of 93

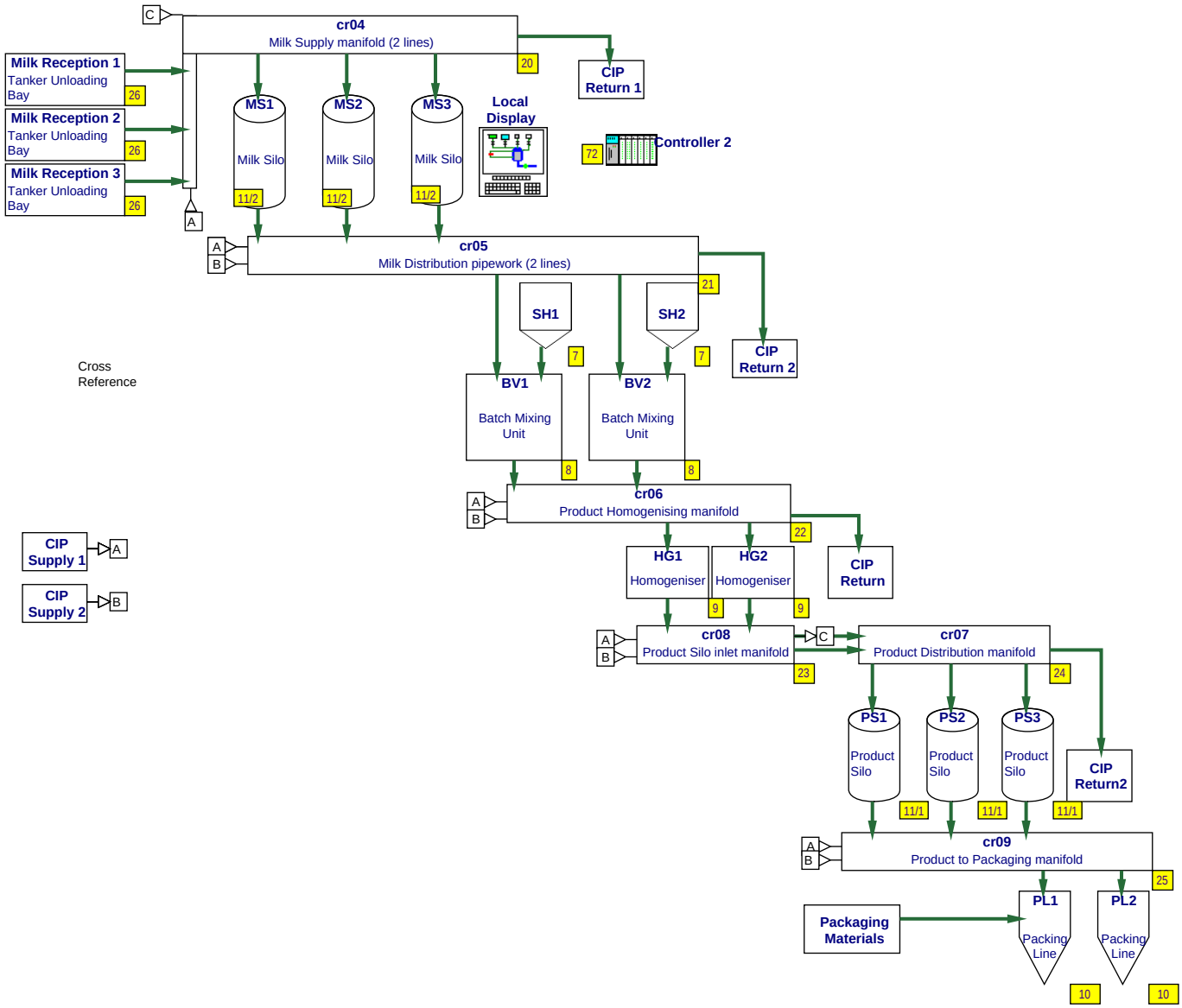


Diagram 3 - Solids Processing Bldng

Diagram Version: 613 Class: Process Cell Diagram 3 of 93

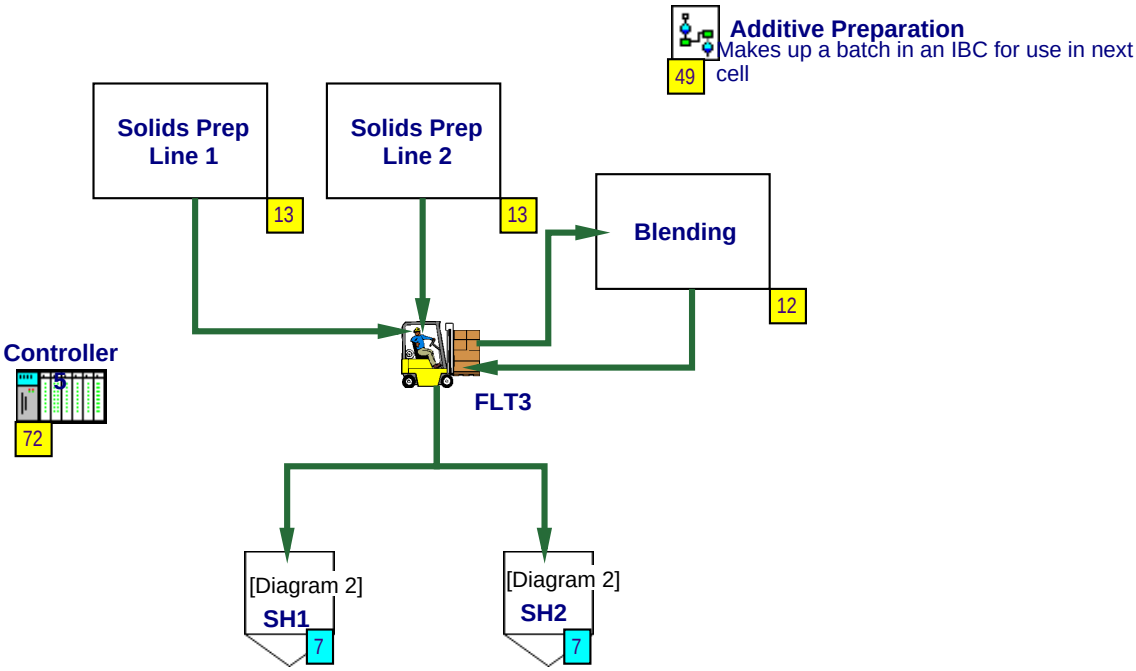


Diagram Description 4 - All CIP Recipes

This diagram will show all the CIP procedures (to be completed)
Diagram Version: 525 Class: Recipe Diagram 4 of 93

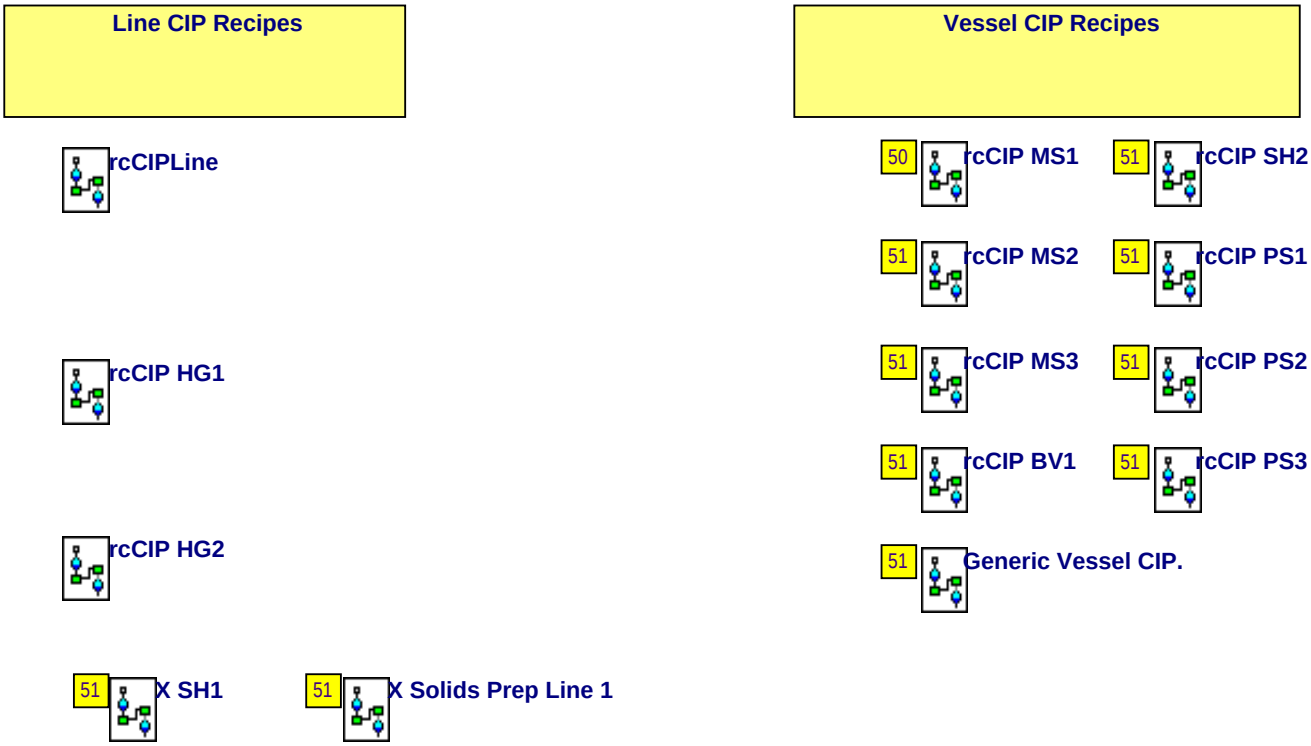
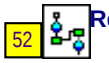
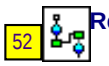


Diagram Description 5 - Material Reception Recipes

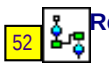
This diagram shows the Recipe procedure icons for material reception
Diagram Version: 515 Class: Recipe Diagram 5 of 93



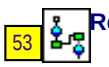
Receive Addiitive



Receive Chemical Drums



Receive Packing Pallets



Receive Milk

Diagram Description 6 - Milk shakes

Covers Banana, Strawberry and other blends

Diagram Version: 593 Class: Recipe Diagram 6 of 93

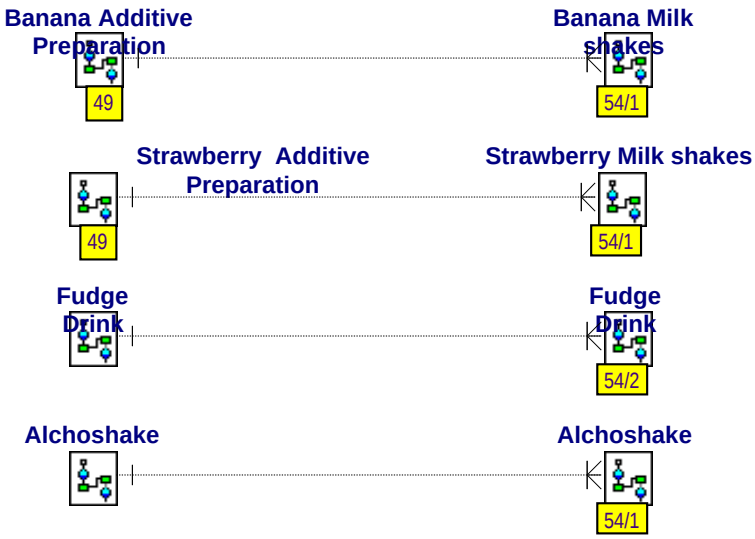
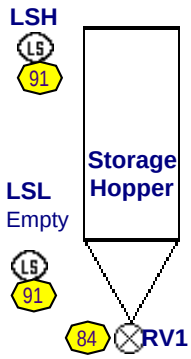


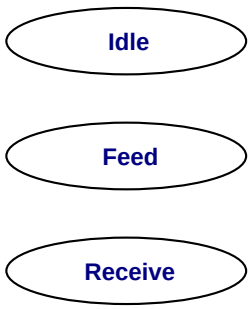
Diagram Description 7 - un Additive Storage Hopper

Not yet fully modularised

Diagram Version: 555 Class: Unit Diagram 7 of 93



Parent Symbols:
2 - Liquids Processing overview
.... , SH1, SH2



Additive Storage Hopper

	RV1	LSH	LSL
Idle	Stop	Disabled	Disabled
Feed	Run	Enabled	Enabled
Receive	Stop	Enabled	Enabled

Diagram Description 8 - un Batch Mixing

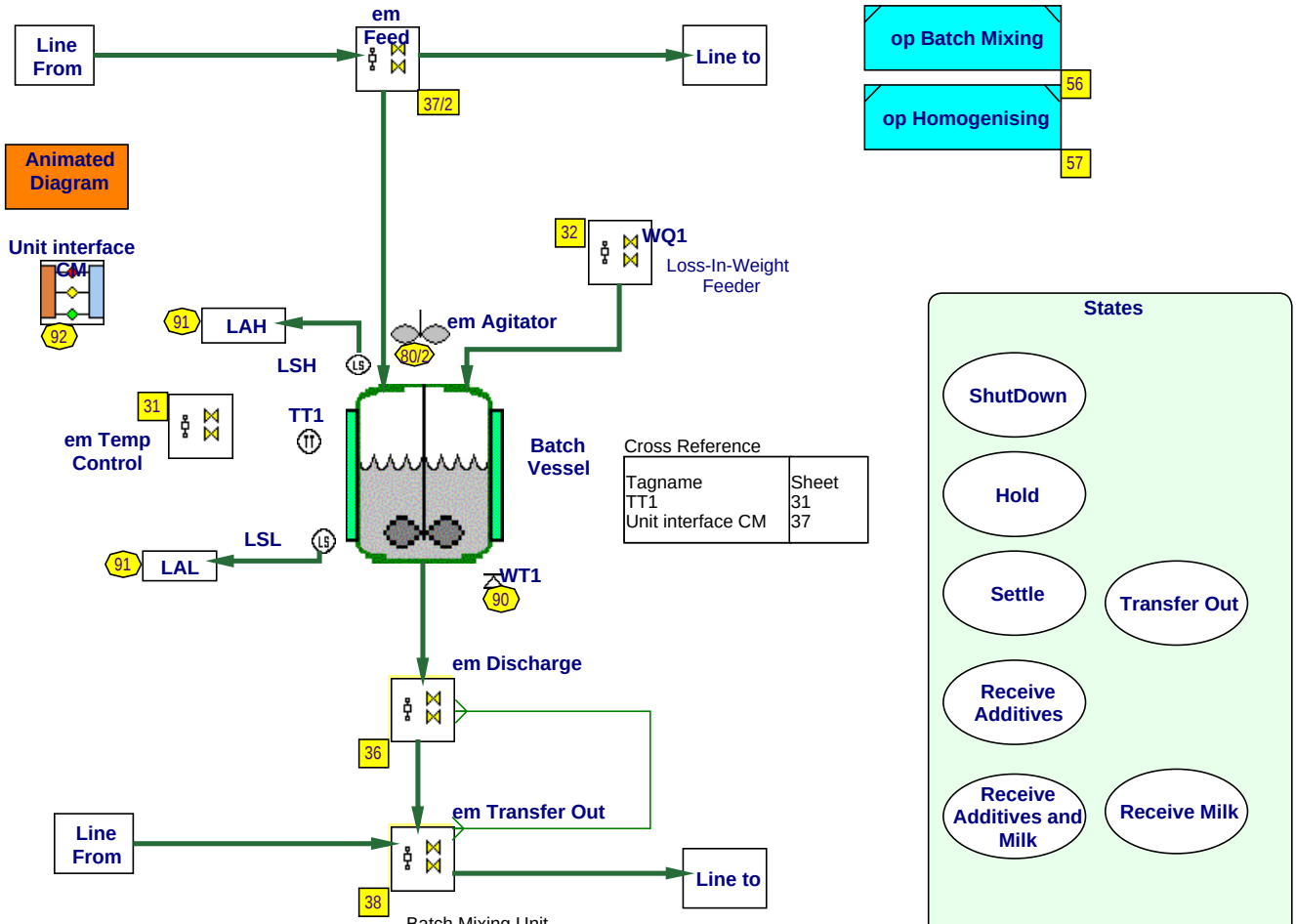
The batch mixing Unit is split into a number of equipment modules, these are:

em Temp Control	Controls the vessel temperature
em Agitator	Runs the Agitator
em Discharge	Controls discharge to drain or to downstream
em Feed	Controls feeds into the vessel
em Transfer Out	Controls Transfer out of the vessel

Note that em Feed and em Transfer Out are completely owned by the Unit, even though they are part of the transfer routes.
This Unit has to be explicitely acquired and it's route select parameters sent to the Feed and Transfer out em's. Once it is released another recipe can acquire it.

Diagram 8 - un Batch Mixing

Diagram Version: 615 Class: Unit Diagram 8 of 93

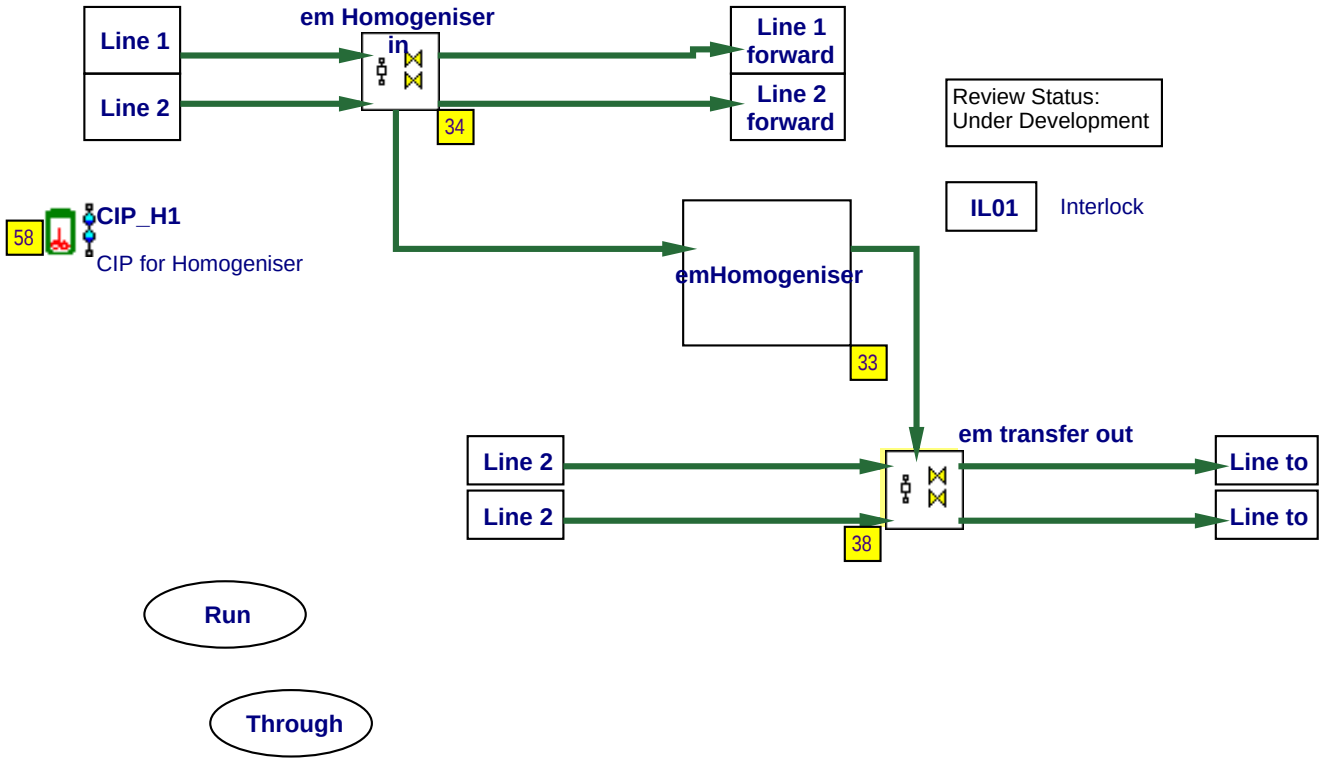


Batch Mixing Unit

	emAgitator	em Temp Control	em Feed	em transfer out	WQ1	LAL	LAH
ShutDown	Off	Idle	Through	Through	Stop	Disable	Disable
Receive Milk	Run	REG	Receive	Through	Stop	Enable	Enable
Hold	Run	REG	Through	Through	Stop	Enable	Enable
Receive Additives	Run	REG	Through	Through	Run	Enable	Enable
Receive Additives and Milk	Run	REG	Receive	Through	Run	Enable	Enable
Settle	Off	REG	Through	Through	Stop	Enable	Enable
Transfer Out	Run	REG	Through	Send	Stop	Enable	Enable
Heat Up	Run	MH	Through	Through	Stop	Enable	Enable
Cool Down	Run	MC	Through	Undefined	Stop	Enable	Enable
CIP	Run	Idle	Receive	Send	Stop	Disable	Enable
Drain	Off	Idle	Through	Undefined	Stop	Disable	Enable

Diagram 9 - un Homogeniser

Diagram Version: 525 Class: Unit Diagram 9 of 93

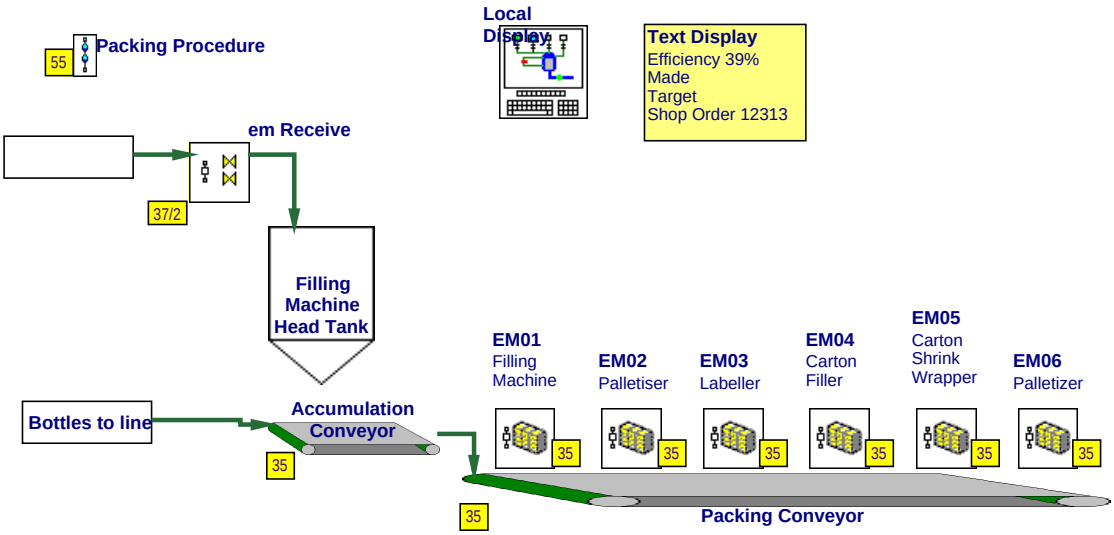


http://www.gchahn.com/media/systematic_aeration_en_0103.pdf
Double click to open

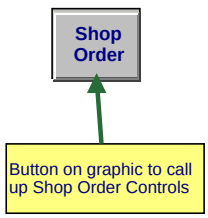
Diagram Description 10 - un Packaging Line

The packaging area is a process cell containing two packaging lines.
The packaging line is treated as a single nit.
Each machine is an Equipment module

Diagram Version: 615 Class: Unit Diagram 10 of 93



Parent Symbols:
2 - Liquids Processing overview
.... , PL1/1, PL2/1



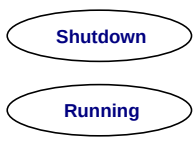
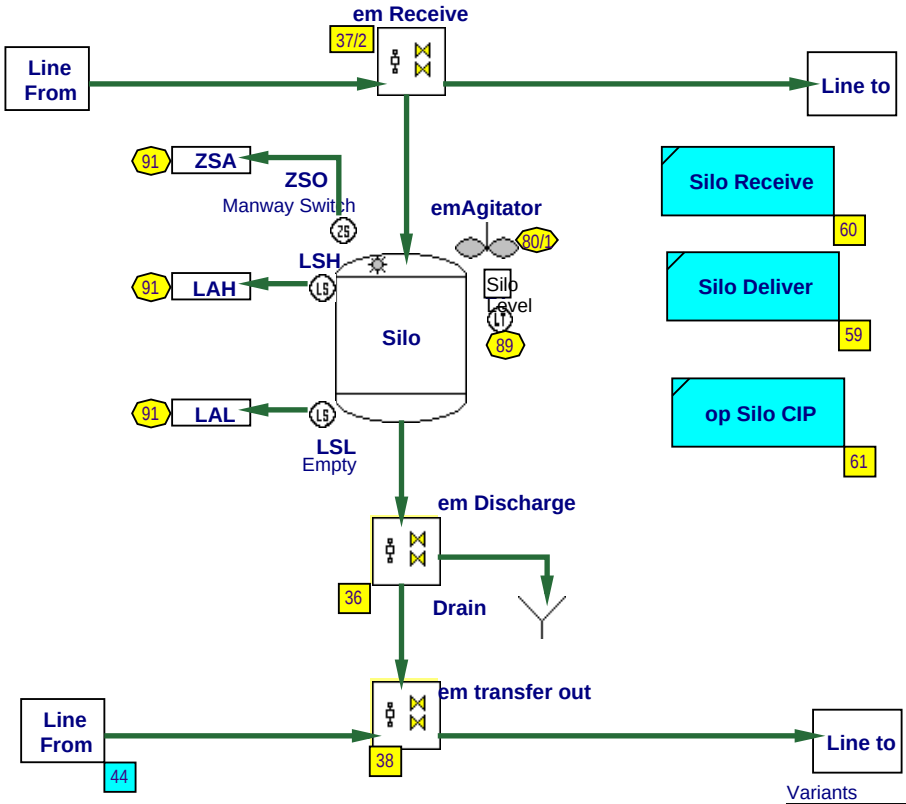
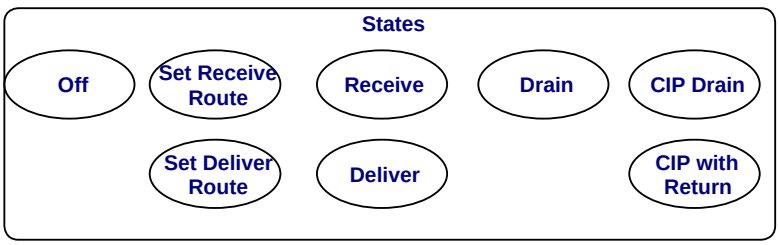


Diagram 11 - un01 Milk/Product Silo
Diagram Version: 573 Class: Unit Diagram 11 of 93
Variant 1 - Product Silo





Variants

Variant	Tagname	Excluded	VarTag	SubVar
Milk Silo	LT	X		
	LSL	X		
	LAL	X		
Product Silo	WIA	X		

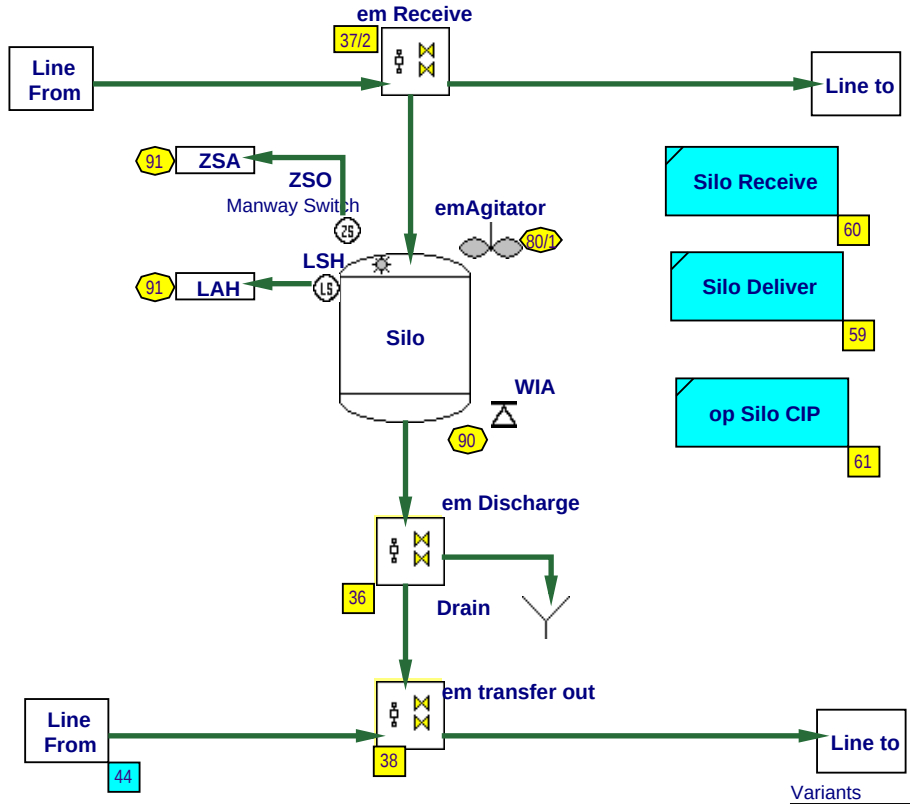
Cross Reference

Tagname	Sheet

Milk/Product Silo

	em Discharge	em Receive	emAgitator	Line to	em transfer out
Off	Off	Through	Run	6	Through
Set Deliver	Off	Through	Run	6	Through
Deliver	Transfer	Through	Run	6	Send
Set Receive	Off	Through	Run	6	Through
CIP with	Transfer	Receive	Run	6	Send
CIP Drain	Drain	Receive	Off	6	Through
Receive	Off	Receive	Run	6	Through
Drain	Drain	Through	Run	6	Through

Diagram 11 - un01 Milk/Product Silo
Diagram Version: 573 Class: Unit Diagram 11 of 93
Variant 2 - Milk Silo



States

Off | Set Receive Route | Receive | Drain | CIP Drain

Set Deliver Route | Deliver | CIP with Return

Variants

Variant	Tagname	Excluded	VarTag	SubVar
Milk Silo	LT	X		
	LSL	X		
	LAL	X		
Product Silo	WIA	X		

Cross Reference

Tagname	Sheet

Milk/Product Silo

	em Discharge	em Receive	emAgitator	Line to	em transfer out
Off	Off	Through	Run	6	Through
Set Deliver	Off	Through	Run	6	Through
Deliver	Transfer	Through	Run	6	Send
Set Receive	Off	Through	Run	6	Through
CIP with	Transfer	Receive	Run	6	Send
CIP Drain	Drain	Receive	Off	6	Through
Receive	Off	Receive	Run	6	Through
Drain	Drain	Through	Run	6	Through

Diagram Description 12 - un Solids Blending

Not yet fully modularised

Diagram Version: 606 Class: Unit Diagram 12 of 93

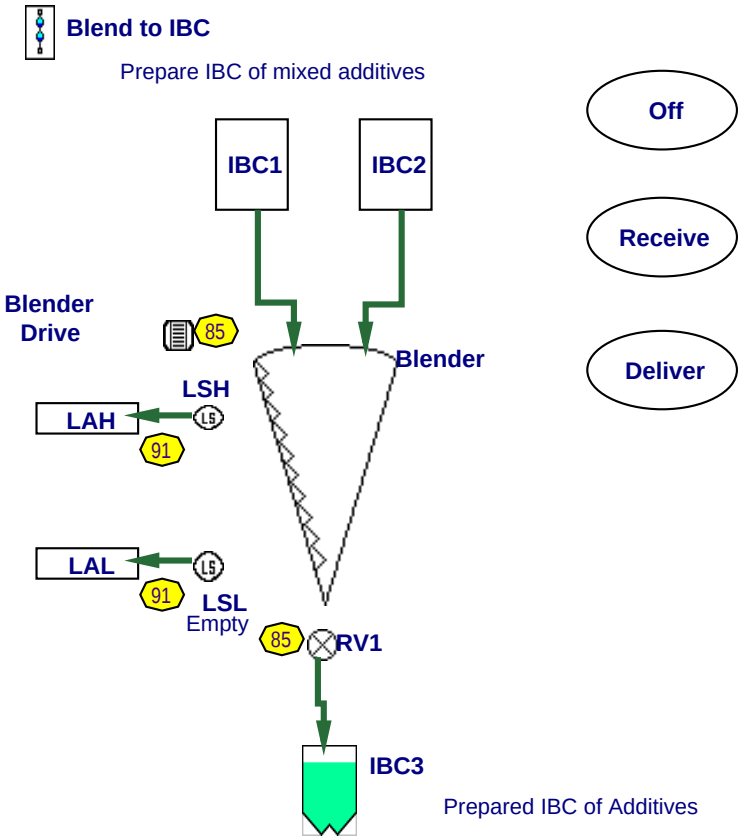
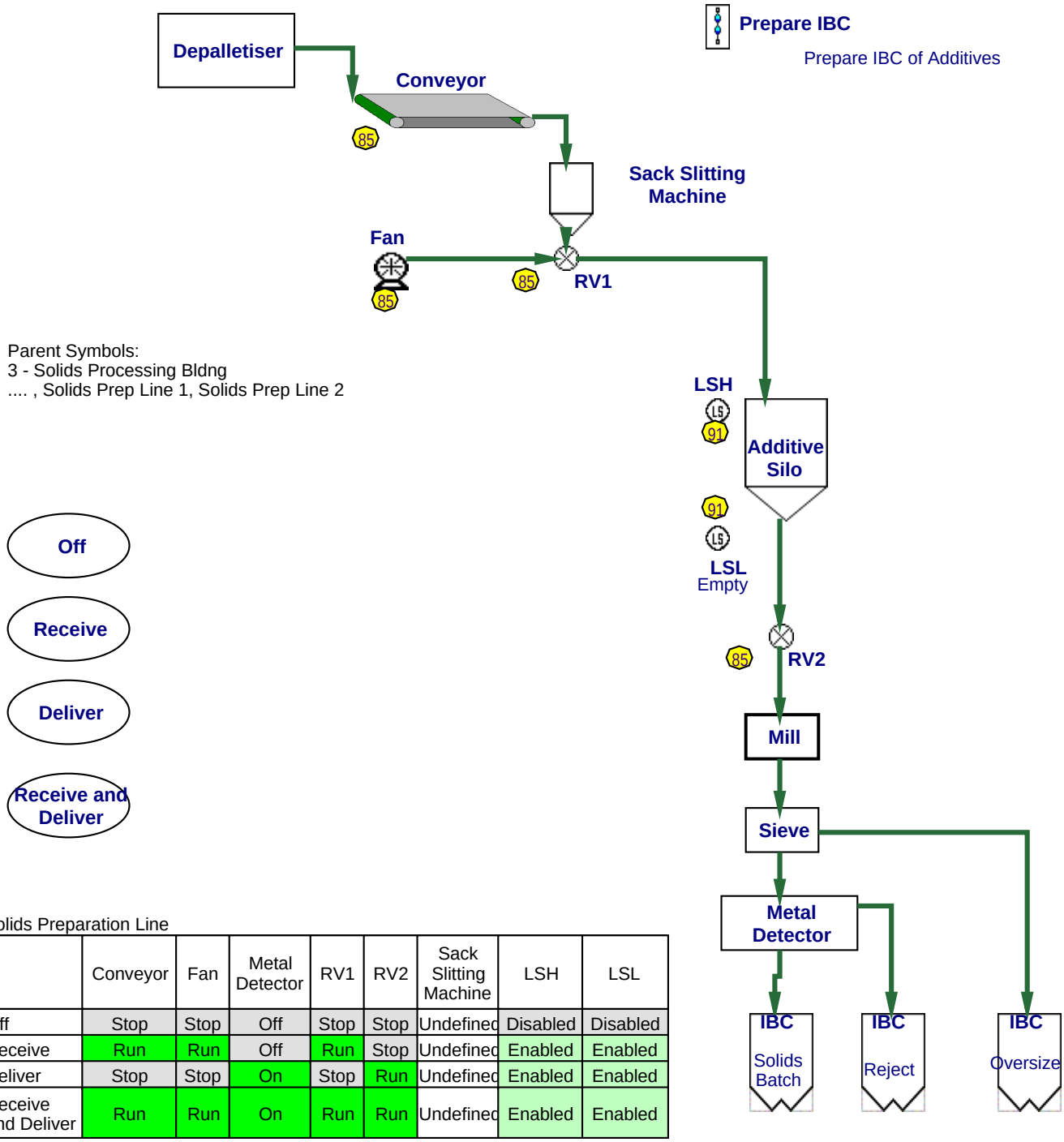


Diagram Description 13 - un Solids Preparation Line

NOTE - this is not yet modularised in Equipment modules
Diagram Version: 664 Class: Unit Diagram 13 of 93



Solids Preparation Line

	Conveyor	Fan	Metal Detector	RV1	RV2	Sack Slitting Machine	LSH	LSL
Off	Stop	Stop	Off	Stop	Stop	Undefined	Disabled	Disabled
Receive	Run	Run	Off	Run	Stop	Undefined	Enabled	Enabled
Deliver	Stop	Stop	On	Stop	Run	Undefined	Enabled	Enabled
Receive and Deliver	Run	Run	On	Run	Run	Undefined	Enabled	Enabled

Diagram 14 - Additive Warehouse

Diagram Version: 513 Class: Cell Common Resource **Diagram 14 of 93**

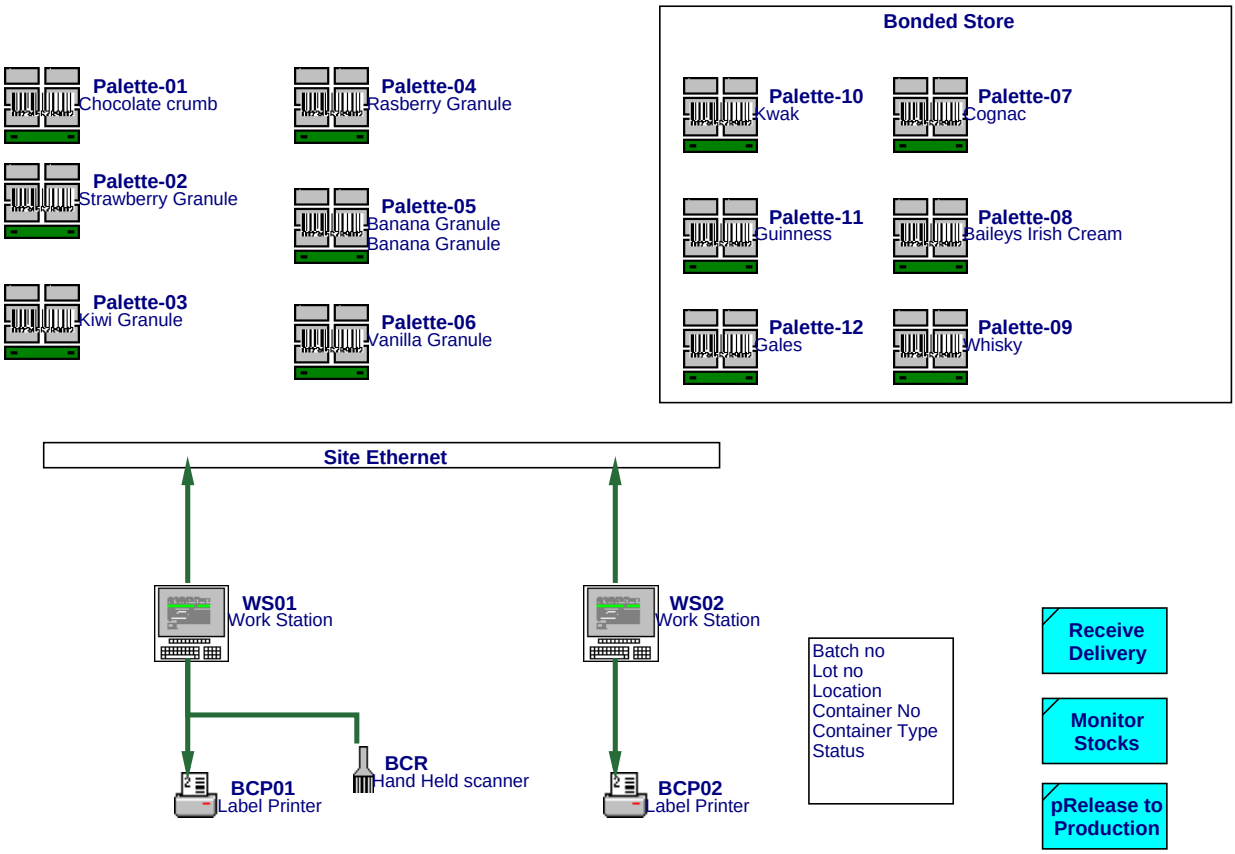
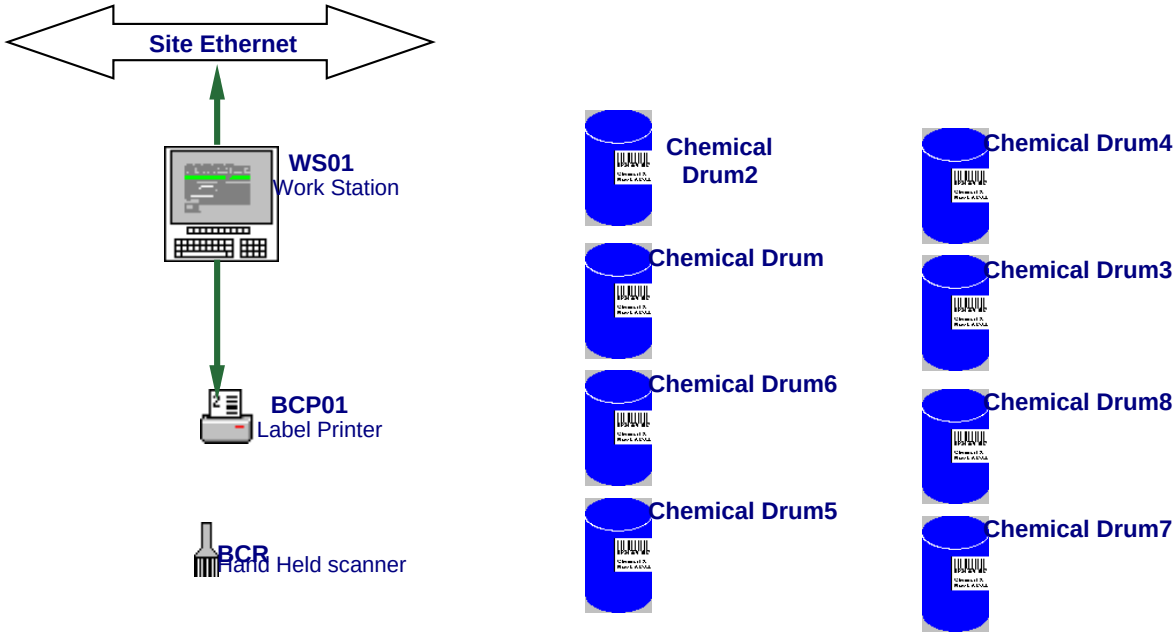


