

## Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

PIRANHA GRINDER



The picture above may differ from the actual product. For illustrative purposes only.

Submersible Motor Specifications, PE1 Frame			
Motor Design		NEMA design B, squirrel cage induction	
Motor Type		Fully enclosed Premium Efficiency submersible, IP68 protection rating	
Motor Efficiency Standard and Rating		IEC 60034-30, IE3 rating	
Motor Efficiency Test Protocol		IEC 60034-2-1	
Insulation Material		Class H, 180°C (356°F), copper windings	
Motor Filling Medium		Air	
Temperature Rise		Class A	
Maximum Fluid Temperature		40°C (104°F) continuous, 50°C (122°F) intermittent	
Motor Protection	Thermal	STD	Normally closed bimetallic switch in each phase, connected in series, 140°C (284°F) +/- 5°C (41°F) opening temperature
	Leakage	STD	Moisture detection probe in seal sensing chamber (for use with appropriate relay)
Sensing Chamber Filling Medium		Environmentally safe, non-toxic oil	
Bearing Type	Upper	Single row, deep groove ball bearing, permanently lubricated	
	Lower	Double row, angular contact ball bearing, permanently lubricated	
Motor Starter Types		Use with Direct-On-Line starting (DOL) recommended	
Maximum Starts per Hour		15, evenly spaced	
Maximum Submergence		20 meters (65 feet)	
Available Voltages		208, 230, 460, 600 (consult factory for other voltages)	
Voltage Tolerance from Rated		+/-10%	
Agency Approvals		Factory Mutual, CSA	
Explosion Proof Rating		NEC 500 Class 1, Division 1, Group C & D, Class T3C max surface temp	

Motor Ratings, PE1 Frame														
Motor Model	Input Power (P1)	Rated Power Output (P2)	Nominal RPM	Rated Voltage	Full Load Amps	Locked Rotor Amps	NEMA Code Letter	NEMA Service Factor	Motor Efficiency at % Load			Power Factor at % Load		
									100	75	50	100	75	50
PE 28/2	3.2 kW	2.8 kW 3.75 HP	3534	208	10.4	132.7	P	1.3	87.2	86.4	82.9	.853	.833	.747
				230	9.4	120.0								
				460	4.7	60.0								
				600	3.6	46.0								
PE 35/2	4.5 kW	4.0 kW 5.4 HP	3531	208	14.3	132.7	K	1.3	89.2	89.0	86.0	.868	.823	.737
				230	13.0	120.0								
				460	6.5	60.0								
				600	5.0	46.0								
PE 45/2	5.6 kW	5.0 kW 6.7 HP	3503	208	17.7	132.7	J	1.3	89.1	89.6	87.3	.882	.857	.793
				230	16.0	120.0								
				460	8.0	60.0								
				600	6.1	46.0								

DS-P01-022 REV: 5 DATE: 08/15 Specifications Subject to Change Without Notice



## Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

### Cable Data, PE1 Frame

Motor	Motor Voltage	Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")	
				Power	Ground
PE 28/2	208	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
PE 35/2	208	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
	230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
PE 45/2	208	1	SOOW 10/7	20.7mm (0.82")	Integrated w/ Power
	230	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
	460	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
	600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
Control Cable	Motor Monitoring Type <sup>3</sup>		Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")
	Std monitoring				
Cable Length	Standard: 10m (32 feet)		Optional: 15m (49 feet), 20m (65 feet), 30m (98 feet); Consult Factory for longer lengths		

<sup>3</sup> See motor protection on page 1.

### Pump Data

Discharge Size	DN32 oblong flanged, 1-1/4" female NPT w/ the use of discharge adapter kit					
Suction Size	N/A					
Volute Pressure Rating	10 bar (145 psi)					
Impeller Type	Semi-Open, Multi-vane, w/ Cutter Assembly & Seal Protection System					
Impeller	Code	PE28/2	PE35/2	PE45/2		
	Diameter, mm (in.)	133 (5.2)	150 (5.9)	160 (6.3)		
Solids Passage Size, mm (in.)	N/A (N/A)	N/A (N/A)	N/A (N/A)			
Min. Recommended Flow, GPM <sup>6</sup>	20	20	20			

<sup>6</sup> Recommend minimum continuous flow. Discharge pipe size can affect minimum flow rate required for solids transport. Consult factory for applications below this flow rate.

### Materials of Construction

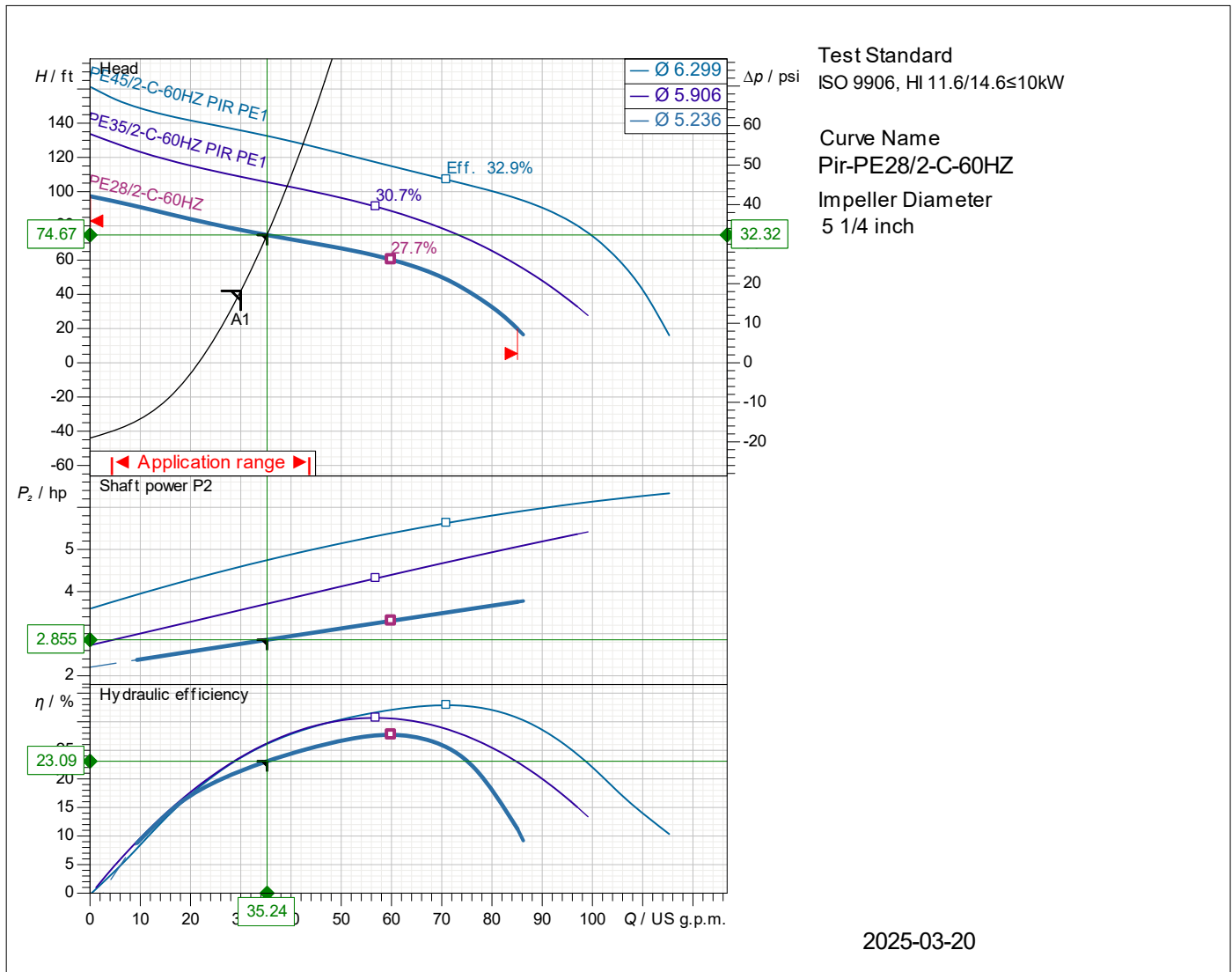
	Standard	Optional
Power/Control Cable Jacket	Chlorinated Polyethylene (CPE)	
Lifting Hoop	Stainless Steel 1.4401 (AISI 316)	
Cable Connection Chamber	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Motor Housing	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Intermediate Housing	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Seal Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Pump and Motor Shaft	Stainless Steel 1.4021 (AISI 420)	
Impeller	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Wear Parts	Rotating Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC
	Stationary Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC
	Bottom/Wear Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)
Volute	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
External Hardware	Stainless Steel 1.4401 (AISI 316)	
O-Rings and Cable Glands	Nitrile (Buna-N)	
Mechanical Seals	Lower	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS
	Upper	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS
Coating/Protection	Two-part epoxy, blue, 120µm (4.7 mil) DFT	Two-part epoxy, blue, 400µm (15.7 mil)

### General Data

	PE 28/2	PE 35/2	PE 45/2		
Overall Height	604mm (23.8")	604mm (23.8")	604mm (23.8")		
Pump Weight	94 kg (207 lb)	94 kg (207 lb)	94 kg (207 lb)		



# PIR PE1 60 HZ



<b>Operating data specification</b> Flow 35.24 US g.p.m. Efficiency 23.1 % NPSH Temperature 68 °F No. of pumps 1		Power input 3.3 hp Head 74.7 ft Shaft power 2.85 hp Fluid Water Nature of system Single head pump	
<b>Pump data</b> Type PIR PE1 60 HZ Series PIRANHA & PIRANHA PE N° of vanes 5 Free passage Discharge flange DN32 Moment of inertia 0.0498 lb ft²		Make SULZER Impeller Macerator Impeller size 5 1/4 inch Suction flange Type of installation Installation wet well	
<b>Motor data</b> Rated voltage 460 V Rated power P2 3.75 hp Number of poles 2 Power factor 0.86 Starting current 60 A Starting torque 19.5 lbf ft Insulation class H		Frequency 60 Hz Nominal Speed 3530 rpm Efficiency 86.5 % Rated current 4.7 A Rated torque 5.58 lbf ft Degree of protection IP 68 No. starts per hour 15	

