

**SPECIFICATIONS FOR INSTALLATION OF WATER AND SEWER LINES AT  
CARTER PROPERTY, LOCATED AT 823 WEST 5<sup>TH</sup> NORTH STREET,  
SUMMERVILLE, SC 29483**

**Scope of Work**

The Contractor shall furnish all labor, tools, materials, equipment, and supervision necessary to install owner-provided water, sewer lines, and grinder pump to three recently-placed mobile units at 823 West 5<sup>th</sup> North St., Summerville, SC. The project scope includes the following:

1. Install sewer lines as indicated in attached map. A 2" line will tie-in to the manhole located on the western corner of property and will run to a grinder pump provided by County. 6" line will run from the pump along the back side of the mobile units and will "T" off to each unit.
2. Install owner-provided grinder pump package per manufacturer recommendations as shown in Section D. Pipe and pump will be provided by the County, and specifications are located in Section D. Contractor will need to advise on materials needed for water line.
3. Sewer service to the property is provided by Dorchester County, and water service is provided by CPW.
4. Obtain permitting and business license from the Town of Summerville.
5. Ensure finished work meets county's approval.
6. Remove all debris left over.
7. Any change orders not in the scope or agreed upon prior to work beginning must be approved before it is started.
8. All work must meet all electrical and building code standards.

**Time of Completion**

Work will be completed within seven (7) calendar days of Notice to Proceed.

**Contract Document**

Contract shall be virtually identical in substance and form to the Contract which is attached and marked Section B, Sample Contract. The only anticipated changes in Section B, Sample Contract, will be to include additional exhibits, to fill in the blanks to identify the successful Offeror, and terms relating to compensation, or to revise the contract to accommodate corrections or change orders. **Offerors should raise any questions regarding the terms of the Contract, or submit requested changes in said terms.** Because the signed contract will be substantively and substantially derived from Section B, Sample Contract, Offeror is urged to seek independent legal counsel as to any questions about the terms, conditions or provisions contained in Section B, Sample Contract, before submitting a quote. Again, Section B, Sample Contract, contains important legal provisions and is considered part and parcel of this solicitation. Submittal of a quote to the County indicates agreement to these terms.

**Term of Contract**

The Contractor shall commence work upon a Notice to Proceed, in the form of a purchase order, from the County, and work must be completed within Seven (7) calendar days.

**Damage of Property**

Any damage to Dorchester County property or private property as a result of the Contractor's operation shall be immediately repaired by the Contractor. Should the repair not be instituted soon enough, or satisfactorily in the opinion of Dorchester County, County reserves the right to make the necessary repairs and deduct these costs from any monies due the Contractor. The Contractor shall rent equipment as needed to cover any equipment breakdowns.

**Pricing**

Offeror should provide lump-sum pricing for the work on the forms provided.

**Payment**

Contractor shall invoice Dorchester County after completion of project. Payment will be made within thirty (30) days from the date of invoice approval.

**Location of Work**

**823 West 5<sup>th</sup> North Street, Summerville, SC 29483**

Section A, Map, designates in various colors the areas of the property on which work is to be performed. Contractor should confirm quantities and condition of areas through an onsite visit.

**Notification**

The contractor will provide notification to Dorchester County of any accidents, injuries, or complaints by the public to allow the department to investigate these matters.

**Business Licensing**

The Contractor must possess a valid Town of Summerville business license.

**Insurance Requirements**

The Contractor must meet or exceed the insurance requirements of Dorchester County (see Section B, Sample Contract).

**Quotes must be received by 5:00 PM on Wednesday, May 12, 2020. They can be emailed to [rdantzler@dorchestercountysc.gov](mailto:rdantzler@dorchestercountysc.gov) or mailed to the attention of Rebecca Dantzler at 201 Johnston St., St. George, SC 29477. They can also be submitted electronically to the online solicitation. Please e-mail Rebecca Dantzler with any questions.**

## **SECTION A**

# **REQUIRED FORMS**

## QUOTE FORM

When changes in the work are ordered by the Owner, and such changes involve the following items, the following unit prices will be used to calculate adjustments to the Contract Sum. These unit prices shall be for the Work as specified, including all labor, materials, equipment, accessories, shipping, preparation, insurance, testing, overhead, profit, applicable taxes, permits, fees, warranties and all other associated costs for the finished and completed Work.

This list may not include all components necessary to provide a completed product, therefore any applicable items necessary to provide a completed product should be considered in your lump-sum price response.

### LUMP SUM PRICE.

Item	Description	Total Cost
1.	Install Owner-Provided Water & Sewer Lines and Grinder Pump, Advising Material Needs for Water Lines, and Obtaining all Required Permits	\$

Company Name: \_\_\_\_\_

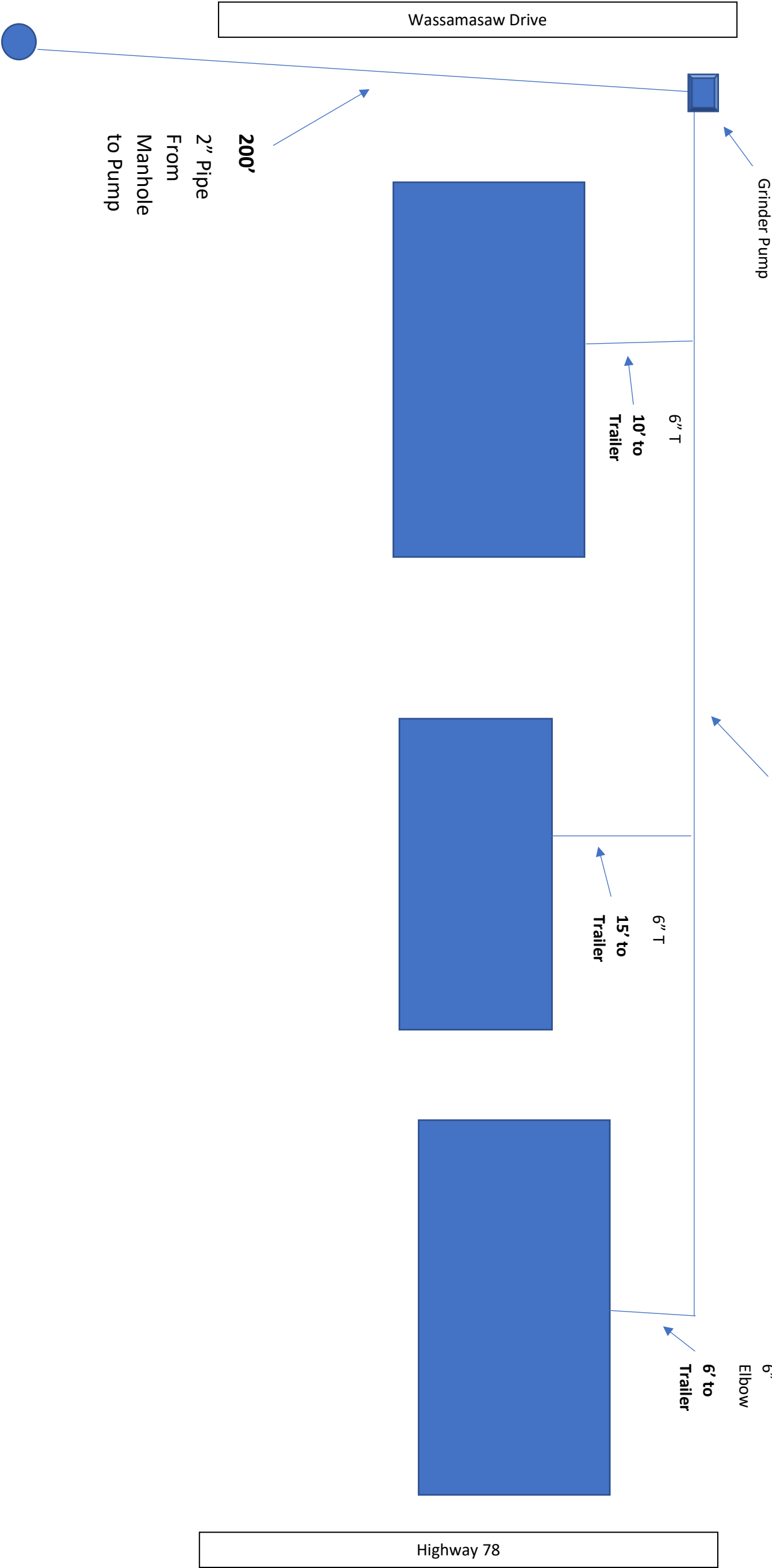
Signature: \_\_\_\_\_

Name/Title: \_\_\_\_\_

Date: \_\_\_\_\_

## **SECTION B**

### **MAP**







# Phase 3



Existing Water Meter

Water Lines

Fiber Cable

New Electrical

Sewer Tap

Sewer Lines

1 inch = 25 feet

Disclaimer: This map is a graphic representation of data obtained from various sources. All efforts have been made to warrant the accuracy of this map. However, Dorchester County disclaims all representation and liability for the use of this map. DORCHESTER COUNTY EBY





## **SECTION C**

# **SAMPLE CONTRACT**



STATE OF SOUTH CAROLINA     )  
COUNTY OF DORCHESTER     )

**CONTRACT 2020-40D  
WATER AND SEWER LINE  
INSTALLATION**

**THIS CONTRACT** (“Contract”) entered into this \_\_\_\_ day of May 2020 between the **COUNTY OF DORCHESTER**, South Carolina, a public body corporate and politic and political subdivision of the State of South Carolina, (“County”), and \_\_\_\_\_, a (Sole Proprietor) (Limited Liability Corporation) (Corporation) , the mailing address of which is \_\_\_\_\_ (“Contractor”), (“Party” as to each; collectively the “Parties”).

**WHEREAS**, THE County wishes to contract for the installation of the water and sewer lines at the Carter Property as described in Request for Quotes No. 2020-2936-4520-40D (“Work”); and

**WHEREAS**, Contractor has represented to the County that its staff is qualified to provide the Work required in this Contract in a professional, timely manner; and

**WHEREAS**, the County has relied upon the above representations by Contractor,

**NOW, THEREFORE**, in consideration of the promises and covenants set forth herein, it is agreed by and between the Parties as follows:

**SECTION ONE  
SCOPE OF SERVICES**

The Contractor agrees to perform and furnish all labor, supervision, materials, equipment, transportation and supplies necessary for the completion of the Work, as described in Request for Quotes No. 2020-2936-4520-40D in a timely, workmanlike manner, professional in all aspects, and in accord with all applicable laws, rules and regulations.

**SECTION TWO  
CONTRACT PRICE: PAYMENT TERMS**

Contractor shall be compensated based upon the following price:

\$\_\_\_\_\_

Invoices are to be mailed to Dorchester County, Attention: Rebecca Dantzler, 201 Johnston Street, St. George, SC 29477. Questions or concerns regarding payment may be directed to Rebecca Dantzler at [rdantzler@dorchestercountysc.gov](mailto:rdantzler@dorchestercountysc.gov). Payment will be due within 30 days of approved invoices.

**SECTION THREE**  
**TIME: TERM OF CONTRACT**

The Contractor hereby agrees with the County to provide those services specified herein upon Notice to Proceed and shall complete the Work within seven (7) calendar days.

**SECTION FOUR**  
**INSURANCE REQUIREMENTS**

The Contractor, at its own expense, shall at all times during the term of the Contract, maintain insurance. The County may contact the Contractor's insurer(s) or insurer(s)' agent(s) directly at any time regarding Contractor's coverages, coverage amounts, or other such relevant and reasonable issues related to this Contract. The Contractor shall also require any subcontractors to carry the same coverages in the same amounts.

The County must be advised immediately of any changes in required coverages.

The Contractor shall procure, maintain, and provide proof of, insurance coverage for injuries to persons and/or property damage as may arise from or in conjunction with, the work performed on behalf of the County by the Contractor, his agents, representatives, employees or subcontractors. Proof of coverage as contained herein shall be submitted prior to the commencement of work and such coverage shall be maintained by the Contractor for the duration of the Contract period; for occurrence policies.

**A. General Liability**

Coverage shall be as broad as: Comprehensive General Liability endorsed to include Broad Form, Commercial General Liability form including Products/Completed Operations.

Minimum Limits

General Liability:

\$1,000,000 General Aggregate Limit

\$1,000,000 Products & Completed Operations

\$1,000,000 Personal and Advertising Injury

\$1,000,000 Each Occurrence Limit

\$50,000 Fire Damage Limit

\$5,000 Medical Expense Limit

**B. Automobile Liability**

Coverage sufficient to cover all vehicles owned, used, or hired by the Contractor, his agents, representatives, employees or subcontractors.

Minimum Limits

Automobile

Liability:

\$1,000,000 Combined Single Limit



\$1,000,000 Each Occurrence Limit

\$5,000 Medical Expense Limit

**C. Workers' Compensation**

Limits as required by the Workers' Compensation Act of SC. Employers Liability, \$1,000,000.

**D. Owners' & Contractors' Protective Liability**

Policy will be in name of County. Minimum limits required are \$1,000,000.

**E. Professional Liability**

Minimum limits are \$1,000,000 per occurrence.

**F. Coverage Provisions**

1. All deductibles or self-insured retention shall appear on the certificate(s).
2. The County of Dorchester, its' officers/ officials, employees, agents and volunteers shall be added as "additional insured" as their interests may appear. This provision does not apply to Professional Liability or Workers' Compensation/Employers' Liability.
3. The offeror's insurance shall be primary over any applicable insurance or self-insurance maintained by the County.
4. Shall provide 30 days written notice to the County before any cancellation, suspension, or void of coverage in whole or part, where such provision is reasonable.
5. All coverage for subcontractors of the Contractor shall be subject to all of the requirements stated herein.
6. All deductibles or self-insured retention shall appear on the certificate(s) and shall be subject to approval by the County. At the option of the County, either; the insurer shall reduce or eliminate such deductible or self-insured retention; or the Contractor shall be required to procure a bond guaranteeing payment of losses and related claims expenses.
7. Failure to comply with any reporting provisions of the policy(s) shall not affect coverage provided the County, its officers/officials, agents, employees and volunteers.
8. The insurer shall agree to waive all rights of subrogation against the County, its' officers/officials, agents, employees or volunteers for any act, omission or condition of premises which the parties may be held liable by reason of negligence.
9. The Contractor shall furnish the County certificates of insurance including endorsements affecting coverage. The certificates are to be signed by a person authorized by the insurance company(s) to bind coverage on its' behalf, if executed by a broker, notarized copy of authorization to bind, or certify coverage must be attached.

10. All insurance shall be placed with insurers maintaining an A.M. Best rating of no less than an A:VII. If A.M. Best rating is less than A:VII, approval must be received from County's Risk Manager or Procurement Director.

## **SECTION FIVE**

### **INDEPENDENT CONTRACTOR**

Contractor is an independent contractor and shall not be deemed the agent or employee of the County for any purpose whatsoever. Contractor shall not hold himself out as an employee of the County and shall have no power or authority to bind or obligate the County in any manner, except the County shall make payment to Contractor for work and expenses as herein provided. Contractor shall obtain and maintain all licenses and permits required by law for performance of this Contract by him or his employees, agents, and servants. Contractor shall be liable for and pay all taxes required by local, state or federal governments, including but not limited to social security, Workers' Compensation, employment security, and any other taxes and licenses or insurance premiums required by law. No employee benefits of any kind shall be paid by the County to or for the benefit of the Contractor or its employees, agents, or servants by reason of this Contract.

