Otter River Water Treatment Plant Finished Water Pump Upgrades

Project No. 81-2426

Addendum No. 2

February 10, 2026

To Offerors:

ADDENDUM NO. 2 is hereby made a part of the Contract Documents on which the Contract will be based, and is issued to modify, explain and/or correct the original contract documents. Receipt of this Addendum must be acknowledged where indicated on the Bid Form.

Questions and Clarifications

No.	Question/Clarification	Response
1	Could CCUSA provide cut sheets for the new Finished Water Pump #3?	See attached cut sheets for Finished Water Pump #3.
2	Can you please clarify the limits of existing pipe that needed to be prepped and repainted per Note 1 on drawing PM-2. We assume this includes the 24" discharge pipe adjacent the finished water pumps plus the new 12-16" DIP connecting to the pumps. It is unclear if we should include cost for repainting any piping above the ladder on Detail 4 of PM-2 or any of the smaller diameter pipe.	The following is to be prepped and painted: - Finished Water Pump #3 and its motor - New and existing Finished Water Pump 1/2/3 discharge piping/valves between the pump flanges and the 24" header pipe - The 24" header piping/fittings from the Finished Water Pump #3 tee to the wall where the 24" pipe exits the building The following are *not* to be prepped and painted: - The piping/valves associated with the surge relief valve - The piping/valves to the east of the Finished Water Pump #3 tee underneath the overhang

Attachments

1. Finished Water Pump #3 Cut-sheets

*****END OF ATTACHMENTS*****

Trey Wilkins, PE
RK&K Project Manager

Layne/Verti-Line

Pentair Water

July 12, 2007

Wood Equipment Company
8450 Old Richfood Road
Mechanicsville, VA. 23116

Subject:	Purchase Order Number:	58302
	Factory Order Number:	012033
	Project:	Campbell County Utility Otter Water Plant Evington, VA.

To Whom It May Concern:

Record submittal data for the above order is attached. This submittal is for your files.

Very Truly Yours,

Specifications Department
Pentair Pump Group

Return Submittal to: **Carolyn Crews**
Project Administrator

cc: File

Enclosures: (6) sets Submittal
(6) sets O&M Manuals

3601 Fairbanks Ave. • P.O. Box 6999 • Kansas City, Kansas 66106-0999
913-371-5000 • Fax: 913-371-2272

Pentair Pump Group
General Clarifications

1. The supply and installation of the following items are by others unless otherwise identified in this submittal.
   - Anchor bolts, nuts and washers.
   - Gauges, valves and miscellaneous fittings and adapters.
   - Connecting piping and/or supports.
   - Maintenance lubrication, lubrication piping and related equipment.
   - System control apparatus.
   - Maintenance tools and/or storage boxes.
   - Equipment tags
   - Installation or field performance testing.
2. The following items are to be installed in the field:
   - Accessory items that are shipped separately.
3. Verification and/or confirmation of the following is requested at or prior to release of this equipment.
   - Overall lengths or elevations

Pentair Pump Group
Submittal Data
For
Campbell County Utility
Otter Water Plant
Evington, VA.

Supplier:	Wood Equipment Company
Manufacturer:	
Pump	Pentair Pump Group Layne/Verti-Line 3601 Fairbanks Ave. Kansas City, Kansas 66106-0906 (913) 371-5000
Order Number:	012033
Quantity:	1
Pump Size & Model:	16GM 1100 AW

Pentair Pump Group
Table Of Contents

- Pump to ship assembled
- Full data nameplate
- Dynamic balanced impellers
- Four stage vertical turbine bowl assembly
- Bronze wear rings
- 12" Flanged column
- 416 Stainless steel 2-3/16" open lineshaft and couplings
- 316 Stainless steel column bolting
- 20 X 12 X 24 Double barrel type "L" discharge head with 300 lb. discharge flange rating – to match original centerline up and out and base plate dimensions
- 400 PSI packing box
- 416 Stainless steel drive shaft

1. Refer also to clarifications that may be included on the vendor submittal.

Layne/Verti-Line
Pentair Water

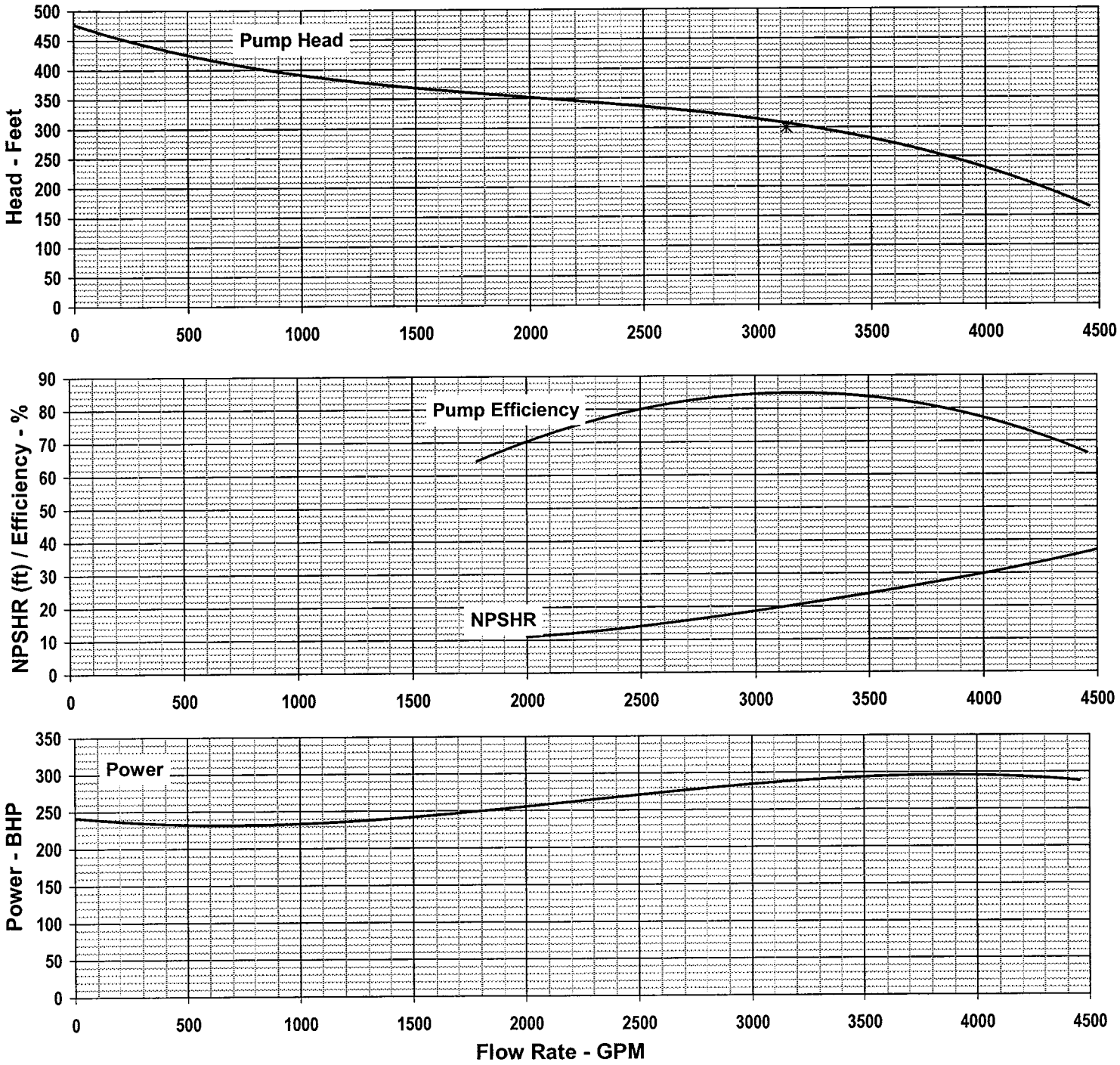
16GM-1100AW SUBMITTAL CURVE

CURVE NO.:	012033C
REV. 0	FOUR STAGES
PROJECT NO.:	012033

SPEED	IMPELLER	DIAMETER	VANE
1785	STD	11.20	-
SPHERE	DRIVER	DATE	BY
1.42"	300	4/2/2007	KMC

THIS CURVE IS BASED ON THE ACTUAL TEST PERFORMANCE OF A SIMILAR PUMP. ONLY THE INDICATED POINT(S) IS GUARANTEED.

