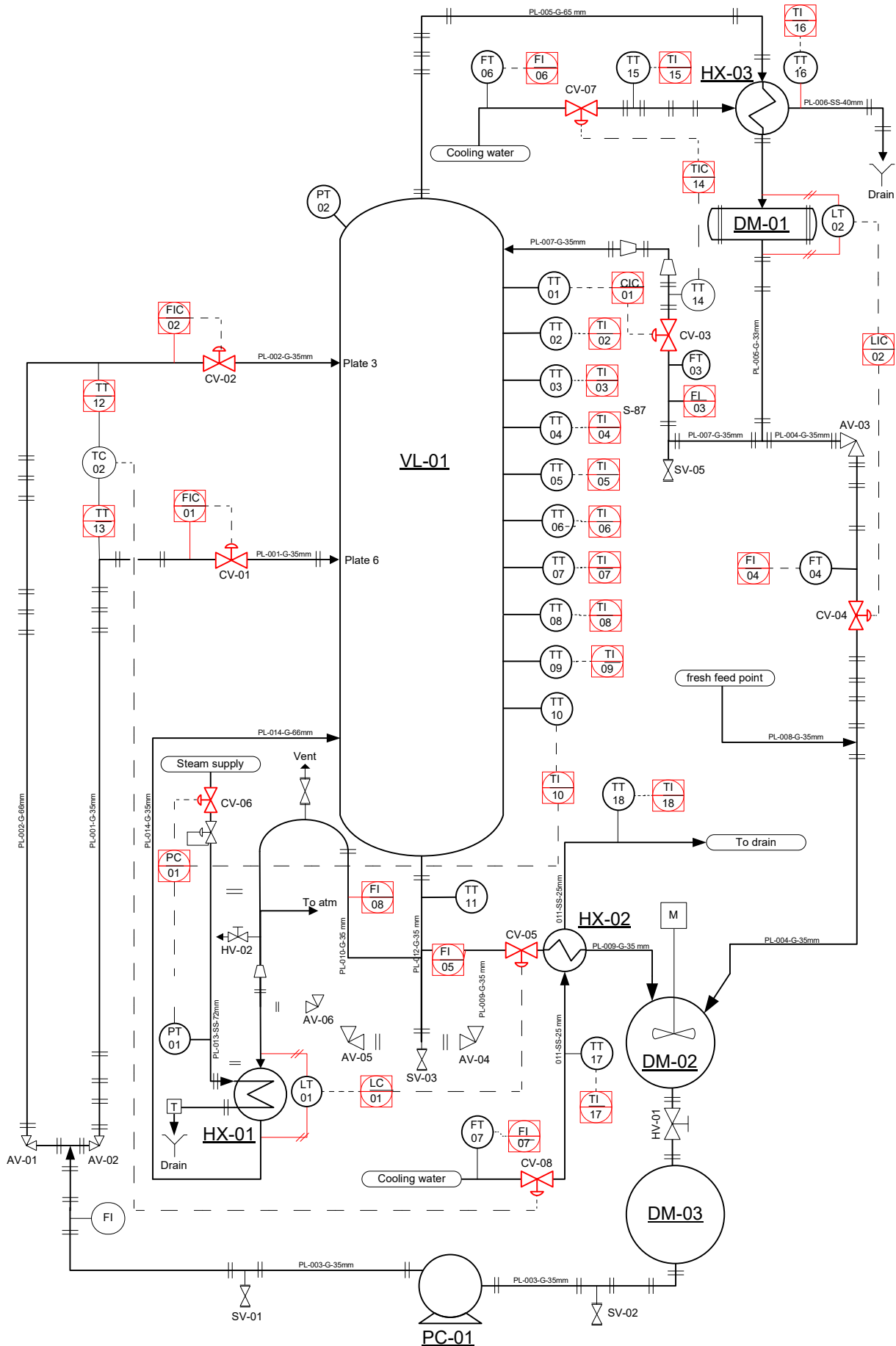


CHARACTERIZATION OF THE UP CONTROL LABORATORY'S DISTILLATION COLUMN – Diagram Booklet

University of Pretoria
Department of Chemical Engineering
CSC 410

Author: H. Guidi Figueroa
Co-author: C. Sandrock

31 August 2005



3rd Year Column
Unit - 006
P&ID

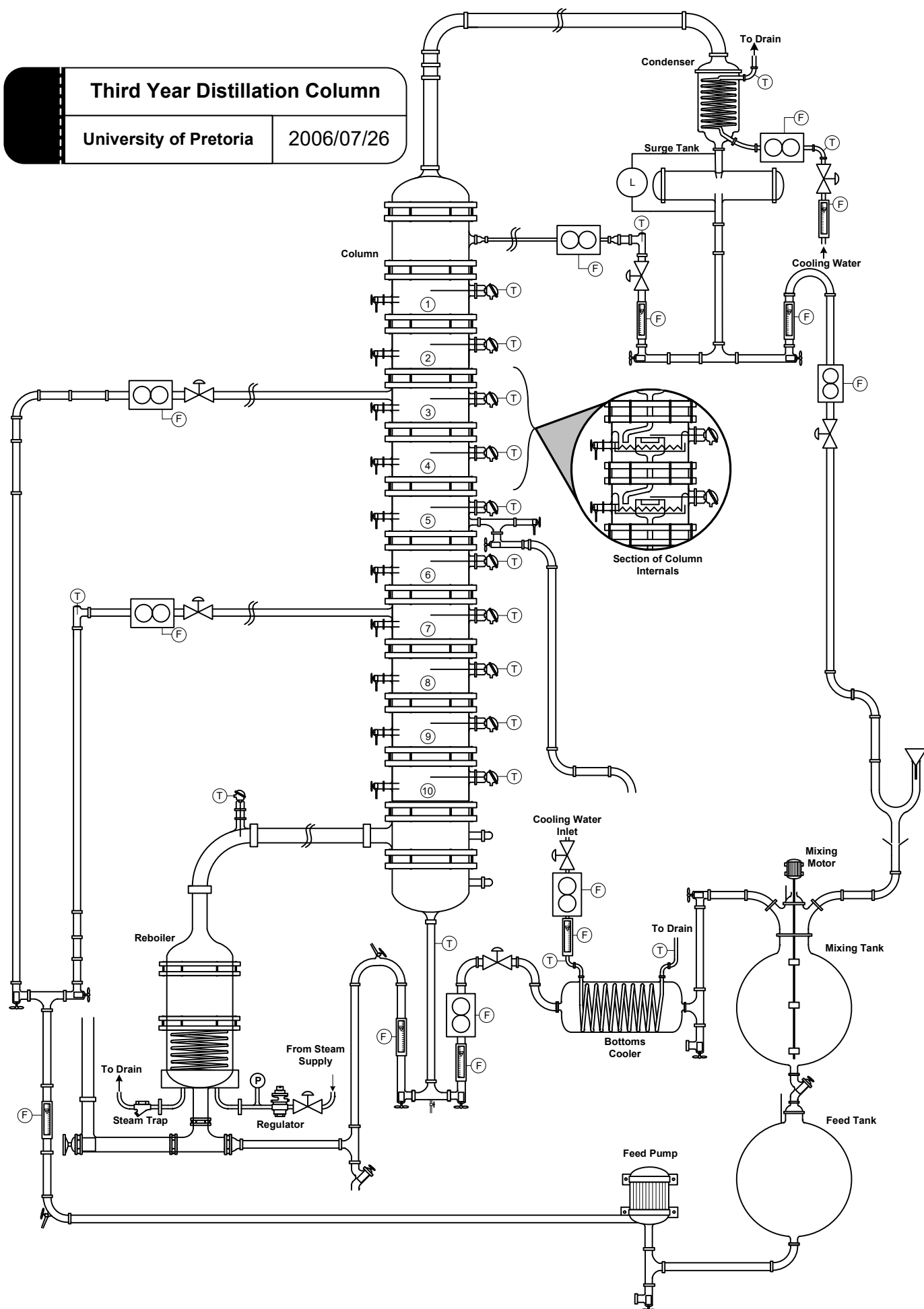
Original by Ruane Delpont, 18-02-2003
Abridged By: Jaco Labuschagne, 21-01-2004
Abridged By: Jaco Labuschagne, 10-06-2004
Abridged By: J Labuschagne, R du Toit, N Mqadi, 20-08- 2004
Abridged By: R du Toit, N Mqadi, 14-09- 2004

University of
Pretoria
Department of
Chemical
Engineering

Third Year Distillation Column

University of Pretoria

2006/07/26



Equipment List for Distillation Column University of Pretoria

<p><u>VL-01</u> <u>DISTILLATION COLUMN</u> Height: 10m Design: Schott Glass Column Material: Glass Insulation: None Nr# of Plates: 10</p>	<p><u>HX-01</u> <u>REBOILER</u> Duty: 50kW Shell: Process Fluid Tube: Steam (200kPa) Material Glass and Stainless Steel Insulation: None</p>	<p><u>HX-02</u> <u>BOTTOMS COOLER</u> Duty: ? Shell: Cooling water Tube: Process Fluid Material: Glass Insulation: None</p>	<p><u>HX-03</u> <u>DISTILLATE CONDENSER</u> Duty: 35kW Shell: Cooling Water Tube: Process Glass Material: Glass Insulation: None</p>	<p><u>PC-01</u> <u>FEED PUMP</u> Rated: 220/330V Motor: 0.55kW Lohrer Material: Glass/Plastic Impeller: Steel Casing Insulation: None</p>
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<p><u>DM-01</u> <u>Reflux Drum</u> Volume: 5liter Material: Glass Insulation: Non</p>	<p><u>DM-02</u> <u>Aux Feed Tank</u> Volume: 25liter Material: Glass Insulation: Non Stirred: Yes</p>	<p><u>DM-03</u> <u>Feed Tank</u> Volume: 25liter Material: Glass Insulation: Non Stirred: No</p>
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Stream Number									
	1	2	3	4	5	6	Condensor	Aux Feed Cooler	Steam
Temperature	40-60	40-60	70-100	70-100	70-100	70-100	10 - 25	10 - 25	320
Pressure	?	?	96	96	108	108	?	?	1000
	96	93	90	87	105	87	87	87	87
Viscosity	0.5 - 0.75	0.5 - 0.75	0.27 - 0.44	0.27 - 0.44	0.27 - 0.44	0.27 - 0.44	0.9 - 1.3	0.9 - 1.3	0.013- 0.021
Vapour	7 - 20	7 - 20	31-101.325	31-101.325	31-101.325	31-101.325	100	100	1000
Pressure	15 - 53	15 - 53	60 - 130	60 - 130	60 - 130	60 - 130	-	-	-
Flow	0	0	0.3	0.3	0.3	0.3	2	2	0.5
	2.6	2.6	2	2	2	2	12	12	3
Density	750-1000	750-1000	750-1000	750-1000	750-1000	750-1000	950-1050	950-1050	1-6
Critical	243 - 374	243 - 374	243 - 374	243 - 374	243 - 374	243 - 374	374	374	374
	63 - 218	63 - 218	63 - 218	63 - 218	63 - 218	63 - 218	218	218	218

Equipment and Instrumentation Symbol Identification



Level Transmitter



Flow Transmitter



Pressure Transmitter



Temperature Transmitter



Temperature Indicator Thermometer



Flow Indicator (Rotameter)



Concentration Control



Temperature Control



Level Control



Pressure Control



Control Valve



Steam Trap



Drain Valve



Flange



Reducer/Enlarger



Angle Valve



Hand Valve



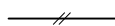
Flanged Valve



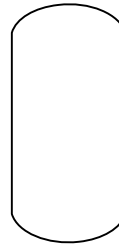
Regulator-Self Contained



Electric Transmission Line



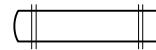
Pneumatic Line



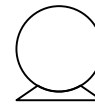
Distillation Column



Heat Exchanger



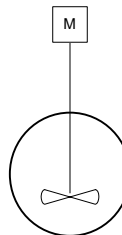
Surge Tank



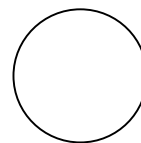
Pump



Boiler



Tank
with Motor Driven Mixer



Tank



Flow Transmitter