DESIGN DATA

Size: Valley 2214

Wire Width 166.5"

Pond Width 160"

Minimum Flow to Slice: 6000 GPM

Minimum Flow to Header: 6434 GPM

Maximum Flow to Slice: 10000 GPM

Maximum Flow to Header: 10724 GPM

Minimum Operating Speed: 1000 FPM

Maximum Operating Speed: 2100 FPM

Structural Speed: 2500 FPM

Grades and Basis Weights: Coated Fine Papers
45 - 103 lbs/3300sq. ft. (with size)
30 - 88 lbs/3300sq. ft. (unsized)

Hand of Machine:

Standing at the headbox looking toward the reel, the drive will be on the left side.

Material:

Solid 316 and 316L stainless steel. Required fasteners will be stainless steel.

Walkways: Aluminum fabrication, stainless steel handrails and fiberglass grating

Headbox Interior Finishes: M.36-1775
**BASIS OF FLOWS**

**Minimum Flow:**

<table>
<thead>
<tr>
<th>Basis Weight:</th>
<th>88 lbs./3300 sq. ft. (103 lbs. with size)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallonage:</td>
<td>6000 GPM</td>
</tr>
<tr>
<td>Machine Speed:</td>
<td>1000 FPM</td>
</tr>
<tr>
<td>Headbox Consistency:</td>
<td>1.00 %</td>
</tr>
<tr>
<td>Tray Consistency:</td>
<td>0.14 %</td>
</tr>
<tr>
<td>Retention:</td>
<td>86%</td>
</tr>
<tr>
<td>Machine Chest Consistency:</td>
<td>3.00 %</td>
</tr>
</tbody>
</table>

**Maximum Flow:**

<table>
<thead>
<tr>
<th>Basis Weight:</th>
<th>30 lbs./3300 sq. ft. (45 lbs. with size)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallonage:</td>
<td>10000 gpm</td>
</tr>
<tr>
<td>Machine Speed:</td>
<td>2100 fpm</td>
</tr>
<tr>
<td>Headbox Consistency:</td>
<td>0.40%</td>
</tr>
<tr>
<td>Tray Consistency:</td>
<td>0.06%</td>
</tr>
<tr>
<td>Retention:</td>
<td>85%</td>
</tr>
<tr>
<td>Machine Chest Consistency:</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

**DESIGN CRITERIA**

If an order is placed for this headbox, it will be necessary to have the Purchaser confirm the consistencies, basis weights and speeds that have been used to establish the headbox flows and size.

Voith Sulzer reserves the right to requote, either upward or downward, should there by a change in original flow data that requires a change in the headbox size.

The design of the stock approach system has a major influence on the performance of any headbox. Voith Sulzer, therefore, reserves the right to check the design of this system and to request modifications if required.
ITEM 1.0 - ONE DISTRIBUTING ROLL TYPE HEADBOX
WITH CONSTALIP® SLICE:

The following specifications describe a Voith Sulzer fully adjustable Valley 2214 headbox. The headbox incorporates the following components in its design:

Manifold Assembly, Pivoting
- Fabricated of stainless steel.
- Consists of the supply transition, tapered header, tube bundle, recirculating transition, support and electric gearmotor operated pivoting system.

- Tapered Header
  - Fabricated of stainless steel.
  - Matched metal-to-metal stub end flange sets at inlet and recirculation ports.
  - Flush mounted clean-out located near the inlet end.
  - Connection provided on each end for installation of header pressure balance controls.

- Tube Bundle
  - Fabricated of stainless steel.
  - Support structure rigidly houses several rows of tubes.

- Supply Transition
  - Fabricated of stainless steel.
  - Connection provided for pressure balance assembly.
  - Attaches to supply pipe with metal to metal connector.

- Recirculation Transition
  - Fabricated of stainless steel.
  - Connection provided for pressure balance assembly.
  - Attaches to recirculation line with metal to metal connector.

- Manifold Pressure Balance Assembly
  - Manually operated.
  - Piping by mill.
Apron Board With Adjustable Blade And
One Water Chamber  
- Stain steel fabrication  
- One water chamber for thermal expansion control, located along the base of the structure.  
- Adjustable apron blade by hand operated hydraulic pump.

- Apron Board Pedestals  
  - Fabricated of stainless steel

Breast Roll Shower Assembly  
- Fabricated of stainless steel.  
- Attached to headbox apron board.  
- Nozzles on 12 inch centers.  
- Low pressure purge system.

General Panel Assembly

- Side Plate, Tending Side  
  - Fabricated of solid stainless steel.  
  - 18" Hinged access port with 8" fixed window.  
  - Includes an inspection port with removable flush plug in the mix chamber.  
  - Includes housing for 12 volt incandescent light.  
  - Equipped with all required holes, flanges, and pads for mounting external equipment.

- Side Plate, Drive Side  
  - Fabricated of solid stainless steel.  
  - Includes an inspection port with removable flush plug in the mix chamber.  
  - Includes housing for 12 volt incandescent light.  
  - Equipped with all required holes, flanges, and pads for mounting external equipment.