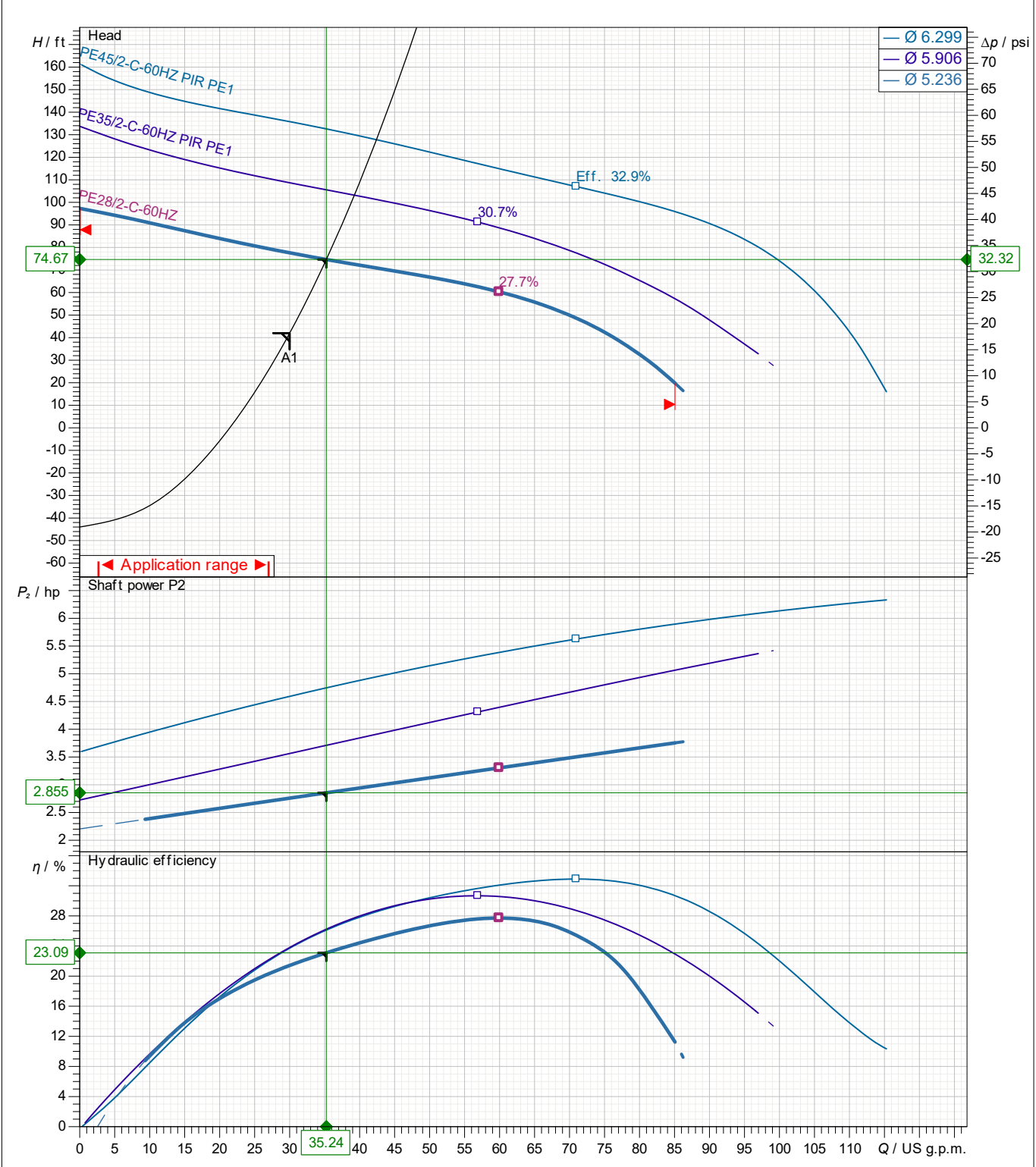
Curve number
Reference curve PIR-PE-C-60HZ

# Pump performance curves

## PIR PE1 60 HZ



			Discharge DN32	Frequency 60 Hz
Density 62.32 lb/ft <sup>3</sup>	Viscosity 1.082E-5 ft <sup>2</sup> /s	Test Standard ISO 9906, HI 11.6/14.6≤10kW	Rated speed 3561 rpm	Date 2025-03-20
Flow 35.24 US g.p.m.	Head 74.7 ft	Shaft power 2.85 hp	Power input 3.3 hp	Rated power P2 3.75 hp
			Hyd. efficiency 23.1 %	NPSH



Installation wet well				
Impeller size 5 1/4 inch	N° of vanes 5	Impeller Macerator	Solid size	Revision

Frequency  
60 Hz

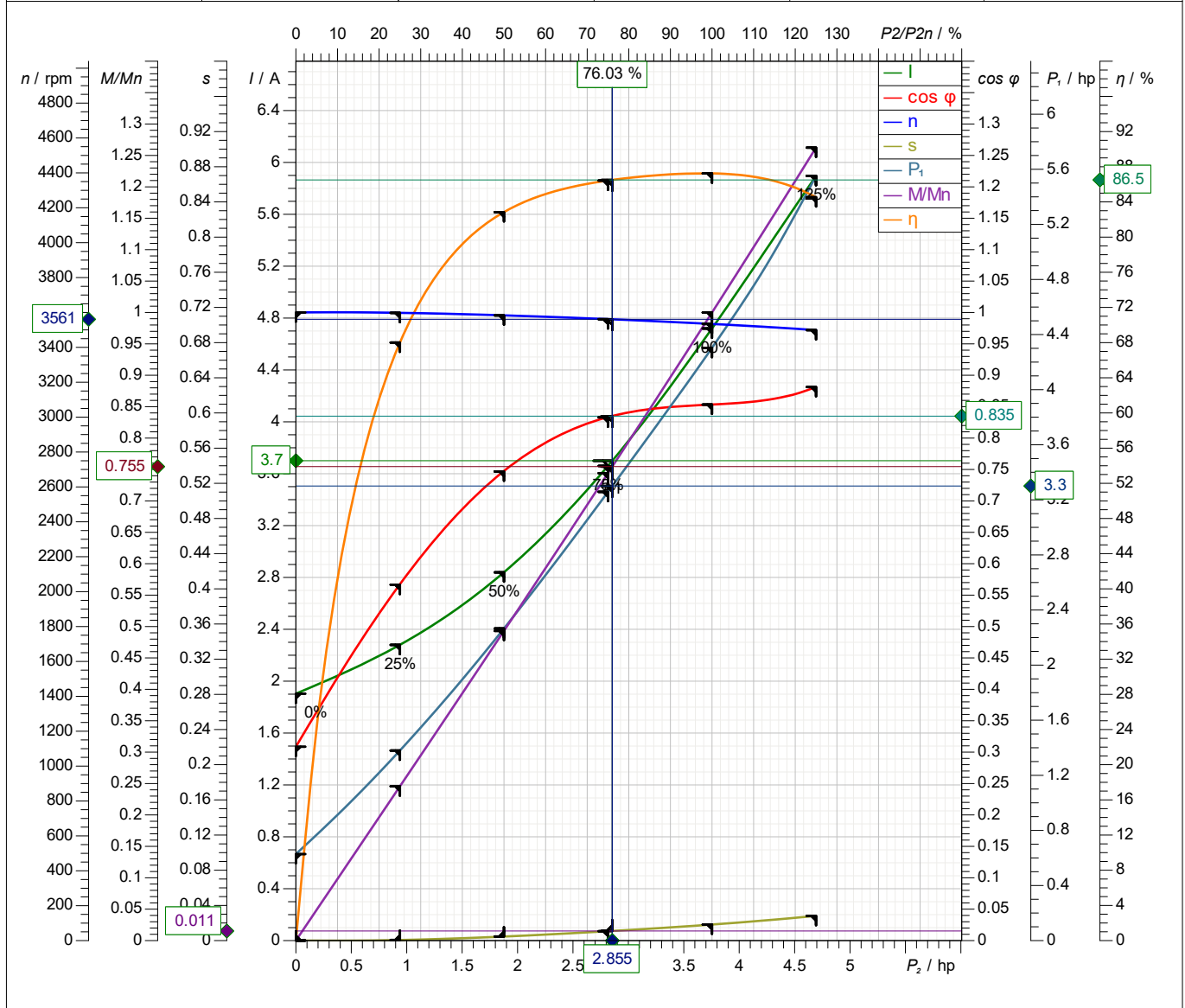
PE1

# Motor performance curve



## PE28/2-C-60HZ

Rated power 3.75 hp	Service factor 1.3	Nominal Speed 3534 rpm	Number of poles 2	Rated voltage 460 V	Date 2025-03-20
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Symbol	No load	25 %	50 %	75 %	100 %	125 %
P <sub>2</sub> / hp	0	0.9387	1.877	2.816	3.755	4.694
P <sub>1</sub> / hp	0.628	1.38	2.266	3.258	4.304	5.552
I / A	1.904	2.28	2.84	3.66	4.72	5.896
cos φ	0.3087	0.5665	0.7469	0.8331	0.8535	0.8813
n / rpm	3600	3598	3583	3562	3534	3499
s / %	0.0007573	0.06713	0.4597	1.068	1.826	2.806
M / lbf ft	0	1.37	2.752	4.153	5.58	7.046
η / %	0	68.01	82.85	86.43	87.24	84.54

