

WALINGA INC – EAP

August 27, 2021



Director

Environmental Approvals Branch
Manitoba Sustainable Development
Box 80, Suite 160, 123 Main Street
Winnipeg, Manitoba R3C 1A5

Re: Notice of Alteration Environmental Act Licence No. 3197

Walinga Inc. is planning to install a hard chrome line as outlined in the supplied package prepared by Ramboll subject to receiving Environmental approval from the ministry. This letter and attachments are to address concerns Eshetu raised from the original NOA package.

The system will include a stand alone chrome ventilation / scrubber system supplied by ScrubAir Systems Inc as outlined in the attached quote from JBC. We plan on having the chrome line in operation 2200 hrs per year (5 days per week, 9 hrs per day). The current electroless nickel (CORVOR) line's daily production will be reduced to less than 1100 hrs per year (4.5 hrs per day).

If there is anything missing or you would like more details, please contact either of us via the e-mail or phone numbers below.

Sincerely,

Ray Beukema (Plant Manager)
WALINGA INC.
Box 1790, 70 3rd Ave NE
Carman, Manitoba. R0G 0J0

Colin Termeer (Environmental Health & Safety
Coordinator)
WALINGA INC.
Box 1790, 70 3rd Ave NE
Carman, Manitoba. R0G 0J0

Trevor Diljee (Plating Systems Expert) -

JBC

SURFACE FINISHING
SYSTEMS

1655 Strasburg Rd., Kitchener, Ontario, N2R 0C9
Tel: 519-352-9789 - JBCLTD.com

Walinga Inc.
70 3rd Ave NE
Carman, Manitoba
R0G 0J0

Quote #: JQ21-264R5
June 28, 2021

Attention: Ray Beukema & Trevor Diljee

As per your project requirements, we are pleased to submit the attached quote for review. As mentioned, we design and manufacture all the tanks in house. With regards to the ventilation system, we have been advised that the strip tank and the chrome chemistries should not be blended and be keep separate in order to comply with required air emission standards.

Description	QTY	QUOTE TOTAL VALUE
Chrome Tank		
3/16" carbon steel tank, powder coat finish 66" x48"x63"D with 3/8" PVDF liner	1	31,131
Chrome Tank Cooling Coils		
Cooling coil - Titanium - 28 sq/ft surface area each	2	18,538
Chrome Tank Heating		
Heating coil rated for 160F: 575/3, QTY of 4 - 30kw Titanium heating elements & guards, resettable fuses with temp controller which will also control the cooling water solenoid (not included) <i>If Fluorides are present in the chrome solution, Titanium heaters are not recommended by the manufacture</i>	1	9,125
Rinse Tank 1 - Highest concentration of Cr		
3/16" carbon steel tank, powder coat finish 48"x48"x63"D	1	6,100
PVC liner for above tank	1	3,839
Rinse Tank 1 - Transfer Pump to Cr Tank		
	1	1,250
Rinse Tank 2		
3/16" carbon steel tank, powder coat finish 48"x48"x63"D	1	6,100
PVC liner for above tank	1	3,839

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Rinse Tank 3 - Counter flows to Rinse 2		
Copoly polypro 48"x48"x63"D	1	8,744
Ventilation		
New stand alone chrome ventilation/scrubber system and duct work to connect into 4,000 cfm scrubber, includes 12ft exhaust stack	1	67,600
PE - switch mode water cooled rectifier - Includes pe280 controller	1	49,320
Chiller for above rectifier - water to air with load stability, includes recirculation pump, water storage tank, level indicator, manual bypass valve, 575/3	1	13,747
Stepdown transformer for above: 600-460, 488 KVA	1	7,490
Rectifier plate & frame heat exchange package with recirculation pump	1	11,330
Brass solenoid valve (1.5") for Chrome tank cooling coils	2	1,768
Total Value		239,920



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Chiller Options

Description	QTY	Each
Option 1: 100% full max load of rectifier and chrome tank <i>without</i> winter outdoor package. 46 Tons	1	72,837
Option 1: 100% full max load of rectifier and chrome tank with winter outdoor package. 46 Tons	1	63,478
Option 2: 85% full max load of rectifier and chrome tank <i>without</i> winter outdoor package. 39 Tons	1	56,450
Option 2: 85% full max load of rectifier and chrome tank with winter outdoor package. 39 Tons	1	64,888
Option 3: 70% full max load of rectifier and chrome tank <i>without</i> winter outdoor package. 34 Tons	1	52,710
Option 3: 70% full max load of rectifier and chrome tank with winter outdoor package. 34 Tons	1	54,980