GUARANTEED VALUES			
FLOW	HEAD	EFF.	BHP
3125	300		

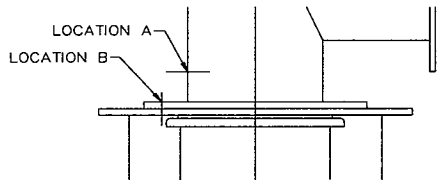


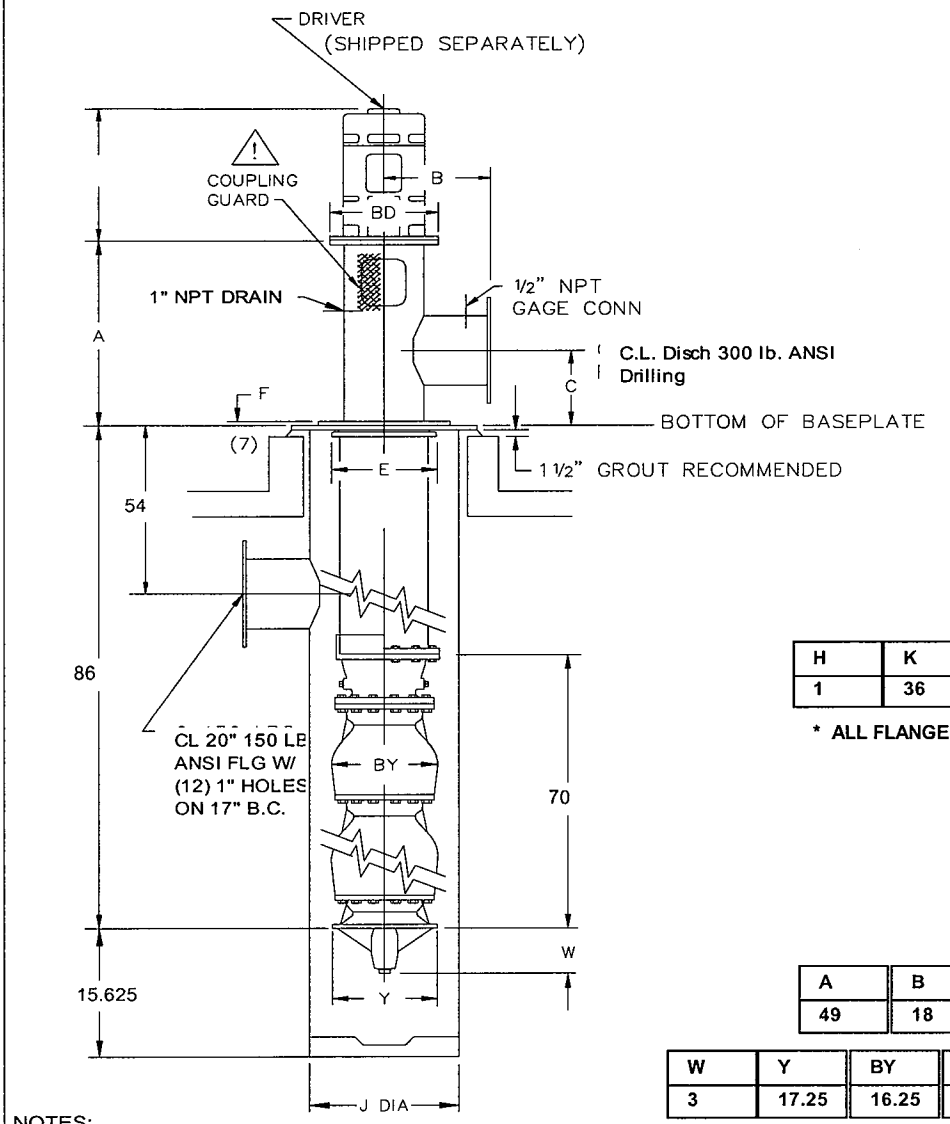
⚠ WARNING

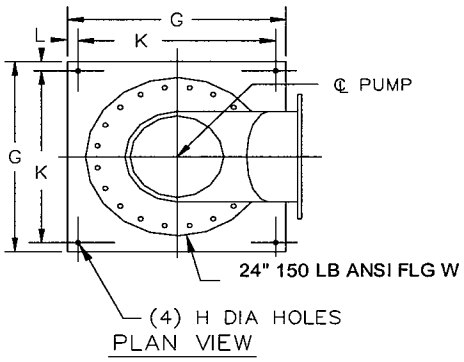
DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARD IN PLACE. ANY OPERATION OF THIS MACHINE WITHOUT PROTECTIVE GUARD CAN RESULT IN SEVERE BODILY INJURY.

S	T
1	B

CAN VENT SIZE (S NPT) AND LOCATION (T)







H	K	G	L
1	36	39	1.5

* ALL FLANGE BOLT HOLES WILL STRADDLE CENTERLINE

1	Top Column	16

A	B	C	E	F	BD
49	18	21	16.25	1.25	20

W	Y	BY	J
3	17.25	16.25	24

NOTES:

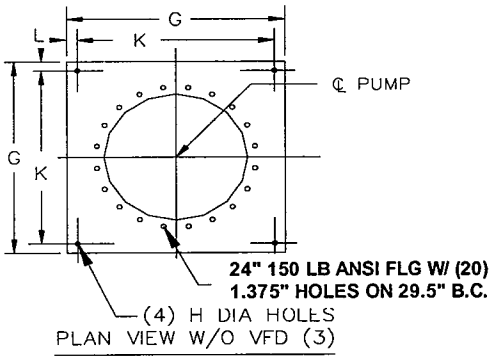
1. NOT FOR CONSTRUCTION OR INSTALLATION UNLESS CERTIFIED. DIMENSIONS SHOWN ARE TYPICAL AND MAY VARY DUE TO NORMAL MANUFACTURING TOLERANCES.
2. CUSTOMER TO VERIFY OVERALL LENGTH PRIOR TO RELEASE FOR MANUFACTURING.
3. SUCTION CAN MUST BE SUPPORTED ON ALL SIDES, LEVELED TO 0.005"/FT IN ALL DIRECTIONS, AND GROUTED IN PLACE.
4. SEE SHEET 2 OF 2 FOR ADDITIONAL SUCTION CAN DIMENSIONS.
5. PER ANSI/HI 2.4, THE FOUNDATION MUST BE OF SUFFICIENT MASS AND STIFFNESS TO ALLOW FOR RIGID SUPPORT OF THE PUMP AND THE DISCHARGE PIPING MUST BE PROPERLY ANCHORED, SUPPORTED, AND RESTRAINED NEAR THE PUMP
6. PER ANSI/HI 9.8, OPERATION WITH A PARTIALLY FILLED SUCTION CAN MAY RESULT IN SURGING.
7. DETAIL SHOWN FOR ILLUSTRATION ONLY AND IS NOT INTENDED TO REPRESENT THE ACTUAL INSTALLATION.

