

Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
Little Rock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 3/13/2024

Return Request: 3/23/2024

Project: Stone Bank HQ - Chenal

Supplier: Fluid Solutions

Manufacturer: Grundfos

Submittal: Pumps

Submittal Number: 23 00 00-04

Drawing # and Installation: Mechanical Drawings

ARCHITECT

WDD Architects
5050 Northshore Lane
N. Little Rock, AR 72118
501-376-6681

ENGINEER

Batson Inc.
1300 Brookwood Dr.
Little Rock, AR 72202
501-664-3311

GENERAL CONTRACTOR

East Harding
2230 Cottondale Lane #3
Little Rock, AR 72202
501-661-1646

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

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dpierce@comfortar.com

9924 Landers Rd.
No. Little Rock, AR 72117



SUBMITTAL DATA

Date: March 5, 2024
Project: Stone Bank
Contractor: Comfort Systems USA
Engineer: Batson Inc.

PUMPS, ACCESSORIES

Tags: CP-1 thru 3 (AS SPECIFIED)

Grundfos pumps complete with bronze impellers, wear rings, coupling, coupling guard, mechanical seals, and premium efficient motors.

3 – Suction Diffusers
6 – Flexible Pump Connectors

6815 Dewaffelbaker Dr., Maumelle, AR 72113

Phone (501) 663-8886 • Fax (501) 663-8738

www.fluidsolutionsinc.com

Pump Performance Datasheet

Customer	:		Quote Number / ID	:	030524A
Customer ref. / PO	:		Model	:	40957 LF
Tag Number	:	CP-1 & 2	Stages	:	1
Service	:	Pump Room	Based on curve number	:	RC1995-SS Rev 0
Quantity	:	2	Basic model number	:	-
			Date last saved	:	03/05/2024 2:46 PM

Operating Conditions		Liquid	
Flow, rated	: 570.0 USgpm	Liquid type	: Cold Water
Differential head / pressure, rated (requested)	: 55.00 ft	Additional liquid description	:
Differential head / pressure, rated (actual)	: 55.01 ft	Solids diameter, max	: 0.00 in
Suction pressure, rated / max	: 0.00 / 0.00 psi.g	Solids concentration, by volume	: 0.00 %
NPSH available, rated	: Ample	Temperature, max	: 68.00 deg F
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	: 1.000 / 1.000 SG

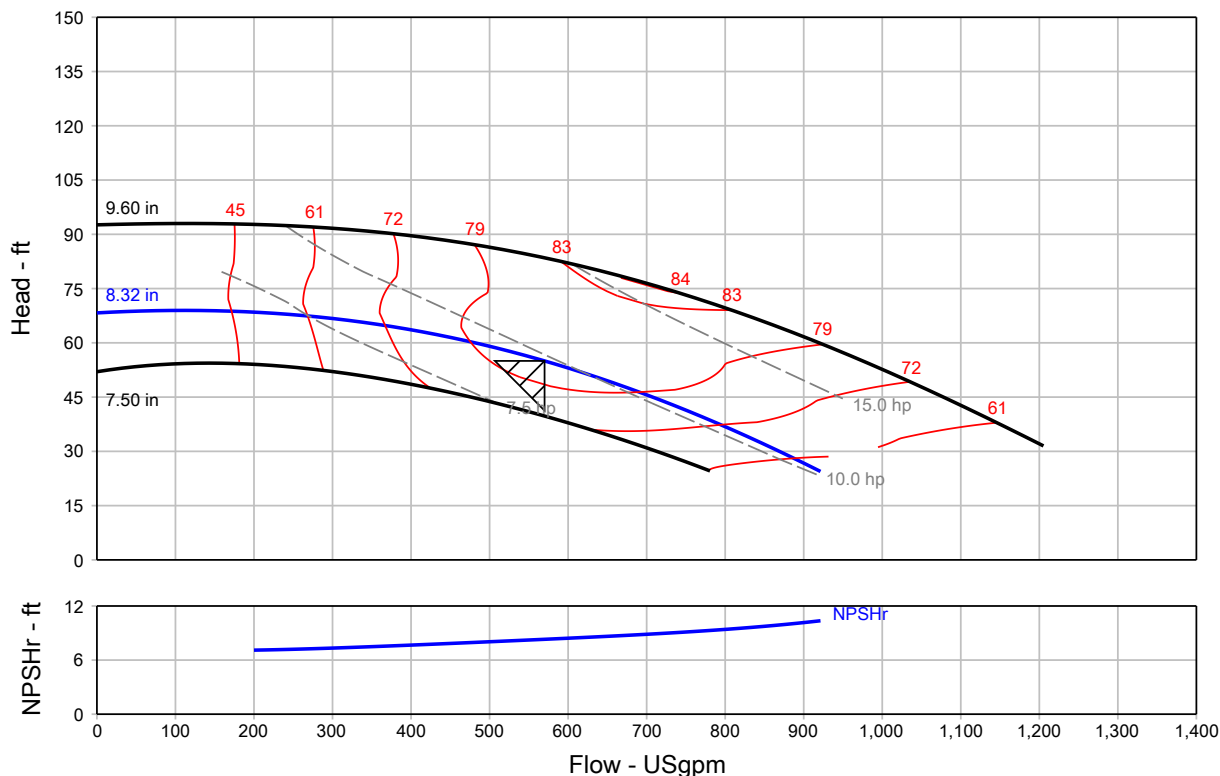
Performance		Material	
Speed, rated	: 1760 rpm	Material selected	: Cast iron