Chrome Ventilation System

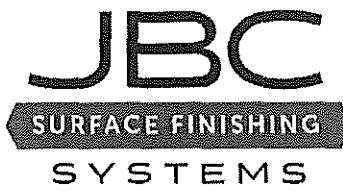
4,000 CFM push-pull ventilation/filtration system required to capture and remove the fumes and mist generated from your hexavalent chrome tank. (We used a factor of (200) x the open surface area to determine the total CFM necessary to efficiently filtrate the fumes and mist generated from the chrome tanks.)

We will also provide a hood and ductwork from the hydrochloric acid tank to the existing scrubber.

tank removed to make space for Chrome Line N/A

- > This system is designed to:
- > Surpass the new USA OSHA PEL requirement for chromium particulate inside the building of under 2.5 UG/meter³ – Guaranteed!
- > Surpass the new federal US EPA emission mandate for hexavalent chrome of under .006 mg/dscm – Guaranteed!
- > Prevent chromic acid attack to the bottom portion of the hood/chrome separator by constructing the bottom portion up past the 1st stage filter from Kynar material
- > Prevent chromic acid from entering the duct system which over time would cause cracking of the material resulting in leaks.
- > Eliminate excessive maintenance normally associated with composite mesh pad systems. Our unique gradual step down design typically will operate continuously for at least 6 months to 1 full year without requiring manual cleaning of the filters.





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- Push System
 - (1) 1.5"Ø Sch 80 PVC push hood with balancing valves and a union to allow for removal and adjusting the air flow angle
 - All pipe and fittings required to connect the above (2) push hoods to the outlet of the push blower
 - One (1) Model #04 "New York Blower Co" medium pressure push blower (Sized for 300 CFM @ 15" SP)
- 3 hp TEFC Motor 575 V ; 3 phase
- Belt driven
- Inlet filter with housing

- Control Panel with:
 - Circuit breaker disconnect
 - Motor starter (for the exhaust fan)
 - PLC touch screen with: (to operate the new chrome ventilation system)
 - Start and stop motors
 - Timers with settings to operate the periodic rinse system
 - Combined 4-stage pressure drop display (this must be recorded daily if following EPA regulations)
 - Alarms

- Owner's manual with spare parts list

PE Switch Mode Water Cooled Rectifier General Specifications

- **Output voltage: 15V**
- **Output current: 10,000A**
- Numbers of DC outputs: Single DC output.
- Mains supply voltage: 460V-3 w/o N; +/- 10%; 50-60Hz Power Factor: 0.95; uniform from zero to maximum output voltage
- Phase current: 220A each
- Does not include disconnect and/or fuses, mains circuit breaker.
- Design: **Digital Signal Processor (DSP) - Switch mode technology** short and open circuit proof
- In-/Output signals: internal peRB CC and CV control galvanically isolated
- Max. ambient temperature: 40°C
- DC-connector: DC output via Cu plates in rear panel by using additional DC bus-bars the DC outputs can be connected arbitrarily in horizontal or vertical to the plating tank (load). Manifold DC outputs can be connected in parallel by using copper bus bars connected either vertically or horizontally. - DC bus bars are not included in the quote -
- Colour: powder coated in RAL 7035
- Regulation deviation: Regulation nonlinearity less than 1% for current and less than 0,5% for voltage correlated to the nominal values regulation range current and voltage 2% - 100%



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- **Output ripple: Less than 1% between 2% and 100%** of the output current in the frequency range of 0 - 300Hz
- Dimensions - Each Cabinet: W: 800, H: 2200, D: 600 mm; incl. 200mm base/plinth - without DC bus bar RITTAL TS-system, protection grade IP54
- Weight: approx. 500kg each
- Cooling water consumption: 37 l/min each; Water inlet temp. between 22 - 26 °C @ 8K temperature difference between in- / outlet
- Cooling system: Water cooled, stainless steel cooling system overtemperature protected
For the water cooling system, city water with the following specifications must be maintained: - ph Value: 7,0 to 8,0 and TOC<1,5g/m³ - Hardness: <= 1,3 mmol/l (<= 7°dH) Ionens: - Chloride: <=100 mg/l, Sulphate: < 240 mg/l, - Nitrate: < 50 mg/l, Sodium < 150 mg/l
- To achieve this requirement for the cooling water, plating electronic recommend the use of a chiller. To operate the rectifier without enough clean and descale water or with condensation on the cooling system is not allowed and will void the warranty.
- The recommended parameters for the cooling water are specified as following Inlet temperature: 22 - 26 °C Outlet temperature: 40 °C Water pressure: > 2bar max. 5bar Water inlet / outlet pipes: in plinth Depending on local environment conditions it might become necessary to use another temperature range than specified for the incoming water in order to avoid condensation at the internal cooling system.
- Duty Cycle: 100%
- Humidity: Max. relative humidity 85%
- Interference: Suppressed according to EN55011 figure A
- Grid Impedance: Mains supply impedance of Switch Mode rectifiers: Under certain circumstances oscillation of the supply grid of electronic rectifiers can occur. Essential factors for the tendency to oscillate are the load conditions and parameters of the local grid. In principle oscillation will not occur if the impedance of the mains supply grid is sufficiently low. This is given if the voltage drop at the feeding point of the rectifiers is below 1% of the nominal mains supply voltage with the nominal phase current of all rectifiers installed (equal to the total sum of individual mains current of all rectifiers). In order to achieve this, the length of mains supply cables between transformer and feeding point of the rectifiers should be short and the supply transformer must be sized accordingly. Additional loads could be supplied from the mains supply transformer in parallel. The additional feeding current of these loads is not influencing the calculation of the voltage drop as far these additional loads are not compensation units or other line commutated converters with DC intermediate circuit. For these types of loads different power feeding points have to be chosen.
- CSA Field Evaluation Approved



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PE280 General Specifications

- Manual / Auto - switch: MAN/AUTO switching via membrane keyboard Function in MAN mode: Set values Iset and Uset via UP/DOWN keys Actual values Iact and Uact via digital displays in front panel Function in AUTO mode: the control resp. readback of Power Supply data is done via Ethernet IP. the data telegram FMB V2.1 is predefined by plating electronic. And additionally via digital displays.
- Design: Large, backlit 3 line LCD-Display Keypads for programming/selection
- Current and voltage infinitely adjustable by UP / DOWN buttons Current and voltage pre-set.
- Protecting grade: IP54 Software update by PC via RS232 (flash system) Weight: 1300g
- **Includes 40+ points of diagnostic feedback telemetry**
- Dimension: W: 240 x H: 170 (incl. cable grommets) x D: 85mm Ah-meter (Ah, Amin; Asec)
- Mains supply voltage: 115V/1/50-60 Hz
- Max. ambient temperature: 40°C
- Front panel: Polycarbonate covered front panel, polycarbonate (ABS) casing
- Data cable: 5m data cable for each rectifier
- Control mode: peRB the control resp. read back of power supply data is done via peRB with internally specified data telegram of plating electronic. Interference: Suppressed according to EN55011 figure A
- Duty Cycle: 100% DC
- Humidity: Max. relative humidity 85%
- Capable of holding up to three 14 step recipes.