Diagram 15 - CIP Chemical Store

Diagram Version: 513 Class: Cell Common Resource Diagram 15 of 93



Parent Symbols:
1 - Milkshake Plant Overview
.... , CIP Chemical Store

Diagram Description 16 - CIP Generation System

This diagram shows how there are two CIP units that share the same collection of Water, Acid and Caustic tanks.
Each or the CIP unit can supply either of the lines.
When a CIP recipe is run, a CIP 'Unit and all the lines in the CIP route are acquired

Diagram Version: 550 Class: Cell Common Resource Diagram 16 of 93

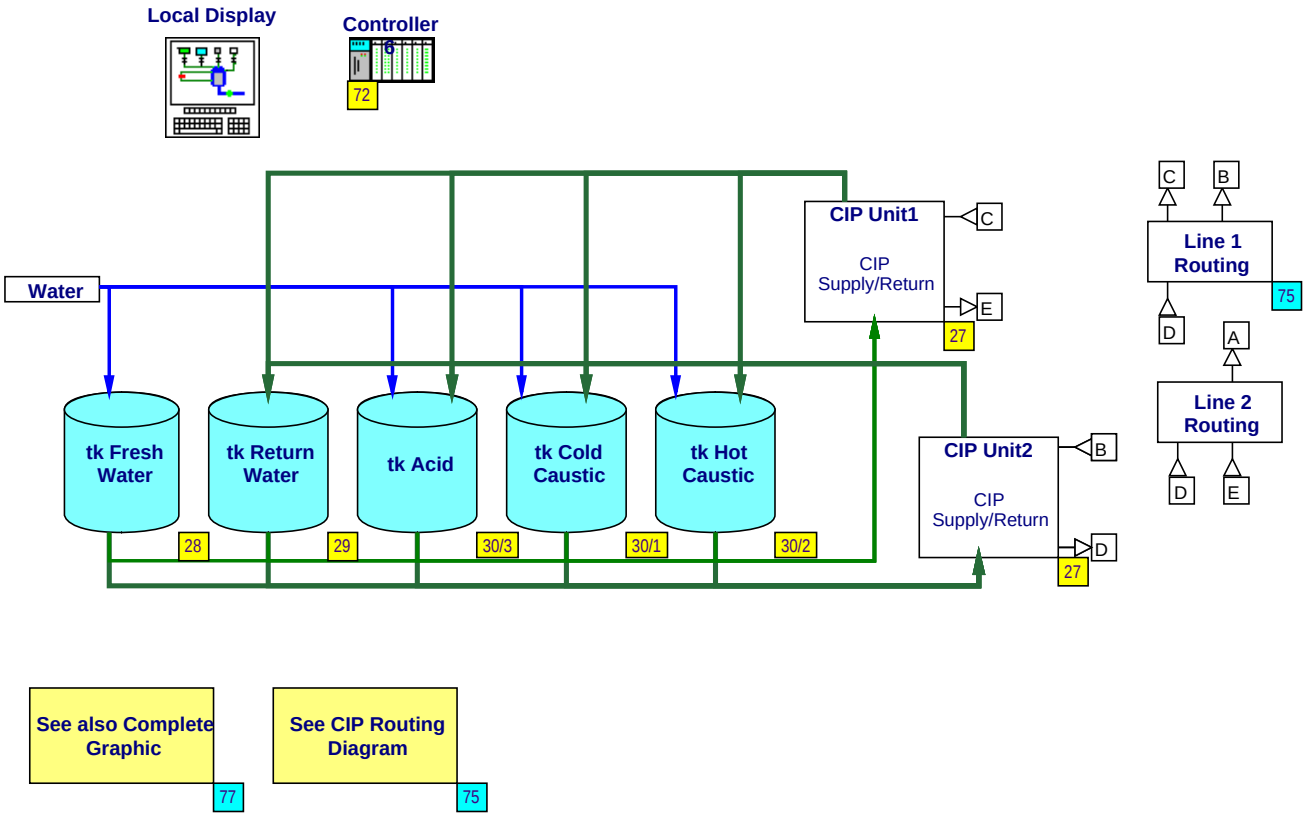


Diagram 17 - Intermediate Store

Diagram Version: 514 Class: Cell Common Resource Diagram 17 of 93

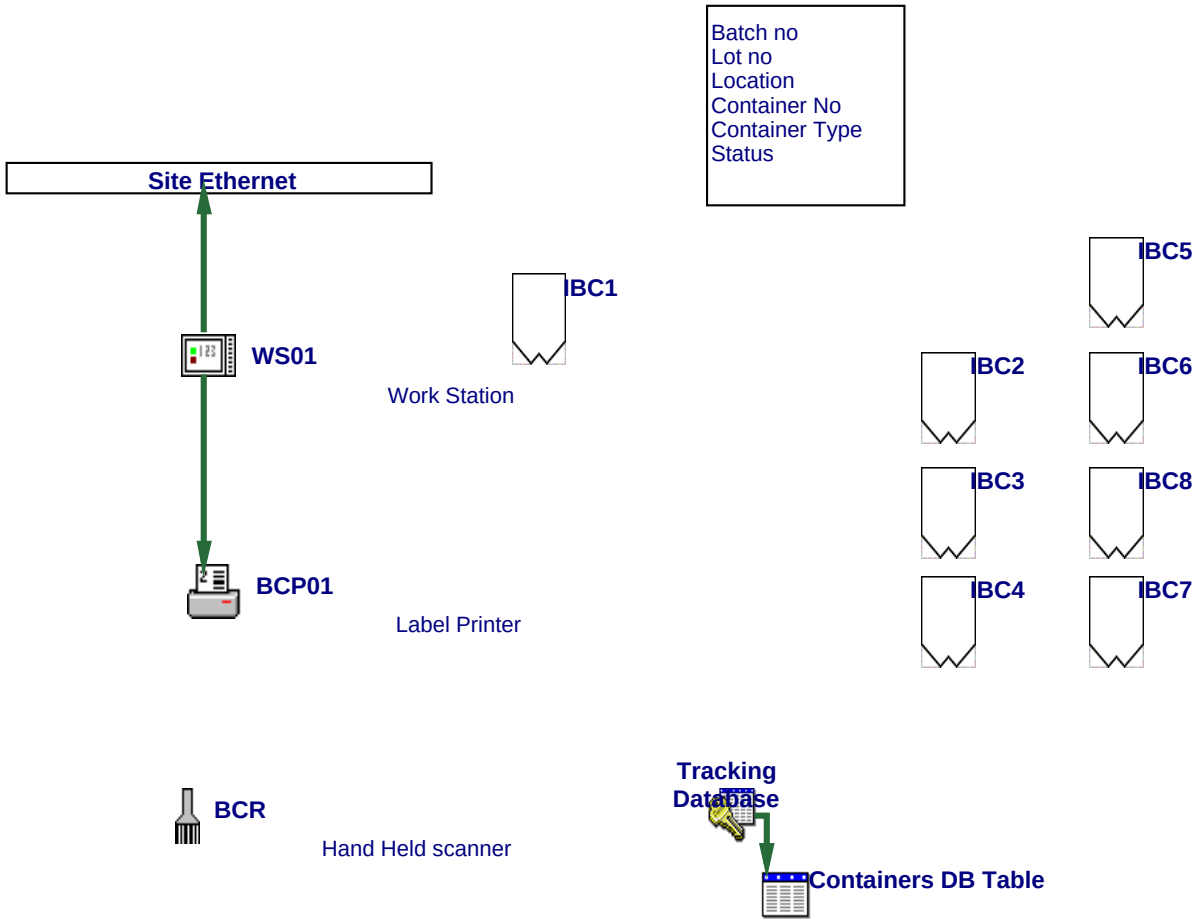


Diagram 18 - Packaging Material Store

Diagram Version: 513 Class: Cell Common Resource Diagram 18 of 93

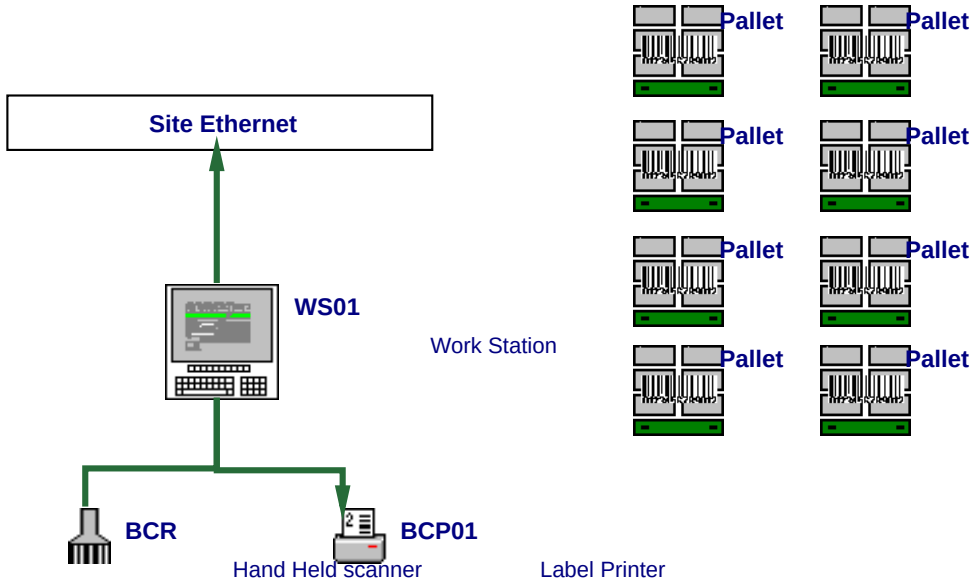


Diagram 19 - Quarantine Store

Diagram Version: 550 Class: Cell Common Resource Diagram 19 of 93

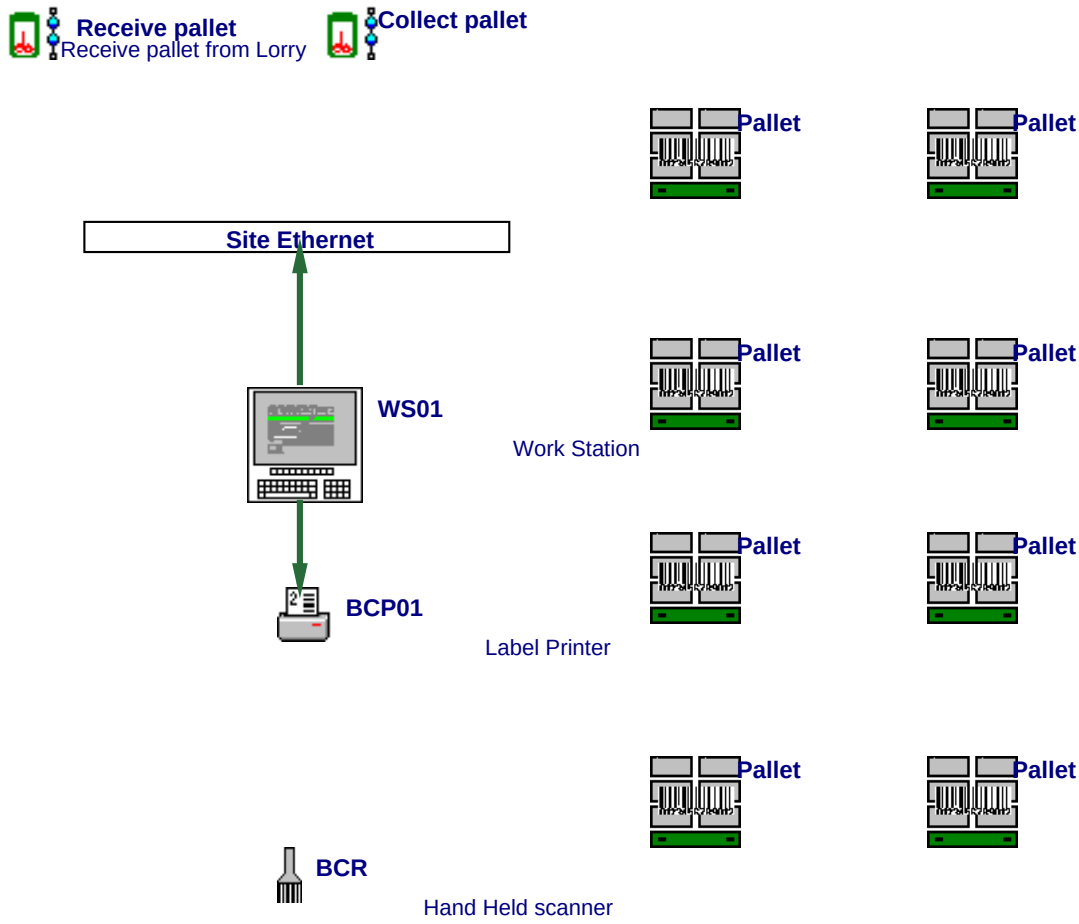


Diagram 20 - cr01 Milk Reception manifold

Diagram Version: 554 Class: Common Resource Diagram 20 of 93

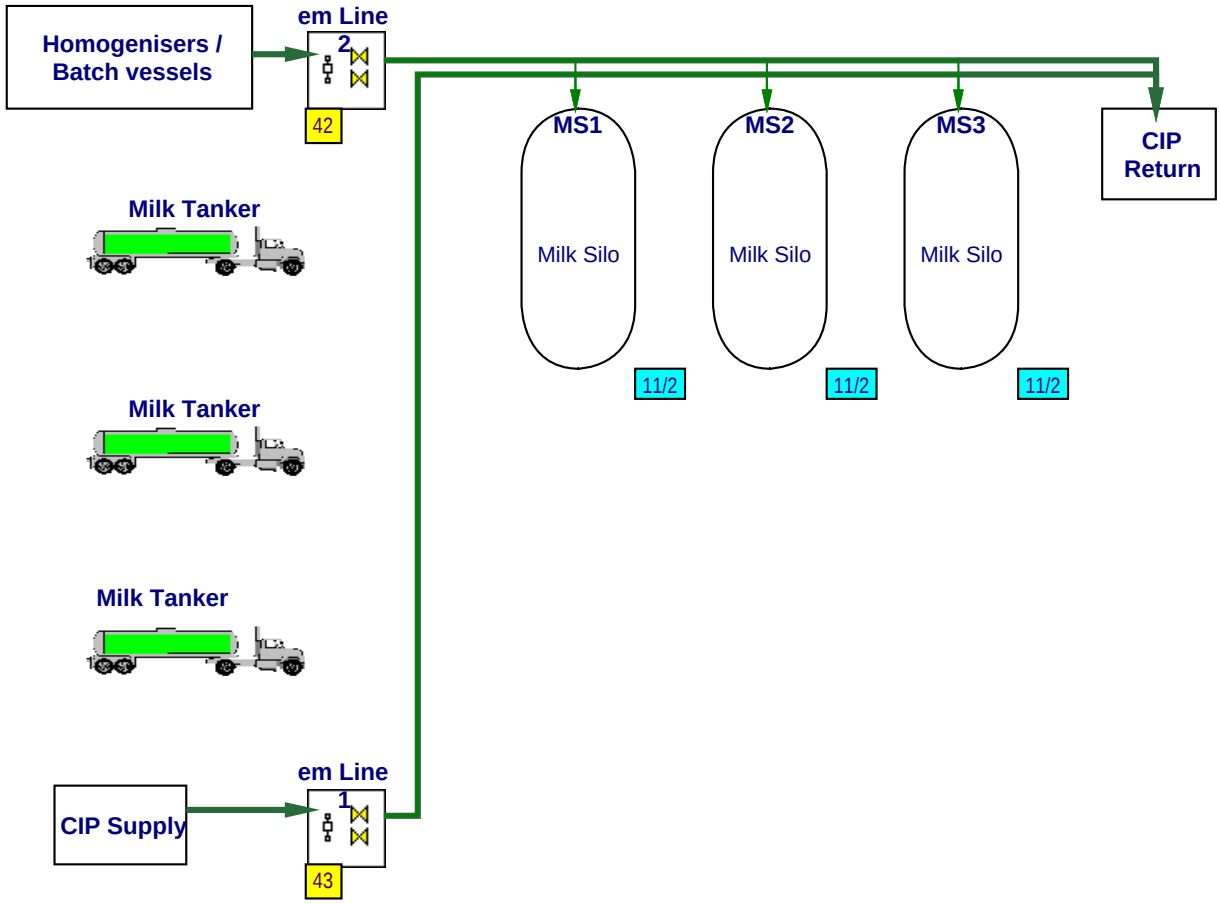


Diagram 21 - cr02 Milk Distribution manifold

Diagram Version: 550 Class: Common Resource Diagram 21 of 93

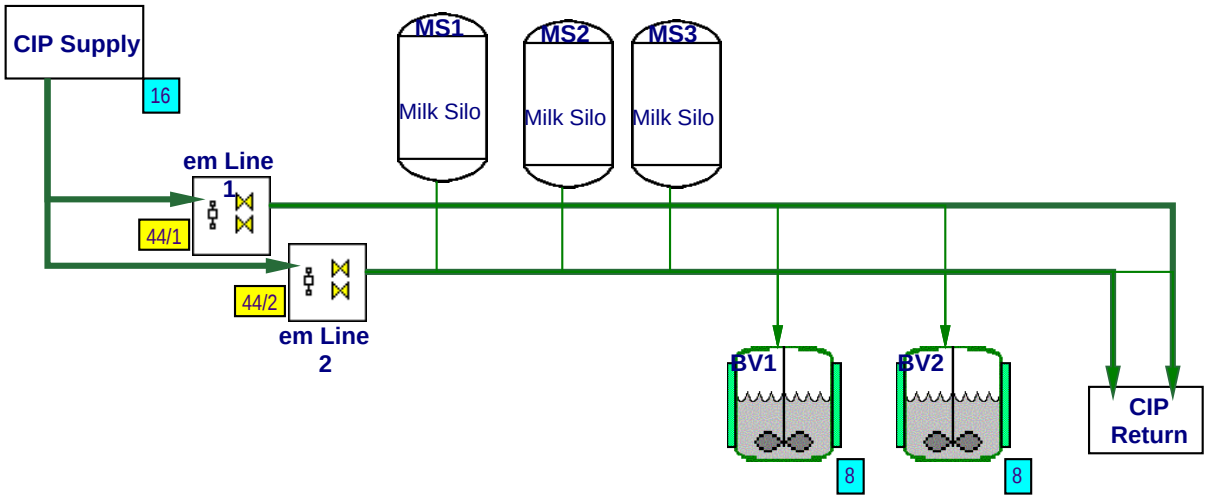


Diagram Description 22 - cr03 Homogeniser In manifold

Each line is an equipment module.
Line Equipment modules contain the valves that feed into and out of the line. Line EM's and must be acquired in order for a recipe to transfer material (product or CIP) through the line.
Equipment modules belonging the to units to or from which the line feeds belong to those units, but in a sense they also belong to the line. This explained further on the Line diagram.

Diagram Version: 550 Class: Common Resource Diagram 22 of 93

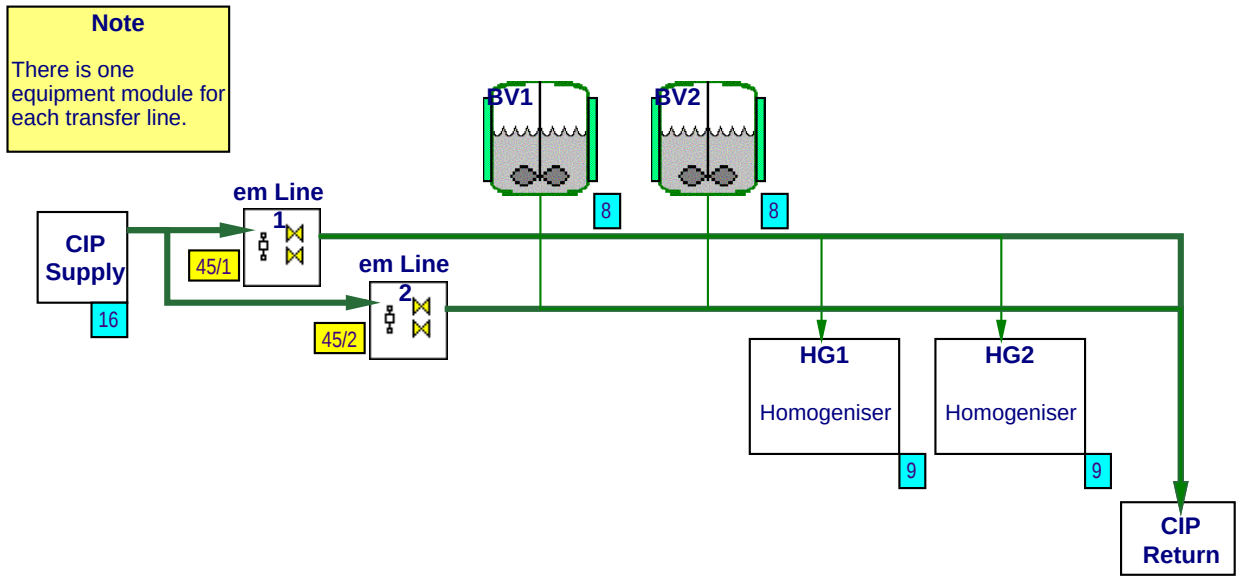


Diagram 23 - cr04 Homogeniser Out manifold

Diagram Version: 554 Class: Common Resource Diagram 23 of 93

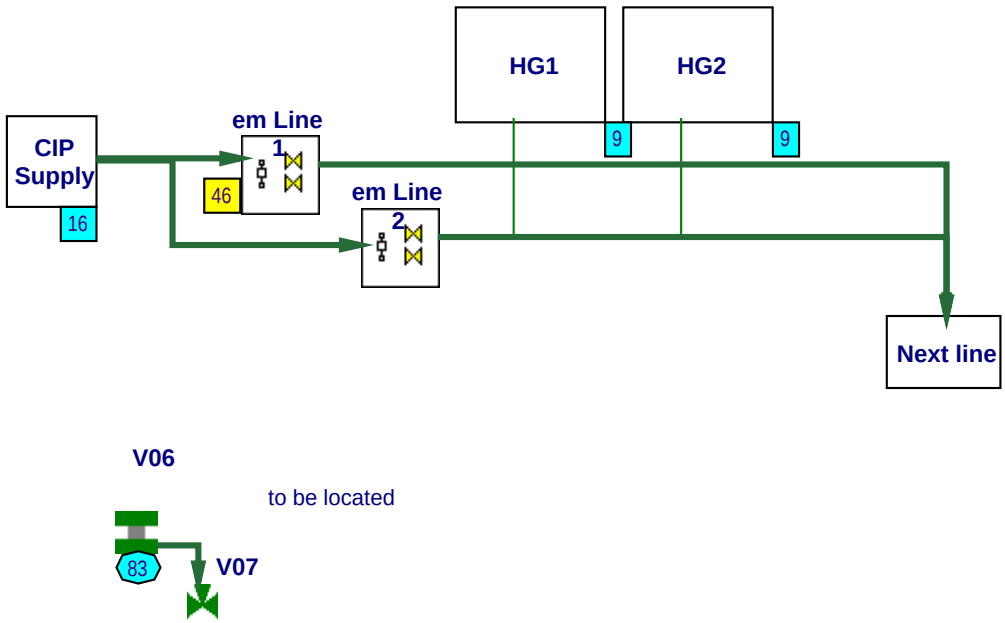


Diagram 24 - cr05 Product Silo inlet manifold
Diagram Version: 555 Class: Common Resource **Diagram 24 of 93**

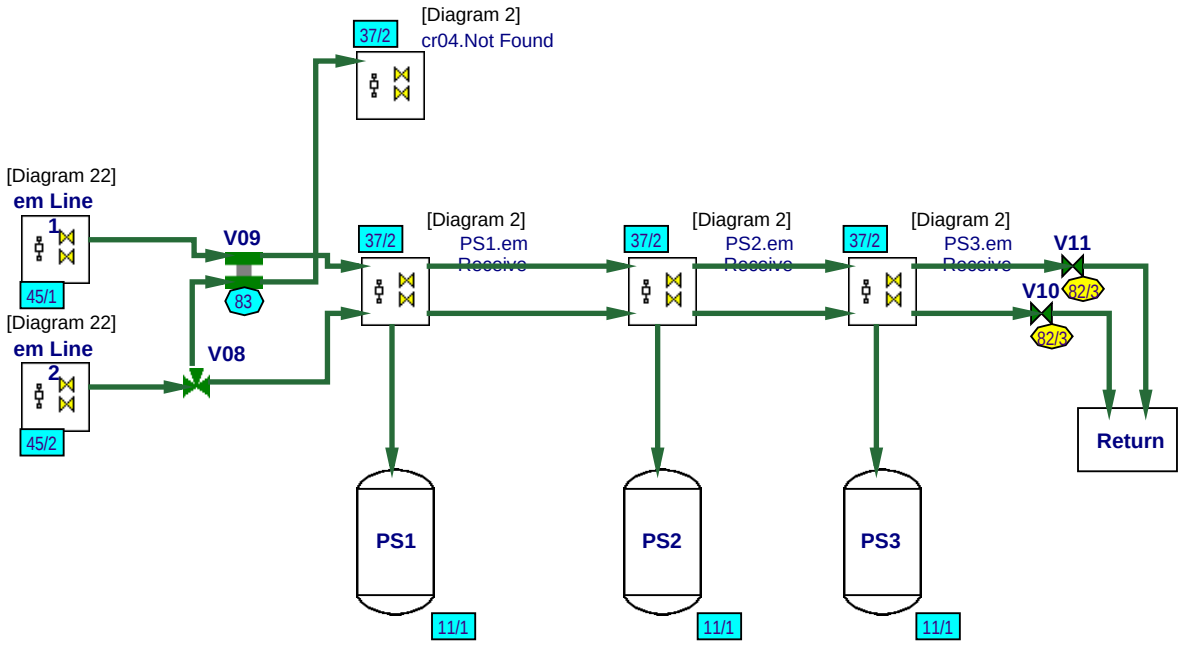


Diagram 25 - cr06 Product Silo out manifold

Diagram Version: 614 Class: Common Resource Diagram 25 of 93

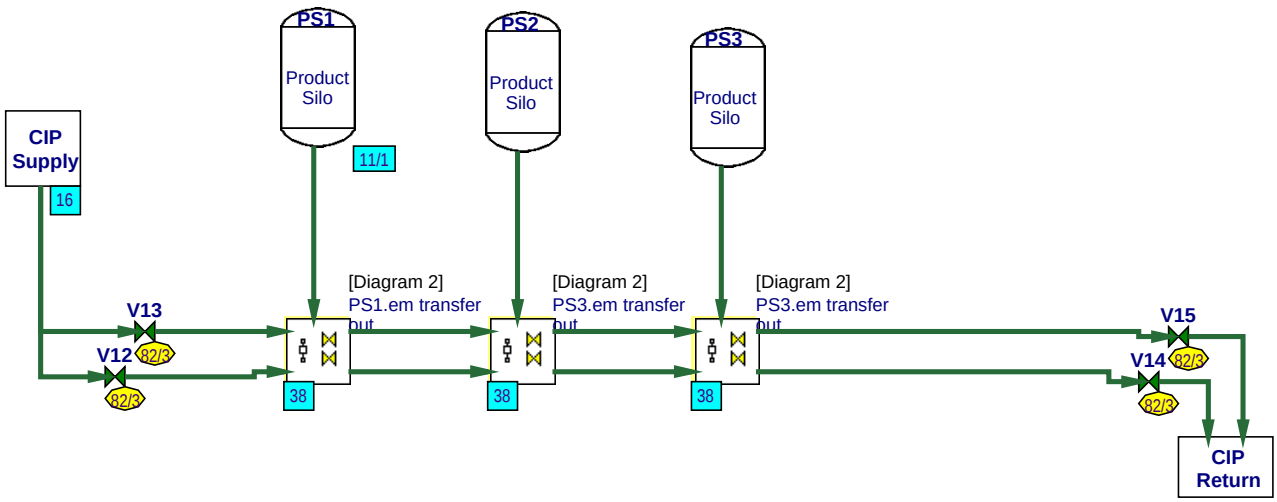
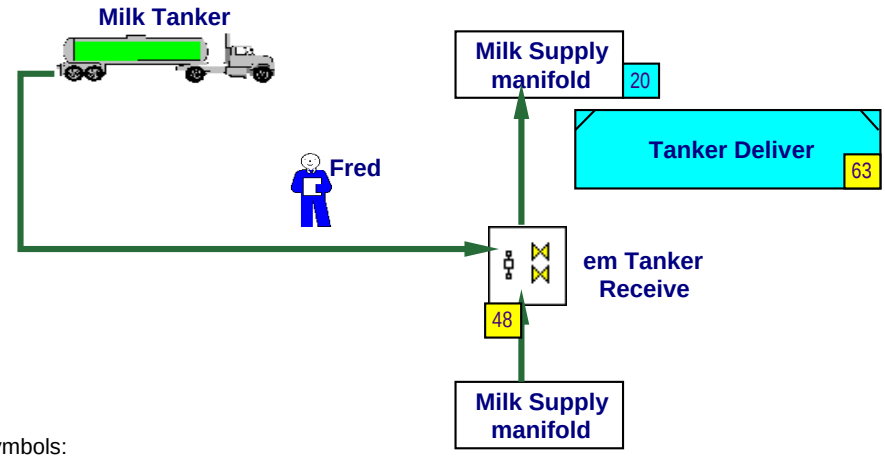
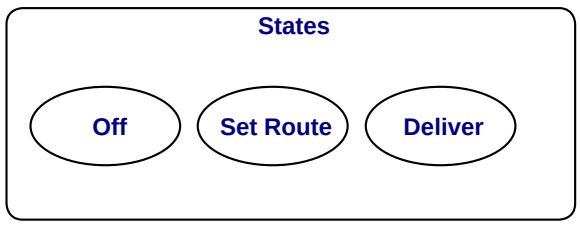


Diagram 26 - Tanker unloading bay

Diagram Version: 549 Class: Common Resource **Diagram 26 of 93**



Parent Symbols:
2 - Liquids Processing overview
.... , Milk Reception 1, Milk Reception 2, Milk Reception 3



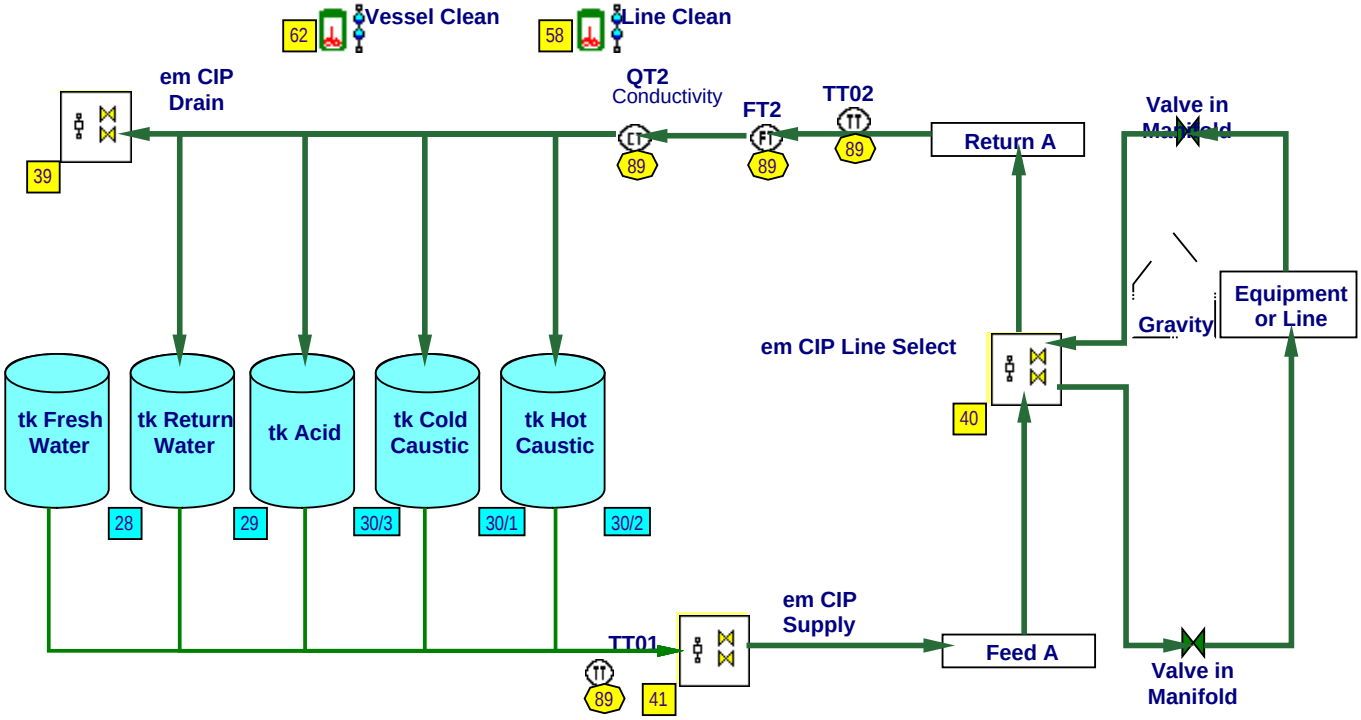
Tanker unloading bay

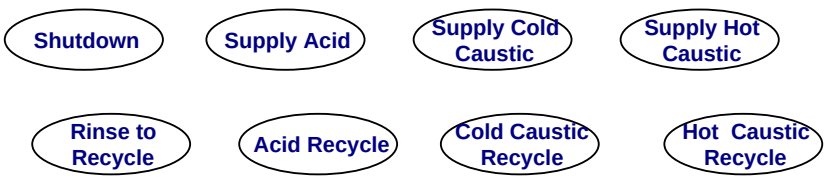
	LAL	Pump	V12	Milk Tanker
Deliver	1	-1	-1	10
Off	0	0	0	0
Set Route	1	0	-1	10

Diagram Description 27 - CIP Unit

CIP Supply/Return

Diagram Version: 615 Class: Common Resource Diagram 27 of 93





CIP Unit

	KV005	CIP Supply Pump	tk Acid	tk Cold Caustic	tk Fresh Water	tk Hot Caustic	tk Return Water
Shutdown	Close	Stop	0	0	Shutdown	0	0
Supply Acid	Close	Stop	0	0	Shutdown	0	0
Acid Recycle	Close	Stop	0	0	Shutdown	0	0
Supply Cold	Close	Stop	0	0	Shutdown	0	0
Cold Caustic	Close	Stop	0	0	Shutdown	0	0
Rinse to	Close	Stop	0	0	Shutdown	0	0
Hot Caustic	Close	Stop	0	0	Shutdown	0	0
Supply Hot Caustic	Close	Stop	0	0	Shutdown	0	0

Diagram 28 - crFreshWater

Diagram Version: 532 Class: Common Resource Diagram 28 of 93

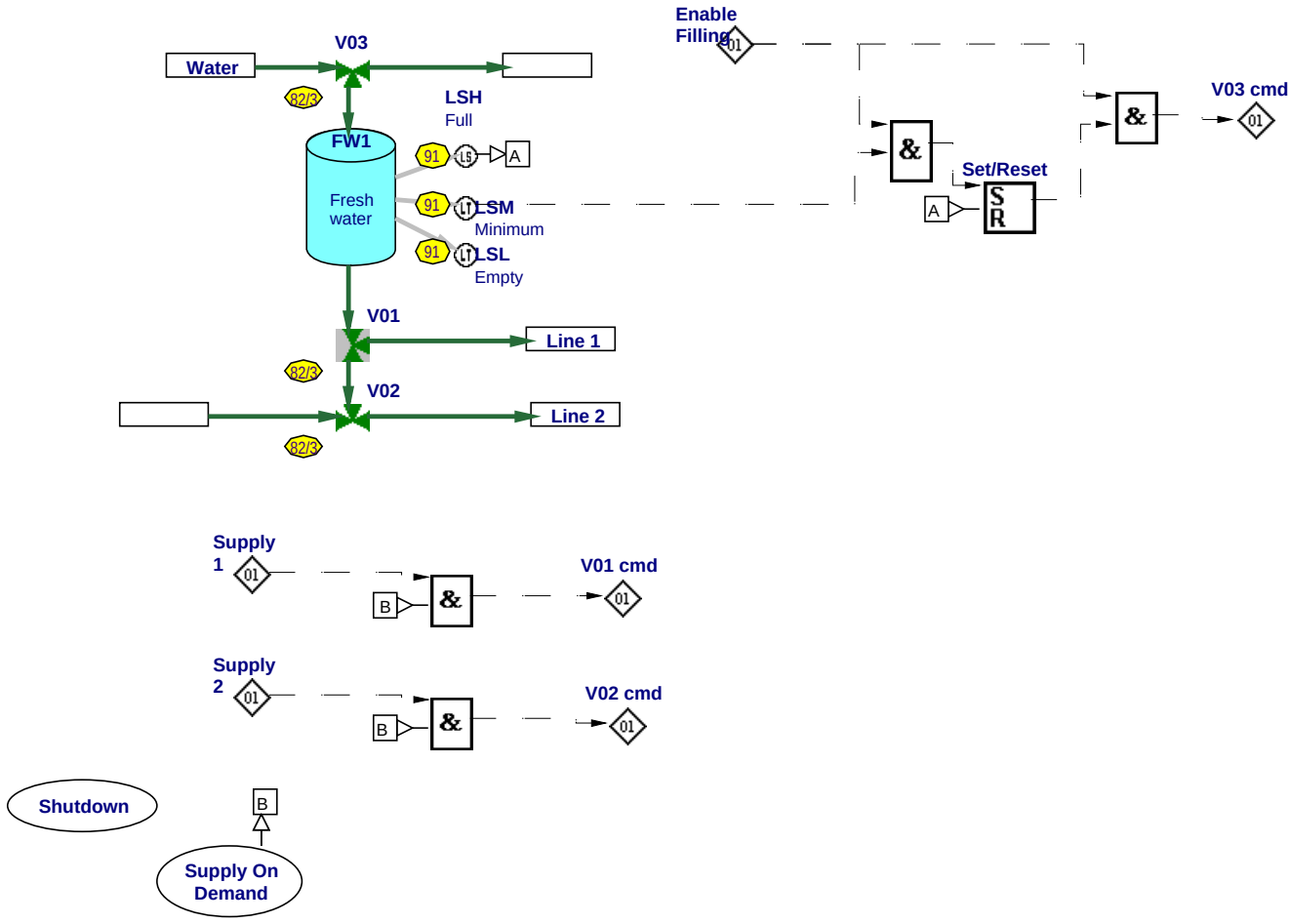


Diagram 29 - Recycled water

Diagram Version: 395 Class: Common Resource Diagram 29 of 93

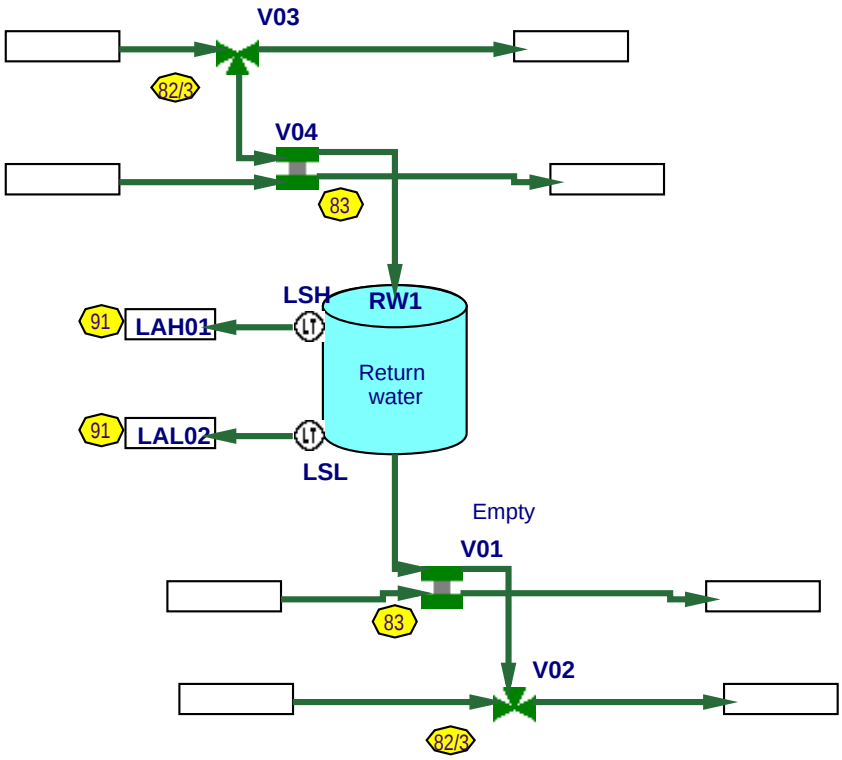
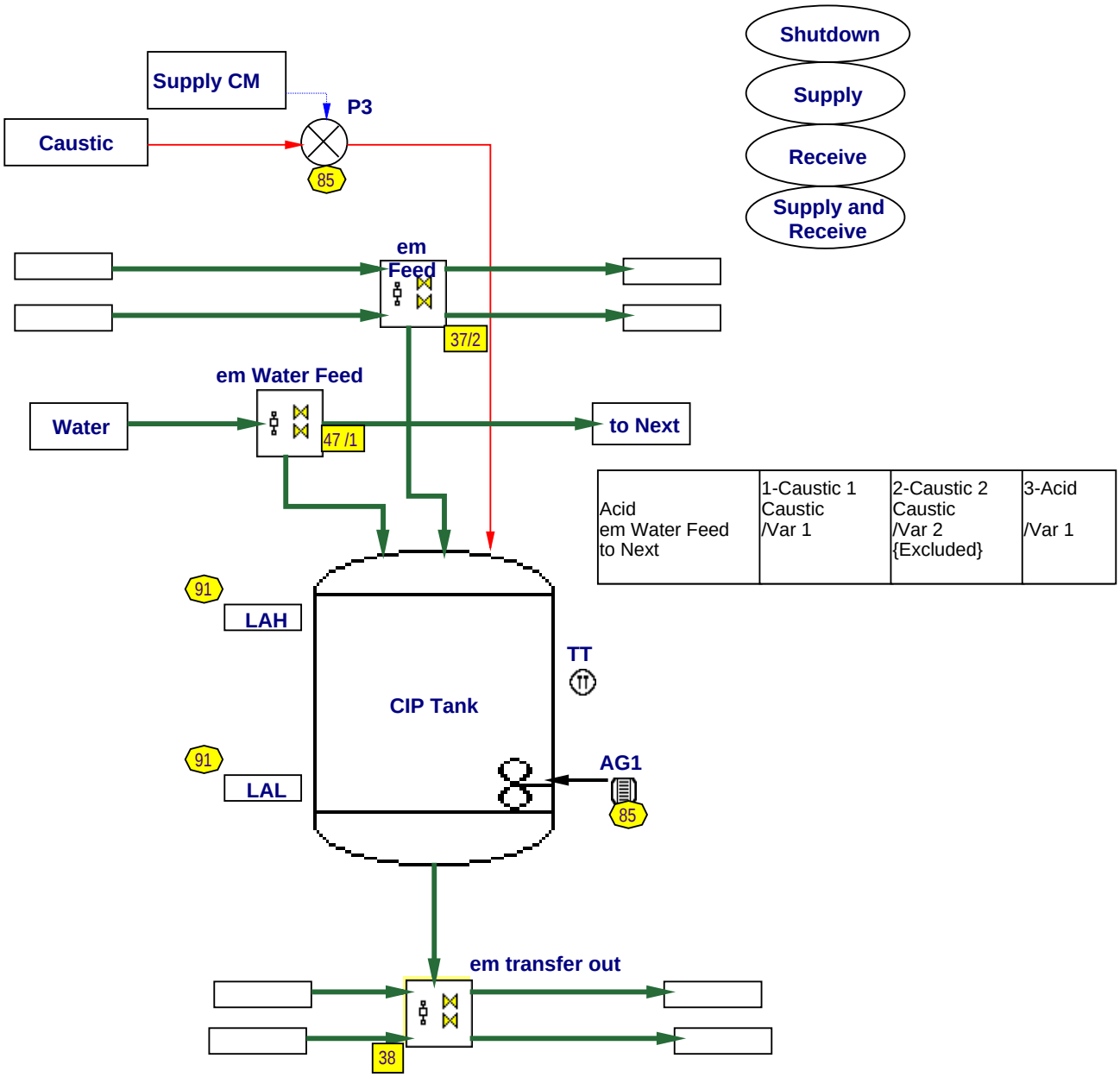