## **SECTION SIX**

### **INSPECTION AND ACCEPTANCE**

All Work shall be subject to inspection by the County at all reasonable times and places. The Contractor shall, without charge, correct any workmanship found by the County not to conform to the Contract requirements.

## **SECTION SEVEN**

### **ADDITIONAL SERVICES OUTSIDE THE SCOPE OF SERVICES**

County will be charged for any additional service requested that is not outlined in the Scope of Work section of this Contract. Charges for additional services shall be agreed upon in writing prior to the commencement of any additional services.

## **SECTION EIGHT**

### **TERMINATION**

#### **A. For Convenience**

The Purchasing Services Manager, by advance written notice, may terminate this Contract when it is in the best interest of the County. If this Contract is so terminated, the Contractor shall be compensated for all necessary and reasonable direct costs of performing the Work actually accomplished. The Contractor will not be compensated for any other costs in connection with a termination for convenience. The Contractor will not be entitled to recover any damages in connection with a termination for convenience.

#### **B. For Default**

If the Contractor refuses or fails to perform the Work or any separable part thereof in a timely or workmanlike manner in accordance with the Contract Documents, or otherwise



fails, in the sole opinion of the County, to comply with any of the terms and conditions of the Contract Documents deemed, in the sole opinion of the County, to be material (including, without limitation, the requirement that the Contractor obtain and maintain in force all necessary permits), such refusal or failure shall be deemed a default under this Contract.

In the event of a default under this Section, the County shall have the right to terminate forthwith this Contract by written notice to the Contractor. In the event of such default, the advance notice period for termination is waived and the Contractor shall not be entitled to any costs or damages resulting from a termination under this section.

Whether or not the Contractor's right to proceed with the Work is terminated, it and its sureties shall be liable for any damage to the County resulting from Contractor's default. Any wrongful termination for default shall be deemed by the Parties a termination for convenience.

#### C. Termination for Non-Appropriation of Funds

The Purchasing Services Manager, by written advanced notice, may terminate this Contract in whole or in part in the event that sufficient appropriation of funds from any source (whether a federal, state, County or other source) are not made or sufficient funds are otherwise unavailable, in either case, to pay the charges under this Contract. If this Contract is so terminated, the Contractor shall be compensated for all necessary and reasonable direct costs of performing the Work actually provided to the date of such termination. The Contractor will not be compensated for any other costs in connection with a termination for non-appropriation. The Contractor will not be entitled to recover any damages in connection with a termination for non-appropriation, including, but not limited to, lost profits.

#### D. Rights Cumulative

The rights and remedies of the County provided in this Section are in addition to any other rights and remedies provided by law or under this Contract.

### **SECTION NINE** **CLEANUP WORK AND REPAIR OF DAMAGES**

During the performance of the Work, the Contractor shall continuously keep the work sites and areas adjacent thereto in an orderly condition, free and clear from debris and discarded materials.

Contractor will restore or replace, when and as directed by the County, any public or private property damaged or destroyed by Contractor's work, equipment or employees to a condition at least equal to that existing immediately prior to the beginning of the Work.

### **SECTION TEN** **DEFINITIONS**

Litter - rubbish such as wastepaper, cans, and bottles discarded in an open or public place as to be a nuisance or health concern.

Debris - scattered remains of something destroyed.

Trash - worthless or discarded material or objects.

## **SECTION ELEVEN ADVERSE WEATHER**

There may be instances when weather conditions keep Contractor from performing services. Contractor will make every effort possible to complete services in a timely manner. Contractor shall not be liable for any damage due to acts of nature. In the event of such cases (i.e. severe winds, named storms, hurricane, tornado, etc.), Contractor agrees to remove debris, at an extra charge agreed upon between County and Contractor.

## **SECTION TWELVE CONTROLLING LAW**

The laws of South Carolina shall govern this Contract. All litigation arising under this Contract shall be litigated only in a nonjury hearing in the Court of Common Pleas, First Judicial Circuit, Dorchester County or the Dorchester County Magistrates Court.

## **SECTION THIRTEEN ENTIRE AGREEMENT**

This Contract constitutes the entire understanding and contract between the Parties hereto and supersedes all prior and contemporaneous written and oral contracts between the Parties and their predecessors in interest regarding the subject matter of this Contract. This Contract may not be changed, altered, amended, modified, or terminated orally, except as specifically provided, and any such change, alteration, amendment, or modification must be in writing and executed by the Parties hereto.

## **SECTION FOURTEEN SEVERANCE**

Should any part of this Contract be determined by a Court of competent jurisdiction to be invalid, illegal, or against public policy, said offending Section shall be void and of no effect and shall not render any other Section herein, nor this Contract as a whole, invalid. Any terms which, by their nature, should survive the suspension, termination or expiration hereof shall be deemed to so survive.

## **SECTION FIFTEEN NON-WAIVER**

Any waiver of any default by either Party to this Contract shall not constitute waiver of any subsequent default, nor shall it operate to require either Party to waive, or entitle either Party to a waiver of, any subsequent default hereunder.



**SECTION SIXTEEN**  
**SUSPENSION OF WORK**

The County may order, in writing, the Contractor to suspend, delay, or interrupt all or any part of the Work for such period of time as may be determined to be appropriate for the convenience of the County. The County may suspend performance of its obligations under this Contract in good faith for the convenience of the County or to investigate matters arising in the Work.

When the County orders any suspension of the Work under the paragraph above, the Contractor shall not be entitled to any payment for Work with respect to the period during which such Work is suspended and shall not be entitled to any costs or damages resulting from such suspension.

**SECTION SEVENTEEN**  
**SAFETY, HEALTH, AND SECURITY PRECAUTIONS**

The Contractor shall take proper safety, health, and security precautions to protect its workers and the County's property, workers and the public at all times during the term of this Contract.

*(Signature block below)*

**IN WITNESS WHEREOF**, the Parties hereto have executed this Contract under their several seals the day and year first written above.

**CONTRACTOR**

**DORCHESTER COUNTY**

\_\_\_\_\_  
Name:

Title: \_\_\_\_\_

\_\_\_\_\_  
Jason L. Ward

County Administrator

**Attest:**

**Attest:**

1) \_\_\_\_\_

2) \_\_\_\_\_

1) \_\_\_\_\_

2) \_\_\_\_\_

## **SECTION D**

# **OWNER-PROVIDED SUPPLIES AND EQUIPMENT**



7227 Cross Park Dr, North Charleston, SC 29418  
Phone: 843-377-2900 Fax: 843-377-2904

# PROPOSAL

WE ARE SC/NC WBE CERTIFIED

DATE: 04/28/2020

**TO:**  
Dorchester County Water and Sewer

**SHIP TO:**  
Misc Fittings

Quote Good For 30 Days Unless Otherwise Noted

Ship Via	When Ship:	Terms	Quoted By:	F.O.B.
			Michael Sanders	

Qty	Unit	Description	Unit Price	Total
250.00	lf	6" SDR26 HW PVC Sewer Pipe	2.44	610.00
30.00	lf	4" SDR26 HW PVC Sewer Pipe	1.15	34.50
200.00	lf	2" PVC Sch 40 Pipe BE	0.60	120.00
4.00	ea	6" SDR26 HW Wye Gskt	44.23	176.92
6.00	ea	6" SDR26 HW 45 BXS	16.70	100.20
3.00	ea	6" X 4" SDR26 HW Reducer SXG	23.44	70.32
3.00	ea	4" SDR26 HW Wye Gskt	27.88	83.64
3.00	ea	4" SDR26 HW 45 BXB	12.32	36.96
2.00	ea	6" SDR35 Female Adapter HXFIP	14.53	29.06
2.00	ea	6" SDR35 Male Thd Plug-Raised	9.39	18.78
3.00	ea	4" SDR35 Female Adapter HXFIP	3.08	9.24
3.00	ea	4" SDR35 Male Thd Plug-Raised	1.87	5.61
		<b>Subtotal</b>		<b>1,295.23</b>

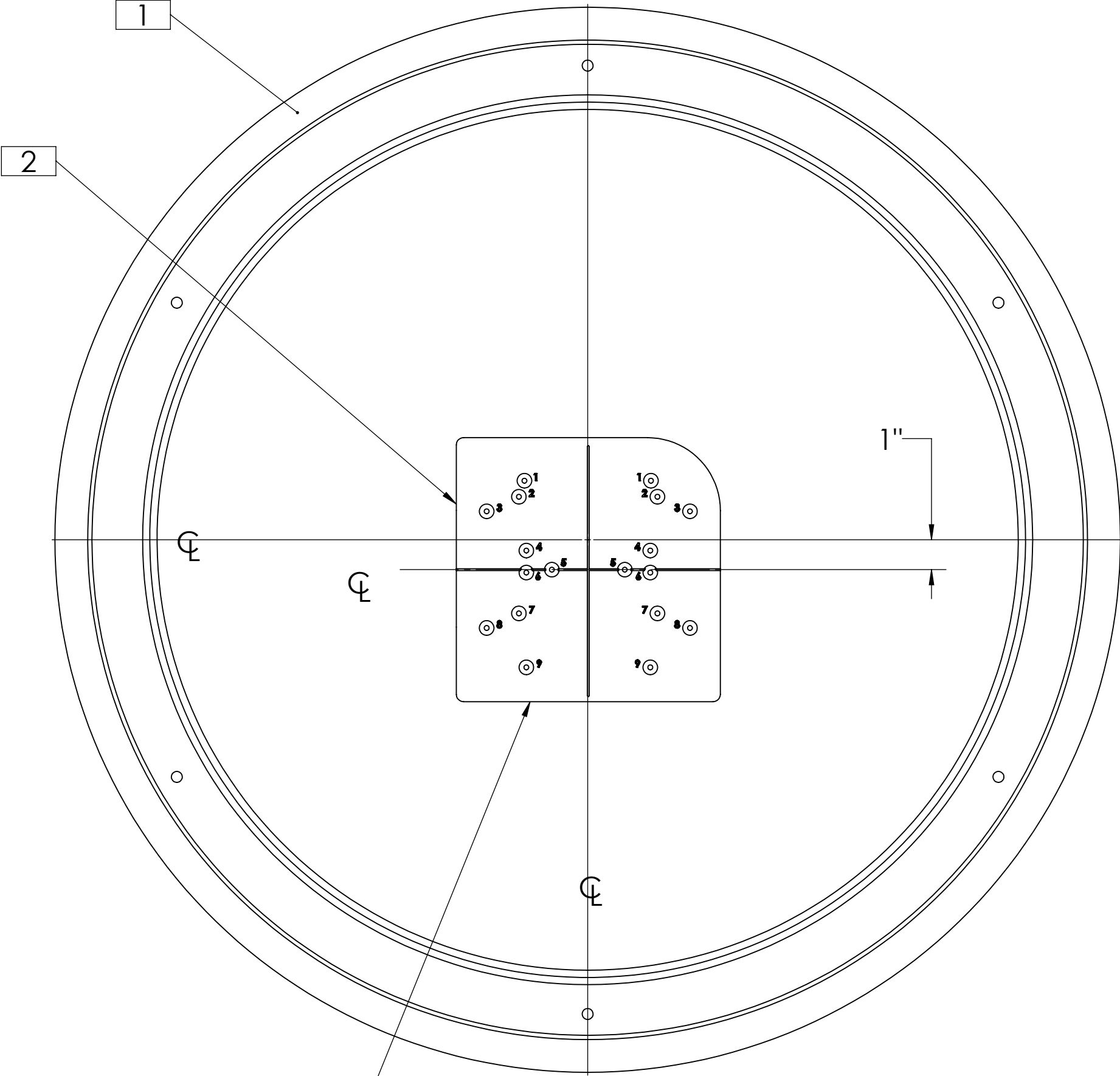
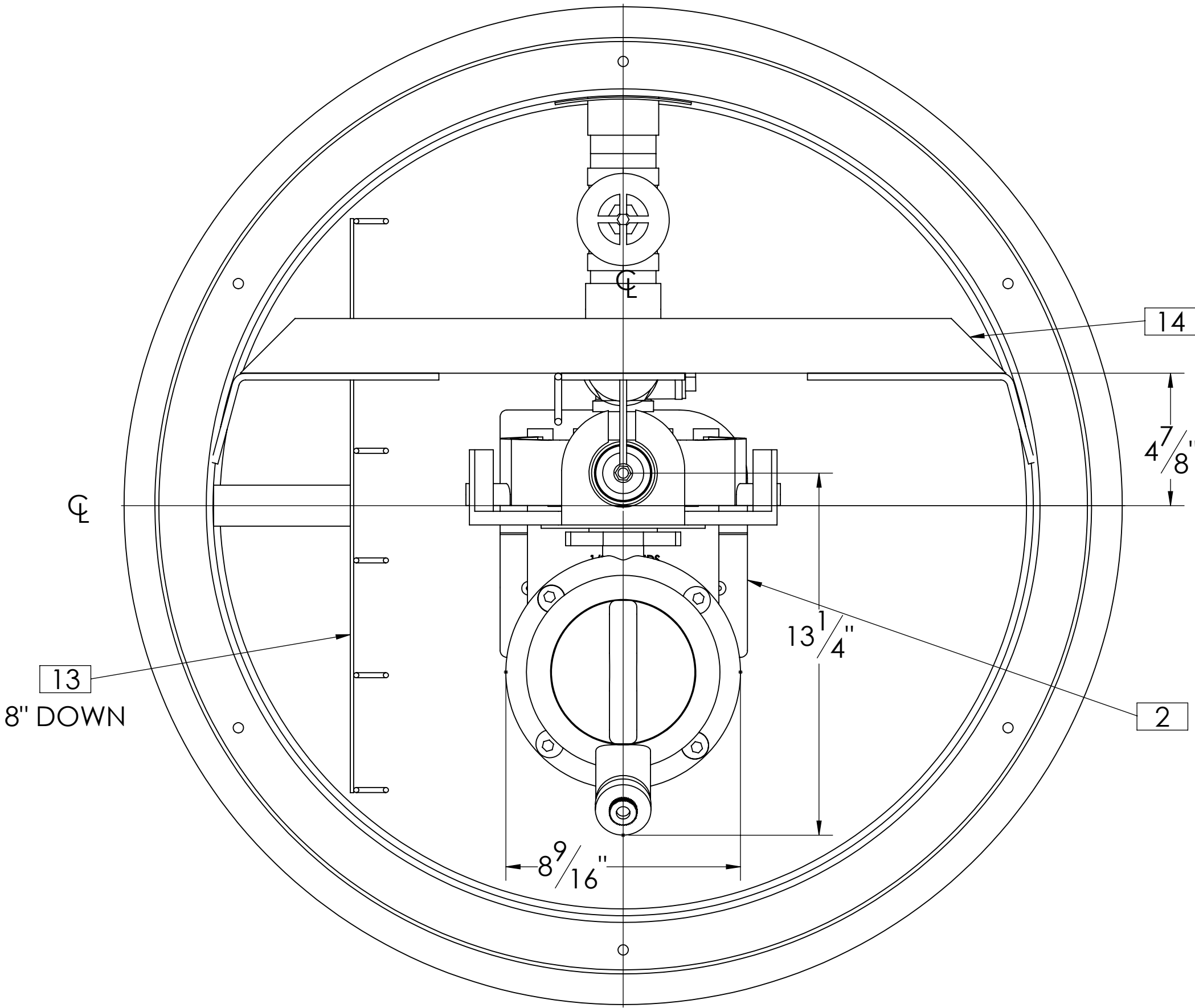
All prices are deemed to be accurate, but are not guaranteed. All materials subject to applicable taxes at time of sale.