Impeller diameter, rated	: 8.32 in		
Impeller diameter, maximum	: 9.60 in		
Impeller diameter, minimum	: 7.50 in		

Efficiency	: 81.24 %		
NPSH required / margin required	: 8.31 / 0.00 ft		
nq (imp. eye flow) / S (imp. eye flow)	: 35 / 175 Metric units		
MCSF	: 153.9 USgpm		
Head, maximum, rated diameter	: 68.96 ft		
Head rise to shutoff	: 24.14 %		
Flow, best eff. point	: 583.9 USgpm		
Flow ratio, rated / BEP	: 97.63 %		
Diameter ratio (rated / max)	: 86.67 %		
Head ratio (rated dia / max dia)	: 65.87 %		
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00		
Selection status	: Acceptable		

Energy Indexes		Driver & Power Data (@Max density)	
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PEI (CL)	: 0.98	Motor sizing specification	: Max power (non-overloading)
ER (CL)	: 2	Margin over specification	: 0.00 %
		Service factor	: 1.00
		Power, hydraulic	: 7.91 hp
		Rated power (based on duty point)	: 9.74 hp
		Max power (non-overloading)	: 10.40 hp
		Nameplate motor rating	: 15.00 hp / 11.19 kW

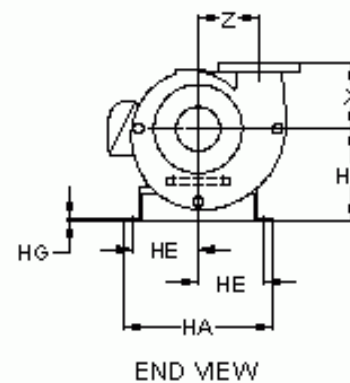
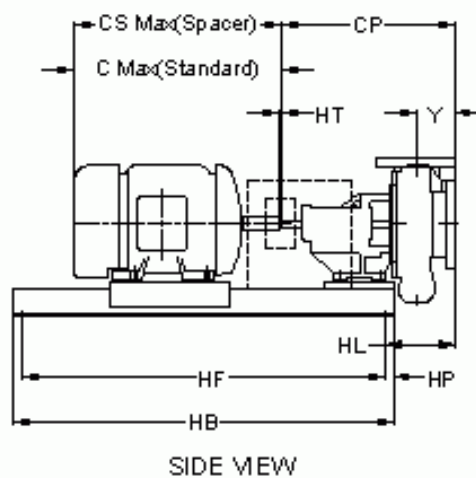
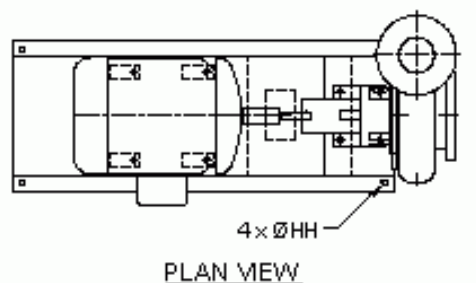