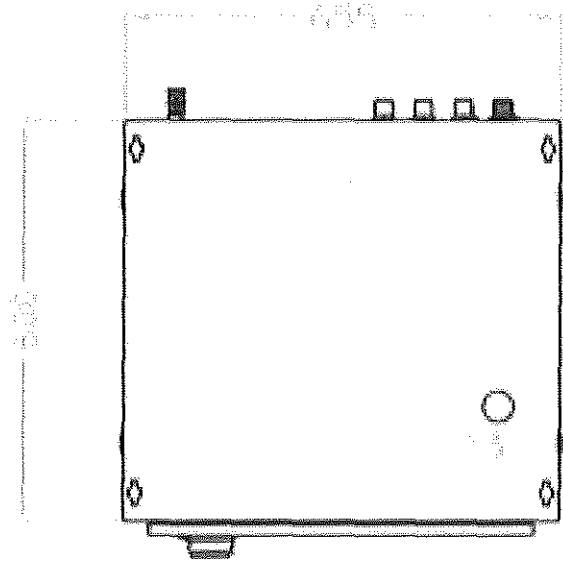
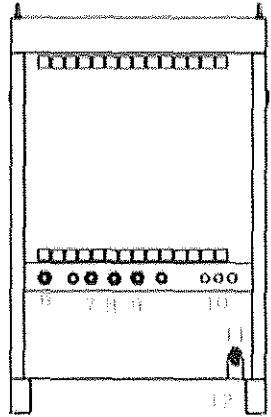
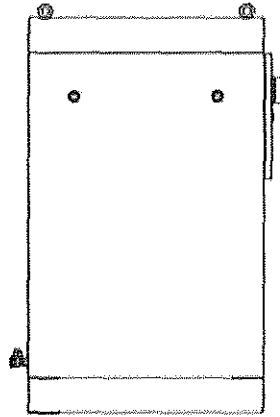
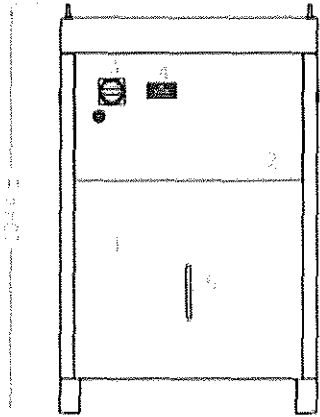
Items not included

- Installation
- Permits
- Rectifier bussing
- Chiller start Up



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Rectifier Plate & Frame Recirculation System





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Quote valid for 30 days.

FOB: Kitchener, ON

Delivery: TBA

Warranty: JBC guarantees the above equipment to be free from defects in workmanship or material which develops under normal use for a period of (12) twelve months. This guarantee applies to equipment of our manufacture only. All accessories and devices furnished by us but manufactured by others carries the original manufacturer's warranty. Our liability is limited to the correction, repair or replacement of the defective parts or assemblies, providing the matter is brought to our attention promptly. This warranty does not apply to parts deemed to be normal wear parts. No allowance has been made for repairs or alterations made by the purchaser without the written consent of the vendor. The vendor will not be liable for consequential loss or damage resulting from any defect in workmanship, or materials or resulting from any delay in delivery and the amount of any liability of the vendor with respect to this transaction shall be limited, in any event, to an amount not to exceed the sale price of the goods delivered. Replacement or repaired items will be shipped freight collect to the customer. If a service man is necessary, travelling expenses will be charged to the customer, only on-site labor will be covered by the warranty.

Terms: 50% upon issuing PO due on receipt and balance net 30 days, 25% prior to shipping due on receipt and balance net 30 days. Projects start once the deposit has been received in full. Delays related to receiving deposits and/or progress payments shall extend the project equally to the time frame delays encountered.

PE Warranty: Warranty details as follows **3 year Warranty:**

- ✓ Warranty starts upon commissioning, maximum of 3 months after delivery.
- ✓ First 12 months: All parts and labour.
- ✓ Remaining 24 months: All parts only.
- ✓ All critical spare parts will be in stock in Canada.
- ✓ No drilling into rectifier cabinet is permitted. Warranty is void if rectifier cabinet is drilled into or if any other type of penetration or cabinet modifications are done by the user.
- ✓ Bussing must be well supported as rectifiers are not designed to support weight of bussing and bussing shall be free from abnormal vibration. Either described bussing Situation will void warranty.
- ✓ Rectifiers exposed directly to plating solution or plating fumes will void the warranty.
- ✓ Sizing main AC supply stepdown transformers is critical to the performance and expected life cycle of the rectifier. Please consult with NAR if you are sizing or sourcing stepdown transformers from a third party or request JBC to quote a suitable stepdown transformer. Damage to rectifiers as a result of improperly sized stepdown transformers will not be covered by warranty.
- ✓ Both JBC and PE will not be held responsible for any downtime or material loses caused by rectifier malfunctions.
- ✓ JBC shall not be held liable and /or be subject to late penalties of any nature for extended delivery schedules and shipping delays.

Title: Title to the equipment listed above remains vested in JBC Surface Finishing Systems and will not pass to the purchaser until the full purchase value for the equipment has been paid and received in full by JBC.

Not included: Taxes, duties (if applicable), freight, off-loading, installation and site training.

Thank you for the opportunity.

JBC Surface Finishing Systems

Kevin Hewett