Diagram 30 - Tank, LSL,LSH,Agit, TT

Diagram Version: 543 Class: Common Resource Diagram 30 of 93

Variant 1 - Caustic 1



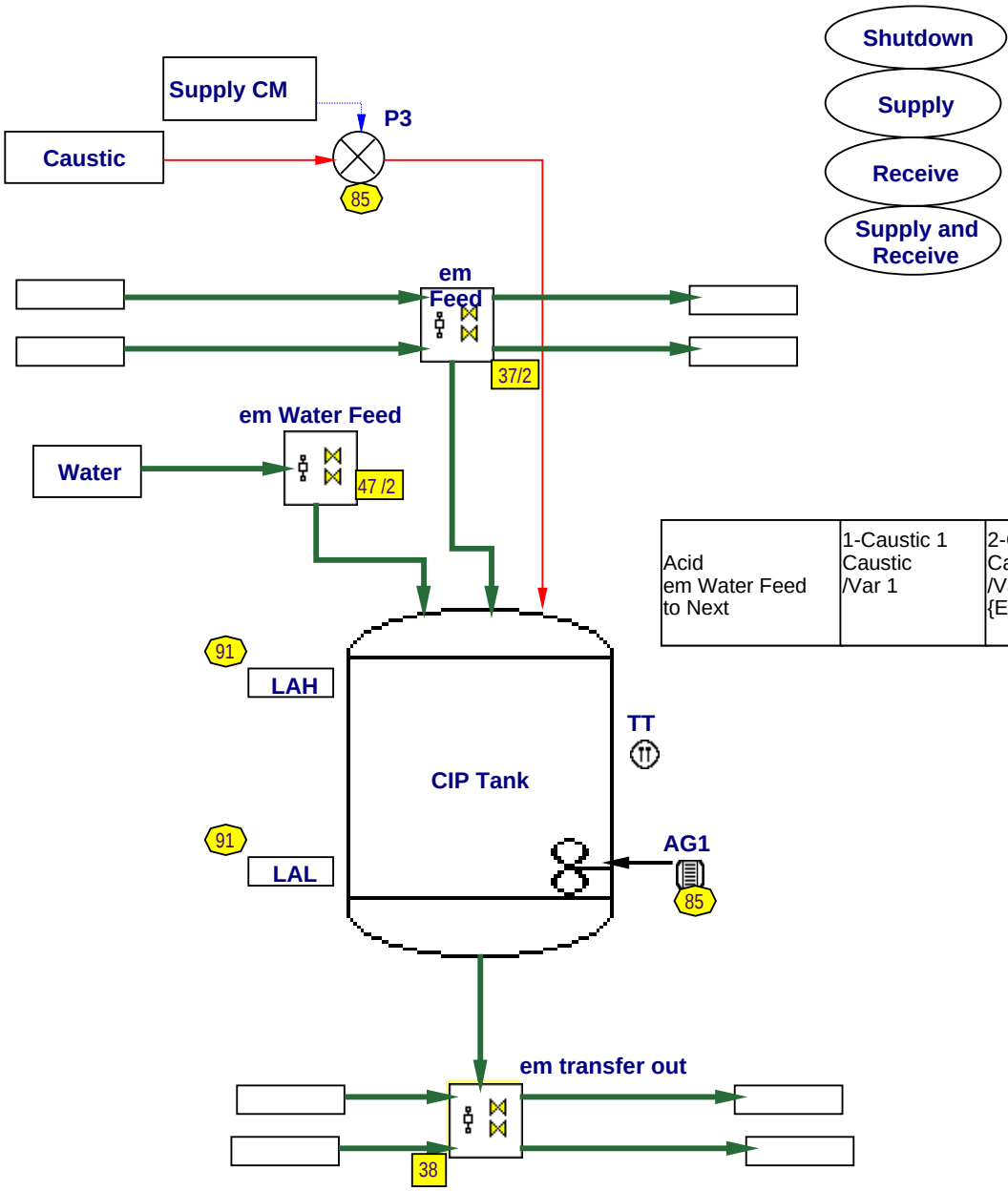
Acid em Water Feed to Next	1-Caustic 1 Caustic /Var 1	2-Caustic 2 Caustic /Var 2 {Excluded}	3-Acid /Var 1

	em Feed	em transfer out	P3	Supply CM
Shutdown	Through	Through	Stop	Off
Supply	Through	Send	Run	Enable
Receive	Receive	Through	Stop	Enable
Supply and Receive	Receive	Send	Run	Enable

Diagram 30 - Tank, LSL,LSH,Agit, TT

Diagram Version: 543 Class: Common Resource Diagram 30 of 93

Variant 2 - Caustic 2



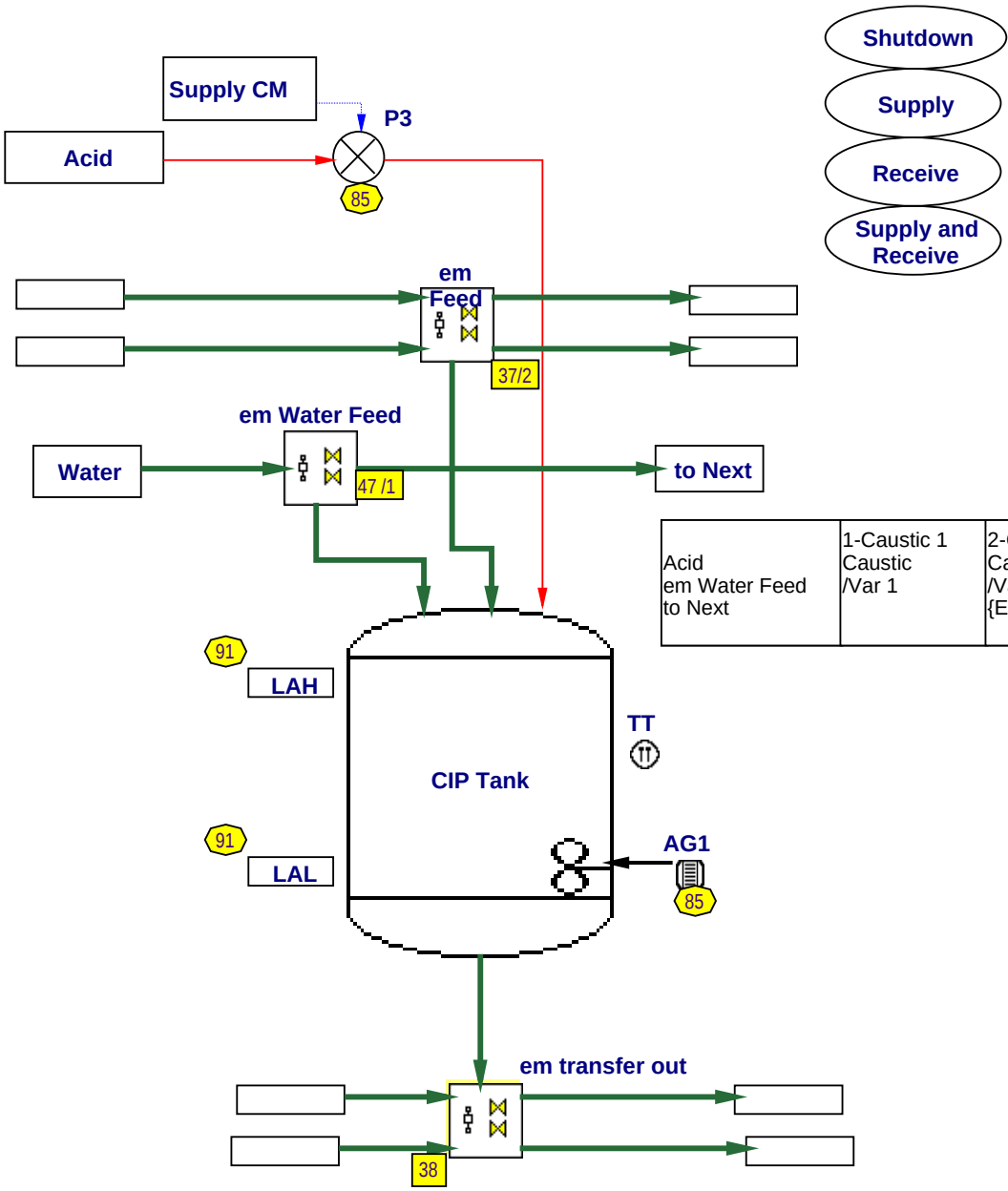
Acid em Water Feed to Next	1-Caustic 1 Caustic /Var 1	2-Caustic 2 Caustic /Var 2 {Excluded}	3-Acid /Var 1

	em Feed	em transfer out	P3	Supply CM
Shutdown	Through	Through	Stop	Off
Supply	Through	Send	Run	Enable
Receive	Receive	Through	Stop	Enable
Supply and Receive	Receive	Send	Run	Enable

Diagram 30 - Tank, LSL,LSH,Agit, TT

Diagram Version: 543 Class: Common Resource Diagram 30 of 93

Variant 3 - Acid



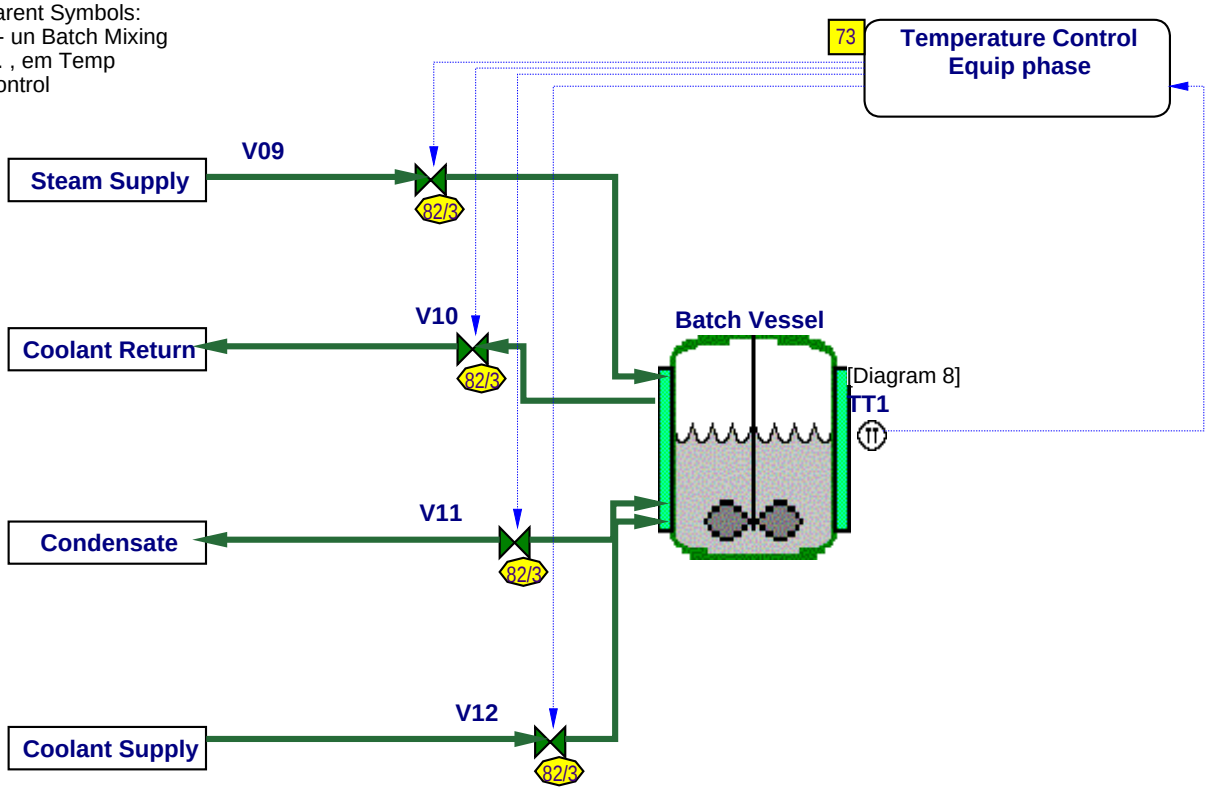
Acid em Water Feed to Next	1-Caustic 1 Caustic /Var 1	2-Caustic 2 Caustic /Var 2 {Excluded}	3-Acid /Var 1

	em Feed	em transfer out	P3	Supply CM
Shutdown	Through	Through	Stop	Off
Supply	Through	Send	Run	Enable
Receive	Receive	Through	Stop	Enable
Supply and Receive	Receive	Send	Run	Enable

Diagram 31 - em Heat/Cool Jacket

Diagram Version: 617 Class: Equipment Module Diagram 31 of 93

Parent Symbols:
8 - un Batch Mixing
.... , em Temp Control



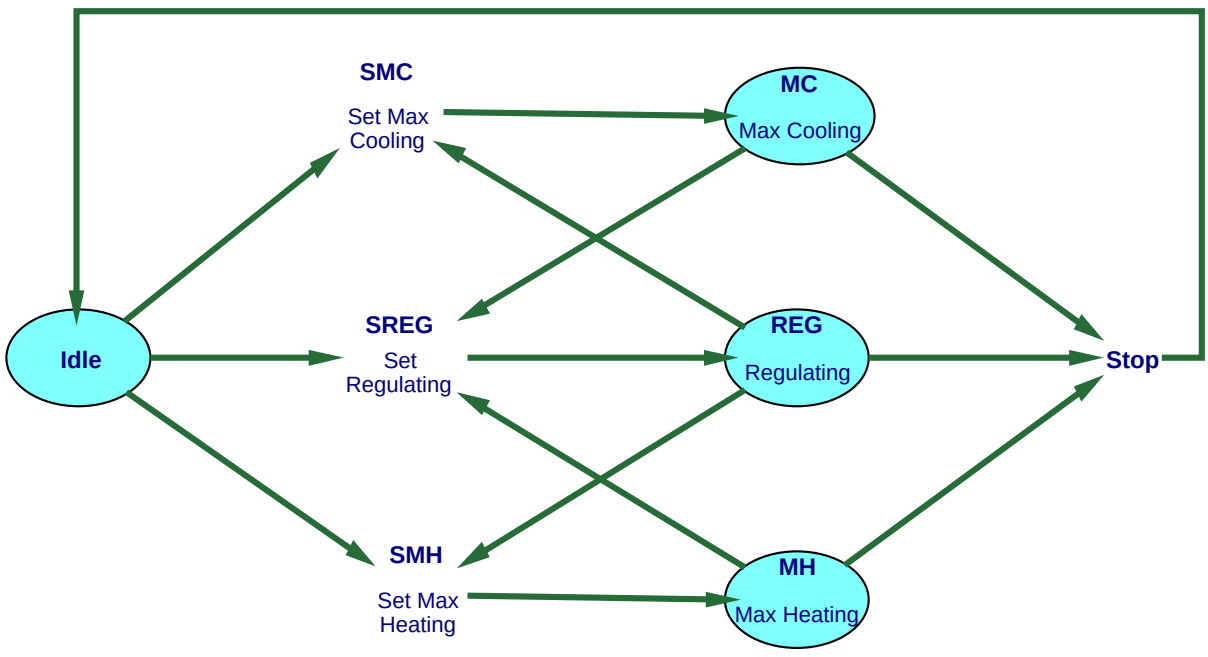


Diagram 32 - em Loss In Weight Feeder

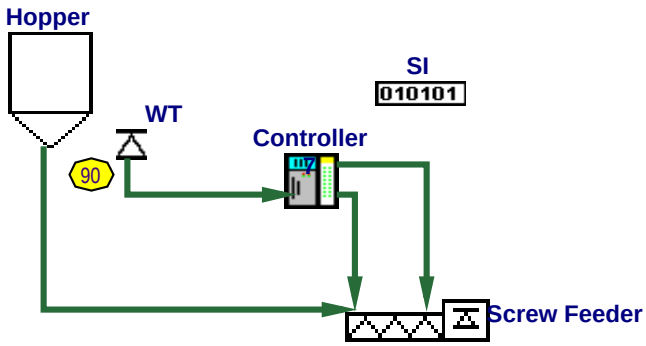
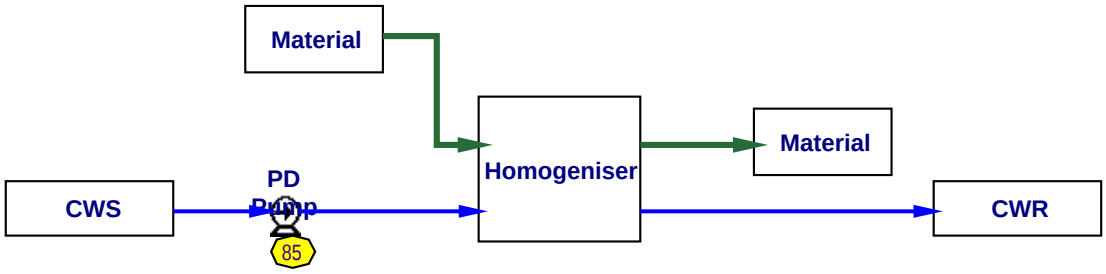


Diagram 33 - em Homogeniser

Diagram Version: 413 Class: Equipment Module Diagram 33 of 93



I/O and Alarms

This shows small PLC controlling the homogeniser that also reports via alarms and some process measurments.

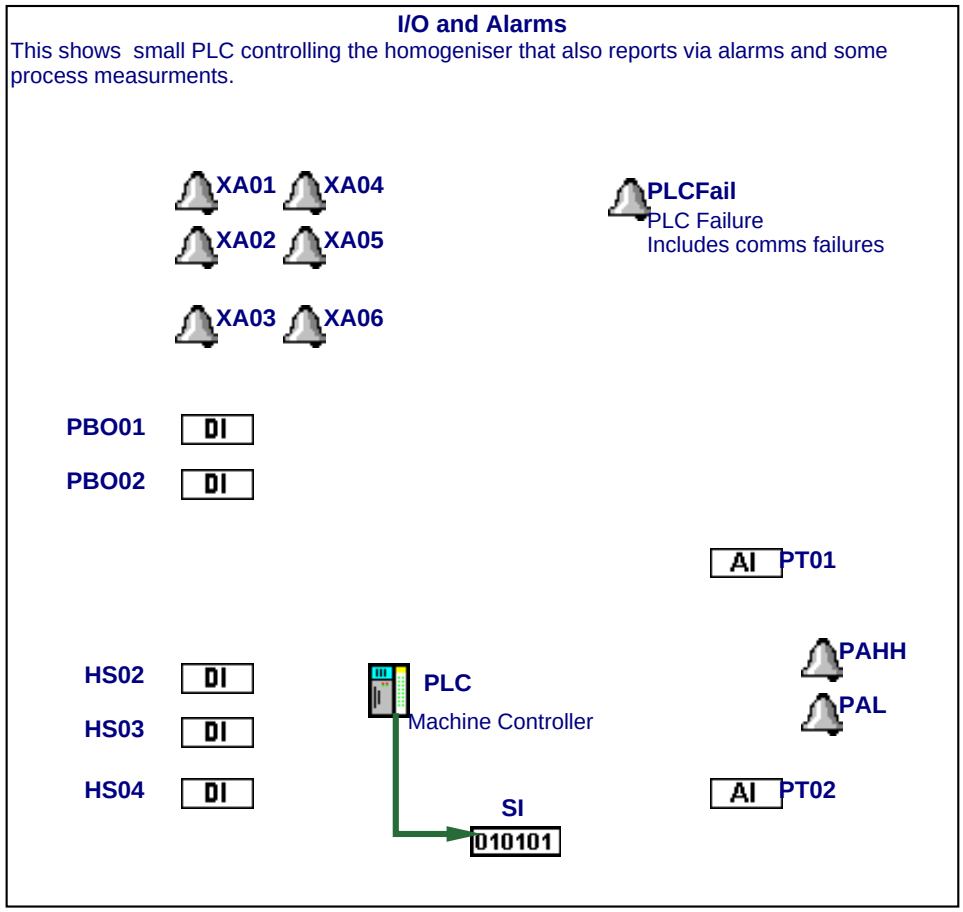
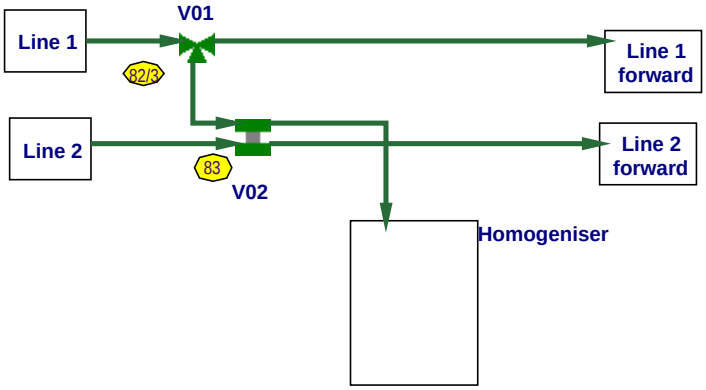
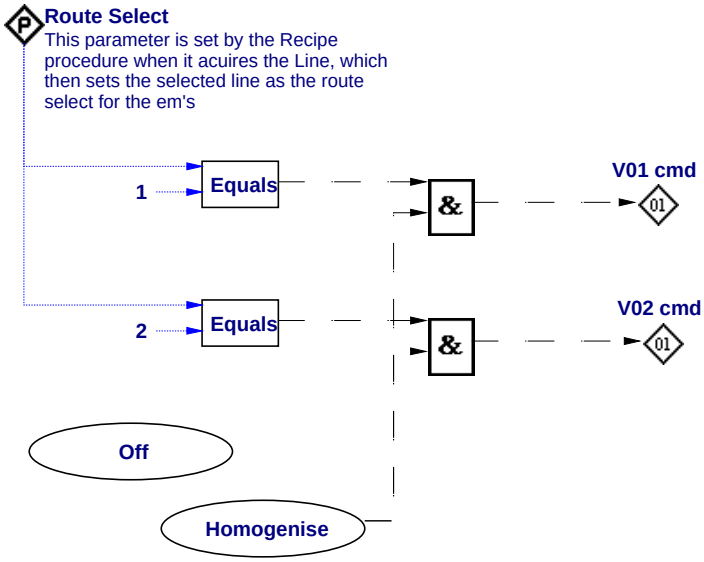


Diagram 34 - em Homogerniser in
Diagram Version: 614 Class: Equipment Module Diagram 34 of 93





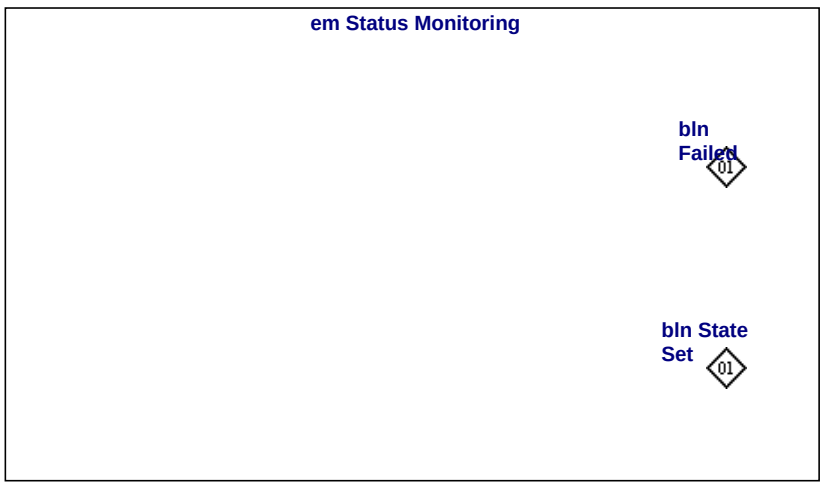


Diagram 35 - em Generic Machine Interface
Diagram Version: 550 Class: Equipment Module Diagram 35 of 93

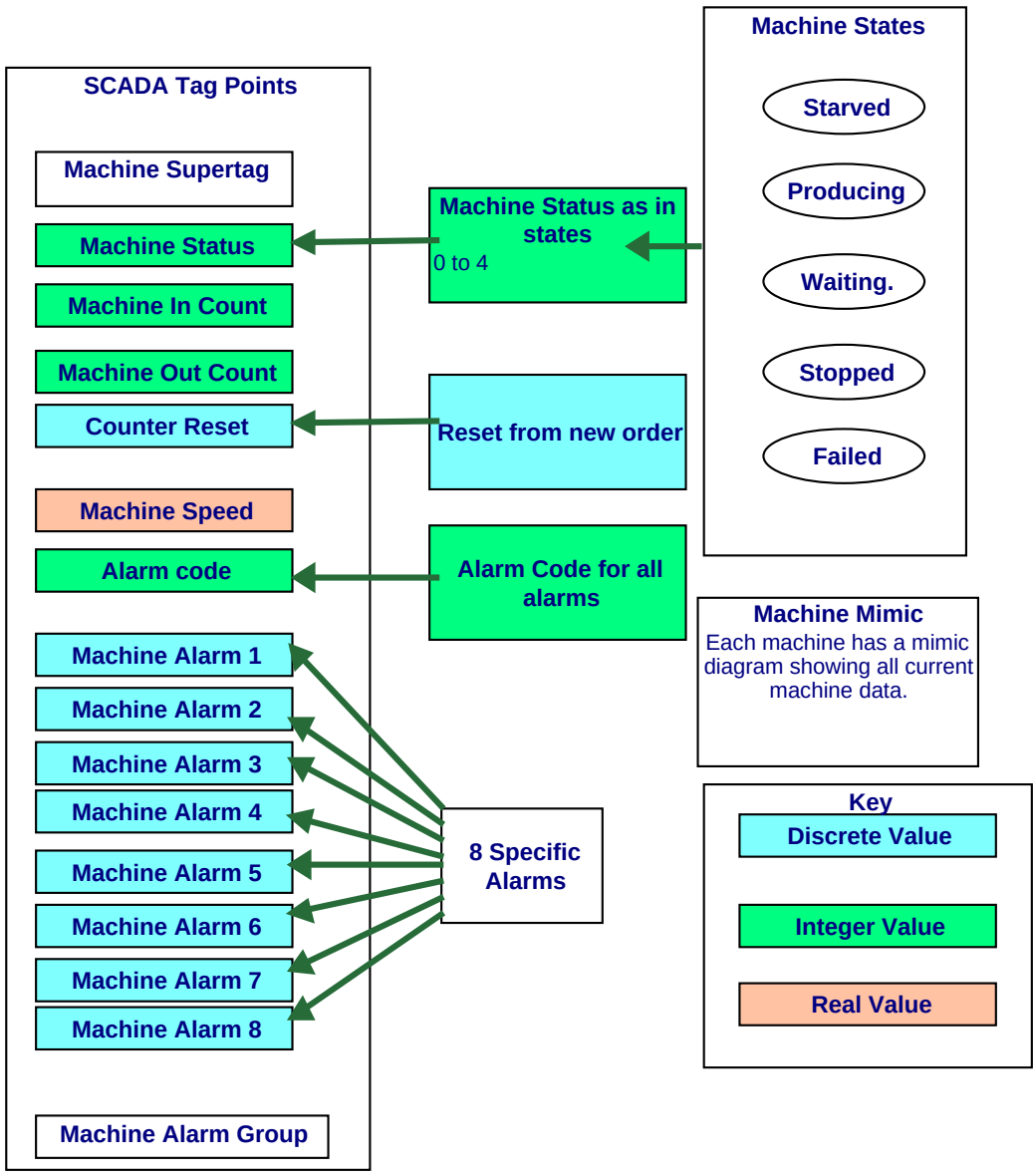
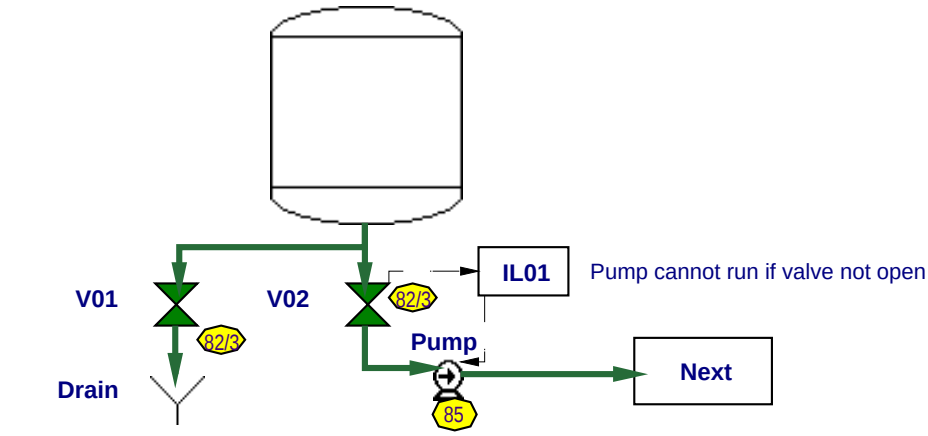
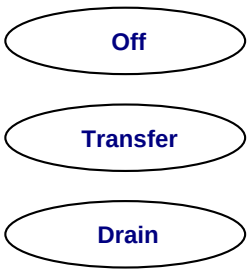


Diagram Description 36 - em Discharge

This module handles the discharge from a batch vessel

Diagram Version: 595 Class: Equipment Module Diagram 36 of 93





em Discharge

	Pump	V02	V01
Off	Stop	Closed	Closed
Transfer	Run	Open	Closed
Drain	Stop	Open	Open

Diagram Description 37 - em Transfer in

Variant 2 - Type 2

This module can be acquired by the batch manager. This also sends a Route number to the module.
The unit then sets the module to the Through or Feed State

Diagram 37 - em Transfer in

Diagram Version: 615 Class: Equipment Module Diagram 37 of 93

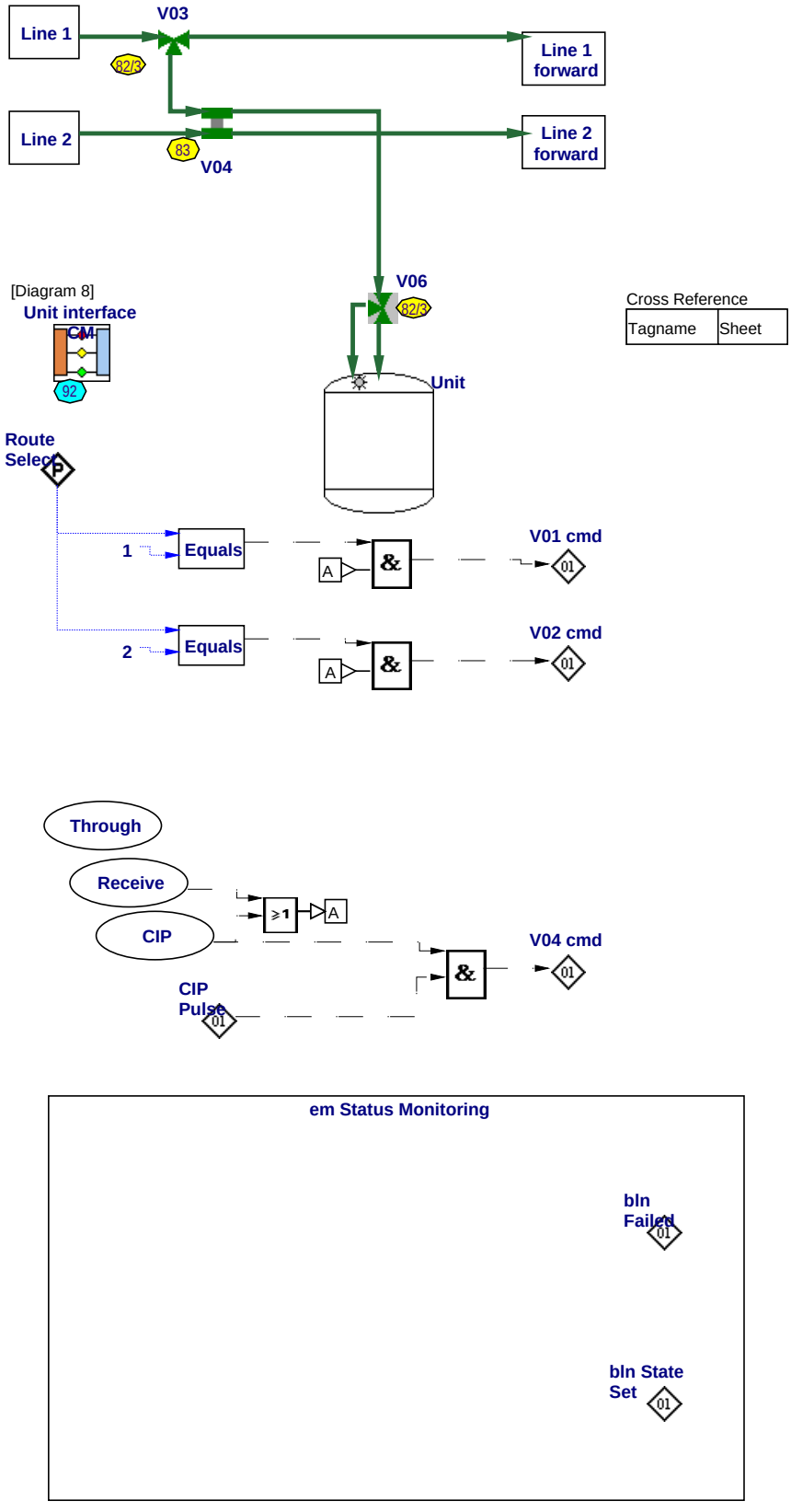
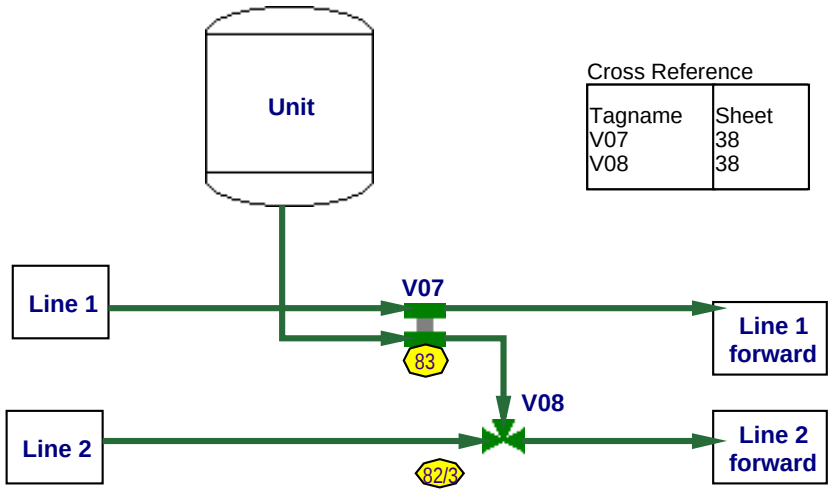


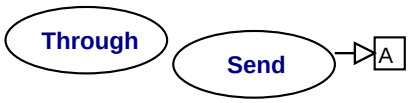
Diagram Description 38 - em Transfer out

This module can also be acquired by the CIP recipes and transfer routes.

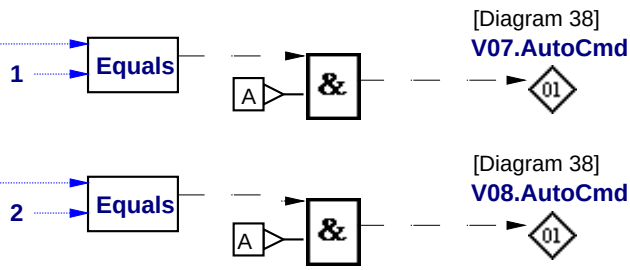
Diagram 38 - em Transfer out

Diagram Version: 572 Class: Equipment Module Diagram 38 of 93





Route Select
From Recipe Procedure
This parameter is set by the Recipe procedure once it has acquires the Line that the transfer will be made though.



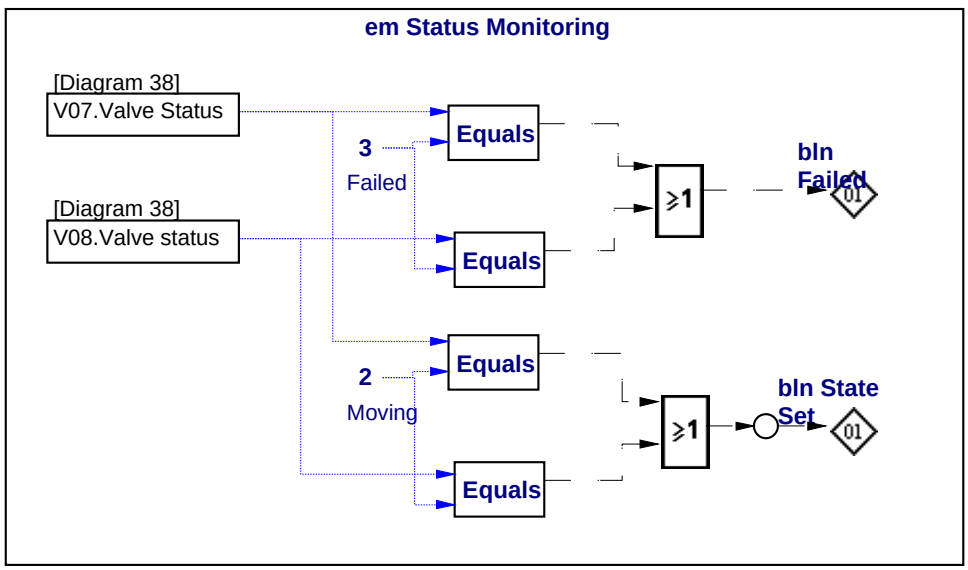
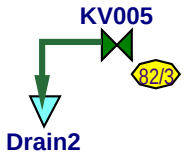


Diagram Description 39 - em CIP Drain

This incomplete module enables the routing of CIP returns to drain

Diagram Version: 536 Class: Equipment Module Diagram 39 of 93



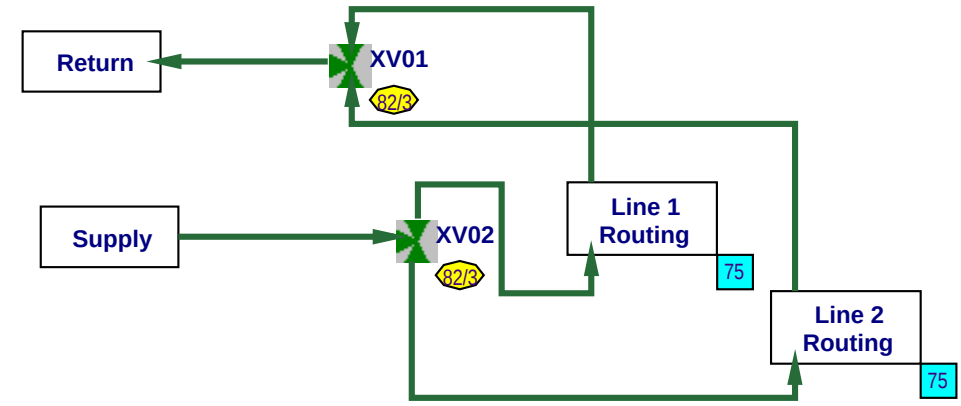
Off

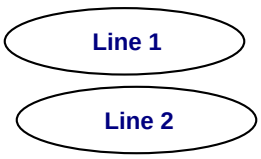
Drain

Diagram Description 40 - em CIP Line Select

This incomplete module switches a CIP Supply and return between one or other lines

Diagram Version: 536 Class: Equipment Module Diagram 40 of 93





	XV01	XV02
Route 1	Up	Down
Route 2	Down	Up

Route Select
From Recipe Procedure
This parameter is set by the Recipe procedure once it has acquired the Line that the CIP will be made through and the CIP unit.

