



**ZWART**  
**SYSTEMS**

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## Contents

1	Theory of Operation .....	2
2	Highlights of Products .....	2
2.1	Fresh Water Storage.....	2
2.2	Pumping Station .....	2
2.3	pH Control System.....	3
2.4	Main Lines .....	3
2.5	Valves & Sub-headers .....	3
2.6	Drip System .....	4
2.7	Installation – Acknowledgement of Agreement.....	4
2.8	Drawing and Information Packages .....	4
3	Pricing Summary – Quote Proposal .....	4
4	Payment Terms.....	4
5	Site Conditions, Installation, and Warranty.....	5
6	Acceptance .....	6
7	Executive Summary .....	6
8	Installation Agreement .....	7

# 1 Theory of Operation

Zwart Systems will supply drip irrigation system for a field crop. This proposal is based on the preliminary drawing sent last week. The field will be divided into 20 valve groups, with the capacity to run two valve groups at a time. Each 32" wide bed has 2 rows of plants spaced at 18". There is 36" between each bed. The beds are 210' or 280' long

Each pot will require 2 liters of water each day. This will require the drip system to run each valve group for just under 1 hour, thus when running 2 valves together, it will take just over 9 hours to complete. We will provide a freshwater storage silo. This is enough capacity for 1 day of irrigation. A RO water treatment system will fill the water silo. This RO system will be provided by others and is not included in this proposal.

A pumping station with proportional fertilizer injector will provide a pressurized nutrient source to the crop. An HDPE main line will be provided from the pumping station to the 20 valve groups and a PVC sub-header will connect the drip lines to the valve drip system zones. Each zone will be controlled with a single electric solenoid valve operated from an analog irrigation valve controller.

It is our understanding that a building will be provided for the water storage silo and irrigation equipment

## 2 Highlights of Products

### 2.1 Fresh Water Storage

Zwart Systems will supply one (1) water storage silo for fresh water, filled from the existing RO system. The RO system is supplied by others and not included in this proposal. The silo comes complete with galvanized steel rings with the bottom ring coated for added corrosion resistance, hardware, bottom / wall protection and poly-Ex liner with sleeves for suction and overflow piping.

- 1 – Water Silo, 269m<sup>3</sup> (71,000-gallon)
  - 9.40mtr diameter x 3.88mtr high
- 1 – PVC Schedule 40 suction valve, line, and screen
- 1 – PVC SDR35 overflow line
- 1 – Set of level float switches

### 2.2 Pumping Station

Zwart Systems will supply one (1) pumping station to provide a supply under constant pressure from the freshwater silo. This is for fresh supply to the drip system and included the nutrient proportional injectors and filtration. There will also be a fresh water only discharge outlet for other needs. It will circulate the fresh water tank and inject acid to meet the desired pH level. This unit has the capacity of 80GPM (18 m<sup>3</sup>/hr at 45psi).

Unit consists of:

- 2 – Centrifugal Pump, Stainless Steel, TEFC Motor, Temperature Protection Package

- 2 – Variable frequency drive (VFD), includes: 0-100psi pressure transducer, 575/3/60 vac input
- 1 – Steel Pressure Tank, pre-charged
- 4 – Dosatron D8R proportional fertilizer injectors (in parallel) 40GPM, 50:1 Ratio Max
- 2 – Cartridge filter, plastic construction, 100 microns, 155 mesh
- 1 – Stainless steel unit frame, pump and VFD mounted, pumps are pre-wired to VFD
- 1 – Lot of PVC Schedule 80 fittings, pipe, valves, etc.
- 2 – 1000-litre fertilizer stock tank, fiberglass construction c/w lid.
- 2 – Stock tank air agitators, stainless steel construction, w/ valve timer controller.

## 2.3 pH Control System

Zwart systems will provide a pH control system to continuously circulate the water silo and correct the pH. This is a stand-alone unit.

Unit consists of:

- 1 – Centrifugal pump, plastic construction, 1.5 hp TEFC Motor, 220/1/60 vac
- 1 – pH controller c/w single pH sensor and flow verification sensor
- 1 – Acid injection metering pump, 115/1/60 vac
- 1 – Stainless steel unit frame, c/w above components and required PVC Schedule 80 fittings, pipe, valves, etc.
- 1 – PVC S40 suction line connection from silo c/w foot valve and primer
- 1 – PVC S40 discharge return line connection into silo
- 1 – 30-gallon acid stock tank, polyethylene construction, c/w lid

## 2.4 Main Lines

Zwart Systems will provide one (1) main line, 4" HDPE construction with reduction tees and risers to connect the twenty (20) valve groups. This line will be buried just below grade. All ends will be fitted with ball valves for winterization.