Construction Datasheet

Project name : Stone Bank				Tag Number : CP-1 & 2	
Consulting engineer :				Service : Pump Room	
Customer : FLUID SOLUTIONS INC				Model : 40957 LF	
Customer ref. / PO :				Quantity : 2	
Quote Number / ID : 030524A				Quoted By (Sales Office) : FLUID SOLUTIONS INC	
Date last saved : 03/05/2024 2:46 PM				Quoted By (Sales Engineer) : James Dayer	
Construction				Motor Information	
Nozzle	Size (in.)	Nozzle Configuration	Pos'n	Manufacturer	: Baldor
Suction	5	125# ANSI	End	Frame Size	: 254T
Discharge	4	125# ANSI	Top	Power	: 15.00 hp
Orientation / Configuration : Horizontal				RPM	: 1800 rpm
Rotation : Clockwise				Enclosure	: ODP
Wear Ring Configuration : Single - Case				Operating Power Supply	: 230/460/3/60
Discharge Elbow Size : -				Efficiency	: Premium
Subplate : -				Service factor	: 1.15
Sump Depth (feet) : -				Motor Application	: General Purpose
Bearing Frame : 3P				Motor Options/Accessories	: -
Bearing Frame Foot : -				Cord Length (feet)	: -
Bearing Type (Radial/Thrust) : Ball/Ball				Materials	
Bearing Lubrication : Greased for life				Case	: Cast Iron, ASTM A48 - Class 30
Thrust Bearing : -				Motor Bracket	: -
Intermediate Bearing : -				Impeller	: Stainless Steel, AISI-304 (H304)
Lower Bearing : -				Impeller Cap Screw and Washer	: Stainless Steel, AISI-303
Bearing Housing Accessories : -				Impeller Key	: Stainless Steel, AISI 316
PACO Construction Code : 11-40957-133P08-1822P				Case wear ring	: Tin Bronze, ASTM B584-90500 (B18)
Baseplate, Coupling and Guard				Impeller wear ring	: Not Applicable
Baseplate : Welded Steel Fabrication				Pump Shaft	: Stressproof Steel, AISI 1144
Drip Pan : Drip Pan				Sleeve	: Bronze, III932, C89835
Coupling : Woods Sureflex Type S (elastomeric) 6S				Line Shaft	: -
Guard : OSHA Approved				Column	: -
Seal & Packing Construction				Discharge Pipe	: -
Sealing Method : Single Seal, Type 21S				Discharge Elbow	: -
Seal Material : Buna Carbon Ceramic SS-Spring and Hardware				Suction Elbow	: -
Packing Gland : -				Subplate	: -
Lantern Ring : -				Hardware	: Steel, Grade 5
Recirculation Lines : None				O Rings	: Buna N
Weights (Approx.)				Pump Coatings	: Standard Manufacturer's Paint
Pump : 138.0 lb					
Baseplate : 0.00 lb					
Driver : 217.0 lb					
Estimated Shipping gross weight : 355.0 lb					

General Arrangement

Project name	: Stone Bank	Tag Number	: CP-1 & 2
Consulting engineer	:	Service	: Pump Room
Customer	:	Model	: 40957 LF
Customer ref. / PO	:	Quantity of pumps	: 2
Quote Number / ID	: 030524A	Quoted By (Sales Office)	: FLUID SOLUTIONS INC
Date last saved	: 03/05/2024 2:46 PM	Quoted By (Sales Engineer)	: James Dayer



NOT FOR CONSTRUCTION, UNLESS CERTIFIED AND REFERENCED ON ORDER

Units	Frame	Ped	Suct(in)	Disch(in)	C	CP	HA	HB	HD	HE	HF	HG	HH	HL	HP	HT	MU	N	Q	U	X	Y	Z	Weight ea
inches	254T	3P	5	4	27.00	19.60	17.00	38.13	10.38	7.50	36.13	0.25	0.63	8.03	1.00	0.69	1.63	2.25	3.88	0.88	7.50	4.28	6.88	355.0
Conditions of Service					Motor Data																			
Flow: 570.0 USgpm			Fluid: Cold Water		HP: 15				Encl: ODP				Phase: 3						Efficiency: Premium					
TDH: 55.00 ft			Temp.: 68.00 deg F		RPM: 1760 rpm				Hz: 60				Voltage: 230/460						S.F.: 1.15					

Pump Performance Datasheet

Customer	:		Quote Number / ID	:	030524A
Customer ref. / PO	:		Model	:	25709 VL
Tag Number	:	CP-3	Stages	:	1
Service	:	Mech Yard	Based on curve number	:	VL_25709_4P Rev May22
Quantity	:	1	Basic model number	:	-
			Date last saved	:	03/05/2024 2:48 PM

Operating Conditions		Liquid	
Flow, rated	: 125.0 USgpm	Liquid type	: Cold Water
Differential head / pressure, rated (requested)	: 30.00 ft	Additional liquid description	:
Differential head / pressure, rated (actual)	: 30.04 ft	Solids diameter, max	: 0.00 in
Suction pressure, rated / max	: 0.00 / 0.00 psi.g	Solids concentration, by volume	: 0.00 %
NPSH available, rated	: Ample	Temperature, max	: 68.00 deg F
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	: 1.000 / 1.000 SG

