



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: 4/9/2024

Return Request: 4/19/2024

Project: LRAFB – Dorm 854 Renovation

Supplier: Boone & Boone

Manufacturer: Various

Submittal: Pumps

Submittal Number: 23 21 23-01

Drawing # and Installation: Mechanical Drawings

ARCHITECT

ENGINEER

EECI
10 Corporate Hill Dr. Suite 100
Little Rock, AR 72205
501-244-0511

GENERAL CONTRACTOR

HGL Construction
P.O. Box 1035
Jacksonville, AR 72099
501-983-1160

MECHANICAL SUBCONTRACTOR

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

Notes:

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CSUSA PROJECT NO.

24-7031

joseph@comfortar.com

9924 Landers Rd.
No. Little Rock, AR 72117

Job/Project: Repair (SUS) Airmen Dormitory Bldg 854		Representative: Boone & Boone Sales Co., Inc.	
ESP-Systemwize: WIZE-DF707DDD	Created On: 03/18/2024	Phone: (501) 940-7747	
Location/Tag: HWP-1		Email: marke@2boonesales.com	
Engineer: EECI		Submitted By: Mark Eley	Date: 3/18/2024
Contractor: Comfort Systems USA		Approved By:	Date:

Close Coupled End Suction Pump

Series: e-1531

Model: 1.5BC

Features & Design

- "Best in Class" hydraulic performance
- Best choice for lowest life cycle cost
- Internally self-flushing mechanical seals
- Hydrostatic testing of each pump standard



*The Bell & Gossett Series e-1531 is available in 18 sizes and a variety of configuration options that enable customization and flexibility to fit a broad range of operating conditions.

<http://bellgossett.com/pumps-circulators/end-suction-pumps/e-1531/>

Pump Selection Summary

Duty Point Flow	75.0 US gpm
Duty Point Head	80.0 ft
Control Head	0.0 ft
Duty Point Pump Efficiency	56.7 %
Part Load Efficiency Value (PLEV)	0.0 %
Impeller Diameter	8.5 in
Motor Power	5 hp
Duty Point Power	2.7 bhp
Motor Speed	1800 rpm
RPM @ Duty Point	1750 rpm
NPSHr	5.63 ft
Minimum Shutoff Head	84.3 ft
Minimum Flow at RPM	21 US gpm
Flow @ BEP	105 US gpm
Fluid Temperature	68 °F
Fluid Type	Water
Weight (approx. - consult rep for exact)	155 lbs
Pump Floor Space Calculation	1.69 ft²

Performance Curve

Energy Efficiency Ratings:

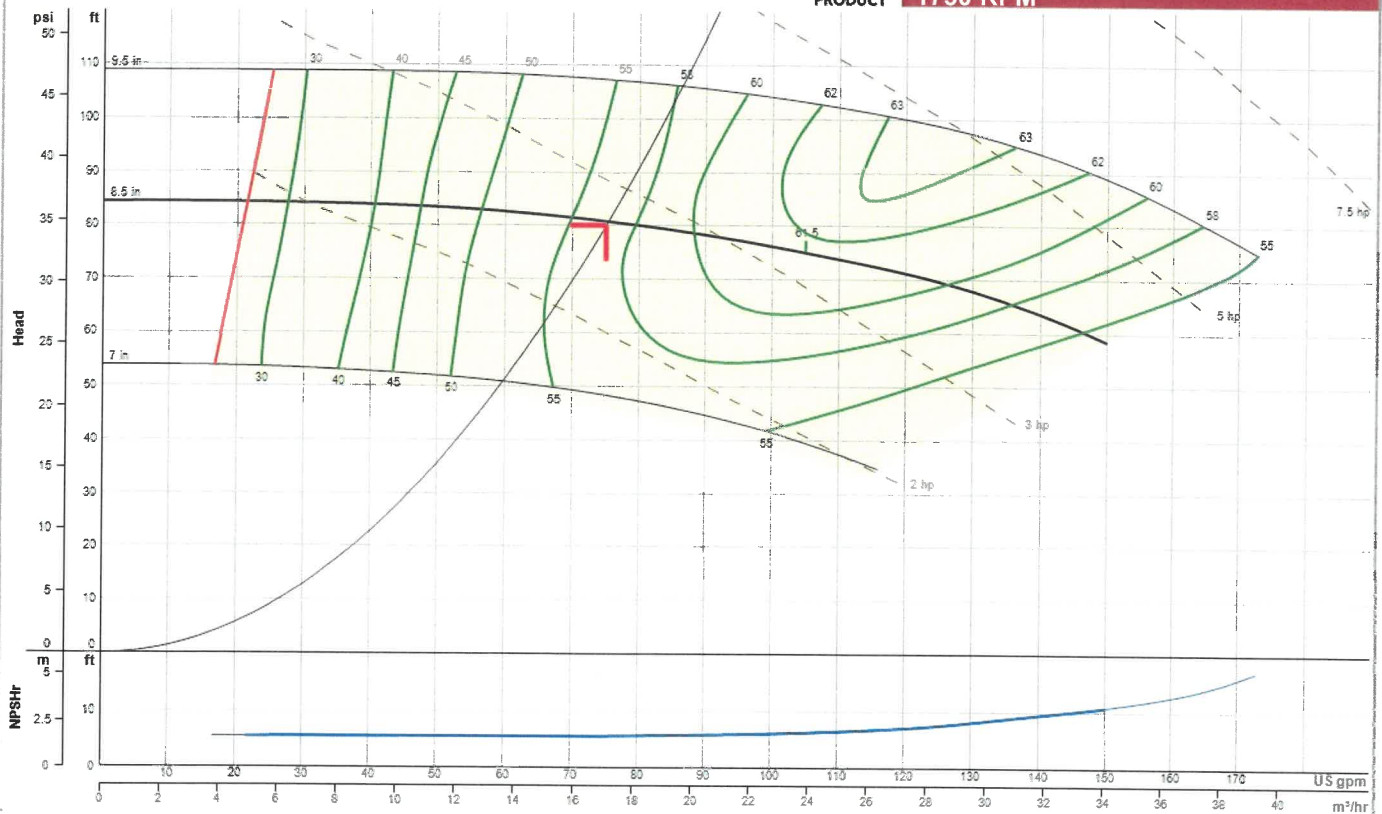
Pump & Motor PEIcl: 0.83 ERcl: 17
Pump, Motor & Drive: PEIvl: 0.42 ERvl: 58