Tolerance according to VDE 0530 T1 12.84 for rated power

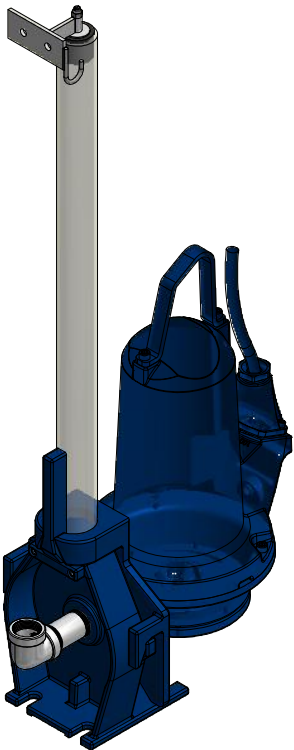
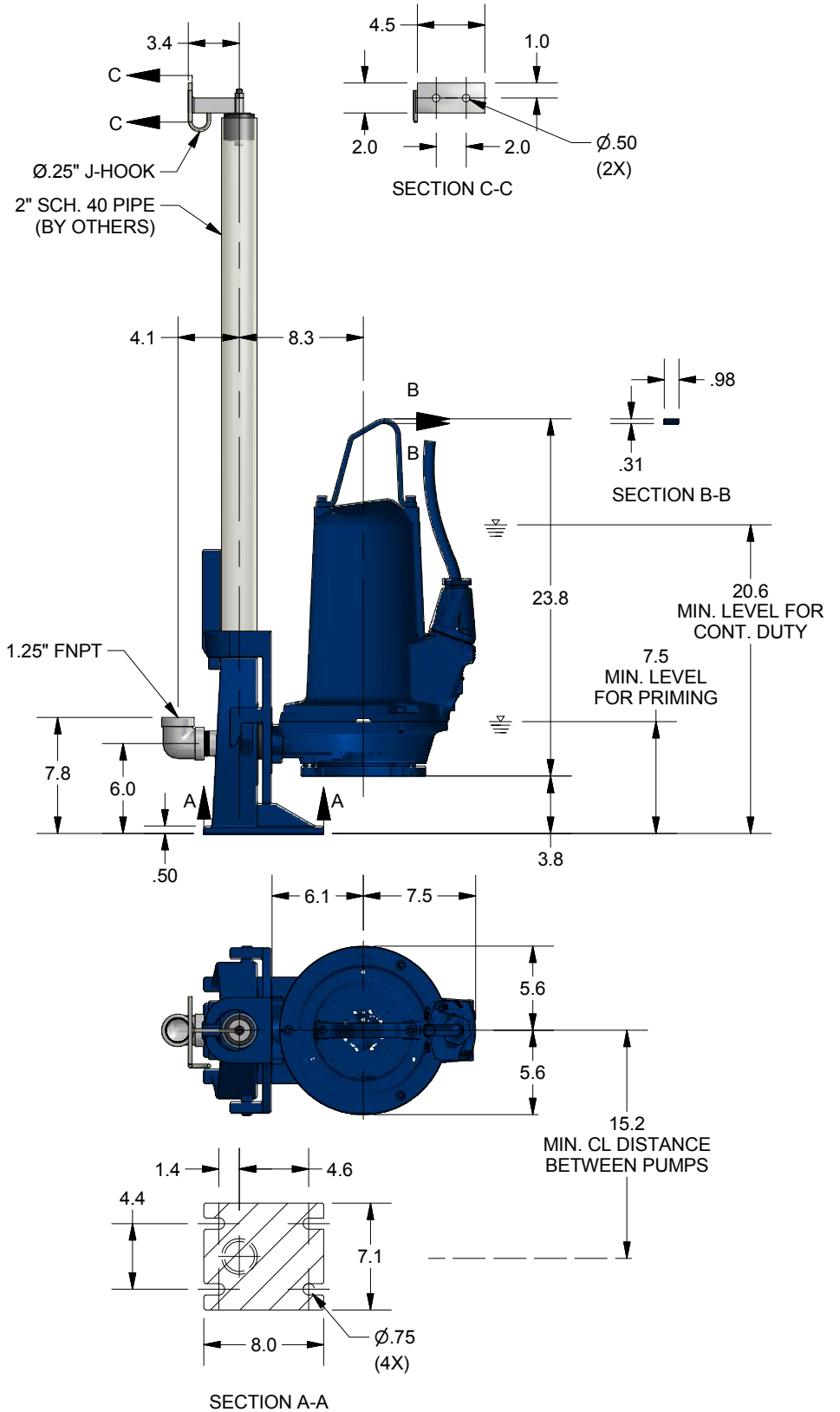
Starting current 60 A	Starting torque 19.5 lbf ft	Moment of inertia 0.104 lb ft <sup>2</sup>	No. starts per hour 15
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**Submersible Grinder Pump Type ABS Piranha**

Piranha PE1 | Wet-Pit, 2" Single Rail, 1.25" Discharge

60Hz Data	
Motor	Weight (lbs.)
PE 25/2W	207.2
PE 35/2W	207.2
PE 45/2W	207.2
PE 28/2	207.2
PE 35/2	207.2
PE 45/2	207.2

- NOTES:**
- Weight Includes Pump, Slide Bracket & 32ft of Cable
  - SHOWN WITH:
    - 62320501 OR 4059130-23 Guide Rail Assembly
    - Appurtenances such as guide rail and anchor bolts are to be supplied by others



DS-P99-035 REV:3 DATE: 1/3/2017 Specifications Subject to Change Without Notice



## Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

PIRANHA GRINDER



The picture above may differ from the actual product. For illustrative purposes only.

Submersible Motor Specifications, PE1 Frame		
Motor Design	NEMA design B, squirrel cage induction	
Motor Type	Fully enclosed Premium Efficiency submersible, IP68 protection rating	
Motor Efficiency Standard and Rating	IEC 60034-30, IE3 rating	
Motor Efficiency Test Protocol	IEC 60034-2-1	
Insulation Material	Class H, 180°C (356°F), copper windings	
Motor Filling Medium	Air	
Temperature Rise	Class A	
Maximum Fluid Temperature	40°C (104°F) continuous, 50°C (122°F) intermittent	
Motor Protection	Thermal	STD
	Leakage	STD
Sensing Chamber Filling Medium	Environmentally safe, non-toxic oil	
Bearing Type	Upper	Single row, deep groove ball bearing, permanently lubricated
	Lower	Double row, angular contact ball bearing, permanently lubricated
Motor Starter Types	Use with Direct-On-Line starting (DOL) recommended	
Maximum Starts per Hour	15, evenly spaced	
Maximum Submergence	20 meters (65 feet)	
Available Voltages	208, 230, 460, 600 (consult factory for other voltages)	
Voltage Tolerance from Rated	+/-10%	
Agency Approvals	Factory Mutual, CSA	
Explosion Proof Rating	NEC 500 Class 1, Division 1, Group C & D, Class T3C max surface temp	

### Motor Ratings, PE1 Frame

Motor Model	Input Power (P1)	Rated Power Output (P2)	Nominal RPM	Rated Voltage	Full Load Amps	Locked Rotor Amps	NEMA Code Letter	NEMA Service Factor	Motor Efficiency at % Load			Power Factor at % Load		
									100	75	50	100	75	50
PE 28/2	3.2 kW	2.8 kW 3.75 HP	3534	208	10.4	132.7	P	1.3	87.2	86.4	82.9	.853	.833	.747
				230	9.4	120.0								
				460	4.7	60.0								
				600	3.6	46.0								
PE 35/2	4.5 kW	4.0 kW 5.4 HP	3531	208	14.3	132.7	K	1.3	89.2	89.0	86.0	.868	.823	.737
				230	13.0	120.0								
				460	6.5	60.0								
				600	5.0	46.0								
PE 45/2	5.6 kW	5.0 kW 6.7 HP	3503	208	17.7	132.7	J	1.3	89.1	89.6	87.3	.882	.857	.793
				230	16.0	120.0								
				460	8.0	60.0								
				600	6.1	46.0								



## Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

Cable Data, PE1 Frame						
Motor	Motor Voltage	Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")		
				Power	Ground	
PE 28/2	208	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
	230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
	460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
	600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
PE 35/2	208	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power	
	230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
	460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
	600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
PE 45/2	208	1	SOOW 10/7	20.7mm (0.82")	Integrated w/ Power	
	230	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power	
	460	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power	
	600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power	
Control Cable	Motor Monitoring Type <sup>3</sup>	Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")		
	Std monitoring	-	Integrated w/ Power	-		
<b>Cable Length</b>	Standard: 10m (32 feet)		Optional: 15m (49 feet), 20m (65 feet), 30m (98 feet); Consult Factory for longer lengths			

<sup>3</sup> See motor protection on page 1.

Pump Data						
Discharge Size	DN32 oblong flanged, 1-1/4" female NPT w/ the use of discharge adapter kit					
Suction Size	N/A					
Volute Pressure Rating	10 bar (145 psi)					
Impeller Type	Semi-Open, Multi-vane, w/ Cutter Assembly & Seal Protection System					
Impeller	Code	PE28/2	PE35/2	PE45/2		
	Diameter, mm (in.)	133 (5.2)	150 (5.9)	160 (6.3)		
Solids Passage Size, mm (in.)	N/A (N/A)	N/A (N/A)	N/A (N/A)			
Min. Recommended Flow, GPM <sup>6</sup>	20	20	20			

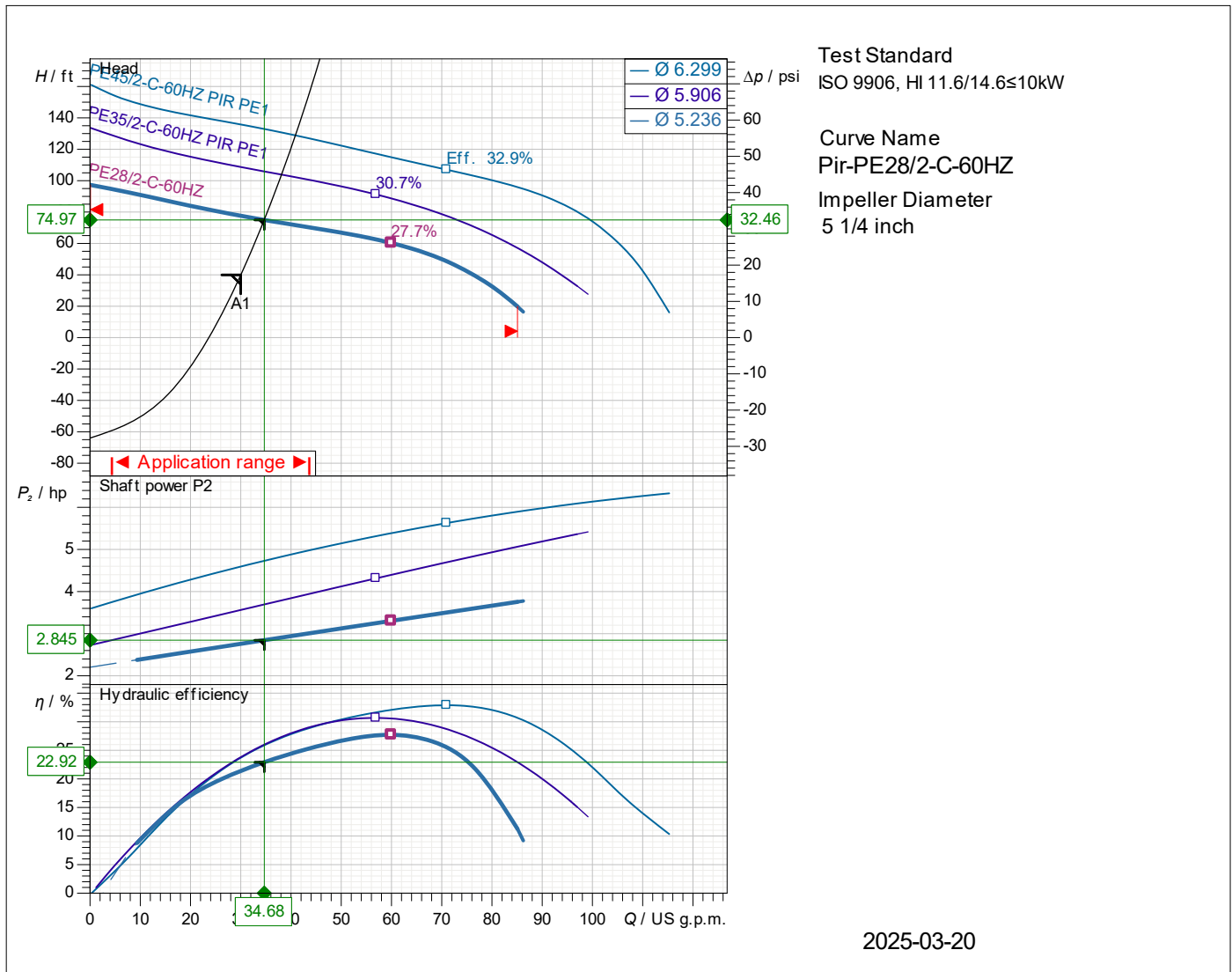
<sup>6</sup> Recommend minimum continuous flow. Discharge pipe size can affect minimum flow rate required for solids transport. Consult factory for applications below this flow rate.