## 2.5 Valves & Sub-headers

Twenty (20) solenoid valves along with a PVC S-40 sub-header will be provided. Each valve will service approximately 20 grow beds. PVC tees will be provided with the connections to the in-line dripper runs. All drip lines will end with a Fig 8 stopper. All sub-header ends will be fitted with a ball valve for flushing and winterizing.

## 2.6 Drip System

Zwart System will provide the Netafim Uniram in-line drip system, 20mm diameter with 0.6 gpm (2.3 l/hr.) emitters. Each bed will need two runs, with emitter spacing at 18", connecting to the sub-header. A total of 202,000' of in-line drip tubing will be provided.

## 2.7 Installation – Acknowledgement of Agreement

☒ Yes – Installation agreement is required

☐ No – Installation agreement is not required

## 2.8 Drawing and Information Packages

A set of irrigation system (shop) drawings and a production information binder is provided.

## 3 Pricing Summary – Quote Proposal

The pricing summary shown is inclusive of all beforementioned components and infrastructure. Freight is **not included** unless specified; all applicable taxes and duties are an additional charge.

2.1 – 2.6	Irrigation System	\$ 204,300.00
2.7	Installation (details in Section 8)	\$ 35,000
2.8	Drawing and Information Packages	\$ Included
<b>Total CAD</b>		<b>\$ 239,300.00</b>

## 4 Payment Terms

Payment: 25% deposit of full amount (this amount includes the amount paid for drawings)  
 25% December 15<sup>th</sup>, 2019  
 25% January 30<sup>th</sup>, 2020  
 25% March 1<sup>st</sup>, 2020

Taxes: Chargeable extra as applicable

Freight:

Lead Time: 10-12 Weeks, upon receipt of 25% deposit and payment schedule

Validity: This proposal is valid for **15 days**

- A. The lead time expressed begins once the deposit payment is received.
- B. The lead time expressed above is for delivery of material only, proposal does not include installation time. (provided the installation agreement is required)
- C. This proposal is not eligible for credit card payment.
- D. Any subsequent revisions will be subject to a price review.

## 5 Site Conditions, Installation, and Warranty

### *Location and Receiving Conditions*

Project location must be accessible for normal size trucks and truck weight. It is the customer's responsibility to provide labour and equipment for unloading materials, storage facilities as required, and security of all materials on site.

### *Installation Conditions (Full details provided in Section 8 – Installation Agreement)*

- A. The quote proposal installation price is an estimation only and it is for the stated number of technicians and the stated number of days or weeks estimated to complete the installation. Any installation services required beyond the above stated time will chargeable to the customer.
- B. Scheduled installation times require that the site in which Zwart Systems products will be installed must be prepared adequately and free from any objects that may hinder our ability to perform our installation tasks in an efficient manner.
- C. Should the scheduled installation times be delayed due to the customer's lack of preparedness, a new scheduled installation time will be determined, through agreement, between the customer and Zwart Systems.
- D. Availability of adequate equipment and resources on the project location for executing our activities and testing the installation supplied by us such as adequate water and power supply, within the standard permitted deviations and with the capacities as stated by us.
- E. Availability of a forklift truck or crane on the project location with a minimum 5000 pound lifting capacity and including an operator.
- F. During ongoing installation periods, availability of material, supplied by Zwart is to be adequately accessible so we can perform our installation tasks in an efficient manner.
- G. It is the responsibility of the customer to protect the storage area and installation places against weather influences so that materials are not affected, and activities do not have to be interrupted due to the working conditions.
- H. Availability of garbage dumpsters for disposing of our packaging material and other residue materials.

### *Warranty*

- Zwart Systems offer a one (1) year warranty on the workmanship of our installations
- Zwart Systems will repair or replace any product found with a manufacturer defect if installed by a Zwart Systems qualified technician for the period of one (1) year.
- Any product found damaged by abuse or neglect will not be covered by warranty. Zwart Systems reserves the right to have any warrantied product inspected by the manufacturer before a credit is issued. It may be concluded that the damage to the product is not covered by the warranty.
- Any item where the manufacture's warranty extranet past the one (1) year period will be replaced or repaired under that manufacturer's warranty period. The labour to remove and replace these items is not covered under Zwart Systems warranty.
- Any warrantied item must be returned to Zwart Systems.

Thank you again for this opportunity, I hope that this quote proposal meets your expectations and requirements. If you have any questions or require further information, please do not hesitate to contact me.

Best Regards



## 6 Acceptance

I hereby accept the terms and conditions, as described in this quote proposal.

\_\_\_\_\_  
Date

**Sept 13, 2019**

\_\_\_\_\_  
Date

## 7 Executive Summary

Zwart Systems is first and foremost an irrigation company. In existence for the past 50 years, we specialize in servicing the greenhouse and horticulture industry. We pride ourselves on being thorough in our information and assessment of your needs, provide quality and best practice in our design, and innovative and caring in our approach.

We are at the forefront of greenhouse irrigation systems. Whether you are growing cut flowers, growing vegetables on a raised gutter system, growing a weekly production potted crop, propagating, or turning out a spring program, we have designed, sold and installed all of it. We are among very few companies in North America that have the trained staff to install and service what we sell.

This hands-on knowledge, years of experience, and service to our valued customers has proven to be an asset for those we have worked for in the past. Many of our long- time customers have worked with us to perfect a lot of the systems we sell today. We take pride in offering our customers the best products our industry has to offer. As you look over some of our information and may be considering us for your next project, please challenge us to do our best for you and see why we are commonly seen as the Company to be your trusted partner.

## 8 Installation Agreement

Project Location –

Installation duration and crew size:

2 weeks with a 2-person installation crew

Delay beyond our control, unforeseen site conditions, or miscommunications may be subject to *Change Order* and will be assessed for billable time.

A safe working environment is the responsibility of the customer.

### *Installation Scope*

- Fresh water pump station
- Silo Installation (customer supplied help required)
- Supply pumping stations and piping
- Mainlines, valves, drain lines, return lines
- Flushing, testing and commissioning of above materials

### *Not Included in the Scope of Installation*

- Any reservoir work, including hole core drilling
- Unloading and storing of materials
- Any electrical / low voltage connections or components
- Any trenching, excavating, concrete work or back-filling
- Any container system related plumbing
- Any drippers or PE tubing work

### Installation Conditions - detail

- A. Installation Rate: The base rate, per hour, for this installation is \$90.00/ hr for a lead man and \$70.00/ hr for a "helper" for the first 44 hours of a work week. Additional hours beyond 44 hours and will be invoiced at a rate of 1.5 times the base rate. Installation labor costs will be invoiced bi-weekly. Net 7 days. Applicable taxes are not included.
- B. Staying Costs: The base rate for staying costs \$150.00 / night for accommodations and \$55 / day for food. These costs will be invoiced bi-weekly. Net 7 days. Applicable taxes are not included. (Staying costs are only applicable to projects that are considered "out of town".)
- C. Travel Costs: If the project is within driving distance, the travel costs to get to and from the job site will be invoiced based on point "A" above. If the project requires Zwart Systems installation staff to use air travel; The cost associated with airfare, rental car and airport parking will be invoiced accordingly. These costs will be invoiced bi-weekly. Net 7 days. Applicable taxes are not included. (Travel costs are only applicable to projects that are considered "out of town".)
- D. Rental equipment: Rental equipment required to complete the installation will be rented by Zwart Systems and will be invoiced to the customer accordingly on a bi-weekly basis. This may include, but not limited to; scissor lifts, zoom booms and/or specialty tools.
- E. Trenching, Backfilling, Ground work: All trenches and backfilling that may or may not be required to run various lines supplied by Zwart Systems is not the responsibility of Zwart Systems and are to be provided by others in a timely fashion, the excavation contractor is responsible for ensuring correct slope and depth of trenches.
- F. Electrical and Computer / Control: Any electrical and/or computer connections are not the responsibility of Zwart systems. It is also the responsibility of the customer to arrange for these connections in a timely manner to allow for commissioning.
- G. Scheduled installation times require that the site in which Zwart Systems products will be installed must be prepared adequately and free from any objects that may hinder our ability to perform our installation tasks in an efficient manner.

- H. While endeavoring to meet the timelines for part-project completion or complete project completion, requested by the customer, Zwart Systems, hereby, makes no guarantees that the timelines requested can be met.
- I. Should the scheduled installation times be delayed due to the customer's lack of preparedness, a new scheduled installation time will be determined, through agreement, between the customer and Zwart Systems.
- J. Availability of adequate equipment and resources on the project location for executing our activities and testing the installation supplied by us such as adequate water and power supply, within the standard permitted deviations and with the capacities as stated by us.
- K. Project location must be accessible for normal size trucks and truck weight. It is the customer's responsibility to provide labour and equipment for unloading materials, storage facilities as required, and security of all materials on site.
- L. Availability of a forklift truck or crane on the project location with a minimum 5000 pound lifting capacity and including an operator.
- M. During ongoing installation periods, availability of material, supplied by Zwart is to be adequately accessible so we can perform our installation tasks in an efficient manner.
- N. It is the responsibility of the customer to protect the storage area and installation places against weather influences so that materials are not affected, and activities do not have to be interrupted due to the working conditions.
- O. Availability of garbage dumpsters for disposing of our packaging material and other residue materials.

Installation Estimate: \$ 35,000.00

I hereby accept the terms and conditions, as laid out above, in this Installation Agreement.