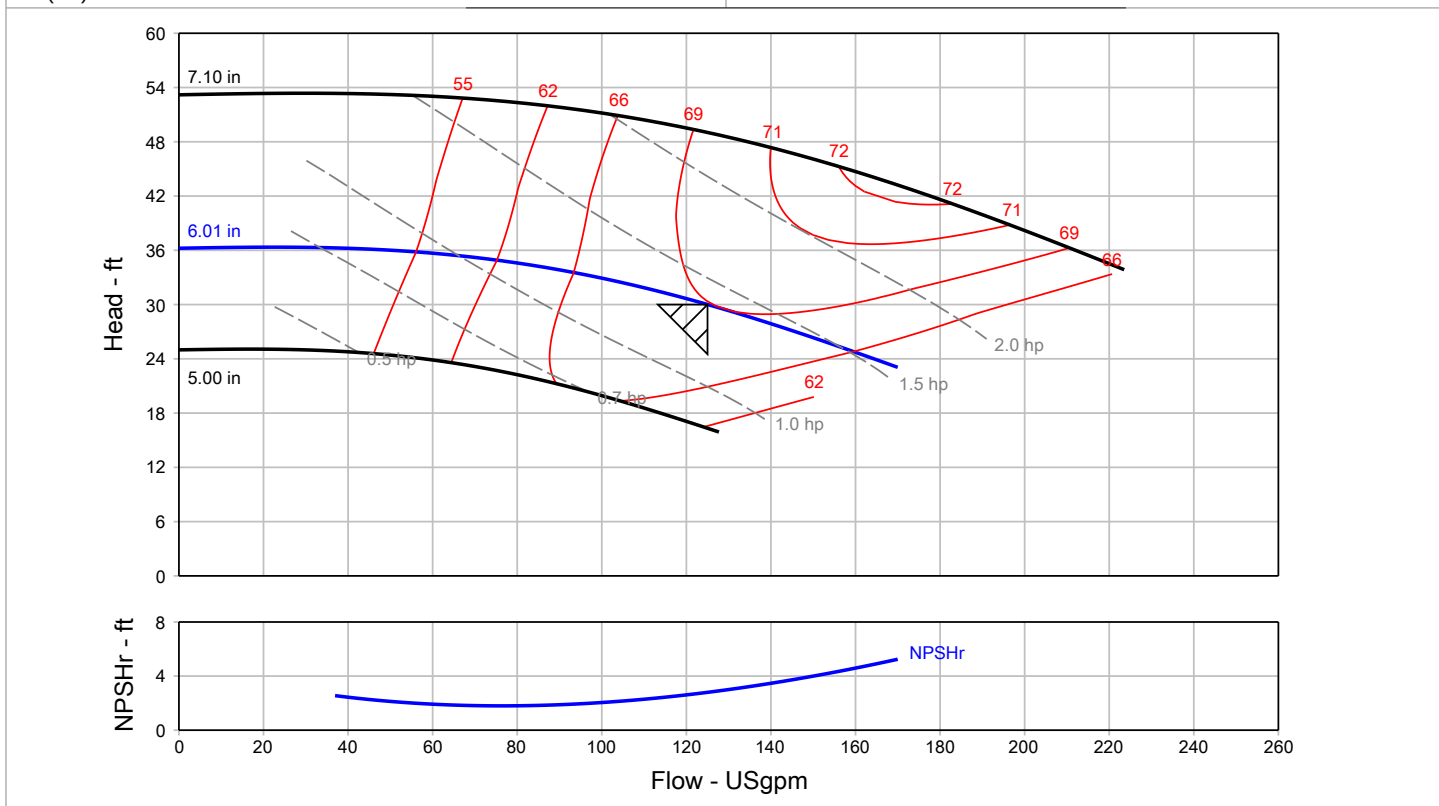
Performance		Material	
Speed, rated	: 1760 rpm	Material selected	: Cast iron - 125#

Impeller diameter, rated	: 6.01 in		
Impeller diameter, maximum	: 7.10 in		
Impeller diameter, minimum	: 5.00 in		

Efficiency	: 68.95 %		
NPSH required / margin required	: 2.80 / 0.00 ft		
nq (imp. eye flow) / S (imp. eye flow)	: 26 / 128 Metric units		
MCSF	: 39.09 USgpm		
Head, maximum, rated diameter	: 36.35 ft		
Head rise to shutoff	: 20.72 %		

Flow, best eff. point	: 129.2 USgpm		
Flow ratio, rated / BEP	: 96.76 %		
Diameter ratio (rated / max)	: 84.65 %		
Head ratio (rated dia / max dia)	: 61.21 %		
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00		
Selection status	: Acceptable		