Materials of Construction		Standard	Optional
Power/Control Cable Jacket		Chlorinated Polyethylene (CPE)	
Lifting Hoop		Stainless Steel 1.4401 (AISI 316)	
Cable Connection Chamber		Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Motor Housing		Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Intermediate Housing		Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Seal Plate		Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Pump and Motor Shaft		Stainless Steel 1.4021 (AISI 420)	
Impeller		Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Wear Parts	Rotating Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC	
	Stationary Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC	
	Bottom/Wear Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Volute		Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
External Hardware		Stainless Steel 1.4401 (AISI 316)	
O-Rings and Cable Glands		Nitrile (Buna-N)	
Mechanical Seals	Lower	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS	
	Upper	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS	
Coating/Protection		Two-part epoxy, blue, 120µm (4.7 mil) DFT	Two-part epoxy, blue, 400µm (15.7 mil)

General Data				
	PE 28/2	PE 35/2	PE 45/2	
Overall Height	604mm (23.8")	604mm (23.8")	604mm (23.8")	
Pump Weight	94 kg (207 lb)	94 kg (207 lb)	94 kg (207 lb)	



# PIR PE1 60 HZ



<b>Operating data specification</b> Flow 34.68 US g.p.m. Efficiency 22.9 % NPSH Temperature 68 °F No. of pumps 1		Power input 3.29 hp Head 75 ft Shaft power 2.84 hp Fluid Water Nature of system Single head pump	
<b>Pump data</b> Type PIR PE1 60 HZ Series PIRANHA & PIRANHA PE N° of vanes 5 Free passage Discharge flange DN32 Moment of inertia 0.0498 lb ft²		Make SULZER Impeller Macerator Impeller size 5 1/4 inch Suction flange Type of installation Installation wet well	
<b>Motor data</b> Rated voltage 460 V Rated power P2 3.75 hp Number of poles 2 Power factor 0.86 Starting current 60 A Starting torque 19.5 lbf ft Insulation class H		Frequency 60 Hz Nominal Speed 3530 rpm Efficiency 86.5 % Rated current 4.7 A Rated torque 5.58 lbf ft Degree of protection IP 68 No. starts per hour 15	

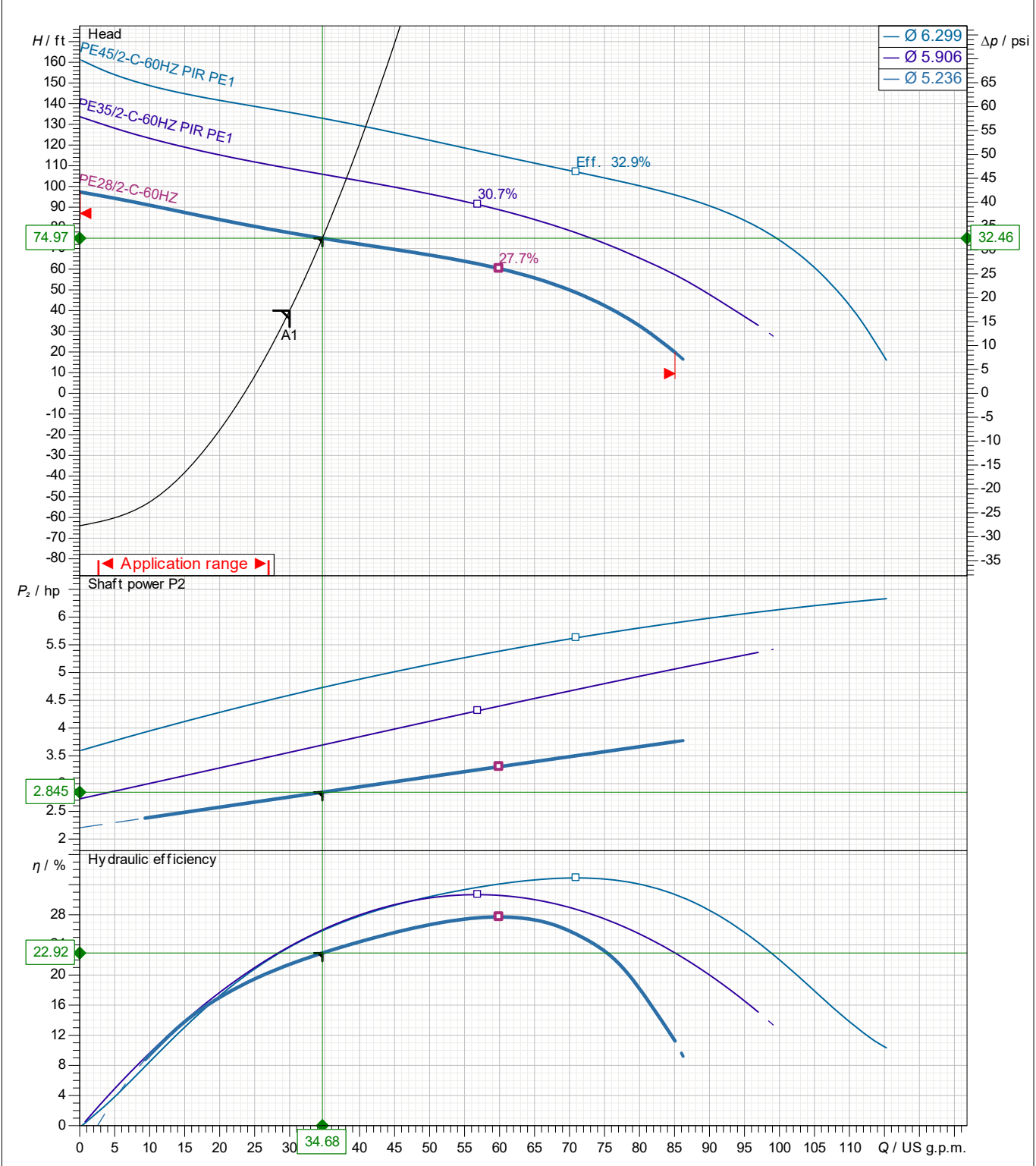
Curve number
Reference curve PIR-PE-C-60HZ

# Pump performance curves



## PIR PE1 60 HZ

			Discharge DN32	Frequency 60 Hz
Density 62.32 lb/ft <sup>3</sup>	Viscosity 1.082E-5 ft <sup>2</sup> /s	Test Standard ISO 9906, HI 11.6/14.6≤10kW	Rated speed 3561 rpm	Date 2025-03-20
Flow 34.68 US g.p.m.	Head 75 ft	Shaft power 2.84 hp	Power input 3.29 hp	Rated power P2 3.75 hp
			Hyd. efficiency 22.9 %	NPSH



Installation wet well				
Impeller size 5 1/4 inch	N° of vanes 5	Impeller Macerator	Solid size	Revision

Frequency  
60 Hz

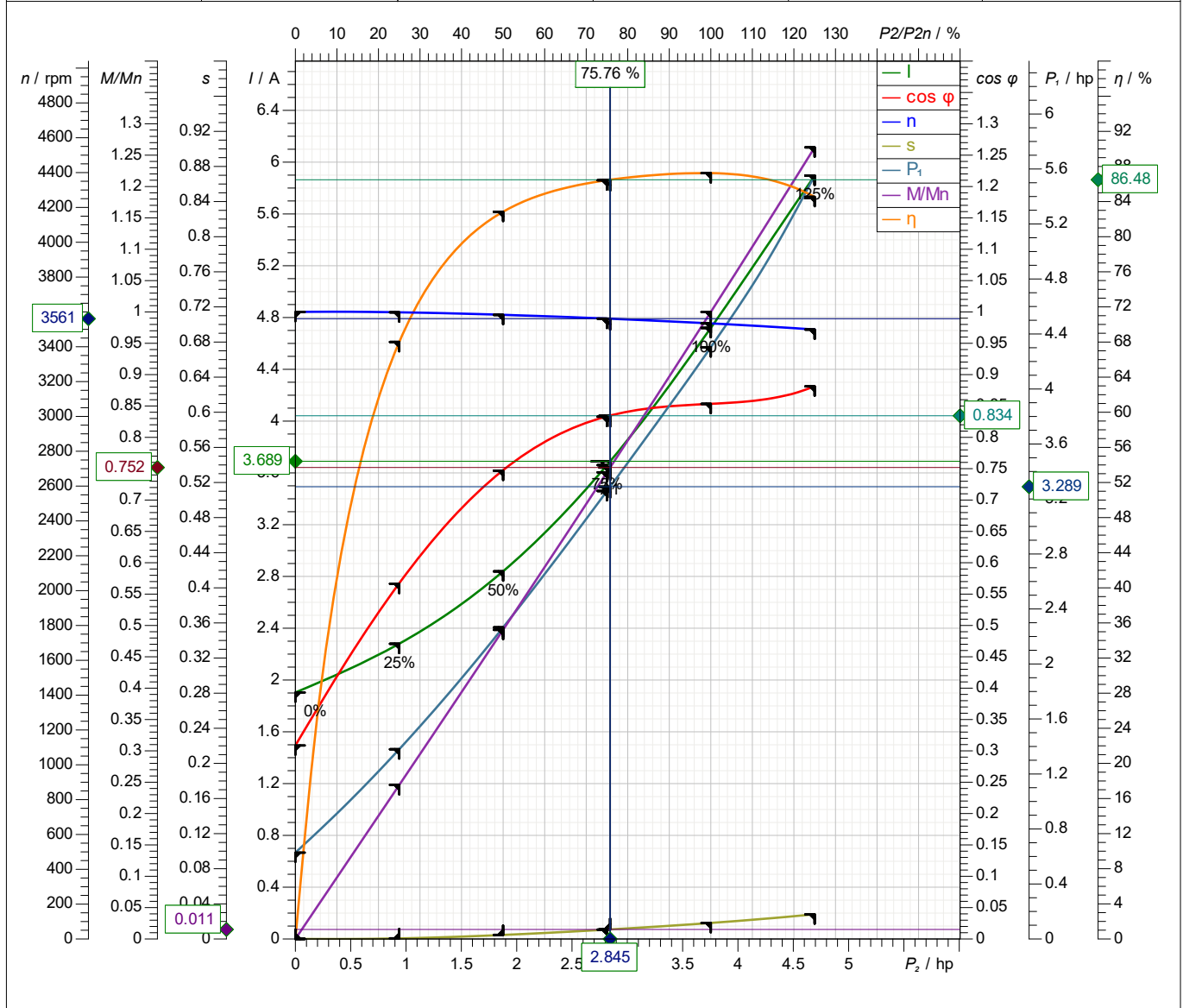
PE1

# Motor performance curve



## PE28/2-C-60HZ

Rated power 3.75 hp	Service factor 1.3	Nominal Speed 3534 rpm	Number of poles 2	Rated voltage 460 V	Date 2025-03-20
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Symbol	No load	25 %	50 %	75 %	100 %	125 %
$P_2 / \text{hp}$	0	0.9387	1.877	2.816	3.755	4.694
$P_1 / \text{hp}$	0.628	1.38	2.266	3.258	4.304	5.552
$I / \text{A}$	1.904	2.28	2.84	3.66	4.72	5.896
$\cos \phi$	0.3087	0.5665	0.7469	0.8331	0.8535	0.8813
$n / \text{rpm}$	3600	3598	3583	3562	3534	3499
$s / \%$	0.0007573	0.06713	0.4597	1.068	1.826	2.806
$M / \text{lbf ft}$	0	1.37	2.752	4.153	5.58	7.046
$\eta / \%$	0	68.01	82.85	86.43	87.24	84.54

Tolerance according to VDE 0530 T1 12.84 for rated power

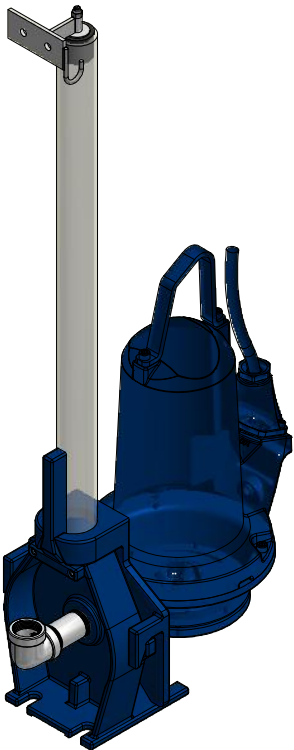
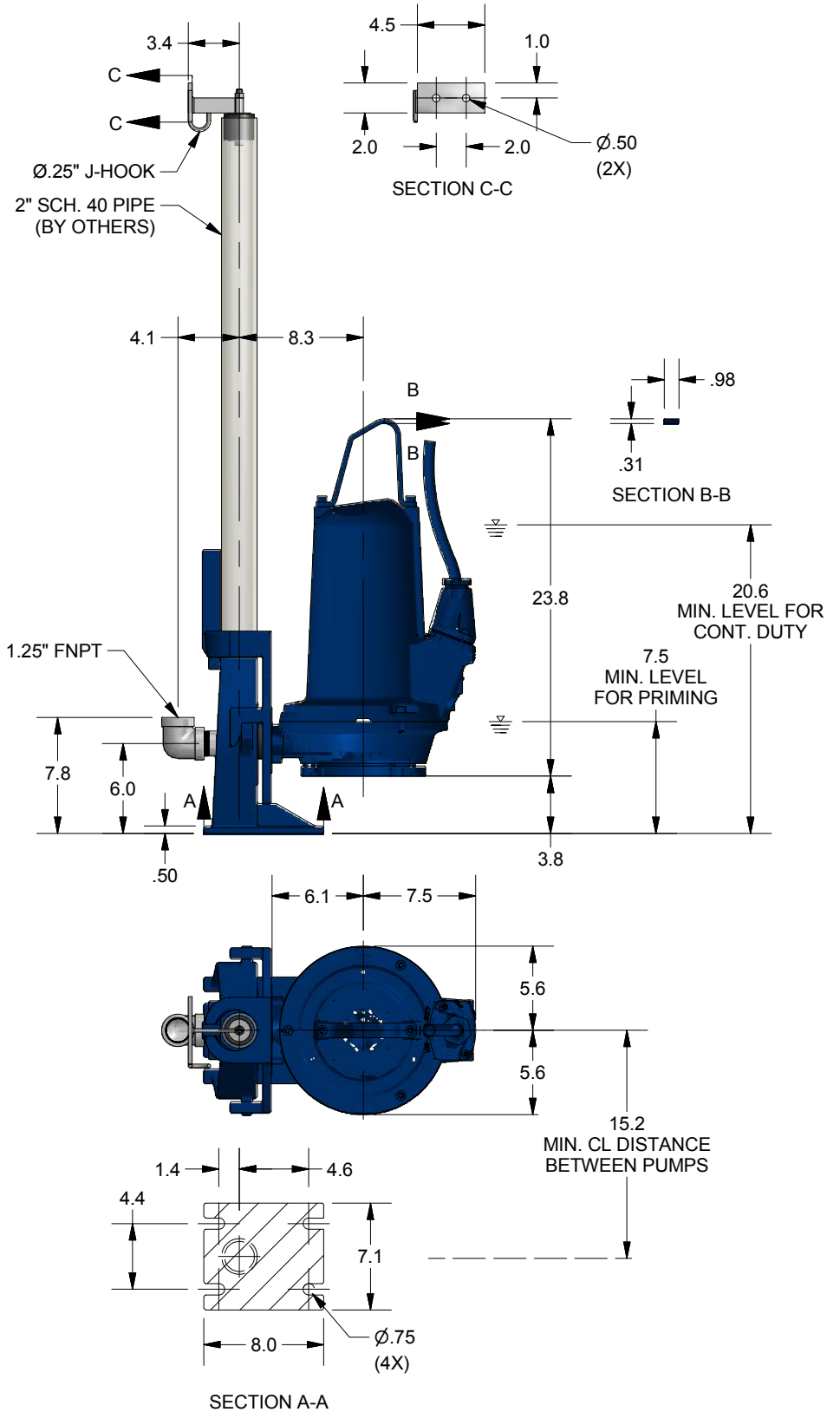
Starting current 60 A	Starting torque 19.5 lbf ft	Moment of inertia 0.104 lb ft <sup>2</sup>	No. starts per hour 15
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Submersible Grinder Pump Type ABS Piranha

Piranha PE1 | Wet-Pit, 2" Single Rail, 1.25" Discharge

60Hz Data	
Motor	Weight (lbs.)
PE 25/2W	207.2
PE 35/2W	207.2
PE 45/2W	207.2
PE 28/2	207.2
PE 35/2	207.2
PE 45/2	207.2

- NOTES:
- Weight Includes Pump, Slide Bracket & 32ft of Cable
  - SHOWN WITH:
    - 62320501 OR 4059130-23 Guide Rail Assembly
    - Appurtenances such as guide rail and anchor bolts are to be supplied by others



DS-P99-035 REV:3 DATE: 1/3/2017 Specifications Subject to Change Without Notice



## Stefanie Faivre

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**From:** Chris Reiner <creiner@reinerpump.com>  
**Sent:** Friday, March 21, 2025 12:23 PM  
**To:** Justin Ferrazzano  
**Cc:** Justin Wagner; Michaela Nicodemo  
**Subject:** RE: Pump Station Sizing for Neelytown Development

This Message originated outside your organization.

---

yes

Chris Reiner, VP and Territory Mngr



855-758-1188

973-347-9000

creiner@reinerpump.com

<https://reinerpump.com/>

---

**From:** Justin Ferrazzano <justin.ferrazzano@collierseng.com>  
**Sent:** Friday, March 21, 2025 10:29 AM  
**To:** Chris Reiner <creiner@reinerpump.com>  
**Cc:** Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>  
**Subject:** RE: Pump Station Sizing for Neelytown Development

Chris,

This is great, thank you.

I have to respond back with some proof or calc that this will work and not overload the existing 6" main in Neelytown Road. Does it make sense to say:

"At this time based on our analysis the existing 6" force main within Neelytown Road appears to be acting more like a gravity line and our effluent should not exacerbate the main, however prior to final approval and prior to filing an application with the NYSDEC for the force main connection, additional metering and testing of the existing 6" main will be performed to confirm static pressure and capacity."

### Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)

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---

**From:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>  
**Sent:** Thursday, March 20, 2025 5:55 PM  
**To:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>  
**Cc:** Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>  
**Subject:** RE: Pump Station Sizing for Neelytown Development

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---

You're going to love this. I think I got it.

PS1, Warehouse 1

Invert IN 420

To invert 376 = -44ft (minus) static head

1100ft of 2" FM SDR21

Assume 30gpm = 1.34ft loss/100ft pipe = 11ft friction (will not offset negative static)

**Go to 1.25" FM**, now 7.8ft/100ft loss = 86ft friction

86ft friction – 44ft static = 42ft TDH

Works, see curve

PS2, Warehouse 2

Invert IN 440

To invert 376 = -64ft (minus) static head

2600ft of 2" FM SDR21

Assume 30gpm = 1.34ft loss/100ft pipe = 35ft friction (will not offset negative static)

**Go to 1.5" FM**, now 4ft/100ft loss = 104ft friction

104ft friction – 64ft static = 40ft TDH

Works, see curve.

At 30gpm +/-, there is no measurable friction loss in the existing 6" FM.

This is a little crazy, but I think it's correct.

What I'm struggling with is if that existing 6" FM is acting as a gravity line (it's possible based on my history with that FM). If so, then we would not have the negative static, and just the friction I calc'd above and a static only going to the street, about 0 EL +/-.

If this is true, then the system curves would go from 0 static to just the friction listed above and we would have to increase the new FM size accordingly to lower the friction.

Probably going to 1.5" for PS1 and 2" for PS2 would work.

What I don't know is if that FM is full and if so what it is flowing at. This could potentially add some friction and we don't have a lot of room to the left of my curve, which has a max shutoff pressure of 100ft. Maybe enough margin?

See attached pump data. I'm adding typical drawing for our TopVault system assuming a 4ft or 5ft dia wetwell. 6ft dia would be too big.

Hope this helps. Let me know.

Chris Reiner, VP and Territory Mngr



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973-347-9000

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<https://reinerpump.com/>

---

**From:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Sent:** Thursday, March 20, 2025 1:01 PM

**To:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>

**Cc:** Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** RE: Pump Station Sizing for Neelytown Development

Sorry to hear but I trust whatever you think is best... staying tuned!

**Justin Ferrazzano**

Senior Project Manager | Principal Associate | Civil/Site

[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)

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---

**From:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>

**Sent:** Thursday, March 20, 2025 12:59 PM

**To:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Cc:** Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** RE: Pump Station Sizing for Neelytown Development

**This Message originated outside your organization.**

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So negative static. Ugggg.

I am remembering this long FM and the negative static now in Montgomery.

We've put in some PS's along this FM in the past through Contractors (like TAM).

If I remember correctly, the negative static presented some challenges that we didn't know about at the time. We've changed pumps to much lower head units over a long period of time and they are working well.

This is absolutely a challenge, and I will do what I think is best.

Stay tuned.

Thx.

Chris Reiner, VP and Territory Mngr



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---

**From:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Sent:** Wednesday, March 19, 2025 11:59 PM

**To:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>

**Cc:** Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** RE: Pump Station Sizing for Neelytown Development

A pulled a USGS map which looks to be consistent with our grades on site and when I follow it down to the treatment plant, the grade in that area is roughly 380.

So I would say an estimated invert would be 376.

Let me know if that gives you everything you need.

**Justin Ferrazzano**

Senior Project Manager | Principal Associate | Civil/Site

[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)

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**From:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>  
**Sent:** Wednesday, March 19, 2025 7:03 PM  
**To:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>  
**Cc:** Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>  
**Subject:** RE: Pump Station Sizing for Neelytown Development

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---

Can you get me EL of the treatment plant?  
I think I can figure it out close enough from there.  
Thanks

Chris Reiner, VP and Territory Mngr



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<https://reinerpump.com/>

---

**From:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>  
**Sent:** Wednesday, March 19, 2025 12:52 PM  
**To:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>  
**Cc:** Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>  
**Subject:** RE: Pump Station Sizing for Neelytown Development

Chris,

Regarding your last email:

BTW, it may not be possible to get the info on the existing FM you are pumping into.

- This is still preliminary design so I think we can make assumptions where needed and then just note that in our response.
- One of their comments is they are looking for the calculation for the sizing of the pump stations, so if you could include the calc we can note where assumptions are made.

If this happens, then we will have to guess.

- I'm not sure what information I'll be able to get other than the size and material. We'll be tying into an 6" SDR-26 Force Main.
- They do want us to evaluate the exiting main to see if our flow requires upsizing. Again, is there any calc you can provide to show that? We can again note assumptions and that follow up testing is required prior to final approval.

I will still need where its going EL (for static) and approx.. how long and what size.

- I provided the approximate inverts and lengths on our site (see attached Force Main Sketch) – the size of those I would ask for your help with.

- Once it meets the main, it runs about 8,800 LF to the treatment plant via the 6" force main (see attached RECORD plans from the Town)

We can then get pretty close with a pump, and then guess what flow is going through it.

- If we can get close and design information on all of the above that works for now.

The good news is we are likely going to use Sulzer-ABS's Piranha PE series, which have pretty steep curves.

So once we pick a duty point close to our guesses, we will likely have enough margin to handle when the other FM is in use and not dead head our pumps

- Please review and let me know if you can address all of this and provide the design.

Thanks Chris!

### Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)

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---

**From:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>

**Sent:** Wednesday, March 19, 2025 9:26 AM

**To:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Cc:** Justin Wagner <[Justin.Wagner@collierseng.com](mailto:Justin.Wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** RE: Pump Station Sizing for Neelytown Development

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---

BTW, it may not be possible to get the info on the existing FM you are pumping into.

If this happens, then we will have to guess.

I will still need where its going EL (for static) and approx.. how long and what size.

We can then get pretty close with a pump, and then guess what flow is going through it.

The good news is we are likely going to use Sulzer-ABS's Piranha PE series, which have pretty steep curves.

So once we pick a duty point close to our guesses, we will likely have enough margin to handle when the other FM is in use and not dead head our pumps.

Hope this helps.

If you need budgets now, attached is what I'm thinking. I'm guessing a 4 or 5ft dia. precast wetwell, and then our unit sits on top. Pretty simple. Can use a budget price of \$50K for this station including 3-5HP Piranha grinder pumps. Deliveries are usually less than 4-6 weeks if that matters.

Chris Reiner, VP and Territory Mngr



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<https://reinerpump.com/>

---

**From:** Chris Reiner

**Sent:** Tuesday, March 18, 2025 6:55 PM

**To:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Cc:** Justin Wagner <[Justin.Wagner@collierseng.com](mailto:Justin.Wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** RE: Pump Station Sizing for Neelytown Development

Hi Justin. If you are pumping into another FM, then it gets a little more complicated.

For the rise, we need EL of water level (or just invert IN) in each PS to the FINAL EL of the FM at the final discharge point. We will also need information in the existing FM you are pumping into.

The reason for this, is we will need to calculate two system curves. One with the existing FM being used (and at what flow rate is if known) and one with it not being used. These two new system curves will need to fit the proposed pump curve at both duty points.

Thanks.

Chris Reiner, VP and Territory Mngr



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<https://reinerpump.com/>

---

**From:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Sent:** Tuesday, March 18, 2025 6:41 PM

**To:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>

**Cc:** Justin Wagner <[Justin.Wagner@collierseng.com](mailto:Justin.Wagner@collierseng.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** Re: Pump Station Sizing for Neelytown Development

Justin W - can you send Chris rise and run? It can be approximate and he just needs to know roughly how far we are pumping to the force main in the road and the elevation change which shouldn't be too much.

Chris - not sure of voltage but assume whatever we need is available, there's an gas/electric easement that runs along the lot. These will be privately owned and operated. Packaged solution would be best yes. They don't require any building or back up generator in NY.

Thank you sir!

**Justin Ferrazzano**

Senior Project Manager | Principal Associate | Civil/Site

[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)

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On Mar 18, 2025, at 6:25 PM, Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)> wrote:

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---

Hi guys, those are very low flows.

4164 gpd / 1440 = 2.9 gpm, time's about a peaking factor of 5 = 15gpm.

Do you have rise and run?

Site voltage avail.?

Will the Town of Montgomery be owning these (they mostly use Sulzer-ABS pumps)

If private, we can probably deviate with pump selection.

Do you want a packaged solution? We have some nice commercial/Muni grade pre-engineered systems that we are using for these sizes of station.

Let me know.

Thank you.

Ps: our latest line-card is attached, FYI.

Chris Reiner, VP and Territory Mngr

<image002.jpg>

<image003.png>

855-758-1188

973-347-9000

[creiner@reinerpump.com](mailto:creiner@reinerpump.com)

<https://reinerpump.com/>

---

**From:** Justin Ferrazzano <[justin.ferrazzano@collierseng.com](mailto:justin.ferrazzano@collierseng.com)>

**Sent:** Tuesday, March 18, 2025 3:42 PM

**To:** Justin Wagner <[Justin.Wagner@collierseng.com](mailto:Justin.Wagner@collierseng.com)>

**Cc:** Chris Reiner <[creiner@reinerpump.com](mailto:creiner@reinerpump.com)>; Michaela Nicodemo <[michaela.nicodemo@collierseng.com](mailto:michaela.nicodemo@collierseng.com)>

**Subject:** Re: Pump Station Sizing for Neelytown Development

Just to clarify we need two pump stations one for each building

**Justin Ferrazzano**

Senior Project Manager | Principal Associate | Civil/Site

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On Mar 18, 2025, at 3:28 PM, Justin Wagner <[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)> wrote:

Chris,

On behalf of Justin Ferrazzano, I am reaching out because we need your assistance to determine an adequate pump station size for a project within the Town of Montgomery. To provide you with a little background on the development:

We have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4<sup>th</sup> Edition. Using Land Code 150 – Warehouse and 701 – Office Building and a total building area of 1,128,270 SF, 24,000 SF of which is anticipated to be office area, we can estimate the following:

1,104,270 SF (0.24 employees / 1,000 SF) = 265 projected employees for a Warehouse use

24,000 (3.4 employees / 1,000 SF) = 82 Projected employees for an Office use

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014);

$$\begin{aligned} \text{GPD} &= 15 \text{ GPD} * \# \text{ employees (same for office and warehouse uses)} \\ 15 \times 347 &= 5,205 \text{ GPD} \end{aligned}$$

Total Design Flow = **5,205 GPD**

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014):

20% reduction for installation of water-saving plumbing fixtures

$$5,205 \text{ GPD} \times 0.8 = 4,164 \text{ GPD}$$

Please also provide us with your calculations as the town has requested to review the associated calcs. with the proposed pump station. Let me know if you need any additional information.

Thank you,

**Justin Wagner**

Project Engineer | Civil/Site

Woodcliff Lake, New Jersey 07677

**Colliers Engineering & Design**

[justin.wagner@collierseng.com](mailto:justin.wagner@collierseng.com)

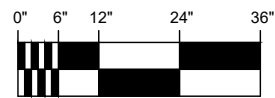
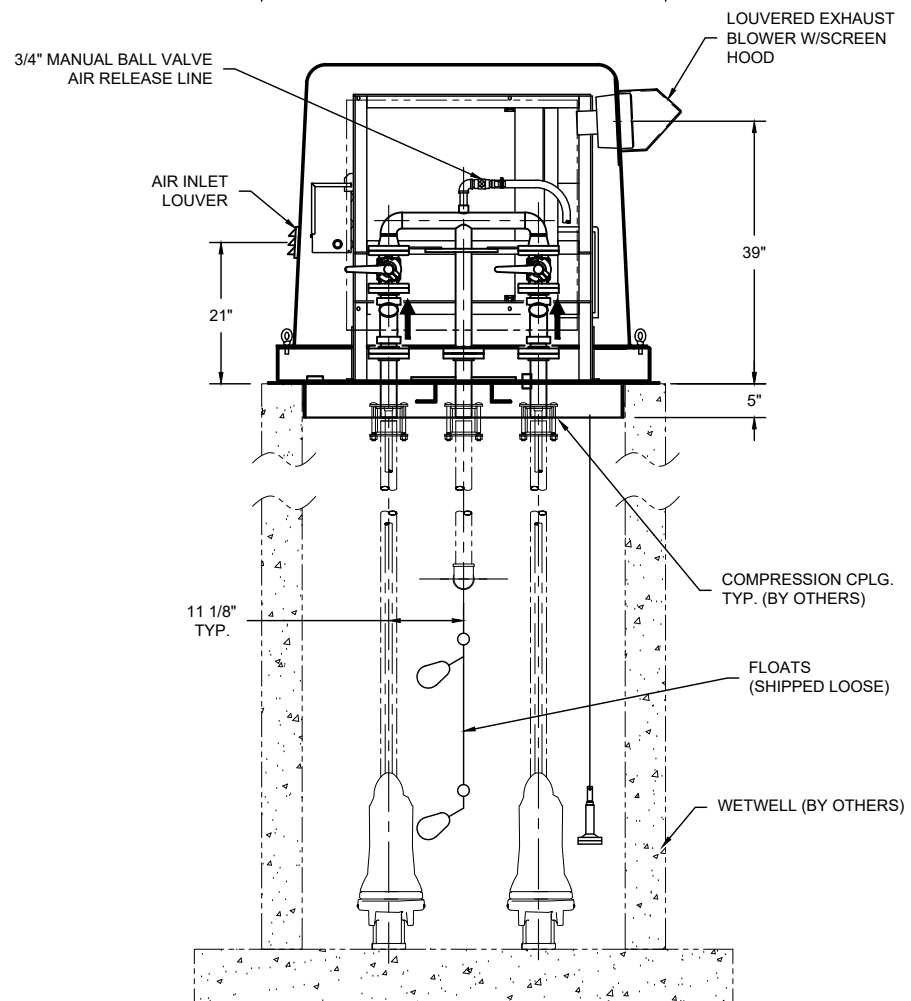
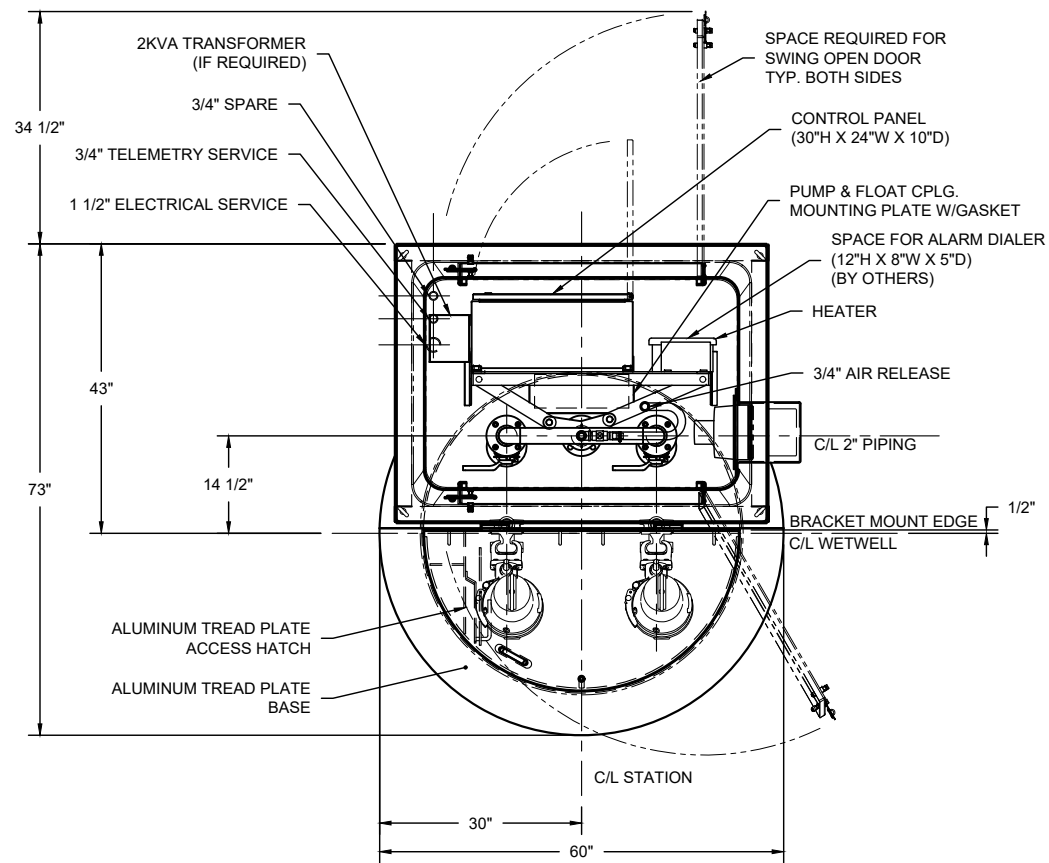
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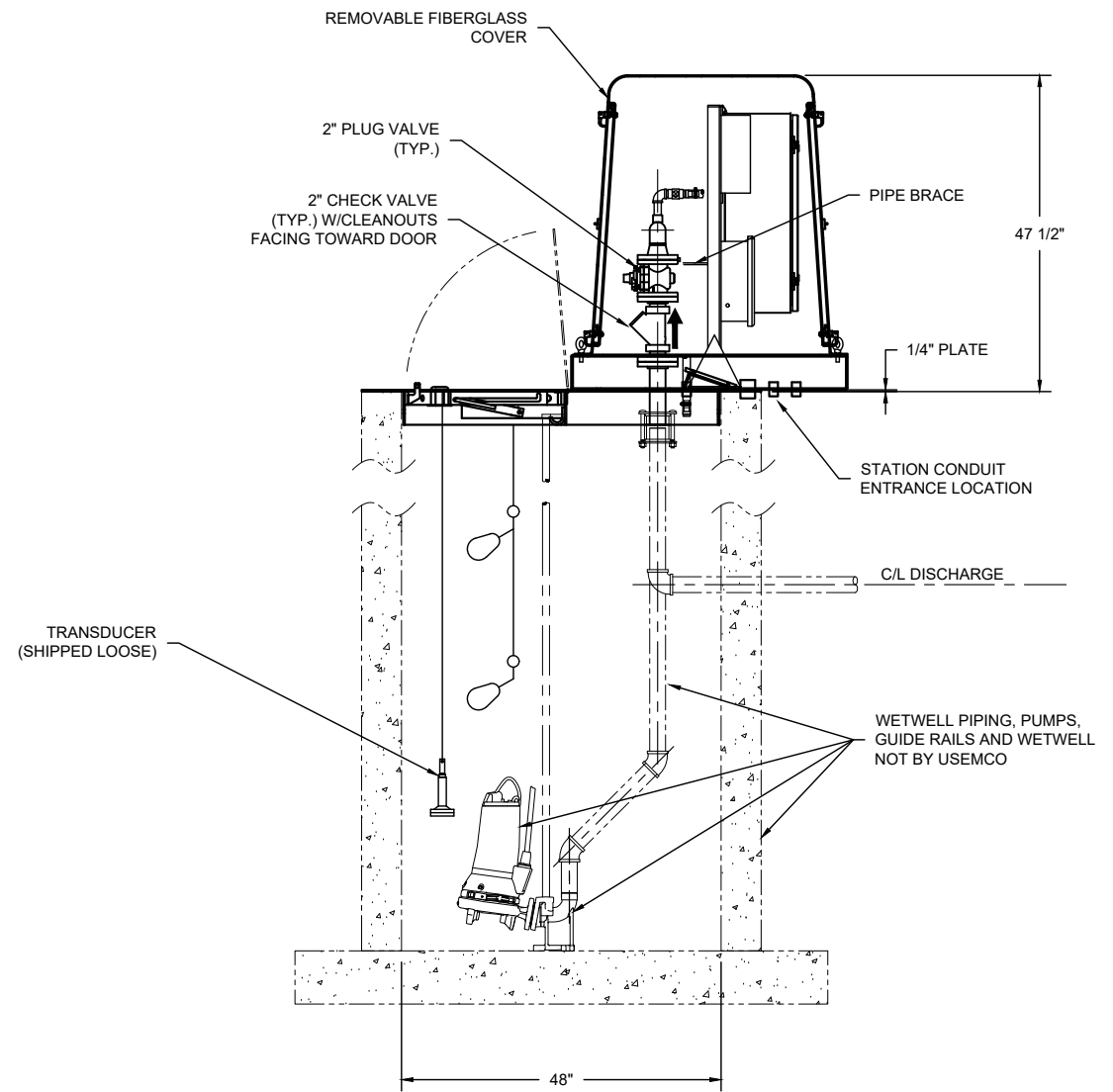
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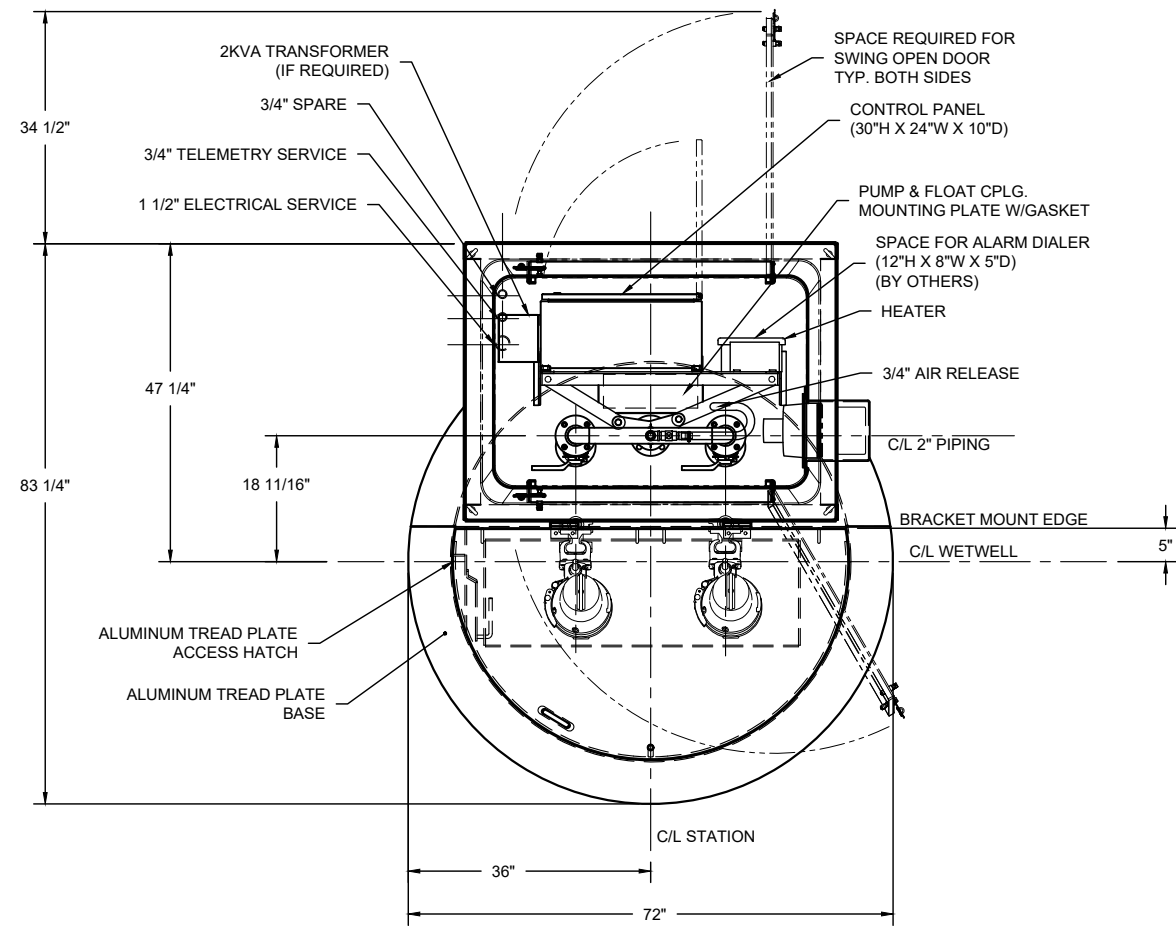