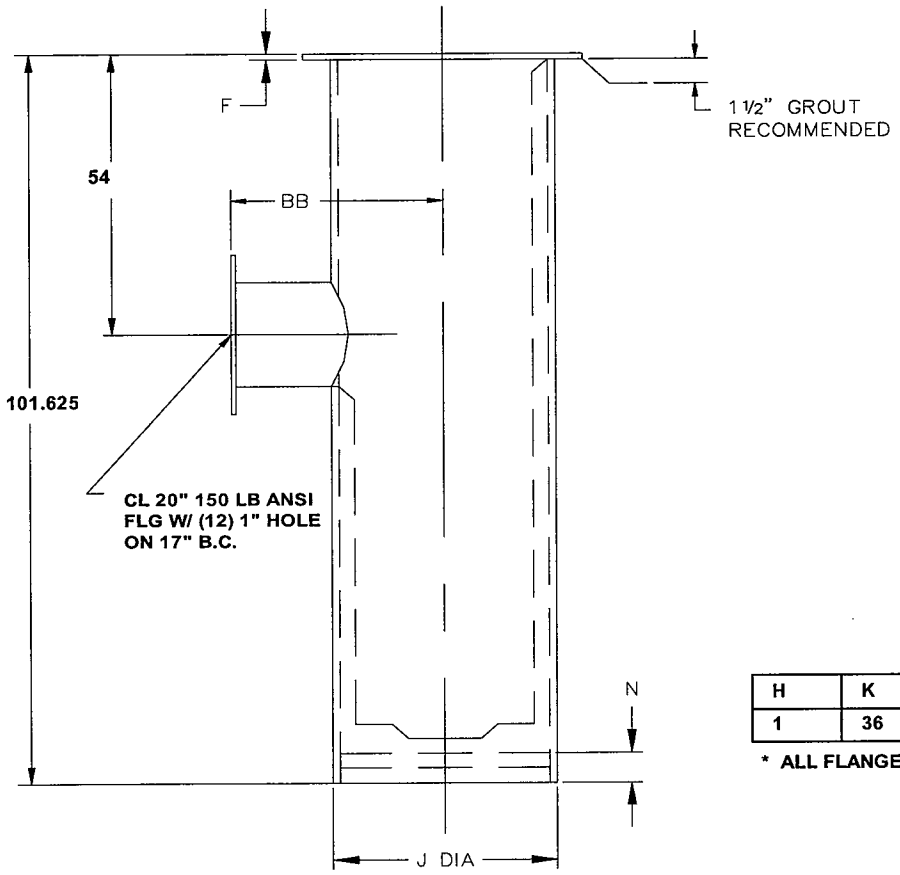
CAN SUPPLIED BY OTHERS.

CUSTOMER					P.O. NO.		Layne/VertiLine Pentair Pump Group
WOOD EQUIPMENT COMPANY					58302		
JOB NAME					TAG NAME		SETTING PLAN MODEL 1100 AW 24" L CAN W/ 12" SUCTIO CAN PUMP
CAMPBELL COUNTY UTILITY, EVINGTON, VA.					OTTER RIVER W P		
PUMP SIZE AND MODEL	STAGES	GPM	TDH	RPM	ROTATION		
16GM 1100 AW	4	3125	300	1800	CCW		
MOTOR	HP	FRAME	PHASE	HERTZ	VOLTS	ENCLOSURE	
USEM	300	5006P	3	60	460	WP-1	
CERTIFIED FOR			CERTIFIED BY		DATE	DWG NO	REV NO
PROJECT NO. 012033			JBH		7/12/07	012033SP	0

⚠ WARNING

DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARD IN PLACE. ANY OPERATION OF THIS MACHINE WITHOUT PROTECTIVE GUARD CAN RESULT IN SEVERE BODILY INJURY.





H	K	G	L
1	36	39	1.5

* ALL FLANGE BOLT HOLES WILL STRADDLE CENTERLINE

BB	F	N	J
17	1.5	2.5	24

NOTES:

1. NOT FOR CONSTRUCTION OR INSTALLATION UNLESS CERTIFIED. DIMENSIONS SHOWN ARE TYPICAL AND MAY VARY DUE TO NORMAL MANUFACTURING TOLERANCES.
2. CUSTOMER TO VERIFY OVERALL LENGTH PRIOR TO RELEASE FOR MANUFACTURING.
3. SUCTION CAN MUST BE SUPPORTED ON ALL SIDES, LEVELED TO 0.005"/FT IN ALL DIRECTIONS, AND GROUTED IN PLACE.
4. PER ANSI/HI 2.4, THE FOUNDATION MUST BE OF SUFFICIENT MASS AND STIFFNESS TO ALLOW FOR RIGID SUPPORT OF THE PUMP AND THE DISCHARGE PIPING MUST BE PROPERLY ANCHORED, SUPPORTED, AND RESTRAINED NEAR THE PUMP
5. PER ANSI/HI 9.8, OPERATION WITH A PARTIALLY FILLED SUCTION CAN MAY RESULT IN SURGING.
6. DETAIL SHOWN FOR ILLUSTRATION ONLY AND IS NOT INTENDED TO REPRESENT THE ACTUAL INSTALLATION.

SUPPLIED BY OTHERS.

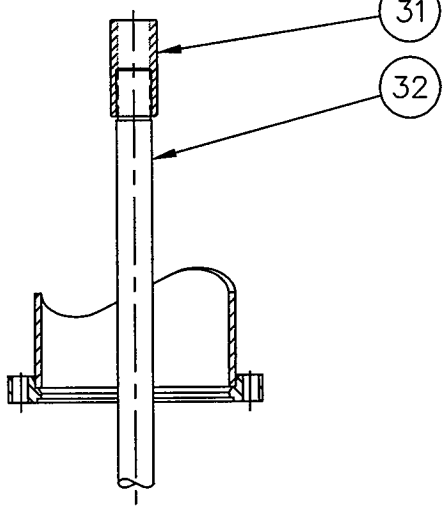
CUSTOMER: WOOD EQUIPMENT COMPANY					P.O. NO.: 58302		Layne/VertiLine Pentair Pump Group
JOB NAME: CAMPBELL COUNTY UTILITY, EVINGTON, VA.					TAG NAME: OTTER RIVER W P		SETTING PLAN MODEL 1100 AW 24" L CAN W/ 12" SUCTIO W/ 12" SUCTION
PUMP SIZE AND MODEL: 16GM 1100 AW	STAGES: 4	GPM: 3125	TDH: 300	RPM: 1800	ROTATION: CCW		
MOTOR: USEM	HP: 300	FRAME: 5006P	PHASE: 3	HERTZ: 60	VOLTS: 460	ENCLOSURE: TWP-1	
CERTIFIED FOR: PROJECT NO. 012033			CERTIFIED BY: JBH		DATE: 7/12/07	DWG NO: 012033SP	REV NO: 0