Energy Indexes	
PEI (CL)	: 0.95
ER (CL)	: 5



Construction Datasheet

Project name : Stone Bank				Tag Number : CP-3	
Consulting engineer :				Service : Mech Yard	
Customer : FLUID SOLUTIONS INC				Model : 25709 VL	
Customer ref. / PO :				Quantity : 1	
Quote Number / ID : 030524A				Quoted By (Sales Office) : FLUID SOLUTIONS INC	
Date last saved : 03/05/2024 2:48 PM				Quoted By (Sales Engineer) : James Dayer	
Construction				Motor Information	
Nozzle	Size (in.)	Nozzle Configuration	Pos'n	Manufacturer	: Baldor
Suction	2.5	125# ANSI	Side	Frame Size	: 145JM
Discharge	2.5	125# ANSI	Side	Power	: 2.00 hp
Orientation / Configuration : Vertical				RPM	: 1800 rpm
Rotation : Clockwise				Enclosure	: TEFC
Wear Ring Configuration : Single - Case				Operating Power Supply	: 230/460/3/60
Discharge Elbow Size : -				Efficiency	: Premium
Subplate : -				Service factor	: 1.15
Sump Depth (feet) : -				Motor Application	: General Purpose
Bearing Frame : -				Motor Options/Accessories	: -
Bearing Frame Foot : -				Cord Length (feet)	: -
Bearing Type (Radial/Thrust) : In motor				Materials	
Bearing Lubrication : Regreasable				Case	: Cast Iron, ASTM A48 - Class 30
Thrust Bearing : -				Motor Bracket	: Cast Iron, ASTM-A48, CL 30
Intermediate Bearing : -				Impeller	: Stainless Steel, AISI-304 (H304)
Lower Bearing : -				Impeller Cap Screw and Washer	: Stainless Steel, AISI-303
Bearing Housing Accessories : -				Impeller Key	: Stainless Steel, AISI 316
PACO Construction code : 16-25709-130108-2562P				Case wear ring	: Tin Bronze, ASTM B584-90500 (B18)
Baseplate, Coupling and Guard				Impeller wear ring	: -
Baseplate : Not Applicable				Pump Shaft	: Steel, AISI-1040
Drip Pan : -				Sleeve	: Bronze, III932, C89835
Coupling : -				Line Shaft	: -
Guard : OSHA Approved				Column	: -
Seal & Packing Construction				Discharge Pipe	: -
Sealing Method : Single Seal, Type 21S				Discharge Elbow	: -
Seal Material : Buna Carbon Ceramic SS-Spring and Hardware				Suction Elbow	: -
Packing Gland : -				Subplate	: -
Lantern Ring : -				Hardware	: Steel, Grade 5
Recirculation Lines : Nylon Tubing with Brass Fittings				O Rings	: Buna N
Weights (Approx.)				Pump Coatings	: Standard Manufacturers Paint
Pump : 91.00 lb					
Baseplate : -					
Driver : 53.00 lb					
Estimated Shipping gross weight : 144.0 lb					

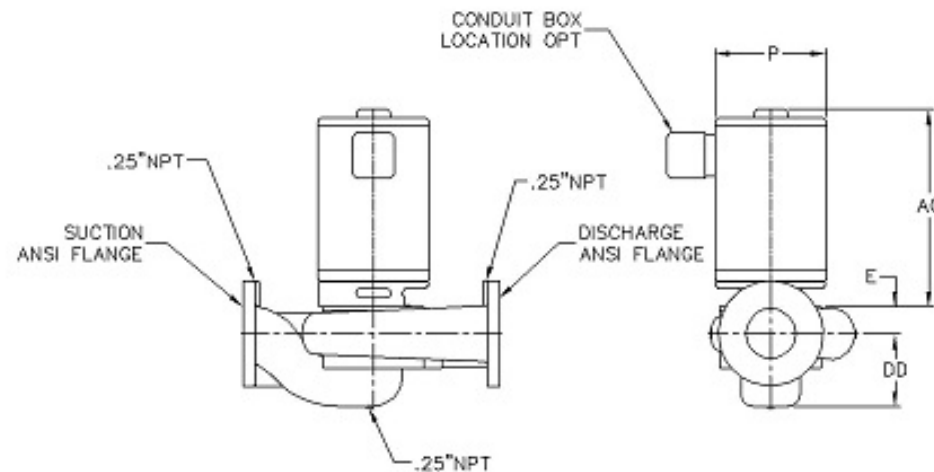
General Arrangement

Project name	: Stone Bank	Tag Number	: CP-3
Consulting engineer	:	Service	: Mech Yard
Customer	:	Model	: 25709 VL
Customer ref. / PO	:	Quantity of pumps	: 1
Quote Number / ID	: 030524A	Quoted By (Sales Office)	: FLUID SOLUTIONS INC
Date last saved	: 03/05/2024 2:48 PM	Quoted By (Sales Engineer)	: James Dayer

Do not install pump larger than 215JM in vertical piping.

Pressure and drain tap locations are approximate.

Suction and discharge flanges, are cast per 250# ANSI thickness and diameter. All flanges are flat face. Some holes may be threaded because of nut clearances.



NOT FOR CONSTRUCTION, UNLESS CERTIFIED AND REFERENCED ON ORDER

Units	Frame	S x D (in.)	AG (Max)	DC	DD	DE	E	P (Max)	X	YY	Weight ea
inches	145JM	2.5 X 2.5	18.00	4.75	5.84	5.50	1.75	8.00	8.50	8.50	144.0
Conditions of Service			Motor Data								
Flow: 125.0 USgpm	Fluid: Cold Water	HP: 2	Encl: TEFC	Phase: 3	Efficiency: Premium						
TDH: 30.00 ft	Temp.: 68.00 deg F	RPM: 1760 rpm	Hz: 60	Voltage: 230/460	S.F.: 1.15						