WET WELL  
O.D. = 34"  
B.C. = 32 1/2"  
I.D. = 30"

NOTE: MEASUREMENTS OF BASINS ARE ALL I.D.,  
IF NOT OTHERWISE SPECIFIED.

**FIBERGLASS ANTIFLOAT**  
EACH STUD MUST BE SEALED  
AT BASIN FLOOR W/3M THEN  
COVERED WITH SS WASHER.

**DRILL #: 1 & 9**  
**BOLTS: 1/2"-13 X 1 1/2"**



NOTE: TO BE GLUED ON TOP OF BOTTOM BOARD  
W/ 1/8" TO 1/4" BEAD OF GLUE SHOWING AROUND  
ALL SIDES OF PAD.

O.D. = OUTER DIAMETER  
B.C. = BOLT CIRCLE  
I.D. = INNER DIAMETER  
C.A. = CLEAR ACCESS

**TOPP**  
INDUSTRIES  
INCORPORATED  
P.O. BOX 420 ^ HWY. 25 N.  
ROCHESTER, IN. 46975  
(800) 354-4534 FAX: (574) 223-6106

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:				PUMP & DISCONNECT: Pump: ABS Model: ABS S16				DO NOT SCALE DRAWING				REVISION 02					
				SO: 12549-14-NS				PETE DUTY & ASSOCIATES									
DRAWN:		NAME		DATE				TITLE:									
CHK'D:		MR		5/23/18													
APP'VD:		--		--													
MFG:		--		--													
Q.A.		--		--		MATERIAL:		DWG NO. 304592									
						WEIGHT:		SCALE:1:16				SHEET 1 OF 4					



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WET WELL  
O.D. = 34"  
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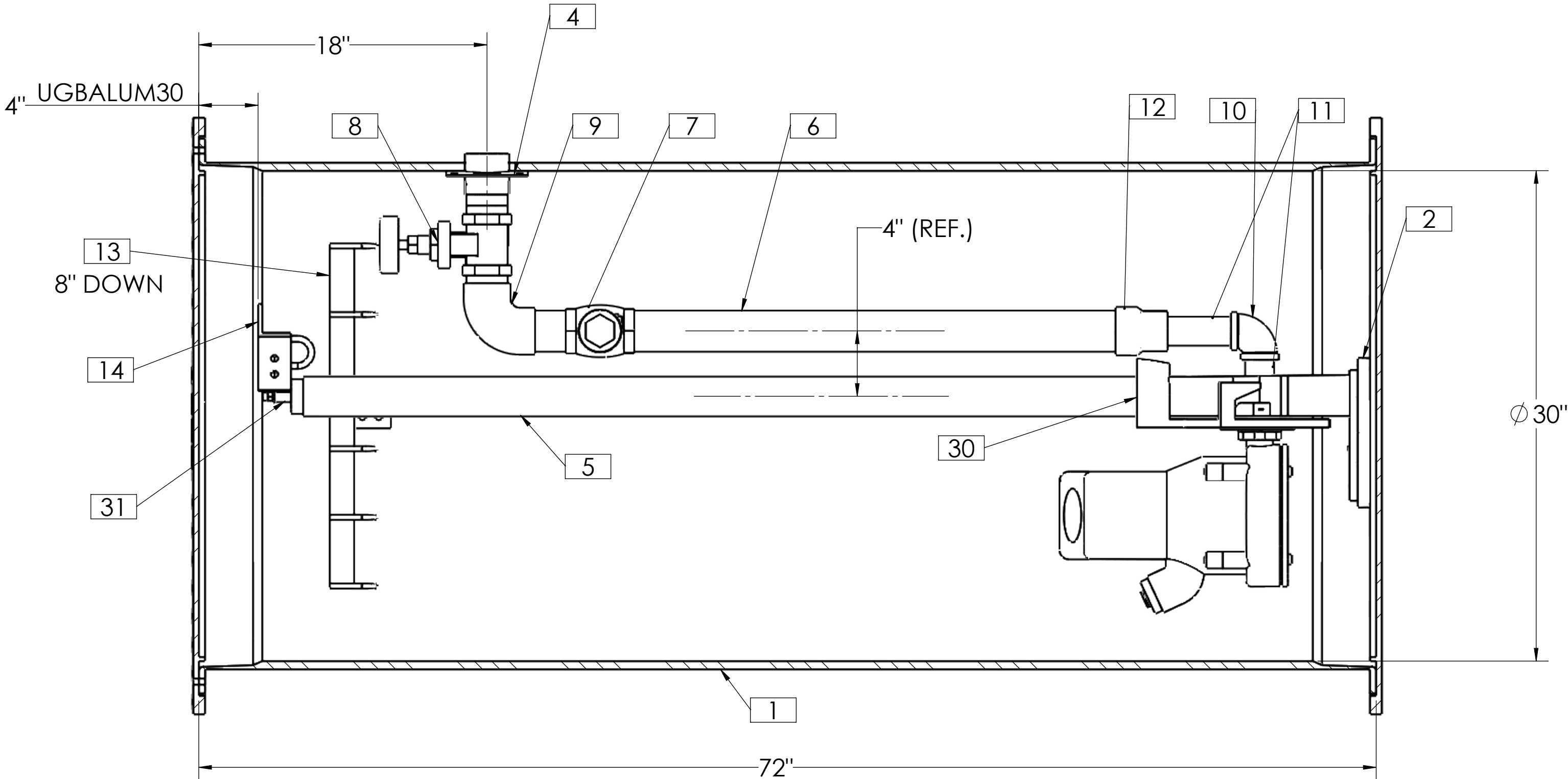
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O.D. = OUTER DIAMETER  
B.C. = BOLT CIRCLE  
I.D. = INNER DIAMETER  
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INDUSTRIES

**TOPP**

INCORPORATED

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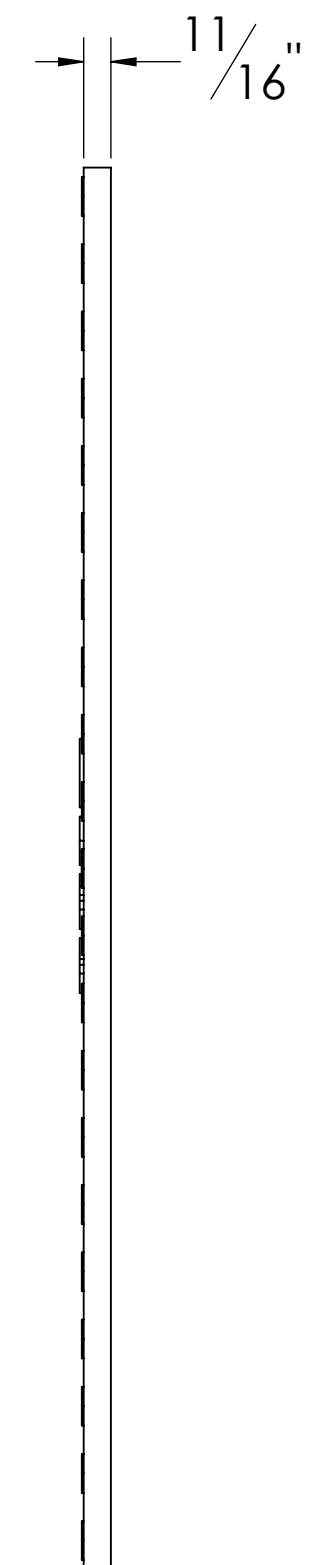
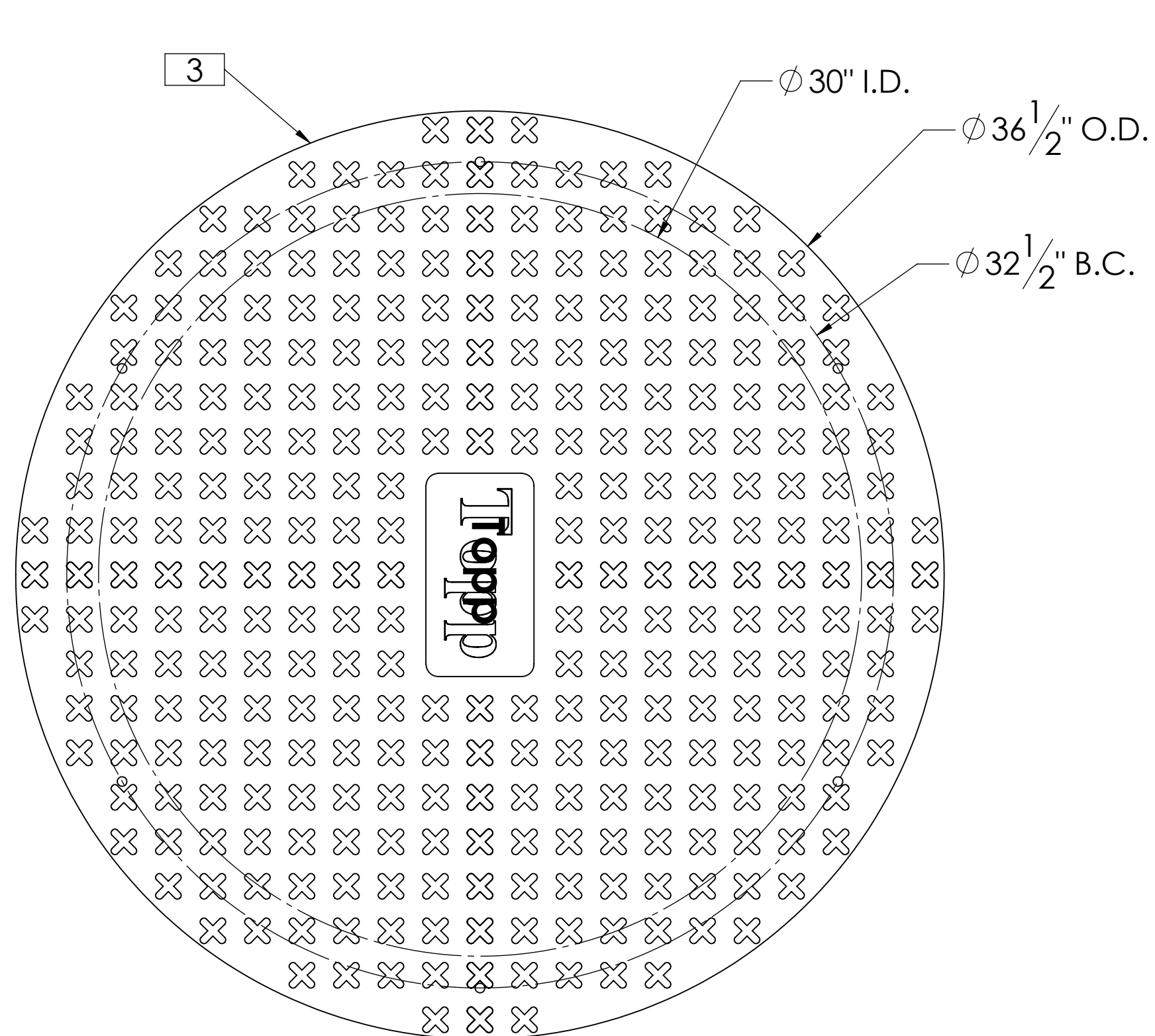
ROCHESTER, IN. 46975

(800) 354-4534 FAX: (574) 223-6106

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:			PUMP & DISCONNECT: Pump: ABS Model: ABS S16 SO: TPO: 12549-14-NS			DO NOT SCALE DRAWING	REVISION	02
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MFG: --			DATE: --			SCALE:1:16		
Q.A: --			DATE: --			SHEET 2 OF 4		
			MATERIAL:					
			WEIGHT:					

COVER  
O.D. = 36 1/2"  
B.C. = 32 1/2"  
I.D. = 30"

**NOTE: MEASUREMENTS OF BASINS ARE ALL I.D.,  
IF NOT OTHERWISE SPECIFIED.**



O.D. = OUTER DIAMETER  
B.C. = BOLT CIRCLE  
I.D. = INNER DIAMETER  
C.A. = CLEAR ACCESS

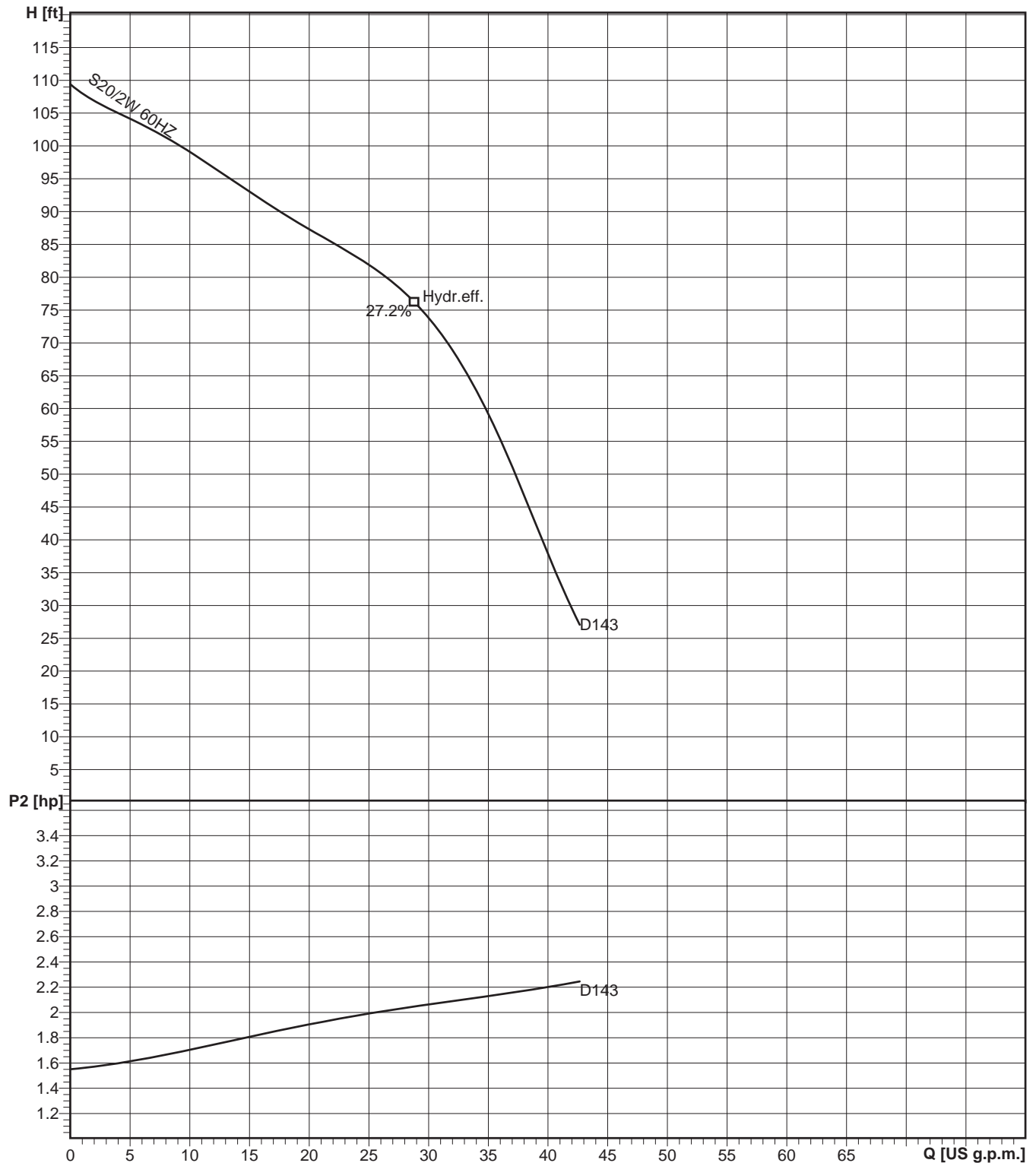


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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:				PUMP & DISCONNECT: Pump; ABS Model; ABS S16				DO NOT SCALE DRAWING				REVISION				02					
				SO:				PC:				PETE DUTY & ASSOCIATES									
				12549-14-NS																	
		NAME		DATE				TITLE:													
DRAWN		MR		5/23/18																	
CHK'D		MR		05/30/2018																	
APP'VD		--		--																	
MFG		--		--																	
Q.A		--		--		MATERIAL:		DWG NO.													
								304592													
						WEIGHT:		SCALE:1:16													
								SHEET 3 OF 4													

[illegible]

			Discharge G1¼"	Frequency 60 Hz
Density 62.428 lb/ft³	Viscosity 0.000016813 ft²/s	Testnorm Hydraulic Institute	Rated speed 3520..3345 rpm	Date 2012-03-15
Flow 37.9 US g.p.m.	Head 47.2 ft	Rated power 2.17 hp	Hydraulic efficiency 20.9 %	NPSH



Impeller size 5.75..5.63 inch	N° of vanes 4	Impeller Macerator	Solid size	Revision 2010-09-28
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**TECHNICAL DATA****PIRANHA****S20/2W, S20/2**

Dwg. DS-P01-019 Rev: B Date: 12/06

Section Piranha Tab "S" Series Page

**STANDARD & EXPLOSION PROOF****MOTOR SPECIFICATIONS**

Motor Design	NEMA design B, squirrel cage induction, air filled
Motor Type	Enclosed submersible
Insulation Class	Class F, rated at 279° F (155° C)
Motor Protection	Oil Chamber Moisture Detector, bimetallic switches embedded in each phase for thermal overload protection. Installer must conform to N.E.C. standards, 1990 Ed. Art. 430.
Bimetallic Temp Trip	234° F $\pm$ 9° (130° C $\pm$ 5° C)
Service Factor	1.0
Voltage Tolerance	$\pm$ 10% from nominal
Approvals	UL, CSA (FM available as option)

**MOTOR DATA, 60Hz**

Model	Phase	Output Power bhp	Volts	Full Load Amps	Locked Rotor Amps	NEMA Code Letter	Power Factor 100% Load	Motor Efficiency 100% Load	Pole/Speed (rpm)
S20/2W*	1	2.0	208	11.9	32.5	A	0.99	73.1	2/3450
S20/2W*	1	2.0	230	10.8	29.4	A	0.99	73.1	2/3450
S20/2	3	2.0	208	8.0	42.6	G	0.84	74.5	2/3450
S20/2	3	2.0	230	7.2	38.5	G	0.84	74.5	2/3450
S20/2	3	2.0	460	3.6	19.2	G	0.84	74.5	2/3450
S20/2	3	2.0	575	2.9	15.4	G	0.84	74.5	2/3450

\*Requires external start kit mounted in the control panel

**MATERIALS of CONSTRUCTION**

Motor Housing	Cast Iron ASTM A48 Class 30
Cable Cap	Cast Iron ASTM A48 Class 30
Volute	Cast Iron ASTM A48 Class 30
Oil Chamber	Cast Iron ASTM A48 Class 30
External Hardware	AISI 304 Stainless Steel
O-Rings	Buna-N
Motor Shaft	AISI 420 Stainless Steel
Cutter Disc Assembly	Chrome Molybdenum Cobalt Tool Steel 58-62 Rockwell "C"
Upper Bearing	Single row ball bearing.
Lower Bearing(s)	Single row ball bearing.
Upper Shaft Seal	Buna N Lip Seal
Lower Shaft Seal	Silicon Carbide
Impeller	Cast Iron, Open Multi-vane

**DIMENSIONS, WEIGHT, AND MISC.**

Pump weight (lb.)	81
Pump weight (lb.) (explosion proof)	82
Maximum submergence (feet)	33
Discharge size, standard	1¼ Inch
Discharge thread type	Female NPT
Maximum temp. of pumped fluid	72° F (40° C)

**CABLE SPECIFICATIONS**

MODEL	POWER CABLE Quantity, Type	LENGTH, Feet
S20/2W	14/7 Type SOW-A	32
S20/2D	14/7 Type SOW-A	32

Power cable suitable for all standard voltages listed in "MOTOR DATA" section.

Specifications subject to change without notice

**SULZER****abs**

**EXPLOSION PROOF****GENERAL**

Furnish and install \_\_\_\_\_ Model PIR S \_\_\_\_\_ **ABS Piranha** Grinder Pump(s) to deliver \_\_\_\_\_ USGPM against a total head of \_\_\_\_\_ feet. The motor shall be \_\_\_\_\_ HP, 3450 RPM (1750 RPM for S10/4 model), connected for operation on a \_\_\_\_\_ volt, 60 HZ, \_\_\_\_\_ phase service. The motor shall be an integral part of the pumping unit. The pump discharge shall be 1 1/4".

The grinder unit shall be capable of shearing and reducing to a fine slurry all material normally found in domestic and commercial sewage such as sanitary napkins, disposable diapers, cloth diapers, wash rags, wood, plastic, etc. The slurry shall be capable of freely passing through a 1 1/4" piping system including check and gate valves.

**GRINDER PUMP CONSTRUCTION**

The pump shall be of the centrifugal type with the rotating cutter mounted on the pump shaft directly against the impeller. The stationary cutter shall be mounted in an adjustable bottom plate. The stationary cutter shall have slots to facilitate better flow. The bottom plate shall be cast with grooves threading outward from the center opening of the plate to the outer diameter. The impeller shall be a multiple vane centrifugal type. The cutter material shall be similar to an ANSI 440C stainless steel with the addition of cobalt, vanadium, and molybdenum for superior abrasion resistance and a hardness of 58-62 Rockwell C.

The common pump and motor shaft shall be 420 stainless steel supported on the impeller end by a heavy duty single row ball bearing on 1.3-2.4 hp pumps, or a heavy duty double row ball bearing on 3.5-4 hp pumps. The opposite end of the shaft is supported on a sealed single row ball bearing (all models). The cutting elements and impeller shall be designed to keep the overhung load distance to a minimum. All fasteners shall be 304 stainless steel.

**Shaft Seals:** Each pump shall be equipped with two (2) seals. The lower seal (pump side) shall be of the mechanical type with silicon carbide faces. The upper seal shall be a lip type seal. The seals shall be separated by an oil chamber providing cooling and lubrication of the seals, and a barrier between the pumped fluid, and the dry motor chamber.

**Seal Failure Warning System:** An electric probe shall be provided in the oil chamber to detect the presence of water in the oil. A solid-state device mounted in the pump control panel or in a separate enclosure shall send a low voltage, low amperage signal to the probe. If water enters the oil chamber in sufficient quantity to warrant concern, the probe shall activate a warning light in the control panel.

**MOTOR CONSTRUCTION**

The motor shall be of submersible type rated for \_\_\_\_\_ HP at 3450 RPM (1750 RPM for S10/4 model). The full load current shall not exceed \_\_\_\_\_ amps at \_\_\_\_\_ volts. Single phase motors shall be of the capacitor start capacitor run type for high starting and running torque.

The motor shall be air-filled and shall have Class "F" insulation. The rotor and stator shall be enclosed in a cast iron outer housing. Bi-metallic thermal switches shall be imbedded in each phase of the winding to sense high temperature. The rating of the switch shall be 130°C +/- 5°C. The control circuit shall be connected through the bi-metallic switches so the motor is shut down should a high temperature condition exist. The switches shall be self-resetting when the motor cools. Power cable shall be rated for explosion proof environment.

**APPROVALS**

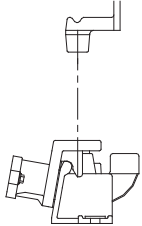
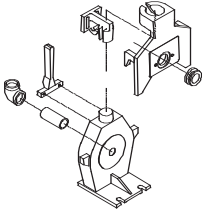
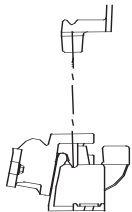
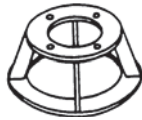
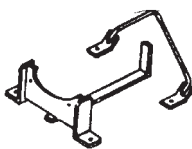
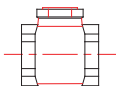
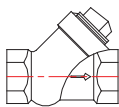

All models shall be UL and CSA approved. Explosion proof models shall be FM approved for Class I Division I Group C and D.

# ACCESSORIES

PIRANHA

Dwg: DS-P00-005 Rev: D Date: 1/00

Section Piranha Tab Accessories and Controls Page

		Part Number	Description
Standard Guide Rail Assembly		62320674	S10/4, S16/2, S18/2, S26/2W, S30/2D
		62320674	M35/2, M46/2, M50/2W
		62320660	M80/2, M100/2, M120/2
Heavy Duty Guide Rail Assembly		62320501	S10/4, S18/2, S20/2, S26/2W, S30/2D
		62320501	M25/2, M35/2, M46/2, M50/2W
		62320018	M80/2, M100/2, M125/2
Ball Check Guide Rail Assembly		62320536	S10/4, S16/2, S18/2, S26/2W, S30/2D
		62320538	M35/2, M46/2
		62320539	M50/2W
Vertical Pedestal Base		4182037Y	S10/4, S16/2, S18/2, S26/2W, S30/2D
		61906003	M35/2, M46/2, M50/2W
		61906007	M80/2, M100/2, M120/2
Horizontal Cradle Base w/ Lifting Bail		61906001	S10/4, S16/2, S18/2
		61906002	S26/2, S30/2
		61906005	M35/2, M46/2
		61906006	M50/2W, M80/2, M100/2, M120/2
Horizontal Swing Check Valve		1405125	1 1/4"
		1404127	2"
		1404128	3"
Vertical Ball Check Valve		6140525	1 1/4"
		6140526	2"
		6140527	3"
Shut Off Valve, Gate		1404125	1 1/4"
		1404150	1 1/2"
		1404145	2"

Specifications subject to change without notice

**ABS**  
COST-EFFECTIVE PUMPING

HALLIDAY PRODUCTS, INC.  
6401 EDGEWATER DRIVE  
ORLANDO, FL. 32810



<http://www.hallidayproducts.com>

TOLL FREE: 800-298-1027

PHONE: 407-298-4470

FAX: 407-298-4534

# U-A UPPER GUIDE RAIL BRACKET

ALL WELDED CONSTRUCTION

1/4 DIAMETER HOOK

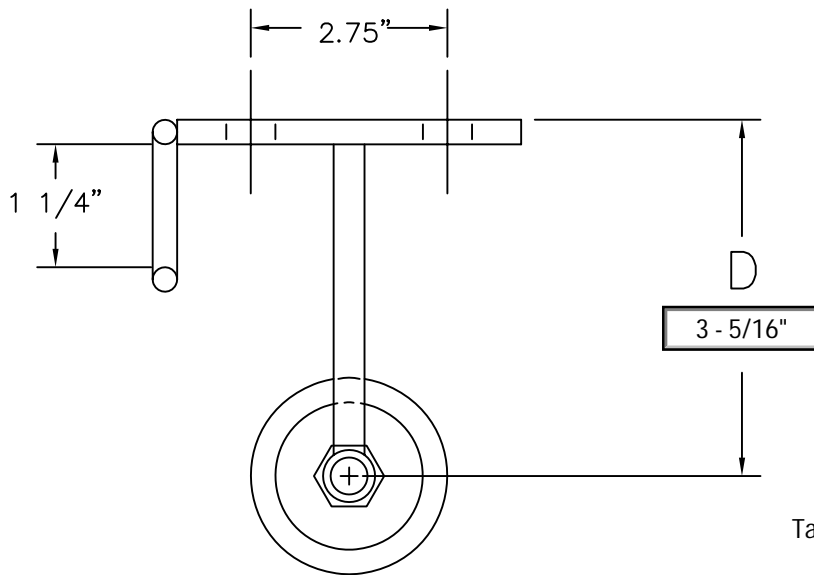
NEOPRENE BUSHING FOR QUIETER

OPERATION

## BRACKET MATERIAL:

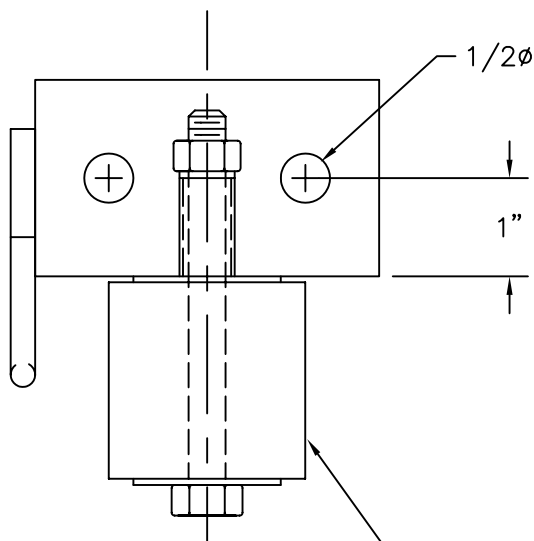
☐ T-304 S.STL.

☒ T-316 S.STL.

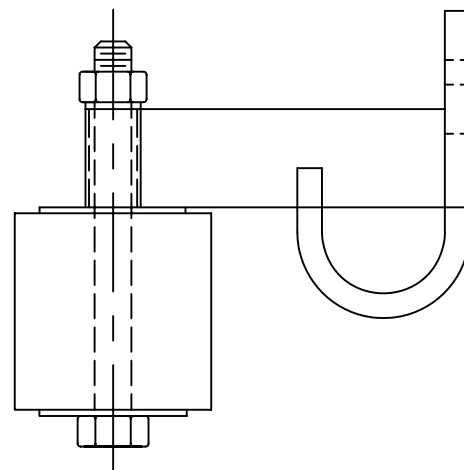


RAIL SIZE  
(PIPE SIZE)

Tag / Notes:



NEOPRENE  
BUSHING  
TO FIT  
RAILS



Submit by Email

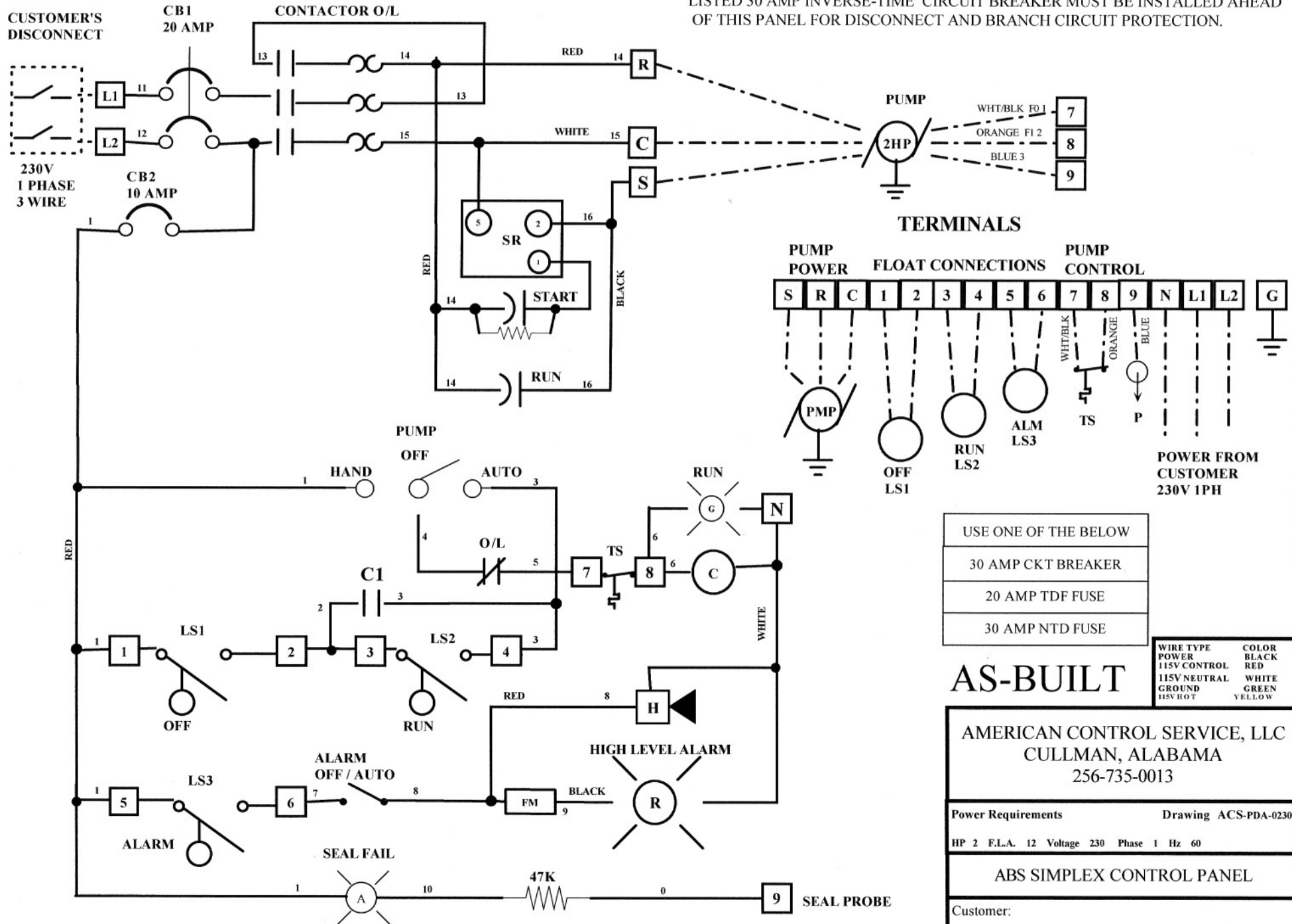
Print Form

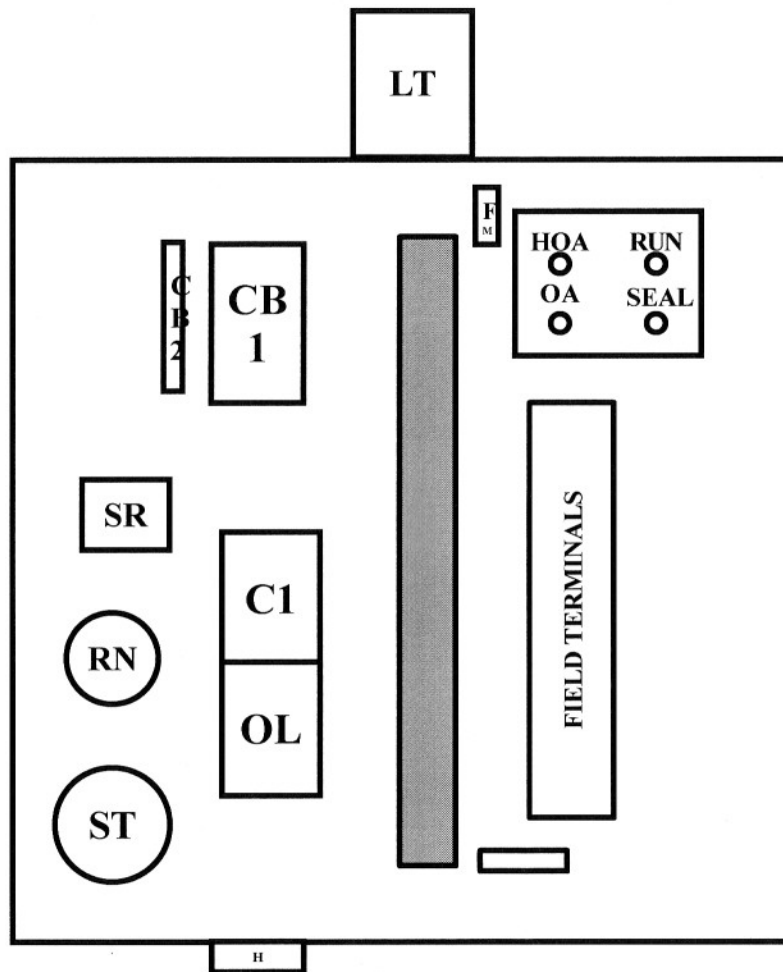
Reset Form

SUBMIT U-A 8/27/10



**CAUTION:** THIS PANEL DOES NOT CONTAIN A MAIN DISCONNECT A UL LISTED 30 AMP INVERSE-TIME CIRCUIT BREAKER MUST BE INSTALLED AHEAD OF THIS PANEL FOR DISCONNECT AND BRANCH CIRCUIT PROTECTION.





### LEGEND

LT -- ALARM LIGHT  
 H --- ALARM BUZZER  
 CB2 -- CONTROL BREAKER  
 ST -- START CAPACITOR  
 RN -- RUN CAPACITOR  
 SR -- START RELAY  
 OL --OVERLOAD RELAY  
 C --- CONTACTOR  
 CB1 -- CIRCUIT BREAKER  
 LS -- LEVEL SWITCH  
 TS --THERMAL SWITCH  
 P --- SEAL PROBE  
 FM -- FLASHER MODULE

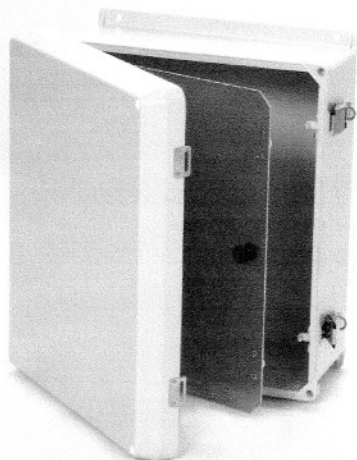
## AS-BUILT

ABS SIMPLEX  
CONTROL PANEL  
LAYOUT

ACS

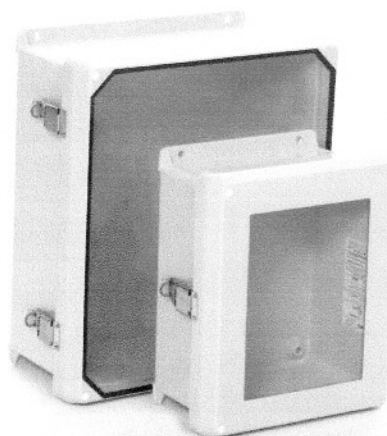
Customer:

# Vynckier Enclosure Systems, Inc.



Base Models	Inside Dimensions			Weight lb (kg)
	H	W	D	
VJ606 (mm)	6.00 (152)	6.00 (152)	4.10 (104)	2.8 (1.27)
VJ806 (mm)	8.00 (203)	6.00 (152)	4.10 (104)	3.8 (1.72)
VJ1008 (mm)	10.00 (254)	8.00 (203)	4.59 (1176)	4.8 (2.17)
VJ1210 (mm)	12.00 (305)	10.00 (254)	4.74 (120)	6.3 (2.85)
VJ1412 (mm)	14.00 (356)	12.00 (305)	5.74 (146)	8.6 (3.90)
VJ1614 (mm)	16.00 (406)	14.00 (356)	5.74 (146)	10.6 (4.80)
VJ1816 (mm)	18.00 (457)	16.00 (406)	8.62 (219)	14.0 (6.34)

Base Models	Inside Dimensions			Weight lb (kg)
	H	W	D	
RVJ1008 (mm)	10.00 (254)	8.00 (203)	6.90 (157)	4.9 (2.2)
RVJ1210 (mm)	12.00 (305)	10.00 (254)	6.37 (162)	6.5 (2.9)
RVJ1412 (mm)	14.00 (356)	12.00 (305)	7.37 (187)	8.8 (4.0)
RVJ1614 (mm)	16.00 (406)	14.00 (356)	7.37 (187)	10.8 (4.9)
RVJ1816 (mm)	18.00 (457)	16.00 (406)	10.19 (259)	14.3 (6.9)



## Options & Assessories

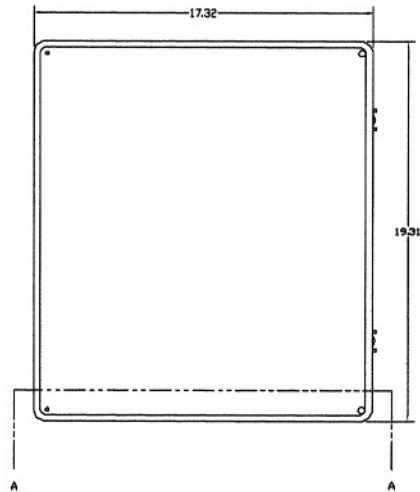
- Window Options
  - Bonded
  - Clear View
  - Gasketed
- Hinged Front Panels
- Hinge Options
- Latching Options
  - W • HW • HPLL • HWPL
- Vent Options
  - MEDV • Louver
- Enclosure Modifications
  - Silk screen • EMI/RFI Shielding

The "*Platinum Plus*" light grey color is cleaner, cooler and more aesthetically pleasing. Now users can enjoy the physical benefits of better heat reflection and better UV resistance, due to the lighter color.

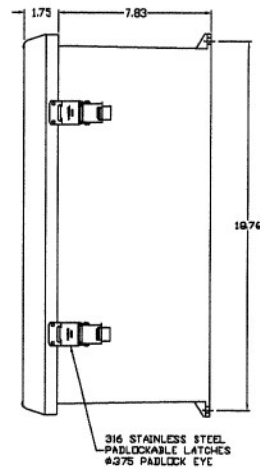
Custom Colors are also available.

249 McCarty Drive • Houston, TX 77029 • Phone: 713.374.7850 • Fax: 713.672.8632

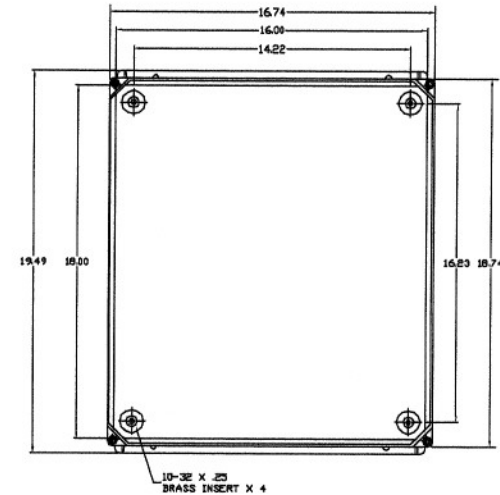
FRONT VIEW



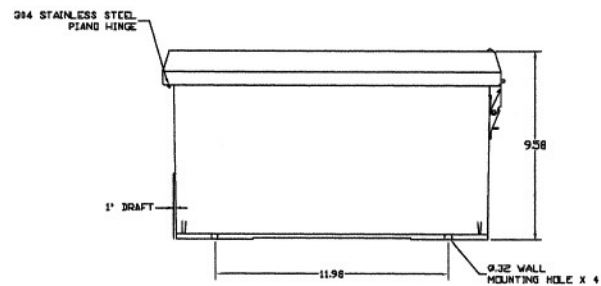
RIGHT SIDE VIEW



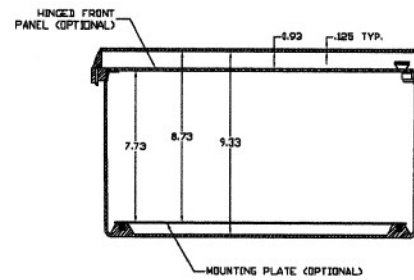
FRONT VIEW-COVER REMOVED



END VIEW



SECTION A-A



- NOTES:
1. ENCLOSURE MATERIAL MADE OF GRAY (RAL 7036) HOT MOLDED FIBERGLASS REINFORCED POLYESTER.
  2. U.L. LISTED PER STD. 508. (FILE# E54315)
  3. CSA CERTIFIED PER STD. C22.2 NO. 94. (FILE# LR36508)
  4. NEMA RATED TYPE 3, 3R, 3S, 4, 4X, 12 AND 13.
  5. IEC 529 RATED IP 68.
  6. TEMPERATURE RANGES FROM -50 DEG C TO 150 DEG C.
  7. SELF EXTINGUISHING AND HALOGEN FREE.
  8. ACCESSORIES INCLUDE: BACK PANELS, DEAD FRONT PANELS, HINGED FRONT PLATES, HINGED COVERS, PRINT POCKETS, LATCHES, WINDOWS, AND VENTILATORS.
  9. CABINETS ARE MAINTENANCE FREE AND CORROSION RESISTANT.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS FRACTIONS .005 .005 .005 .005 .01 .01 .01 .01 NO NET SCALE DRAWING		VYNCKIER ENCLOSURE SYSTEMS INC.	
DRAWN MATT CHAMMAN		DATE 2/16/01	
CHECKED		VYNCKIER PART# VJ1816HWPL2	
SECTION		SIZE D	FRONT NO. VJ1816HWPL2
		REVISION FULL	REVISION FULL
		SHEET	



## ALARM LIGHT LENSES AND COMPONENTS



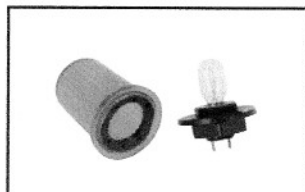
Our R7-XS, R10-SM and R15-MB lights all utilize 1/4" quick-connect terminals for faster and easier installation as well as a single hole mounting style and outside bulb replacement capabilities.

PART #	DESCRIPTION	LIST PRICE	
R7-XS	Extra Small Red Lens w/ 7-Watt Bulb and 1/4" Quick-Connect Terminals	14.00	<ul style="list-style-type: none"> <li>• UL Recognized Component</li> <li>• NEMA Type 4X Rated</li> <li>• UV Stabilized GE Lexan Material</li> <li>• Flame Resistant Lens</li> <li>• 7, 10, 15, 25 and 40 Watt Models</li> <li>• Red, Amber, Green and Blue Models</li> <li>• Quick-Connect Terminal Options</li> <li>• Mounts on Panels up to 1/4" Thick</li> </ul>
R10-SM	Small Red Lens w/ 10-Watt Bulb and 1/4" Quick-Connect Terminals	16.00	
R10-S-10	Small Red Lens w/ 10-Watt Bulb and Pre-Wired Leads	12.00	
R15-MB-15	Medium Red Lens w/ 15-Watt Bulb and Pre-Wired Leads	18.00	
R25-LG-15	Large Red Lens w/ 15-Watt Bulb and Pre-Wired Leads	20.00	
R40-XLS-25	Extra Large Red Lens w/ 25-Watt Bulb and Pre-Wired Leads	28.00	
R40-XLS-40F	Extra Large Red Lens w/ 40-Watt Bulb, Pre-Wired Leads, and Solid State Flasher	54.00	

**Call for alternate color options.**



R7-XS & R10-SM-10



R15-MB-15



R25-LG-25



R40-XLS-25

### PIEZO BUZZERS

- UL Approved Component
- NEMA Types 3, 3R, 4X, 12 and 13
- Single-Hole Panel Mount Style
- 1/4" Quick-Connect Terminals
- Warble Tone
- 95 db. @ 2 ft. and 85 db. @ 10 ft.



PART #	DESCRIPTION	LIST PRICE
PB-120-A	40-125 VAC Piezo Buzzer	\$19.00
PB-024-AD	5-24 VAC/VDC Piezo Buzzer	17.00



### TOGGLE BOOTS

- UL Approved Component
- NEMA Type 1, 2, 3, 3R, 4, 4X, 12 and 13
- EPT Rubber
- UV and Weather Resistant
- 5/8" Hex Base
- 15/16" Long



PART #	DESCRIPTION	LIST PRICE
TB100	RUBBER TOGGLE BOOT	\$ 4.25



### SOLID STATE FLASHERS

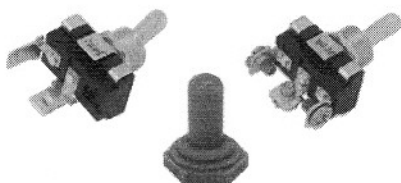
- UL Approved Component
- Solid State Technology
- 75 Flashes Per Minute
- 1/4" Quick-Connect Terminals
- Molded on Mounting Foot



PART #	DESCRIPTION	LIST PRICE
FL-120V	120 VAC SOLID STATE FLASHER	\$19.00

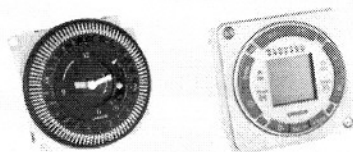


## Toggle Switches, Toggle Boots & Push Buttons



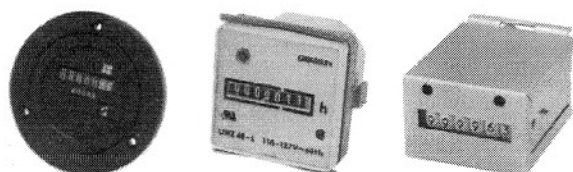
- E-Z Switch Mfg & Gaynor brands available
- UL recognition on all standard products, call for information on specials orders
- Available with either 1/4" quick-connect terminals or screw terminals
- Available as SPST, SPDT, DPST or DPDT
- Available as On, Off, Momentary On, Maintain
- Available as 3/4 HP, 1-1/2 HP or 2 HP
- Available as 3-6 Amp, 10-15 Amp or 20 Amp
- AC/DC toggle boots meet NEMA 1, 2, 3, 3R, 4, 4X, 12 and 13

## Timers



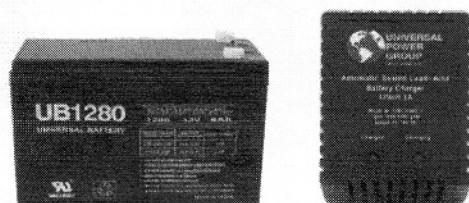
- Grasslin & Intermatic brands available
- UL recognition on all standard products, call for information on special orders
- Available with either Din Rail Mount or Surface Mount
- Manual and digital models available
- AC or DC Voltage available

## Counters & Meters



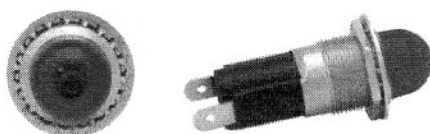
- Grasslin, Redington & ENM brands available
- UL recognition on all standard products, call for information on special orders
- Available with either Din Rail Mount or Surface Mount
- Cycle counters, hour counters available
- AC or DC Voltage available

## Batteries & Chargers



- Battery – Sealed battery, 12V, 8 Amp-Hour Capacity (5-AH Available)
- Battery – Dimensions 5.94" (L) x 2.56" (W) x 3.94" (H)
- Charger – Fully-automatic charger, dual stage, 12V, 1A
- Charger – Dual LED lights indicate charging status

## SI Indicator Light



- Red, amber, blue, and green lens colors available
- Incandescent or neon bulb available
- 1/4" quick-connect terminals

**Warranty Information :** AC/DC warrants to the original customer that this product shall be free from manufacturing defects for one year after the date of manufacture. Warranty does not apply to the misuse or improper installation of products.

**Restocking Fee :** AC/DC charges a standard 15% restocking fee on all returned goods. Please call for RGA information.

**Minimum Order Fee :** AC/DC may include a \$5.00 charge for orders that are less than \$30.00 before shipping charges.

**Shipping Information :** AC/DC ships all orders via UPS ground unless specified to be expedited or shipped by freight with a carrier of our choice.

## QOU Miniature Circuit Breakers and Switches

### Application Information

#### APPLICATION INFORMATION

##### QOU Miniature Circuit Breaker Types

Miniature molded case circuit breakers are intended for use in residential and commercial applications. They are tested and listed according to UL Standard 489 and CSA Standard C22.2 No. 5-02 for molded case circuit breakers and enclosures.

QOU miniature circuit breakers are unit-mount (lug/lug) thermal-magnetic circuit breakers which:

- Provide a means to manually open a circuit.
- Automatically open a circuit under overload or short circuit conditions.
- Feature common tripping of all poles.
- Have a Visi-Trip<sup>®</sup> trip indicator.
- Can be flush-, surface-, or DIN rail-mounted.
- Has lugs at both ends (cable-in/cable-out construction)
- Operate in any position.
- Are fully tested, UL Listed, and CSA certified for reverse connection without restrictive line/load markings.

##### Non-automatic Switches

QOU non-automatic switches are intended for use as disconnect devices only. UL Standard 489 requires switches to be protected by a thermal-magnetic circuit breaker (or fuse) of equivalent rating. QOU switches are UL Listed for use on circuits capable of delivering not more than 10,000 amperes when protected by an equivalent rated circuit breaker or fuse. QOU switches contain no automatic tripping mechanisms and do not provide overcurrent protection.

##### Description

QOU miniature circuit breakers and switches are available for surface-, flush-, or DIN rail mounted applications in one-, two-, and three-pole constructions. QOU miniature circuit breakers are used for overcurrent protection and switching on both ac and dc electrical systems. QOU circuit breakers and switches measure 0.75 in. (19 mm) wide per pole. Two- and three-pole circuit breakers are both equipped with an internal crossbar for common tripping of all poles. QOU switches are available in one-pole, 60 ampere and two- and three-pole, 60, 100 and 125 ampere construction.

Cases for QOU miniature circuit breakers and switches are constructed of a glass-reinforced insulating material that provides high dielectric strength. Current carrying components are isolated from the handle. The handle position indicates whether the circuit breaker is off, on or tripped.

##### Applications

One-pole QOU miniature circuit breakers rated 120/240 Vac are UL Listed for use on 120/240 Vac single-phase, three-wire or 208Y/120 Vac three-phase, four-wire electrical systems.

Two-pole QOU circuit breakers rated 120/240 Vac are UL Listed for use on 120/240 Vac single-phase, three-wire or 208Y/120 Vac three-phase, four-wire electrical systems. They cannot be used on 240 Vac delta systems. Use QOU-H two-pole circuit breakers rated 240 Vac on 240 Vac delta and 240 Vac single-phase, two wire systems.

Three-pole QOU circuit breakers rated 240 Vac are UL Listed for use on any system where the maximum phase-to-phase or phase-to-ground voltage is 240 Vac or less.

For application information on other systems, contact your local field office

## QOU Miniature Circuit Breakers and Switches Application Information

**Table 1: Selection Data**

Catalog Number							Terminal Lug Wire Size (AWG)
Rating	One-Pole		Two-Pole			Three-Pole	
	120/240 Vac		120/240 Vac	240 Vac	120/240 Vac	240 Vac	
	10K AIR	22K AIR	10 K AIR		22K AIR	10K AIR	
10 A	QOU110	—	QOU210	—	—	QOU310	1—#14—#2 Cu or Al
15 A	QOU115*	QOU115VH	QOU215*	QOU215H*	QOU215VH	QOU315*	
15 A	QOU115HM*†	—	—	—	—	—	
20 A	QOU120*	QOU120VH	QOU220*	QOU220H*	QOU220VH	QOU320*	
20 A	QOU120HM*†	—	—	—	—	—	
25 A	QOU125*	QOU125VH	QOU225*	QOU225H*	QOU225VH	QOU325*	
30 A	QOU130*	QOU130VH	QOU230*	QOU230H*	QOU230VH	QOU330*	
35 A	QOU135*	QOU135VH	QOU235*	—	QOU235VH	QOU335*	
40 A	QOU140*	QOU140VH	QOU240*	—	QOU240VH	QOU340*	
45 A	QOU145*	QOU145VH	QOU245*	—	QOU245VH	QOU345*	
50 A	QOU150*	QOU150VH	QOU250*	—	QOU250VH	QOU350*	
60 A	QOU160*	QOU160VH	QOU260*	—	QOU260VH	QOU360*	
70 A	QOU170*	—	QOU270*	—	—	QOU370‡	1—#12—#2/0 Cu or Al
80 A	QOU180‡	—	QOU280‡	—	—	QOU380‡	
90 A	QOU190‡	—	QOU290‡	—	—	QOU390‡	
100 A	QOU1100‡	—	QOU2100‡	—	—	QOU3100‡	
125 A	—	—	QOU2125‡	—	—	—	
Switch—60 Amperes Max.—240 Vac				QOU200	—	QOU300	1—#14—#2
Switch—100 Amperes Max.—240 Vac				QOU2000‡	—	QOU3000‡	1—#12—#2/0
Switch—125 Amperes Max.—240 Vac				QOU20001‡	—	QOU30001‡	

\* UL Listed as HACR type for use with heating, air conditioning and refrigeration equipment containing motor-group combinations and marked for use with HACR type circuit breakers.

† High-magnetic trip circuit breakers. Recommended for applications where high initial inrush current can occur and for individual dimmer applications.

‡ Available as Series 1 with forward box lugs only. (No optional terminations)

### Tripping Mechanisms

A tripping mechanism is an assembly within the circuit breaker molded case that causes the circuit breaker to open automatically under sustained overload or short circuit conditions.

The tripping mechanisms in two- and three-pole circuit breakers operate such that an overcurrent on any pole of the circuit breaker will cause all poles of the circuit breaker to open simultaneously. Thermal and magnetic factory calibration (with current) is performed on each pole of every Square D circuit breaker.

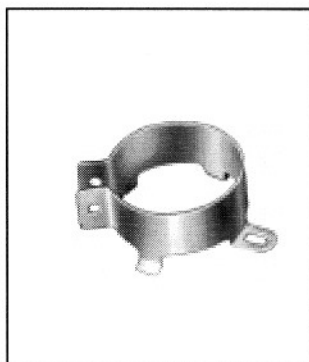
These mechanisms operate to trip the circuit breaker:

- Thermal trip
- Magnetic trip
- Optional shunt trip accessory (see Accessories, page 12)

The sensing system is an integral part of a thermal-magnetic circuit breaker. The sensing system continually monitors current flowing through the circuit breaker. It detects abnormal current conditions and, depending on the magnitude of the current, initiates an inverse-time or an instantaneous tripping response. This action causes the tripping mechanism to open the circuit breaker contacts and interrupt current flow. The speed of the tripping process must be controllable and inversely matched to the severity of the overcurrent. QOU miniature circuit breakers have an over-center toggle mechanism for quick-make, quick-break action with positive handle indication. The handle assumes a position between ON (I) and OFF (O) when the circuit breaker has tripped.



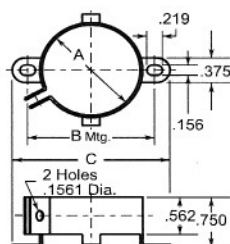
## TYPE VR VERTICAL MOUNTING CLAMP



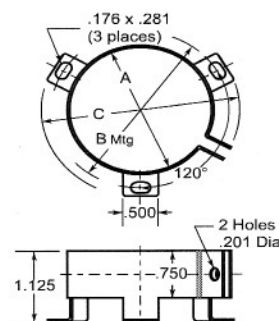
NACC VR mounting clamps may be used to mount any cylindrical capacitor with a 1" to 3" diameter that is to be mounted in a vertical position. Material is 1010 CRS, commercial grade #4 temper ASI-scale. Parts are finished with .0001 (nominal) zinc chromate plating. Use for mounting CG types, PSU, HC/NP and MPD/MPF types. Material thickness is .035"

Diameter of Part to be Mounted	Catalog Number			Dimensions		
	Without Screw & Nut	Unassembled Screw & Nut Included	Assembled with Screw & Nut	A	B	C
1" to 1-1/16"	VR1B	VR1	VR1A	1"	1-7/16"	1-7/8"
1-3/8" to 1-7/16"	VR3B	VR3	VR3A	1-3/8"	1-25/32"	2-7/32"
1-1/2" to 1-9/16"	VR4B	VR4	VR4A	1-1/2"	1-15/16"	2-11/32"
1-3/4" to 1-13/16"	VR6B	VR6	VR6A	1-3/4"	2-1/4"	2-9/16"
2" to 2-1/16"	VR8B	VR8	VR8A	2"	2-1/2"	2-13/16"
2-1/2" to 2-9/16"	VR10B	VR10	VR10A	2-1/2"	3"	3-5/16"
3" to 3-1/8"	VR12B	VR12	VR12A	3"	3-7/16"	3-13/16"
Screw	VRSCREW	—	—	9/16" long 6-32 thread NC-2A		
Nut	VRNUT	—	—	Standard hex nut to fit screw		

VR1, 3, & 4



VR6, 8, 10, & 12



## MOUNTING ACCESSORIES FOR PSU AND HC/NP TYPE CAPACITORS

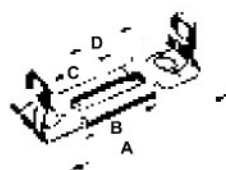
Type HB Horizontal Mounting Bracket

EIA Case Code	Dimensions				Catalog Number
	A	B	C*	D	
1	3-3/8"	1-11/64"	7/8"	1.258	HB2
2-4-6	4-1/64"	1-13/16"	1-1/2"	1-37/64	HB4
3-5-7-8	5-1/64"	2-23/32"	1-25/32"	2-5/64"	HB8

HB brackets are used with PL or PLA end caps. The bracket is assembled to the motor or any suitable surface by two screws in line at any convenient position within the center-to-center dimension (C) shown in the chart.

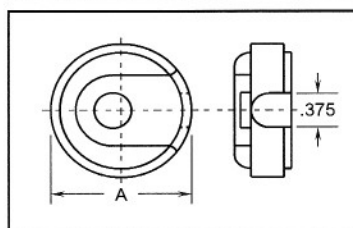
Material: .042 spring steel with black parkerized finish

\*C dimension = max mounting hole center  
Use 10-32" flat head screws



Type PL and PLA End Caps

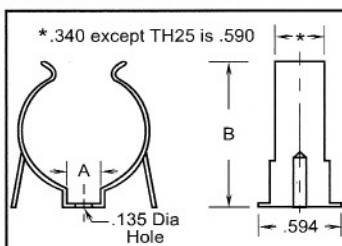
EIA Case Code	A Dimension	Catalog Number	
		Wire Hole Toward Bracket	Wire Hole Away From Bracket
1-2-3	1-7/16"	PL3	PLA3
4-5	1-13/16"	PL6	PLA6
6-7	2-1/16"	PL8	PLA8
8	2-9/16"	PL10	PLA10



PL and PLA end caps are usually used with HB type brackets. The drawing shown at left is type PL for use with the wiring through the bracket to the motor. For off motor mounting, use type PLA. See page 214 for a photo showing a capacitor and end cap mounted in a bracket.

## TYPE TH HORIZONTAL MOUNTING CLIP

Nominal Diameter of Part to be Mounted	Dimensions		Catalog Number
	A	B	
.375	.250	.470	TH13
.500	.250	.620	TH15
.625	.312	.720	TH17
.750	.312	.890	TH19
.875	.312	1.000	TH21
1.000	.312	1.060	TH23
1.375	.312	1.500	TH25



These clips, though designed for capacitors, have varied applications to retain many cylindrical components. They are used extensively in the electrical and electronic industries to hold spindles, condensers, capacitors, tubes, rods and conduit. Clips have phosphate and oil finish.

Material thickness TH13 thru TH17 is .016". TH19 thru TH25 is .020"

# PACKARD MOTOR START CAPACITORS

These motor start capacitors are dry, electrolytic, non polarized types for intermittent duty in AC motor starting circuits.

The round cases are made of moisture and oil resistant molded phenolic resin or plastic.

They have standard dual blade terminals.



110-125 Volt AC 50/60 Hz

Stock No.	MFD	Case Size	Industry No.
PMJ21	21-25	1	11002
PMJ25	25-30	1	11003
PMJ30	30-36	1	11004
PMJ36	36-43	1	11005
PMJ43	43-53	1	11006
PMJ47	47-56	1	-
PMJ56	56-75	1	11007
PMJ64	67-77	1	-
PMJ72	72-88	1	11008
PMJ88	88-108	1	11009
PMJ108	108-130	1	11010
PMJ124	124-149	1	11112
PMJ130	130-156	1	-
PMJ145	145-174	1	11013
PMJ161	161-193	1	11014
PMJ189	189-227	1	11015
PMJ200	200-240	1	11016
PMJ216	216-259	1	11017
PMJ233	233-280	1	11018
PMJ243	243-292	1	-
PMJ270	270-324	1	11019
PMJ300	300-360	3	11020
PMJ324	324-388	1	11021
PMJ340	340-408	2	11022
PMJ378	378-455	2	11023
PMJ400	400-480	2	11024
PMJ430	430-516	2	-
PMJ460	460-552	2	11025
PMJ540	540-648	5	11026
PMJ540A	540-648	4	-
PMJ590	590-708	5	11027
PMJ590A	590-708	4	-
PMJ708	708-850	5	11028
PMJ829	829-995	5	11029
PMJ1000	1000-1200	7	11030

## \* CASE DIMENSIONS

CASE SIZE	Diameter	Height
1	1 7/16"	2 3/4"
2	1 7/16"	3 3/8"
3	1 7/16"	4 3/8"
4	1 13/16"	3 3/8"
5	1 13/16"	4 3/8"
6	2 1/16"	3 3/8"
7	2 1/16"	4 3/8"
8	2 9/16"	4 3/8"

\* Note: Check Case Sizes Closely.

Other sizes available upon request.

165 Volt AC 50/60 Hz

Stock No.	MFD	Case Size	Industry No.
PSMJ72	72-88	1	-
PSMJ88	88-108	1	-
PSMJ108	108-130	1	-
PSMJ124	124-149	1	11031
PSMJ130	130-156	1	-
PSMJ145	145-174	1	11032
PSMJ161	161-193	1	11033
PSMJ189	189-227	2	11034
PSMJ216	216-259	4	-
PSMJ233	233-280	4	11035
PSMJ243	243-292	4	-
PSMJ270	270-324	4	11036
PSMJ340	340-408	4	-
PSMJ378A	378-455	5	-
PSMJ400	400-480	4	11037
PSMJ540	540-648	4	-

220-250 Volt AC 50/60 Hz

Stock No.	MFD	Case Size	Industry No.
PTMJ21	21-25	1	11038
PTMJ25	25-30	1	11039
PTMJ30	30-36	1	11040
PTMJ36	36-43	1	11041
PTMJ43	43-53	1	11042
PTMJ47	47-56	1	-
PTMJ56	53-64	1	11043
PTMJ64	64-77	1	-
PTMJ72	72-88	4	11044
PTMJ88	88-108	4	11045
PTMJ108	108-130	4	11046
PTMJ124	124-149	5	11148
PTMJ130	130-158	4	-
PTMJ145	145-174	4	11049
PTMJ161	161-193	6	11050
PTMJ189	189-227	6	11051
PTMJ216	216-259	6	11052
PTMJ233	233-280	6	11053
PTMJ243	243-292	6	-
PTMJ270	270-324	6	11054
PTMJ284	284-333	8	-
PTMJ320	320-384	7	-
PTMJ400	400-480	7	-

330 Volt AC 50/60 Hz

Stock No.	MFD	Case Size	Industry No.
PRMJ21	21-25	2	11055
PRMJ25	25-30	2	11056
PRMJ30	30-36	2	11057
PRMJ36	36-43	2	11058
PRMJ43	43-53	4	11059
PRMJ47	47-56	4	-
PRMJ56	53-64	4	11060
PRMJ64	64-77	4	-
PRMJ72	72-88	4	11061
PRMJ88	88-108	6	11062
PRMJ108	108-130	7	11063
PRMJ124	124-149	7	11165
PRMJ130	130-158	7	11064
PRMJ135	135-162	7	-
PRMJ145	145-174	7	11066
PRMJ161	161-193	7	11067
PRMJ189	189-227	7	11068
PRMJ216	216-259	8	11069
PRMJ270	270-324	8	11070
PRMJ300	300-360	8	-

# PACKARD ROUND MOTOR RUN CAPACITORS



## FEATURES:

- UL Listed / CSA Approved
- Individually Boxed
- Metal Cases
- Metallized Film
- Oil Filled
- Non PCB Oil
- Four Blade Quick Connect Terminals
- Insulated Terminals

N= NEW ITEM

370 VOLTS	UL LISTED ROUND CASE	CSA APPROVED SINGLE SECTION	50/60 HZ		370 VOLTS	UL LISTED ROUND CASE	CSA APPROVED DUAL SECTION	50/60 HZ	
Stock No.	MFD	Diameter	Height	Industry No.	Stock No.	MFD	Diameter	Height	Industry No.
PRC5	5	1-3/4"	2-5/8"	-	PRCD254	25+4	2"	3.53"	12175
PRC7.5	7.5	1-3/4"	2-5/8"	-	PRCD255	25+5	2"	4.25"	12261
PRC10	10	1-3/4"	2-5/8"	-	PRCD303	30+3	2"	4.25"	-
PRC12.5	12.5	1-3/4"	2-5/8"	-	N PRCD304	30+4	2"	4.25"	-
PRC15	15	1-3/4"	2-5/8"	12210	PRCD305	30+5	2"	4.25"	12264
PRC17.5	17.5	1-3/4"	2-5/8"	12212	PRCD353	35+3	2"	4.25"	-
PRC20	20	1-3/4"	2-5/8"	12214	PRCD355	35+5	2"	4.75"	12266
PRC25	25	1-3/4"	3"	12215	PRCD405	40+5	2"	4.75"	12178
PRC30	30	1-3/4"	3"	12217	PRCD4075	40+7.5	2"	4.75"	12268
PRC35	35	1-3/4"	3-3/4"	12218	PRCD455	45+5	2"	4.75"	-
PRC40	40	1-3/4"	3-3/4"	12221	N PRCD4575	45+7.5	2"	4.75"	-
PRC45	45	2"	3-3/4"	12223	PRCD505	50+5	2"	5.25"	12191
PRC50	50	2"	3-3/4"	12225	N PRCD5075	50+7.5	2"	5.25"	12192
PRC55	55	2"	3-3/4"	12226	PRCD5010	50+10	2"	5.25"	-
PRC60	60	2"	4-3/4"	12227	PRCD555	55+5	2.5"	4.75"	12193
PRC70	70	2"	4-3/4"	12229	PRCD5575	55+7.5	2.5"	4.75"	12194
PRC80	80	2"	4-3/4"	12199	PRCD5510	55+10	2.5"	4.75"	-
					PRCD605	60+5	2.5"	5.25"	12195
					PRCD6075	60+7.5	2.5"	5.25"	12196
					N PRCD705	70+5	2.5"	5.25"	-
					PRCD805	80+5	2.5"	5.25"	12197
					PRCD8075	80+7.5	2.5"	5.25"	12198
					N PRCD8010	80+10	2.5"	5.25"	-

440 VOLTS	ROUND CASE	SINGLE SECTION	50/60 HZ		440 VOLTS	ROUND CASE	DUAL SECTION	50/60 HZ	
Stock No.	MFD	Diameter	Height	Industry No.	Stock No.	MFD	Diameter	Height	Industry No.
PRCF5	5	1-3/4"	2-5/8"	-	N PRCFD205	20+5	2"	4.75"	-
PRCF7.5	7.5	1-3/4"	2-5/8"	-	PRCFD2015	20+15	2"	4.75"	12277
PRCF10	10	1-3/4"	2-5/8"	12232	PRCFD255	25+5	2"	4.75"	12278
PRCF12.5	12.5	1-3/4"	2-5/8"	12233	PRCFD2510	25+10	2"	4.75"	-
PRCF15	15	1-3/4"	2-5/8"	12234	PRCFD2575	25+7.5	2"	4.75"	12279
PRCF17.5	17.5	1-3/4"	2-5/8"	12236	PRCFD2515	25+15	2"	4.75"	-
PRCF20	20	1-3/4"	3"	12237	N PRCFD304	30+4	2"	4.75"	-
PRCF25	25	1-3/4"	3-3/4"	12240	PRCFD305	30+5	2"	4.75"	12281
PRCF30	30	1-3/4"	3-3/4"	12241	PRCFD3075	30+7.5	2"	4.75"	12282
PRCF35	35	2"	3-3/4"	12243	N PRCFD353	35+3	2"	4.75"	-
PRCF40	40	2"	3-3/4"	12245	PRCFD354	35+4	2"	4.75"	-
PRCF45	45	2"	4-3/4"	12248	PRCFD355	35+5	2.5"	4.75"	12283
PRCF50	50	2-1/2"	4-3/4"	12251	PRCFD3575	35+7.5	2.5"	4.75"	12284
PRCF55	55	2-1/2"	4-3/4"	12252	PRCFD403	40+3	2.5"	4.75"	-
PRCF60	60	2-1/2"	4-3/4"	12254	PRCFD405	40+5	2.5"	4.75"	12286
PRCF80	80	2-1/2"	4-3/4"	-	PRCFD4075	40+7.5	2.5"	4.75"	12287
N PRCF90	90	2-1/2"	4-3/4"	-	PRCFD455	45+5	2.5"	4.75"	12288
					PRCFD4575	45+7.5	2.5"	4.75"	12289
					PRCFD505	50+5	2.5"	5.25"	12290
					PRCFD5075	50+7.5	2.5"	5.25"	12291
					PRCFD555	55+5	2.5"	5.25"	12292
					PRCFD5575	55+7.5	2.5"	5.25"	12293
					PRCFD605	60+5	2.5"	5.25"	12294
					N PRCFD6075	60+7.5	2.5"	5.25"	12295
					PRCFD6010	60+10	2.5"	5.25"	12296

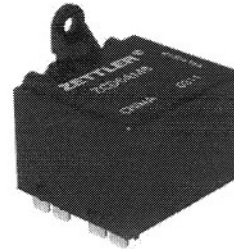
N = NEW ITEM

# ZCPR Series

## MOTOR START POTENTIAL RELAY

### FEATURES

- 50A switching capability
- SPST-NC configurations
- .250" quick connect termination
- ISO 9001 certified
- Variety of mounting positions
- UL, CUR SA11095
- Non-position sensitive design\*



ZCPRA6AM6

### GENERAL DATA

Life Expectancy	Minimum operations
Mechanical	$7.5 \times 10^5$
Electrical	$5 \times 10^5$ at 16A 400VAC $2 \times 10^5$ at 35A 400VAC (break only) $1 \times 10^5$ at 50A 400VAC (break only)
Dimensions (mm)	51.2 x 46.6 x 36.5
Construction	Unsealed
Weight	approx. 110 grams

### COIL

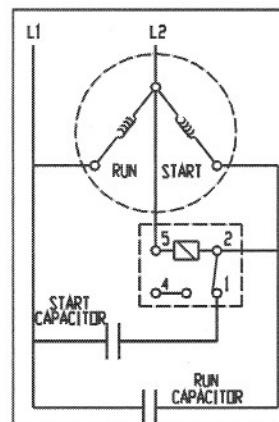
Coil Consumption	5VA
Coil Voltage	See table A & B
Coil Resistance	See table A & B
Insulation System	Class B (130°C)

### CONTACTS

Arrangement	SPST-NC
Ratings	16A (make and break), 400 VAC, $\cos \phi = 0.7$ to 0.8 35A (break only), 400 VAC $\cos \phi = 0.7$ to 0.8 50A (break only), 400 VAC $\cos \phi = 0.7$ to 0.8
Material	Silver cadmium oxide
Resistance	< 50 milliohms at 1A 24VDC

\*Except in position #3

### WIRING DIAGRAM



**AMERICAN ZETTLER, INC.**

[www.azettler.com](http://www.azettler.com)

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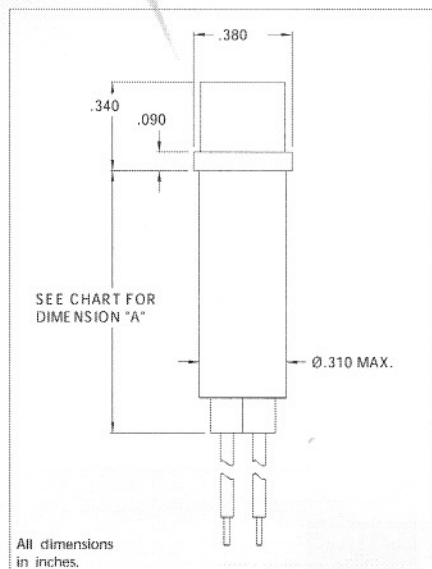
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**CML** INNOVATIVE TECHNOLOGIES  
WHERE INNOVATION COMES TO LIGHT

## 2150A, 2151A, 2112A, 2152A, 2153A and 2194A Series Non-Relampable Neon-Incandescent Indicator Lights

### DESCRIPTION AND FEATURES



Mounting: Ø.310 MIN., supplied with push-on speednut SN1287.

Wire Leads: No.22 AWG (105°C) 4.40/4.80 long, stripped .430/.570

Lens: Polycarbonate-neon transparent, incandescent-translucent

Bezel: Polished stainless steel. For black finish add "X" after the series letter(s).

Housing: White Nylon

Lens Color	Neon		Incandescent	
	Model No. (105-125VAC)	Model No. (208-250VAC)	Model No. (12V)	Model No. (28V)
Red	2150A1	2151A1	2194A1-12V	2194A1-28V
Clear	2150A2	2151A2	-	-
Amber	2150A3	2151A3	2194A3-12V	2194A3-28V
White	2150A4	2151A4	2194A4-12V	2194A4-28V
Green	2152A5*	2153A5*	2194A5-12V	2194A5-28V
Blue	2152A6**	2153A6**	-	-
Lamp used	C2A+Resistor	C2A+Resistor	#2162	#2187
Lead Color	Black	Black/Red	Yellow	Purple
"A" DIM	1.310	1.310	.830	.830

\* Incorporates G2B lamp and resistor.

\*\* Incorporates T2B lamp and resistor.

Underwriters Laboratories (UL) File No. E20325

Canadian Standards Association (CSA) File No. LR13346

2150A, 2151A, 2112A, 2152A, 2153A and  
2194A Series Non-Relampable  
Neon-Incandescent Indicator Lights



**CML**  
INNOVATIVE TECHNOLOGIES  
WHERE INNOVATION COMES TO LIGHT

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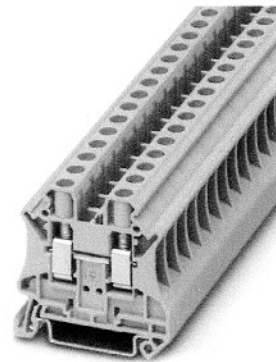
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CML-IT reserves the right to make specification revisions that enhance the design and/or performance of the product



**UT 6**

Order No.: 3044131

<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3044131>

Universal terminal block with screw connection, cross section: 0.2 - 6 mm<sup>2</sup>, AWG: 24 - 8, width: 8.2 mm, color: Gray

**Commercial data**

EAN	4017918960438
Pack	50 Pcs.
Customs tariff	85369010
Weight/Piece	0.01503 KG
Catalog page information	Page 27 (CL-2007)

**Product notes**

WEEE/RoHS-compliant since:  
10/26/2006



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**Technical data****General**

Number of levels	1
Number of connections	2
Color	gray

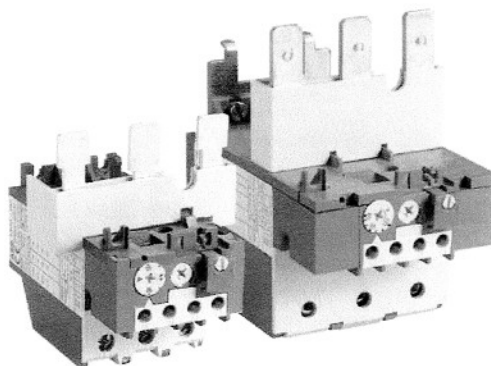
# Thermal Overload relays



## Thermal overload relays

Type TA  
Class 10

2



### Description

- Available for starter construction with A Line contactors and separate panel mounting
- Designed for close couple mounting
- Separate base mounting available for all overload relays
- Class 10 adjustable overload relays are standard with all ABB Line starters
- Reset can also be adjusted to function as a stop button
- Screwdriver guide holes
- All terminal screws are available from the front
- UL File No: E48139
- CSA File No: LR98336
- Trip indication
- Remote trip and reset option available
- Single phase and phase unbalance protection
- Isolated alarm circuit (N.O.) contact
- Ambient compensation: -25°C to +55°C (-13°F to +131°F)
- Manual test
- Manual or automatic reset
- Factory calibrated and tested
- Wide adjustment range

### Tripping classes of the thermal overload relays

Standard classes in IEC 947-4-1 are classes: 10 A, 10, 20, 30. The tripping class indicates according to IEC 947-4-1 the maximum tripping time in seconds under specified conditions of test at 7.2 times the setting current and specifies tripping and non tripping times for 1.5 and 7.2 times the setting current. Mostly used class is 10 A.

### Abstract from IEC 947-4-1

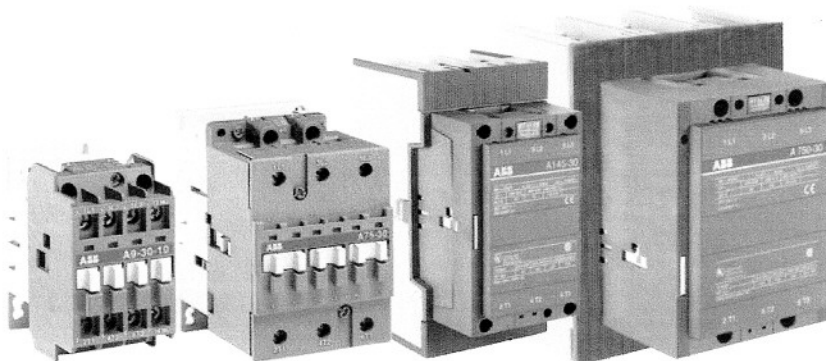
Tripping class	10 A	10	20	30
Max. tripping time at 1.5 x setting current (warm state) (s)	120	240	480	720
Tripping time at 7.2 x setting current (cold state) (s)	2 – 10	4 – 10	6 – 20	9 – 30
At 1.05 x setting current	no tripping			

# Across the line Contactors



## Across the line contactors A9 - AF1650

1



### A9 - A110

- Maximum UL/CSA horsepower ratings according to UL508 and CSA22.2 No. 14
- Includes NEMA sizes 00 - 3
- CE mark
- Compact space saving design
- Standard auxiliary contact configurations:
 

A9 - A40	1 NO or 1 NC
A50 - A110	1 NO & 1 NC
- Contactor sizes A50 - A110 can be supplied without auxiliaries
- Additional auxiliary contact blocks are available
- D.C. ratings & D.C. control operation available
- Fast, snap-on DIN rail mounting
- Double break contact design
- Snap-on front mounted accessories include mechanical latch, pneumatic timer, and 1 & 4 pole auxiliary contact blocks
- Contactors ensure positive safety between their auxiliary contact blocks.
- Easy coil change
- Captive terminal screws
- NEMA, UL, IEC, CSA, VDE and most other international standards
- Touch safe design; All connection terminals are protected against accidental touch
- Terminals supplied open for ease of wiring
- Operates over an extended voltage range of 85% to 110% of rated control voltage
- Screwdriver guide holes
- UL File No: E39231 (A9 - A75); (AE9 - AE75); (AL9 - AL40); (AF50 - AF75)
- UL File No: E79416 (A95 - A110); (AE95 - AE110); (AF145 - AF750)
- CSA File No: LR56745 (A9 - A75); (AE9 - AE75); (AF50 - AF75)
- CSA File No: LR19700 (A95 - A110); (AE95 - AE110); (AF145 - AF750)
- CSA approved for elevator service

### A145 - AF1650

- Maximum UL/CSA horsepower ratings according to UL508 and CSA22.2 No. 14
- Includes NEMA sizes 4 - 7
- CE mark
- 1 NO & 1 NC auxiliary contacts are standard and up to 6 additional auxiliary contacts may be added to provide a total of 8 (4 NO & 4 NC)
- Contactors ensure positive safety between their auxiliary contact blocks.
- D.C. ratings and D.C. control operation available
- Easy maintenance of main contacts and coil inspection
- Can be mounted in any position
- Operates over an extended voltage range of 85% to 110% of rated control voltage
- NEMA, UL, IEC, CSA, VDE and most other international standards
- UL File No: E79416 (A/AF145 - AF750)
- UL File No: E73397 (AF1350 - AF1650)
- CSA File No: LR19700





**anchor scientific inc.**

Box 378, Long Lake, MN 55356 / 612-473-7115 / FAX 612-473-6002

**mini-float®**

Form 2500-D

**mini-float®**

## DESCRIPTION

Mini-floats are pilot duty devices designed for small diameter sumps and places where space is a determining factor in the selection of a level control device. Mini-floats control the function of motor load devices, such as contactors, motor starters, and power relays, to automatically cycle a pump or pumps. They can also be used for alarm signaling devices. Two Mini-Floats are needed for a one-pump operation; three for a two-pump operation.

## SPECIFICATIONS

Cable ..... 18-2 SJOW/A  
Housing ..... Polypropylene  
Clamp ..... Adjustable 1"-4"  
(Only on Type P models)  
Temperature Rating ..... 60° C.

## MODELS

Mini-Floats are available in a combination of mounting styles, cable lengths, and circuit configurations. Mounting styles are shown at right: pipe mounted (Type P), and suspended (Type S). 10, 15, and 25-foot cable lengths are standard, but other lengths can be special ordered. Electrical configurations must be specified; normally open, (NO), for pump out applications and normally closed, (NC), for pump in applications.

## EXAMPLE:

P	M	10	NO
Mounting Style	Mini-Float	Cable Length	Electrical Configuration
ELECTRICAL CONFIGURATION	CABLE LENGTH	SUSPENDED TYPE 'S'	PIPE MOUNTED TYPE 'P'
		MODEL NO.	MODEL NO.
NORMALLY OPEN →	10	S M 10 NO	P M 10 NO
	15	S M 15 NO	P M 15 NO
	20	S M 20 NO	P M 20 NO
	25	S M 25 NO	P M 25 NO
	30	S M 30 NO	P M 30 NO
NORMALLY CLOSED	10	S M 10 NC	P M 10 NC
	15	S M 15 NC	P M 15 NC
	20	S M 20 NC	P M 20 NC
	25	S M 25 NC	P M 25 NC
	30	S M 30 NC	P M 30 NC

## MOUNTING STYLES

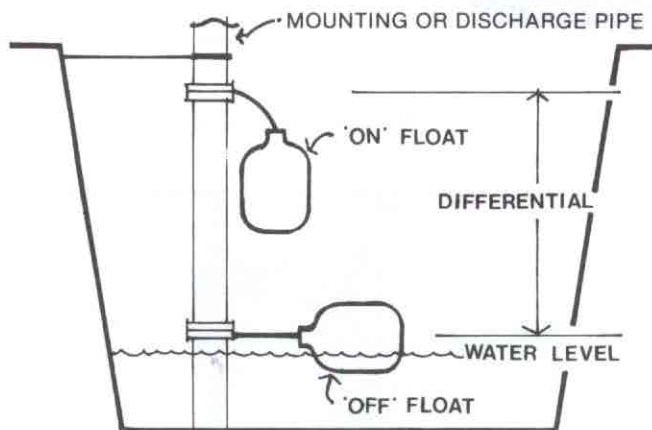


TYPE P - M



TYPE S - M

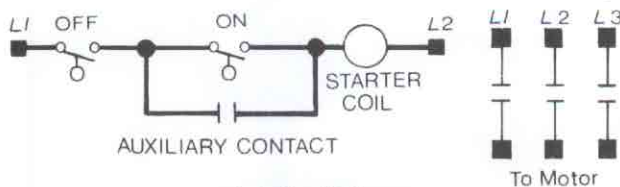
## TYPICAL INSTALLATION



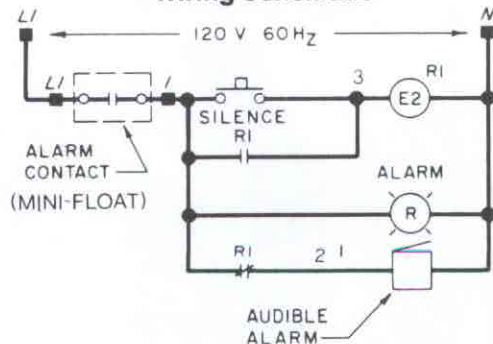
### General Comments

- 1) Never work in the sump with the power on.
- 2) Attach the Type P Mini-Floats to the mounting pipe or the pump discharge pipe. The 'off' float should be below the 'on' float in a 'pump out' application.
- 3) Arrange the Mini-Floats so they do not tangle or hang up.
- 4) Thread the cable strap through the buckle with the ratchet pawl; cinch up tight; thread excess strapping through outer buckle slot.
- 5) Measuring the difference between mounting points gives the 'pump down' differential.

### Typical Simplex Wiring Schematic



### Typical Alarm Wiring Schematic



## SPECIFICATIONS

Cable - 18-2 SJO W/A 34 x 41 strand. 90°C.  
DIAMETER .30

Float - Polypropylene.

Clamp - Stainless Steel.



Ind. Con. Eq.  
125 VA @ 115 VAC

Component Switch Rating 4.5A @ 120V., Res.  
2.2A @ 230V., Res.

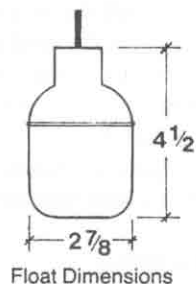
Temperature Rating - 60 C.

Normally Open - Blue Housing  
Normally Closed - Red Housing

ELECTRICAL CONFIGURATION	CABLE LENGTH	SUSPENDED TYPE 'S'	PIPE MOUNTED TYPE 'P'
		MODEL NO.	MODEL NO.
NORMALLY OPEN →	10	SM 10 NO	PM 10 NO
	15	SM 15 NO	PM 15 NO
	20	SM 20 NO	PM 20 NO
	25	SM 25 NO	PM 25 NO
	30	SM 30 NO	PM 30 NO
NORMALLY CLOSED	10	SM 10 NC	PM 10 NC
	15	SM 15 NC	PM 15 NC
	20	SM 20 NC	PM 20 NC
	25	SM 25 NC	PM 25 NC
	30	SM 30 NC	PM 30 NC

SUBMITTAL APPROVAL

NAME \_\_\_\_\_  
DATE \_\_\_\_\_



\* Important Notes - Mini-floats are pilot duty devices. They cannot be used to directly power pump motors. Also, do not use Mini-Floats in gasoline or other combustibles. These devices can be used with intrinsically safe relays for some hazardous locations. See Sec. 500 of NEC.

This product contains mercury. Dispose of in accordance with Local, State and Federal Regulations so that mercury does not contaminate the environment.

DWN BY PD 7-17-80  
CKD BY JTP 7-20-80  
APPD BY JTP 7-20



**anchor scientific inc.**

Industrial Park, Long Lake, Mn. 55356  
612-473-7115

Typical installation and specification data for Mini-Floats

PROJECT NAME Mini-Float  
FACTORY ORDER NO.

DWG. NO. 2510-B





☐ **Type 304** welded steel chain is a general purpose, rustproof product for ordinary wastewater applications not requiring high strength or extremely corrosive environments.

☒ **Type 316** welded steel chain is a rugged, highly corrosion resistant stainless used in chemical, water, and wastewater plants worldwide.

**CHAIN LENGTH:**

☐ 1' ☐ 1.5' ☐ 2' ☐ 3' ☐ 4' ☐ 5' ☐ 6' ☐ 7' ☒ 8' ☐ 9' ☐ 10' ☐ 11' ☐ 12' ☐ 13' ☐ 14' ☐ 15'  
☐ 16' ☐ 18' ☐ 20' ☐ 22' ☐ 24' ☐ 25' ☐ 26' ☐ 28' ☐ 30' ☐ Other \_\_\_\_\_'

TRADE SIZE - WORKING LOAD

INCHES - LIMIT (lbs.) - MATERIAL DIA. - INSIDE LGTH. - INSIDE WIDTH - WT./100'FT

3/16"	1,150	.217	.980	.300	38 #
1/4"	1,860	.275	1.240	.380	61 #
5/16"	2,425	.330	1.290	.440	84 #
3/8"	3,800	.394	1.380	.550	140 #
1/2"	6,425	.512	1.790	.720	234 #
5/8"	9,725	.630	2.200	.790	358 #
3/4"	15,175	.787	2.760	.980	551 #

**DO NOT USE FOR OVERHEAD LIFTING**

ABS reserves the right to change any Data and Dimensions without prior notice and can not be held responsible for the use of this information.