Diagram Description 41 - em CIP Supply

This incomplete module controls the supply of CIP into the CIP lines

Diagram Version: 615 Class: Equipment Module Diagram 41 of 93

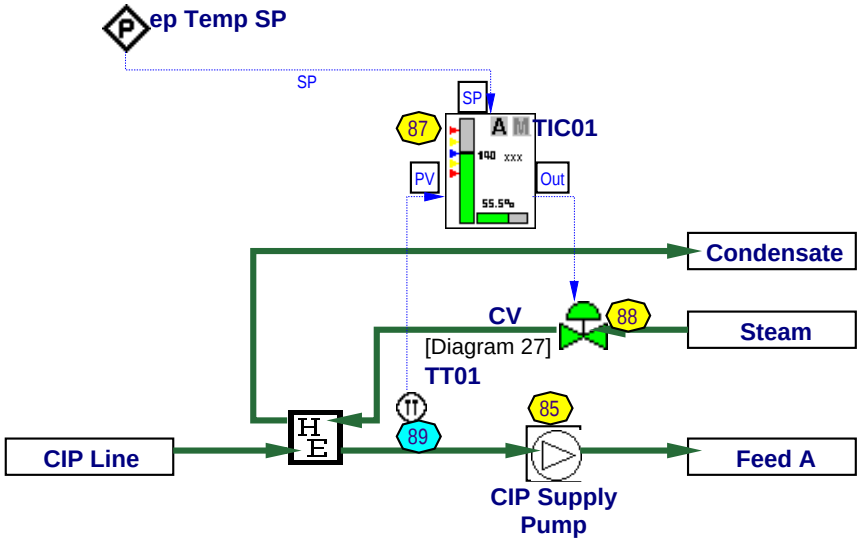


Diagram 42 - em Line Milk Silo out

Diagram Version: 554 Class: Equipment Module Diagram 42 of 93

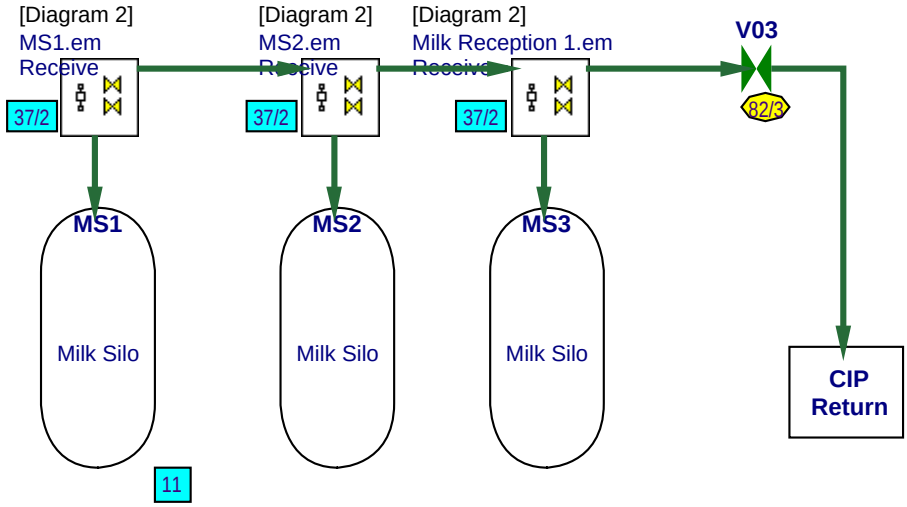


Diagram 43 - em Line to Milk silo

Diagram Version: 554 Class: Equipment Module Diagram 43 of 93

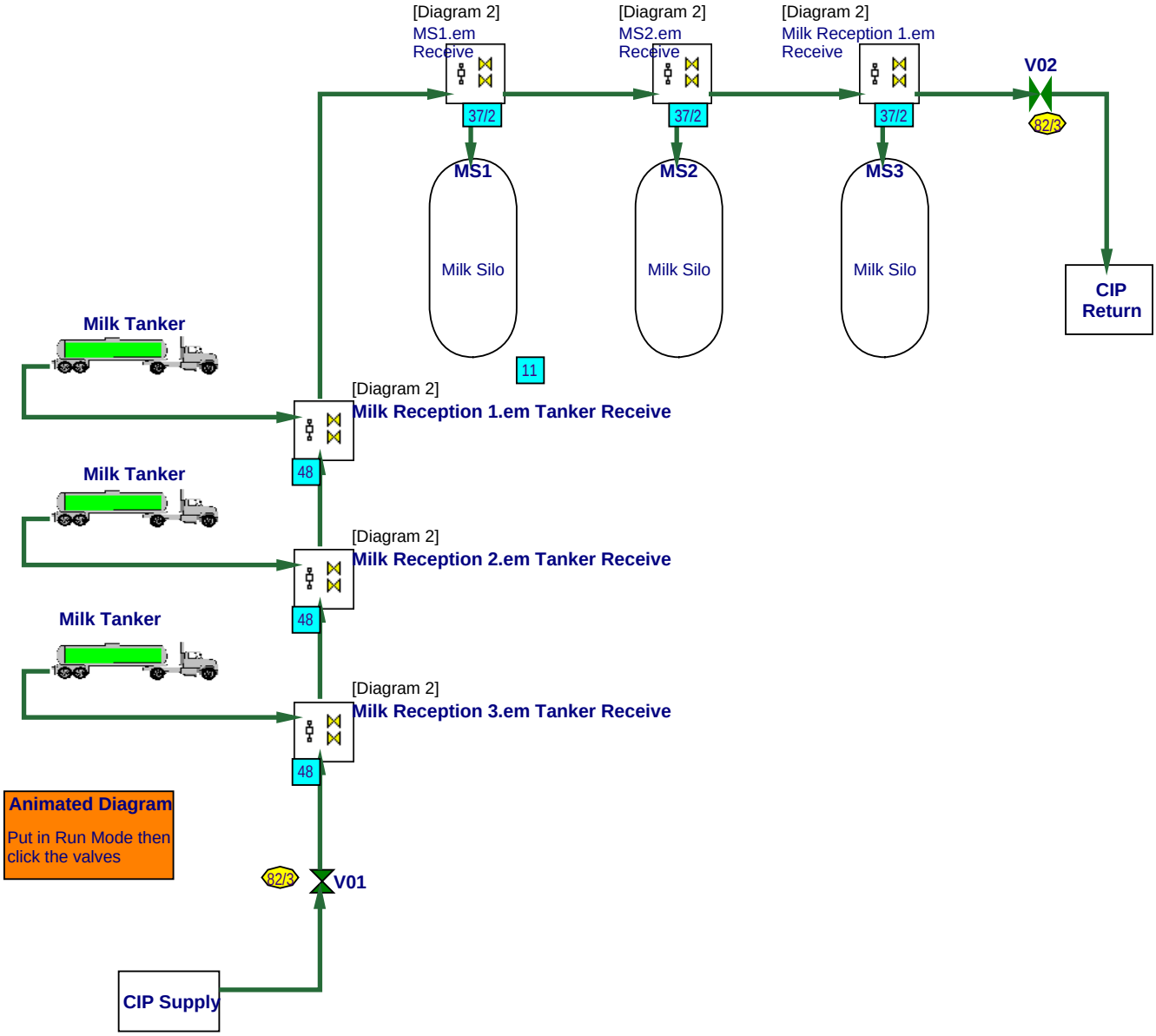


Diagram Description 44 - em Line Milk Distribution

Variant 1 - Line 1

This is an exclusive use Common Resource.
Only one control recipe can use the module at one time.

Diagram Version: 579 Class: Equipment Module Diagram 44 of 93

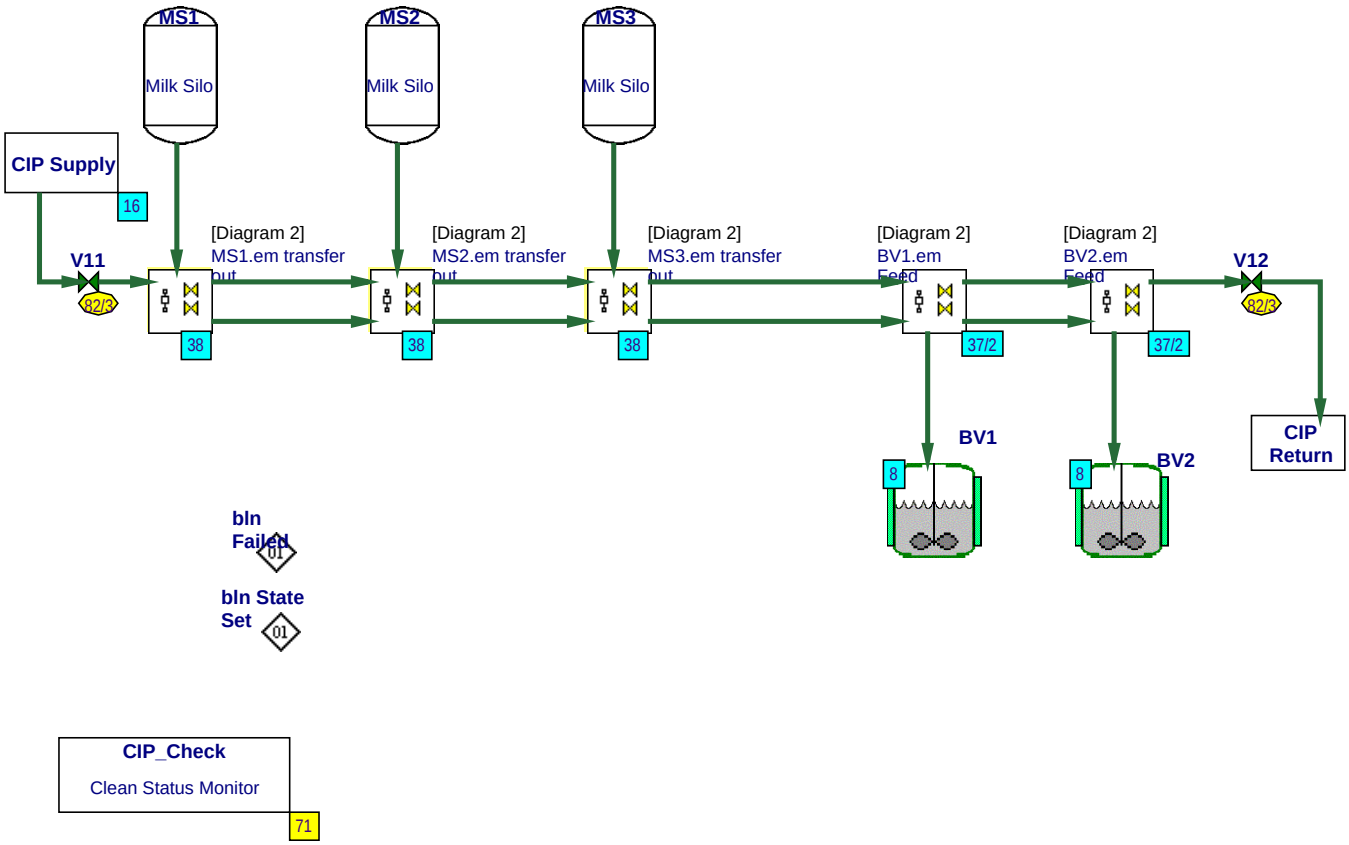


Diagram Description 44 - em Line Milk Distribution

Variant 2 - Line 2

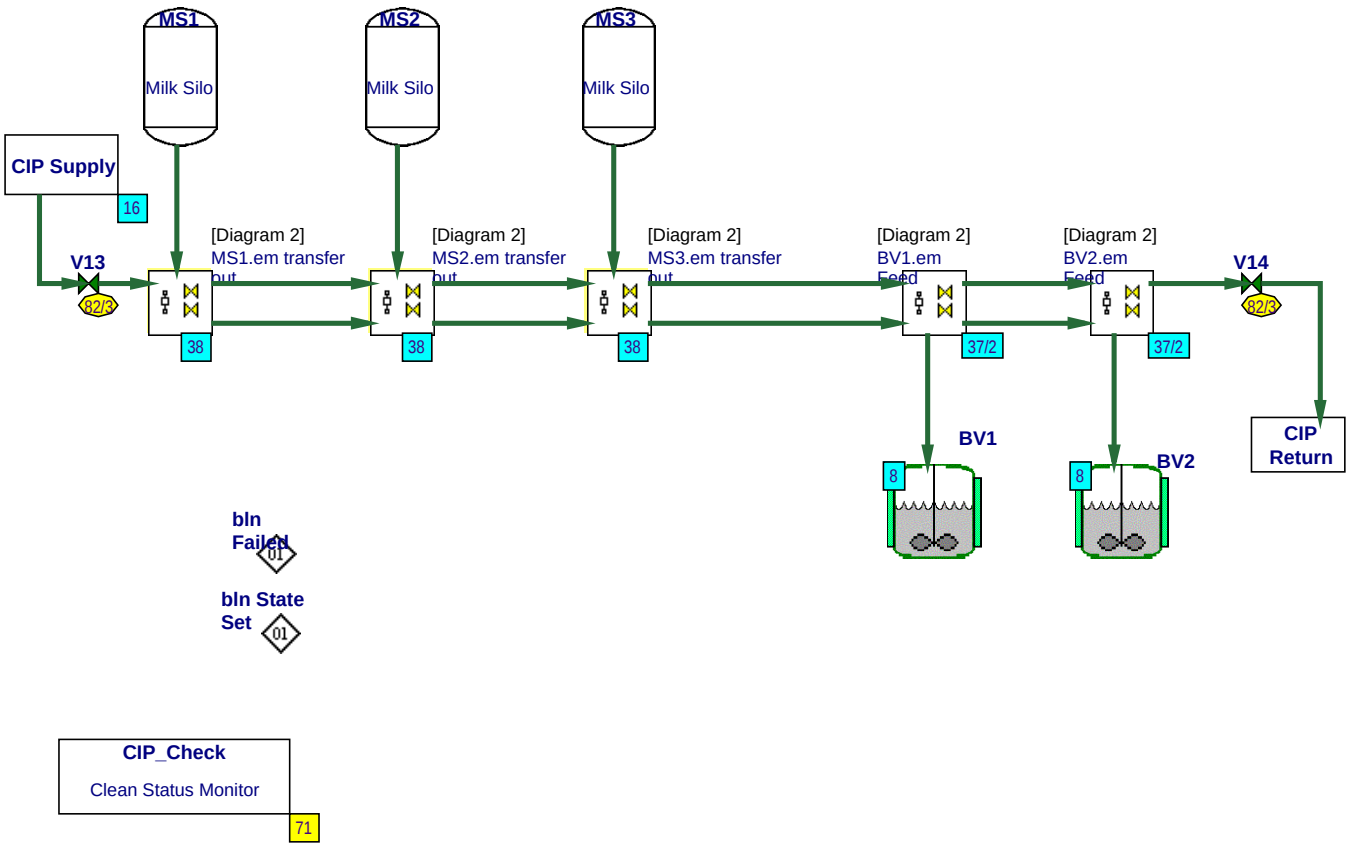


Diagram 45 - em Batch to Homogenisation line

Diagram Version: 563 Class: Equipment Module Diagram 45 of 93

Variant 1 - Line 1

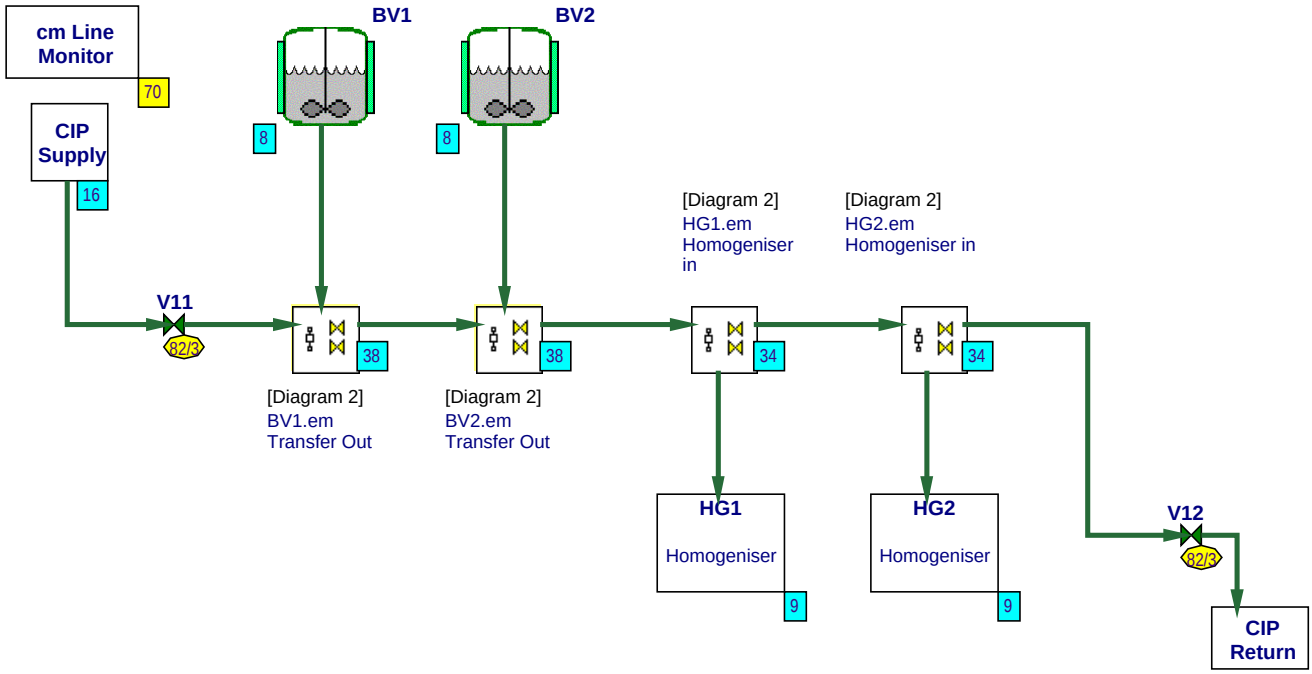


Diagram 45 - em Batch to Homogenisation line

Diagram Version: 563 Class: Equipment Module Diagram 45 of 93

Variant 2 - Line 2

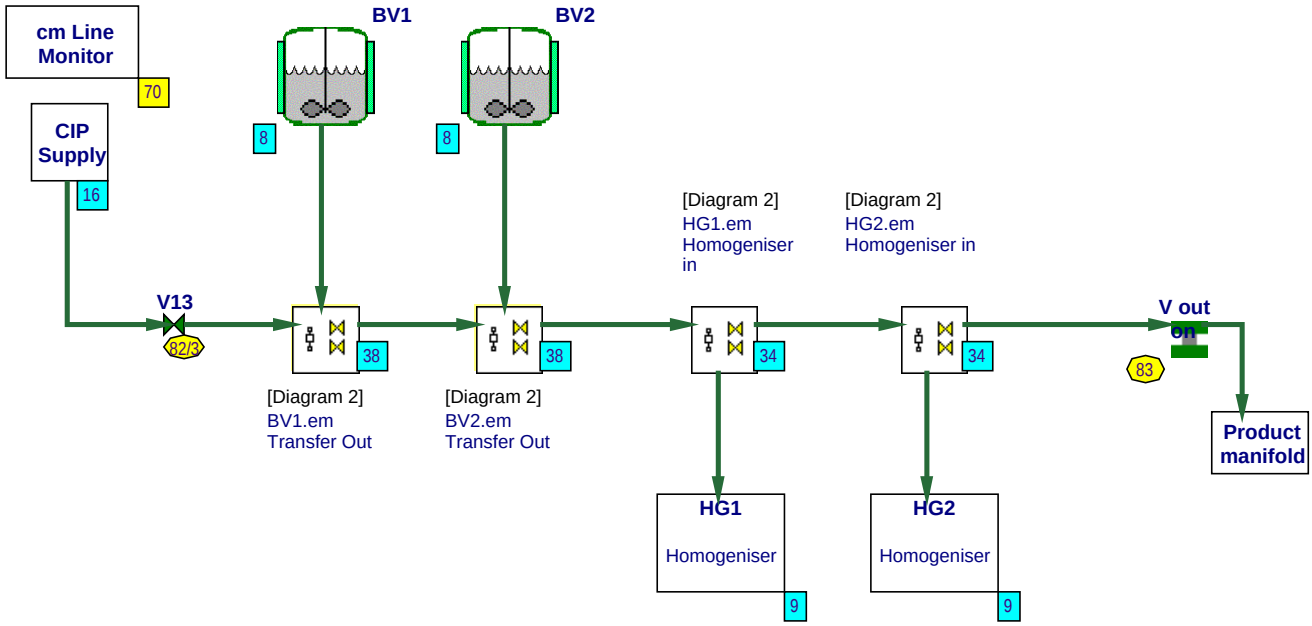


Diagram 46 - em Line Homog Out

Diagram Version: 554 Class: Equipment Module Diagram 46 of 93

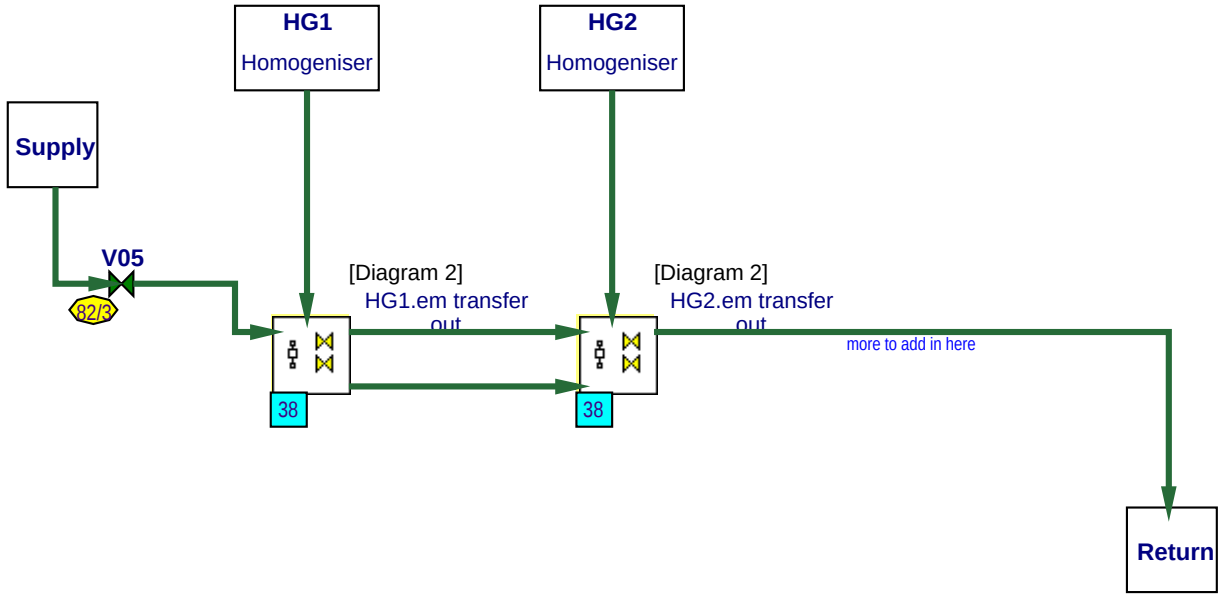
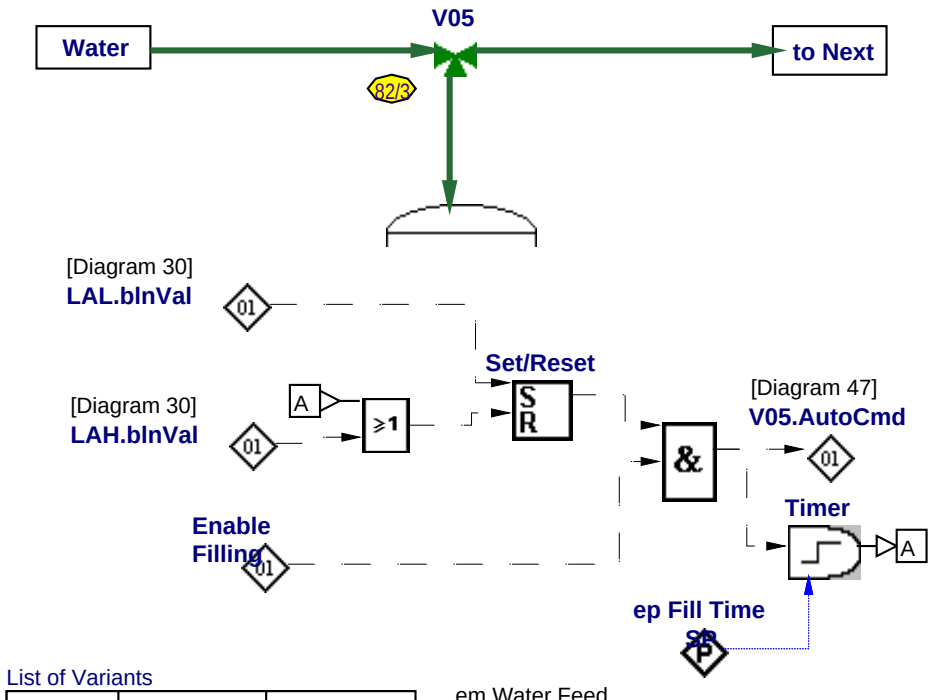


Diagram Description 47 - em Water Feed

Variant 1 - In-Line

This module fills the vessel with water - when the level drops below the low level switch filling starts and it stops on high level.
Note that the value of ep Timer SP in the Low level switch modules should be greater then the time taken to allow the water to increase the level.
Also that ep Fill Time SP should be long enough to allow the level to rise enough, but to below the High level switch, since that would trigger a High level alarm.
If a third switch just below the LAH were provided then that could be used instead of the timer.

Diagram Version: 510 Class: Equipment Module Diagram 47 of 93



List of Variants

to Next	1-In-Line	2-EndLine
V05		{Excluded}
V05	{Excluded}	{Excluded}

em Water Feed

	Enable Filling
Idle	False
Feed	True

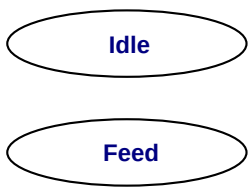
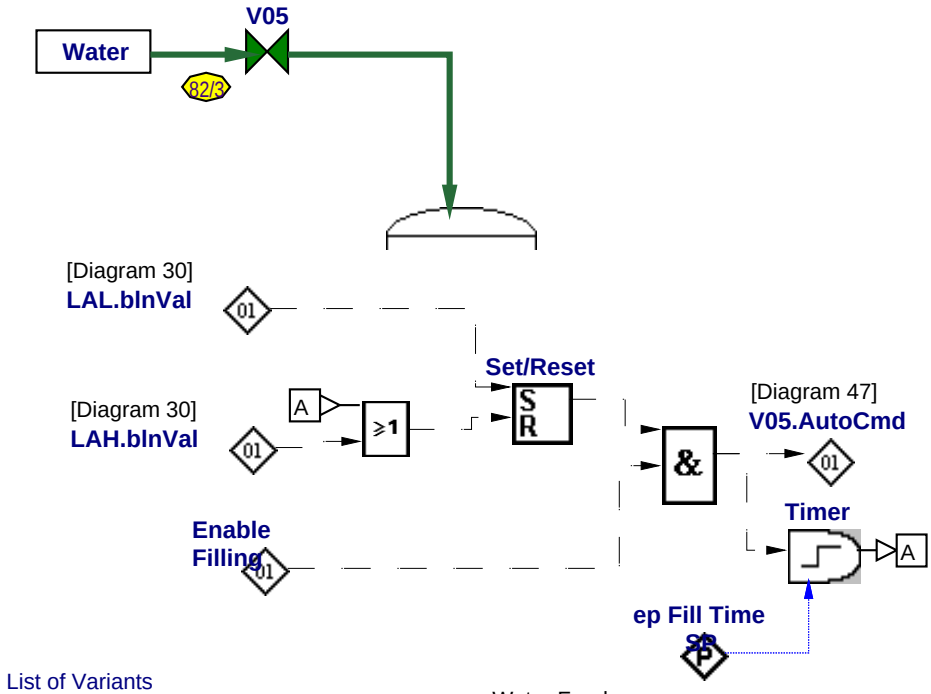


Diagram Description 47 - em Water Feed

Variant 2 - EndLine



List of Variants

to Next V05	1-In-Line	2-EndLine {Excluded}
V05	{Excluded}	{Excluded}

em Water Feed

	Enable Filling
Idle	False
Feed	True

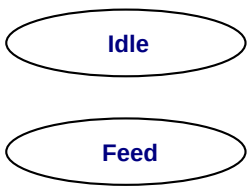


Diagram 48 - em Tanker Reception

Diagram Version: 543 Class: Equipment Module Diagram 48 of 93

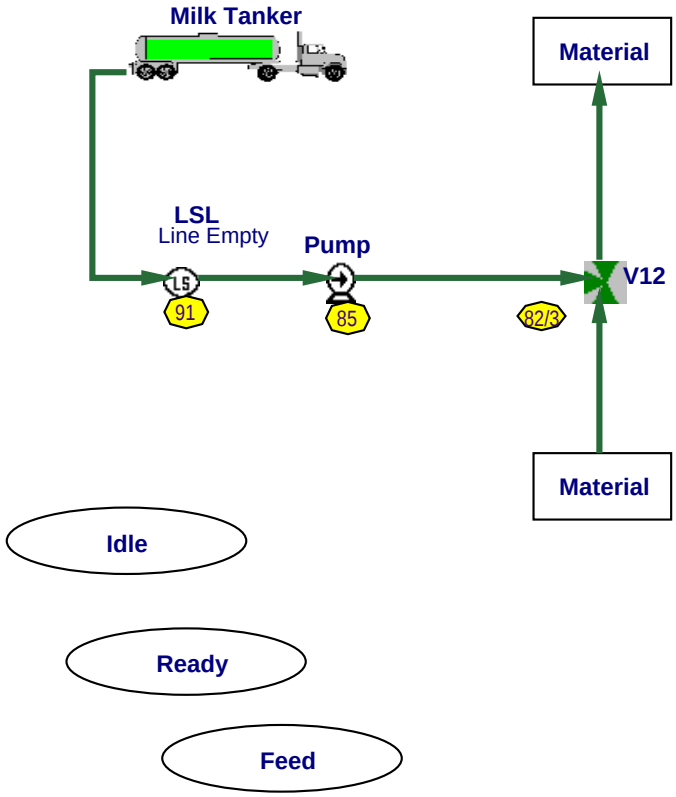


Diagram Description 49 - rcp Additive Preparation

Makes up a batch in an IBC for use in next cell

Diagram Version: 550 Class: Recipe Procedure Diagram 49 of 93

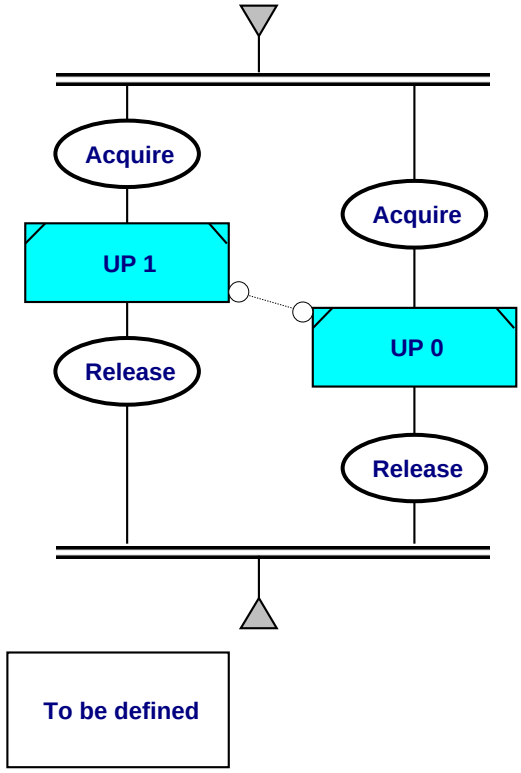


Diagram 50 - rcCIP Milk Silo

Diagram Version: 538 Class: Recipe Procedure Diagram 50 of 93

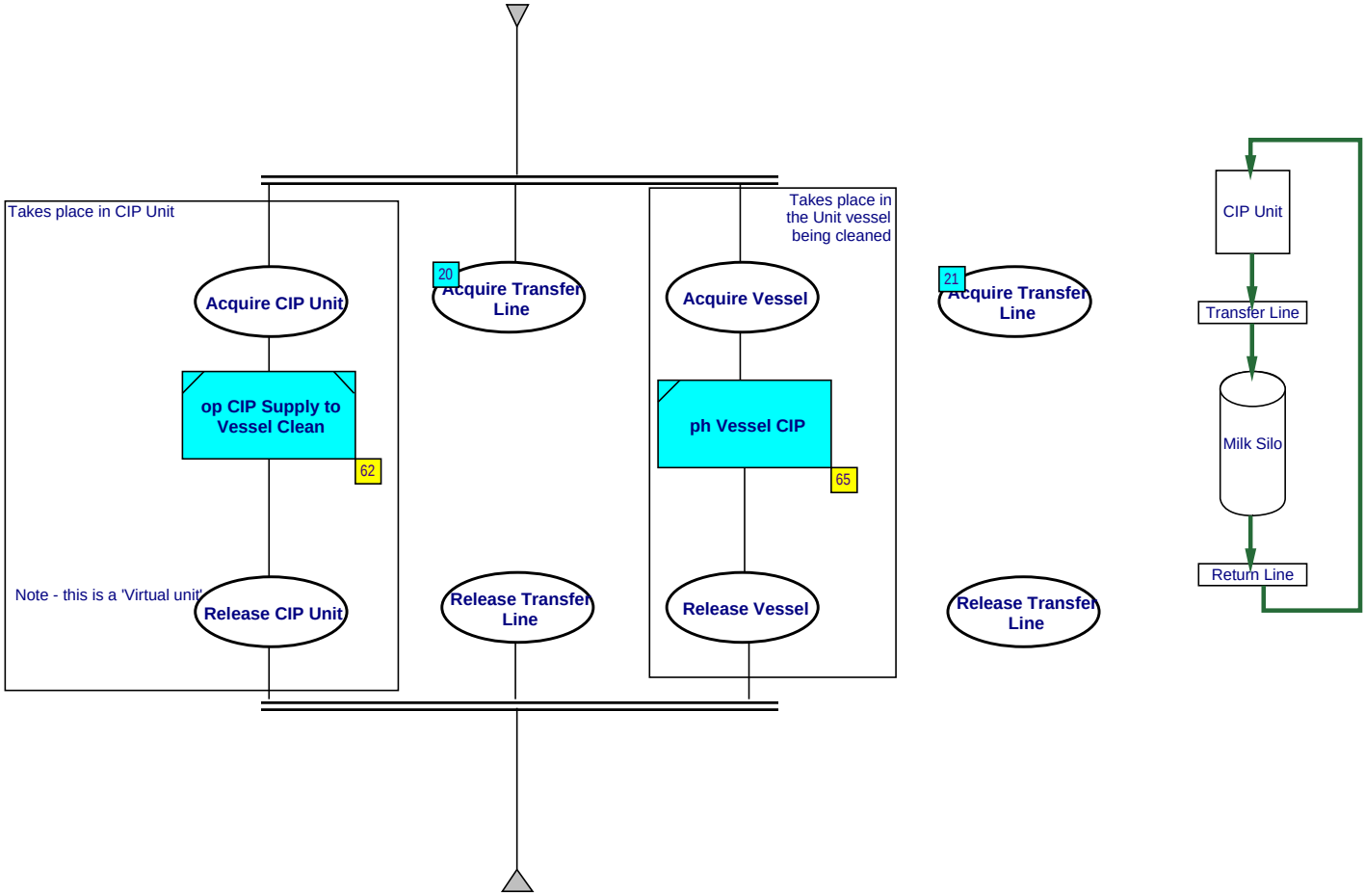


Diagram Description 51 - rcp generic Vessel CIP

This is the Generic Vessel CIP. Details if the route and vessel are specific to each Vessel

Diagram Version: 515 Class: Recipe Procedure Diagram 51 of 93

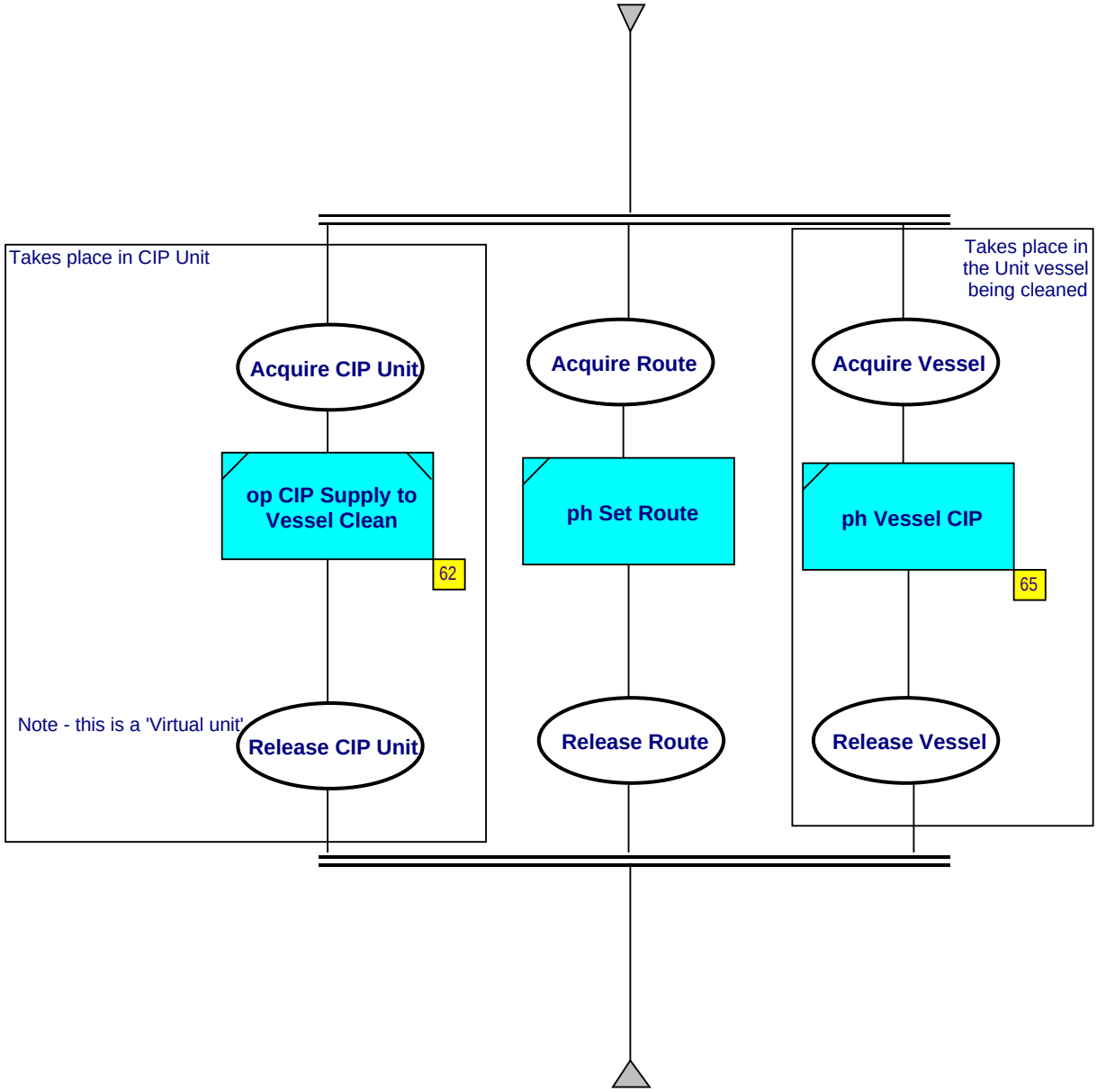


Diagram 52 - rcp Receive Addiitive

Diagram Version: 513 Class: Recipe Procedure Diagram 52 of 93

Parent Symbols:
5 - Material Reception Recipes
.... , Receive Addiitive, Receive Chemical Drums, Receive Packing Pallets

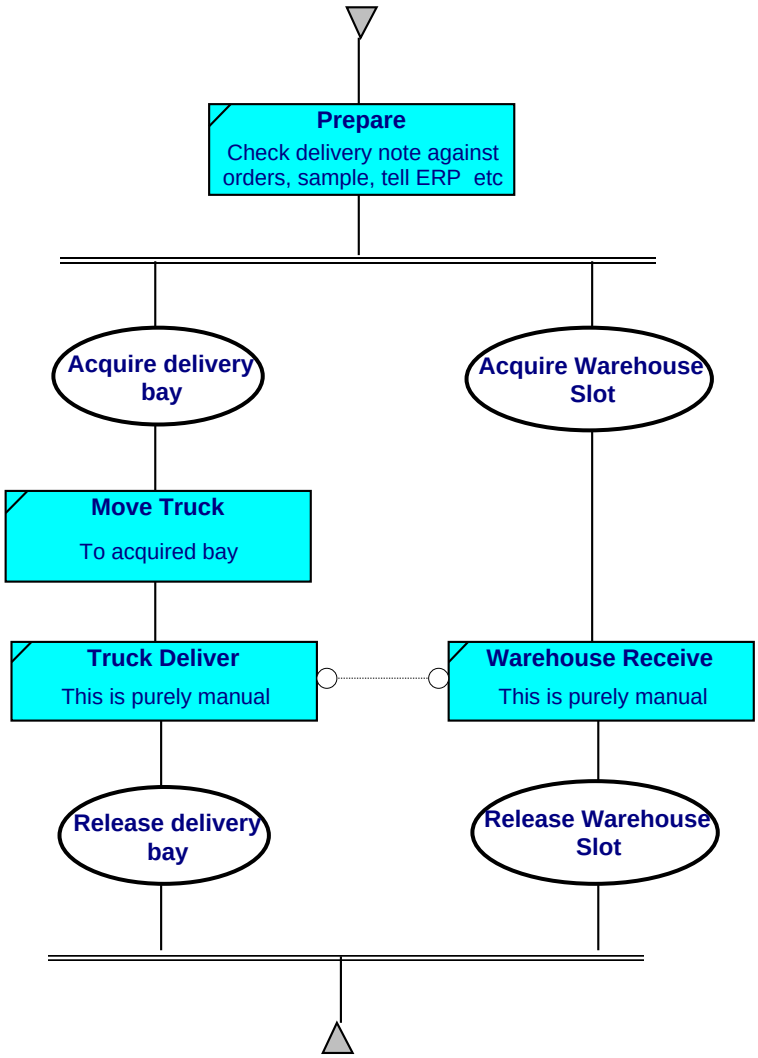


Diagram 53 - rcp Receive milk

Diagram Version: 530 Class: Recipe Procedure Diagram 53 of 93

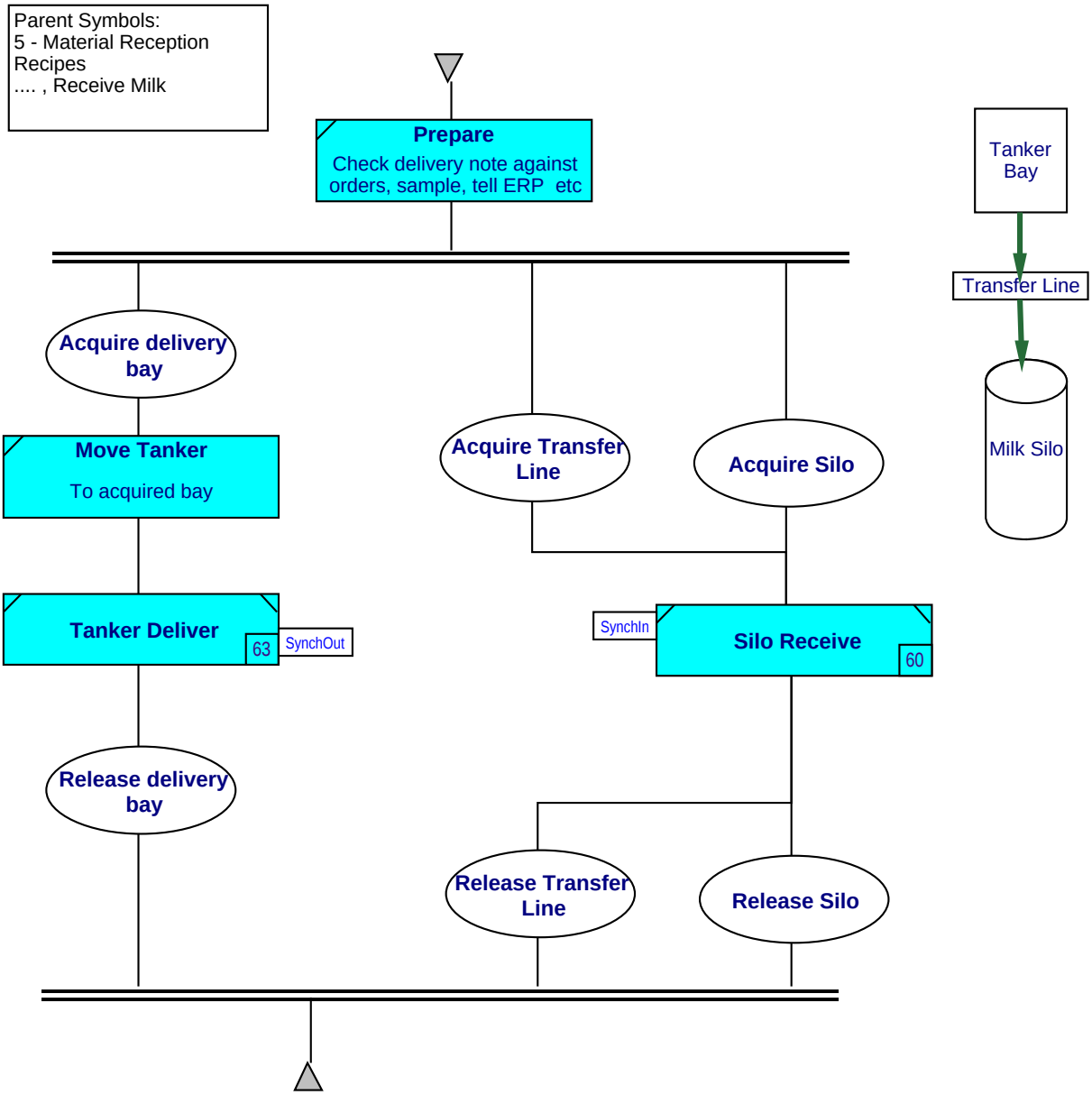


Diagram Description 54 - rcp Batch Mixing

Variant 1 - With Homogenising

In the recipe procedure the equipment is acquired and release as indicated in the diagram. Some equipment may be acquired or released inside the operations, but it is still shown on this diagram.
An associated report lists all the equipment acquired by each recipe.
Only Units and Common Resources can be acquired. All equipment modules are contained in Units or CR's.

Diagram Version: 554 Class: Recipe Procedure Diagram 54 of 93

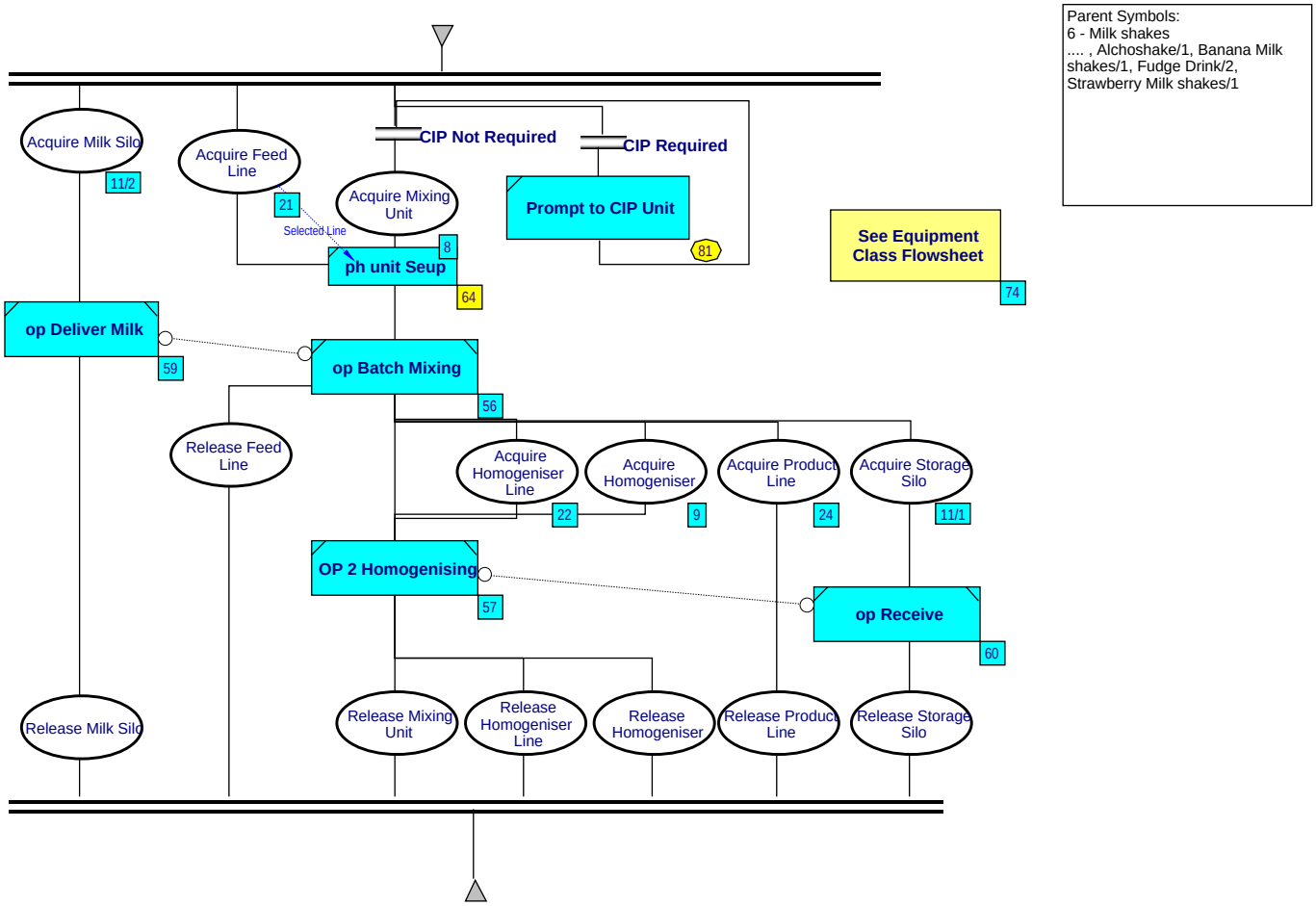


Diagram Description 54 - rcp Batch Mixing

Variant 2 - No Homogenising

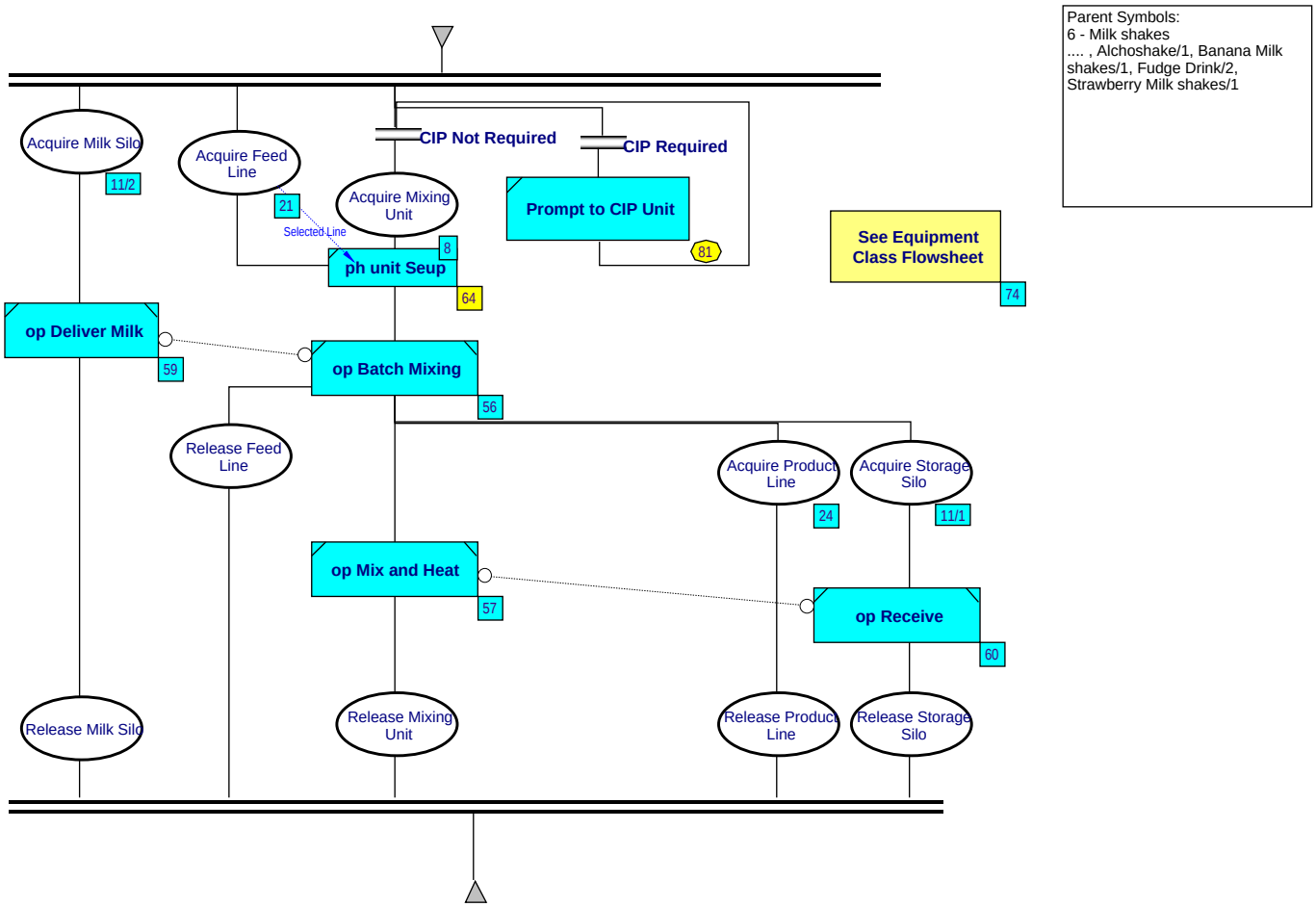


Diagram 55 - up Fill and Pack Procedure

Diagram Version: 559 Class: Unit Procedure Diagram 55 of 93

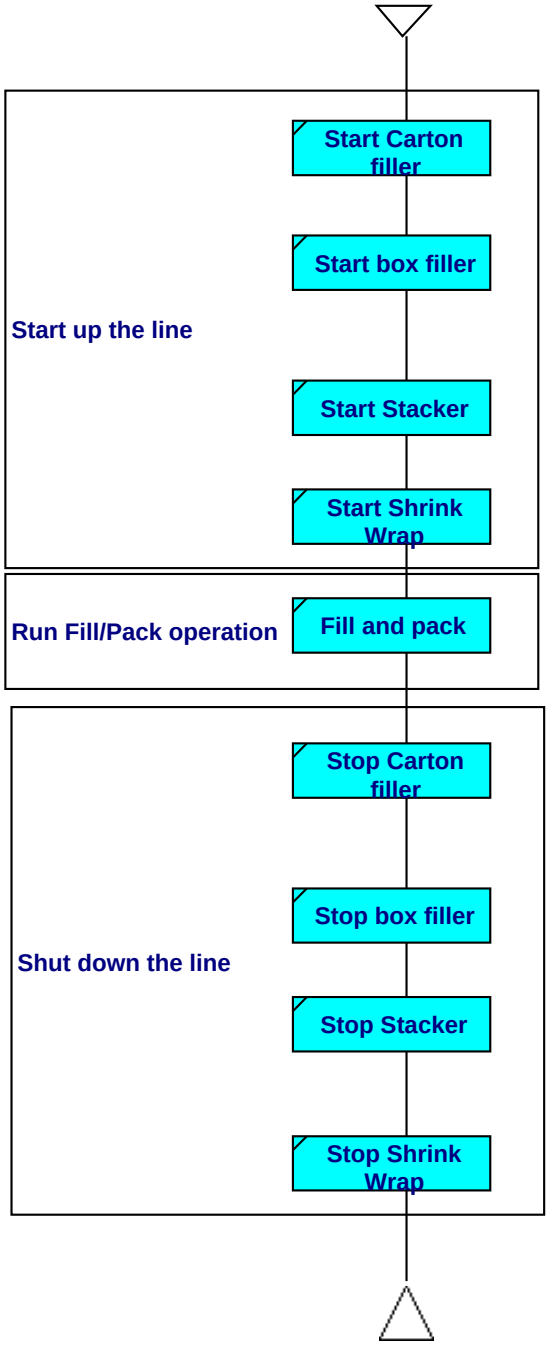


Diagram 56 - op Batch Mix and Homogenise

Diagram Version: 369 Class: Operation Diagram 56 of 93

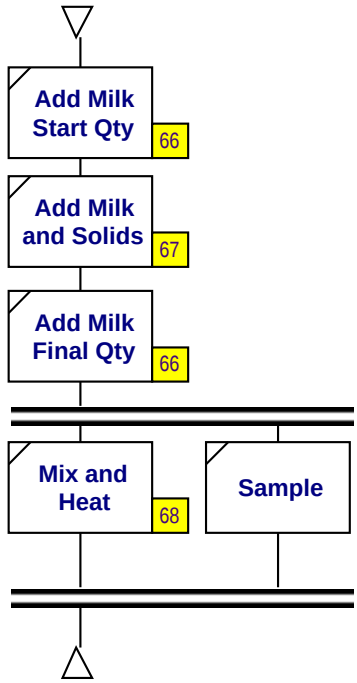


Diagram 57 - op Homogenising

Diagram Version: 532 Class: Operation Diagram 57 of 93

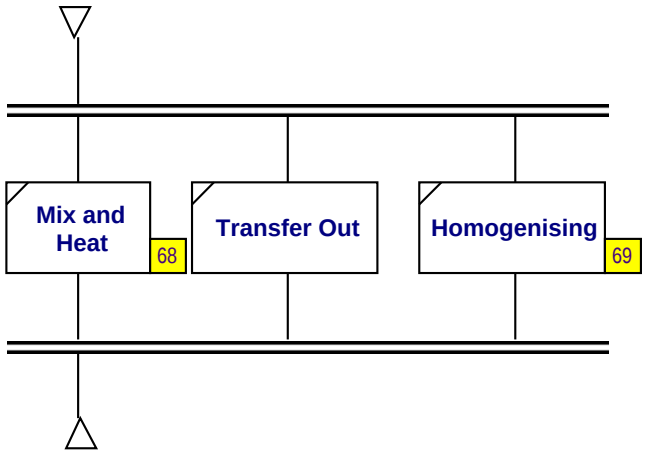


Diagram Description 58 - op Line Clean

Generic Line Clean

Diagram 58 - op Line Clean

Diagram Version: 457 Class: Operation Diagram 58 of 93

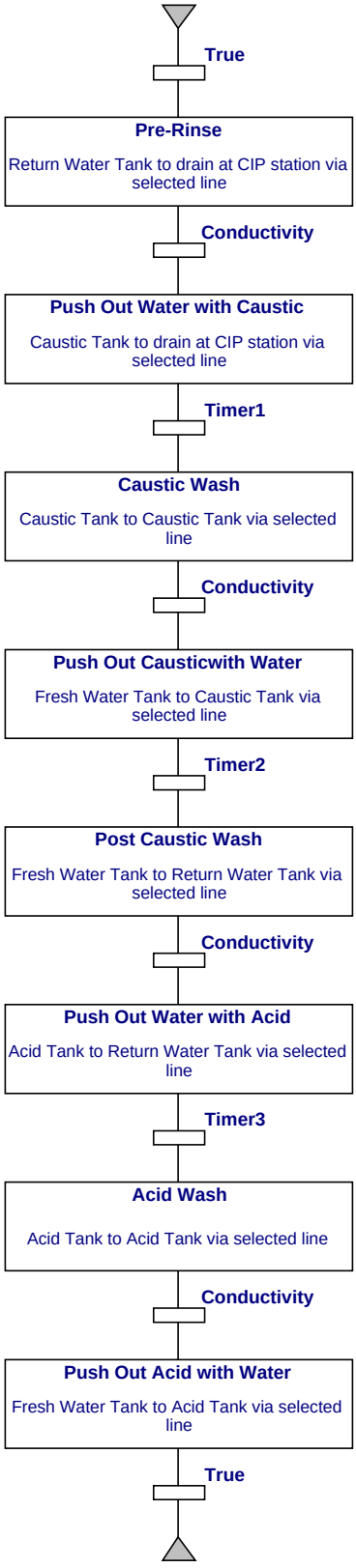


Diagram 59 - op Silo Deliver

Diagram Version: 543 Class: Operation **Diagram 59 of 93**

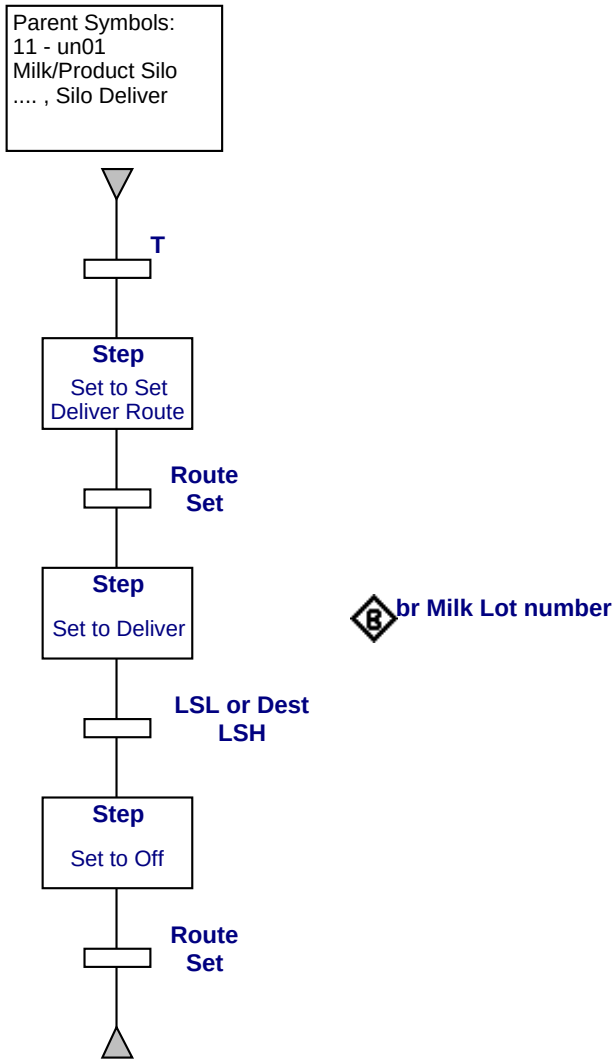


Diagram 60 - op Silo Receive

Diagram Version: 513 Class: Operation Diagram 60 of 93

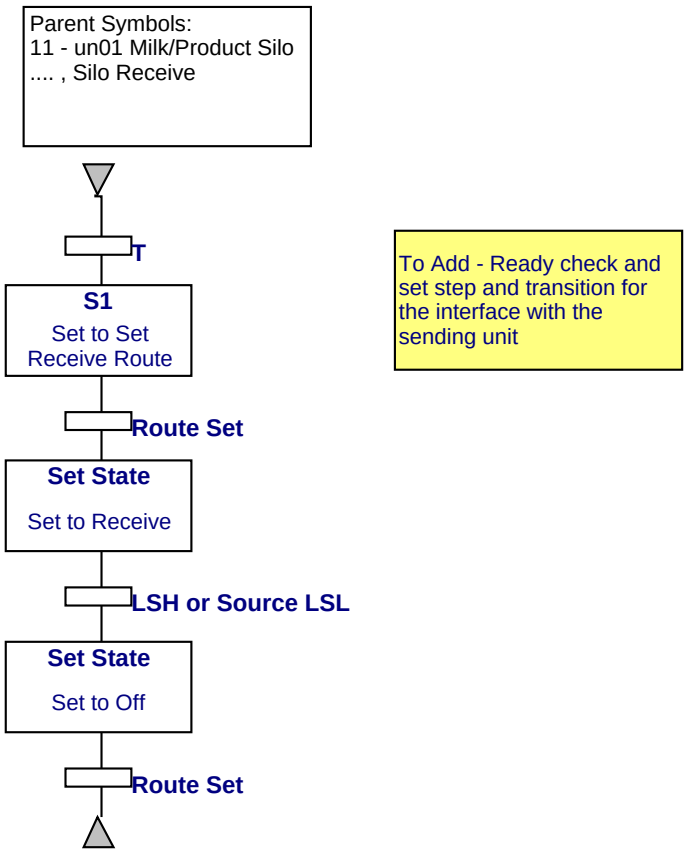


Diagram 61 - op Vessel CIP
Diagram Version: 397 Class: Operation Diagram 61 of 93

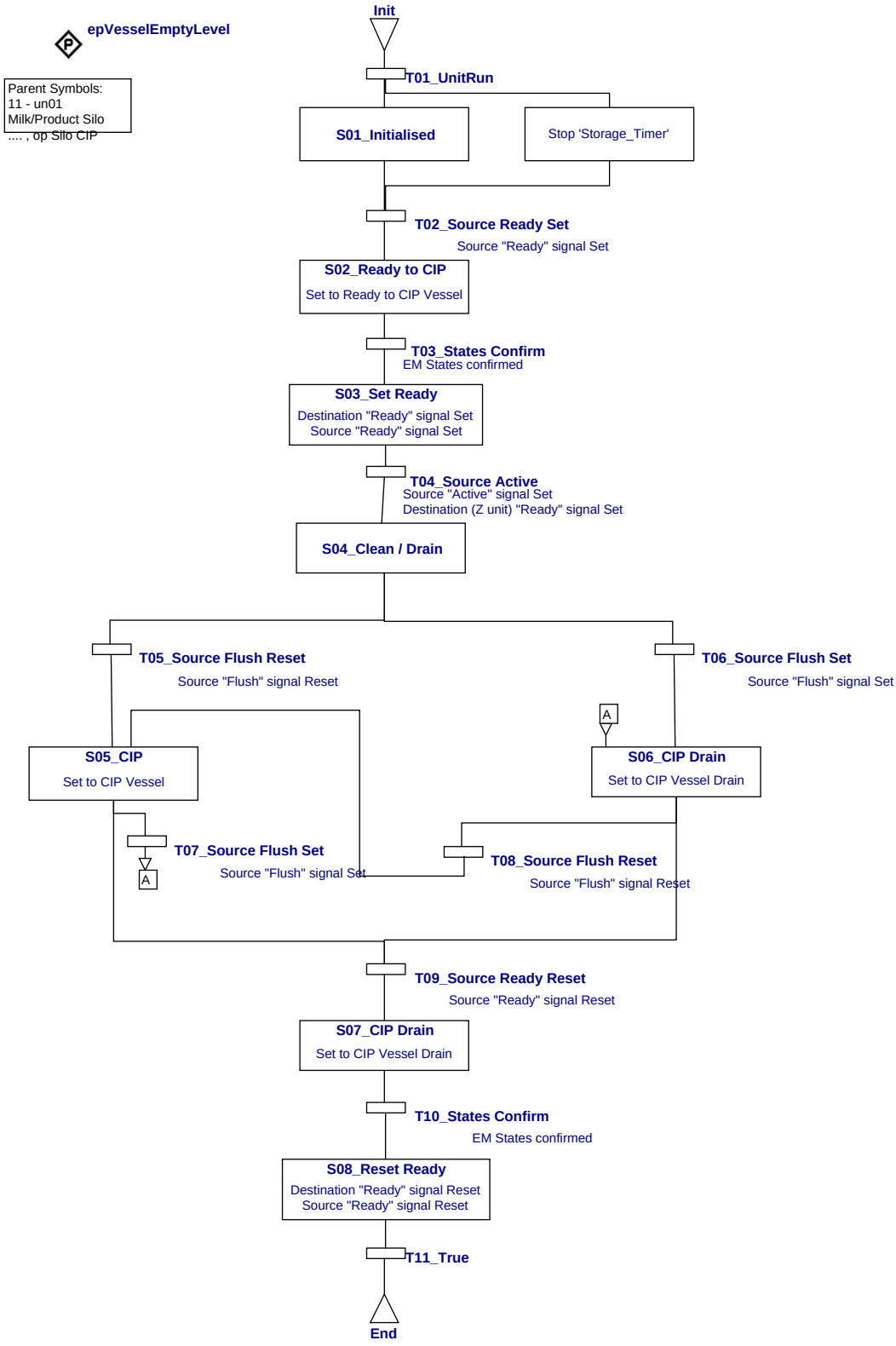


Diagram 62 - op CIP Supply to Vessel Clean

Diagram Version: 457 Class: Operation Diagram 62 of 93

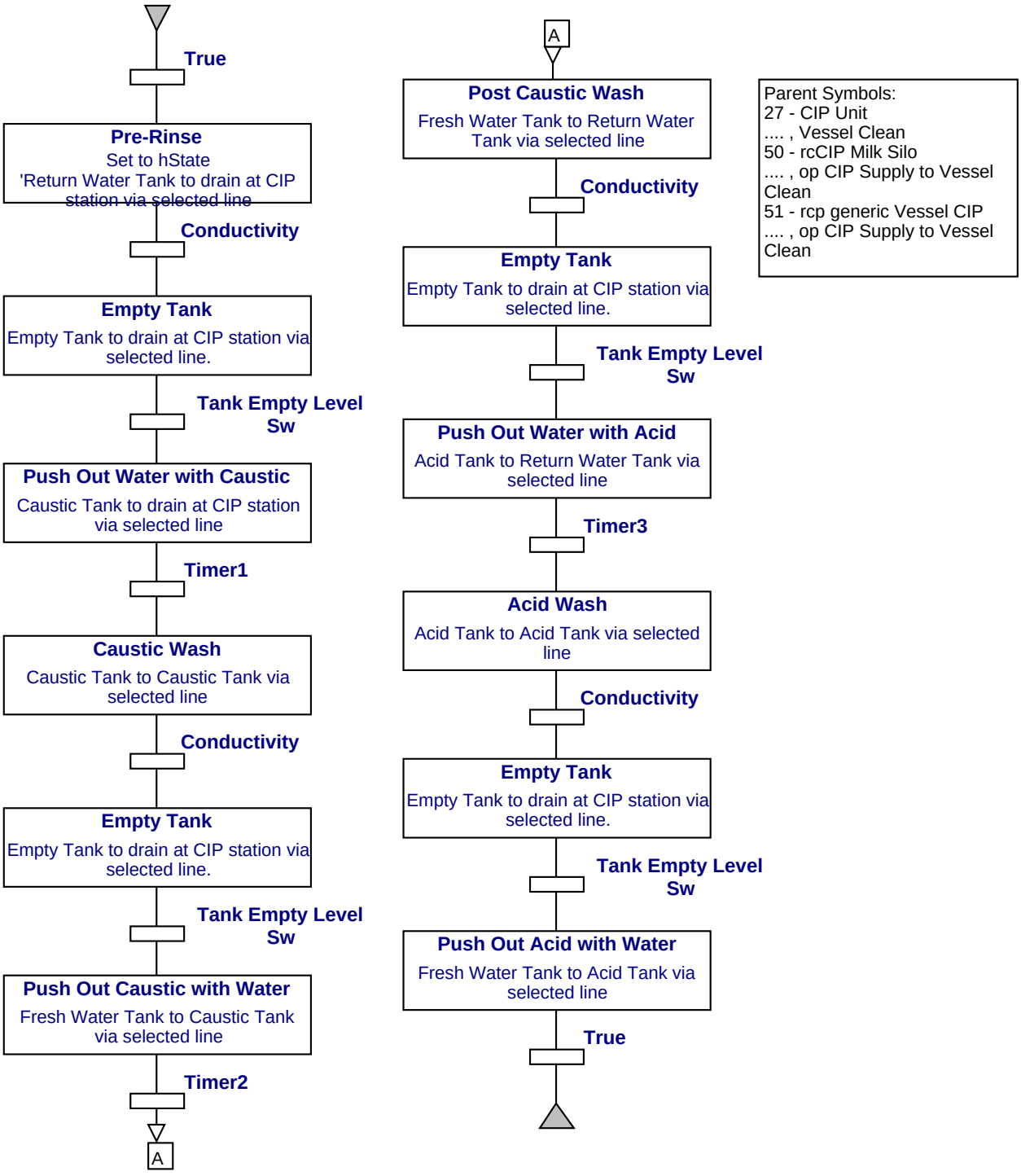


Diagram 63 - op Unload Tanker

Diagram Version: 530 Class: Operation Diagram 63 of 93

Parent Symbols:
26 - Tanker unloading bay
.... , Tanker Deliver

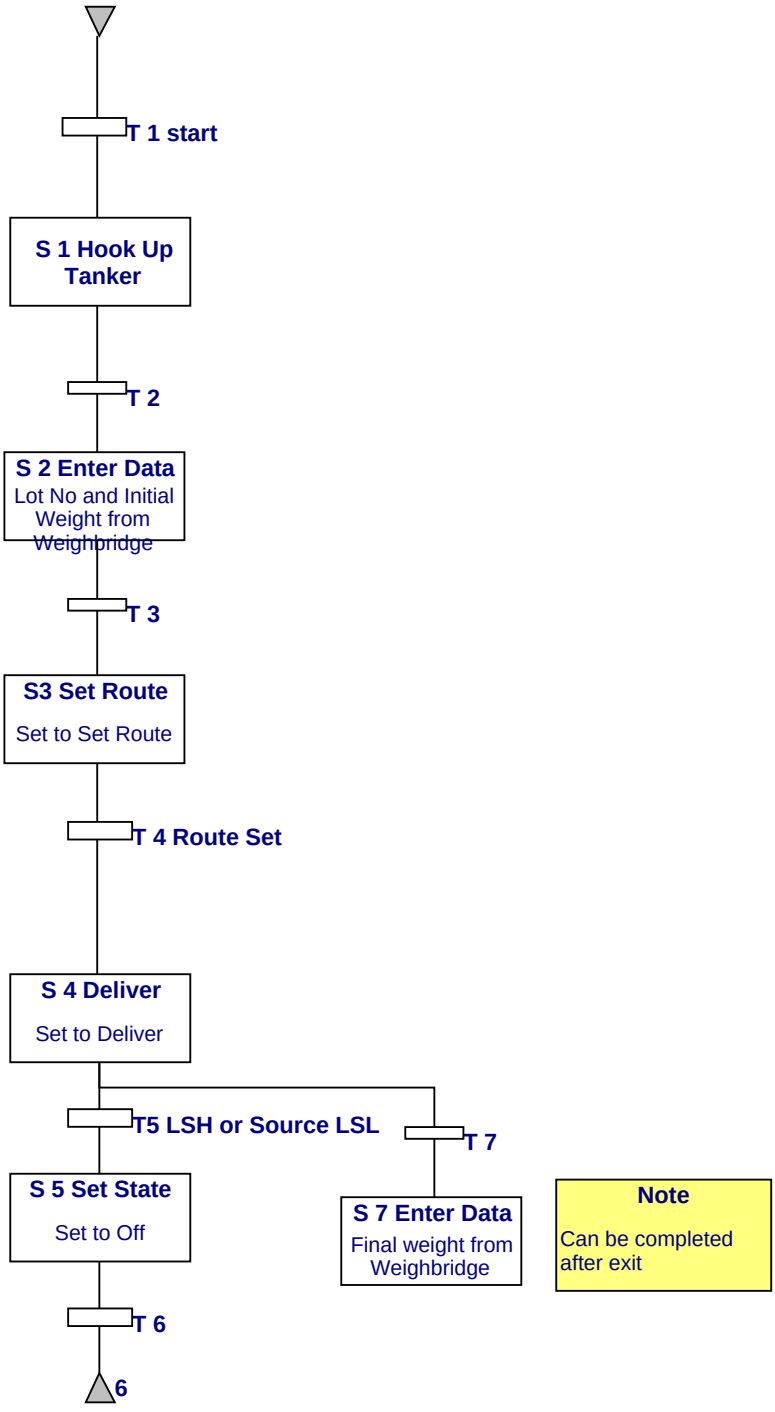


Diagram 64 - ph unit Seup

Diagram Version: 535 Class: Phase Diagram 64 of 93

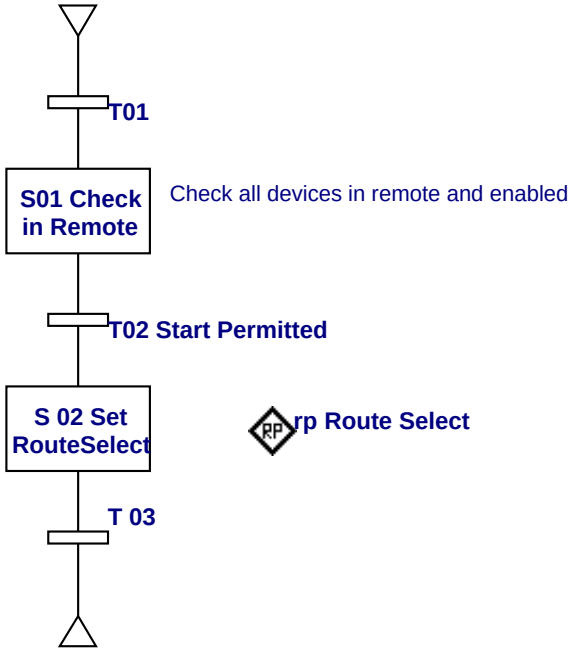


Diagram Description 65 - ph Vessel CIP

This diagram is the procedure for a vessel that is being cleaned. Note that all vessels must have a CIP state.
Basically the vessel is extremely ignorant of what is happening, the CIP unit is in charge.
When the CIP wants the unit to drain it sets the Drain bit

Diagram Version: 455 Class: Phase Diagram 65 of 93

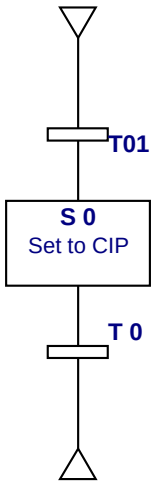


Diagram 66 - ph Add Milk
Diagram Version: 454 Class: Phase Diagram 66 of 93

Parent Instances

Set State Matrix
Batch Mixing Unit

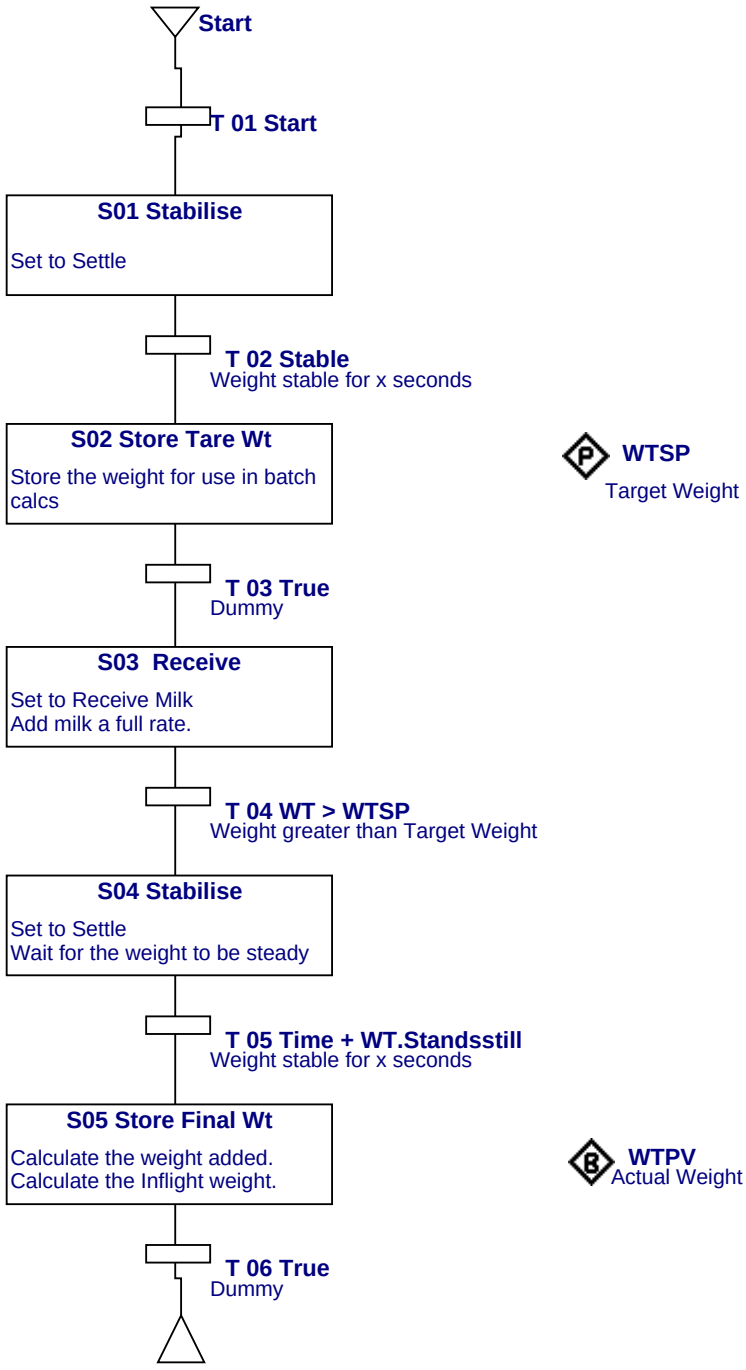


Diagram 67 - ph Add Milk and Solids
Diagram Version: 298 Class: Phase Diagram 67 of 93

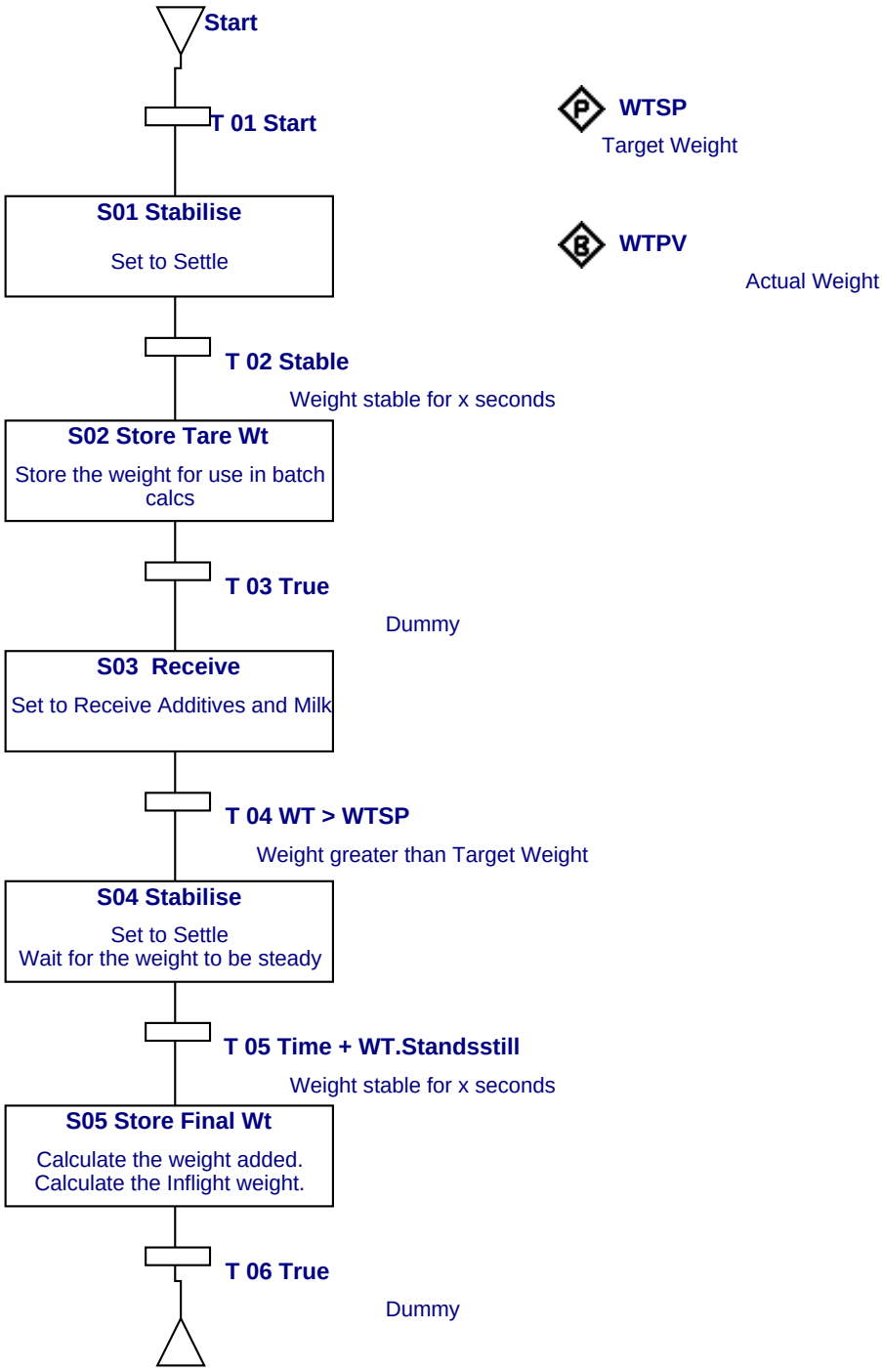
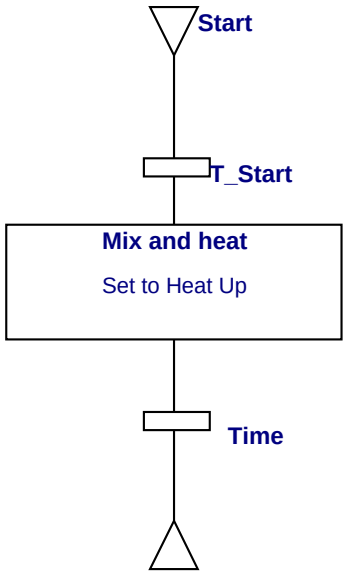


Diagram 68 - ph Mix and Heat

Diagram Version: 456 Class: Phase Diagram 68 of 93



MixTemp

Target Temperature

Mixtime

Time for mixing

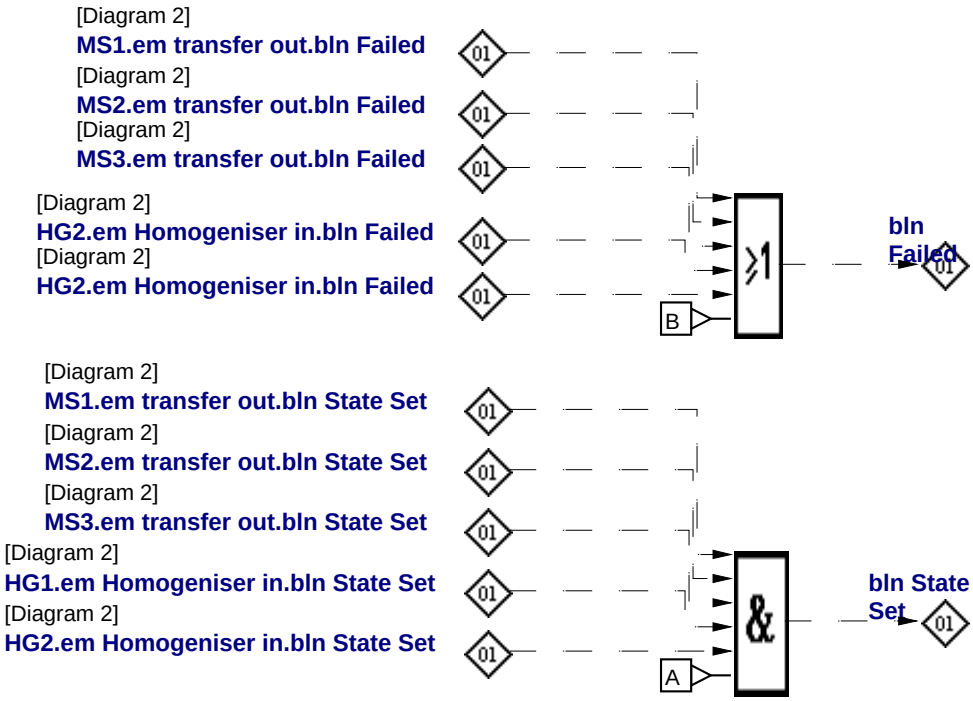
Time = Mixtmie

jhhoiooiooi

Diagram Description 70 - cm Line Monitor

The status of each of the equipment modules in the line and of the line valves are monitored, resulting in a Failed bit and a State Set bit.

Diagram Version: 573 Class: Control Module **Diagram 70 of 93**



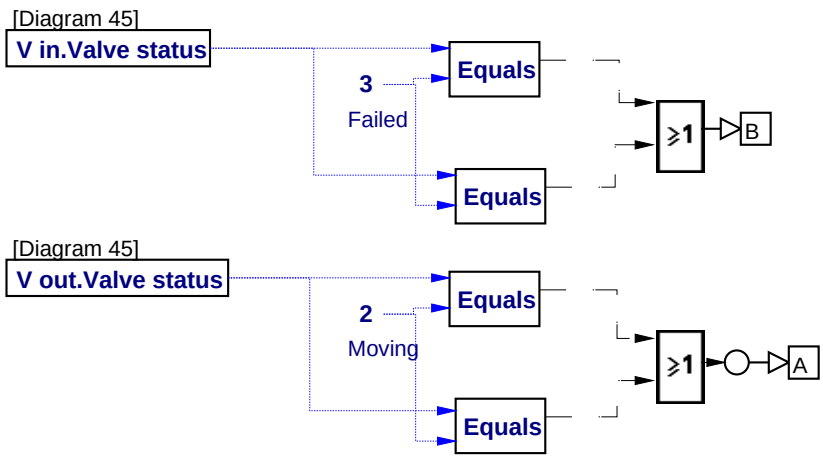
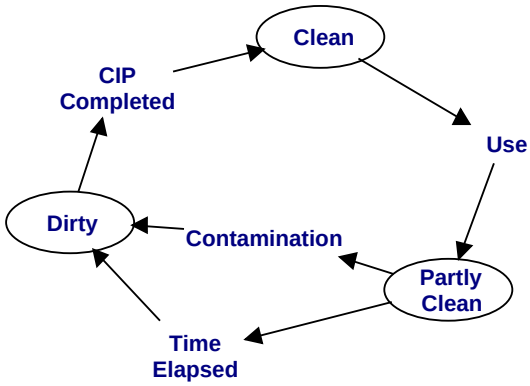


Diagram 71 - cm CIP Status Control

Diagram Version: 605 Class: Control Module Diagram 71 of 93



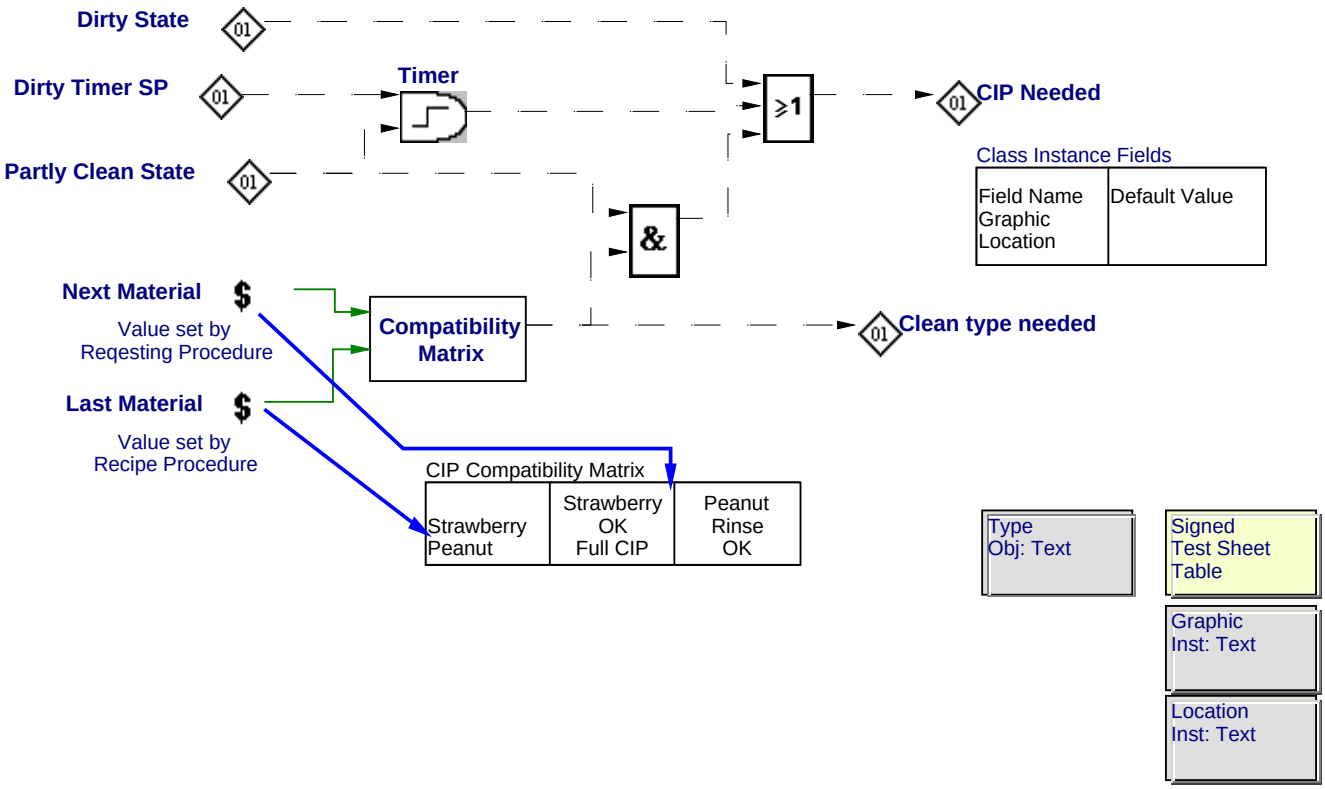


Diagram 72 - Controller Status

Diagram Version: 0 Class: Control System Diagram 72 of 93

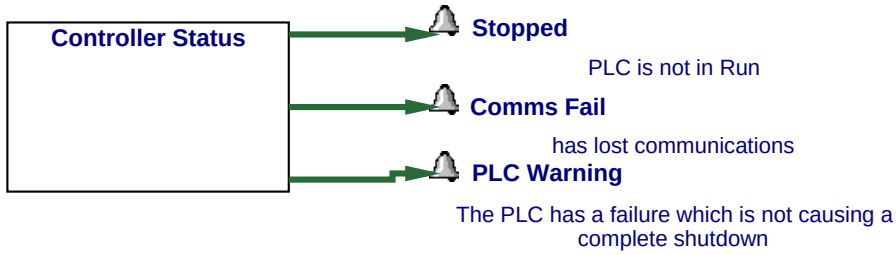


Diagram Description 73 - Jacket Heat/Cool Type 1

Heat/Cool Changeover Logic, incomplete

Diagram 73 - Jacket Heat/Cool Type 1

Diagram Version: 550 Class: EM State changes phase **Diagram 73 of 93**

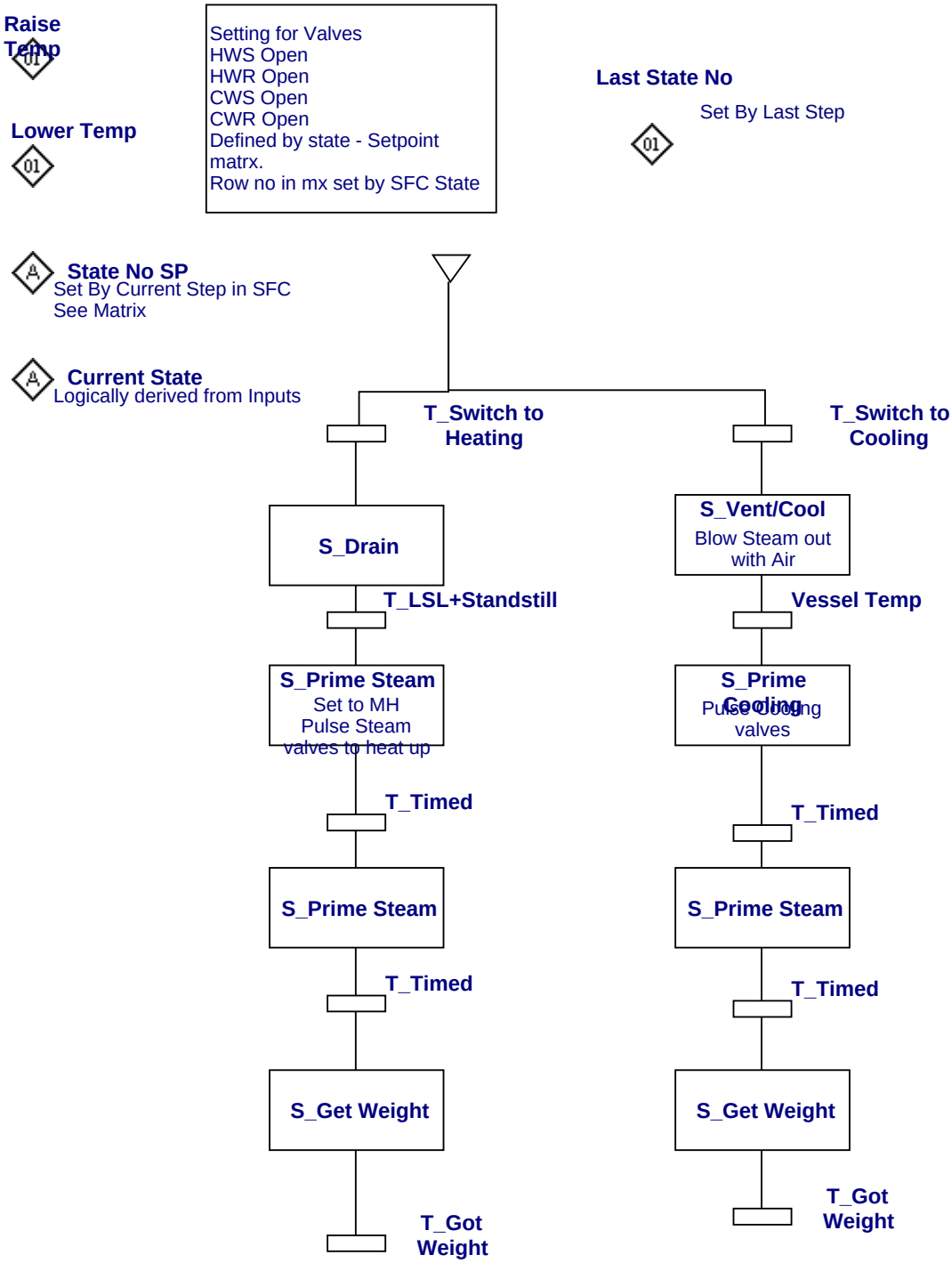


Diagram Description 76 - CIP Routing diagram snapshot 2

This diagram is a snapshot of the process of devellopping the CIP routing diagram.
The P&ID (process flowsheet really) was pasted into the diagram background and the objects and routes developed by overlaying the background.

Diagram Version: 515 Class: None Diagram 76 of 93

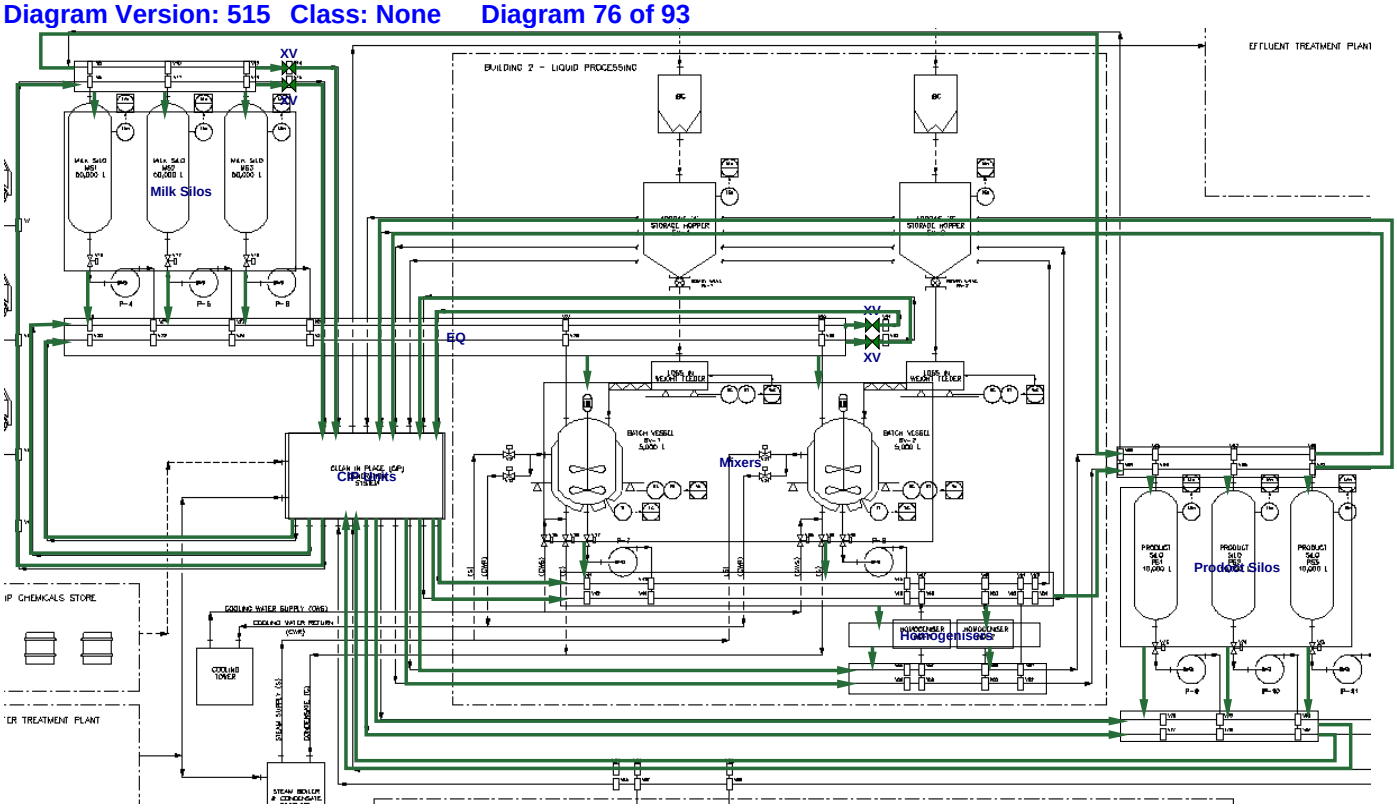
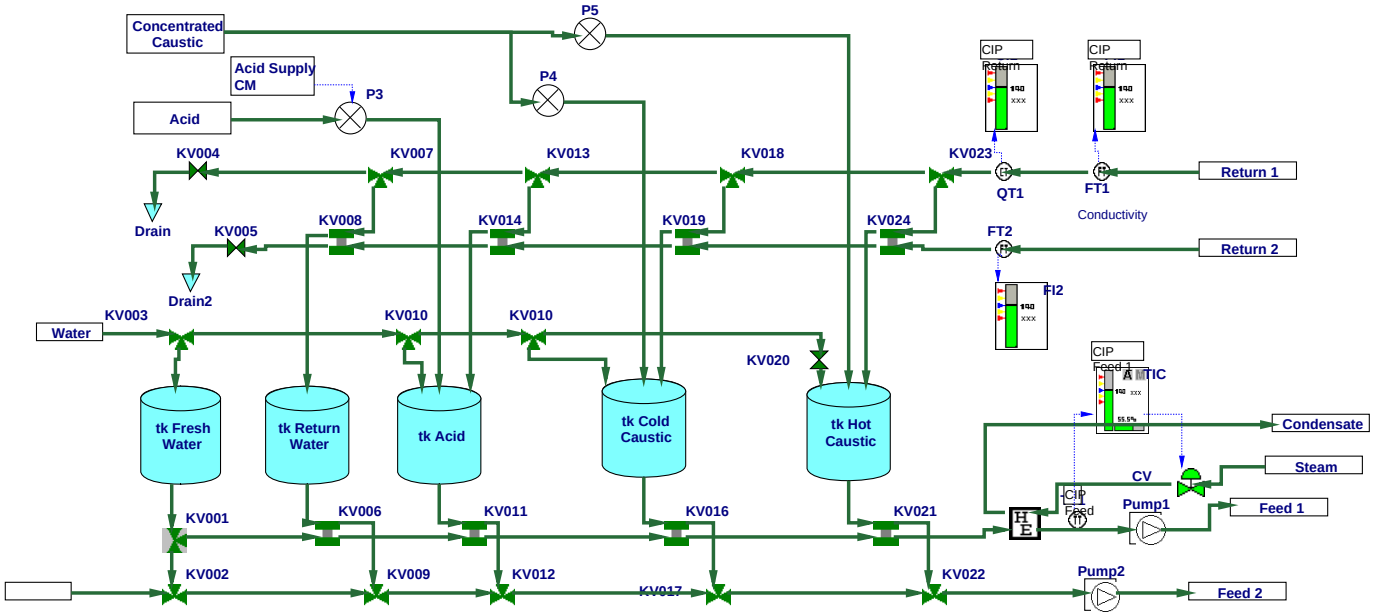


Diagram 77 - Complete CIP Graphic
Diagram Version: 585 Class: None Diagram 77 of 93



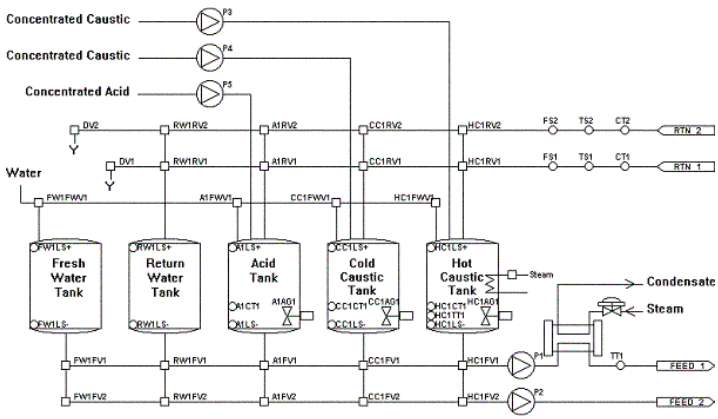
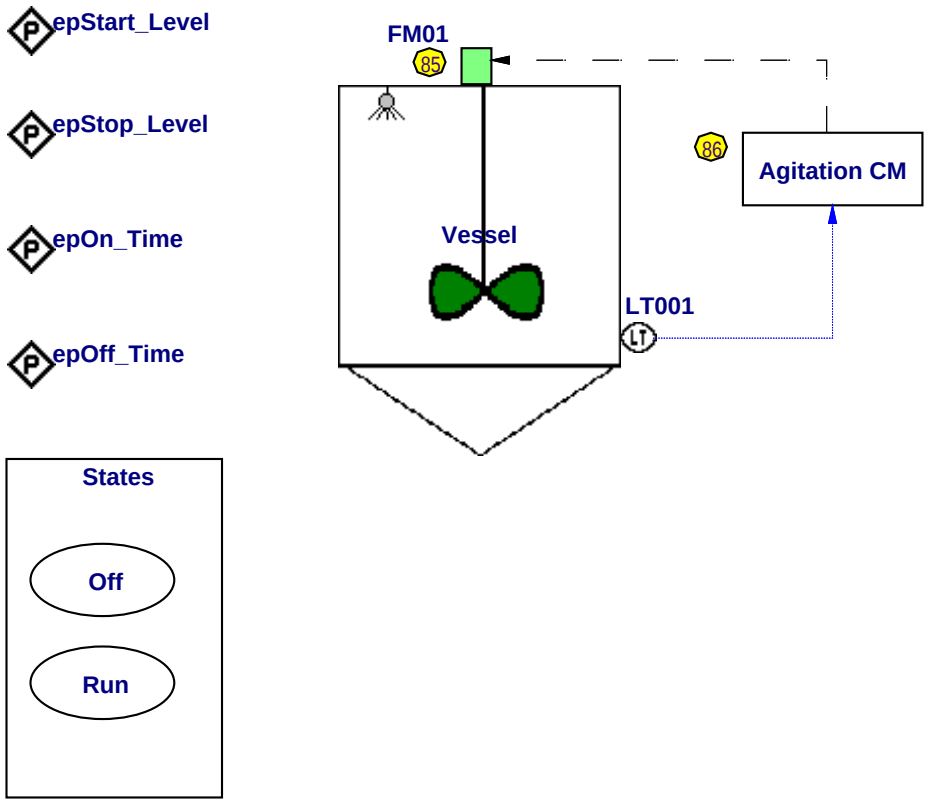


Diagram 80 - em Agitator

Diagram Version: 2 Class: Equipment Module Diagram 80 of 93
Variant 1 - Fixed Speed



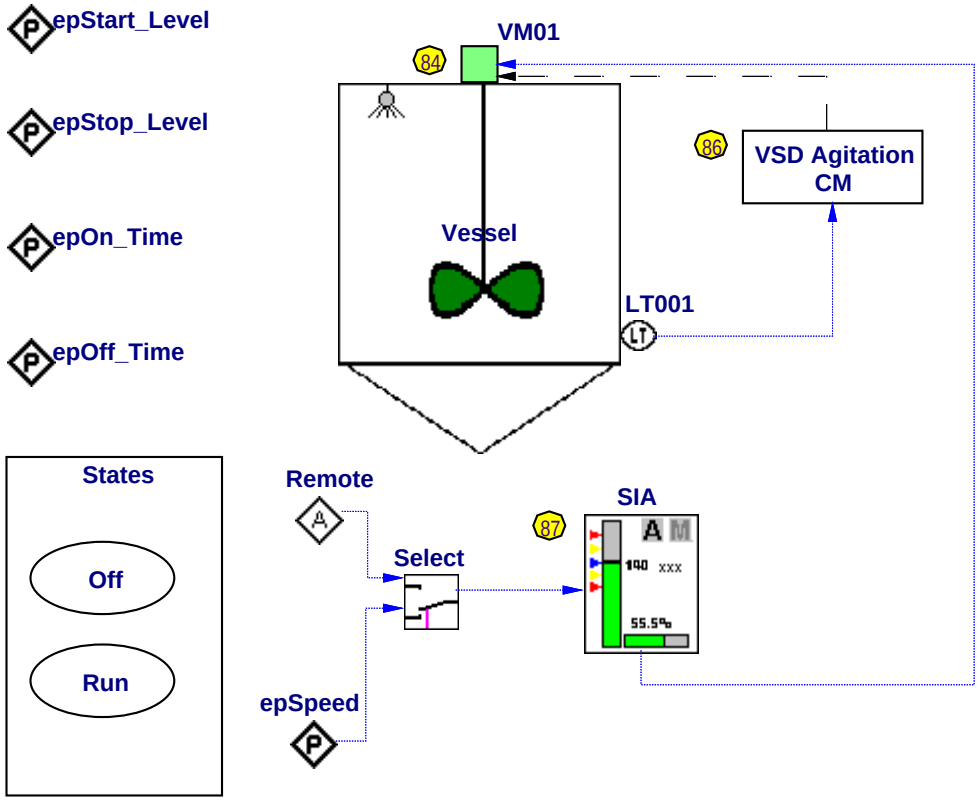
em Fixed Speed Agitator

	Agitation CM		FM01	
Off	Off		Stop	
Run	On		Start	

Diagram 80 - em Agitator

Diagram Version: 2 Class: Equipment Module Diagram 80 of 93

Variant 2 - Variable Speed



em Fixed Speed Agitator

	VSD Agitation	VM01		SIA
Off	Off	Stop		Out OR
Run	On	Start		Remote

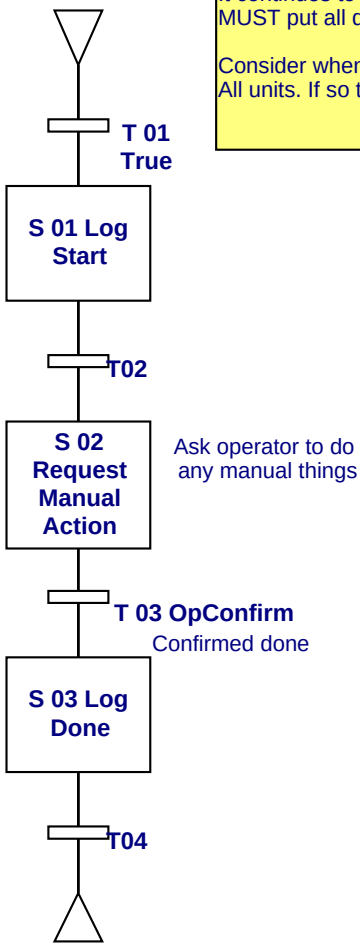
Diagram 81 - phPrompt and Wait

Diagram Version: 609 Class: Phase Diagram 81 of 93

Note

This operation checks that the unit is in auto (ie all it's modules are in Auto) and prompts the operator to set them if they are not.
It continues to prompt until all the devices are in auto, so the operator MUST put all devices in auto in order to complete the operation.

Consider when designing your model if this operation should exist in All units. If so then put it in the methodology.



Batch Journal Entries

StartTime	Message	EndTime

Diagram Description 82 - On Off Valve

Variant 3 - 2 Limit Switches

Features of the Standard ControlDraw Valve Class

Per S88, A control module is typically a collection of sensors, actuators, other control modules, and associated processing equipment that, from the point of view of control, is operated as a single entity.....for example...(an).. on/off automatic block valve control modules.

The ControlDraw standard valve class is a a 2 position valve with optional position feedback switches, that is operated via commands from automatic or manual logic depending on it's mode.

Features of the Standard ControlDraw On Off Valve

Variants

Cover the instrumentation choices for a valve

The Valve Driver

Travel is timed in each direction. Timeout causes Fail to Open or Fail to Close
Standard Auto/Manual.

Alarms

Fail

Modes

Interlock

Overrides

If set to the limit switch is ignored

Valve status

This is used by control logic when it needs to know what the valve is up to.
0 = Closed
1 = Open
2 = Moving
3 = Failed

Travel Timers

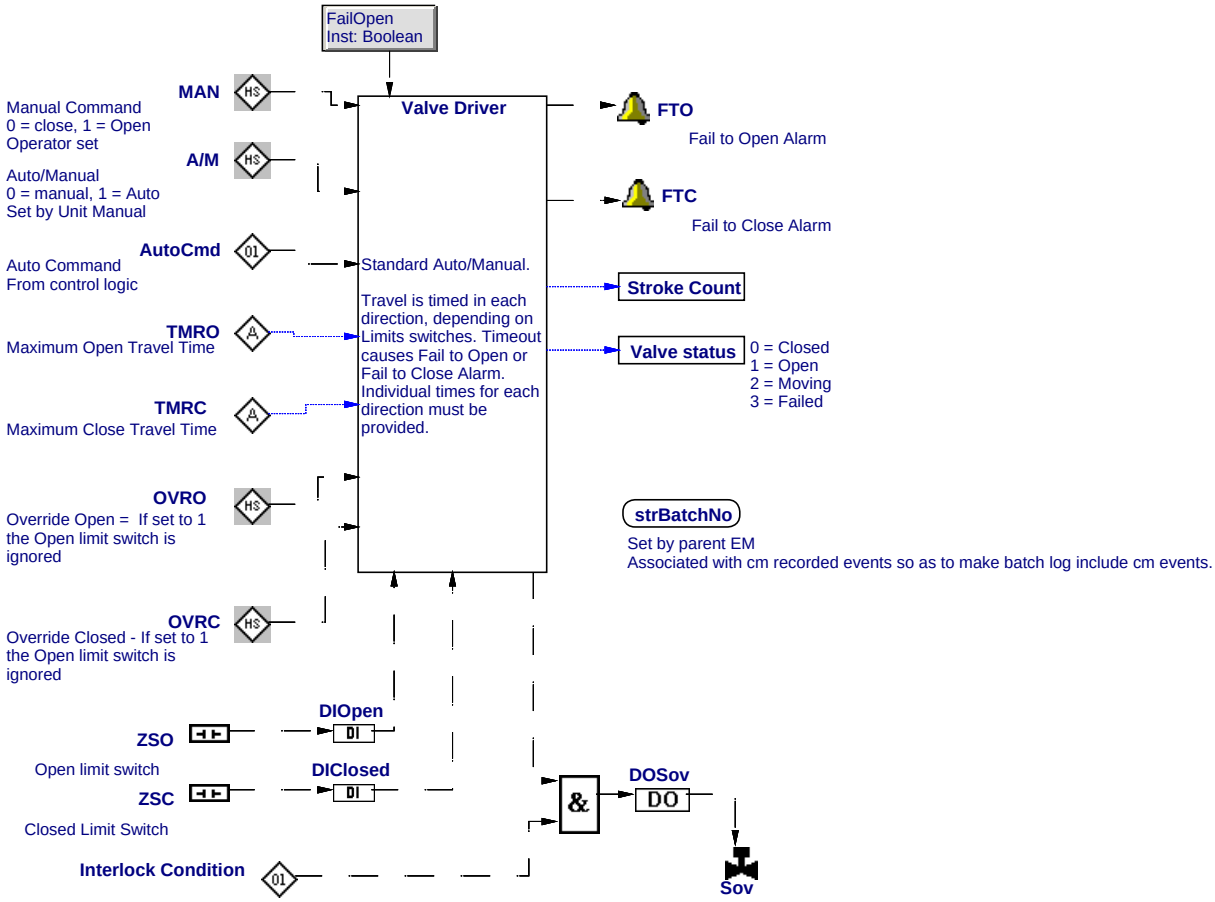
The

Stroke Count

Typically maintenance functions need to have a measure of the stress on a device, this provides a suitable count. It is best done in basic control as it is a simple function that can be handled at a low level

Diagram 82 - On Off Valve

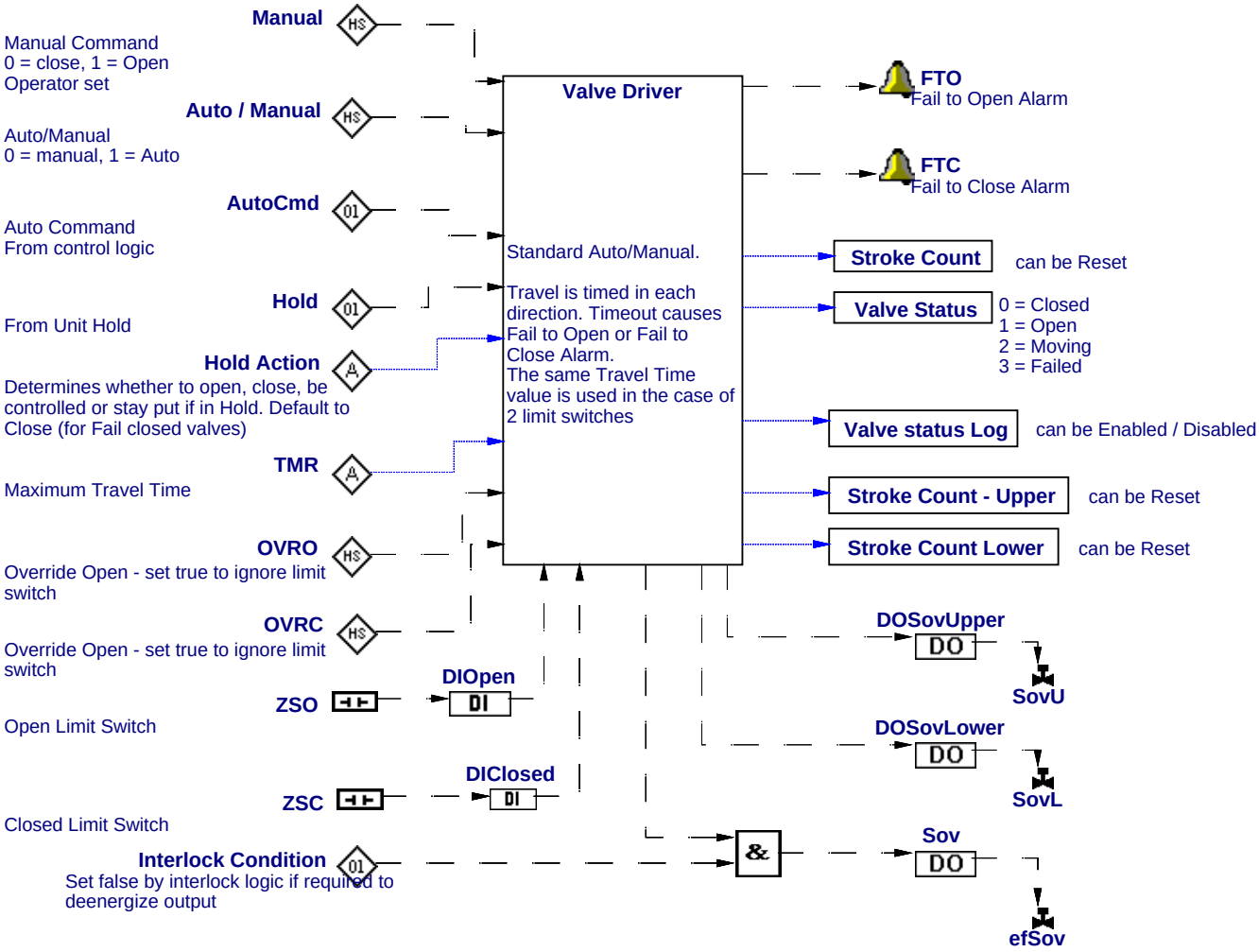
Diagram Version: 144 Class: Valve Diagram 82 of 93



List of Variants

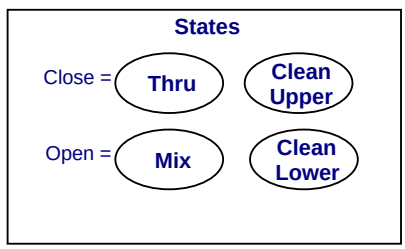
Signed Class Test Col	Type Inst: Text				
		1-Open LS	2-Closed LS	3-2 Limit Switches	4-No limit switches
DIClosed		{Excluded}			{Excluded}
DIOpen			{Excluded}		{Excluded}
FTC		{Excluded}			{Excluded}
FTO			{Excluded}		{Excluded}
OVRC		{Excluded}	OVR		{Excluded}
OVRO		OVR	{Excluded}		{Excluded}
TMRC		{Excluded}	TMR		{Excluded}
TMRO		TMR	{Excluded}		{Excluded}
ZSC		{Excluded}			{Excluded}
ZSO			{Excluded}		{Excluded}

Diagram 83 - Mixproof Valve
Diagram Version: 0 Class: Valve Diagram 83 of 93



Mixproof Valve

	Sov	SovL	SovU
Thru	Off	Off	Off
Mix	On	Off	Off
Clean Lower	Off	On	Off
Clean Upper	Off	Off	On



Signed
Class Test Col

FailOpen
Inst: Boolean

Type
Inst: Text

Flip Group handling

Clean Upper when the value from the CIP station = Valve Flip group 1
Clean Lower when the value from the CIP station = Valve Flip group 2

Can Not Clean Upper and Lower at the same time. (Upper takes preference)
Can Not Clean when in Mix position

Diagram 84 - Variable Speed motor
Diagram Version: 282 Class: Motor Diagram 84 of 93