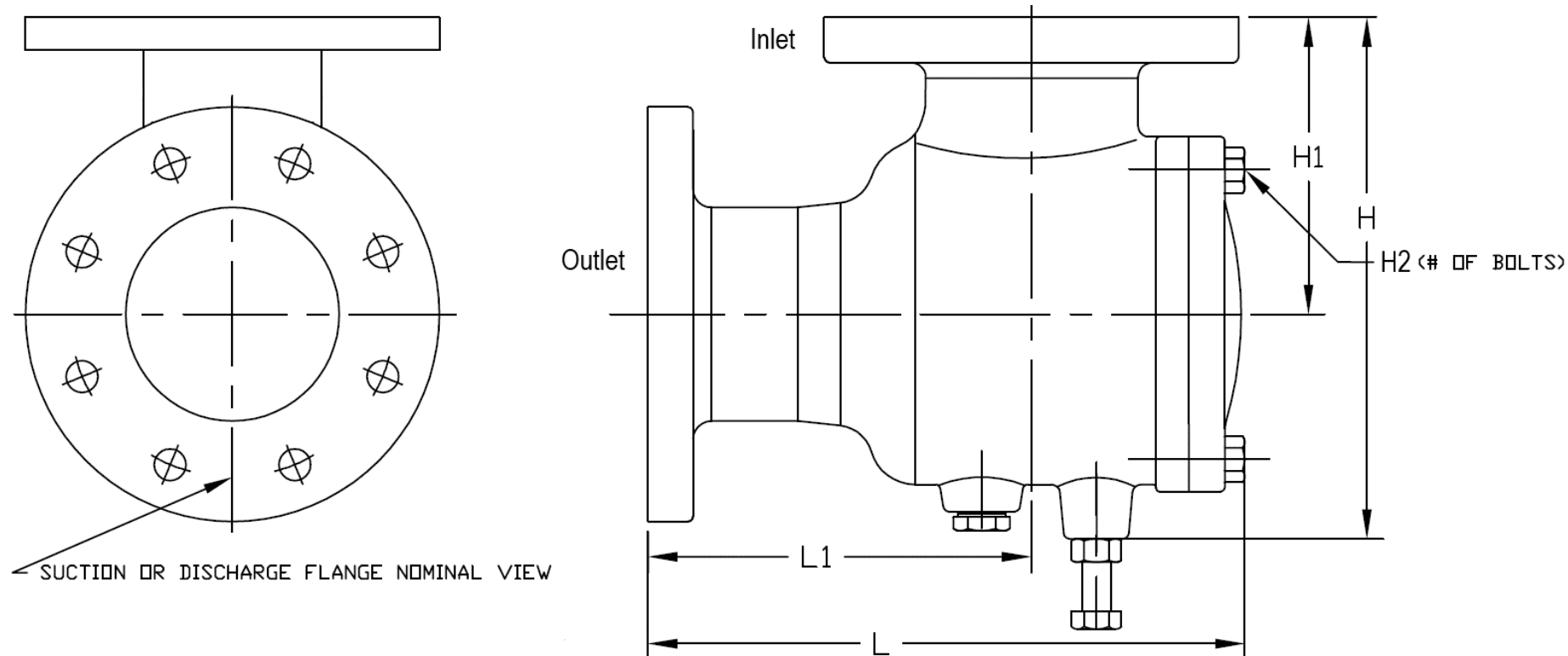
Project name	: Stone Bank	Tag Number	: CP-1 & 2
Consulting engineer	:	Service	:
Customer	: FLUID SOLUTIONS INC	Model	: SD6050-125
Customer ref. / PO	:	Quantity	: 2
Quote Number / ID	: 030524A	Quoted By (Sales Office)	: FLUID SOLUTIONS INC
Date last saved	: 03/05/2024 2:57 PM	Quoted By (Sales Engineer)	: James Dayer

Construction				Grundfos Suction Diffusers	
Nozzle	Size (in.)	Nozzle Configuration	Pos'n		
Inlet	6	-	Top		
Outlet	5	-	Side		
Difuser Body		: Cast Iron, ASTM-A126, CL B			
Hardware		: Steel, ASTM A-283C			
Internal Magnet		: -			
Strainer		: SS 304, ASTM-A240, 3.5MM Holes			
Mesh Grid (Startup strainer)		: SS 304, ASTM-A240, (#20 Mesh)			
Strainer Cover		: Cast Iron, ASTM-A126, CL B			
O Rings		: EPDM			
Coating		: Standard Manufacturers Paint			
Construction Code/Part Number		: 99329704			
Weights (Approx.)					
Estimated Shipping gross weight		: 122.0 lb			
Description					
Grundfos Series SD, Suction diffuser provides and ensures a uniform flow pattern to the suction side of the pump ensuring a stable NPSH. Suction diffuser makes it possible to install the pump in a very narrow spacing as no long bends are necessary. The suction diffuser incorporates a cylindrical strainer preventing impurities from entering the pump. Additional feature includes an adjustable support for mounting. -					

General Arrangement

Project name : Stone Bank
 Consulting engineer :
 Customer :
 Customer ref. / PO :
 Quote Number / ID : 030524A
 Date last saved : 03/05/2024 2:57 PM

Tag Number : CP-1 & 2
 Service :
 Model : SD6050-125
 Quantity of pumps : 2
 Quoted By (Sales Office) : FLUID SOLUTIONS INC
 Quoted By (Sales Engineer) : James Dayer