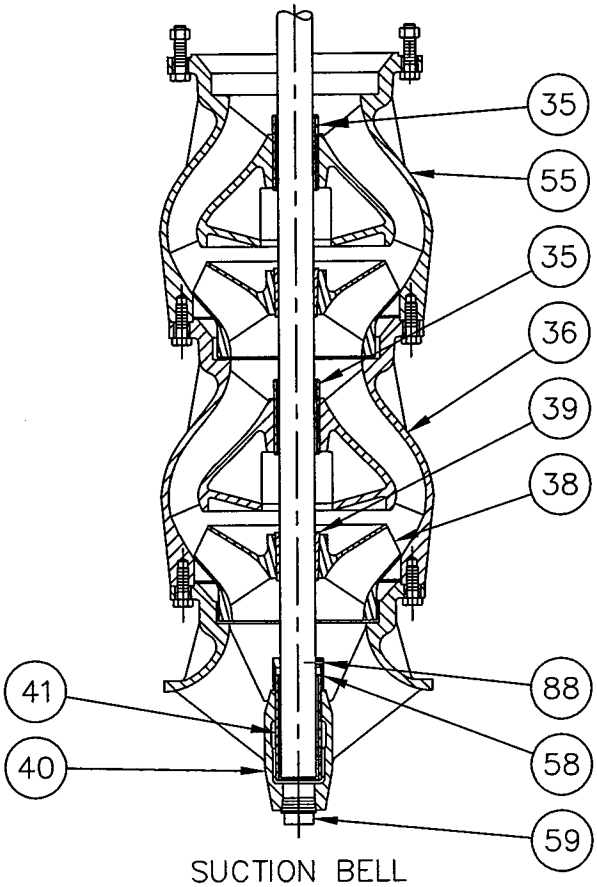
Pentair Pump Group
Open Lineshaft Material Specifications

Item	Description	Material	Specification
1	Top Shaft Adj Nut	Steel	A108 Gr. 12l14
6	Water Slinger	Rubber	Neoprene
7	Discharge Head	Steel	A53 & A36 (4)
8	Gland Bolt	Stainless Steel	AISI 304
8A	Gland Nut	Stainless Steel	18-8
9	Packing Gland	Cast Iron	A48 Class 30
11	Gasket	Tag Board	F104
13	Top Shaft Sleeve	Stainless Steel	AISI 304
15	Packing	Synthetic	Commercial
15A	Water Seal Ring	Teflon	Teflon
16	Column Flg Gasket	Tag Board	F104
17	Packing Box	Cast Iron	A48 Class 30
17A	Packing Box Bushing	Bronze	B505 Alloy 932
19A	Motor Shaft	Stainless Steel	A582 S41600
19B	Top Shaft	Stainless Steel	A582 S41600
21	Top Column	Steel	A53 & A36 (4)
23	Lineshaft	Stainless Steel	A582 S41600
24	Column Coupling	Steel	A53 Gr. B
25	Bearing Retainer	Bronze	B584 C83600
26	Bearing	Neoprene	Commercial
29	Shaft Sleeve	Stainless Steel	AISI 304
31	Shaft Coupling	Stainless Steel	A582 S41600
32	Pump Shaft	Stainless Steel	A582-S41600 MOD
34	Top Bowl Bearing	Bronze	B505 Alloy 932
35	Inter Bowl Bearing	Bronze	B505 Alloy 932
36	Inter Bowl	Cast Iron (3)	A48 Class 30
36W	Bowl Wear Ring	Bronze	B505 Al 932
38	Impeller	Bronze	B584 Alloy 836/875 (2)
38W	Impeller Wear Ring	Bronze	B505 Al 932
39	Drive Collet	Stainless Steel	A582 S41600
40	Suction Bell	Cast Iron	A48 Class 30
41	Suction Bearing	Bronze	B505 Alloy 932
50	Connector Bearing	Bronze	B505 Alloy 932
54	Discharge Case	Cast Iron	A48 Class 30
55	Top Inter Bowl	Cast Iron (3)	A48 Class 30
58	Sand Collar	Bronze	B505 C93200
59	Suction Bowl Plug	Cast Iron	Commercial
88	Set Screw	Steel	SAE Bolt Steel

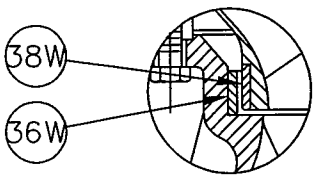
1. All material specifications are ASTM unless otherwise noted and are or description of chemistry only.
2. Manufacturer's option
3. Bowls are coated cast iron.
4.Circular sections are A53 & plate is A36.

FLANGED COLUMN





SUCTION BELL



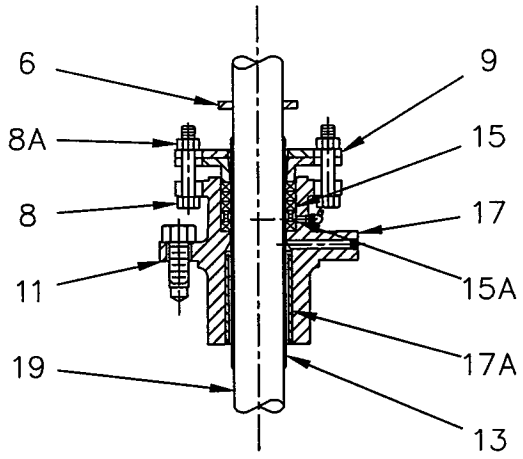
BOWL &
IMPELLER RING

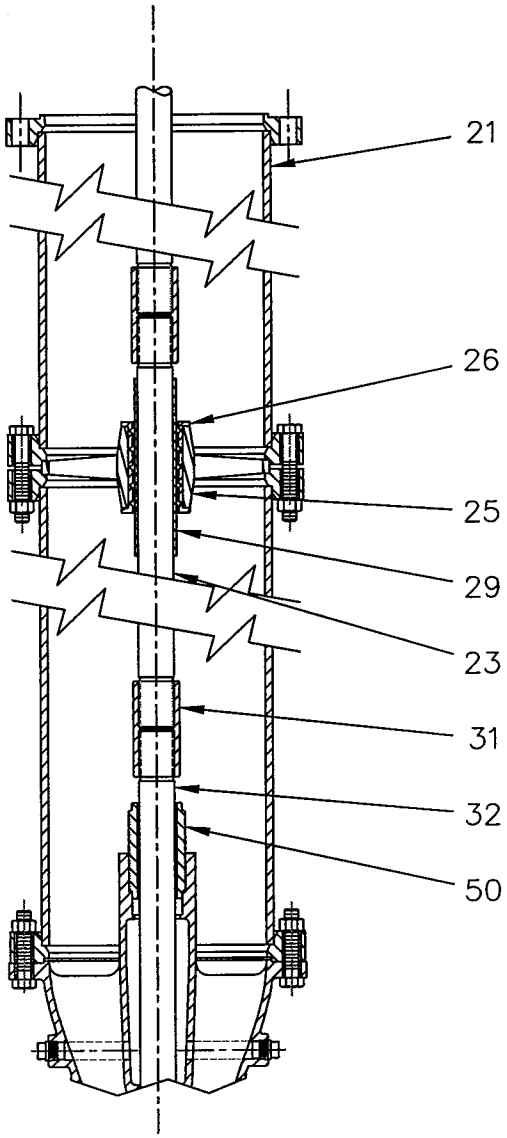
FLANGED BOWL ASSEMBLY
16G
MULTI–STAGE, OPEN LINESHAFT

Layne/Verti-Line

DWG NO 1100M005 REV NO 0

400# PACKING BOX



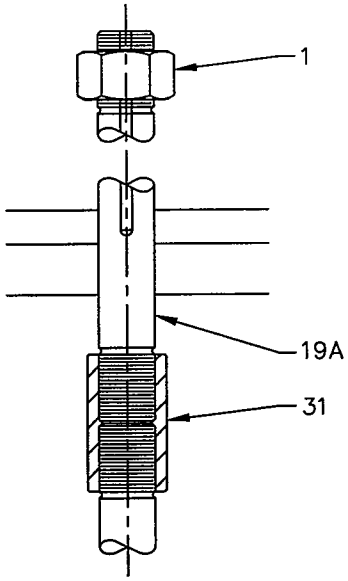


FLANGED COLUMN

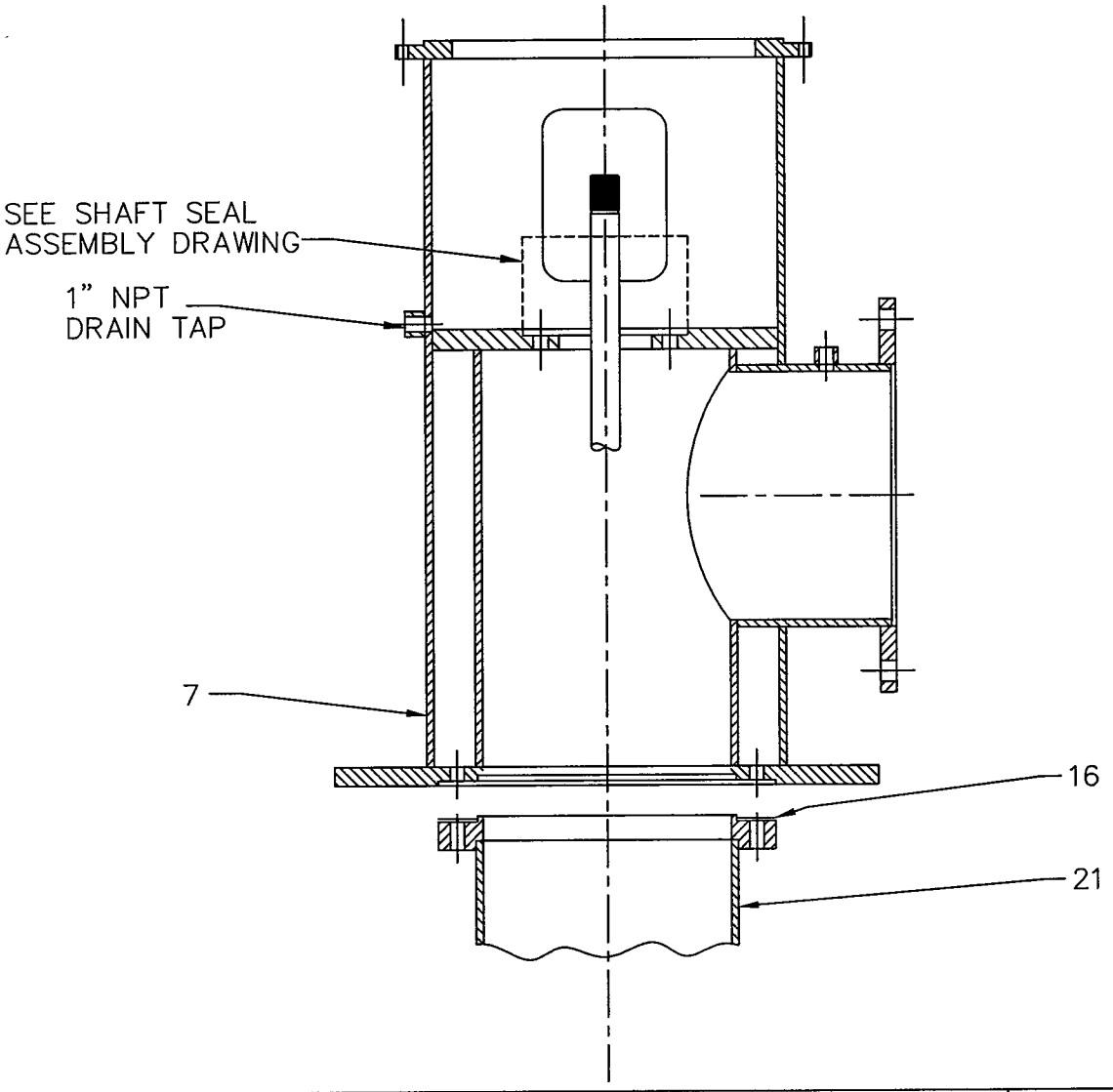
OPEN LINESHAFT
COLUMN SECTIONS

Layne/Verti-Line

DWG NO 1100PC041 REV NO 0



VERTICAL HOLLOW
SHAFT DRIVER



ASSEMBLY
TYPE "L" DISCHARGE HEAD
FLANGED DISCHARGE

Fairbanks Morse
PENTAIR PUMP GROUP

DWG NO 700MA012 REV NO 0

Bowl Assembly	
Size	16GM
Pump Shaft Diameter	2 3/16
Bowl Weight, First Stage, lbs.	400
Bowl Weight, Each additional stage, lbs.	250
Allowable Shaft Stretch	0.44
Bowl Ring Clearance	0.023
Bearing Clearance	0.011
Maximum Working Pressure, standard material, psi	300
Maximum Hydro Pressure, standard material, psi	450
Impeller	
Impeller Eye Area, In^2	51.2
Rotor Wt. 1^{st} Stage, K_a, Lbs.	98.4
Rotor Wt. Each Additional Stage, K_a, Lbs.	61.3
Thrust Factor, K_t, , Lbs./Ft.	24
WK^2 , Lbs.-$Ft.^2$	7.2
Running Position ,Above Seat	0.125
Submergence, above suction bell (minimum at maximum flow)	32
Column	
Nominal Size	12
Schedule	30
Outside Diameter)	12.750
Wall Thickness	0.330
Weight Per Foot (Lbs./Ft.)	43.77
Flange OD	16.38
Weight (Per Pair) Lbs	29.81
Shaft	
Size	2-3/16
Weight Per Foot, (Lbs./Ft.)	12.78
Shaft Coupling Weight, Lbs	5.6
Line Shaft Sleeve Thickness	0.093
Packing Box	
Inside Diameter Of Box	3-1/8
Depth Of Box	2-3/8
Outside Diameter Of Sleeve	2-3/8
Packing Size	3/8
Rings Per Box	4
Max Bearing Clearances	
Lineshaft	0.035
Packing Box	0.020
Discharge Head	
Size	20 X 12 X 24
Type	L
Maximum Discharge Pressure, (PSI)	
300 Lb. Flange	400
Weight (Including Packing Box)(Lbs.)	1100

Note 1. Values shown are in inches unless otherwise noted.

Above Ground Coating

- **Coating Manufacturer** — Davis Industrial Coatings
- **Surface Preparation** — SSPC-SP6, Commercial Blast Cleaning.
- **Finish Coat** — Modified Alkyd Enamel
  - **Number of Coats** — One
  - **Dry Film Thickness** — 1-1/2 to 2 mils
  - **Color** — Layne Green
  - **Surfaces to be coated** — Exterior of Discharge Head; Exposed portions of the packing box

Below Ground Coating Specifications

- **Coating Manufacturer** — Carboline 300M
- **Surface Preparation** — SSPC-SP10, Near White Blast Cleaning.
- **Prime Coat** — Bitumastic 300M Coal Tar Epoxy
  - **Number of Coats** — One
  - **Dry Film Thickness** — 16 mils
  - **Color** — Black
  - **Surfaces to be coated** — Exterior of Bowl Assembly; Interior and Exterior of Column; Interior of Discharge Head including packing box exposed surfaces

Bowl Interior Coating Specifications

- **Coating Manufacturer** — 3M
- **Surface Preparation** — SSPC-SP10, Near White Blast Cleaning.
- **Prime Coat** — Scotchkote 300M Fusion Bonded Epoxy
  - **Number of Coats** — One
  - **Dry Film Thickness** — 10 mils
  - **Color** — Forest Green
  - **Surfaces to be coated** — Interior of Bowls

product data carboline® **Bitumastic®300 M**

Selection & Specification Data

Generic Type Coal Tar Epoxy

Description Renowned high build coal tar epoxy for protection of steel and concrete in single or two-coat applications in a broad variety of aggressive industrial applications.

Features
- Excellent chemical, corrosion and abrasion resistance
- High-build up to 24 mils (610 microns) in a single coat
- Compatible with controlled cathodic protection
- Meets or exceeds all requirements of:
  - **Corp of Engineers C-200, C200a**
  - **AWWA C-210-92 for exterior**
  - **SSPC-Paint 16**
  - **Steel Tank Institute Corrosion Control System STI-P_3**

Color Black (0900)

Finish Gloss. Will discolor, chalk and lose gloss in sunlight exposure.

Primers Self-priming, Carboguard 888 or others as recommended.

Topcoats Not recommended

Dry Film Thickness 16.0 mils (400 microns) in one or two coats. Total dry film thickness less than 8 mils (200 microns) or in excess of 24 mils (610 microns) not recommended.

Solids Content By Volume: 74% ± 2%

Theoretical Coverage Rate 1187 mil ft^2 (29.1 m^2/l at 25 microns)
Allow for loss in mixing and application

VOC Values
As supplied: 1.85 lbs/gal (222 g/l)
Thinned:
20 oz/gal w/ #10:* 2.6 lbs/gal (309 g/l)
25 oz/gal w/ #10: 2.7 lbs/gal (327 g/l)
These are nominal values.
*Maximum thinning for 250 g/l restricted areas is 6 oz/gal.

Dry Temp. Resistance
Continuous: 350°F (177°C)
Non-Continuous: 370°F (190°C)

Wet Temp. Resistance Immersion temperature should not exceed 120°F (49°C).

Limitations Do not use for potable water requirements

Substrates & Surface Preparation

General Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.

Steel
Immersion: SSPC-SP10
Non-Immersion: SSPC-SP6. SSPC-SP2 or SP3 as minimum requirement imparting proper profile.
Surface Profile: 2.0-3.0 mils (50-75 micron)

Concrete Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing.

Performance Data

Test Method	System	Results	Report #
ASTM D4060 Abrasion	Blasted Steel 2 cts. 300M	130 mg. loss after 1000 cycles. CS17 wheel, 1000 gm load.	02877
ASTM D4541 Adhesion	Blasted Steel 2 cts. 300M	1443 psi (Pneumatic)	02877
ASTM D2794 Impact	Blasted Steel 2 cts. 300M	Impact site diameter. Inches: 3/8, 3/8, ½ 100 in/lbs Gardner Impactor at ½ in. diam.	02877
ASTM B117 Salt Fog	Blasted Steel 2 cts. 300M	No blistering, rusting or delamination. No measurable undercutting at scribe after 2000 hrs.	02938

Test reports and additional data available upon written request.

Bitumastic® 300M

Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.
General Guidelines:

Spray Application (General)
This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray
Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, with 50' maximum material hose .086" I.D. fluid tip and appropriate air cap.

Airless Spray

Pump Ratio:	30:1 (min.)*
GPM Output:	3.0 (min.)
Material Hose:	½" I.D. (min.)
Tip Size:	.023-.035"
Output PSI:	2100-2500
Filter Size:	30 mesh

*Teflon packings are recommended and available from the pump manufacturer.

Brush & Roller (General)
Recommended for touch up, striping of weld seams and hard-to-coat areas only. Avoid excessive re-brushing or re-rolling.

Brush
Use a medium bristle brush.

Roller
Use a short-nap synthetic roller cover with phenolic core.

Mixing & Thinning

Mixing
Power mix separately, then combine and power mix for a minimum of two minutes. DO NOT MIX PARTIAL KITS.

Ratio
4:1 Ratio (A to B)

Thinning
Up to 20 oz/gal (16%) w/ #10
Up to 25 oz/gal (20%) w/ #10 for the first coat application to concrete. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life

75°F (24°C)	2 Hours
90°F (32°C)	1 Hour

Pot life ends when coating loses body and begins to sag.

Cleanup & Safety

Cleanup
Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety
Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Caution
This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	60-85°F (16-29°C)	60-85°F (16-29°C)	60-85°F (16-29°C)	0-80%
Minimum	50°F (10°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	90°F (32°C)	125°F (52°C)	110°F (43°C)	90%

Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Touch	Minimum Recoat Time	Maximum Recoat Time	Cure for Immersion
50°F (10°C)	8 Hours	10 Hours	24 Hours	14 Days
75°F (24°C)	4 Hours	6 Hours	24 Hours	7 Days
90°F (32°C)	2 Hours	3 Hours	24 Hours	5 Days

These times are based on a 16.0 mil (400 micron) dry film thickness. Higher film thickness, insufficient ventilation, high humidity or cooler temperatures will require longer cure times. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. If the **maximum recoat time** is exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats. **Holiday Detection** (if required): Wet sponge types may be used if the dry film thickness is below 20 mils (500 microns). High voltage spark testing should be used when the dry film thickness exceeds 20 mils (500 microns). Refer to NACE RP0188-90 for specific procedures.

Packaging, Handling & Storage

	1.25 Gallon Kit	5 Gallon Kit
Shipping Weight (Approximate)	12 lbs (6 kg)	50 lbs (26 kg)

Flash Point (Setaflash)
75°F (24°C) for Part A
>200°F (93°C) for Part B

Storage (General)
Store Indoors.

Storage Temperature & Humidity
40° -110°F (4°-43°C)
0-100% Relative Humidity

Shelf Life
Part A: Min. 12 months at 75°F (24°C)
Part B: Min. 24 months at 75°F (24°C)

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**

carboline®
350 Hanley Industrial Court, St. Louis, MO 63144-1599
314/644-1000 314/644-4617 (fax) www.carboline.com
An RPM Company

March 2003 replaces June 2002

3M

Scotchkote™

134 Fusion Bonded Epoxy Coating

Product Description

3M™ Scotchkote™ 134 Fusion Bonded Epoxy Coating is a one-part, heat curable, thermosetting epoxy coating designed for corrosion protection of metal. The epoxy is applied to preheated steel as a dry powder which melts and cures to a uniform coating thickness. This bonding process provides excellent adhesion and coverage on applications such as valves, pumps, pipe drains, hydrants and porous castings. Scotchkote 134 coating is resistant to wastewater, corrosive soils, hydrocarbons, harsh chemicals, and sea water. Powder properties allow easy manual or automatic application by electrostatic or air-spray equipment.

Product Features

- No primer required.
- Particularly suitable for electrostatic or air-spray application on preheated metal articles.
- Can be electrostatically applied to unheated metal parts and subsequently cured by baking.
- Long gel time allows application on large or complex articles, minimizing fear of runs, sags, laminations, or unsightly overspray.
- Especially useful for coating the inside of pipe or other fabrications where a smooth, corrosion resistant coating is required.
- Can be machined by grinding or cutting to meet close tolerance requirements.
- Allows easy visual inspection of coated articles.
- Can be painted with alkyd paint, acrylic lacquer, or acrylic enamel for color coding.
- Will not sag, cold flow, or become soft in storage. Long term storage under most climatic conditions.
- Lightweight for lower shipping costs.
- Protects over wide temperature range.
- Resists direct burial soil stress.
- High adhesion and toughness.
- Resists cavitation and cathodic disbondment.
- Excellent chemical resistance.
- Suitable for elevated temperature service in presence of H2S, CO2, CH4, crude oil and brine when applied over phenolic primers.
- Long-term performance history in water, sewage, and other service environments.
- Scotchkote 134 coating has been tested and certified to ANSI/NSF Standard 61, Drinking Water System Components.

General Application Steps

1. Remove oil, grease and loosely adhering deposits.
2. Abrasive blast clean the surface to NACE No.2/SSPC-SP 10 near-white metal, ISO 8501-Sa2.5.
3. Apply mechanical masks or mask with Scotch™ Glass Cloth Tape 361 or Scotch Aluminum Foil Tape 425 as required.
4. Preheat article to the desired application temperature per cure specifications.
5. Deposit Scotchkote 134 coating by powder spray to the specified thickness.
6. Cure according to cure specifications.
7. Visually and electrically inspect for coating flaws after the coating has cooled.
8. Repair all defects.

Cure Specifications

Scotchkote 134 coating may be applied to metal articles which have been preheated to a temperature of 300°F/149°C to 450°F/232°C. After application, 134 coating must be cured according to the cure guide to achieve maximum performance properties.

If 134 coating is electrostatically applied to unheated parts, the cure time should be measured from the time the coated part reaches the cure temperature. After cure, the coating may be force cooled using air or water to facilitate inspection and handling.

3M™ Scotchkote™ 134 Fusion Bonded Epoxy Coating Cure Guide

Temperature of Article at Time of Powder Application	Typical Gel Time	Cure Time
475°F/246°C	40 seconds	7 minutes
450°F/232°C	60 seconds	10 minutes
400°F/204°C	120 seconds	15 minutes
350°F/177°C	330 seconds	25 minutes

Typical Properties

Property	Value
Color	Forest Green
Specific Gravity - Powder (Air Pycnometer)	1.51
Coverage	127 ft^2/lb/mil (0,66 m^2/kg/mm)
Fluid Bed Density	33 lbs/ft^3 (530 kg/m^3)
Shelf Life at 80°F/27°C	18 months
Average Gel Time 400°F/204°C	120 seconds
Edge Coverage	12% to 18%
Minimum Explosive Concentration	0.03 oz/ft^3 (30,6 g/m^3)
Ignition Temperature	986°F/530°C

Chemical/Pressure/Temperature Resistance

All tests performed on Scotchkote™ 134 Fusion Bonded Epoxy Coating applied over a 1 mil/25,4 µm phenolic primer. Liquid phase for all test conditions: 33% kerosene, 33% toluene, 34% brine solution of 5% NaCl.

Test Conditions	Gas Phase	Results
Autoclave, 120°F/49°C 48 hours, 1500 psi/10.3 MPa	99.5% CO_2 0.5% H_2S	Excellent adhesion, no coating loss or blisters in aqueous, hydrocarbon, or gas phase
Autoclave, 150°F/66°C 48 hours, 2200 psi/15.2 MPa	80% CH_4 12% CO_2 8% H_2S	Excellent adhesion, no coating loss or blisters in aqueous, hydrocarbon, or gas phase
Autoclave, 200°F/93°C 24 hours, 3300 psi/22.8 MPa	86% CH_4 8% CO_2 6% H_2S	Excellent adhesion, no coating loss or blisters in aqueous, hydrocarbon, or gas phase
Autoclave, 300°F/149°C 24 hours, 3000 psi/20.7 MPa	90% CH 10% CO_2 Trace H_2S	Excellent adhesion, no coating loss or blisters in aqueous, hydrocarbon, or gas phase

Chemical Resistance Exposure at 73°F/23°C*

Acetic Acid up to 25%
Acetone (softened)
Aluminum Chloride
Aluminum Hydroxide
Aluminum Nitrate
Aluminum Sulfate
Ammonium Carbonate
Ammonium Chloride
Ammonium Hydroxide up to 100%
Ammonium Nitrate
Ammonium Phosphate
Ammonium Sulfate
Amyl Alcohol
Barium Carbonate
Barium Chloride
Barium Hydroxide
Barium Nitrate
Barium Sulfate
Benzene
Boric Acid
Borax
Butyl Alcohol
Cadmium Chloride
Cadmium Nitrate
Cadmium Sulfate
Calcium Carbonate
Calcium Chloride
Calcium Hydroxide
Calcium Nitrate
Calcium Sulfate
Calcium Disulfide
Carbon Tetrachloride
Caustic Potash
Caustic Soda
Chlorine 2%
Citric Acid up to 25%
Copper Chloride
Copper Nitrate
Copper Sulfate
Crude Oil
Cyclohexane
Cyclohexene
Cyclopentane
Detergent
Diesel Fuel
Diethylene Glycol
Dipropylene Glycol
Ethanol (softened)
Ethylbenzene
Ethylene Glycol
Ferric Chloride up to 50%
Ferric Nitrate
Ferric Sulfate
Ferrous Nitrate
Ferrous Sulfate
Formaldehyde up to 100%
Formic Acid up to 10%
Freon; gas and liquid
Gas (Mfg)
Gas (Natural)
Gasoline Leaded
Gasoline Unleaded
Glycerine
Heptane
Hexane
Hexylene Glycol
Hydrochloric Acid up to 25%
Hydrofluoric Acid up to 40%
Hydrogen Sulfide
Isopropyl Alcohol
Jet Fuel
Kerosene
Linseed Oil
Lubricating Oil
Magnesium Carbonate
Magnesium Chloride
Magnesium Hydroxide
Magnesium Nitrate
Magnesium Sulfate
MEK (softened)
Mercuric Chloride
Methanol (softened)
MIBK (Methyl Isobutyl Ketone)
Mineral Oil
Mineral Spirits
Molasses
Motor Oil
Muriatic Acid
Naphtha
Nickel Chloride
Nickel Nitrate
Nickel Sulfate
Nitric Acid up to 30%
Nonane
Octane
Oxalic Acid
Pentane
Perchloroethylene
Phosphoric Acid up to 50%
Phosphorous Trichloride
Potassium Aluminum Sulfate
Potassium Bicarbonate
Potassium Borate
Potassium Carbonate
Potassium Chloride
Potassium Dichromate up to 10%
Potassium Hydroxide
Potassium Nitrate
Potassium Sulfate
Propylene Glycol
Sewage
Silver Nitrate
Soap Solution
Soaps
Sodium Bicarbonate
Sodium Bisulfate
Sodium Carbonate
Sodium Chlorate
Sodium Chloride
Sodium Hydroxide
Sodium Meta Silicate up to 5%
Sodium Nitrate
Sodium Sulfate
Sodium Thiosulfate up to 5%
Stannic Chloride
Sulfur
Sulfuric Acid up to 60%
Synthetic Sea Fuel (60% Naphtha, 20% Toluene, 15% Xylene, 5% Benzene)
Synthetic Silage
Tetrapropylene
Toluene
Trichloroethylene
Triethylene Glycol
Trisodium Phosphate
Turpentine
Undecanol
Urea
Urine
Vinegar
Water
- Chlorinated
- Demineralized
- Distilled
- Salt
- Sea

Xylol
Zinc Chloride
Zinc Nitrate
Zinc Sulfate
10-10-10 Fertilizer, Saturated

***Tests conducted for two years on similar products. No effect unless otherwise stated.**

3M™ Scotchkote™ 134 Fusion Bonded Epoxy Coating Test Data - Coating

Property	Test Description	Results
Adhesion	Elcometer	> 3000 psi (glue failure) 210 kg/cm²
Adhesion to Steel (Shear)	ASTM D 1002 10 mil/254 µm glue line	4300 psi/302 kg/cm²
Impact	Gardner 5/8 in/1,6 cm diameter tup 1/8" x 3" x 3" (0,32 cm x 7,6 cm x 7,6 cm) steel panel	160 in-lbs 1,8 kg•m
Hardness	Barcol ASTM D 2583	23
Abrasion Resistance	ASTM D 4060 CS-17 1000g weight / 5000 cycles	0,07 g loss
Thermal Shock	310°F/154°C to -100°F/-73°C 4" x 4" (10,2 cm x 10,2 cm) coated panel	10 cycles, no effect
Penetration	ASTM G 17 -40°F/-40°C to 240°F/116°C	0
Tensile Strength	ASTM D 2370	7300 psi/512 kg/cm²
Elongation	ASTM D 2370	4.2%
Compressive Strength	ASTM D 695	12800 psi/900 kg/cm²
Coefficient of Friction	APIRP5L2-1968, App 8	23°
Electric Strength	ASTM D 149	1000 volts/mil (39,4 kv/mm)
Hot Water Resistance	160°F/71°C immersion / 120 days	Good adhesion, no blistering
Electrical Resistivity	ASTM D 257	1.2 x 10^{15} ohm•cm
Thermal Conductivity	MIL-I-16923E	7 x 10^{-4} cal/sec/cm²/C°/cm
Water Absorption	3M 10 mil/254 µm free film 30 days	6,5 g/m²
Fungus Resistance	MIL-STD 810-B Method 508	Funginert
Salt Fog	MIL-E-5272C	No effect
Weatherometer	ASTM G 23 5000 hours	Surface chalk
Soil Stress - Burial	Bureau of Reclamation 25 cycles	No effect
Salt Crock	30 day, 5 volt, 5% NaCl sand crock 230°F/110°C	Disbondment diameter 24 mm average
Bendability	3/8"/9,5 mm coupon mandrel bend at 73°F/23°C	30 pipe diameters 1.9° / diameter length

Handling and Safety Precautions

Read all Health Hazard, Precautionary, and First Aid statements found in the Material Safety Data Sheet, and/or product label of chemicals prior to handling or use.

For ordering information, technical information, product information or to request a copy of the Material Safety Data Sheet: phone: 1-800-722-6721 or 1-512-984-1038
fax: 1-800-828-9329 or 1-512-984-2210

Important Notice

All statements, technical information, and recommendations related to Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

Any statements or recommendations of the Seller which are not contained in the Seller's current publications shall have no force or effect unless contained in an agreement signed by an authorized officer of Seller. The statements contained herein are made in lieu of all warranties, expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

SELLER SHALL NOT BE LIABLE TO THE USER OR ANY OTHER PERSON UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY, FOR ANY INJURY OR FOR ANY DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES SUSTAINED OR INCURRED BY REASON OF THE USE OF ANY OF THE SELLER'S PRODUCTS.

3M

Corrosion Protection Department

6801 River Place Blvd.
Austin, TX 78726-9000
http://www.3M.com/corrosion

40% Pre-consumer waste paper
10% Post-consumer waste paper

Litho in USA.

Layne/Verti-line Pump Order Information Sheet

Customer Name:	WOOD EQUIPMENT COMPANY					Rev.	0
End User:	CAMPBELL COUNTY UTILITY						
Work Order No.	1529064	Sales Order Number	2008265	Project Number	012033		
Written By:	J JUSTICE	Date	23-Apr-07	Checked By		Date	

Pump Description		**Construction**		**Operating Conditions**	**1**	**2**	**3**
Bowl Size	16GM	Wear Rings	Bowl & Impeller	Capacity (GPM)	3125		
Bowl Model	1100AW	Pumpshaft	416 SS	TDH (ft)	300		
Stages	4	Pumpshaft Coupling	416 SS	F/L Speed (RPM)	1785		
Suction	Bell	Lineshaft	416 SS	Guaranteed Bowl Efficiency			
Discharge Size	12"	Lineshaft Coupling	416 SS				
Discharge Connection	Bowl to Column	Impeller Fastener	416 Stl Steel Collets	Notes or Comments			
Shaft Projection	17-1/2"	Head Type	L				
Tube Projection		Head Size	20 X 12				
Total End Play	0.44	Column Size	12"				
Paint/Coating	**SEE PAINT SHEET**	Shaft Thread	2-3/16"	Impeller Running Position	.125"		
Lubrication	Product Lubricated						

Impeller Data		**Drawing & QC Information**		**Test Regirements**	
Impeller Diameter (Full)		Setting Plan		Type Test	Non-Witness
Impeller Symbol (Full)		Performance Curve	012033CR0	Test Quantity	1
Impeller Diameter (Trim)	11.20 (QTY. 4)	Assembly Drawings		Retest	
Impeller Symbol (Trim)	LV4455755208 1140 T	Bowl		Test With	TEST MOTOR
Impeller Pattern (Design)	8G15	Column & Shaft		Max HP at GPM	300 @ ANY
Dynamic Balance	Standard	Discharge Head		Multi-Speed Test	No
Special Instructions		Hydro Test			
Polish Impeller		Bowl Assembly		Test Floor Copy	Yes
Impeller Degree	27	Column		Curve Approval Req'd	No
Underfile	1/8"	Discharge Head		Test As Complete Unit	No
		Suction Can			

Serial Number & Quantity		**Driver Supplied By:**	Customer	**Assembly, Replacement and Miscellaneous Information**			
# Pumps	1	Driver Manufacturer	U S Electric	Bowl Assembly Only	No		
Serial Number:	1529064	Driver Configuration	VHS-Motor	Complete Pumps	Yes		
		Driver Horsepower	300	Ship Assembled	Yes		
		Driver Speed-RPM	1800	Overall Length	86		
		Service Factor		Shipping Length (Approx.)	123.5		
Bowl Assembly Wt. (lbs)	1540	Enclosure		Shaft Down +/- 1/4	5		
Pump Assembly Wt. (lbs.)		Frame		Replacement Pump	Yes	SERIAL #	111706-7
		CD Dimension	49 25/32	Hydraulic Duplicate:			
		Bore Diameter	2 3/16				
				Loose Parts on W/O#	Yes	W O #	1529067
				Spare Parts Supplied:	No		

Notes and Comments

Customer Name:	WOOD EQUIPMENT COMPANY			End User	0		
Work Order No.	1529064	Sales Order	2008265	Project Number	012033		
Written By:	J JUSTICE	Date	4/23/2007	Checked By	0	Date	1/0/1900

Above Ground Coating Information:

Exterior Surfaces

Surface Preparation:	Standard
Type Coating (Paint)	Davis 4-4113 H/S F.D. (Layne)
Part Number	HYD132B15 9906 F
Color:	LAYNE GREEN
Number Coats:	1
Total DFT (Mils):	1-1/2 TO 2
Surfaces to Coat:	Exterior of Discharge Head Including Exposed Portions of Packing Box

Comments, Notes and Special Instructions:

(1) If Supplied

Interior Surfaces (Only if specified)

Surface Preparation:	SSPC-SP10; Near White Metal Blast Cleaning
Type Coating (Paint)	Carboline Kop-Coat 300M
Part Number	HYD132C010-9906-F
Color:	BLACK
Number Coats:	One
Total DFT (Mils):	16
Surfaces to Coat	Interior of Discharge Head Including Exposed Portions of Packing Box

Comments, Notes and Special Instructions:

Below Ground Coating Information:

Exterior Surfaces

Surface Preparation:	SSPC-SP10; Near White Metal Blast Cleaning
Type Coating (Paint)	Carboline Kop-Coat 300M
Part Number	HYD132C010-9906-F
Color:	Black
Number Coats	One
Total DFT (Mils)	16
Surfaces to Coat:	Exterior of Bowl Assembly & Column

Comments, Notes and Special Instructions:

Surfaces to Coat:	INTERIOR OF BOWLS
Surface Preparation:	SSPC-SP10; Near White Metal Blast Cleaning
Type Coating (Paint)	SKOTCHKOTE
Color:	FORREST GREEN
Number Coats	One
Total DFT (Mils)	10

Interior Surfaces (Only if Specified)

Surface Preparation:	SSPC-SP10; Near White Metal Blast Cleaning
Type Coating (Paint)	Carboline Kop-Coat 300M
Part Number	HYD132C010-9906-F
Color:	BLACK
Number Coats	One
Total DFT (Mils)	16
Surfaces to Coat:	INTERIOR OF COLUMN

Comments, Notes and Special Instructions: