

THIS DOCUMENT DOES NOT CONSTITUTE AN OFFER TO PURCHASE BY APPLETON PAPERS INC.
PURCHASE ORDER - PRINT FOR INTERNAL USE ONLY

11/08/04

Page - 1

Order Number 28157 000 OF

Branch/Plant 1030

Shipped From VOITH PAPER INC
2200 N. ROEMER ROAD
ATTENTION:TRISH MANNING
APPLETON WI 54911-8667

Ship To Roaring Spring Mill
100 Paper Mill Road
Roaring Spring PA 16673

Ordered	03/04/04	Freight
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Requested	11/30/04	Order Taken By	Currency Code	USD	Base Currency	USD
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Delivery

Buyer's obligations contained in this Purchase Order are expressly conditioned upon the execution of a purchase agreement containing terms acceptable to Buyer.

Change Order Number One, Line Items 5 - 12, added for spare parts per Amy Metzner. Reference Voith quote 33665.

Change Order Number Two, Line 13 added to cover storage cost of cleaner system, commix, hydromix, etc. and reduced the Line 1 price to reflect \$2100 credit for deleting headbox soleplates from the scope of supply.

Line	Rev	Description	Ordered	UOM	Unit Price	PU UM	Extended Price	Request Date	Order No	Ty
1.000	4	see below	1.0000	LO	1,288,000.0000	LO	1,288,000.00	11/30/04		
MasterJet F/L with ModuleJet Hydraulic Headbox, Headbox Base, Low Pulse Rotor, Flow Processing Equipment, and Hi 5 Cleaner System in accordance with separate purchase agreement.										
2.000	2	see below	1.0000	EA	22,240.0000	EA	22,240.00	11/30/04		
Voith Spare Bottom Lip for No. 3 Paper Machine MasterJet F/L Headbox with ModuleJet										
3.000	2	see below	1.0000	EA	15,600.0000	EA	15,600.00	11/30/04		
Voith Spare Slice Blade for No. 3 Paper Machine MasterJet F/L Headbox with ModuleJet										
4.000	2	see below	1.0000	EA	20,880.0000	EA	20,880.00	11/30/04		
Voith Spare Lamella for No. 3 Paper Machine MasterJet F/L Headbox with Module Jet										
5.000	3	see below	1.0000	EA	2,225.0000	EA	2,225.00	11/30/04		
Hydraulic Cylinder for PM 3 Masterjet Headbox										
6.000	3	see below	1.0000	EA	690.0000	EA	690.00	11/30/04		
Long Spindle for Slice Blade for PM 3 Masterjet Headbox										
7.000	3	see below	1.0000	EA	1,795.0000	EA	1,795.00	11/30/04		
Electric Gear Motor for Vertical Adjustment of PM 3 Masterjet Headbox										
8.000	3	see below	1.0000	EA	1,795.0000	EA	1,795.00	11/30/04		
Electric Gear Motor for Horizontal Adjustment for PM 3 Masterjet Headbox										

Line	Rev	Description	Ordered	UOM	Unit Price	PU UM	Extended Price	Request Date	Order Number 28157 000	Order No Ty
9.000	3	see below	1.0000	EA	2,015.0000	EA	2,015.00	11/30/04		
Sensor and Electric Evaluation Device for PM 3 Masterjet Headbox										
10.000	3	see below	4.0000	EA	1,695.0000	EA	6,780.00	11/30/04		
Module Jet Valve Inserts for PM 3 Masterjet Headbox										
11.000	3	see below	1.0000	EA	2,850.0000	EA	2,850.00	11/30/04		
Pressure Transmitter for PM 3 Masterjet Headbox										
12.000	3	see below	1.0000	LO	16,893.0000	LO	16,893.00	11/30/04		
Profilmatic M Parts consisting of four(4) Actuator Motors with Profiltronic, one(1) Power Pack, one(1) Adaption Box and one(1) Distributor Box										
13.000	4	Equipment Storage Fee	1.0000	LO	995.0000	LO	995.00	11/30/04		
Total Order							1,382,758.00			
Sales Tax							Total Order			
Term	Net 30 Days		Tax Rate	*NA*			.00	1,382,758.00		

30 January 2004

Mr. J.B. Williams
Appleton
Roaring Spring Mill
100 Paper Mill Road
Roaring Spring, PA 16673

Subject: Roaring Spring PM 3 – Headbox Replacement
Voith Paper Proposal No.: 092-P03-3260-03

Dear Mr. Williams:

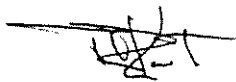
Please find enclosed our revised proposal for replacing Roaring Spring PM 3 Headbox with a MasterJet II with ModuleJet. As discussed we have offered (2) prices based on delivery. For a 10/30/2004 Ex-works delivery the price is \$1,370,000. For a 11/30/2004 Ex-works delivery the price is \$1,049,000. Please note that it is an additional (14) days for air freight (+\$22,000) or (30) days by boat (Included in base price). In addition, per our discussion this morning we have broken out the price for the Profilmatic-M (includes controls, spares and field service). To follow on Monday will be the Minor spare parts for the headbox and the headbox support structure. The Guarantees will also follow possibly late next week as I will be out of the office till Friday.

I'll be in contact with you in the next few days to discuss any questions you may have about the quote.

Should you have any questions, feel free to contact me at 920/ 731-7724 x-2225.

Very truly yours,

Voith Paper Inc



Thomas R. Kast, P.E.
Technical Sales Manager

Enc: 3 copies proposal 092-P03-3260-03

cc: Mr. Mike Radtke, Manager, Applied Technology



Voith Paper

Voith Paper Inc.
2200 N. Roemer Road (54911)
P.O. Box 2337
Appleton, WI 54912-2337 USA
Telephone: (920) 731-7724
Fax: (920) 731-0240
www.voithpaper.com

Appleton
Roaring Spring Mill
100 Paper Mill Road
Roaring Spring, PA 16673

Attention: Mr. J.B. Williams

Your reference:
Our reference: **SZG**
Telephone Extension: **2501**
e-mail: **Steve.gacek**
@voith.com
Date: **2004-03-04**

Quotation

Codeword	Roaring Spring PM 3
Project No.	092-P03-3260-04-AP
Project	Headbox

Subject to our General Conditions of Sale, we quote as follows:

New MasterJet F/L Headbox w/ModuleJet

Voith Paper North America Inc.

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Section 2.1

Basic Design Data

Machine Design Data

Paper grade

Products: Graphic Specialties
Basis weight range @ Reel (current): 41-71 lb./3300ft²
Basis weight range @ Reel (future): 35-150 lb./3300ft²
Grades: Coated Papers, Watermark, 25% Cotton (Future)

Furnish (current):

Hardwood	81 - 92 %
Softwood	8 - 19 %
Cotton	25% (Future Possible)
Filler (headbox)	13.7 – 17.6 %
Freeness (After Tickler Refiner)	380-400 CSF

Machine information:

Maximum operating speed (future)	1050 fpm	320 m/min
Maximum operating speed (Today)	1050 fpm	320 m/min
Minimum operating speed (future)	500 fpm	152 m/min
Minimum operating speed (Today)	850 fpm	259 m/min
Reel trim (max)	73 inches	1854 mm
Wire width	87 inches	2210 mm
Pond width	82.91 inches	2106 mm

VOITH PAPER

Time 1:00:4 2:50 PM

Codeword: Appleton - Roaring Spring

Headbox Calculation

Project: P03-3260-03

Date: 01/30/2004

By: SZG

Machine Data

Grades:	Graphic Specialties			
Headbox Type:	MJ-FL WMJ			
Wire Section:	Fourdrinier			
Wire Width:	87.0	inches	2.210	mm
Pond Width:	61.1	inches	2.061	mm
Wet Trim - Total:	6.1	inches	156	mm
Couch Sheet Width:	75.0	inches	1.905	mm
Design Speed:	1,050	fpm	320	m/min

Jet Wire:	1.020	ratio
Draw:	4.0	%
Stock Temp.:	100	°F
	38	°C
Density:	8.288	lb/gal
Headbox P Drop (PSI)		
	Max	Min
Qh/c	22.9	11.7
Ql/c	34.7	17.7
Qpd Tank	3.2	1.6

Production Data

Product																			Tom is 90% at .65 reasonable?
% Production					Future	Future	Future		Future	Future	Future	Future	Future	Future	Future	Future	Future	Future	
Production Basis Weight	AD lbs/ream	41.00	71.00	95.00	41.00	50.00			71.00	60.00	60.00	140.00							
	g/m ²	60.7	105.0	51.8	60.7	68.8	0.0	105.0	133.2	133.2	207.1								
Ream Size	sq ft	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300							
Size / Coating Weight	BD lbs/ream	6.25	1.20	6.00	6.25	6.00			1.20	1.20	1.20	1.20							
	g/m ²	9.2	1.8	8.9	9.2	8.9	0.0	1.8	1.8	1.8	1.8	1.8							
Base Paper	BD lbs/ream	32.5	65.9	27.1	32.5	50.7	0.0	65.9	83.9	83.9	131.1								
Coated Pa	BD lbs/ream	38.7	67.1	33.1	38.7	56.7	0.0	67.1	85.1	85.1	132.3								
Base Paper Basis Weight	AD lbs/ream	34.39	69.73	28.65	34.39	53.65	0.00	69.73	88.73	88.73	138.73								
	g/m ²	50.9	103.2	42.4	50.9	79.4	0.0	103.2	131.3	131.3	205.3								
Jet Speed	fpm	965	832	1028	965	490	0	832	760	760	490								
	m/min	294	254	313	294	149	0	254	232	232	149								
Wire Speed	fpm	946	816	1008	946	480	0	816	745	745	480								
	m/min	288	249	307	288	146	0	249	227	227	146								
Reel Speed	fpm	985	850	1050	985	500		850	776	776	500								
	m/min	300	259	320	300	152	0	259	237	237	152								
Reel Trim	inches	70.0	71.0	69.9	70.3	71.0	71.0	71.0	71.5	72.0	72.4								
	mm	1778	1803	1775	1784	1803	1803	1803	1816	1829	1838								
Dryer Shrinkage	%	6.67	5.3	6.8	6.3	5.3	5.3	5.33	4.7	4.0	3.5								
Reel Dryness	%	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5								
Gross Machine Production	AD stpd	51.4	77.9	46.7	51.6	38.7	0.0	77.9	90.8	91.4	82.1								
	AD mtpd	46.6	70.7	42.4	46.8	35.1	0.0	70.7	82.4	82.8	83.5								