- Back Panel, Fixed  
  - Fabricated of stainless steel

- Front Plate/Cover, Fixed  
  - Fabricated of stainless steel
- **Deckle Pan, Tending Side, With Edge Bleed**
  - Fabricated of solid stainless steel.
  - Adjustable edge seal.
  - Rectangular edge bleed with pipe stub-end for connection with customer's bleed piping.

- **Deckle Pan, Drive Side, With Edge Bleed**
  - Fabricated of solid stainless steel.
  - Adjustable edge seal.
  - Rectangular edge bleed with pipe stub-end for connection with customer's

**Distributing Roll Assemblies**
- Stainless steel cylinder shell with (single) disc stainless steel ends with an internal gear which mates with a splined journal.
  - Slice roll spiral drilled, approximately 50% open.
  - Turn roll stagger drilled, approximately 45% open.

**Distributing Roll Drive Assemblies**
- Slice distributing roll driven by a reversible variable speed D.C. motor with speed reducer.
  - Turn roll driven by constant speed A.C. gearmotor

**Drive Pedestal, Slice Distributing Roll**
- Drive pedestal for slice distributing roll fabricated of stainless steel.

**Drive Pedestal, Turning Distributing Roll**
- Drive pedestal for turn distributing roll fabricated of stainless steel.

**Distributing Roll Bearing Assemblies**
- 2 Spare bearing assemblies
  - 1 drive side
  - 1 tending side
- Assemblies spare both slice and turn roll positions
Constalip® Assembly
- Slice lip and components of stainless steel. Slice lip teflon coated on both sides for smooth travel.
- Pressure tube (hose) encapsulated in the support brackets. When pressurized the tube presses the slice lip firmly against the entire length of the slice beam.
- Slice lip adjusting rods of stainless steel.
- Stainless steel pipe fittings (inlet and return) are supplied to connect the hot water chamber to the hot water circulation system. Fittings will extend out to the drive side exterior surface of the slice beam.
- (1) Zone integral hot water chamber for thermal expansion control of structure. Chamber located at the top of the structure.

Spare Slice Lip
- Solid stainless steel
- Teflon coated both sides

Profile Adjuster Assembly
- Bronze worm gears, in conjunction with handwheel, for manual adjustment.
- Micrometer dial indicator (± .020) designed to read from top of micro-adjusting rod, protected by a clear polycarbonate cover.
- Micro-adjusting rod keyed to housing to allow only linear travel.
- Centerline fastened to slice lip by a wedge clamp.
- Provision for Profilmatic® automatic profile control system. 53 Adjusters on approximately 3.0" centers.

Vertical Adjusting Assembly, Electric Operation
- Fabricated of stainless steel.
- Anti-backlash worm gear jacks.
- Structural bracket mounted.
- Cross shaft synchronizes jack movement during adjustment.
- Equipped with protective guard.
- Limit switch, through a solenoid, will stop the electric motor when the slice reaches the safe travel limits.

Slice Beam
- Fabricated of stainless steel.
- Thermal expansion heating compartment
Slice Opening Indicator Assembly
- Stainless steel scale divided into inches of opening.
- Includes an LVDT transducer and signal conditioner for remote indication.
- Located on tending side of headbox.

Nozzle Alarm Assembly
- Audible alarm and warning light remotely located.

Horizontal Adjusting Assembly, Electric Operation
- Fabricated of stainless steel
- The rotating beam is centered and keyed to the front plate beam.
- Anti-backlash worm gear jacks synchronize horizontal movement, allowing the operator to control jet impingement.
- Jet impingement controlled via an electric motor system.

Horizontal Position Indicator Assembly
- Stainless steel scale and pointer mounted on the headbox.
- Includes an LVDT transducer and signal conditioner for remote indication.

Liquid Level Control Assembly, Automatic
- Liquid level control assembly for pressure operation. Consists of a compressor, valve, and electronic D/P cells.

Recorder Controller
- Device for recording the total head signal and controlling the automatic valves.

Control Panel
- Stainless steel construction
- Pedestal or headbox mounted

Total Head Gage Glass Assembly
- A glass tube used to indicate total head pressure in inches of water column and operating speed.
- Located on tending side of headbox.
Purge Water Piping Assembly
- Includes valves, rotameters and water piping for purging the D/P cell block and/or distributing roll journals and headbox compressor.
- Purge water system requires clarified white or clean warm fresh water supply.

Headbox Shower Assembly
- Fabricated of stainless steel.
- Nozzles located on approximately 15" centers in spiral pattern.
- Bronze bushings with seals installed on side plates.
- Right angle drive positioned on the drive side.
- Hose connection inlet fitting, rotary joint and strainer.

Walkway Assembly
- Front crosswalk
- Tending side walkway.
- Removable steps, if required, of aluminum between front crosswalk and Fourdrinier walkway

- Crosswalk, Double Bottom
  - over 150.00" deckle.
  - Fabricated of aluminum.
  - Handrails of stainless steel.

- Tending Side Walkway
  - Fabricated of aluminum.
  - Stainless steel handrails.
  - Fiberglass grating.

Pre Conduit Assembly
- Rob Roy red PVC coated galvanized conduit.
- Conduit will terminate with union approximately 18 inches above soleplate where applicable.
- Proximity switches terminated at local junction box.
Pre Piping Assembly
- Piping and tubing to fit U. S. standard sizing at connecting points to other suppliers equipment or mill provided field piping.
- All material except hoses are stainless steel where applicable.
- Piping will terminate approximately 18 inches above soleplate where applicable.
- Parker CPI tube fittings.
- Pipe fittings suitable for the service.

Acceleration Elbow
- Provides uniform flow pattern out discharge end to assist in pulsationless flow to headbox.
- Stainless steel construction
- Approximately 90 degree bend
- Butt weld connections

Sole Plate Assembly
- Tapered header sole plates of stainless steel.
- Headbox sole plates with T-slots of cast iron.

Guards
- Only local safety protective guards have been provided by Voith Sulzer. All other guarding required to meet insurance, local, state, or federal safety codes must be provided by the user. Voith Sulzer does not condone or approve the use of this equipment if proper guarding of all dangerous or unsafe areas is not installed.

SHOP ERECTION
- Complete assembly in builder’s erection bay, pre-drilling for pinning or dowelling of frames and major mounting supports.
- Inspect and test mechanical functions.

General configuration of the headbox is shown on Sketches M.36-545A, M.36-546A, M.36-549, M.36-1018, M.36-1022 and M.36-1024, M.36-1763 and M.36-3785.
OPTIONS:

Thermal Control Water Circulation Assembly
  - Two zone.
  - Water circulating system which includes a tank, pump, flow switch, heater, thermostat and piping for the slice beam and apron board.

START-UP SPARES:
  - Apron blade
PAINT SPECIFICATIONS
- This specification applies to all castings and low carbon steel parts. Parts built from aluminum, stainless steel or other corrosion resistant materials will not be painted.
- Weld spatter will be removed.
- Parts to be coated will be blasted to the extent of an SSPC-SP10 (near white).
- Zinc rich urethane primer applied to all required surfaces. Dry film thickness of 3.0 mils. Applied by spraying or brushing.
- Intermediate high build epoxy coat is applied. Dry film thickness of 4.0 mils. Applied by spraying or brushing.
- Final high build acrylic polyurethane enamel finish coat is applied. Dry film thickness of 2.0 mils. Applied by spraying or brushing.
- Machined mounting surfaces on frames, cross ties, etc., will receive one coat of primer. Dry film thickness of 1.5 to 2.0 mils.

SAFETY SIGNS
- Safety signs, according to bill of material group, will be placed on the equipment. These signs must not be removed, damaged, or made invisible or illegible.
GENERAL SPECIFICATIONS

A. Builder, used in the specification, shall mean Voith Sulzer, Appleton, Wisconsin.

B. Purchaser, used in the specifications, shall mean Appleton Papers, Inc., Combined Locks, Wisconsin.

C. Any special adaptations, additions, or alterations to these specifications will be additional to the quoted price.

D. Builder will provide all screws, bolts, and other fastenings to hold supplied components together and to soleplates. Purchaser will supply foundation bolts to fasten soleplates to floor.

E. Only the guarding stipulated in the specifications will be provided by the Builder. All other guarding required to meet insurance, local, state and federal safety codes to be provided by the Purchaser.

F. All equipment supplied, except stainless steel components, will be primed and painted with one finish coat by the Builder.

G. Additional costs for special paint requests will be to the Purchaser's account.

H. The equipment included in this specification will be suitably prepared for domestic truck shipment. Preparation for other types of shipment can be provided at additional cost.

I. Builder will furnish (3) bills of material, (3) spare parts lists and (1) print and one (1) sepia of the assembly and sub-assembly drawings required for erection and maintenance of this equipment, and three (3) sets of vendor's prints; also four (4) copies of Instruction Manuals. Additional copies may be purchased.

J. Control piping to and from the equipment, not otherwise specified by the Builder, to be supplied by the Purchaser.

K. Installation of the equipment will be by the Purchaser, but the Builder will supply a competent erector to supervise installation of the equipment at the rates qualified in the Proposal.

L. Start-up service engineers can be obtained at the rates qualified in the Proposal.
M. The Purchaser and his authorized representative will be able to inspect the equipment during manufacture and prior to shipment.

N. Delivery of this equipment is based on the Builder promptly receiving copies of drawings of existing equipment and information pertaining to it. Failure to comply with this may delay shipment.

O. These specifications do not include electrical connections or starting equipment which are to be provided by the Purchaser, unless they are specified as being included by Voith Sulzer.

P. All water connections and air connections to the equipment are to be provided by the Purchaser.