



BUILD STANDARD FORM

Customer: RedeCan
 Title: Pilot Line
 Project: 191132
 Document Rev: 1

1 Mechanical Project Documentation				
		Format	Eclipse Standard	Change to
1.1		Assembly Drawing Format	B-size, D-size, E-size	
1.2		Design Convention	Soft Metric	
1.3		Design software	SolidWorks 2017	
1.4		Hydraulic & pneumatic schematics	AutoCAD 2012	
1.5		Detail Drawing Format	B-size, D-size, E-size	
1.6		Dimensioning Callouts	Symbology (ANSI standard)	
1.7		Dimensioning Convention	Metric	
1.8		Drawings supplied in manual	PDF files, 1 copy (Top Assembly only)	
1.9		Numbering Drawing System	Eclipse	
2.0		Title Block	Eclipse	

2 Electrical Project Documentation				
		Format	Eclipse Standard	Change to
2.1		Design software	AutoCAD 2012	
2.2		Drawing Format	D-size plotted in B size	
2.3		Drawings supplied in manual	PDF files, 1 copy	
2.4		Numbering System	Eclipse Page	
2.5		Symbology	Eclipse Page Line	
2.6		Title Block	Eclipse	

3 Design Standards				
		Location	Eclipse Standard	Change to
3.1		Europe	CE mark, (EN, ISO, IEC)	
3.2		North America - Electrical	(USA) NFPA 70 & 79, (Canada) CSA 22.1	
3.3		North America - Safety	(USA) ANSI & OSHA ,(Canada) CSA	

4 MECHANICAL SPECIFICATION

4.1 Ball Screw				
		Ball Screw	Eclipse Standard	Change to
4.1.1		Ball Screw (rolled)	THK, NSK	
4.1.2		Ball Screw (precision ground)	THK, NSK	

4.2 Bearings				
		Bearings	Eclipse Standard	Change to
4.2.1		Bronze Bushings	Bunting, Oilite	
4.2.2		Cam Followers	McGill	
4.2.3		Cross Roller	THK	
4.2.4		Linear Ball Bushing (pillow blocks)	Thompson, Pacific	
4.2.5		Linear Ball Bushings	Thompson, Pacific	
4.2.6		Linear Bearing Rail System	THK, NSK	
4.2.7		Linear Bearing Shafting	Thompson	
4.2.8		Radial Ball Bearing	NSK	
4.2.9		Seals	SKF	
4.2.10		Shafting Support Rails	Thompson, Nippon	
4.2.11		Tapered Roller Bearings	NSK, SKF	
4.2.12		V-roller	McGill	



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4.2.13	Rail Clamp	Zimmer	
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4.3	Pneumatics	Eclipse Standard	Change to
4.3.1	Air Motors	Gast, Desoutter	
4.3.2	Air Cylinder	Festo	
4.3.3	Air Cylinder (slide table)	Festo	
4.3.4	Grippers	Festo, SMC, Robohand	
4.3.5	Air Tubing	Festo, SMC	
4.3.6	Check Valves	SMC	

4.3	Pneumatics	Eclipse Standard	Change to
4.3.7	Filter/Regulator/Lubricator	Festo	
4.3.8	Fittings (push lock)	Festo	
4.3.9	Flow controls (push lock)	Festo	
4.3.10	Incoming Water Tubing	Parker Parflex	
4.3.11	Lockout Valve	Festo	
4.3.12	Outgoing and intermediary Water Tubing	Parker Parflex	
4.3.13	Pneumatic valve for presses	Ross	
4.3.14	Rotary Actuators	Festo	
4.3.15	Rotating Unions	Rotary Systems, DSTI	
4.3.16	Slow Start Valve	Festo	
4.3.17	Solenoid Valves	Festo	
4.3.18	Supply Line Shut-off Valves	Festo	
4.3.19	Toggle Clamps	Destaco	
4.3.20	Vacuum Cups	PIAB (George T. White), Festo, SMC	
4.3.21	Vacuum Generators	PIAB (George T. White), Festo	
4.3.22	Vacuum Pumps	Gast	
4.3.23	Water manifolds	Misumi	
4.3.24	Manifold Kit	Festo	
4.3.25	Manifold Mounted END PLATE KIT	Festo	
4.3.26	Manifold Mounted PLUG IN VALVE MOUNTED	Festo	
4.3.27	Manifold Mounted VALVE	Festo	
4.3.28	Manifold Mounted ETHERNET/IP	Festo	
4.3.29	Manifold Mounted I/O MODULE	Festo	
4.3.30	Manifold Mounted TERMINATOR MODULE	Festo	
4.3.31	Manifold Mounted AUTO RECOVERY MODULE	Festo	
4.3.32	Manifold Mounted BLANK STATION PLATE KIT	Festo	