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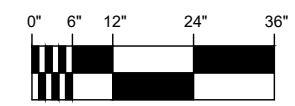
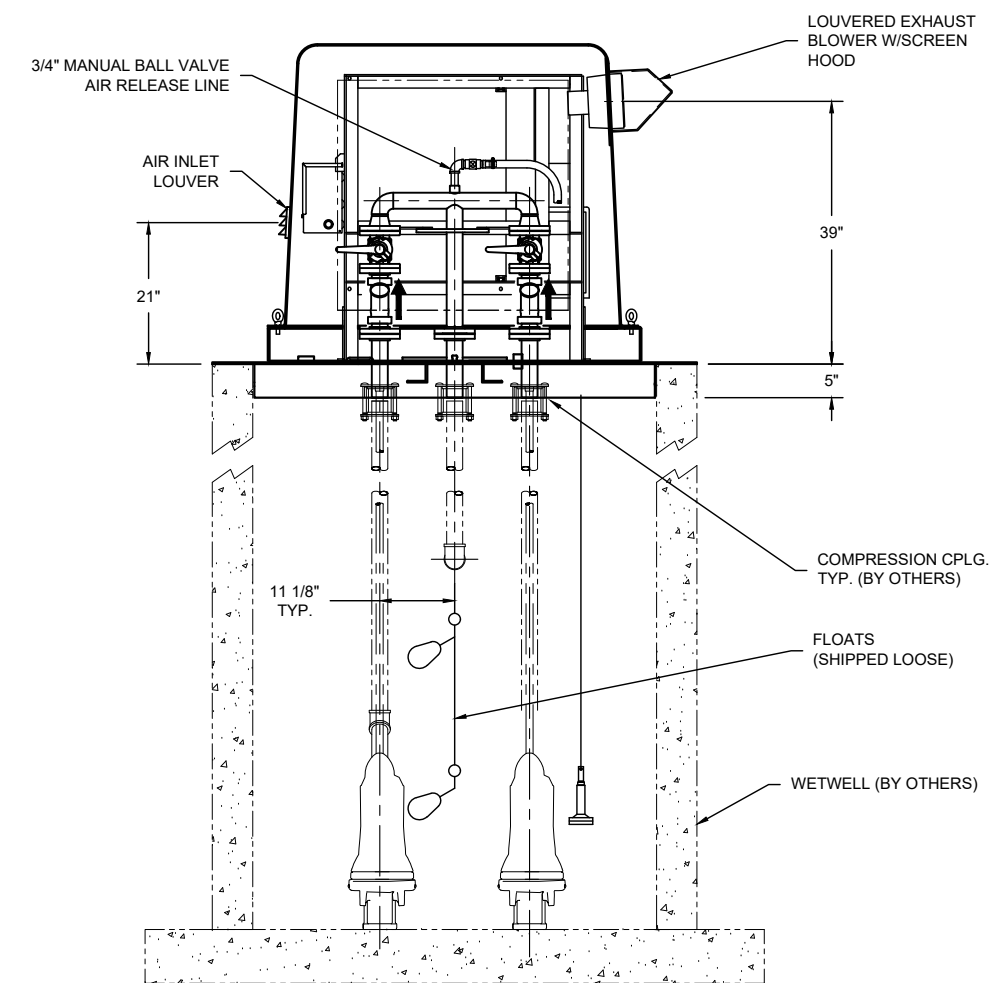
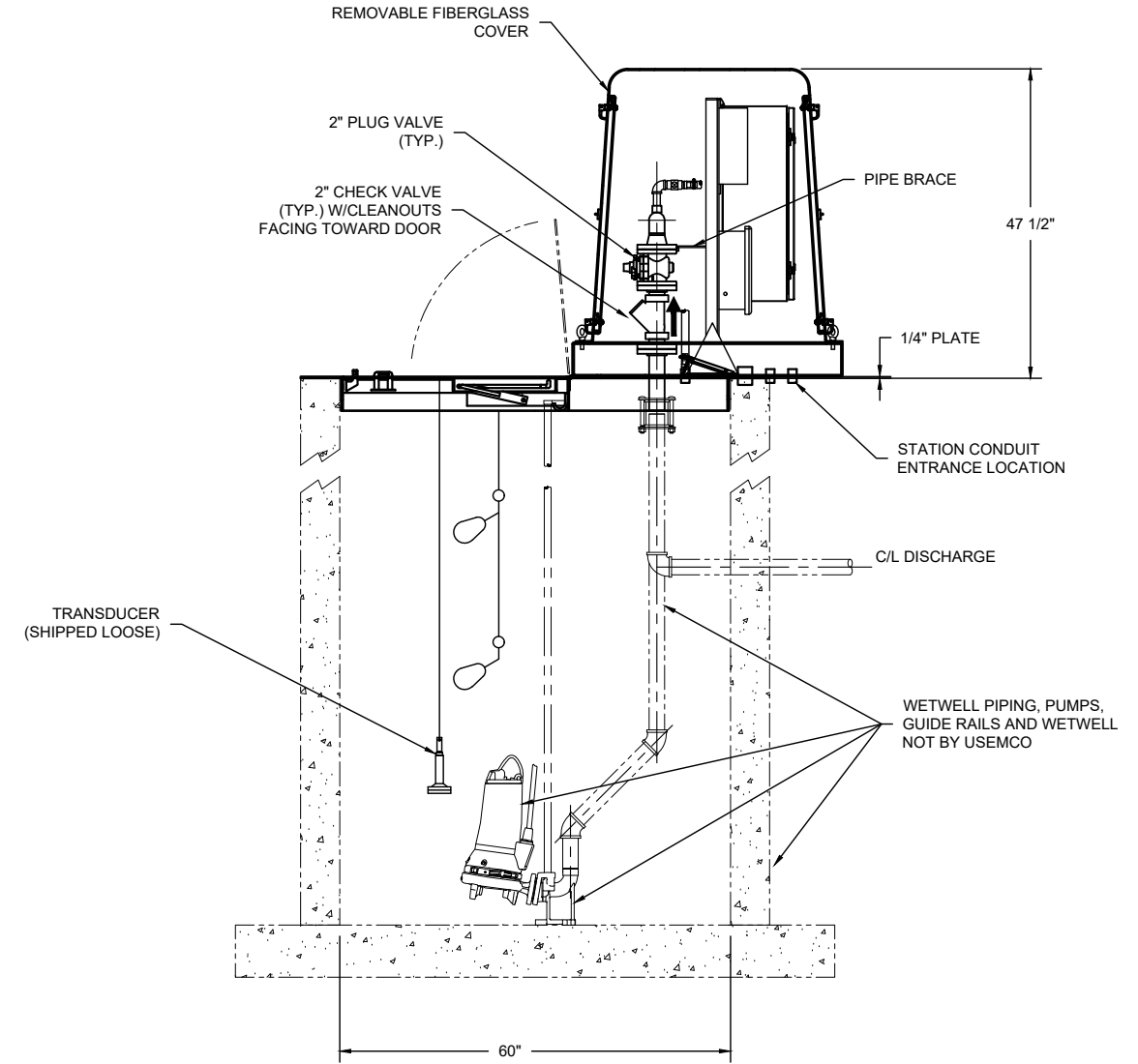


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				DS	6/23		
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**TOP VAULT**

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