e-1531

1.5BC

1750 RPM



Performance curve meets 14.6 / ISO 9906 acceptance criteria

Materials Of Construction

Pump Information\Construction	
Pump Series	e-1531
Pump Size	1.5 BC
Seal Type	Standard Seal
Seal Material	STD-Buna/Carbon/Ceramic/SS/Bronze
Material of Construction	Stainless Steel
Impeller Diameter	8.5 inches
Sleeve Material	Stainless Steel Sleeve

VFD Details	
VFD_Nema	None
Variable_Speed	1750

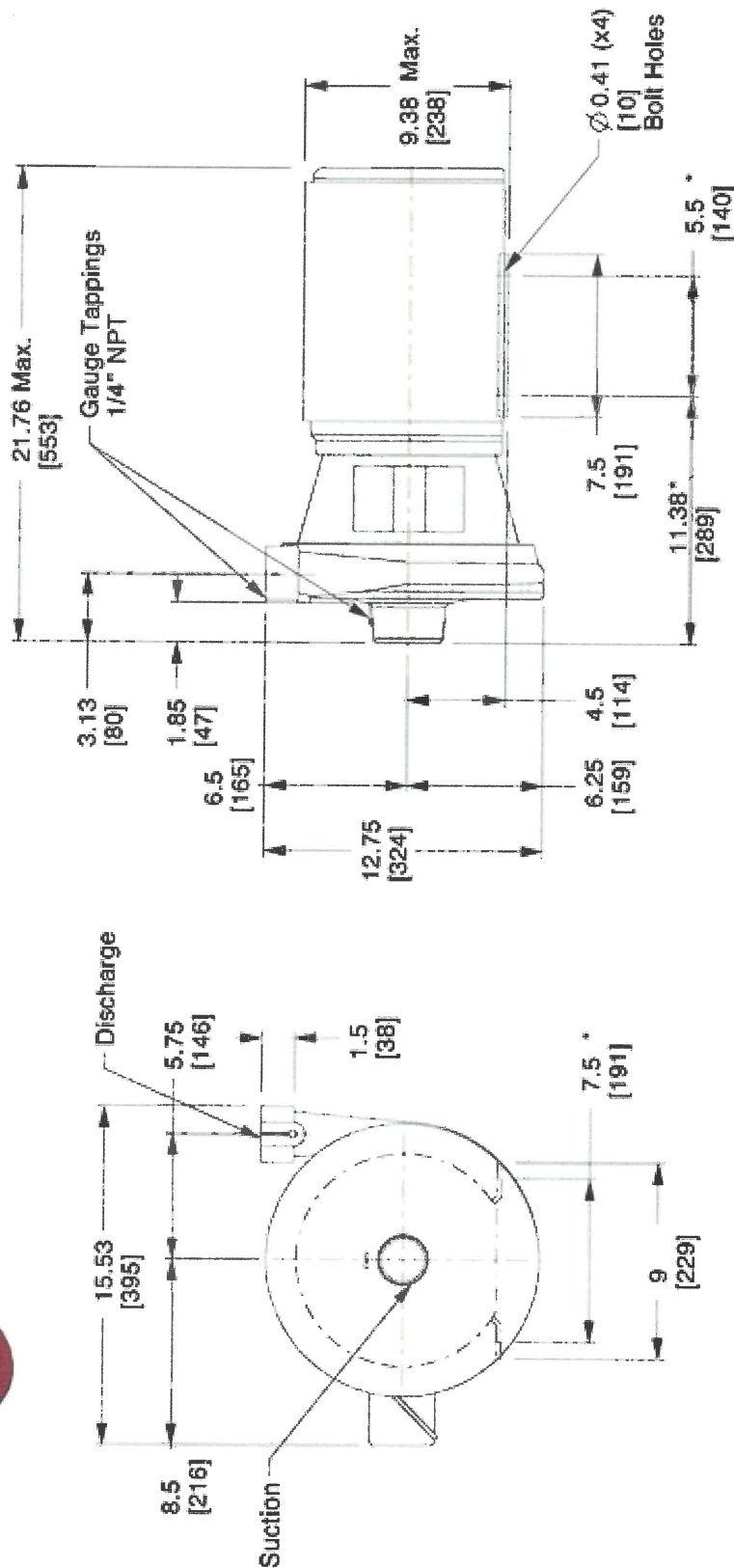
Motor Details	
Motor Power	5
Motor Speed	1800
Frequency	60
Phase	3
Voltage	200
Frame	184JM
Enclosure	ODP
Motor Manufacturer	Baldor
Motor Status	MO
Motor Comments	Nema Premium Efficient

Selected Options	
Selected Option 1	Volute Wear Ring



1.5 NPT DISCHARGE DETAILS

2 NPT SUCTION DETAILS



* Dist. Between Bolt Holes



8200 N. Austin Ave.
Morton Grove, IL 60053, USA

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Dimensions are subject to change

Not to be used for construction unless certified

BG-E1531-150BC-184-SS

Series e-1531 Close-Coupled Centrifugal Pumps

Motor Frame : 184JM | Seal Type : Standard Seal

Dimensions : IN (mm)

Scale : N.T.S.

Submittal # : B-883.16

Standard Materials of Construction *contact your local rep for optional ES Bearing Frame

Construction:	Stainless Steel Fitted
1 Shaft:	Carbon Steel Grade per Motor Manufacturer
2 Volute:	Cast Iron ASTM A48 Class 30B
3 Impeller:	ASTM A743 Grade CF8 - 304 Stainless Steel
4 Shaft Sleeve:	ASTM 312 Grade TP304 - 304 Stainless Steel
5 Impeller Key:	#304 Stainless Steel
6 Impeller Washer:	Steel
7 Impeller Lock Washer:	#304 Stainless Steel
8 Impeller Cap Screw:	#304 Stainless Steel
9 Volute Gasket:	Cellulose Fiber

Pump Options *contact your local rep to configure

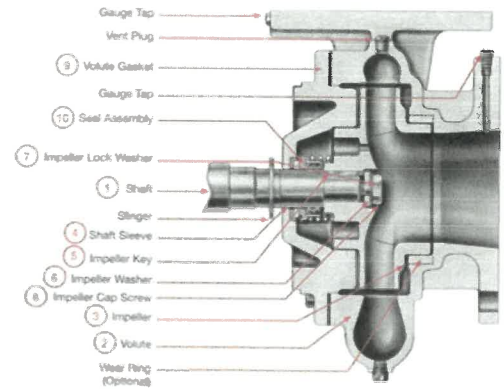
Stainless Steel Volute Wear Ring	Stuffing Box Configuration
External Flush Line	Epoxy Coated Internal Cast Iron Components
Certified Performance Tests (Per HI Standard 14.6)	Special Impeller Balancing (ISO 1940 G2.5 or G1.0)

10 Standard Mechanical Seal Assembly

Elastomer:	Buna
Rotating Face:	Carbon
Stationary Face:	Ceramic
Hardware	Stainless Steel/Brass

Maximum Working Pressure

Max Working Pressure (standard) 175 psi (12 bar) W..P.



Job/Project: Repair (SUS) Airmen Dormitory Bldg 854	Representative: Boone & Boone Sales Co., Inc.	
ESP-Systemwize: WIZE-DF707DDD	Created On: 03/18/2024	Phone: (501) 940-7747
Location/Tag: SWP-1 CHP-1	Email: marke@2boonesales.com	
Engineer: EECI	Submitted By: Mark Eley	Date: 3/18/2024
Contractor: Comfort Systems USA	Approved By:	Date:

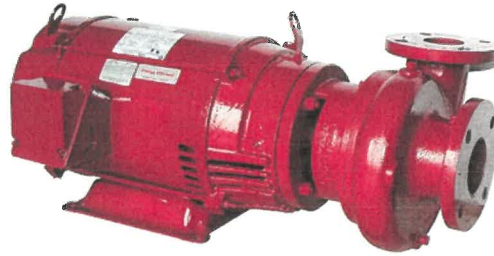
Close Coupled End Suction Pump

Series: e-1531

Model: 2BD

Features & Design

- "Best in Class" hydraulic performance
- Best choice for lowest life cycle cost
- Internally self-flushing mechanical seals
- Hydrostatic testing of each pump standard



*The Bell & Gossett Series e-1531 is available in 18 sizes and a variety of configuration options that enable customization and flexibility to fit a broad range of operating conditions.

<http://bellgossett.com/pumps/circulators/end-suction-pumps/e-1531/>

Pump Selection Summary

Duty Point Flow	200.0 US gpm
Duty Point Head	75.0 ft
Control Head	0.0 ft
Duty Point Pump Efficiency	74.8 %
Part Load Efficiency Value (PLEV)	0.0 %
Impeller Diameter	9.125 in
Motor Power	7.5 hp
Duty Point Power	5.13 bhp
Motor Speed	1800 rpm
RPM @ Duty Point	1750 rpm
NPSHr	5.54 ft
Minimum Shutoff Head	91.1 ft
Minimum Flow at RPM	38.7 US gpm
Flow @ BEP	193 US gpm
Fluid Temperature	68 °F
Fluid Type	Water
Weight (approx. - consult rep for exact)	230 lbs
Pump Floor Space Calculation	2.16 ft²

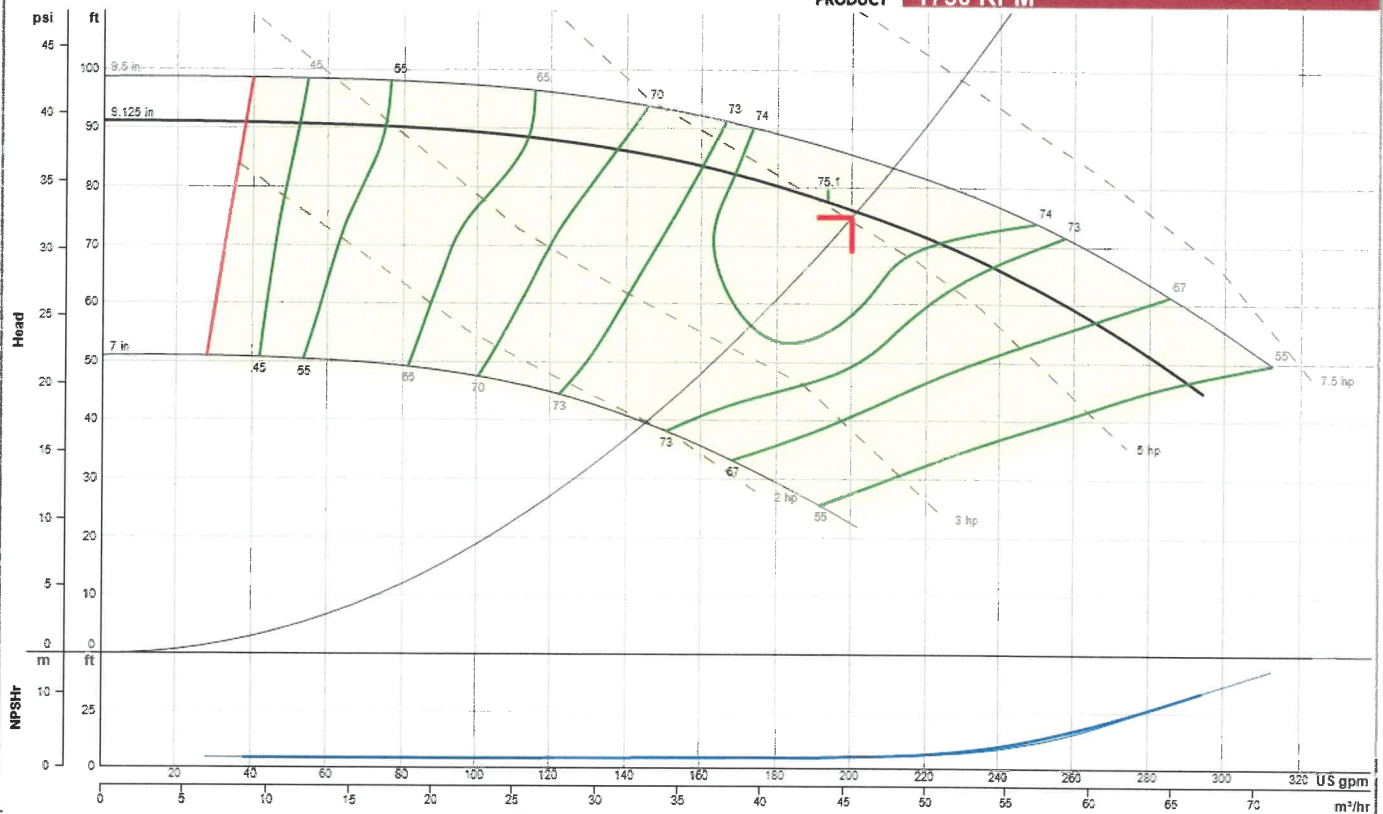
Performance Curve

Energy Efficiency Ratings:

Pump & Motor PEIcl: 0.86 ERcl: 14
Pump, Motor & Drive: PEIvl: 0.43 ERvl: 57

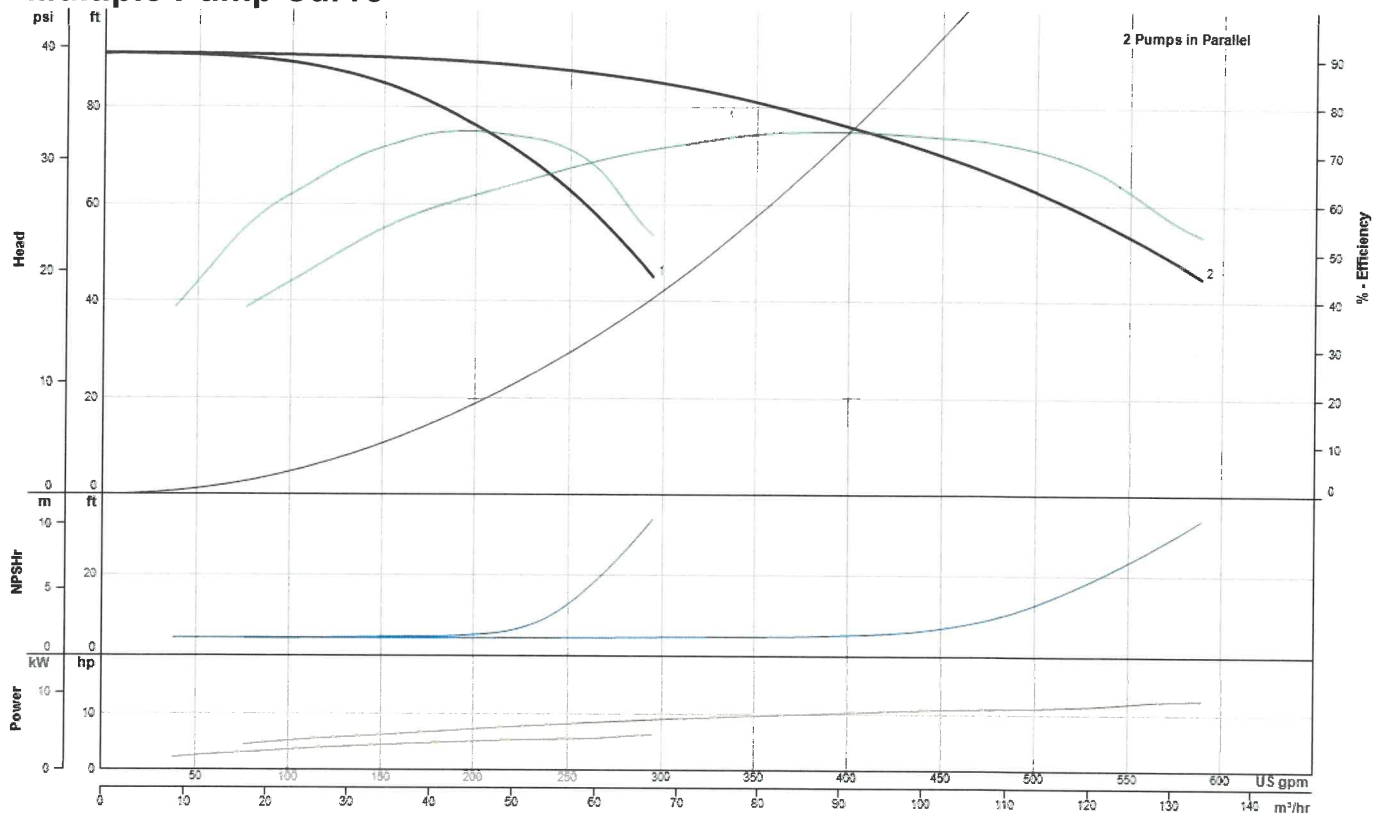


e-1531
2BD
1750 RPM



Performance curve meets 14.6 / ISO 9906 acceptance criteria

Multiple Pump Curve



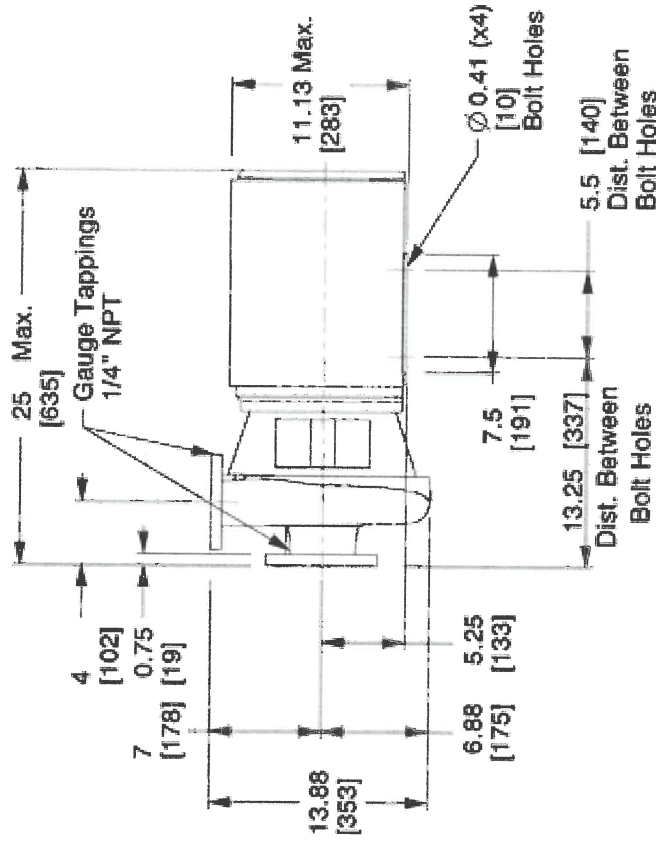
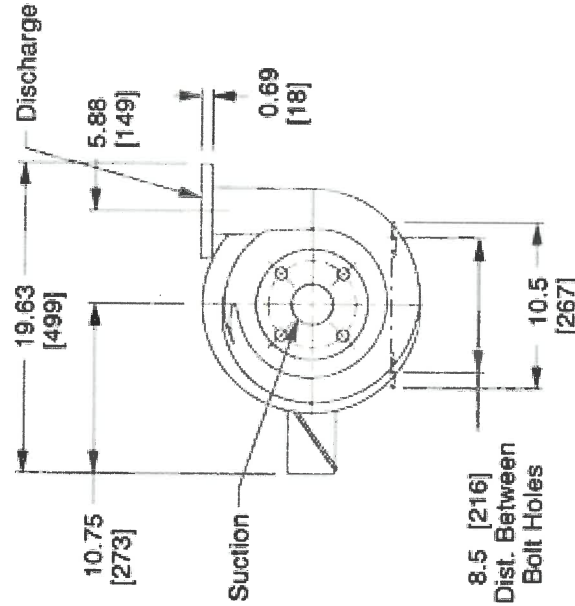
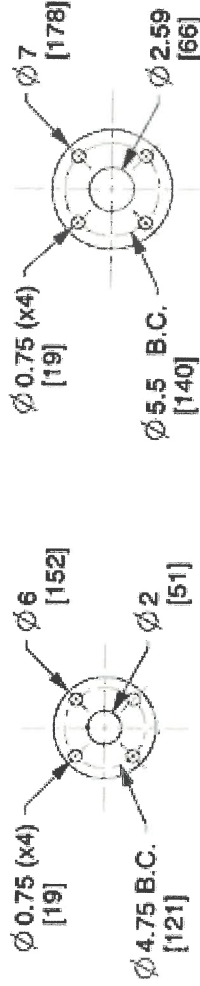
Materials Of Construction

Pump Information\Construction	
Pump Series	e-1531
Pump Size	2 BD
Seal Type	Standard Seal
Seal Material	STD-Buna/Carbon/Ceramic/SS/Bronze
Material of Construction	Stainless Steel
Impeller Diameter	9.125 inches
Sleeve Material	Stainless Steel Sleeve

VFD Details	
VFD_Nema	None
Variable_Speed	1750

Motor Details	
Motor Power	7.5
Motor Speed	1800
Frequency	60
Phase	3
Voltage	200
Frame	213JM
Enclosure	ODP
Motor Manufacturer	Baldor
Motor Status	MO
Motor Comments	Nema Premium Efficient

Selected Options	
Selected Option 1	Volute Wear Ring



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Dimensions are subject to change

Not to be used for construction unless certified

BG-E1531-200BD-213-SS

Series e-1531 Close-Coupled Centrifugal Pumps

Motor Frame : 213JM | Seal Type : Standard Seal | Flange : ANSI 125#

Dimensions : IN (mm)

Scale : N.T.S.

Subinitial # : B-883.18

Standard Materials of Construction *contact your local rep for optional ES Bearing Frame

Construction:	Stainless Steel Fitted
1 Shaft:	Carbon Steel Grade per Motor Manufacturer
2 Volute:	Cast Iron ASTM A48 Class 30B
3 Impeller:	ASTM A743 Grade CF8 - 304 Stainless Steel
4 Shaft Sleeve:	ASTM 312 Grade TP304 - 304 Stainless Steel
5 Impeller Key:	#304 Stainless Steel
6 Impeller Washer:	Steel
7 Impeller Lock Washer:	#304 Stainless Steel
8 Impeller Cap Screw:	#304 Stainless Steel
9 Volute Gasket:	Cellulose Fiber

Pump Options *contact your local rep to configure

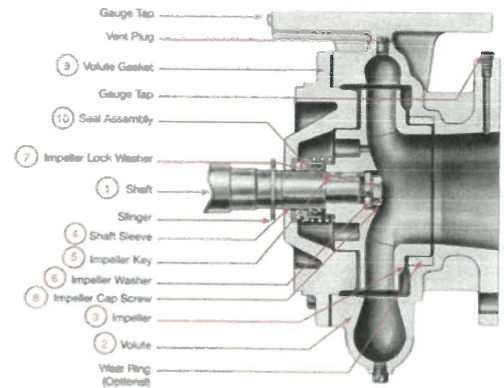
Stainless Steel Volute Wear Ring	Stuffing Box Configuration
External Flush Line	Epoxy Coated Internal Cast Iron Components
Certified Performance Tests (Per HI Standard 14.6)	Special Impeller Balancing (ISO 1940 G2.5 or G1.0)

10 Standard Mechanical Seal Assembly

Elastomer:	Buna
Rotating Face:	Carbon
Stationary Face:	Ceramic
Hardware	Stainless Steel/Brass

Maximum Working Pressure

Max Working Pressure (standard) 175 psi (12 bar) W..P.





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Submittal

Job/Project: Repair (SUS) Airmen Dormitory Bldg 854		Representative: Boone & Boone Sales CO., Inc.	
ESP-Systemwize: WIZE-DF707DDD	03/18/2024	Phone: (501) 940-7747	
Location/Tag: HWP-1		Email: marke@2boonesales.com	
Engineer: EECI		Submitted By: Mark Eley	Date: 3/18/2024
Contractor: Comfort Systems USA		Approved By:	Date:

Suction Diffuser Plus

Bell & Gossett Model: CB-3X

The Bell & Gossett Suction Diffuser Plus is designed for direct application to the pump suction and provides ideal flow conditions for the pump, providing NPSH requirements are met. Its integrated Flow Cone directs flow through the unit and into the pump suction while working with the full length straightening vanes to create a more uniform flow profile. The orifice cylinder has a free area equal to five times the cross section of the pump suction opening and serves as a coarse strainer to protect the pump from large sediment. Type X-For Closed Systems

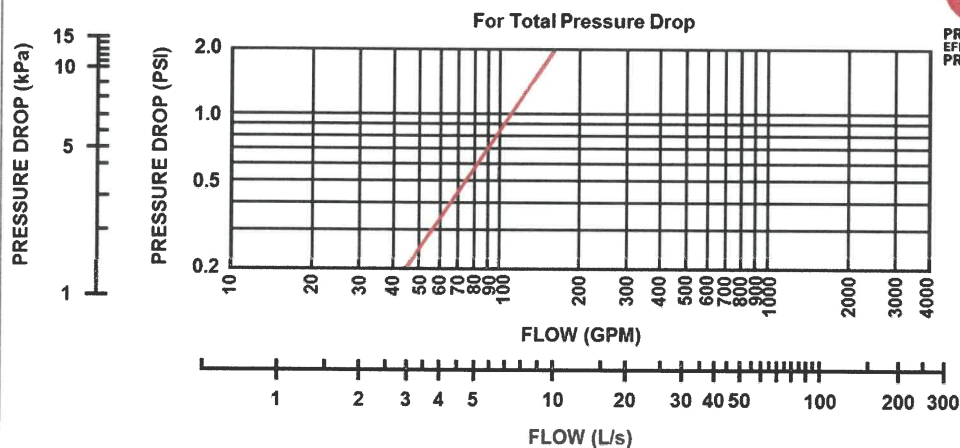
http://bellgossett.com/hydronic_plumbing_accessories/pump_accessories/suction_diffuser/



Suction Diffuser Selection

Model	CB-3X
System Size	2.5 in
Pump Size	2.0 in
Pressure Drop @ Design Flow	1.13'
Connection Type	NPT/NPT
Cv	107
Fluid Type	Water
Fluid Temp	68 °F

Performance characteristics:



CB-3X

Materials of construction

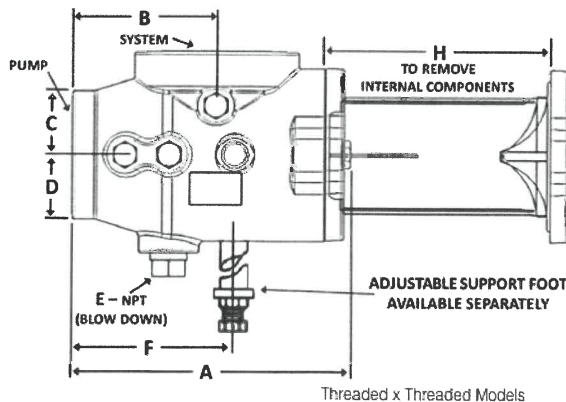
Body	Cast Iron
Inlet Vanes	Steel
Orifice Cylinder	Steel
Start-up Strainer	16 Mesh Bronze

Operating Data

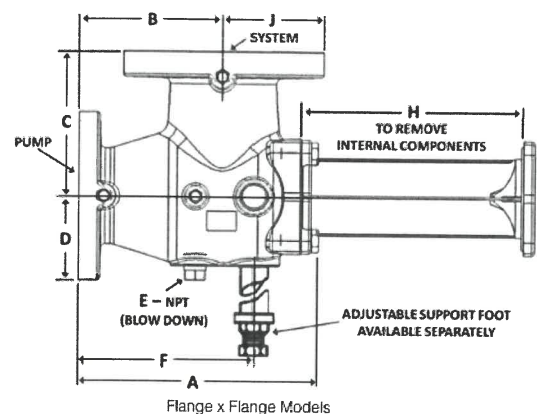
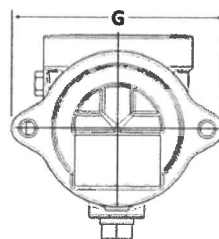
Max Working Pressure	175 psi
Max Temp	250°F

Dimensional data:

not for construction



Threaded x Threaded Models



Flange x Flange Models

*Dimensions include orifice cylinder + 2-1/2 (64) inch clearance.

DIMENSIONS - INCHES (mm)

Model No.	System Side		Pump Side		A	B	C	D	E	F	G	H	J	Orifice Cylinder Free Area in ² (cm ²)	Approx. Shpg. Wt. Lbs. (Kg)
CB-3	2-1/2 (63.5)	T	2 (63.5)	T	7.56 (192)	3.87 (98)	2.75 (70)	2.75 (70)	3/4 (19)	4.38 (111)	5.75 (146)	6.75 (171.5)	N/A	20-1/2 (132)	16 (7)



Bell & Gossett
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Submittal

Job/Project: Repair (SUS) Airmen Dormitory Bldg 854		Representative: Boone & Boone Sales CO., Inc.	
ESP-Systemwize: WIZE-DF707DDD	03/18/2024	Phone: (501) 940-7747	
Location/Tag: SWP-1 CHP-1		Email: marke@2boonesales.com	
Engineer: EECI		Submitted By: Mark Eley	Date: 3/18/2024
Contractor: Comfort Systems USA		Approved By:	Date:

Suction Diffuser Plus

Bell & Gossett Model: EC-3X

The Bell & Gossett Suction Diffuser Plus is designed for direct application to the pump suction and provides ideal flow conditions for the pump, providing NPSH requirements are met. Its integrated Flow Cone directs flow through the unit and into the pump suction while working with the full length straightening vanes to create a more uniform flow profile. The orifice cylinder has a free area equal to five times the cross section of the pump suction opening and serves as a coarse strainer to protect the pump from large sediment. Type X-For Closed Systems

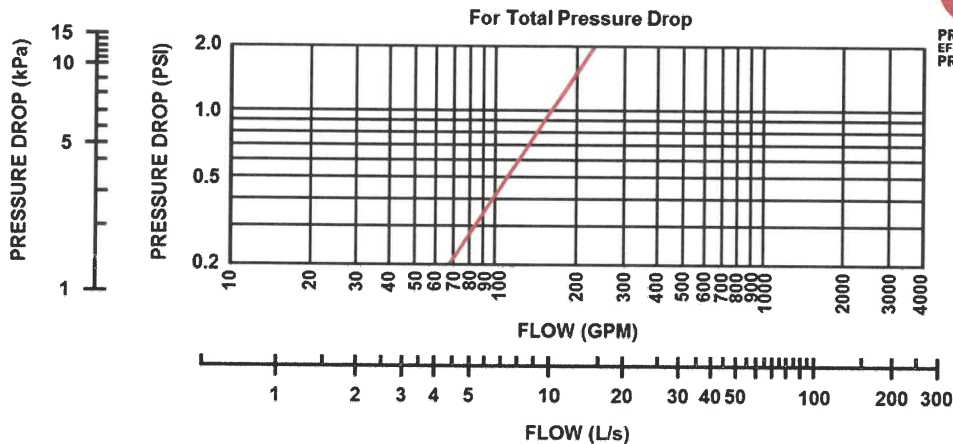
<http://bellgossett.com/hydraulic-plumbing-accessories/pump-accessories/suction-diffuser/>



Suction Diffuser Selection

Model	EC-3X
System Size	4.0 in
Pump Size	2.5 in
Pressure Drop @ Design Flow	0.0'
Connection Type	Flanged/Flanged
Cv	155
Fluid Type	Water
Fluid Temp	68 °F

Performance characteristics:



EC-3X

Materials of construction

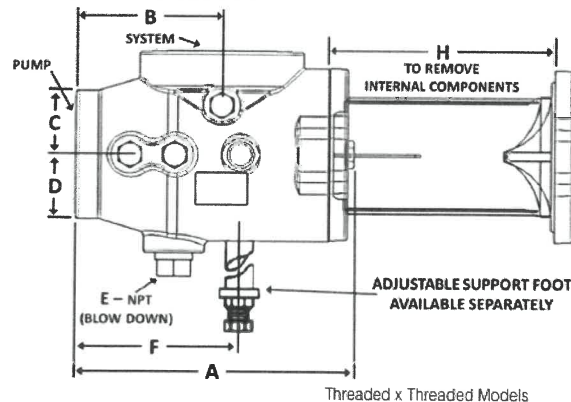
Body	Cast Iron
Inlet Vanes	Steel
Orifice Cylinder	Steel
Start-up Strainer	16 Mesh Bronze

Operating Data

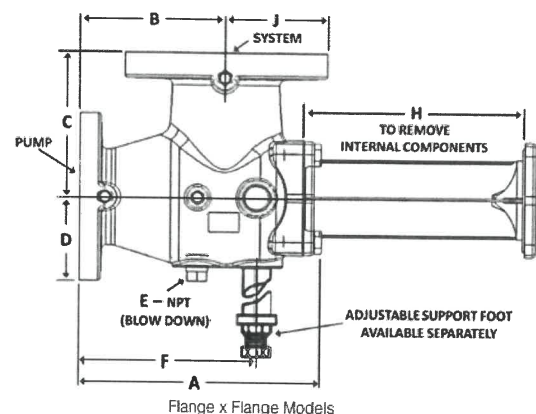
Max Working Pressure	175 psi
Max Temp	250°F

Dimensional data:

not for construction



Threaded x Threaded Models



Flange x Flange Models

DIMENSIONS - INCHES (mm)

Model No.	System Side	Pump Side	A	B	C	D	E	F	G	H	J	Orifice Cylinder Free Area in ² (cm ²)	Approx. Shpg. Wt. Lbs. (Kg)
EC-3	4 (101.6)	F 2-1/2 (63.5)	F 11 (279)	6.50 (165)	6.50 (165)	3.50 (95)	3/4 (19)	5.77 (147)	N/A	7.63 (193.7)	4.50 (114)	26 (168)	42 (19)