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4.4	Tooling Components	Eclipse Standard	Change to
4.4.1	Ball Plungers	Misumi	
4.4.2	Fasteners	SHCS	
4.4.3	Hardened Bushings	Carr Lane	
4.4.4	Thread Locker	Loctite 222MS purple (fasteners smaller than #8 & 4mm), 242 Blue (mid range bolts), 262 Red (1" or 25mm and larger)	
4.4.5	Magnets	Bunting	
4.4.6	Miscellaneous	Misumi	
4.4.7	Retaining Rings	SpaeNaur	
4.4.8	Slip Rings	Wampfler	
4.4.9	Springs	Lee	
4.4.10	Die Springs	Anchor Danly	
4.4.11	Toggle Clamps (Manual)	Destaco	

4.5	Drive Components	Eclipse Standard	Change to
4.5.1	Belt Conveyors	QC, Dorner	
4.5.2	Clamping collars	Misumi, McMaster-Carr	
4.5.3	Clutches/Brakes	Warner, Horton	
4.5.4	Conveyor Belt	Habisat	
4.5.5	Couplings	RW	
4.5.6	Gear Motor	Oriental, SEW	
4.5.7	Gear Reducers (non servo)	Boston, Oriental, SEW	
4.5.8	Miniature Gear Motor	Pittman, Bodine	
4.5.9	Pulley Clamps	Transtorque	
4.5.10	Pulley Take-ups	Browning	
4.5.11	Roller Chain	Tsubaki	
4.5.12	Roller Chain Sprocket	Martin	
4.5.13	Rotary Indexers	Stelron, Camco	
4.5.14	Spur Gear	Martin	
4.5.15	Timing Pulley (general)	Breco	
4.5.16	Timing Pulley (precision)	Breco	

4.6	Miscellaneous	Eclipse Standard	Change to
4.6.1	Bellows (protections)	Shaver	
4.6.2	Bowl Feeders (Canada)	Crown, Autofeed, VTR	
4.6.3	Bowl Feeders (US - SE)	Performance Feeders, Miller's Feeding Solutions (MFS), Integrated Feeding Systems	
4.6.4	Bowl Feeders (US - SW)	California Vibratory Feeders Inc, Technivibes	



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4.6	Miscellaneous	Eclipse Standard	Change to
4.6.5	Hoist or Tool Balancer	Dobco	
4.6.6	Hopper (Canada)	Crown, Autofeed, VTR	
4.6.7	Hopper (US - SE)	Performance Feeders, Miller's Feeding Solutions (MFS), Integrated Feeding Systems	
4.6.8	Hopper (US - SW)	California Vibratory Feeders Inc, Technivibes	
4.6.9	In-lines (Canada)	Crown, Autofeed, VTR	
4.6.10	In-lines (US - SE)	Performance Feeders, Miller's Feeding Solutions (MFS), Integrated Feeding Systems	
4.6.11	In-lines (US - SW)	California Vibratory Feeders Inc, Technivibes	
4.6.12	Lubrication	Manual - Manual & plumbed back to a few common manifolds - tube or hydraulic grade hose	
4.6.13	Machine anchors	Wedge anchors	
4.6.14	Part Marker	Columbia, Telesis and Technifor	
4.6.15	Screw Driver (air)	Atlas Copco, Weber	
4.6.16	Screw Driver (electric)	GSE, Atlas Copco	
4.6.17	Step Feeder	Eclipse	

4.7	Hydraulics	Eclipse Standard	Change to
4.7.1	Air/Oil Cylinder	Pressotechnik, Hypercyl	
4.7.2	Cylinder	Parker, Sheffer	
4.7.3	Drip tray	1.5" around pump/motor	
4.7.5	Fittings (tube and hose)	37 degree flare (JIC)	

4.8	General-Finishes	Eclipse Standard	Change to
4.8.1	Machined Components Identification	Hand Engraving with Eclipse drawing number	
4.8.2	Aluminum Finish (general)	Clear Anodize	
4.8.3	Steel Finish (general)	Clear Zinc	
4.8.4	Health and Safety:	No paint or finishes with Isocyanates.	
4.8.5	MIG weld glare guarding inside of fencing	1.5mm fire retardant UV safety plastic not less than shade 8 and coloured red	
4.8.6	Paint - Air header		
4.8.7	Paint - Electrical panel	Standard Factory Gray Finish (ANSI 61 Gray, RAL 7035)	
4.8.8	Paint - Guarding	RAL 1018 Safety Yellow (posts), RAL 9005 Safety Black (2" x 2" square pattern 1/8 diameter fencing supported by angle iron)	
4.8.9	Paint - Moving Object (clamp arm, slide plate, automatic moving door, weldments, etc...)	RAL 2009 Safety Orange - 2 part epoxy	
4.8.10	Paint -Ducting	Standard Factory Gray Finish (ANSI 61 Gray, RAL 7035) or galvanized	
4.8.11	Primer	One coat 2 part white epoxy	
4.8.12	Raw material finish prior to prime or paint (sheet metal)	SSPC-SP- 1 (removal of oils, mill scale, rust and grease using solvents)	
4.8.13	Raw material finish prior to prime or paint	SSPC-SP- 6 (removal of oils, mill scale, rust and grease with commercial blast cleaning)	
4.8.14	Spot weld expulsion guarding inside of fencing	1.5mm fire retardant clear plastic	
4.8.15	Table Top (HRS)	Zinc, Nickel Flash	
4.8.16	Table Top Aluminum	Clear Anodize	



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4.8.17	Tool Steel (general)	Clear Zinc	
4.8.18	Weldment Finish (Static Objects)	2 part epoxy, RAL to be specified by Customer	Customer to specify RAL:
4.8.19	Fasteners	SHCS (black oxide); FW (zinc plated); HN (zinc plated)	

4.9	Guarding	Eclipse Standard	Change to
4.9.1	Guard Doors	Aluminum extrusion, clear polycarbonate	
4.9.2	Guard Height	80" Height	
4.9.3	Aluminum Guarding Frame	45 x 45 Aluminum extrusion	
4.9.4	Welded Steel Guarding Frame	2" x 2" HSS posts	
4.9.5	Guarding Panels	Lexan	

4.10	Services	Eclipse Standard	Change to
4.10.1	Air Header	3/4" Black Pipe	
4.10.2			

4.11	Welding	Eclipse Standard	Change to
4.11.3	Drawn Arc Stud Welder	Emhart	
4.11.4	Inline Voltage Filter		
4.11.5	MIG Weld Tip Dresser	Tregaskiss, Automated Peripheral	
4.11.6	MIG welders	Miller, Fronius, Panasonic	
4.11.10	Spot Weld Tip Dresser	Retek	
4.11.11	Straight Weld Guns	Milco, Aro, Centerline	

5 ELECTRICAL SPECIFICATION

5.1	Controls and Indicators	Eclipse Standard	Change to
5.1.1	Bar Code Hand Scanner	Cognex	
5.1.2	Bar Code Printer	Project Based	
5.1.3	Beacon or Light Tower Stack	Murr Elektronik (Modlight50 Series)	
5.1.4	Dome Lights	Banner	
5.1.5	Operator Controls Indicator Lights	AB (800F Series 22.5mm)	
5.1.6	Operator Push Buttons	AB (800F Series 22.5mm)	
5.1.7	Operator Selector Switches	AB (800F Series 22.5mm)	
5.1.8	Emergency Stop Buttons	AB (800F Series 22.5mm)	
5.1.9	Panel Meter	Carlo Gavazzi	
5.1.10	Pilot Lights	AB (800F Series 22.5mm LED)	

5.2	Sensors	Eclipse Standard	Change to
5.2.1	Analog Proximity Sensors	IFM	
5.2.2	Bowl Feed Level Sensor	IFM	
5.2.3	Capacitive tubular Prox. Sensors	IFM	
5.2.4	Counters	Carlo Gavazzi	
5.2.5	Cylinder mount Prox. Sensors	Festo	
5.2.6	Flow Sensor	IFM	
5.2.7	Inductive Prox. Sensors	IFM	
5.2.8	Inductive Ring Prox. Sensors	IFM	



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5.2.9	Laser sensor	Keyence	
5.2.10	Laser - Retroreflective Sensor	Keyence	
5.2.11	LDT	Novotechnik	
5.2.12	LVDT		
5.2.13	Limit switches	AB	
5.2.14	Load Cell	Burster	
5.2.15	Micrometer Laser	Keyence	
5.2.16	Photoelectric Sensors	Keyence	
5.2.17	Pressure Transducer	IFM	
5.2.18	RFID	Turck Ethernet/IP	
5.2.19	Sensor Distribution Block	Murr Elektronik	
5.2.20	Thermocouple	Watlow	As provided by fill system vendor
5.2.21	Temperature Sensor	IFM	As provided by fill system vendor
5.2.22	Temperature Controller	Watlow	As provided by fill system vendor
5.2.23	Torque Transducer	Transducer Techniques	
5.2.24	Vacuum/Pressure Switches	Festo	
5.2.25	Vision Sensor	IFM	
5.2.26	Vision System	Keyence	

5.3	PLC/HMI	Eclipse Standard	Change to
5.3.1	HMI (Small Machine)	AB PV+6 600 Touch/24vdc/Ethernet/IP/Colour	
5.3.2	HMI (Large machine)	AB PV+6 1000 Touch/24vdc/Ethernet/IP/Colour	
5.3.3	Message Display Marquee	Generic Display (42"), PC based c/w Rockwell ME	
5.3.4	PLC System CPU	AB, Scope dependent, Small 1769-Lxxx, Mid-large 1756-L7xS	
5.3.5	I/O Modules (Safety)	AB 1734 Series (Point I/O)	
5.3.6	I/O Modules (Panel)	Murr Elektronik (Cube 20)	
5.3.7	I/O Modules (Field Mounted)	Murr Elektronik (Cube 67)	
5.3.8	PLC input configuration	(Sinking inputs)	
5.3.9	PLC output card configuration	(Sourcing outputs)	
5.3.10	Ethernet Hub Switches (Managed)	N-tron 7xx Series	
5.3.11	Ethernet Hub Switches (Unmanaged)	N-tron 3xx Series	
5.3.12			

5.4	Relays/Contactors	Eclipse Standard	Change to
5.4.1	Contactors	AB (100-C Series)	
5.4.2	Control Relays	AB (700-CF / 700-K / 700-HK Series)	
5.4.3	Optocouplers/Solid State Relay (Control)	Phoenix,	
5.4.4	Solid State Relays (Power)	Crydon	
5.4.5	AC Motor Starters/Overload (Manual)	AB	



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5.5	Motion	Eclipse Standard	Change to
5.5.1	Servo Amplifiers/Motors	AB Kinetix	
5.5.2	AC Motor Controller (Frequency Drives)	AB PowerFlex	
5.5.3	AC Motor Controllers Indexers	Application specific	
5.5.4	DC Motor Controller	Application specific	
5.5.5	DC Motor	Application specific	
5.5.6	Encoders	Omron	
5.5.7	Gear Reducers (servos)	Alpha, Apex Dynamics	

5.6	Safety	Eclipse Standard	Change to
5.6.1	Area Scanners	Leuze	
5.6.2	Light Curtains	Keyence	
5.6.3	Guard Interlock Non-Locking	Pilz	
5.6.4	Guard Interlock Locking	Schmersal	
5.6.5	Guard Switch (gate entry)	Euchner MGB	
5.6.6	Monitoring Safety Relay	Murr Elektronik	
5.6.7	Monitoring Relays (Anti-Tie Down)	Banner	
5.6.8	Palm Buttons	Banner STB	
5.6.9	Programmable safety	Small application - Sick, Mid-Large application - AB Guardlogix	
5.6.10	Safety contactors	AB (100S-C)	
5.6.11	Safety relays	AB (700S-CF) , Omron (G7S-x)	
5.6.12	Safety sensor (proximity type)	IFM	
5.6.13			

5.7	Protection and Control	Eclipse Standard	Change to
5.7.1	Fuse Holders	Mersen (Ferraz) USCC / US3J	
5.7.2	Fuse Holders 24VDC Control Voltage	Weidmuller	
5.7.3	Fuses	Ferraz Shawmut	
5.7.4	Fuses (Electronic)	Murr Elektronik MICO	
5.7.5	Circuit Breakers UL489	Schneider	
5.7.6	Circuit Breakers (Supplementary)	Schneider	
5.7.7	Splitter Blocks (Power Distribution)	Mersen (Ferraz)	
5.7.8	Terminal Blocks	Phoenix Contact (cage clamp)	
5.7.9	Switches (Panel Disconnect)	ABB	
5.7.10	Switches (Motor Disconnect)	Schneider (Square-D)	
5.7.11	Receptacle Outlets	Hubbell	
5.7.12	Twist Lock Power Plugs	Hubbell	
5.7.13			

5.8	Transformers/Power Supplies	Eclipse Standard	Change to
5.8.1	Power Transformers	Hammond (Aluminum)	
5.8.2	Control Transformers	Hammond	
5.8.3	DC Power Supply (Switched)	Murr Elektronik (Emparro/Evolution Series for 40A)	
5.8.4	DC Power Supply (Linear)	Project Based	



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5.9	Miscellaneous	Eclipse Standard	Change to
5.9.1			
5.9.2			
5.9.3			
5.9.4			
5.9.5			

5.10	Enclosures	Eclipse Standard	Change to
5.10.1	Enclosure Thermostat	Saginaw Controls	
5.10.2	Air Conditioners	Saginaw Controls	
5.10.3	Heat Exchangers	Saginaw Controls	
5.10.4	Filter	Saginaw Controls	
5.10.5	Filter Fan	Saginaw Controls	
5.10.6	HMI	Saginaw Controls	
5.10.7	Junction Box enclosures	Saginaw Controls	
5.10.8	Main panel enclosures	Saginaw Controls	
5.10.9	Programming Ports	Murr MSDD Series c/w GFCI (10kA rated)	
5.10.10	Wire-way (Internal to Enclosures)	Panduit - Grey	
5.10.11	Wire-way, Cable Tray	Hoffman, Saginaw Controls	
5.10.12	Light	Hoffman (LED Light)/Saginaw(Door Switch)	

6	Cables	Eclipse Standard	Change to
6.1			
6.1.0	Field Control Power		
6.1.1	Field Ethernet	Field wireable connectors/ cable	
6.1.2	Safety I/O	Field wireable connectors/ cable	
6.1.3	Glands and Grips		
6.1.4			
6.1.5			

7	Plant Services	Eclipse Standard	Change to
7.1	Air Pressure	85 PSI	
7.2	Control power	24 VDC	
7.4	Power Supply	120,208,480,600 VAC, 60Hz	

8	Parameters	Eclipse Standard	Change to
8.1	Amperage setup	N/A	
8.2	Force feedback	N/A	
8.3	Force setup	N/A	
8.4	Temperature feedback	N/A	
8.5	Temperature setup	N/A	
8.6	Torque feedback	N/A	
8.7	Torque setup	N/A	
8.8	Voltage feedback	N/A	
8.9	Voltage setup	N/A	



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9	Instrumentation	Eclipse Standard	Change to
9.1			
9.2			
9.3			
9.4			

Customer Approval Section
Signature / Date: _____ Notes:

Revision Control History		
Rev.	Date	Notes