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Units	Inlet (in)	Outlet (in)	Strainer Area (sq in)	L (in)	L1 (in)	H1 (in)	H (in)	H2 (qty)	Weight (lbs)
inches	6	5	102	15.60	10.30	8.00	13.90	6.00	122

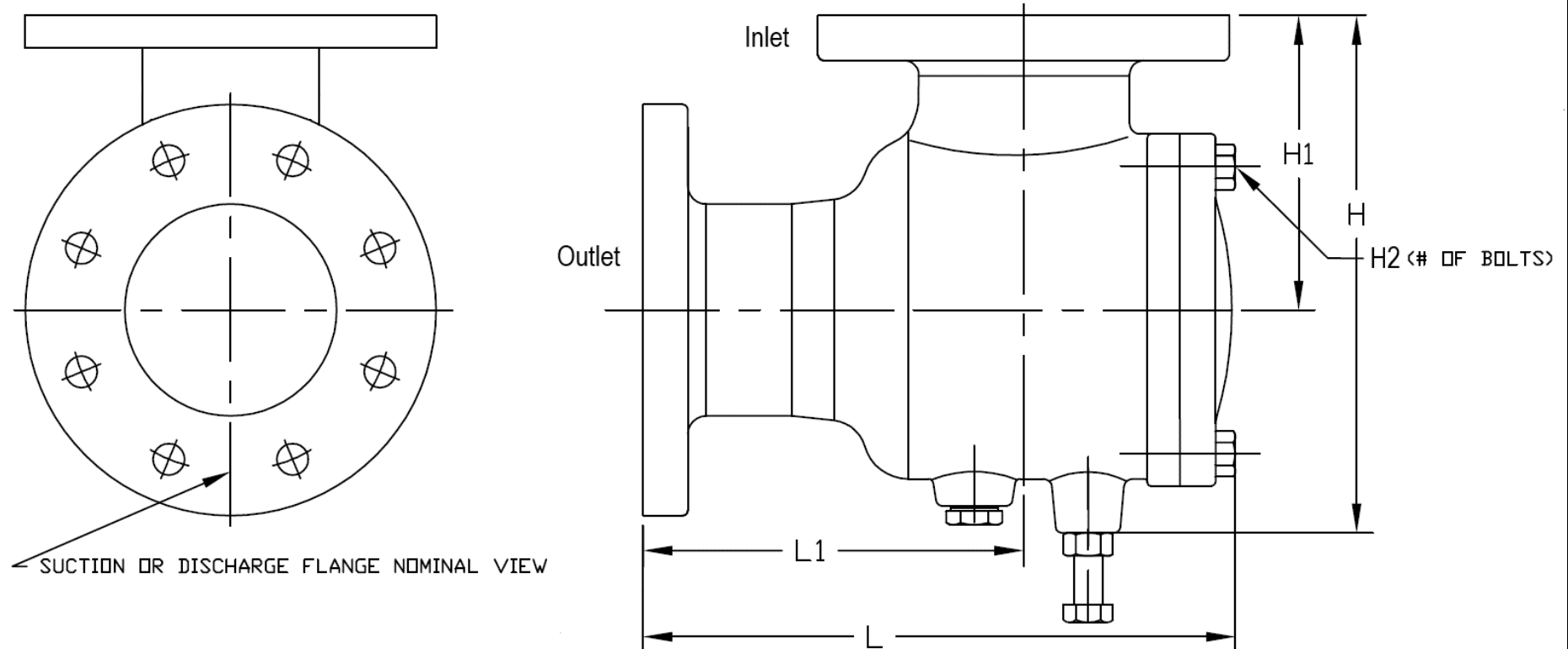
Project name	: Stone Bank	Tag Number	: CP-3
Consulting engineer	:	Service	:
Customer	: FLUID SOLUTIONS INC	Model	: SD3025-125
Customer ref. / PO	:	Quantity	: 1
Quote Number / ID	: 030524A	Quoted By (Sales Office)	: FLUID SOLUTIONS INC
Date last saved	: 03/05/2024 2:58 PM	Quoted By (Sales Engineer)	: James Dayer

Construction				Grundfos Suction Diffusers	
Nozzle	Size (in.)	Nozzle Configuration	Pos'n		
Inlet	3	-	Top		
Outlet	2.5	-	Side		
Difuser Body		: Cast Iron, ASTM-A126, CL B			
Hardware		: Steel, ASTM A-283C			
Internal Magnet		: -			
Strainer		: SS 304, ASTM-A240, 3.5MM Holes			
Mesh Grid (Startup strainer)		: SS 304, ASTM-A240, (#20 Mesh)			
Strainer Cover		: Cast Iron, ASTM-A126, CL B			
O Rings		: EPDM			
Coating		: Standard Manufacturers Paint			
Construction Code/Part Number		: 97523150			
Weights (Approx.)					
Estimated Shipping gross weight		: 39.00 lb			
Description					
Grundfos Series SD, Suction diffuser provides and ensures a uniform flow pattern to the suction side of the pump ensuring a stable NPSH. Suction diffuser makes it possible to install the pump in a very narrow spacing as no long bends are necessary. The suction diffuser incorporates a cylindrical strainer preventing impurities from entering the pump. Additional feature includes an adjustable support for mounting. -					

General Arrangement

Project name : Stone Bank
 Consulting engineer :
 Customer :
 Customer ref. / PO :
 Quote Number / ID : 030524A
 Date last saved : 03/05/2024 2:58 PM

Tag Number : CP-3
 Service :
 Model : SD3025-125
 Quantity of pumps : 1
 Quoted By (Sales Office) : FLUID SOLUTIONS INC
 Quoted By (Sales Engineer) : James Dayer

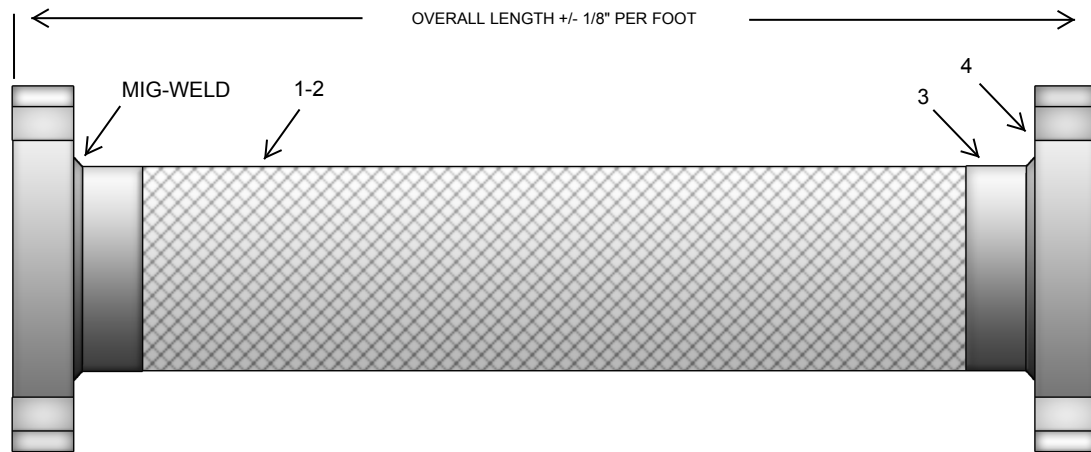


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Units	Inlet (in)	Outlet (in)	Strainer Area (sq in)	L (in)	L1 (in)	H1 (in)	H (in)	H2 (qty)	Weight (lbs)
inches	3	2.5	40	11.10	7.10	5.60	9.60	4.00	39

CP-1, 2, 3 Pump Connectors

TCHS - FLG



MATERIALS

- #1-2 HOSE: T-321 STAINLESS STEEL HOSE 1-LAYER T-304 BRAID
- #3 BRAID BAND: T-304 STAINLESS STEEL
- #4 END FITTING: CARBON STEEL PLATE FLANGES 150# DRILL

QTY	MODEL NUMBER	SIZE	OAL	MAX O.D.	WRK. PSIG	MAX TEST	@ TEMP.	LATERAL OFFSET	WT. LBS.
	TCHS-150-FLG	1 ½"	9"	1.91"	370	555	70° F	1/16"	7
	TCHS-200-FLG	2"	9"	2.46"	370	555	70° F	1/16"	9
	TCHS-250-FLG	2 ½"	9"	3.45"	400	600	70° F	1/16"	12
2	TCHS-300-FLG	3"	9"	4.01"	288	431	70° F	1/16"	13
	TCHS-400-FLG	4"	9"	5.03"	250	375	70° F	1/16"	18
	TCHS-500-FLG	5"	11"	6.10"	200	300	70° F	1/16"	25
	TCHS-600-FLG	6"	11"	7.15"	220	330	70° F	1/16"	28
	TCHS-800-FLG	8"	12"	9.44"	215	323	70° F	1/16"	52
	TCHS-1000-FLG	10"	13"	11.49"	200	350	70° F	1/16"	65
	TCHS-1200-FLG	12"	14"	13.51"	160	240	70° F	1/16"	105
	TCHS-1400-FLG	14"	14"	15.67"	150	225	70° F	1/16"	115
	TCHS-1600-FLG	16"	14"	17.31"	110	165	70° F	1/16"	235

TEMPERATURE DERATING FACTORS: MULTIPLY X WRK. PSIG

200° F	250° F	300° F	350° F	400° F	500° F	600° F	700° F		
0.94	0.92	0.88	0.86	0.83	0.78	0.74	0.7		

DRAWN BY:

DRAWING NUMBER:

REV:

SIGNATURE:

DATE:

PO NUMBER:

PROJECT:

CUSTOMER:

NOTES: