

# **POSSIBLE ORIGINAL** **SALE QUOTES**

All ages listed in brochure, catalog, here and otherwise are approximate.

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November 10, 2011

SUBJECT: Davis-Standard Proposal # 504810R7

Davis-Standard would like to Thank MCS Industries for their recent purchase order # 85919. Please find enclosed revised proposal that includes the electrical changes in the hopper as we have discussed as below.

1. sensors in hooper are adjustable in height
2. When in alarm mode there is an auditable alarm.
3. The will be three beacons mounted on top of the control panel.
4. DS is providing the best sensors for this application based on past experience.
5. The revised proposal includes the New Price of \$ 718,500.00, Equipment delivery date of 1/30/12 or sooner, Davis- Standard LLC to pay shipping fee's only for freight to Juarez, Mexico with Maximum exposure of \$ 7,000.00 with MCS industries to pick-up above and beyond any fee's above that the payment terms have been revised to 35 % with order, 35 % (30) days prior to shipment and balance due net 30 days.

It our understanding based on results from our August Lab trial with a scrap bulk density of 4-10 lbs. per cubic foot and a partial size of approximately ½” after size reduction, we expect the output rate to be 2,000 lbs. per hour of flake material only. The expected output rate for the pellet compound will be approximately 4,000 lbs/hr with 4% or 5% Kraton Additive. As discussed we will run the flake material with rubber Kraton additive during week of 10/3 or 10/10 and at this time we are unclear of the level of quality and output rates that will be achieved. All The actual output rates will depend upon the material formulation, bulk density, moisture content, contamination levels and any processing temperature restrictions.

We thank you for the opportunity to partner again on this project for your reclaim and compounding needs. Should you have any questions or require any additional information, do not hesitate to contact us at anytime.

Very truly yours,

DAVIS-STANDARD LLC

"We hereby offer for a limited period of 30 days following the date hereof the items described below and/or in the specifications, if any, consisting of the pages attached hereto. **This offer is subject to the terms and conditions contained herein and attached hereto and in the specifications, if any, and to no others whatsoever. We object to any additional or different terms.**"

## **EQUIPMENT SUMMARY**

### **COMPOUNDING SYSTEM**

- Item #1      Extruder  
                  A. 8" 34:1 L/D Davis-Standard Extruder  
                  B. 8" 34:1 L/D Davis-Standard Extrusion Screw  
                  C. Cavity Transfer Mixing Unit  
                  D. Temperature Control Panel - ETPC  
                  E. 600 HP AC Drive/Motor
- Item #2      Hydraulic Slide Plate Screen Changer  
                  A. Model EH-100  
                  B. Hydraulic Unit
- Item #3      Water-Ring Pelletizing System  
                  A. Model WRP-36S Pelletizer
- Item #4      Testing and check-out Davis-Standard- DRY TEST ONLY  
                  (Includes testing of customer K-Vision interface)
- Item #5      Davis-Standard to Provide (3) days of on-site service technician with

**SPECIAL DISCOUNTED SYSTEM PRICE: \$711,000.00**



## EQUIPMENT SPECIFICATIONS

### DAVIS-STANDARD COMPOUNDING EXTRUDER

Davis-Standard 8" 34:1 L/D, vented, water-cooled DS Thermatic Series Extruder with extrusion screw, temperature control panel, and AC drive including the following:

- Rugged base weldment with leveling pads and integrally mounted front barrel support.
- Heavy duty gear reducer with double reduction helical gears, nominal reduction ratio of 17:1. Rated 700 HP at 100 RPM with a 1.50 service factor.
- Thrust bearing with a B-10 life of 74,798 hours at 100 RPM and 5,000 PSI.
- Lubrication system with shaft driven pump, filter and heat exchanger.
- Direct coupling of motor to input shaft, coupling and guard included.(actual final screw RPM will be at defined by Davis-Standard process prior to fabrication).
- One piece flanged 10,000 PSI alloy steel, vented barrel with centrifugally cast bimetallic liner.
- Vent stack and plug are included.
- Vacuum system including a water seal pump and knock-out pot. Recirculation/collection tank for vacuum system water to be provided by MCS.
- Barrel discharge is flanged to mate to downstream equipment.
- Rupture disc plus spare, rated at 9000 PSI.
- Melt pressure transducer, model DST-101 (1% regulation), 0-10,000 PSI rating.
- Melt Temperature Probe.
- Tangential scrap feed throat with extra wide opening, grooved horizontal liner, water-jacketed with screw shaft seal, designed specifically for reclaim materials.
- Rectangular chute type hopper with sight glasses and (3) level sensors for high/mid/low level indication and dry contact for feed system interface.
- Seven electrically heated, water-cooled barrel zones with cast aluminum heaters.
- Base mounted closed loop cooling system
- Insulated barrel hoods.
- 8" 34:1 L/D extrusion screw with Deloro 55 hard-faced flights designed for the specific application.
- Cavity Transfer Mixing Unit – 5 row, water cooled.
- 600 HP, 1750 RPM AC Variable Frequency Drive (Yaskawa) with DPFV motor.
- DS-TPC provides a touch panel solution to replace discrete temperature controllers, temperature indicators, pressure indicators, pressure controllers, drive operators, and drive indicators.
- The DS-TPC includes a 12.1 inch color touch screen with built in PLC processor, subpanel mounted multi-loop temperature control, and PLC I/O modules required for the system.
- The DS-TPC is designed to offer touch-screen control - AT THE SAME PRICE as discrete devices performing the same functions. This is accomplished through the use of fixed hardware components and preconfigured engineering solutions.

- Standard features common to all DS-TPC systems include the following:
- 12.1 inch Color HMI mounted in the extruder control panel.
- Extruder melt temperature indication.
- Extruder drive controls including speed and load indication.
- Extruder discharge pressure monitor including 2 alarms.
- Melt Temperature monitor.
- Cold start inhibit - Barrel only.
- 10 Recipes (temperature only).
- ( 7 ) extruder heat/cool zones.
- ( 6 ) heat only zones (3 screen changer, 2 adapters, 1 die).
- Solid-state contactors and circuit breaker protection on each control zone.
- Main circuit breaker with external interlock to disconnect incoming power when servicing.
- A control transformer is provided in the panel for all control circuitry.
- Solid-state contactors and circuit breaker protection on each control zone.
- Forced air ventilation system with filters.
- Pelletizer controls included through touch screen.
- **Interlock to K-Tron feeding system – includes a feed rate/extruder speed ratio control set in the K-Tron control unit. The ETPC will provide a 4-20 ma signal to the feed system for extruder screw speed. All safety interlocks including e-stop circuits are included.**
- Wired for 460V/3ph/60Hz operation.

### **HYDRAULIC SLIDE PLATE SCREENCHANGER**

- Fully assembled and arranged for connection to extruder discharge.
- Downstream reducer bushing.
- Two breaker plates.
- Solenoid operated directional valve integral with hydraulic cylinder.
- Pre-wired extend/retract push-button controls interlocked with guard limit switches and hydraulic unit pressure switch.
- Body heaters arranged for 460 volt power.
- Slide plate heated by heat pipes or cartridge heaters.
- Requires three zones of temperature control.
- Fully enclosed electrically interlocked slide plate guards.
- Power cord and thermocouple lead with plugs for connection to extruder plug box.

- Hydraulic power unit:
- Heat exchanger for oil coiling provided by MCS Industries.
  - Reservoir.
  - Accumulator.
  - Power on and pressure ready lights.
  - Hydraulic hoses with plumbing fittings.
  - Electrically interlocked with the slide plate guards.
  - Arranged for operation on 460 volt, 3 phase, 60 hertz power.

### **WATER RING PELLETTIZING SYSTEM**

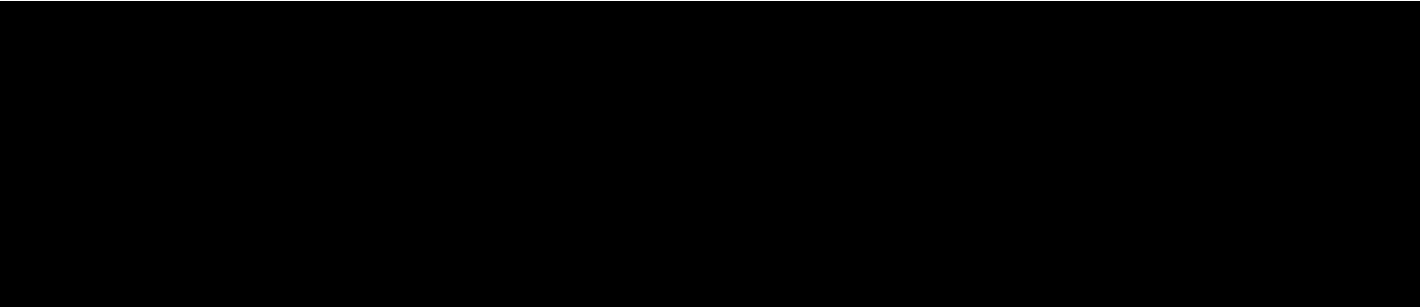
- Pellets are cut in air at the die face, and then quenched in a ring of cooling water.
- Hot, dry cutting provides simple start-up with no critical timing sequence.
- Production is continuous and is insensitive to flow disruptions caused by screen changes or loss of feed.
- "Flex Blade" design eliminates adjustment, automatically compensates for blade wear, and provides long blade life. No micrometer adjustment is required and critical alignment of the cutter shaft to the die face is eliminated.
- 'Fines' generation is reduced since contact force of the blade against the die plate is controlled, insuring that pellets are always discrete and well formed.
- "Slurry Quench" provides the ultimate in pellet cooling efficiency. Total immersion of the pellet production in the slurry allows an instant quench of the entire pellet surface as compared to other water ring pelletizer designs where only 50%-60% of the pellet is cooled as it floats in a trough.
- Pellet contact and subsequent agglomeration are virtually eliminated, as is excessive off-dryer pellet temperature.

**Upstream Adapter** to connect to customer equipment.

- Straight flow adapter fabricated of heat-treated tool steel, arranged for connection between inlet pelletizer and upstream apparatus when at the same centerline height.
- Includes band heater and attachment bolts.
- **One (1) Zone** of temperature control recommended. Temperature controller not included.
- Flange diameter up to 18".
- Larger diameter flange, instrument taps, chrome plating or machined flow bore transitions will add to the price.

### **Water Ring Pelletizing WRP 36S System including:**

- Unit rated for 600° F max operating temperature and 3,000 psi pressure
- **Crosshead Die Assembly:** Electrically heated die body with low restriction mandrel provides even distribution of polymer to the die plate for uniform hole-to-hole flow. **Two (2) zones** of temperature control are required.
- **One Die Plate:** Heat-treated and nitrided alloy steel for wear resistance and long life. Specific hole geometry and quantity based on your application data.
- **Flexible Blade Assembly:** Self-adjusting, low contact force, flexible cutter blades eliminate all operator attention. Blades are made from heat-treated tool steel and rotate eccentric to the die holes for long life. Blade Holder is nickel-plated and accepts two (2) or four (4) blades.
- **Cutter Drive:** Variable frequency AC drive, directly coupled to cutter shaft, provides easily adjustable, maintenance free control of pellet length.
- **Centerline Height:** The unit will easily accept centerline heights from 41" to 44". No centerline height adjustment is required. Special heights above 44" can be accommodated.
- **Cooling Chamber:** Heavy-duty design allows simple controlled release of the chamber from the die body without any tools. Chamber is electrically interlocked with movable frame for correct and safe operation.
- **Underwater Pellet Slurry:** Slurry pump assembly consisting of adjustable height stainless steel feed trough with startup agglomerate catcher. Slurry pump and motor with guarded coupling assembled to a moveable frame with two (2) swivel and two (2) fixed "V" groove casters.
- **Water Circulating System:** Includes stand-alone stainless steel circulating water tank, dial thermometer, level controls, pump and optional heat exchanger, all plumbed and assembled. Circulating water temperature is best maintained by using the optional heat exchanger package.
- **Dewatering Unit and Dryer:** Pellet and water separation is accomplished prior to the dryer in an adjustment- free dewatering unit. The dryer is supplied with a 'pellet free' rotor and removable screens for fast, thorough cleanout and an integral blower for moist air removal. Single large panel door design provides increased structural integrity and is electrically interlocked to prevent system operation if the door is opened.
- **Cutter Head Support Stand:** Provides movable support for pelletizing head and cooling chamber. Stand is fabricated from structural shapes and includes adjustable mounting plate for centerline adjustment. Four (4) swivel "V" groove casters are provided for operation with or without "V" track.
- **Electrical:** Main Panel is pre-wired, with disconnect for 460/3/60 power supply, and includes VFAC drive module, fuses, contactors, and all associated electrical components. Enclosure is arranged for convenient wall mounting by customer.

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- **Pelletizer Controls:** From Touch screen in DS ETPC, including Start and Emergency Stop buttons, 10 turn cutter speed pot, cutter RPM meter.
  - **Heat Exchanger:** Heat Exchanger less cooling water controls, mounted and plumbed, sized for up to 5,000 lbs/hr, capable of maintaining 120° F circulating water bath temperature assuming 150 gpm of 85° F cooling water and 450° F melt temperature. This option is desirable to minimize quench water and pellet discharge temperatures.
  - **Regulating Valve:** Modulating Valve with temperature gauge and sensor, adjustable between 70-130° F (tank water) plumbed to cooling water inlet port above heat exchanger.
  - **Discharge Duct:** Flexible Dryer Discharge Duct for discharging pellets into Gaylord or similar container. Duct is supplied 5.5 feet long and may be cut to length as desired.
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