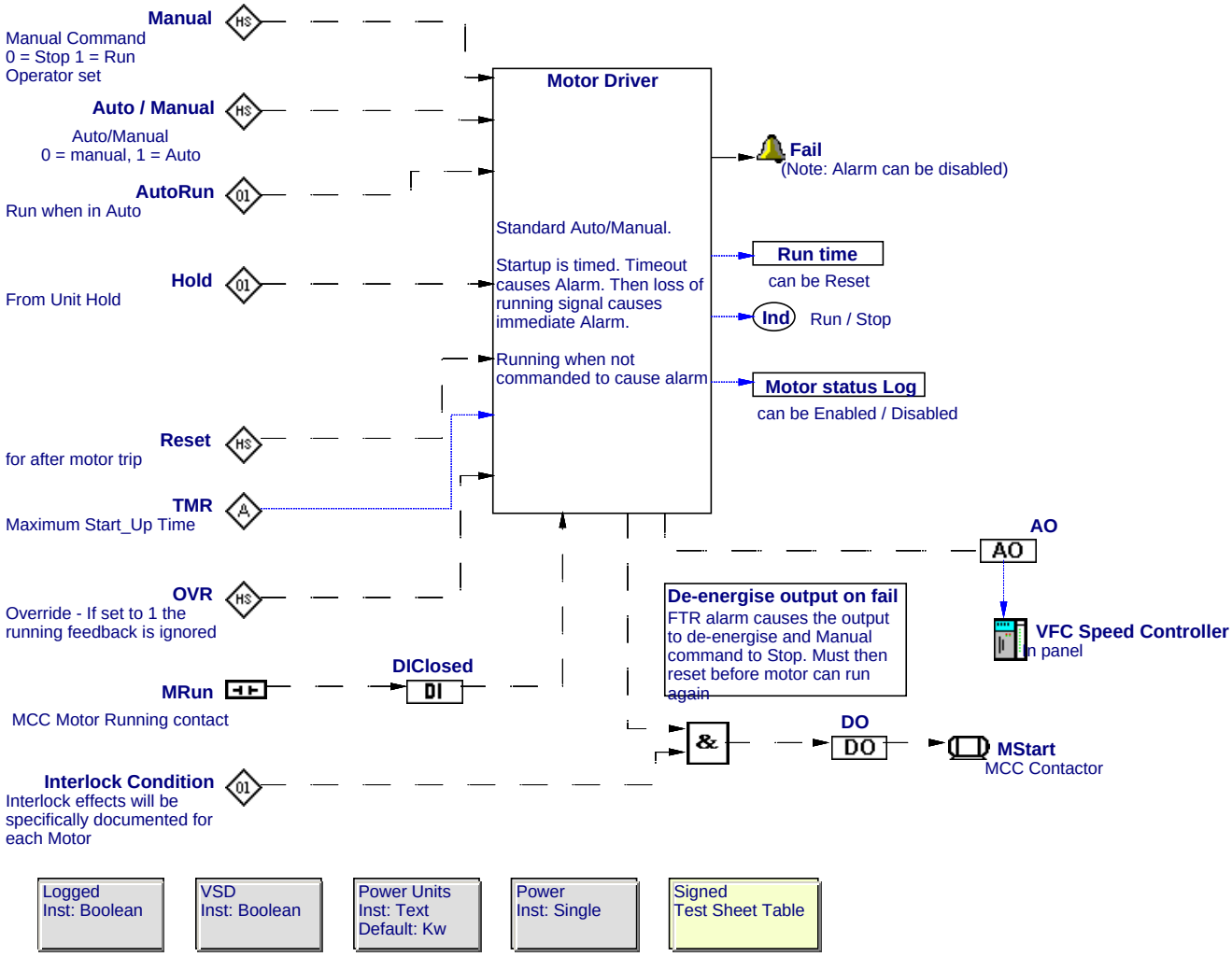
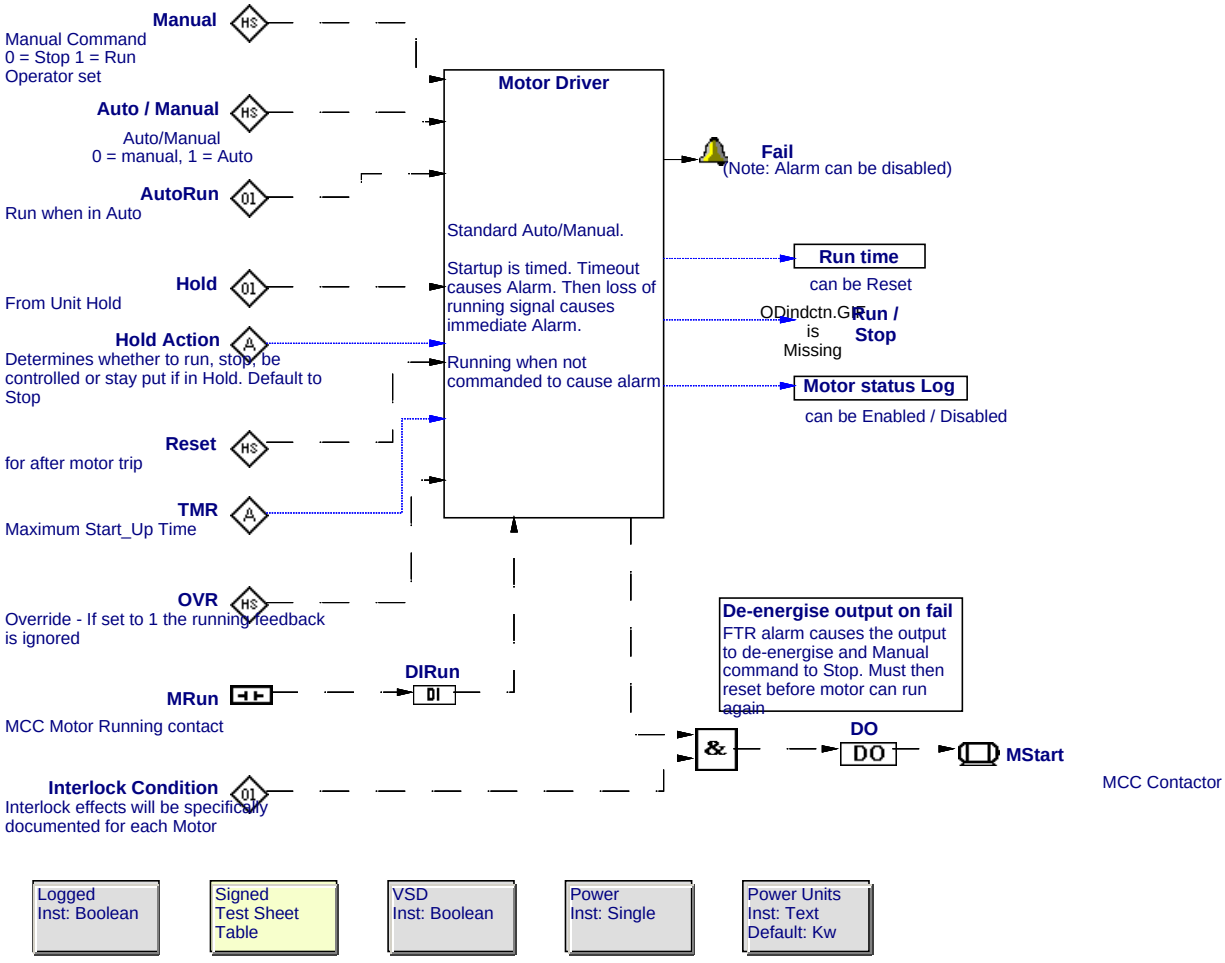


Diagram 85 - Fixed Speed Motor
Diagram Version: 162 Class: Motor Diagram 85 of 93



Logged	Signed	VSD	Power	Power Units
Inst: Boolean	Test Sheet	Inst: Boolean	Inst: Single	Inst: Text
	Table			Default: Kw

Diagram 86 - cm Agitator Control

Diagram Version: 2 **Class: Control Module** **Diagram 86 of 93**

Parent Symbols:
80 - em Agitator
.... , Agitation CM

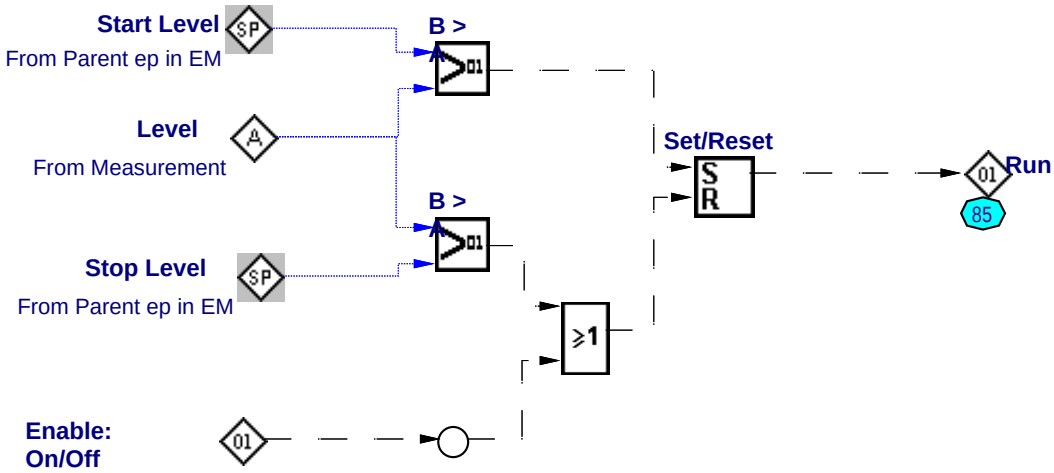


Diagram 87 - Standard PID Loop
Diagram Version: 162 Class: PID Control Loop Diagram 87 of 93

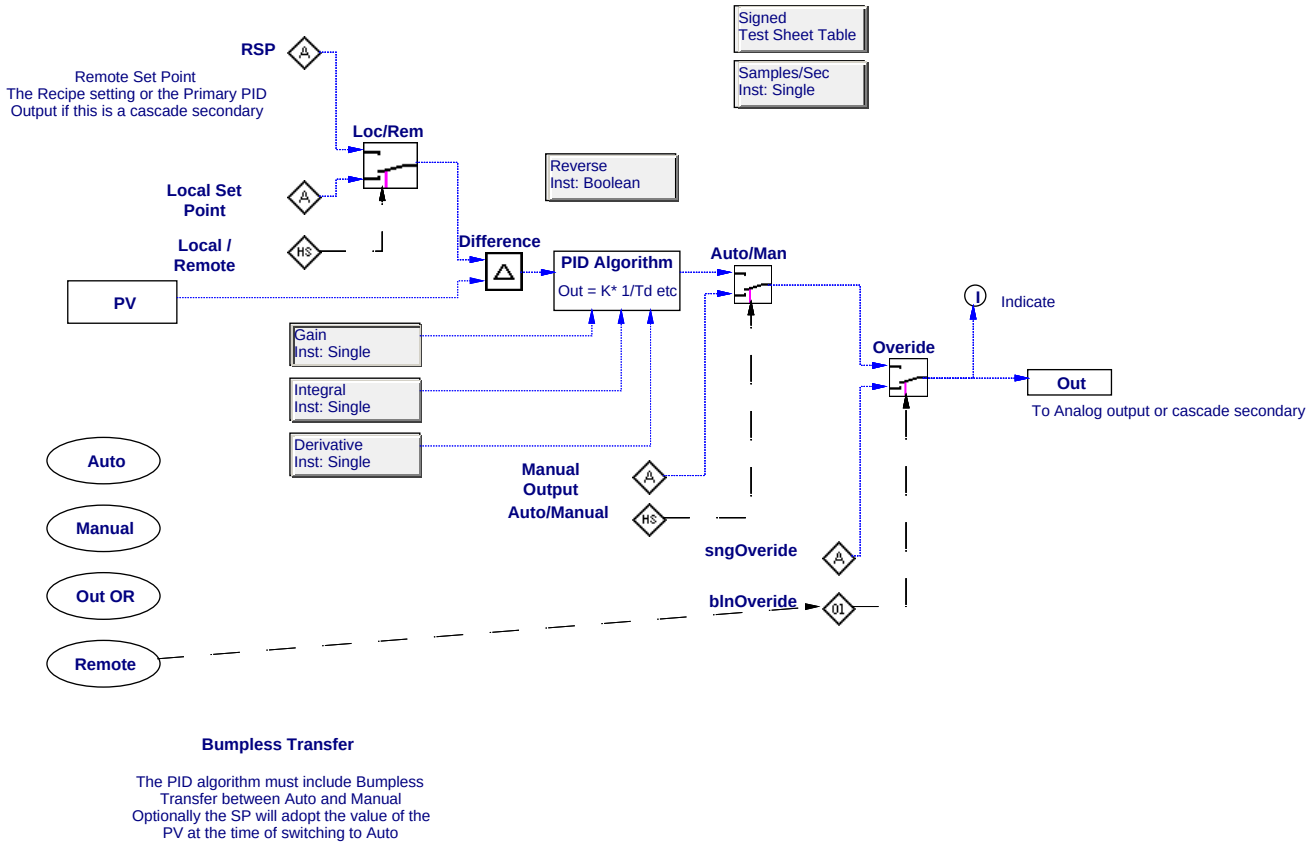


Diagram 88 - Control Valve

Diagram Version: 290 Class: Effector Analog **Diagram 88 of 93**

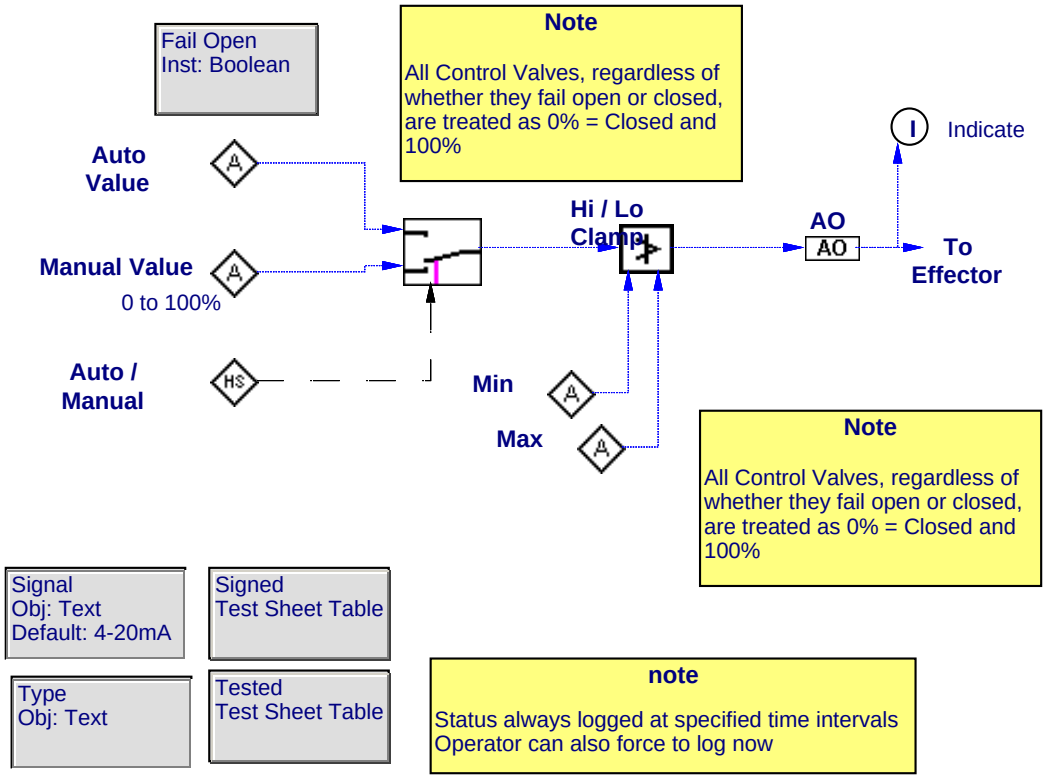
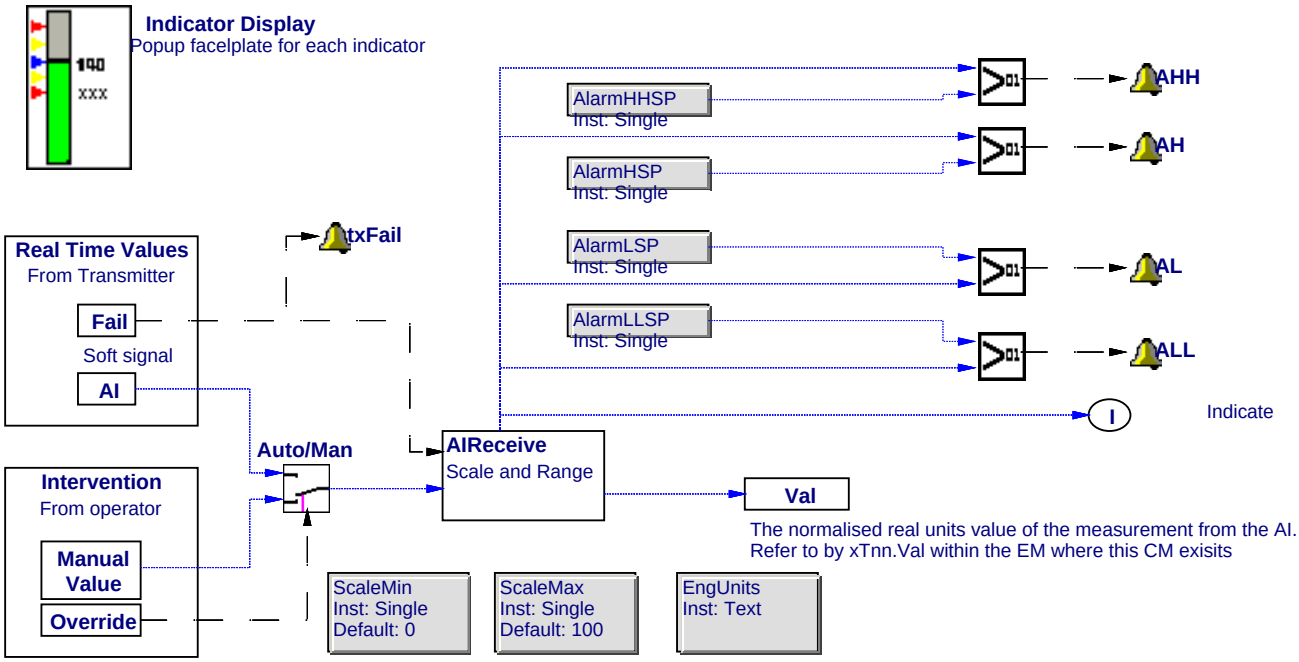


Diagram Description 89 - Analog Input from Transmitter

No text, you can write some here

Diagram Version: 451 Class: Measurement Analog Diagram 89 of 93



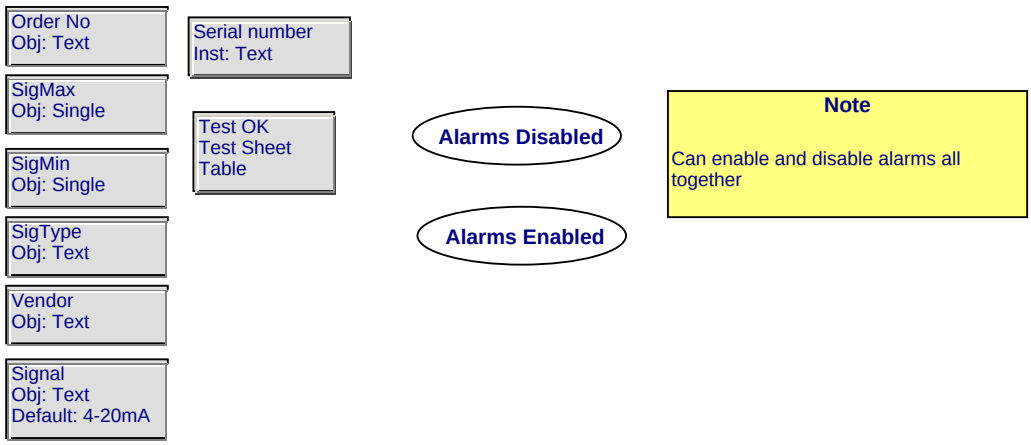


Diagram Description 90 - Weight measurement

Weight Measurement

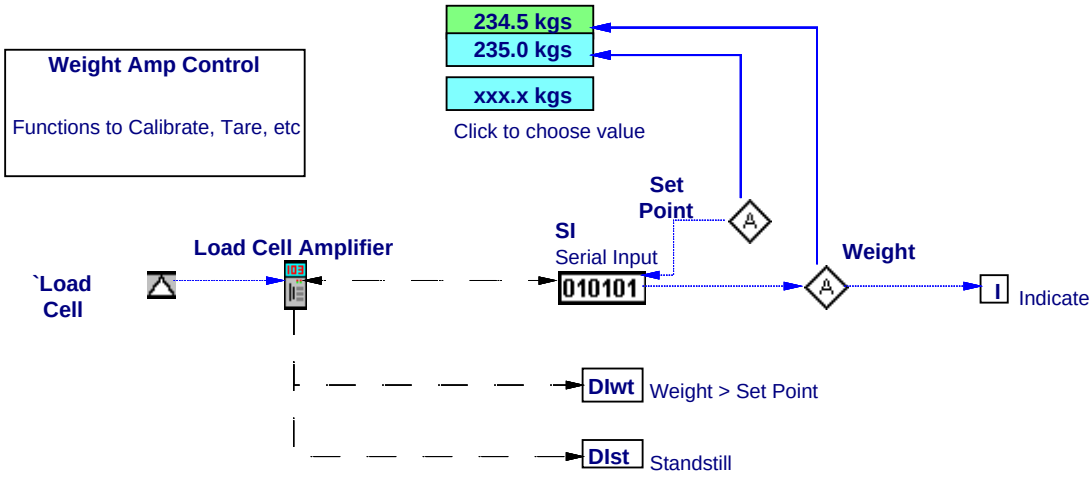
This module uses serial communications and a Boolean input to communicate with the Weight Transmitter.
The serial connection is used to

- Monitor the status of the weighing instrument
- Download Set points
- Upload weight reading

The digital input is connected to the weighing instrument to receive the Weight > Set Point Boolean signal.
It is better to use the weighing instrument to do the comparison between actual weight and set point because it is faster than doing the comparison in the PCS. And using an analog connection is much less accurate.
In addition the Standstill signal indicates that the weight is stable within some limits, this should be checked in a phase.

Diagram 90 - Weight measurement

Diagram Version: 216 Class: Measurement Analog Diagram 90 of 93



Talk The instrument is in a dialog, eg Receive Set Point

Monitor When in monitor mode the weight is broadcast

AlarmHSP Inst: Single Default: 9999999	AlarmHHSP Inst: Single Default: 9999999		
AlarmLSP Inst: Single Default: 0	AlarmLLSP Inst: Single Default: 0		
ScaleMin Inst: Single Default: 0	ScaleMax Inst: Single Default: 100	EngUnits Inst: Text	
Serial number Inst: Text			

Order No Obj: Text	Test OK Test Sheet Table	
SigMax Obj: Single		
SigMin Obj: Single		
SigType Obj: Text		
Vendor Obj: Text		
Signal Obj: Text ~~Default: 4-20mA~~		

Diagram 91 - Alarm Switch Input

Diagram Version: 162 Class: Measurement Switch Diagram 91 of 93

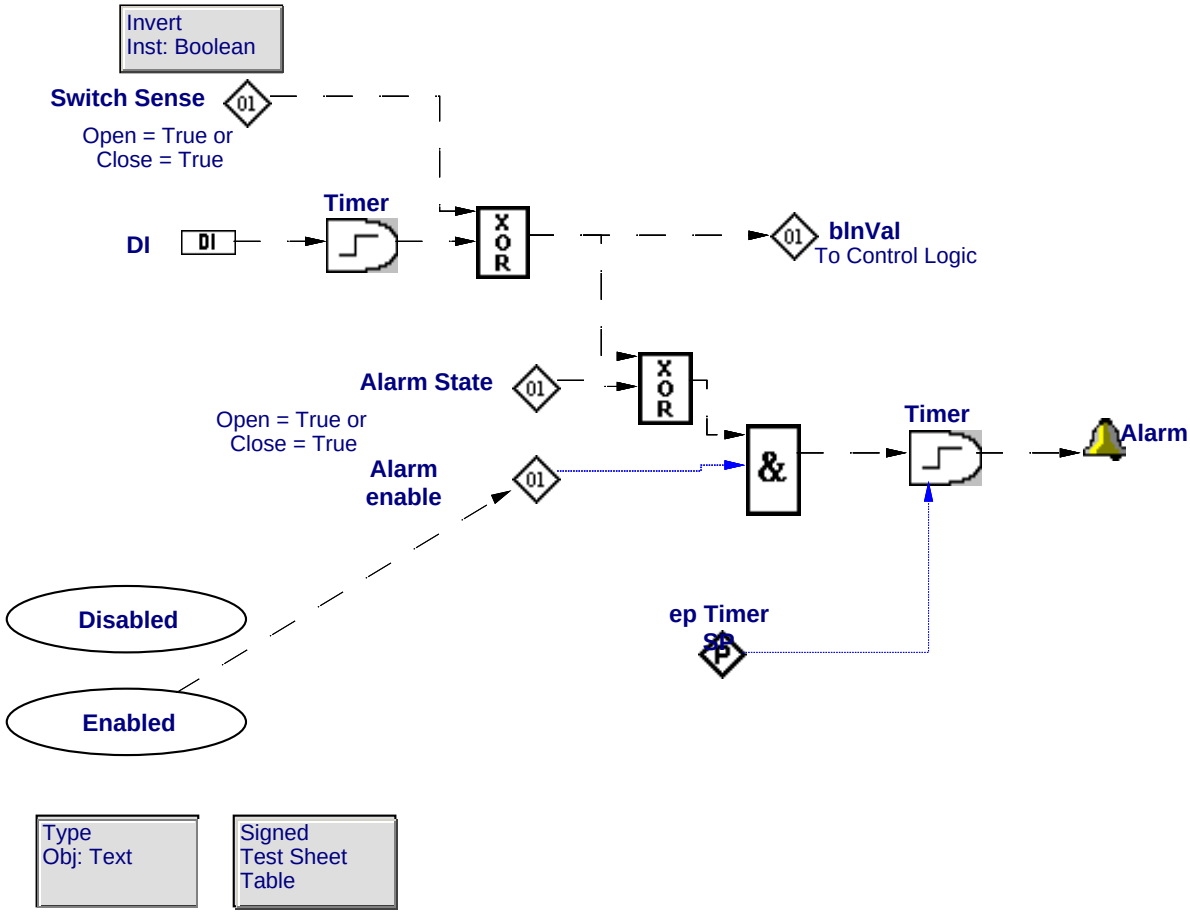


Diagram Description 92 - Interface

This shows a generic interface between modules. This may apply at the EM or the Unit level.

Diagram Version: 304 Class: Interface Diagram 92 of 93

Active
The module is functioning.

Display fault number and description.

Fault
Signal set to indicate the source status. Should be fail safe must be refreshed by other end to prove the link working.

Should be mutually exclusive between source and dest, so include If (Source Master and AND Dest Master) then Alarm "Program Error"

Master
Tells the other end which end should be in control

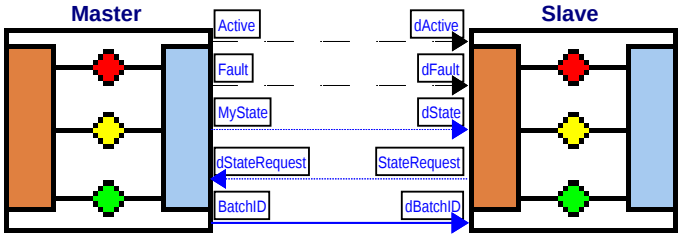
Should be zero if end does not think it has control.

StateRequest
If the one end is master (mine is true) tells the other end to go to a particular state.

MyState
Actual current state.

`
Batch Number or Material ID (at batch breaks)

Batch Number
ID of the stuff in the unit.



Data Report: Classes

Class	Class_no	NumDigits	S88 Def	Version	IncludeInTest	TestTableType
Alarm	21	0	Control System	361	☐	0
Batch Journal Entry	50	0	Batch Journal	437	☐	0
Batch Report	56	4		437	☐	0
Cell Common Resource	12	0	Process Cell	468	☐	0
Common Resource	32	0	Unit	438	☐	0
Container	57	2		378	☐	0
Control Module	6	2	Control Module	437	☐	0
Control System	17	1	Control System	437	☐	0
Control System Node	39	0	Control System	437	☐	0
Effector Analog	10	2	Control Module	437	☐	0
EffectorDiscrete	42	2	Control Module	466	☐	0
Equipment Module	24	3	Equipment Module	438	☑	0
Equipment Parameter	37	4	Process Parameter	379	☐	0
Interface	46	4	None	437	☐	0
Interlock Control Module	40	2	Control Module	437	☑	0
Measurement Analog	7	2	Control Module	437	☐	0
Measurement Switch	38	2	Control Module	437	☐	0
Motor	44	2	Control Module	437	☐	0
Operation	3	0	Operation	227	☑	3
Operator Command	30	0	None	437	☐	0
Operator Display	16	0	None	437	☐	0
Operator Entry	1	0	None	437	☐	0
PFC Acquire / Release	45	4	None	439	☐	0
Phase	19	0	Phase	227	☑	3
PID Control Loop	41	2	Control Module	437	☐	0
Plant Area	29	0	Train	437	☐	0
Process Cell	27	0	Process Cell	438	☐	0
Recipe	2	2	Recipe	441	☐	0
Recipe Formula Value	23	4	Process parameter	361	☐	0
Recipe Procedure	25	2	Recipe Procedure	312	☑	3
Site	33	0	Area	361	☐	0
Software Driver Module	52	0	Control Module	437	☐	0
Software Object	35	3	Control Module	440	☐	0
Unit	4	2	Unit	438	☑	0
Unit Procedure	26	0	Unit Procedure	444	☑	3
Valve	43	2	Control Module	437	☑	0

Data Report: Recipe Equipment Requirements

Recipe	Equipment	Class
Alchoshake	cr02 Milk Distribution manifold	Common Resource
Alchoshake	cr03 Homogeniser In manifold	Common Resource
Alchoshake	cr05 Product Silo inlet manifold	Common Resource
Alchoshake	un Batch Mixing	Unit
Alchoshake	un Homogeniser	Unit
Alchoshake	un01 Milk/Product Silo	Unit
Alchoshake	un01 Milk/Product Silo	Unit
Banana Milk shakes	cr02 Milk Distribution manifold	Common Resource
Banana Milk shakes	cr03 Homogeniser In manifold	Common Resource
Banana Milk shakes	cr05 Product Silo inlet manifold	Common Resource
Banana Milk shakes	un Batch Mixing	Unit
Banana Milk shakes	un Homogeniser	Unit
Banana Milk shakes	un01 Milk/Product Silo	Unit
Banana Milk shakes	un01 Milk/Product Silo	Unit
Fudge Drink	cr02 Milk Distribution manifold	Common Resource
Fudge Drink	cr03 Homogeniser In manifold	Common Resource
Fudge Drink	cr05 Product Silo inlet manifold	Common Resource
Fudge Drink	un Batch Mixing	Unit
Fudge Drink	un Homogeniser	Unit
Fudge Drink	un01 Milk/Product Silo	Unit
Fudge Drink	un01 Milk/Product Silo	Unit
rcCIP MS1	cr01 Milk Reception manifold	Common Resource
rcCIP MS1	cr02 Milk Distribution manifold	Common Resource
Strawberry Milk shakes	cr02 Milk Distribution manifold	Common Resource
Strawberry Milk shakes	cr03 Homogeniser In manifold	Common Resource
Strawberry Milk shakes	cr05 Product Silo inlet manifold	Common Resource
Strawberry Milk shakes	un Batch Mixing	Unit
Strawberry Milk shakes	un Homogeniser	Unit
Strawberry Milk shakes	un01 Milk/Product Silo	Unit
Strawberry Milk shakes	un01 Milk/Product Silo	Unit

Data Report: Equipment Parameter Real

ObjectTag	page	RealTag	External Tag	Min	Value	Max	AllowChange
Route Select	34	HG1.em Homogeniser in.Route Select					☐
Route Select	34	HG2.em Homogeniser in.Route Select					☐
Machine Alarm Group	35	PL1.Accumulation Conveyor.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.Packing Conveyor.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.EM01.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.EM02.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.EM03.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.EM04.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.EM05.Machine Alarm Group					☐
Machine Alarm Group	35	PL1.EM06.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.Accumulation Conveyor.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.Packing Conveyor.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.EM01.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.EM02.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.EM03.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.EM04.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.EM05.Machine Alarm Group					☐
Machine Alarm Group	35	PL2.EM06.Machine Alarm Group					☐
Route Select	37	tk Acid.em Feed.Route Select					☐
Route Select	37	tk Cold Caustic.em Feed.Route Select					☐
Route Select	37	tk Hot Caustic.em Feed.Route Select					☐
Route Select	37	MS1.em Receive.Route Select					☐
Route Select	37	MS2.em Receive.Route Select					☐
Route Select	37	MS3.em Receive.Route Select					☐
Route Select	37	BV1.em Feed.Route Select					☐
Route Select	37	BV2.em Feed.Route Select					☐
Route Select	37	PS1.em Receive.Route Select					☐
Route Select	37	PS2.em Receive.Route Select					☐
Route Select	37	PS3.em Receive.Route Select					☐
Route Select	37	PL1.em Receive.Route Select					☐
Route Select	37	PL2.em Receive.Route Select					☐
Route Select	38	tk Acid.em transfer out.Route Select					☐
Route Select	38	tk Cold Caustic.em transfer out.Route Select					☐
Route Select	38	tk Hot Caustic.em transfer out.Route Select					☐
Route Select	38	MS1.em transfer out.Route Select					☐
Route Select	38	MS2.em transfer out.Route Select					☐
Route Select	38	MS3.em transfer out.Route Select					☐
Route Select	38	BV1.em Transfer Out.Route Select					☐
Route Select	38	BV2.em Transfer Out.Route Select					☐
Route Select	38	HG1.em transfer out.Route Select					☐
Route Select	38	HG2.em transfer out.Route Select					☐
Route Select	38	PS1.em transfer out.Route Select					☐
Route Select	38	PS2.em transfer out.Route Select					☐
Route Select	38	PS3.em transfer out.Route Select					☐
Route Select	40	CIP Unit1.em CIP Line Select.Route Select					☐
Route Select	40	CIP Unit2.em CIP Line Select.Route Select					☐
ep Temp SP	41	CIP Unit1.em CIP Supply.ep Temp SP					☐
ep Temp SP	41	CIP Unit2.em CIP Supply.ep Temp SP					☐
ep Fill Time SP	47	tk Acid.em Water Feed.ep Fill Time SP					☐
ep Fill Time SP	47	tk Cold Caustic.em Water Feed.ep Fill Time SP					☐
ep Fill Time SP	47	tk Hot Caustic.em Water Feed.ep Fill Time SP					☐
epVesselEmptyLevel	61	MS1.op Silo CIP.epVesselEmptyLevel					☐

ObjectTag	page	RealTag	External Tag	Min	Value	Max	AllowChange
epVesselEmptyLevel	61	MS2.op Silo CIP.epVesselEmptyLevel					☐
epVesselEmptyLevel	61	MS3.op Silo CIP.epVesselEmptyLevel					☐
epVesselEmptyLevel	61	PS1.op Silo CIP.epVesselEmptyLevel					☐
epVesselEmptyLevel	61	PS2.op Silo CIP.epVesselEmptyLevel					☐
epVesselEmptyLevel	61	PS3.op Silo CIP.epVesselEmptyLevel					☐
epStart_Level	80	MS1.emAgitator.epStart_Level					☐
epStop_Level	80	MS1.emAgitator.epStop_Level					☐
epOn_Time	80	MS1.emAgitator.epOn_Time					☐
epOff_Time	80	MS1.emAgitator.epOff_Time					☐
epStart_Level	80	MS2.emAgitator.epStart_Level					☐
epStop_Level	80	MS2.emAgitator.epStop_Level					☐
epOn_Time	80	MS2.emAgitator.epOn_Time					☐
epOff_Time	80	MS2.emAgitator.epOff_Time					☐
epStart_Level	80	MS3.emAgitator.epStart_Level					☐
epStop_Level	80	MS3.emAgitator.epStop_Level					☐
epOn_Time	80	MS3.emAgitator.epOn_Time					☐
epOff_Time	80	MS3.emAgitator.epOff_Time					☐
epStart_Level	80	BV1.em Agitator.epStart_Level					☐
epStop_Level	80	BV1.em Agitator.epStop_Level					☐
epOn_Time	80	BV1.em Agitator.epOn_Time					☐
epOff_Time	80	BV1.em Agitator.epOff_Time					☐
epOff_Time	80	BV1.em Agitator.epSpeed					☐
epStart_Level	80	BV2.em Agitator.epStart_Level					☐
epStop_Level	80	BV2.em Agitator.epStop_Level					☐
epOn_Time	80	BV2.em Agitator.epOn_Time					☐
epOff_Time	80	BV2.em Agitator.epOff_Time					☐
epOff_Time	80	BV2.em Agitator.epSpeed					☐
epStart_Level	80	PS1.emAgitator.epStart_Level					☐
epStop_Level	80	PS1.emAgitator.epStop_Level					☐
epOn_Time	80	PS1.emAgitator.epOn_Time					☐
epOff_Time	80	PS1.emAgitator.epOff_Time					☐
epStart_Level	80	PS2.emAgitator.epStart_Level					☐
epStop_Level	80	PS2.emAgitator.epStop_Level					☐
epOn_Time	80	PS2.emAgitator.epOn_Time					☐
epOff_Time	80	PS2.emAgitator.epOff_Time					☐
epStart_Level	80	PS3.emAgitator.epStart_Level					☐
epStop_Level	80	PS3.emAgitator.epStop_Level					☐
epOn_Time	80	PS3.emAgitator.epOn_Time					☐
epOff_Time	80	PS3.emAgitator.epOff_Time					☐
	91	Solids Prep Line 1.LSL.ep Timer SP					☐
	91	Solids Prep Line 1.LSH.ep Timer SP					☐
	91	Solids Prep Line 2.LSL.ep Timer SP					☐
	91	Solids Prep Line 2.LSH.ep Timer SP					☐
	91	Blending.LAH.ep Timer SP					☐
	91	Blending.LAL.ep Timer SP					☐
	91	tk Acid.LAL.ep Timer SP					☐
	91	tk Acid.LAH.ep Timer SP					☐
	91	tk Cold Caustic.LAL.ep Timer SP					☐
	91	tk Cold Caustic.LAH.ep Timer SP					☐
	91	tk Hot Caustic.LAL.ep Timer SP					☐
	91	tk Hot Caustic.LAH.ep Timer SP					☐
	91	tk Return Water.LAH01.ep Timer SP					☐
	91	tk Return Water.LAL02.ep Timer SP					☐

ObjectTag	page	RealTag	External Tag	Min	Value	Max	AllowChange
	91	tk Fresh Water.LSL.ep Timer SP					☐
	91	tk Fresh Water.LSH.ep Timer SP					☐
	91	tk Fresh Water.LSM.ep Timer SP					☐
	91	MS1.LAH.ep Timer SP					☐
	91	MS1.ZSA.ep Timer SP					☐
	91	MS2.LAH.ep Timer SP					☐
	91	MS2.ZSA.ep Timer SP					☐
	91	MS3.LAH.ep Timer SP					☐
	91	MS3.ZSA.ep Timer SP					☐
	91	Milk Reception 1.em Tanker Receive.LSL.ep Timer					☐
	91	Milk Reception 2.em Tanker Receive.LSL.ep Timer					☐
	91	Milk Reception 3.em Tanker Receive.LSL.ep Timer					☐
	91	BV1.LAH.ep Timer SP					☐
	91	BV1.LAL.ep Timer SP					☐
	91	SH1.LSH.ep Timer SP					☐
	91	SH1.LSL.ep Timer SP					☐
	91	BV2.LAH.ep Timer SP					☐
	91	BV2.LAL.ep Timer SP					☐
	91	SH2.LSH.ep Timer SP					☐
	91	SH2.LSL.ep Timer SP					☐
	91	PS1.LAH.ep Timer SP					☐
	91	PS1.LAL.ep Timer SP					☐
	91	PS1.ZSA.ep Timer SP					☐
	91	PS2.LAH.ep Timer SP					☐
	91	PS2.LAL.ep Timer SP					☐
	91	PS2.ZSA.ep Timer SP					☐
	91	PS3.LAH.ep Timer SP					☐
	91	PS3.LAL.ep Timer SP					☐
	91	PS3.ZSA.ep Timer SP					☐

Data Report: Measurement Analog

ObjectTag	page	Page Tag	RealTag	ScaleMin	ScaleMax	EngUnits	AlarmLLSP	AlarmLSP	AlarmHHSP	AlarmHSP
meFT	27	FT2	CIP Unit1.FT2	0	100		0	0	100	9999999
meQT	27	QT2	CIP Unit1.QT2	0	100		0	0	100	9999999
meTT	27	TT02	CIP	0	100		0	0	100	9999999
meTT	27	TT01	CIP	0	100		0	0	9999999	9999999
meFT	27	FT2	CIP Unit2.FT2	0	75		0	0	100	9999999
meQT	27	QT2	CIP Unit2.QT2	0	100		0	0	100	9999999
meTT	27	TT02	CIP	0	100		0	0	100	9999999
meTT	27	TT01	CIP	0	100		0	0	9999999	9999999
meWIA	11	WIA	MS1.WIA	0	100		0	0	100	9999999
meWIA	11	WIA	MS2.WIA	0	100		0	0	100	9999999
meWIA	11	WIA	MS3.WIA	0	100		0	0	100	9999999
meWT	8	WT1	BV1.WT1	0	100		0	0	100	9999999
meWT	32	WT	BV1.WT	0	100		0	0	100	9999999
meTT	8	TT1	BV1.TT1	0	100		0	0	9999999	9999999
meWT	8	WT1	BV2.WT1	0	100		0	0	100	9999999
meWT	32	WT	BV2.WT	0	100		0	0	100	9999999
meTT	8	TT1	BV2.TT1	0	100		0	0	9999999	9999999
meLT	11	LT	PS1.LT	0	100		0	0	100	9999999
meLT	11	LT	PS2.LT	0	100		0	0	100	9999999
meLT	11	LT	PS3.LT	0	100		0	0	100	9999999

Data Report: Motor

page	RealTag	External Tag	VSD	Power Units	Power	Logged
13	Solids Prep Line 1.RV1		☐	Kw		☐
13	Solids Prep Line 1.Fan		☐	Kw		☐
13	Solids Prep Line 1.Conveyor		☐	Kw		☐
13	Solids Prep Line 1.RV2		☐	Kw		☐
13	Solids Prep Line 2.RV1		☐	Kw		☐
13	Solids Prep Line 2.Fan		☐	Kw		☐
13	Solids Prep Line 2.Conveyor		☐	Kw		☐
13	Solids Prep Line 2.RV2		☐	Kw		☐
12	Blending.Blender Drive		☐	Kw		☐
12	Blending.RV1		☐	Kw		☐
30	tk Acid.AG1		☐	Kw		☐
30	tk Acid.P3		☐	Kw		☐
30	tk Cold Caustic.AG1		☐	Kw		☐
30	tk Cold Caustic.P3		☐	Kw		☐
30	tk Hot Caustic.AG1		☐	Kw		☐
30	tk Hot Caustic.P3		☐	Kw		☐
41	CIP Unit1.CIP Supply Pump		☐	Kw		☐
41	CIP Unit2.CIP Supply Pump		☐	Kw		☐
36	MS1.Pump		☐	Kw		☐
80	MS1.FM01		☐	Kw		☐
36	MS2.Pump		☐	Kw		☐
80	MS2.FM01		☐	Kw		☐
36	MS3.Pump		☐	Kw		☐
80	MS3.FM01		☐	Kw		☐
48	Milk Reception 1.Pump		☐	Kw		☐
48	Milk Reception 2.Pump		☐	Kw		☐
48	Milk Reception 3.Pump		☐	Kw		☐
80	BV1.VM01		☐	Kw		☐
36	BV1.Pump		☐	Kw		☐
7	SH1.RV1		☐	Kw		☐
80	BV2.VM01		☐	Kw		☐
36	BV2.Pump		☐	Kw		☐
7	SH2.RV1		☐	Kw		☐
33	HG1.PD Pump		☐	Kw		☐
33	HG2.PD Pump		☐	Kw		☐
36	PS1.Pump		☐	Kw		☐
80	PS1.FM01		☐	Kw		☐
36	PS2.Pump		☐	Kw		☐
80	PS2.FM01		☐	Kw		☐
36	PS3.Pump		☐	Kw		☐
80	PS3.FM01		☐	Kw		☐

Data Report: Effector Analog

ObjectTag	page	Page Tag	RealTag	Fail Open
eeCV	41	CV	CIP Unit1.CV	☐
eeCV	41	CV	CIP Unit2.CV	☐
eeVFC Speed Controller	84	VFC Speed Controller	BV1.VM01.VFC Speed Controller	☐
eeVFC Speed Controller	84	VFC Speed Controller	SH1.RV1.VFC Speed Controller	☐
eeVFC Speed Controller	84	VFC Speed Controller	BV2.VM01.VFC Speed Controller	☐
eeVFC Speed Controller	84	VFC Speed Controller	SH2.RV1.VFC Speed Controller	☐

Data Report: Control System IOList

ObjectTag	RealTag	External Tag	Node	Card	Channel
csWS	Additive Warehouse.WS01				066
csWS	Additive Warehouse.WS02				066
csBCP	Additive Warehouse.BCP01				004
csBCR	Additive Warehouse.BCR				005
csBCP	Additive Warehouse.BCP02				005
csDO	Solids Prep Line 1.RV1.DO				039
csDIRun	Solids Prep Line 1.RV1.DIRun				036
csDO	Solids Prep Line 1.Fan.DO				
csDIRun	Solids Prep Line 1.Fan.DIRun				
csDO	Solids Prep Line 1.Conveyor.DO				040
csDIRun	Solids Prep Line 1.Conveyor.DIRun				035
csDO	Solids Prep Line 1.RV2.DO				039
csDIRun	Solids Prep Line 1.RV2.DIRun				035
csDI	Solids Prep Line 1.LSL.DI				008
csDI	Solids Prep Line 1.LSH.DI				008
csDO	Solids Prep Line 2.RV1.DO				039
csDIRun	Solids Prep Line 2.RV1.DIRun				036
csDO	Solids Prep Line 2.Fan.DO				
csDIRun	Solids Prep Line 2.Fan.DIRun				
csDO	Solids Prep Line 2.Conveyor.DO				040
csDIRun	Solids Prep Line 2.Conveyor.DIRun				036
csDO	Solids Prep Line 2.RV2.DO				039
csDIRun	Solids Prep Line 2.RV2.DIRun				036
csDI	Solids Prep Line 2.LSL.DI				008
csDI	Solids Prep Line 2.LSH.DI				008
csController	Solids Processing.Controller 5				006
csDO	Blending.Blender Drive.DO				039
csDIRun	Blending.Blender Drive.DIRun				037
csDO	Blending.RV1.DO				040
csDIRun	Blending.RV1.DIRun				036
csDI	Blending.LAH.DI				008
csDI	Blending.LAL.DI				008
csWS	Intermediate Store.WS01				066
csBCP	Intermediate Store.BCP01				005
csBCR	Intermediate Store.BCR				005
csWS	CIP Chemical Store.WS01				066
csBCP	CIP Chemical Store.BCP01				005
csBCR	CIP Chemical Store.BCR				005
csDI	tk Acid.LAL.DI				009
csDI	tk Acid.LAH.DI				008
csDO	tk Acid.AG1.DO				039
csDIRun	tk Acid.AG1.DIRun				035
csDO	tk Acid.P3.DO				039
csDIRun	tk Acid.P3.DIRun				036
csDOSov	tk Acid.V08.DOSov				051
csDIClosed	tk Acid.V08.DIClosed				016
csDIOpen	tk Acid.V08.DIOpen				025
csSov	tk Acid.V07.Sov				063
csDIClosed	tk Acid.V07.DIClosed				013
csDOSovUpper	tk Acid.V07.DOSovUpper				056
csDOSovLower	tk Acid.V07.DOSovLower				055
cs	tk Acid.V07.DIOpen				001

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDOSov	tk Acid.V03.DOSov				049
csDIClosed	tk Acid.V03.DIClosed				016
csDIOpen	tk Acid.V03.DIOpen				026
csSov	tk Acid.V04.Sov				063
csDIClosed	tk Acid.V04.DIClosed				011
csDOSovUpper	tk Acid.V04.DOSovUpper				057
csDOSovLower	tk Acid.V04.DOSovLower				053
cs	tk Acid.V04.DIOpen				001
csDOSov	tk Acid.V06.DOSov				049
csDIClosed	tk Acid.V06.DIClosed				016
csDIOpen	tk Acid.V06.DIOpen				026
csDOSov	tk Acid.V05.DOSov				049
csDIClosed	tk Acid.V05.DIClosed				016
csDIOpen	tk Acid.V05.DIOpen				026
csDI	tk Cold Caustic.LAL.DI				008
csDI	tk Cold Caustic.LAH.DI				009
csDO	tk Cold Caustic.AG1.DO				039
csDIRun	tk Cold Caustic.AG1.DIRun				036
csDO	tk Cold Caustic.P3.DO				039
csDIRun	tk Cold Caustic.P3.DIRun				036
csDOSov	tk Cold Caustic.V08.DOSov				049
csDIClosed	tk Cold Caustic.V08.DIClosed				016
csDIOpen	tk Cold Caustic.V08.DIOpen				027
csSov	tk Cold Caustic.V07.Sov				063
csDIClosed	tk Cold Caustic.V07.DIClosed				012
csDOSovUpper	tk Cold Caustic.V07.DOSovUpper				057
csDOSovLower	tk Cold Caustic.V07.DOSovLower				053
cs	tk Cold Caustic.V07.DIOpen				001
csDOSov	tk Cold Caustic.V03.DOSov				050
csDIClosed	tk Cold Caustic.V03.DIClosed				016
csDIOpen	tk Cold Caustic.V03.DIOpen				027
csSov	tk Cold Caustic.V04.Sov				063
csDIClosed	tk Cold Caustic.V04.DIClosed				013
csDOSovUpper	tk Cold Caustic.V04.DOSovUpper				057
csDOSovLower	tk Cold Caustic.V04.DOSovLower				053
cs	tk Cold Caustic.V04.DIOpen				000
csDOSov	tk Cold Caustic.V06.DOSov				051
csDIClosed	tk Cold Caustic.V06.DIClosed				016
csDIOpen	tk Cold Caustic.V06.DIOpen				027
csDOSov	tk Cold Caustic.V05.DOSov				050
csDIClosed	tk Cold Caustic.V05.DIClosed				016
csDIOpen	tk Cold Caustic.V05.DIOpen				027
csDI	tk Hot Caustic.LAL.DI				009
csDI	tk Hot Caustic.LAH.DI				009
csDO	tk Hot Caustic.AG1.DO				039
csDIRun	tk Hot Caustic.AG1.DIRun				037
csDO	tk Hot Caustic.P3.DO				040
csDIRun	tk Hot Caustic.P3.DIRun				037
csDOSov	tk Hot Caustic.V08.DOSov				044
csDIClosed	tk Hot Caustic.V08.DIClosed				017
csDIOpen	tk Hot Caustic.V08.DIOpen				027
csSov	tk Hot Caustic.V07.Sov				063
csDIClosed	tk Hot Caustic.V07.DIClosed				012

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDOSovUpper	tk Hot Caustic.V07.DOSovUpper				057
csDOSovLower	tk Hot Caustic.V07.DOSovLower				054
cs	tk Hot Caustic.V07.DIOpen				001
csDOSov	tk Hot Caustic.V03.DOSov				049
csDIClosed	tk Hot Caustic.V03.DIClosed				017
csDIOpen	tk Hot Caustic.V03.DIOpen				027
csSov	tk Hot Caustic.V04.Sov				063
csDIClosed	tk Hot Caustic.V04.DIClosed				012
csDOSovUpper	tk Hot Caustic.V04.DOSovUpper				057
csDOSovLower	tk Hot Caustic.V04.DOSovLower				053
cs	tk Hot Caustic.V04.DIOpen				001
csDOSov	tk Hot Caustic.V06.DOSov				050
csDIClosed	tk Hot Caustic.V06.DIClosed				018
csDIOpen	tk Hot Caustic.V06.DIOpen				028
csDOSov	tk Hot Caustic.V05.DOSov				050
csDIClosed	tk Hot Caustic.V05.DIClosed				017
csDIOpen	tk Hot Caustic.V05.DIOpen				027
csController	CIP Generation System.Controller 6				006
csLocal Display	CIP Generation System.Local Display				060
csDOSov	tk Return Water.V02.DOSov				050
csDIClosed	tk Return Water.V02.DIClosed				016
csDIOpen	tk Return Water.V02.DIOpen				026
csSov	tk Return Water.V04.Sov				063
csDIClosed	tk Return Water.V04.DIClosed				012
csDOSovUpper	tk Return Water.V04.DOSovUpper				056
csDOSovLower	tk Return Water.V04.DOSovLower				052
cs	tk Return Water.V04.DIOpen				001
csDOSov	tk Return Water.V03.DOSov				050
csDIClosed	tk Return Water.V03.DIClosed				015
csDIOpen	tk Return Water.V03.DIOpen				027
csSov	tk Return Water.V01.Sov				063
csDIClosed	tk Return Water.V01.DIClosed				012
csDOSovUpper	tk Return Water.V01.DOSovUpper				056
csDOSovLower	tk Return Water.V01.DOSovLower				053
cs	tk Return Water.V01.DIOpen				001
csDI	tk Return Water.LAH01.DI				009
csDI	tk Return Water.LAL02.DI				009
csDOSov	tk Fresh Water.V03.DOSov				050
csDIClosed	tk Fresh Water.V03.DIClosed				017
csDIOpen	tk Fresh Water.V03.DIOpen				028
csDOSov	tk Fresh Water.V02.DOSov				050
csDIClosed	tk Fresh Water.V02.DIClosed				017
csDIOpen	tk Fresh Water.V02.DIOpen				028
csDOSov	tk Fresh Water.V01.DOSov				051
csDIClosed	tk Fresh Water.V01.DIClosed				017
csDIOpen	tk Fresh Water.V01.DIOpen				028
csDI	tk Fresh Water.LSL.DI				010
csDI	tk Fresh Water.LSH.DI				010
csDI	tk Fresh Water.LSM.DI				010
csAI	CIP Unit1.FT2.AI				003
csAI	CIP Unit1.QT2.AI				003
csAI	CIP Unit1.TT02.AI				003
csDO	CIP Unit1.CIP Supply Pump.DO				041

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDIRun	CIP Unit1.CIP Supply Pump.DIRun				037
csAO	CIP Unit1.CV.AO				004
csDOSov	CIP Unit1.KV005.DOSov				044
csDIClosed	CIP Unit1.KV005.DIClosed				017
csDIOpen	CIP Unit1.KV005.DIOpen				028
csDOSov	CIP Unit1.XV02.DOSov				043
csDIClosed	CIP Unit1.XV02.DIClosed				018
csDIOpen	CIP Unit1.XV02.DIOpen				028
csDOSov	CIP Unit1.XV01.DOSov				043
csDIClosed	CIP Unit1.XV01.DIClosed				018
csDIOpen	CIP Unit1.XV01.DIOpen				031
csAI	CIP Unit1.TT01.AI				
csAI	CIP Unit2.FT2.AI				004
csAI	CIP Unit2.QT2.AI				003
csAI	CIP Unit2.TT02.AI				003
csDO	CIP Unit2.CIP Supply Pump.DO				041
csDIRun	CIP Unit2.CIP Supply Pump.DIRun				035
csAO	CIP Unit2.CV.AO				004
csDOSov	CIP Unit2.KV005.DOSov				044
csDIClosed	CIP Unit2.KV005.DIClosed				018
csDIOpen	CIP Unit2.KV005.DIOpen				028
csDOSov	CIP Unit2.XV02.DOSov				044
csDIClosed	CIP Unit2.XV02.DIClosed				018
csDIOpen	CIP Unit2.XV02.DIOpen				034
csDOSov	CIP Unit2.XV01.DOSov				044
csDIClosed	CIP Unit2.XV01.DIClosed				018
csDIOpen	CIP Unit2.XV01.DIOpen				028
csAI	CIP Unit2.TT01.AI				
csDIst	MS1.WIA.DIst				037
csSI	MS1.WIA.SI				062
csLoad Cell Amplifier	MS1.WIA.Load Cell Amplifier				060
csDIwt	MS1.WIA.DIwt				038
csDI	MS1.LAH.DI				010
csDI	MS1.ZSA.DI				010
csDOSov	MS1.V08.DOSov				044
csDIClosed	MS1.V08.DIClosed				017
csDIOpen	MS1.V08.DIOpen				028
csSov	MS1.V07.Sov				064
csDIClosed	MS1.V07.DIClosed				012
csDOSovUpper	MS1.V07.DOSovUpper				055
csDOSovLower	MS1.V07.DOSovLower				053
cs	MS1.V07.DIOpen				321
csDOSov	MS1.V03.DOSov				044
csDIClosed	MS1.V03.DIClosed				015
csDIOpen	MS1.V03.DIOpen				025
csSov	MS1.V04.Sov				062
csDIClosed	MS1.V04.DIClosed				012
csDOSovUpper	MS1.V04.DOSovUpper				056
csDOSovLower	MS1.V04.DOSovLower				053
cs	MS1.V04.DIOpen				000
csDOSov	MS1.V06.DOSov				044
csDIClosed	MS1.V06.DIClosed				013
csDIOpen	MS1.V06.DIOpen				027

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDOSov	MS1.V02.DOSov				045
csDIClosed	MS1.V02.DIClosed				014
csDIOpen	MS1.V02.DIOpen				027
csDO	MS1.Pump.DO				041
csDIRun	MS1.Pump.DIRun				036
csDOSov	MS1.V01.DOSov				045
csDIClosed	MS1.V01.DIClosed				014
csDIOpen	MS1.V01.DIOpen				024
csDO	MS1.FM01.DO				041
csDIRun	MS1.FM01.DIRun				036
csDIst	MS2.WIA.DIst				037
csSI	MS2.WIA.SI				062
csLoad Cell Amplifier	MS2.WIA.Load Cell Amplifier				059
csDIwt	MS2.WIA.DIwt				038
csDI	MS2.LAH.DI				010
csDI	MS2.ZSA.DI				009
csDOSov	MS2.V08.DOSov				045
csDIClosed	MS2.V08.DIClosed				014
csDIOpen	MS2.V08.DIOpen				024
csSov	MS2.V07.Sov				064
csDIClosed	MS2.V07.DIClosed				013
csDOSovUpper	MS2.V07.DOSovUpper				056
csDOSovLower	MS2.V07.DOSovLower				053
cs	MS2.V07.DIOpen				001
csDOSov	MS2.V03.DOSov				045
csDIClosed	MS2.V03.DIClosed				014
csDIOpen	MS2.V03.DIOpen				024
csSov	MS2.V04.Sov				063
csDIClosed	MS2.V04.DIClosed				012
csDOSovUpper	MS2.V04.DOSovUpper				056
csDOSovLower	MS2.V04.DOSovLower				054
cs	MS2.V04.DIOpen				000
csDOSov	MS2.V06.DOSov				045
csDIClosed	MS2.V06.DIClosed				014
csDIOpen	MS2.V06.DIOpen				024
csDOSov	MS2.V02.DOSov				045
csDIClosed	MS2.V02.DIClosed				014
csDIOpen	MS2.V02.DIOpen				024
csDO	MS2.Pump.DO				041
csDIRun	MS2.Pump.DIRun				034
csDOSov	MS2.V01.DOSov				045
csDIClosed	MS2.V01.DIClosed				014
csDIOpen	MS2.V01.DIOpen				024
csDO	MS2.FM01.DO				042
csDIRun	MS2.FM01.DIRun				034
csDIst	MS3.WIA.DIst				037
csSI	MS3.WIA.SI				062
csLoad Cell Amplifier	MS3.WIA.Load Cell Amplifier				060
csDIwt	MS3.WIA.DIwt				038
csDI	MS3.LAH.DI				009
csDI	MS3.ZSA.DI				010
csDOSov	MS3.V08.DOSov				045
csDIClosed	MS3.V08.DIClosed				014

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDIOpen	MS3.V08.DIOpen				024
csSov	MS3.V07.Sov				065
csDIClosed	MS3.V07.DIClosed				013
csDOSovUpper	MS3.V07.DOSovUpper				056
csDOSovLower	MS3.V07.DOSovLower				054
cs	MS3.V07.DIOpen				000
csDOSov	MS3.V03.DOSov				043
csDIClosed	MS3.V03.DIClosed				014
csDIOpen	MS3.V03.DIOpen				025
csSov	MS3.V04.Sov				065
csDIClosed	MS3.V04.DIClosed				013
csDOSovUpper	MS3.V04.DOSovUpper				056
csDOSovLower	MS3.V04.DOSovLower				054
cs	MS3.V04.DIOpen				000
csDOSov	MS3.V06.DOSov				042
csDIClosed	MS3.V06.DIClosed				014
csDIOpen	MS3.V06.DIOpen				025
csDOSov	MS3.V02.DOSov				043
csDIClosed	MS3.V02.DIClosed				015
csDIOpen	MS3.V02.DIOpen				026
csDO	MS3.Pump.DO				042
csDIRun	MS3.Pump.DIRun				034
csDOSov	MS3.V01.DOSov				043
csDIClosed	MS3.V01.DIClosed				015
csDIOpen	MS3.V01.DIOpen				025
csDO	MS3.FM01.DO				042
csDIRun	MS3.FM01.DIRun				034
csDOSov	cr04.V03.DOSov				043
csDIClosed	cr04.V03.DIClosed				015
csDIOpen	cr04.V03.DIOpen				024
csDOSov	cr04.V02.DOSov				043
csDIClosed	cr04.V02.DIClosed				015
csDIOpen	cr04.V02.DIOpen				025
csDOSov	cr04.V01.DOSov				043
csDIClosed	cr04.V01.DIClosed				015
csDIOpen	cr04.V01.DIOpen				025
csDOSov	cr05.V12.DOSov				044
csDIClosed	cr05.V12.DIClosed				015
csDIOpen	cr05.V12.DIOpen				025
csDOSov	cr05.V11.DOSov				043
csDIClosed	cr05.V11.DIClosed				016
csDIOpen	cr05.V11.DIOpen				025
csDOSov	cr05.V14.DOSov				043
csDIClosed	cr05.V14.DIClosed				015
csDIOpen	cr05.V14.DIOpen				025
csDOSov	cr05.V13.DOSov				052
csDIClosed	cr05.V13.DIClosed				015
csDIOpen	cr05.V13.DIOpen				026
csDOSov	Milk Reception 1.V12.DOSov				052
csDIClosed	Milk Reception 1.V12.DIClosed				017
csDIOpen	Milk Reception 1.V12.DIOpen				026
csDO	Milk Reception 1.Pump.DO				042
csDIRun	Milk Reception 1.Pump.DIRun				034

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDI	Milk Reception 1.LSL.DI				010
csDOSov	Milk Reception 2.V12.DOSov				052
csDIClosed	Milk Reception 2.V12.DIClosed				019
csDIOpen	Milk Reception 2.V12.DIOpen				026
csDO	Milk Reception 2.Pump.DO				042
csDIRun	Milk Reception 2.Pump.DIRun				034
csDI	Milk Reception 2.LSL.DI				009
csDOSov	Milk Reception 3.V12.DOSov				051
csDIClosed	Milk Reception 3.V12.DIClosed				021
csDIOpen	Milk Reception 3.V12.DIOpen				026
csDO	Milk Reception 3.Pump.DO				041
csDIRun	Milk Reception 3.Pump.DIRun				035
csDI	Milk Reception 3.LSL.DI				009
csDIst	BV1.WT1.DIst				038
csSI	BV1.WT1.SI				062
csLoad Cell Amplifier	BV1.WT1.Load Cell Amplifier				060
csDIwt	BV1.WT1.DIwt				038
csDIst	BV1.WT.DIst				038
csSI	BV1.WT.SI				062
csLoad Cell Amplifier	BV1.WT.Load Cell Amplifier				059
csDIwt	BV1.WT.DIwt				038
csController	BV1.Controller 7				006
csSI	BV1.SI				061
csDOSov	BV1.V12.DOSov				051
csDIClosed	BV1.V12.DIClosed				021
csDIOpen	BV1.V12.DIOpen				026
csDOSov	BV1.V10.DOSov				051
csDIClosed	BV1.V10.DIClosed				021
csDIOpen	BV1.V10.DIOpen				029
csDOSov	BV1.V09.DOSov				051
csDIClosed	BV1.V09.DIClosed				018
csDIOpen	BV1.V09.DIOpen				032
csDOSov	BV1.V11.DOSov				051
csDIClosed	BV1.V11.DIClosed				021
csDIOpen	BV1.V11.DIOpen				028
csDI	BV1.LAH.DI				008
csDI	BV1.LAL.DI				006
csAO	BV1.VM01.AO				004
csDO	BV1.VM01.DO				042
csDIClosed	BV1.VM01.DIClosed				023
csDOSov	BV1.V03.DOSov				051
csDIClosed	BV1.V03.DIClosed				017
csDIOpen	BV1.V03.DIOpen				031
csSov	BV1.V04.Sov				064
csDIClosed	BV1.V04.DIClosed				013
csDOSovUpper	BV1.V04.DOSovUpper				056
csDOSovLower	BV1.V04.DOSovLower				054
cs	BV1.V04.DIOpen				000
csDOSov	BV1.V06.DOSov				051
csDIClosed	BV1.V06.DIClosed				021
csDIOpen	BV1.V06.DIOpen				031
csDOSov	BV1.V08.DOSov				048
csDIClosed	BV1.V08.DIClosed				021

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDIOpen	BV1.V08.DIOpen				031
csSov	BV1.V07.Sov				064
csDIClosed	BV1.V07.DIClosed				013
csDOSovUpper	BV1.V07.DOSovUpper				056
csDOSovLower	BV1.V07.DOSovLower				054
cs	BV1.V07.DIOpen				000
csDOSov	BV1.V02.DOSov				052
csDIClosed	BV1.V02.DIClosed				021
csDIOpen	BV1.V02.DIOpen				032
csDO	BV1.Pump.DO				041
csDIRun	BV1.Pump.DIRun				034
csDOSov	BV1.V01.DOSov				049
csDIClosed	BV1.V01.DIClosed				022
csDIOpen	BV1.V01.DIOpen				032
csDI	SH1.LSH.DI				006
csDI	SH1.LSL.DI				006
csAO	SH1.RV1.AO				004
csDO	SH1.RV1.DO				042
csDIClosed	SH1.RV1.DIClosed				024
csDOSov	cr06.V11.DOSov				047
csDIClosed	cr06.V11.DIClosed				022
csDIOpen	cr06.V11.DIOpen				032
csDOSov	cr06.V12.DOSov				047
csDIClosed	cr06.V12.DIClosed				022
csDIOpen	cr06.V12.DIOpen				032
csDOSov	cr06.V13.DOSov				047
csDIClosed	cr06.V13.DIClosed				022
csDIOpen	cr06.V13.DIOpen				032
csSov	cr06.V out on.Sov				064
csDIClosed	cr06.V out on.DIClosed				013
csDOSovUpper	cr06.V out on.DOSovUpper				057
csDOSovLower	cr06.V out on.DOSovLower				055
cs	cr06.V out on.DIOpen				000
csDIst	BV2.WT1.DIst				038
csSI	BV2.WT1.SI				062
csLoad Cell Amplifier	BV2.WT1.Load Cell Amplifier				059
csDIwt	BV2.WT1.DIwt				038
csDIst	BV2.WT.DIst				037
csSI	BV2.WT.SI				062
csLoad Cell Amplifier	BV2.WT.Load Cell Amplifier				059
csDIwt	BV2.WT.DIwt				038
csController	BV2.Controller 7				006
csSI	BV2.SI				062
csDOSov	BV2.V12.DOSov				047
csDIClosed	BV2.V12.DIClosed				021
csDIOpen	BV2.V12.DIOpen				032
csDOSov	BV2.V10.DOSov				047
csDIClosed	BV2.V10.DIClosed				023
csDIOpen	BV2.V10.DIOpen				033
csDOSov	BV2.V09.DOSov				047
csDIClosed	BV2.V09.DIClosed				023
csDIOpen	BV2.V09.DIOpen				032
csDOSov	BV2.V11.DOSov				046

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDIClosed	BV2.V11.DIClosed				023
csDIOpen	BV2.V11.DIOpen				031
csDI	BV2.LAH.DI				006
csDI	BV2.LAL.DI				007
csAO	BV2.VM01.AO				004
csDO	BV2.VM01.DO				042
csDIClosed	BV2.VM01.DIClosed				023
csDOSov	BV2.V03.DOSov				046
csDIClosed	BV2.V03.DIClosed				023
csDIOpen	BV2.V03.DIOpen				032
csSov	BV2.V04.Sov				064
csDIClosed	BV2.V04.DIClosed				013
csDOSovUpper	BV2.V04.DOSovUpper				058
csDOSovLower	BV2.V04.DOSovLower				055
cs	BV2.V04.DIOpen				001
csDOSov	BV2.V06.DOSov				047
csDIClosed	BV2.V06.DIClosed				023
csDIOpen	BV2.V06.DIOpen				033
csDOSov	BV2.V08.DOSov				046
csDIClosed	BV2.V08.DIClosed				023
csDIOpen	BV2.V08.DIOpen				033
csSov	BV2.V07.Sov				065
csDIClosed	BV2.V07.DIClosed				012
csDOSovUpper	BV2.V07.DOSovUpper				057
csDOSovLower	BV2.V07.DOSovLower				055
cs	BV2.V07.DIOpen				002
csDOSov	BV2.V02.DOSov				046
csDIClosed	BV2.V02.DIClosed				023
csDIOpen	BV2.V02.DIOpen				033
csDO	BV2.Pump.DO				041
csDIRun	BV2.Pump.DIRun				034
csDOSov	BV2.V01.DOSov				046
csDIClosed	BV2.V01.DIClosed				022
csDIOpen	BV2.V01.DIOpen				033
csDI	SH2.LSH.DI				007
csDI	SH2.LSL.DI				007
csAO	SH2.RV1.AO				004
csDO	SH2.RV1.DO				042
csDIClosed	SH2.RV1.DIClosed				024
csPT	HG1.PT01				061
csPT	HG1.PT02				061
csHS	HG1.HS03				059
csHS	HG1.HS04				059
csPBO	HG1.PBO01				060
csPBO	HG1.PBO02				060
csHS	HG1.HS02				059
csPLC	HG1.PLC				061
csSI	HG1.SI				061
csDO	HG1.PD Pump.DO				041
csDIRun	HG1.PD Pump.DIRun				037
csDOSov	HG1.V01.DOSov				046
csDIClosed	HG1.V01.DIClosed				022
csDIOpen	HG1.V01.DIOpen				033

ObjectTag	RealTag	External Tag	Node	Card	Channel
csSov	HG1.V02.Sov				062
csDIClosed	HG1.V02.DIClosed				011
csDOSovUpper	HG1.V02.DOSovUpper				057
csDOSovLower	HG1.V02.DOSovLower				055
cs	HG1.V02.DIOpen				003
csDOSov	HG1.V08.DOSov				046
csDIClosed	HG1.V08.DIClosed				023
csDIOpen	HG1.V08.DIOpen				033
csSov	HG1.V07.Sov				065
csDIClosed	HG1.V07.DIClosed				011
csDOSovUpper	HG1.V07.DOSovUpper				058
csDOSovLower	HG1.V07.DOSovLower				055
cs	HG1.V07.DIOpen				002
csDOSov	cr08.V05.DOSov				048
csDIClosed	cr08.V05.DIClosed				022
csDIOpen	cr08.V05.DIOpen				033
csPT	HG2.PT01				061
csPT	HG2.PT02				061
csHS	HG2.HS03				059
csHS	HG2.HS04				059
csPBO	HG2.PBO01				060
csPBO	HG2.PBO02				061
csHS	HG2.HS02				059
csPLC	HG2.PLC				061
csSI	HG2.SI				061
csDO	HG2.PD Pump.DO				041
csDIRun	HG2.PD Pump.DIRun				035
csDOSov	HG2.V01.DOSov				046
csDIClosed	HG2.V01.DIClosed				022
csDIOpen	HG2.V01.DIOpen				033
csSov	HG2.V02.Sov				063
csDIClosed	HG2.V02.DIClosed				012
csDOSovUpper	HG2.V02.DOSovUpper				058
csDOSovLower	HG2.V02.DOSovLower				055
cs	HG2.V02.DIOpen				002
csDOSov	HG2.V08.DOSov				046
csDIClosed	HG2.V08.DIClosed				022
csDIOpen	HG2.V08.DIOpen				033
csSov	HG2.V07.Sov				064
csDIClosed	HG2.V07.DIClosed				010
csDOSovUpper	HG2.V07.DOSovUpper				058
csDOSovLower	HG2.V07.DOSovLower				055
cs	HG2.V07.DIOpen				002
csDOSov	cr07.V11.DOSov				049
csDIClosed	cr07.V11.DIClosed				019
csDIOpen	cr07.V11.DIOpen				030
csDOSov	cr07.V10.DOSov				049
csDIClosed	cr07.V10.DIClosed				018
csDIOpen	cr07.V10.DIOpen				030
csDI	PS1.LAH.DI				007
csDI	PS1.LAL.DI				008
csDI	PS1.ZSA.DI				007
csAI	PS1.LT.AI				004

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDOSov	PS1.V08.DOSov				049
csDIClosed	PS1.V08.DIClosed				022
csDIOpen	PS1.V08.DIOpen				032
csSov	PS1.V07.Sov				064
csDIClosed	PS1.V07.DIClosed				011
csDOSovUpper	PS1.V07.DOSovUpper				058
csDOSovLower	PS1.V07.DOSovLower				052
cs	PS1.V07.DIOpen				002
csDOSov	PS1.V03.DOSov				048
csDIClosed	PS1.V03.DIClosed				018
csDIOpen	PS1.V03.DIOpen				029
csSov	PS1.V04.Sov				064
csDIClosed	PS1.V04.DIClosed				011
csDOSovUpper	PS1.V04.DOSovUpper				057
csDOSovLower	PS1.V04.DOSovLower				054
cs	PS1.V04.DIOpen				003
csDOSov	PS1.V06.DOSov				048
csDIClosed	PS1.V06.DIClosed				019
csDIOpen	PS1.V06.DIOpen				029
csDOSov	PS1.V02.DOSov				048
csDIClosed	PS1.V02.DIClosed				019
csDIOpen	PS1.V02.DIOpen				029
csDO	PS1.Pump.DO				040
csDIRun	PS1.Pump.DIRun				037
csDOSov	PS1.V01.DOSov				047
csDIClosed	PS1.V01.DIClosed				019
csDIOpen	PS1.V01.DIOpen				029
csDO	PS1.FM01.DO				040
csDIRun	PS1.FM01.DIRun				035
csDI	PS2.LAH.DI				006
csDI	PS2.LAL.DI				007
csDI	PS2.ZSA.DI				007
csAI	PS2.LT.AI				003
csDOSov	PS2.V08.DOSov				048
csDIClosed	PS2.V08.DIClosed				019
csDIOpen	PS2.V08.DIOpen				029
csSov	PS2.V07.Sov				065
csDIClosed	PS2.V07.DIClosed				010
csDOSovUpper	PS2.V07.DOSovUpper				057
csDOSovLower	PS2.V07.DOSovLower				053
cs	PS2.V07.DIOpen				002
csDOSov	PS2.V03.DOSov				049
csDIClosed	PS2.V03.DIClosed				019
csDIOpen	PS2.V03.DIOpen				029
csSov	PS2.V04.Sov				064
csDIClosed	PS2.V04.DIClosed				011
csDOSovUpper	PS2.V04.DOSovUpper				058
csDOSovLower	PS2.V04.DOSovLower				054
cs	PS2.V04.DIOpen				002
csDOSov	PS2.V06.DOSov				048
csDIClosed	PS2.V06.DIClosed				019
csDIOpen	PS2.V06.DIOpen				029
csDOSov	PS2.V02.DOSov				048

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDIClosed	PS2.V02.DIClosed				019
csDIOpen	PS2.V02.DIOpen				029
csDO	PS2.Pump.DO				040
csDIRun	PS2.Pump.DIRun				035
csDOSov	PS2.V01.DOSov				048
csDIClosed	PS2.V01.DIClosed				021
csDIOpen	PS2.V01.DIOpen				030
csDO	PS2.FM01.DO				040
csDIRun	PS2.FM01.DIRun				035
csDI	PS3.LAH.DI				007
csDI	PS3.LAL.DI				007
csDI	PS3.ZSA.DI				007
csAI	PS3.LT.AI				003
csDOSov	PS3.V08.DOSov				048
csDIClosed	PS3.V08.DIClosed				019
csDIOpen	PS3.V08.DIOpen				031
csSov	PS3.V07.Sov				065
csDIClosed	PS3.V07.DIClosed				011
csDOSovUpper	PS3.V07.DOSovUpper				058
csDOSovLower	PS3.V07.DOSovLower				055
cs	PS3.V07.DIOpen				002
csDOSov	PS3.V03.DOSov				047
csDIClosed	PS3.V03.DIClosed				018
csDIOpen	PS3.V03.DIOpen				030
csSov	PS3.V04.Sov				065
csDIClosed	PS3.V04.DIClosed				011
csDOSovUpper	PS3.V04.DOSovUpper				058
csDOSovLower	PS3.V04.DOSovLower				054
cs	PS3.V04.DIOpen				002
csDOSov	PS3.V06.DOSov				047
csDIClosed	PS3.V06.DIClosed				020
csDIOpen	PS3.V06.DIOpen				029
csDOSov	PS3.V02.DOSov				046
csDIClosed	PS3.V02.DIClosed				020
csDIOpen	PS3.V02.DIOpen				030
csDO	PS3.Pump.DO				040
csDIRun	PS3.Pump.DIRun				035
csDOSov	PS3.V01.DOSov				050
csDIClosed	PS3.V01.DIClosed				020
csDIOpen	PS3.V01.DIOpen				030
csDO	PS3.FM01.DO				040
csDIRun	PS3.FM01.DIRun				034
csDOSov	cr09.V13.DOSov				050
csDIClosed	cr09.V13.DIClosed				020
csDIOpen	cr09.V13.DIOpen				030
csDOSov	cr09.V12.DOSov				052
csDIClosed	cr09.V12.DIClosed				020
csDIOpen	cr09.V12.DIOpen				030
csDOSov	cr09.V15.DOSov				052
csDIClosed	cr09.V15.DIClosed				020
csDIOpen	cr09.V15.DIOpen				030
csDOSov	cr09.V14.DOSov				052
csDIClosed	cr09.V14.DIClosed				020

ObjectTag	RealTag	External Tag	Node	Card	Channel
csDIOpen	cr09.V14.DIOpen				030
csDOSov	PL1.V03.DOSov				052
csDIClosed	PL1.V03.DIClosed				020
csDIOpen	PL1.V03.DIOpen				031
csSov	PL1.V04.Sov				065
csDIClosed	PL1.V04.DIClosed				011
csDOSovUpper	PL1.V04.DOSovUpper				058
csDOSovLower	PL1.V04.DOSovLower				054
cs	PL1.V04.DIOpen				001
csDOSov	PL1.V06.DOSov				045
csDIClosed	PL1.V06.DIClosed				020
csDIOpen	PL1.V06.DIOpen				031
csDOSov	PL2.V03.DOSov				045
csDIClosed	PL2.V03.DIClosed				020
csDIOpen	PL2.V03.DIOpen				031
csSov	PL2.V04.Sov				065
csDIClosed	PL2.V04.DIClosed				011
csDOSovUpper	PL2.V04.DOSovUpper				058
csDOSovLower	PL2.V04.DOSovLower				053
cs	PL2.V04.DIOpen				002
csDOSov	PL2.V06.DOSov				044
csDIClosed	PL2.V06.DIClosed				021
csDIOpen	PL2.V06.DIOpen				031
csLocal Display	Liquids.Local Display				060
csController	Liquids.Controller 2				006
csWS	Packaging Store.WS01				066
csBCP	Packaging Store.BCP01				005
csBCR	Packaging Store.BCR				005
csWS	Quarantine Store.WS01				066
csBCP	Quarantine Store.BCP01				005
csBCR	Quarantine Store.BCR				005

Page Instance Count

Page	Class	Total Instances
1 - Milkshake Plant Overview	Plant Area	1
2 - Liquids Processing overview	Process Cell	1
3 - Solids Processing Bldng	Process Cell	1
4 - All CIP Recipes	Recipe	1
5 - Material Reception Recipes	Recipe	1
6 - Milk shakes	Recipe	1
7 - un Additive Storage Hopper	Unit	2
8 - un Batch Mixing	Unit	2
9 - un Homogeniser	Unit	2
10 - un Packaging Line	Unit	2
11 - un01 Milk/Product Silo	Unit	6
12 - un Solids Blending	Unit	1
13 - un Solids Preparation Line	Unit	2
14 - Additive Warehouse	Cell Common Resource	1
15 - CIP Chemical Store	Cell Common Resource	1
16 - CIP Generation System	Cell Common Resource	1
17 - Intermediate Store	Cell Common Resource	1
18 - Packaging Material Store	Cell Common Resource	1
19 - Quarantine Store	Cell Common Resource	1
20 - cr01 Milk Reception manifold	Common Resource	1
21 - cr02 Milk Distribution manifold	Common Resource	1
22 - cr03 Homogeniser In manifold	Common Resource	1
23 - cr04 Homogeniser Out manifold	Common Resource	1
24 - cr05 Product Silo inlet manifold	Common Resource	1
25 - cr06 Product Silo out manifold	Common Resource	1
26 - Tanker unloading bay	Common Resource	3
27 - CIP Unit	Common Resource	2
28 - crFreshWater	Common Resource	1
29 - Recycled water	Common Resource	1
30 - Tank, LSL,LSH,Agit, TT	Common Resource	3
31 - em Heat/Cool Jacket	Equipment Module	2
32 - em Loss In Weight Feeder	Equipment Module	2
33 - em Homogeniser	Equipment Module	2
34 - em Homogerniser in	Equipment Module	2
35 - em Generic Machine Interface	Equipment Module	16
36 - em Discharge	Equipment Module	8
37 - em Transfer in	Equipment Module	13
38 - em Transfer out	Equipment Module	13
39 - em CIP Drain	Equipment Module	2
40 - em CIP Line Select	Equipment Module	2
41 - em CIP Supply	Equipment Module	2
42 - em Line Milk Silo out	Equipment Module	1
43 - em Line to Milk silo	Equipment Module	1
44 - em Line Milk Distribution	Equipment Module	2
45 - em Batch to Homogenisation	Equipment Module	2
46 - em Line Homog Out	Equipment Module	1
47 - em Water Feed	Equipment Module	3
48 - em Tanker Reception	Equipment Module	3
49 - rcp Additive Preparation	Recipe Procedure	3
50 - rcCIP Milk Silo	Recipe Procedure	1
51 - rcp generic Vessel CIP	Recipe Procedure	10

Page	Class	Total Instances
52 - rcp Receive Addiitive	Recipe Procedure	3
53 - rcp Receive milk	Recipe Procedure	1
54 - rcp Batch Mixing	Recipe Procedure	4
55 - up Fill and Pack Procedure	Unit Procedure	2
56 - op Batch Mix and Homogenise	Operation	2
57 - op Homogenising	Operation	2
58 - op Line Clean	Operation	4
59 - op Silo Deliver	Operation	6
60 - op Silo Receive	Operation	6
61 - op Vessel CIP	Operation	6
62 - op CIP Supply to Vessel Clean	Operation	13
63 - op Unload Tanker	Operation	3
64 - ph unit Seup	Phase	4
65 - ph Vessel CIP	Phase	11
66 - ph Add Milk	Phase	4
67 - ph Add Milk and Solids	Phase	2
68 - ph Mix and Heat	Phase	4
69 - ph Homogenising	Phase	2
70 - cm Line Monitor	Control Module	2
71 - cm CIP Status Control	Control Module	2
72 - Controller Status	Control System	3
73 - Jacket Heat/Cool Type 1	EM State changes phase	2
74 - Batch Mixing Equipment Flow	None	0
75 - CIP Routing diagram	None	0
76 - CIP Routing diagram snapshot 2	None	0
77 - Complete CIP Graphic	None	0
78 - Design Notes	None	0
79 - Tag name schemes	None	0
80 - em Agitator	Equipment Module	8
81 - phPrompt and Wait	Phase	4
82 - On Off Valve	Valve	103
83 - Mixproof Valve	Valve	45
84 - Variable Speed motor	Motor	10
85 - Fixed Speed Motor	Motor	39
86 - cm Agitator Control	Control Module	8
87 - Standard PID Loop	PID Control Loop	10
88 - Control Valve	Effector Analog	2
89 - Analog Input from Transmitter	Measurement Analog	14
90 - Weight measurement	Measurement Analog	10
91 - Alarm Switch Input	Measurement Switch	46
92 - Interface	Interface	2
93 - Standard Symbols	None	0

End of Document