Furnish Data

SWK:	%																		
HWK:	%																		
GWD:	%																		
DIP:	%																		
OCC:	%																		
Broke:	%																		
Filler:	%																		
Retention aid:	lb/ton																		
Freeness in headbox:	CF																		

Headbox Calculation Data

Headbox Coverage	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0								
Base Sheet Basis Weight at Headbox	AD lbs/ream	34.39	69.73	28.65	34.39	53.65	-	69.73	88.73	88.73	138.73								
Coverage	g/m ²	50.88	103.17	42.39	50.88	79.38	-	103.17	131.28	131.28	205.25								
Headbox Consistency	%	0.53	0.82	0.40	0.53	0.42	0.42	0.82	0.85	0.85	0.90								
First Pass Retention	%	85.9	88.6	53.0	85.9	85.0	85.0	85.0	85.0	85.0	80.0								
White Water Consistency	%	0.075	0.093	0.068	0.095	0.061	0.063	0.098	0.094	0.082	0.090								
Consistency at Couch	%	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0								
Consistency end of WWI pan	%	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
WW2 consistency	%	0.37	0.47	0.34	0.42	0.30	0.32	0.49	0.47	0.41	0.45								
Base Sheet Production at Reel	BD lpd	40.74	72.3	36.1	40.9	32.7	0	72.3	84.6	85.2	86.2								
Flow to Slice (100% Retention)	gpm/in	17.173	19.701	20.182	17.235	17.409	0.00	19.701	22.235	27.988	21.407								
Flow to Slice	gpm/in	TR	19.77	21.92	24.07	20.25	20.17	0.0	22.05	24.63	31.41	23.46							
Total Slice Flow	gpm	1.59	1604	1779	1953	1643	1637	0	1790	1998	2549	1904							
	l/min	6071	6733	7392	6221	6196	0	6774	7565	9648	7206								
Total Flow to Headbox		1604	2001	2196	1849	1841	0	2013	2248	2867	2141								
Specific Slice Flow	gpm/in	19.77	21.92	24.07	20.25	20.17	0.00	22.05	24.63	31.41	23.46								
	l/min/m	2946	3267	3587	3019	3007	0	3287	3671	4681	3497								
Theoretical head (h _v = V ² /2g)	in H ₂ O	48.19	35.89	54.76	48.19	12.42	0.00	35.89	29.91	29.91	12.42								
Slice Opening	inches	0.49	0.63	0.56	0.51	0.99	#DIV/0!	0.64	0.78	0.99	1.15								
	mm	12.5	16.1	14.3	12.8	25.2	#DIV/0!	16.2	19.8	25.3	29.3								
Contraction Coefficient		0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80								
Jet Thickness	inches	0.39	0.51	0.45	0.40	0.79	#DIV/0!	0.51	0.62	0.80	0.92								
	mm	10.0	12.9	11.4	10.3	20.1	#DIV/0!	13.0	15.8	20.2	23.4								

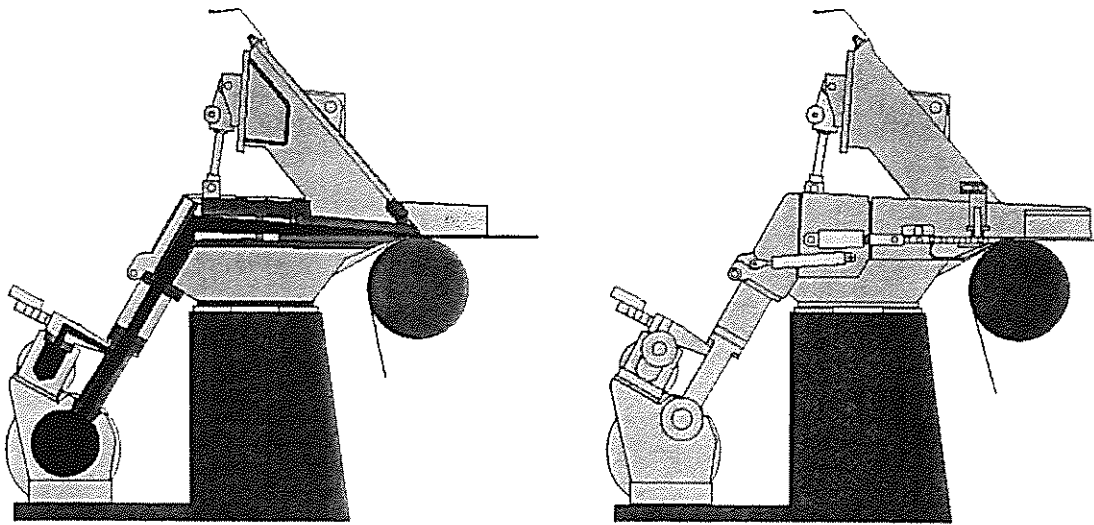
Headbox Flow Summary

QH - at Slice	gpm	2242.94	1411	1565	1718	1446	1440	0	1575	1759	2243	1675							
	l/min	8490.44	5343	5925	6505	5475	5453	0	5961	6657	8490	6341							
QH Consistency	%	#DIV/0!	0.59	0.92	0.45	0.59	0.47	#DIV/0!	0.92	0.95	0.76	1.01							
		206.20	169.37	187.84	206.20	173.55													
Recirculation	%	12.00	12.0																
QH Header Inlet Flow	gpm	2548.79	1604	1779	1953	1643	1637	0	1790	1998	2549	1904							
	l/min	9648.23	6071	6733	7392	6221	6196	0	6774	7565	9648	7206							
Dilution Water Addition	%	12.00	12.0																
DL - Dilution At Slice	gpm	305.86	192	213	234	197	196	0	215	240	306	228							
	l/min	1157.79	729	808	887	747	744	0	813	908	1158	865							
		37.49	30.79	34.15	37.49	31.55													
Dilution Recirculation	%	16.00	16.0																
QI Header Inlet Flow	gpm	364.11	229	254	279	235	234	0	256	285	364	272							
	l/min	1378.32	867	962	1056	889	885	0	968	1081	1378	1029							

Section 2.2

Technical Comments

MasterJet-F/L with ModuleJet



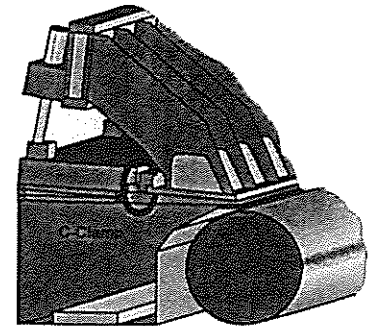
Technical Specifications

- Hydraulic headbox
 - for fourdrinier or Hybrid former
 - $v_k \leq 457 \text{ m/min} / 1500 \text{ fpm}$
 - Turbulence tube spacing = 25 mm
 - Turbulence tube length = 500 mm
 - Rod spacing = 200 mm
 - Module spacing = 64 mm
 - Material = stainless steel
- 65.8 mm

Construction

Through the C clamp design nozzle forces on the top lip are introduced into the apron board over the shortest distance. This is realized via the turbulence generator and without support in the side sections, thus creating a high stability of shape.

A precise change of the slice opening is ensured by several adjusting mechanisms, at a distance of approx. 1.6 m.



Slice Opening – Geometry

The parallelism of the slice opening is ensured by the special design principle of the „very low resistance to shear of the construction“.

If different temperatures prevail in the sensitive apron-board and top-lip beam assemblies, they exclusively cause a longitudinal expansion of machine-wide plates, and not – as is inevitably the case with closed box sections – to a bending of the entire assembly. Stiffening ribs compensate for the longitudinal expansion by slight oblique positioning, without affecting the evenness of the bottom lip and of the top-lip beam. This design makes a unit for thermal stabilization or thermal anti-deflection control superfluous without any quality losses.

Jet Impingement Point

The Jet Impingement Point is set by horizontal shifting of the bottom lip, which, mounted with the deckle plates, forms a single constructional unit.

Two hydraulic cylinders move the bottom lip via a fixture at the deckle plates with a stroke of max. 30 mm. For their synchronous movement the cylinders are fed through linear stroke flowrate dividers. In the case of wide machines, a third cylinder may be required in the headbox center.

Slice Adjustment

The slice blade is used in dilution exclusively for adjustment of the fibre orientation.

With its help the gap opening is trimmed parallel. In order to optimize the slice shape during operation with the influence of pressure and temperature, long spindles are installed as a tool for adjustment. In general optimization is done after start-up.

Short spindles for optimization of the slice geometry can be adjusted only when the machine is shut down. This type of adjustment is advisable only in the production of non-critical grades, on which the fibre orientation is not a criterion and therefore only in an exceptional case.

ModuleJet

The ModuleJet unit (sectional addition of dilution water) is used for adjustment of the CD basis weight profiles. White water is used for dilution. The white water is metered through a patented valve. The valve developed specially for the task in the ModuleJet is designed to prevent dead-water areas. Even in „closed“ position, no solids can deposit, as flushing takes place continuously through a minimal opening.

Locally, flows Q_H and Q_L are led together in the mixing chamber. The hydraulic conditions in the mixing chamber guarantee an exiting volume flow, which always remains constant with varying local mixing conditions. A throttle at the mixing chamber outlet ensures optimum blending of the two flows Q_H and Q_L .

Before the suspension flows into the turbulence generator, the flow is equalized in the connecting stilling chamber.

Profilmatic M

Optimum basis weight profiles are achieved with the Profilmatic M control system. Stepper motors with a resolution of $2.5 \mu\text{m}/\text{step}$ move the piston in the ModuleJet valve. This has a linear characteristics over the entire range of 24 mm. The unique algorithm for online mapping continuously checks the correct correlation of the measuring position to the individual actuators on the basis of the normal control actions at the scanner. This operation takes place continuously and automatically.

Bump Tests and also the Mini Bumps, which can be automated, and which cause disturbances in paper production, therefore become completely superfluous.

Stock Supply

The distribution of the stock suspension across the entire machine width is made via a parabolic header, which ensures constancy of pressure from FS to DS. The supply can come both from the FS and the DS.

For the damping of high-frequency pressure fluctuations (approx. 5 to 50 Hz) out of the approach flow system, a pulsation damper is placed ahead of the Q_H -header, which reduces this to a minimum.

Spare Parts

The bottom lip can be exchanged without any grinding work at the head-box. For this purpose it is pushed forward via the adjusting cylinders gradually in machine direction. To do so the breast roll is swiveled away and the top-lip beam opened. Then the bottom lip is pulled out sideways. The replacement bottom lip is installed in reverse order.

Teflon-coated surfaces between turbulence generator and bottom lip ensure low-friction movement and freedom from gaps after installation.

Cleaning

For cleaning purposes, the rear wall can be opened by approx. 120° to the stilling chamber. If the slice opening is also opened up to its limit (max. opening at the outlet edge approx. 150 mm), the headbox can be cleaned and visually inspected across the entire machine width from both sides. Likewise, each individual ModuleJet valve can be opened within a few seconds and cleaned with a brush. This manual cleaning is intended only for emergencies. A flushing cycle, controlled via the Profilmatic M, is fully adequate for normal cleaning operations. The valves are more intensively flushed in groups by an increased throughput of white water.

Our reference:
Tel. Extension: SZG
Date: 2004-03-04
e-mail: Steve.gacek
@voith.com

Paper Machine Specification

Codeword	Roaring Spring PM 3
Project No.	092-P03-3260-04-AP
Section	4

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Section 4.1

HEADBOX

P4020014.4C

MasterJet II F/L

headbox with ModuleJet dilution technology
for CD basis weight profile control.
Type MasterJet II F/L -25/2-MJ-H-SC-1L

High-turbulence headbox
for pulsation damper, with lateral inflow into two
headers, ModuleJet units, distribution block, stilling
chamber, turbulence tube bank and nozzle lamellae;
with horizontally adjustable bottom lip,
vertically adjustable top-lip beam,
long spindles for slice blade deflection.
Headbox of stainless steel.
Areas in contact with stock electropolished.

Design data:

Headbox size	25/2			
Pond width	82.91 in	2106	mm	
Design speed (Structural)	1500 fpm	457	m/min	
Operating speed (max.)	1050 fpm	320	m/min	
Operating speed (Future max.)	1050 fpm	320	m/min	
Operating speed (min.)	466 fpm	142	m/min	
Rod spacing (lip) approx.	7.87 in	200	mm	
Number of rods (lip)		12		
Module spacing approx.	2.59 in	65.8	mm	
Number of modules		32		
Throughput onto wire (max.)	1829 gpm	6932	l/min	
Throughput onto wire (Future max.)	2258 gpm	8548	l/min	
Throughput onto wire (min)	1716 gpm	6496	l/min	
Max. Slice Opening (running)	1.41 in	35.8	mm	
Max. Slice Opening (Cleaning)	4.7 in	120	mm	

Products:

Woodfree Graphic Specialties

Components:

- | | | |
|-----------|--|-------------|
| 1 | Apron board:
Base for the headbox, of stainless steel. | P4020901.5F |
| 1 | Supporting plate for bottom lip
horizontally moveable, of stainless steel, | P4020904.2A |
| 1 | Bottom lip
of stainless steel | P4020905.2G |
| 1 | Turbulence generator
with multi-sectional cover plate, lamella holder and rectangular structure, 2-row, spacing 25 mm.
Turbulence generator of stainless steel.
Turbulence tubes with inserts of synthetic material. | P4020919.3B |
| 1 | Lamella
Lamella of synthetic material, with holding section and structured tip. | P4020922.3E |
| 1 | Transport, protection and run-in device for lamellas
of wood and synthetic material, plus stand for cleaning | P4020923.1A |
| 2 | Side section
of stainless steel. | P4020929.4G |
| 1 | Rear wall:
of stainless steel, can be swiveled down across the entire width. | P4020937.7F |
| 1 | Swivel unit
for the rear wall, with two oil-hydraulic cylinders of mild steel & painted, equipped for connection to a hydraulic unit. | P4020941.2A |
| 1 | Top-lip beam with top lip:
For adjustment of the lip opening swivel mounted.
Beam of stainless steel, top lip of stainless steel.
.. | P4020953.4Q |
| 1 | Slice blade
of stainless steel | P4020963.1F |
| 12 | Micro-adjusting units for slice blade:
Adjustment in each case by rods and adjusting thread | P4020966.4K |

with adjustment and indication during operation.
Design of stainless steel.

- 1 Adjusting unit for bottom lip:**
horizontal parallel adjustment with electric gear motor, cross shafts,
worm gear units and limit switch; of stainless steel.
- 1 Adjusting unit for top-lip beam:**
vertical parallel adjustment with electric gear motor, cross shafts,
worm gear units and limit switch, design of stainless steel,
gear unit housing of cast iron..
- 2 Pressure Transmitters**
for total head measurement. With analyzing electronics, type VEGA
- 2 Deckle plates**
Swivel mounted to open. With connection flange for deckle boards.
Covering nozzle area.
Made of stainless steel,..
- 2 EdgeMaster (approx. 400 mm)**
Deckle boards of synthetic material.
With water sealing and cleaning shower,
inclusive adjusting valve and water distributor.
- 1 Indicating device for slice opening:**
Telescopic housing with measuring sensor and scale
as a self-contained unit.
Separate hand-measuring device for lip parallelism
and slice blade projection.
- 1 Indicating device for bottom lip position:**
Telescopic housing with measuring sensor and scale
as a self-contained unit.

P4020975.3B

P4020979.4D

P4020982.4D

P4020983.1A

P4021306.1C

P4021306.9X

P4022340.1B

1 ModuleJet

Components of each ModuleJet:

- 1 Main flow header.
- 1 Dilution water header.
Headers for lateral inflow, supports and perforated plates. Cleanout cover for main flow header.
On inflow side with flange and companion flange, internal step backwards in flow direction, on outflow side with lap flange. Headers, perforated plates and flanges of stainless steel.

32 ModuleJet units

each with mixing valve, mixing chamber and throttle.

Made of stainless steel and synthetic material.

The ModuleJet units are firmly connected with the Profilmatic motors which are listed in the section "Profilmatic M". These motors are an integral part of the ModuleJet units.

- 1 Integrated installation and transport device.
- 1 Distributor block of stainless steel and synthetic material.

P4022331.2B

1 Indicating device

for differential pressure between tending side and drive side in the headers for main water flow and dilution water flow. Fittings of stainless steel.

P4023311.1M

1 Cover plate

of stainless steel, in the area of the top lip beam.

P4023311.1N

1 Cover plate

of stainless steel, in the area of the top apron board.

P4023311.2J

1 Cover plate

of aluminum, in the area of the ModuleJet valves. This cover plate is light weight for lifting and has diamond tread for walking on.
(Ladder/Access to be supplied by mill)

P4023341.1B

1 Cleaning shower for headbox covering:

of stainless steel with mounting.

1 Handrail:

mounted on top of the Module Jet Valve cover plate for safety.
Stainless Steel.

P4025310.2B

1 Pulsation damper:

Tank of stainless steel, with turbulence tube bank of synthetic material, on inflow and outflow with flange and companion flange,

internal step backward in flow direction, one sight glass, one manhole cover, one inspection cover and one reflector to illuminate the interior. Internal shower with manual valve for the cleaning of surfaces in contact with stock. The level is maintained through connecting nozzle with regulating valve. Compressed-air fittings for connecting the damper to the compressed-air system.

Pressure vessel certification ASME

Note:

The connection of PD tank and header is included if the distance between pond width on drive side and outer diameter of tank is in the range of 3 to 5 times the header inlet diameter.

Longer distances or an angle between header and PD outlet center lines require a second pipe between PD tank and header which is **not** included.

Note: The PD tank is to be located <5 pipe diameters from the header.

1 Sole plates

P4640210.1B

of cast iron, with T-slots. Top side and T-slots planed. Foundation and adjusting bolts of steel.

Engineering

P4029993.1C

The engineering of the headbox for inclusion in the existing plant is part of Voith Paper's scope of supply and comprises the following work:

- Stock and water flow diagram for the headbox area (required components, volume flow (accept), dimensioning of pipes to and from headbox, recommendation for fittings, without process lines; without dilution water line)
- Foundation plan
- Load plan
- Piping plan
- Operating instructions for the headbox
- Assembly drawing
- Bills of material (Works Order Sheets)
- Static head table and static head formula

Manuals

P4029701.1A

Manuals in English language;
4 copies including assembly drawing.

P4027117.1A

1 Profilmatic M System for ModuleJet

Electronic control parts for Profilmatic M as CD profiling system for o.d. basis weight.

Components of each system:

- 32 Electric motor-driven Smart-actuators with stepping motors, position transmitters and integrated control electronics (ProfilTronic).
- 1 Control box with built-in power supply units wired-up ready for connection to distribution boxes on headbox, for local installation.
- 2 Siemens PC's, each with
 - interface to quality control system (QCS),
 - interface to the actuators of the CD profile control system.
- 1 Control cabinet for installation of Siemens PC's
- 1 Keyboard, 1 colour monitor, 1 hardcopy colour printer.
- 1 Software package (ModuleProfiler) for CD profile control system.

For operation of the Profilmatic only one processor unit is always required. The actual data are updated on both CPU's. The second CPU can take over all functions within a very short time.

The NIC contains a user interface (monitor, keyboard, mouse) for operating personnel. If it is operated by single window via the QCS, the integrated user interface is required only for service and start-up.

All actuators are prewired on headbox and tested before they leave the factory. The start-up time of the actuators can therefore be kept very short.

The power packs are installed in a cabinet for in-situ installation. The power supply cabinet has to be mounted close to the headbox and the cable connection to the headbox has to be installed.

The Profilmatic L interface to the QCS contains the necessary interface boards 20 mA current loop or Ethernet TCP/IP.

Data Links to foreign Quality Control Systems

(not Voith Paper QCS)

For communication with the current Quality Control Systems in the paper industrie, the Profilmatic provides the interface software, optionally for the following standard protocols:

- Standard Profilmatic protocol on the basis of Procedure 3964 R (e.g. for Siemens, Honeywell and Valmet couplings)
- ABB DIU Communication Protocol
for ABB 1190 TM Data Interchange Unit
- ABB AccuRay Micro System Communication Standard Protocol
BC_S_101018-001 for AccuRay 1180 System
- Measurex Standard Profile Communication Link (SPCL), MN 3324
for Measurex VISION, ET2000 (Master/Slave)
- Measurex Open Data Exchange (ODX) for MX-Open is compatible with Davincci.
- Yokogawa Data Link to Profilmatic ASR11-127, June 6th, 1996
for BM/7000XL
- Siemens H1 (ISO8073) protocol

Here not listed communication protocols to foreign QCS are not part of this scope of supply and have to be quoted separately.

For a CD control by Profilmatic the QCS must meet the following requirements:

- Transmission of unfiltered o.d. basis weight and moisture
CD profile data after each traversing.
- Transmission of the necessary process data, such as total flow
rate to the headbox and machine speed
- Number of data values in profile data at least 3 x number of
actuators.
- Technical clarification of the exchange of further information.

To be provided by the QCS supplier:

- The necessary hardware and software for the interface to
Profilmatic on the QCS side.
- Any necessary adaptations on the user interface of the number of
actuators and data boxes.

Kick off / technical clarification for Profilmatic

P4027117.1C

For the technical clarification of the Profilmatic integration, an expert will be send for one day onsite with the beginning of the order processing.

Field installation, field cabling and start-up are not included.

P4980271.1A

Profilmatic M start-up

A start-up engineer will carry out the functional test, start-up, personnel training and optimization of the Profilmatic M – These services can be found in section 6 under controls. They have been removed from the headbox base price.

The costs for travel expenditures, accommodation and allowance are included in the price (in section 6). This also includes time for preparation and follow-up work as well as traveling times.

Training for operating and maintenance personnel takes place during start-up period. An additional training, including extra travel will be charged according to the costs actually incurred.

If our engineer has to stay longer than scheduled due to delays that are not attributable to Voith Paper, the extra time will be charged according to the costs actually incurred.

P4400200.5T

CONTROLS AND INSTRUMENTATION

General

The C&I basic engineering comprises C&I circuit standard documentation without plant-specific data.

The designations used in the C&I standard documentation such as plant identifier, location identifier, plant texts, etc. correspond to the VOITH PAPER standard (there will be no coordination with the customer).

Detailed and order-related documentation is part of either SYS or CUSTOMER supply.

The C&I standard documentation of C&I engineering comprises the following basic documents:

- Group list
- I/O list
- Description of function
- Function diagrams
- Hardware diagrams
- Terminal diagrams (for boxes within VOITH PAPER's scope of supply)
- Device list
- Device specification (manufacturer)

With regard to design standard, limits of supply, engineering, etc., of the following C&I specification, our C&I standard publication 1.12-11200 shall apply, which forms part of this specification.

Modifications with respect to this publication and to the present specification require a price correction. Devices for headbox are always supplied only according to VOITH PAPER standard.

The control tasks and the control logic are implemented in a process control system (PCS) and/or in a programmable logic controller (PLC):

Procurement / extension of these systems and the programming of which are not included in our scope of supply.

Headbox control will be through customer supplied DCS. Customer to program DCS based on formulas, logic and function descriptions provided by Voith.

Headbox

The scope of supply and services comprises the supply of the devices according to VOITH PAPER standard, including the above-described basic engineering for the C&I circuits listed below:

Operation and Monitoring

P4400200.2T

1 Instrument box

P4400202.1W

of stainless steel sheet. Includes push button for vertical slice adjustment, bottom lip adjustment, rear wall swivel, local indication of slice opening and bottom lip position.

Control Functions

P4400200.3T

1 Lip position,

electr.

P4400261.1F

adjustment (electr. motor)

1 Bottom lip position,

electr.

P4400253.1F

adjustment (Electric motor)

1 Rear wall

electr. hydr.

P4400256.2A

swivel unit (hydr. cylinder)

with hydraulic unit and small oil tank,
as stand alone unit.

Including required field piping. 12 meters included

1 Pneumatic cabinet for the pulsation damper:

P4400286.1E

with electropneumatic control for cleaning shower
and air damping.

1 Lighting for pulsation damper

electr.

P4400291.2L

P4400200.4T

Instrumentation and Control Loops

1 Overall Pressure Measurement

electr.

P4400214.1N

with 2 VEGA flange mounting transmitters

Fan pump control in the customer DCS

1 Slice blade position,

electr.

P4400259.2M

measurement

1 Bottom lip position,

electr.

P4400259.9X

measurement

Dilution water line ModuleJet

The following is required for control of a dilution control headbox, but is not included in our scope of supply.

- 1 L/C pump with variable speed control
- 1 L/C dilution screen with associated instrumentation, including flow meter on reject line and screen supply line.
- 1 L/C indicating control and flow rate ratio calculation in customer DCS to be programmed by customer based on formulas provided by Voith.

P4020009.9X

Headbox prepiping:

Piping of all pneumatic, hydraulic, lubrication and water lines between service point and central termination point near drive side sole plates, about 300 mm above sole plates, for connection to the purchaser's utilities.

Fitting according to VOITH standard,
Document 1.12-11200d/e, USA 1.12-13400.

Screwed or welded connections of water lines and
pneumatic lines

Ermeto tube fittings acc. DIN 2353 for all hydraulic lines

Mounting brackets of stainless steel

Tubes and fittings of stainless steel

Internal fittings ERMETO with progressive ring
according to DIN 2353 including screw sockets

Note: Require US standard fittings at connection points.

Headbox wire conduit:

Open conduit of stainless steel

Junction boxes and connection fittings of stainless steel

Conduit runs provided from the electrical devices to conveniently located
terminal box

Proximity switches terminated at local junction box

Mounting rails of stainless steel

Further electrical wiring provided by customer

Note:

Motors to be 480V / 3 phase / 60 hz.

Workshop erection

In the workshops of VOITH PAPER or its subsuppliers the specified components are erected, pre-tubed and pre-wired up to the connecting points. Functional test are run.

Packing und shipping

The headbox is packed and shipped in units.
The units are described as follows:

Headbox

Unit 1: headbox

Completely mounted including stilling chamber, the interfacing component is checked for proper fitting; packed in a wooden box or container.
Weight approximately 3400 kg

Unit 2: ModuleJet

Unit consisting of two headers and distributor block with ModuleJet mixing units and Profilmatic M actuators; openings of headers are closed; packed in a wooden box or container.
Weight approximately 1200 kg

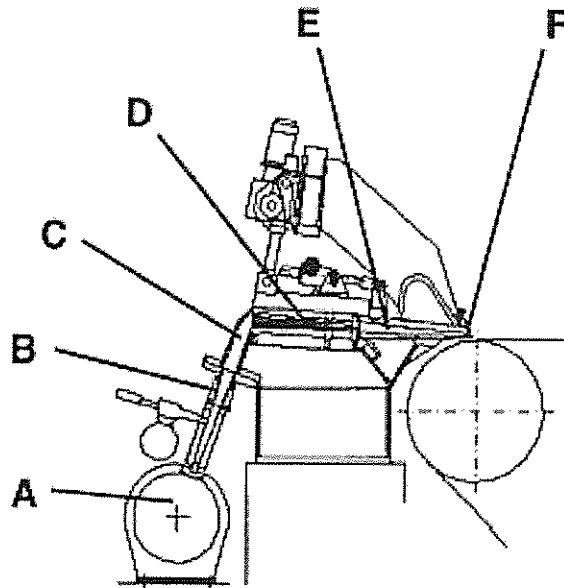
Unit 3: pulsation damper

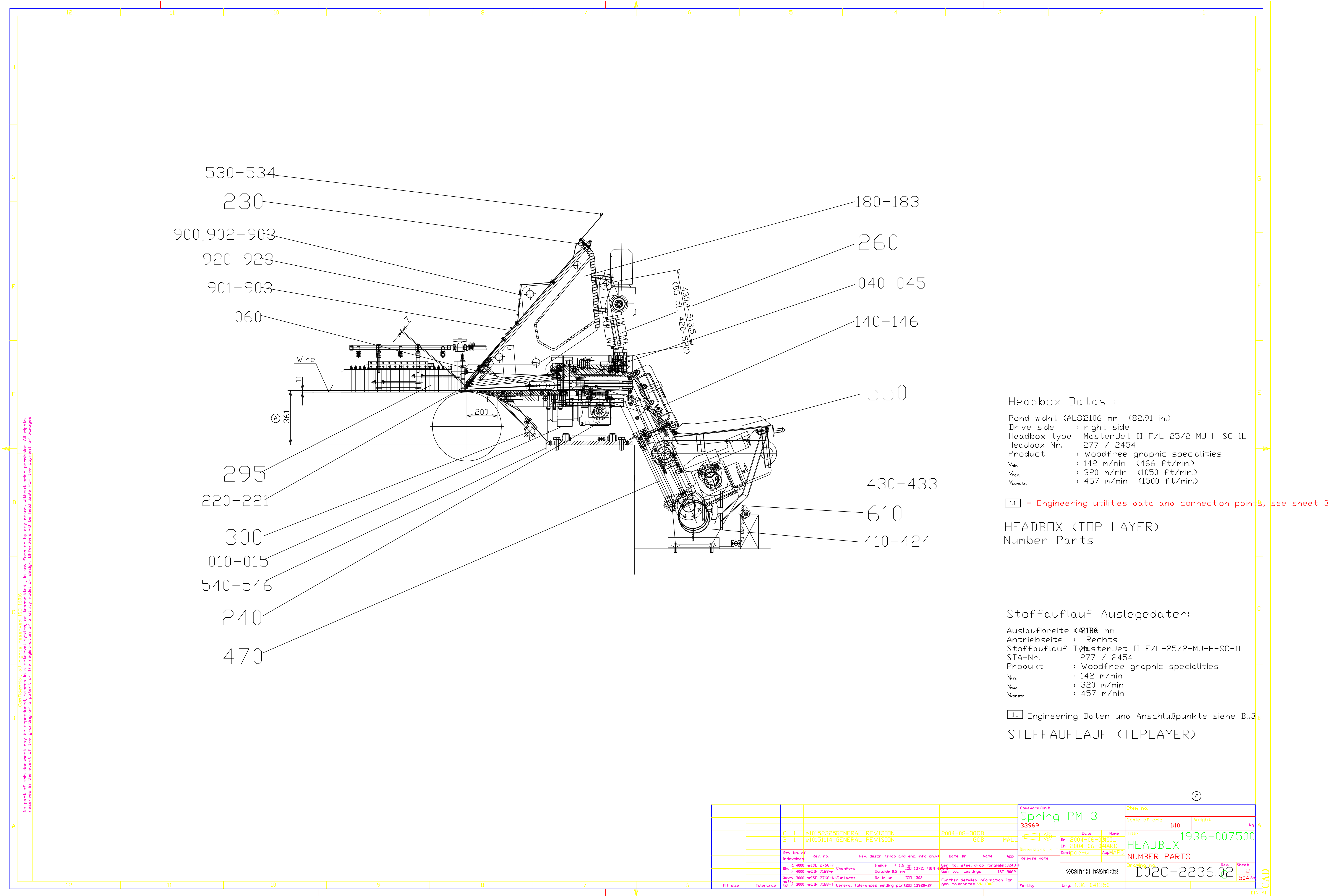
Complete tank with step diffuser plate, closed in- and outlet; packed in a wooden box or container.
Weight approximately 500 kg

Components such as handrails or shrouds, electrical devices and other small parts are packed separately or into existing boxes/containers as possible.

Surface Finishes

		R_a (μm)	RMS (μin)	Machining
	Stock Approach Piping + Acceleration Elbow	.8	32	Electropolished
A	Cross header	.4 - .6	16-24	Electropolished
	Weld seam	.7	28	Electropolished
B	Distributor block	.3 - .4	12-16	Electropolished
C	Stilling chamber	.15 - .2	6-8	Electropolished
D	Turbulence tube bank			
	Inlet plate	.15	6	polished
	Synthetic inserts	.4	16	
E	Nozzle area			
	Apron board	.15	6	Electropolished
	Bottom lip	.15	6	Electropolished
	Top lip beam	.15	6	Electropolished
	Deckle plate	.15	6	Electropolished
F	Slice lip	.15	6	Super finished
	Pulsation Damper			
	Tank	0.4	16	Electropolished
	Tank (weld seam)	0.85	34	Electropolished
	Perforated Plate-			
	Drilled Holes	0.8	32	
	Surface	1.3	52	
	Inlet	0.2	8	Electropolished





Headbox Datas :

Pond widht (AL:B)2106 mm (82.91 in.)
Drive side : right side
Headbox type : MasterJet II F/L-25/2-MJ-H-SC-1L
Headbox Nr. : 277 / 2454
Product : Woodfree graphic specialities
V_{min} : 142 m/min (466 ft/min.)
V_{max} : 320 m/min (1050 ft/min.)
V_{konstr.} : 457 m/min (1500 ft/min.)

11 = Engineering utilities data and connection points, see sheet 3

HEADBOX (TOP LAYER)
Number Parts

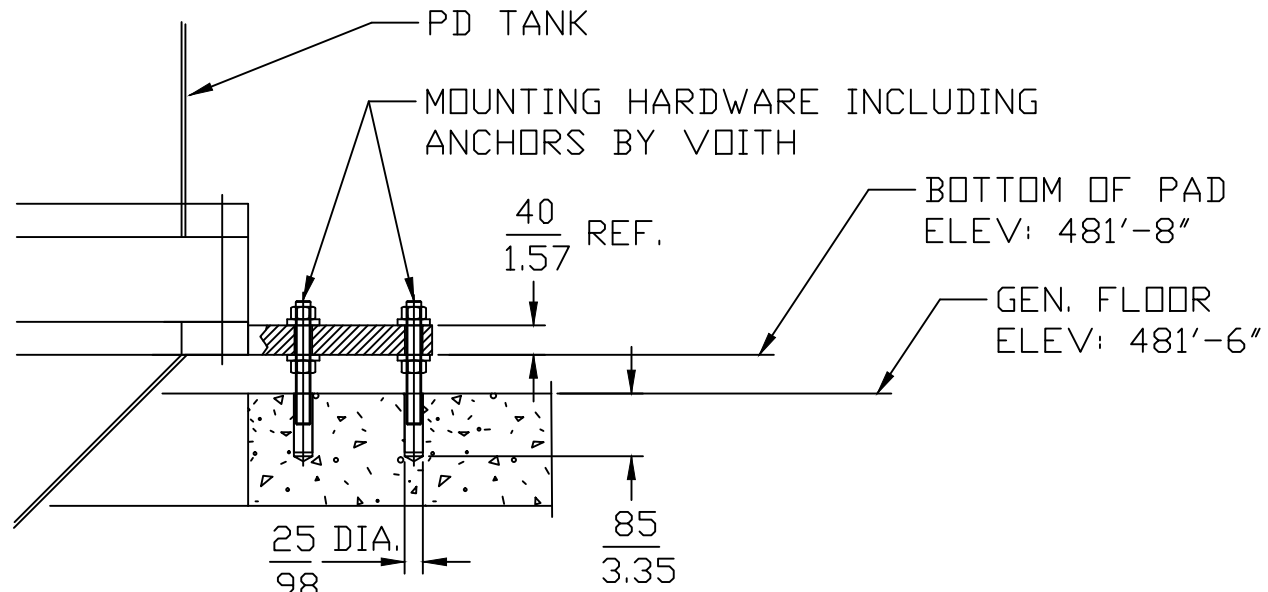
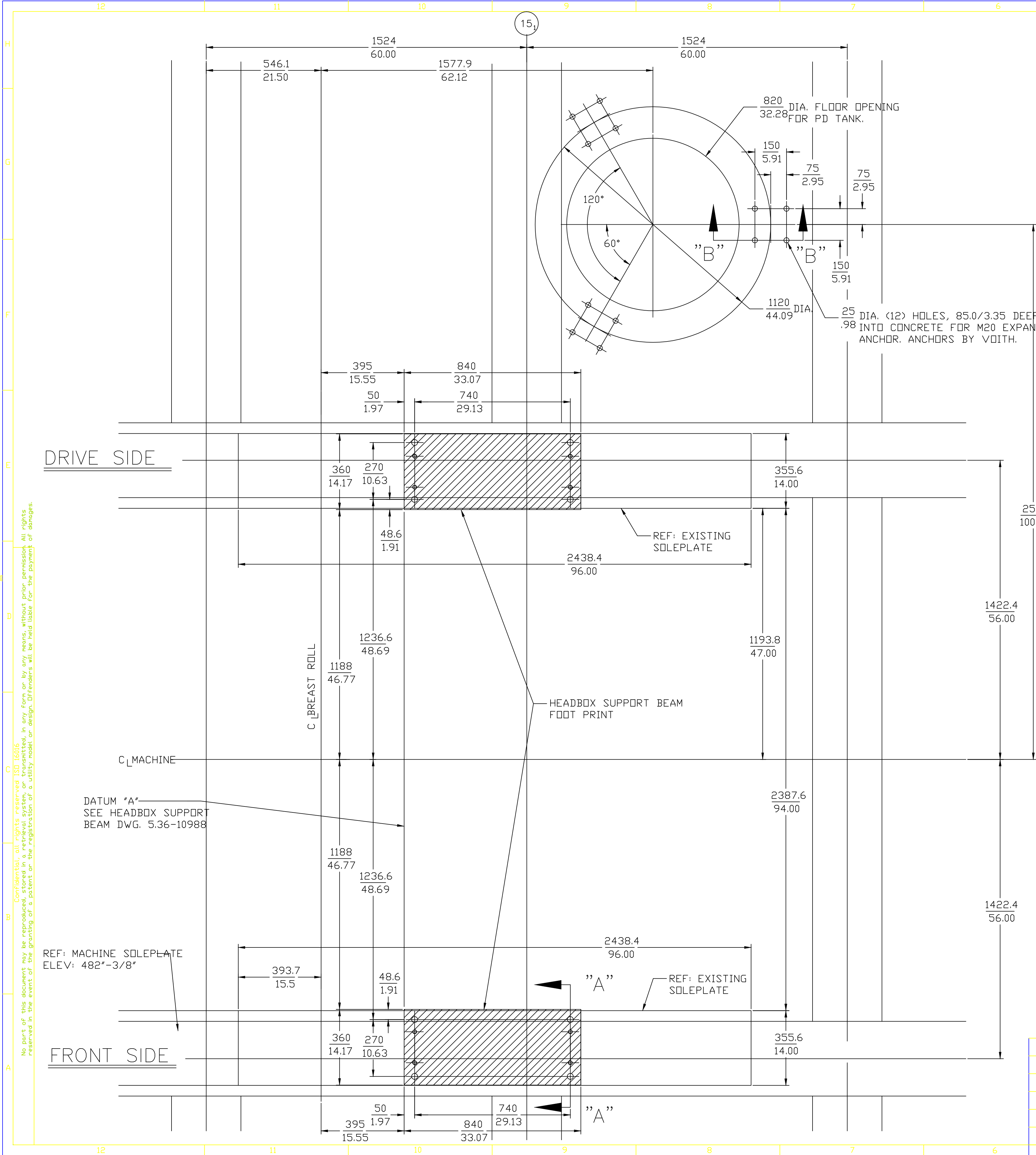
Stoffauflauf Auslegedaten:

Auslaufbreite (AL:B)2106 mm
Antriebsseite : Rechts
Stoffauflauf Typ : MasterJet II F/L-25/2-MJ-H-SC-1L
STA-Nr. : 277 / 2454
Produkt : Woodfree graphic specialities
V_{min} : 142 m/min
V_{max} : 320 m/min
V_{konstr.} : 457 m/min

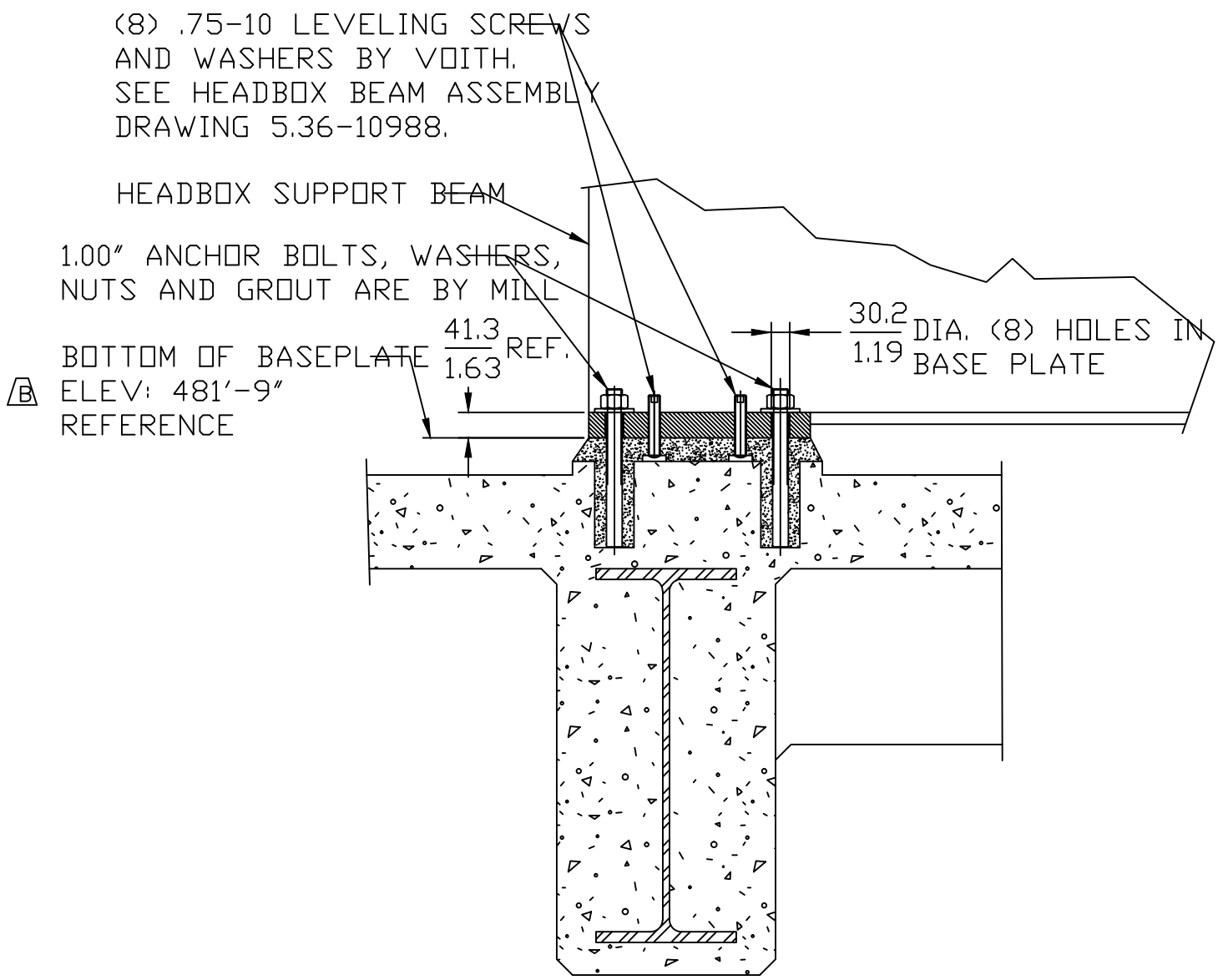
11 Engineering Daten und Anschlußpunkte siehe Bl.3
STOFFAUFLAUF (TOPLAYER)

Codeword/Unit Spring PM 3 33969				Item no. 1936-007500	
Scale of orig. 1:10		Weight kg			
Rev. No. of Index times	Rev. no.	Rev. descr. (shop and eng. info only)	Date	Dr.	Ch.
C 1	e101523256	GENERAL REVISION	2004-08-30	CB	
B 1	e10151114	GENERAL REVISION		IGCB	
Rev. No. of Index times		Rev. no.	Rev. descr. (shop and eng. info only)	Date	Dr.
Bn < 4000 mm ISO 2768-M		Chamfers	Inside + 1.6 mm ISO 13715 (DIN 6875)	Gen. tol. steel drop forging	ISO 2443
Bn > 4000 mm DIN 7168-M		Surfaces	Ra in µm ISO 1302	Gen. tol. castings	ISO 8062
Gen. < 3000 mm ISO 2768-M		Surfaces	Ra in µm ISO 1302	Further detailed information for gen. tolerances VDI 1813	
Gen. > 3000 mm DIN 7168-M		General tolerances welding part	ISO 13920-BF		
Fit size		Tolerance			
Facility				Orig. 1.36-041350	

Dimensions in mm		Title	
Dr.	2004-06-08	Dr.	2004-06-08
Ch.	2004-06-08	Ch.	2004-06-08
Dep.	2004-06-08	Dep.	2004-06-08
Release note		Release note	
VOITH PAPER		D02C-2236.02	
Rev.		Rev.	
2		2	
Sheet		Sheet	
504		504	



SECTION "B-B"
TYP. (3) MOUNTING PADS



SECTION "A-A"
TYP. FRONT SIDE & DRIVE SIDE

NOTE:

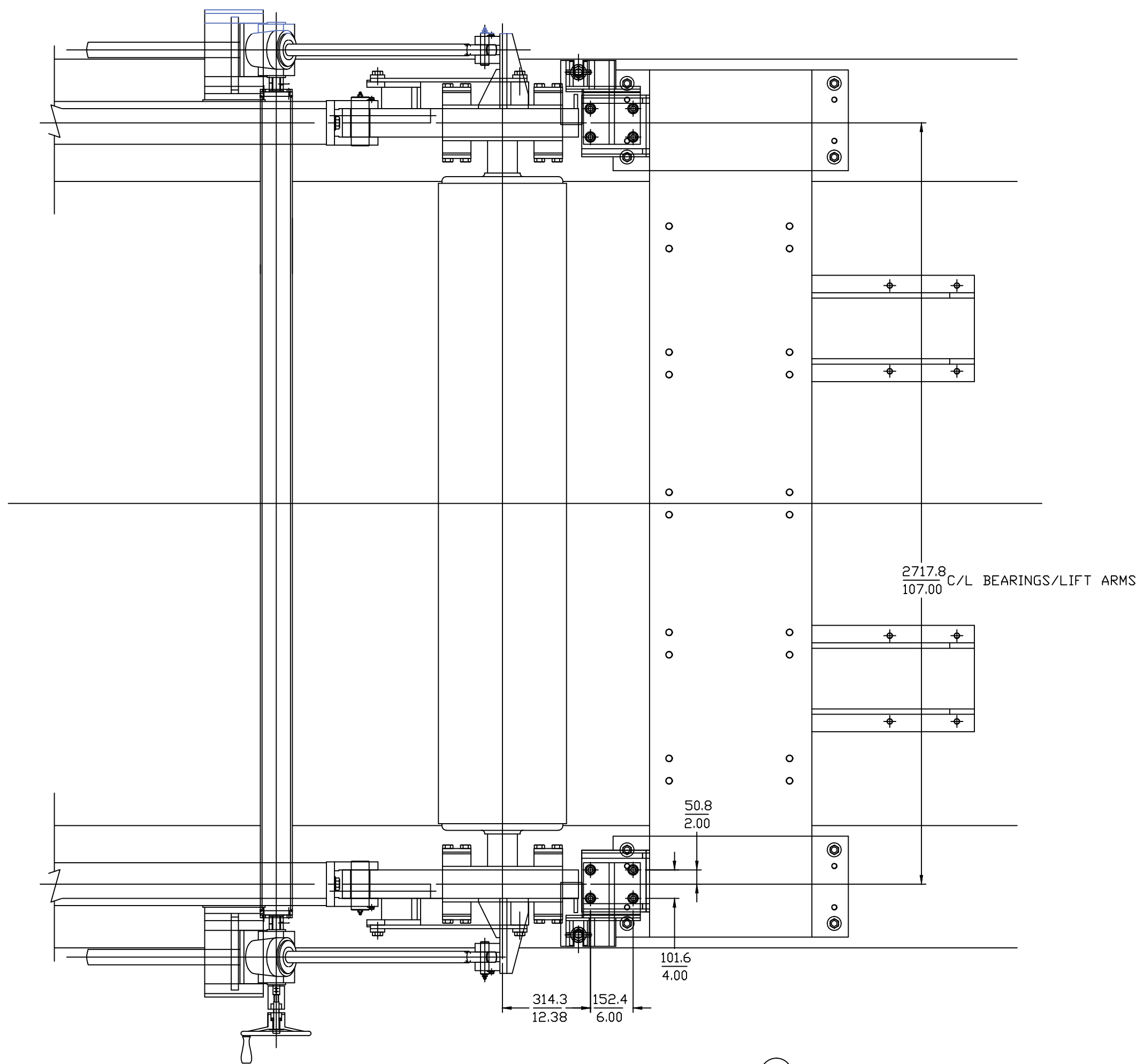
- EXISTING SOLEPLATES IN HEADBOX AREA TO BE REMOVED.
- SEE LOAD PLAN DRAWING 5.31-1753.
SEE HEADBOX SUPPORT BEAM ASSEMBLY DRAWING 5.36-10988.
SEE HEADBOX ASSEMBLY DRAWING 1936-7500

Headbox Layout Data:

Pond width	: 2106 mm / 82.9 in.
Drive side	: right hand
Headbox type	: MasterJet II F/L-25/2-MJ-H-SC-1L
Serial No.	: 2454
Product	: Woodfree graphic specialities
V _{min}	: 142 m/min / 466 fpm
V _{max}	: 320 m/min / 1050 fpm
V _{design}	: 457 m/min / 1500 fpm

DIMENSIONS MILLIMETERS
INCHES

Codeword/Unit				Item no.			
ROARING SPRING				PM3			
101657				Scale of orig. 1:10			
B 1 p21123106REVISED BASEPLATE ELEVATION				Date 2004-06-28			
A 1 p21122681CERTIFIED				Name 2004-07-28			
Rev. No. of				Title 5.36-10987			
Isometrics				Drawing no. D02C-2236.05			
Rev. no.				Rev. 1			
Rev. descr. (shop and eng. info only)				Sheet 1			
Date: Dr.				Appr. B			
Name				Appr. B			
App.				Appr. B			
Release note				Appr. B			
Unspecified Fillets and Chamfers: 0				Appr. B			
Angular Tolerance: 35/64 0 33/64				Appr. B			
Unspecified Surface Finish: 25				Appr. B			
Unspecified Hole Dimensions: 25				Appr. B			
Unspecified Keyway Dimensions: 25				Appr. B			
Unspecified Dimensions in inches, unless otherwise specified				Appr. B			
Fit size				Appr. B			
Tolerance				Appr. B			
True Position				Appr. B			
Facility				Appr. B			
Drig.				Appr. B			

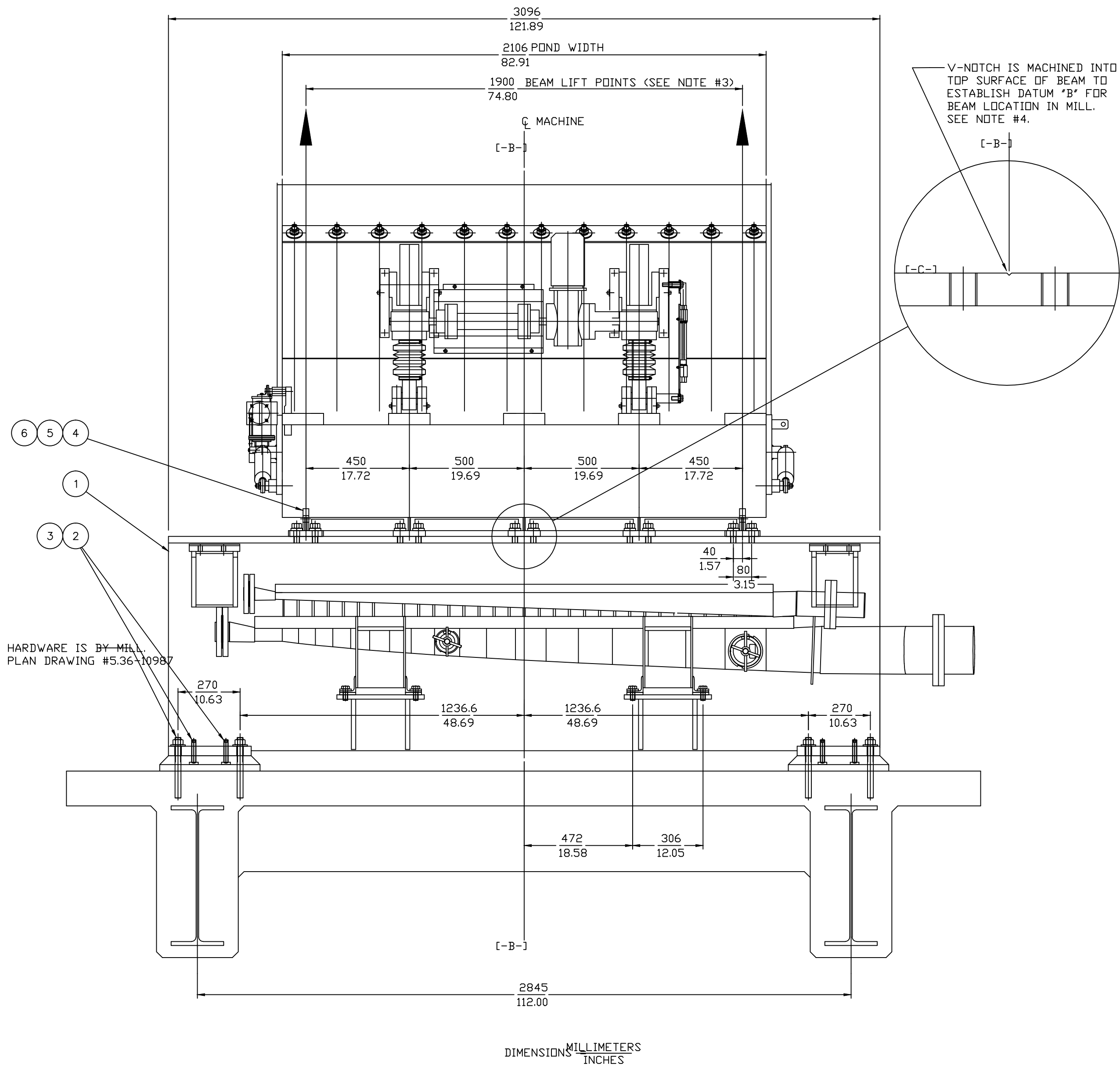
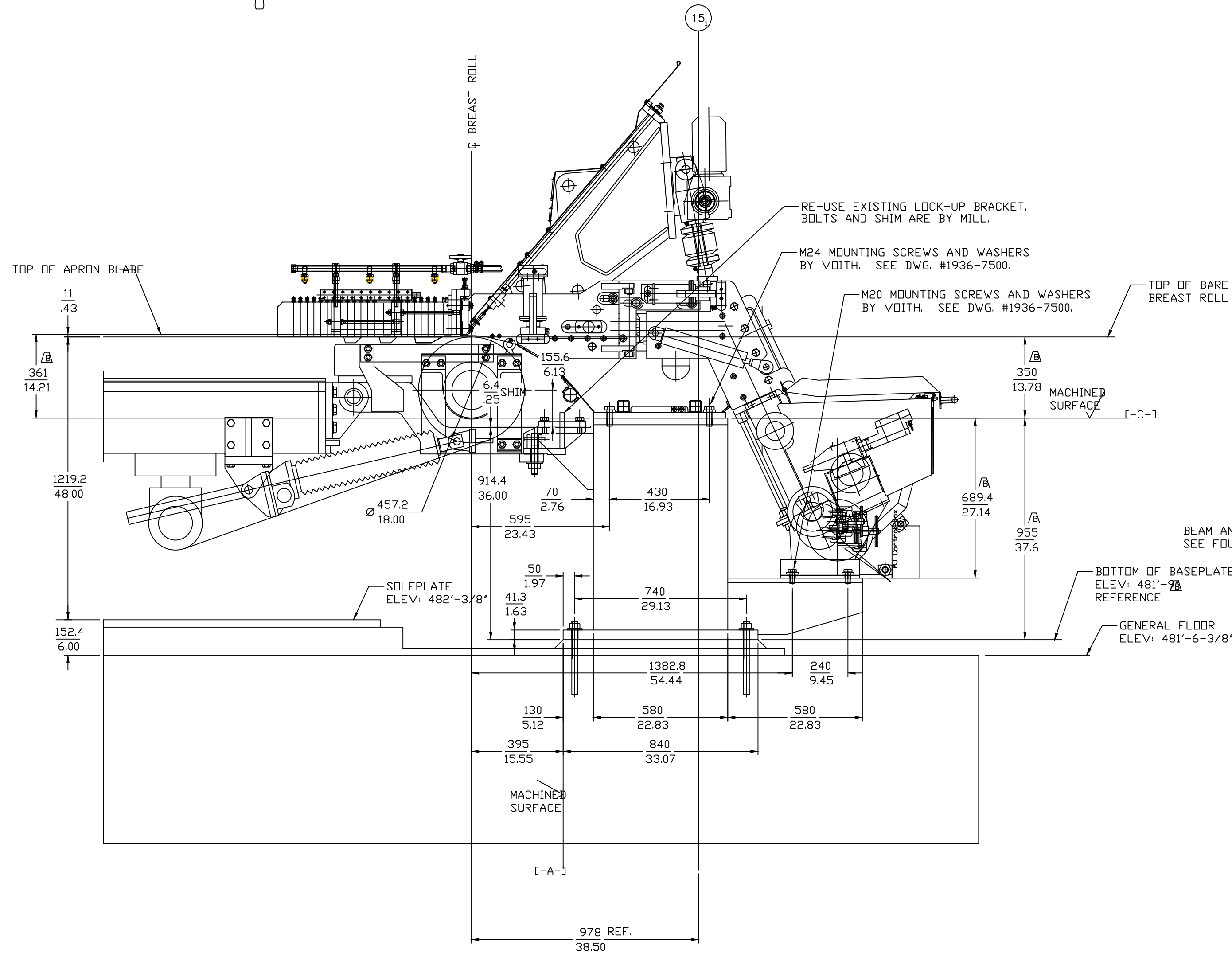


Headbox Layout Data:

Pond width : 2106 mm / 82.9 in.
Drive side : right hand
Headbox type : MasterJet II F/L-25/2-MJ-H-SC-1L
Serial No. : 2454
Product : Woodfree graphic specialties
V_{min} : 142 m/min / 466 fpm
V_{max} : 320 m/min / 1050 fpm
V_{avg} : 457 m/min / 1500 fpm

NOTE:

- WEIGHT OF HEADBOX SUPPORT BEAM = 5200 LBS.
- SEE FOUNDATION PLAN DRAWING #5.36-10987.
SEE LOAD PLAN DRAWING #5.31-1753.
SEE HEADBOX ASSEMBLY DRAWING 1936-7500.
- BEAM LIFT LUGS (BUBS #4, 5 & 6) ARE PROVIDED BY VOITH FOR HANDLING OF THE BEAM DURING MILL INSTALLATION. USE A TWO HOOK CRANE OR SPREADER BEAM TO ENSURE A VERTICAL LIFT AT EACH LIFT POINT. LIFT LUGS ARE TO BE REMOVED AND DISCARDED WHEN BEAM INSTALLATION IS COMPLETE.
- LOCATE THE HEADBOX SUPPORT BEAM IN THE MILL USING DATUMS 'A', 'B', & 'C'. VOITH ERECTOR TO VERIFY FINAL POSITION OF THE HEADBOX APRON BLADE RELATIVE TO C/L OF BREAST ROLL PRIOR TO SETTING THE BEAM.



DIMENSIONS IN MILLIMETERS		INCHES	
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759	760	761	762
763	764	765	766
767	768	769	770
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775	776	777	778
779	780	781	782
783	784	785	786
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791	792	793	794
795	796	797	798
799	800	801	802
803	804	805	806
807	808	809	810
811	812	813	814
815	816	817	818
819	820	821	822
823	824	825	826
827	828	829	830
831	832	833	834
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839	840	841	842
843	844	845	846
847	848	849	850
851	852	853	854
855	856	857	858
859	860	861	862
863	864	865	866
867	868	869	870
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875	876	877	878
879	880	881	882
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887	888	889	890
891	892	893	894
895	896	897	898
899	900	901	902
903	904	905	906
907	908	909	910
911	912	913	914
915	916	917	918
919	920	921	922
923	924	925	926
927	928	929	930
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947	948	949	950
951	952	953	954
955	956	957	958
959	960	961	962
963	964	965	966
967	968	969	970
971	972	973	974
975	976	977	978
979	980	981	982
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999	1000	1001	1002

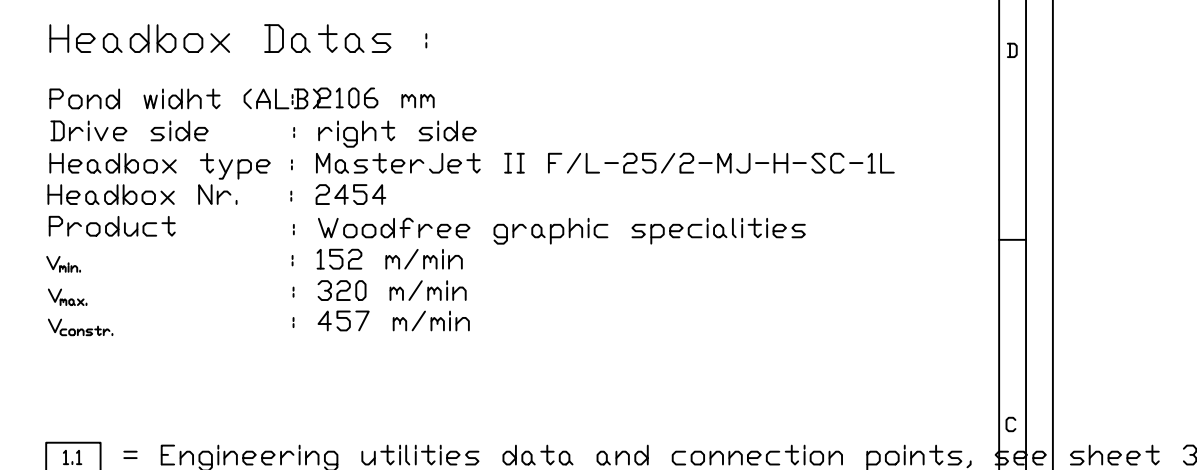
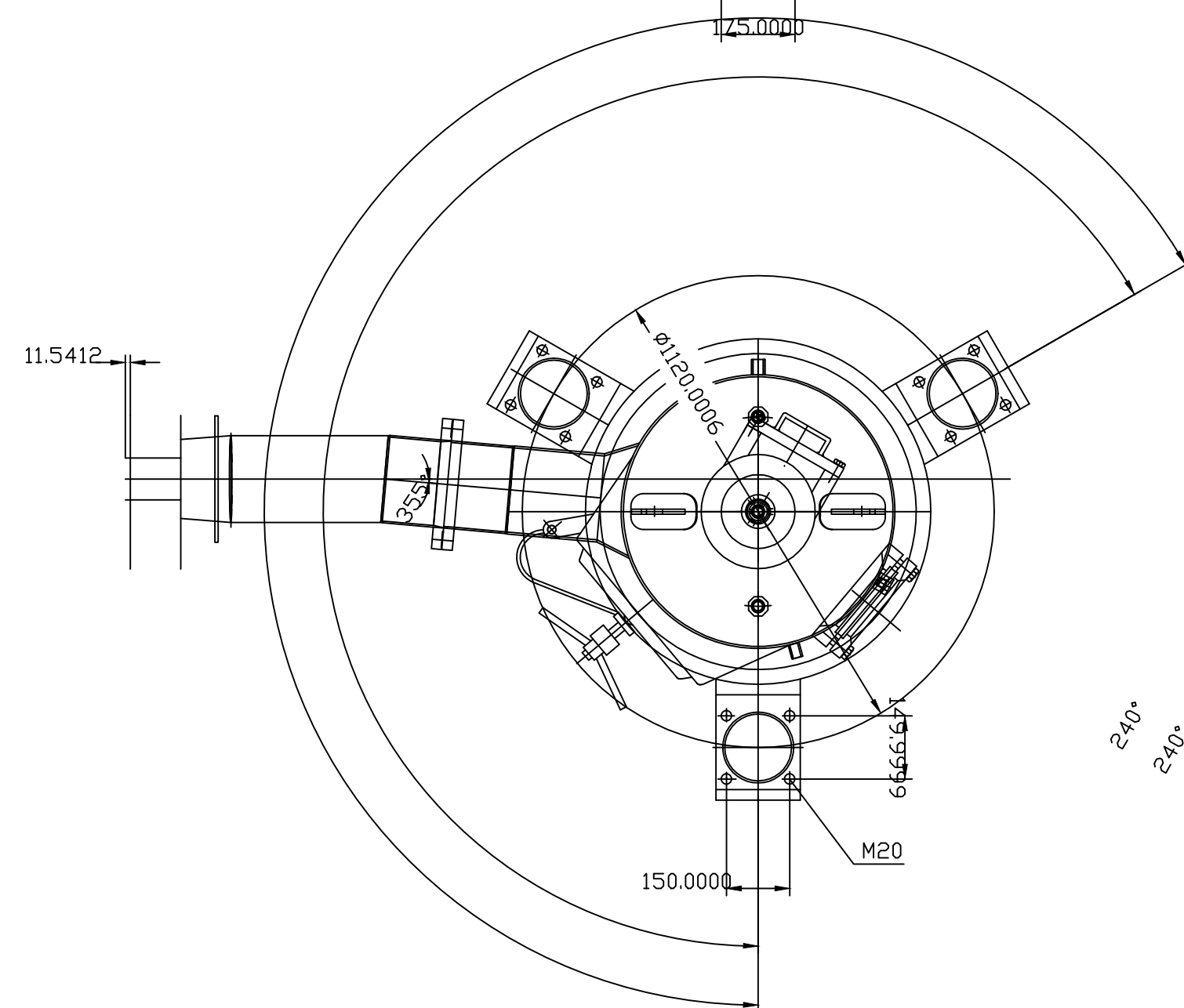
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5.36-10988

INSTALLATION DRAWING

HEADBOX SUPPORT BEAM

VOITH D02C-2236.06 B 1 1



Stoffauflauf Auslegedaten:

Auslaufbreite	4256 mm
Antriebsseite	Rechts
Stoffauflauf	Typster Jet II F/L-25/2-MJ-H-SC-IL
STA-Nr.	2443
Produkt	Woodfree graphic specialties
V _{an}	152 m/min
V _{ax}	320 m/min
V _{max}	457 m/min

1.1 Engineering Daten und Anschlußpunkte siehe Bl.3

[illegible]