JOHNSON BARROW

City of Puyallup Building ACCEPTED
JMontgomery
03/13/2024
2:56:41 PM

PRMH20240371

EQUIPMENT SUBMITTAL

549 S Dawson Street, Seattle, WA 98108
(206) 284-1476

Project Name:	PHS Pool 2402-0254	**Date:**	02/14/2024
From:	Tiffany Smith	**To:**	McKinstry
Contact Info:	206-718-6558	**Attention:**	Scott Woodfield

General Notes:

- This submittal is for approval. Approval is **required** in order for equipment to be released for fabrication.

The following are important notes related to the terms related to the sale of items within this submittal, please review.

- The equipment within this submittal will be shipped in consolidated shipments. Breaking apart equipment into multiple shipments with multiple delivery dates may result in additional freight costs if this schedule was not already communicated to Johnson Barrow and agreed upon prior to release.
- Equipment production can only be estimated within a factory window, and a specific delivery date may not be able to be guaranteed or communicated until equipment is ready for shipment or has shipped. Additionally, specific onsite delivery times cannot be guaranteed as freight companies will only provide a date, not a guaranteed time during that day. For projects where very tight time delivery windows are required, Johnson Barrow suggests that equipment storage be coordinated so equipment arrival to the jobsite can be more closely and accurately managed. If this is required, please contact us and we can assist with pricing this project based on required logistics.
- Unless otherwise coordinated, all equipment of the same type or manufacturer should be ready for start-up at one time. If a more staggered start-up schedule is required, with many technician on site dates required, please let us know. There may be additional costs incurred to do so.
- Any lead times provided are an estimate based on current factory loading and are subject to change. Lead times quoted are based on having a PO in hand, submittals complete, approved, returned and equipment officially released. Note that factory shipping delays due to supply chain related or other production issues are not the responsibility of Johnson Barrow. We will be diligent about factory schedule, follow up and communication, but will not accept back-charge costs for project delays due to changes in ship date.

Submitted By:

Tiffany Smith
Johnson Barrow Seattle
Direct/Cell: (206) 718-6558
Email: tiffanys@jbarrow.com

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

REVIEWER: J Barksdale
DATE: 02/25/2024

GDM ARCHITECTS • ENGINEERS

NO EXCEPTIONS NOTED	REVISE	REJECTED	APPROVED AS NOTED
☑	☐	☐	☐

RESUBMITTAL REQUIRED NO

THIS REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPTS SHOWN IN THE PLANS AND SPECIFICATIONS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DIMENSIONS, QUANTITIES, AND PERFORMANCE REQUIREMENTS AND SHALL CONFIRM AND CORRELATE THE CRITERIA ON THE JOB SITE PRIOR TO MAKING ANY SUBMISSIONS FOR REVIEW TO THE DESIGN TEAM.REVIEW OF DIMENSIONS, PERFORMANCE CHARACTERISTICS, MATERIALS OF CONTRUCTION, AND THE LIKE WILL NOT SERVE TO RELIEVE THE CONTRACTOR OF CONTRACTUAL RESPONSIBILITY FOR ANY DEVIATION FROM THE CONTRACT REQUIREMENTS UNLESS SPECIFICALLY IDENTIFIED AS A CHANGE ON THE SUBMITTAL.

_____

_____

Sign **Date**

☐ **Approve as Noted** ☐ **Approved with Comments** ☐ **Revise and Resubmit**

FULL SIZED LEDGIBLE COLOR REPORT IS REQUIRED TO BE PROVIDED BY THE PERMITTEE ON SITE FOR ALL INSPECTIONS

SONDEX - Heat Exchanger

Unit Tag(s)	Model	Capacity	Qty.
HE-1	A19A-IG10-32-TKTM61	648,740 BTU	1

- 2 ½" inlet/outlet pipe size (Titanium connections)
- 130 GPM hot side. 80°F Inlet / 70°F Outlet
- 130 GPM cold side. 60°F Inlet / 70°F Outlet
- 150 psi max design pressure
- 532 lbs operating weight
- Titanium plate construction

Unit Tag(s)	Model	Capacity	Qty.
HE-2	A19A-IG10-49-TKTM92	894,920 BTU	1

- 2 ½" inlet/outlet pipe size (Titanium connections)
- 90 GPM hot side. 102°F Inlet / 82°F Outlet
- 180 GPM cold side. 77°F Inlet / 87°F Outlet
- 150 psi max design pressure
- 586 lbs operating weight
- Titanium plate construction

Exclusions:

- Offloading, storage, access, rigging, installation
- Start-up service
- Insulation
- Seismic calculations

PRMH20240371

GHEX

ENGINEERING TOMORROW

AHRI 12.62A

#Quote #E2402019-HE-1-r1

Customer	Johnson Barrow	*Date*	2/8/2024
Project	PHS Pool	*Engineer*	Ed Toll
HEX Type	A19A-IG10-32-TKTM61	*Contact Person*	
Units Connected	1 (Parallel)	*E-mail*	

Calculated Parameters	**Unit**	**Hot Side**	**Cold Side**
Flow Type		CounterCurrent	
Heat Load	BTU/h	648739.57	
Inlet Temperature	°F	80.0	60.0
Outlet Temperature	°F	70.0	70.0
Mass Flow Rate	lb/h	64887.86	64967.51
Volumetric Flow Rate	GPM (US)	130.00	130.00
Total Pressure Drop	psi(g)	9.16	9.37
Fouling Factor	Hrft²°F/KBTU	0.0000	0.0000
Surface Margin	%	0.0	
LMTD	°F	10.0	
HTC (Available/Required)	BTU/ft²·hr·°F	929 / 929	

Properties of Fluid	**Unit**	**Hot Side**	**Cold Side**
Fluid		Water	Water
Liquid Viscosity	cP	0.9133	1.0541
Wall Viscosity	cP	1.0541	0.9133
Liquid Density	lb/ft³	62.23	62.31
Liquid Heat Capacity	BTU/lb·°F	0.9998	1.0007
Liquid Thermal Conductivity	BTU/h·ft·°F	0.3498	0.3444

Specifications		**Unit**	**Hot Side**	**Cold Side**
HEX Type			A19A-IG10-32-TKTM61	
Number of Plates			32	
Grouping			1x15 + 0x0 / 1x16 + 0x0	
Plate Thickness		in	0.0197	
Plate Material / Ratio			Ti / 9%	
Effective Area		ft²	69.75	
Gasket Material			NBRH FDA (HangOn) 5/302 °F	
Frame	*Type*		IG, painted frame	
	Length	ft	1.45	
	Maximum Number of Plates		58	
	Assembly Measurement	in	3.4331	
Volume		ft³	0.29	0.31
Weight, empty/operating		lb	478	515
Paint Category			Category C2L	
Paint Color			BLUE RAL 5010	
Connection	*Inlet*		F1: 2.5 INCH studded end connection Titan ANSI B16.5 #150	F3: 2.5 INCH studded end connection Titan ANSI B16.5 #150
	Outlet		F4: 2.5 INCH studded end connection Titan ANSI B16.5 #150	F2: 2.5 INCH studded end connection Titan ANSI B16.5 #150
Pressure Vessel Code			ASME	
Minimum Design Temperature		°F	33.0	
Maximum Design Temperature		°F	150.0	
Maximum Differential Pressure		psi(g)	150.0	
Maximum Test Pressure		psi(g)	195.0	
Maximum Design Pressure		psi(g)	150.0	150.0

H1.6-1.3.36-beta.2529

This Heat exchanger is certified by the AHRI Liquid to Liquid Heat Exchangers Certification Program, based on AHRI standard 400. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.com

Danfoss A/S, 6000 Kolding, Denmark
Classified as Business
SONDEX®

AHRI CERTIFIED® www.ahridirectory.org
Liquid to Liquid Heat Exchangers
AHRI Standard 400

PRMH20240371

ENGINEERING TOMORROW

AHRI 12.62A

#Quote #E2402019-HE-1-r1

Customer	Johnson Barrow	*Date*	2/8/2024
Project	PHS Pool	*Engineer*	Ed Toll
HEX Type	A19A-IG10-32-TKTM61	*Contact Person*	
		E-mail	
Units Connected	1 (Parallel)		

Items

Category	Product Code	Pcs.	Component		
HEX		1	A19A-IG10-32-TKTM61		
Accessory	189X4088	1	EU Pallet (1200x800)		

LPLNAM

Dual Use: Please check if this is a Dual Use product. For export out of EU, a license is required.

US ECCN 2B350.d: These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.

EU ECCN 2B350.d: The following products are under export control according to EU regulation no 821/2021 setting up a Community Regime Control of Dual-use items and Technology; and may therefore be subject to restrictions if re-exported.

Comments

This offer is made under the express condition that Danfoss Terms and Conditions of Sale ("Terms") apply, unless expressly set out otherwise in this offer. If the Terms are not enclosed hereto, the Terms are included by way of reference and are available at:

http://salesconditions.danfoss.us/

Danfoss may charge you separately for surcharges and fees, such as but not limited to: small orders, freight and handling, express delivery, return and cancellation, provided Danfoss has informed you of such surcharges and fees, e.g. in Danfoss order confirmation, as part of price lists, or as otherwise made available to you.

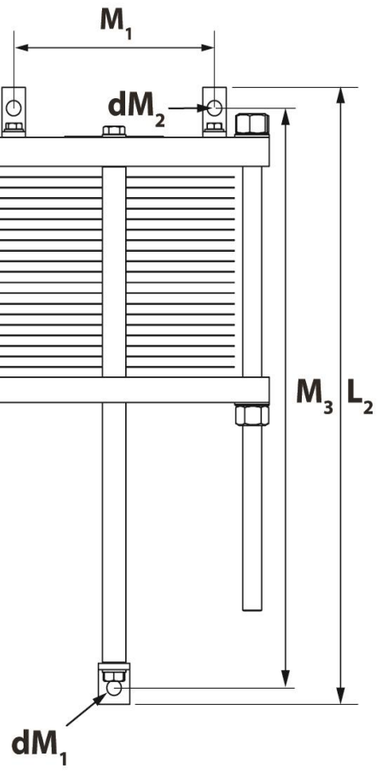
Please verify before confirming the offer the suitability of materials, data and temperature specified. Items not specified in the offer, including without limitation other materials, data, ancillary services, auxiliary materials, installation, erection, or commissioning are not included in the scope of the offer.

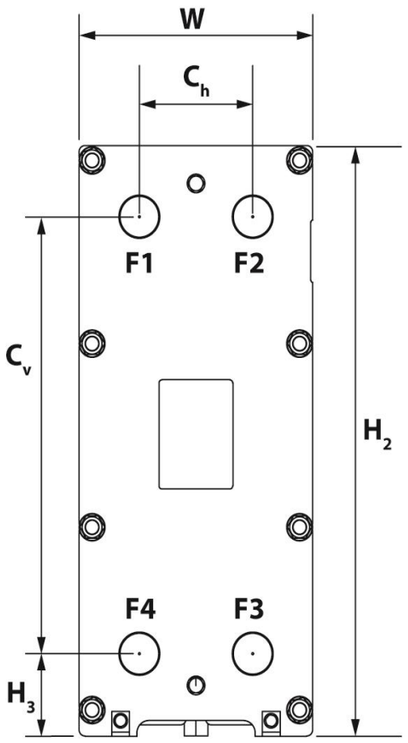
IMPORTANT NOTICE: Danfoss reserves the right to adjust prices for non-delivered Products in the event of changes in rates of exchange, variations in costs of materials, sub-suppliers' price increases, changes in custom duties, changes in wages, changes in freight rates, state requisitions or similar conditions over which Danfoss has no or limited control. Danfoss may charge Customer separately for surcharges and fees, such as but not limited to: small orders, freight and handling, express delivery, return and cancellation, provided Danfoss has informed Customer of such surcharges and fees, e.g. in Danfoss order confirmation, as part of price lists, or as otherwise made available to Customer.

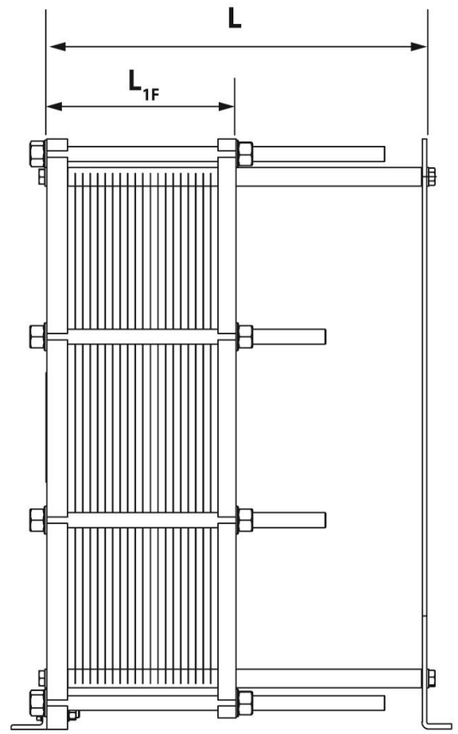
Additionally, without limiting the generality of the foregoing: Due to the ongoing uncertainty and volatility on the raw material market, Danfoss reserves the right to update prices relating to stainless steel and raw other materials if they fluctuate more than +/-5%.

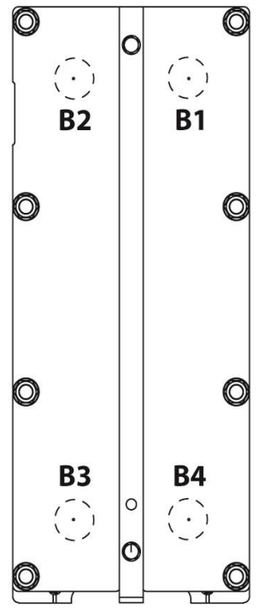
PRMH20240371

HIGH LEVEL SCHEMATIC DRAWING - ONLY FOR ILLUSTRATIVE PURPOSES (VALUES IN TABLE BELOW ARE CORRECT)



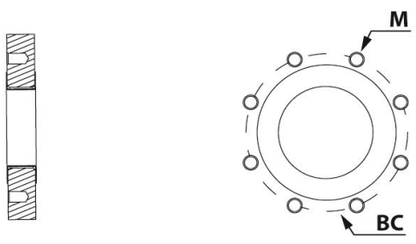






Connections

Hot Side: Inlet F1 / Outlet F4

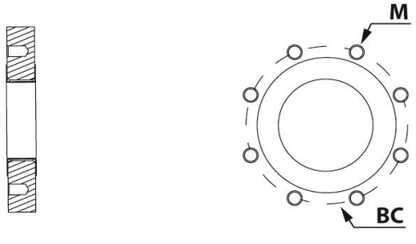


F1: 2.5 INCH studded end connection Titan ANSI B16.5 #150

F4: 2.5 INCH studded end connection Titan ANSI B16.5 #150

M:	5/8
BC:	0.46
No. of bolts:	4

Cold Side: Inlet F3 / Outlet F2



F3: 2.5 INCH studded end connection Titan ANSI B16.5 #150

F2: 2.5 INCH studded end connection Titan ANSI B16.5 #150

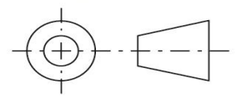
M:	5/8
BC:	0.46
No. of bolts:	4

Dimensions

Cv	27.5591	**L1f**	5.9921
Ch	7.5591	**L**	17.4409
H1		**L2**	21.4567
H2	37.2441	**M1**	10.8268
H3	5.1969	**M2**	
W	15.5512	**M3**	19.6850
dM1/dM2	0.7087 / 0.7087	**M4**	
Tie Bolts	12 pcs. 5/8" (8 Short, 4 Long)		

Data	Hot Side	Cold Side
Inlet Temp.	80.0 [°F]	60.0 [°F]
Outlet Temp.	70.0 [°F]	70.0 [°F]
Flow Rate	130.00 [GPM (US)]	130.00 [GPM (US)]
Pressure Loss	9.16 [psi(g)]	9.37 [psi(g)]
Fluid Media	Water	Water
Heat Load	648739.57 [BTU/h]	
Weight, empty/operating	478 [lb] / 515 [lb]	

US Projection



Danfoss
Nordborgvej 81
6430 Nordborg
Denmark

Tolerances:	acc. to ISO 2768-c
Customer Name:	Johnson Barrow
Calculation Number:	Quote #E2402019-HE-1-r1
Date of quotation:	2/8/2024
Danfoss HEXSelector Version:	AHRI 12.62A
HEX Type:	A19A-IG10
Design Code	ASME
Design Temperature:	150.0 [°F]
Design Pressure:	150.0 [psi(g)]
Test Pressure:	195.0 [psi(g)]

PRMH20240371

GHEX

ENGINEERING TOMORROW

AHRI 12.62A

#Quote #E2402019-HE-2-r1

Customer	Johnson Barrow	*Date*	2/8/2024
Project	PHS Pool	*Engineer*	Ed Toll
HEX Type	A19A-IG10-49-TKTM92	*Contact Person*	
Units Connected	1 (Parallel)	*E-mail*	

Calculated Parameters	**Unit**	**Hot Side**	**Cold Side**
Flow Type		CounterCurrent	
Heat Load	BTU/h	894919.99	
Inlet Temperature	°F	102.0	77.0
Outlet Temperature	°F	82.0	87.0
Mass Flow Rate	lb/h	44805.62	89755.84
Volumetric Flow Rate	GPM (US)	90.00	180.00
Total Pressure Drop	psi(g)	2.72	9.92
Fouling Factor	Hrft²°F/KBTU	0.0000	0.0000
Surface Margin	%	0.0	
LMTD	°F	9.1	
HTC (Available/Required)	BTU/ft²·hr·°F	899 / 899	

Properties of Fluid	**Unit**	**Hot Side**	**Cold Side**
Fluid		Water	Water
Liquid Viscosity	cP	0.7429	0.8393
Wall Viscosity	cP	0.8393	0.7429
Liquid Density	lb/ft³	62.06	62.17
Liquid Heat Capacity	BTU/lb·°F	0.9987	0.9993
Liquid Thermal Conductivity	BTU/h·ft·°F	0.3580	0.3531

Specifications		**Unit**	**Hot Side**	**Cold Side**
HEX Type			A19A-IG10-49-TKTM92	
Number of Plates			49	
Grouping			1x24 + 0x0 / 1x24 + 0x0	
Plate Thickness		in	0.0197	
Plate Material / Ratio			Ti / 12%	
Effective Area		ft²	109.28	
Gasket Material			NBRH FDA (HangOn) 5/302 °F	
Frame	*Type*		IG, painted frame	
	Length	ft	1.78	
	Maximum Number of Plates		78	
	Assembly Measurement	in	5.2569	
Volume		ft³	0.46	0.46
Weight, empty/operating		lb	512	569
Paint Category			Category C2L	
Paint Color			BLUE RAL 5010	
Connection	*Inlet*		F4: 2.5 INCH studded end connection Titan ANSI B16.5 #150	F2: 2.5 INCH studded end connection Titan ANSI B16.5 #150
	Outlet		F1: 2.5 INCH studded end connection Titan ANSI B16.5 #150	F3: 2.5 INCH studded end connection Titan ANSI B16.5 #150
Pressure Vessel Code			ASME	
Minimum Design Temperature		°F	33.0	
Maximum Design Temperature		°F	150.0	
Maximum Differential Pressure		psi(g)	150.0	
Maximum Test Pressure		psi(g)	195.0	
Maximum Design Pressure		psi(g)	150.0	150.0

H1.6-1.3.36-beta.2529

This Heat exchanger is certified by the AHRI Liquid to Liquid Heat Exchangers Certification Program, based on AHRI standard 400. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.com

PRMH20240371

ENGINEERING TOMORROW

AHRI 12.62A

#Quote #E2402019-HE-2-r1

Customer	Johnson Barrow	*Date*	2/8/2024
Project	PHS Pool	*Engineer*	Ed Toll
HEX Type	A19A-IG10-49-TKTM92	*Contact Person*	
		E-mail	
Units Connected	1 (Parallel)		

Items

Category	Product Code	Pcs.	Component		
HEX		1	A19A-IG10-49-TKTM92		
Accessory	189X4088	1	EU Pallet (1200x800)		

LPLNAM

Dual Use: Please check if this is a Dual Use product. For export out of EU, a license is required.

US ECCN 2B350.d: These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.

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Comments

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http://salesconditions.danfoss.us/

Danfoss may charge you separately for surcharges and fees, such as but not limited to: small orders, freight and handling, express delivery, return and cancellation, provided Danfoss has informed you of such surcharges and fees, e.g. in Danfoss order confirmation, as part of price lists, or as otherwise made available to you.

Please verify before confirming the offer the suitability of materials, data and temperature specified. Items not specified in the offer, including without limitation other materials, data, ancillary services, auxiliary materials, installation, erection, or commissioning are not included in the scope of the offer.

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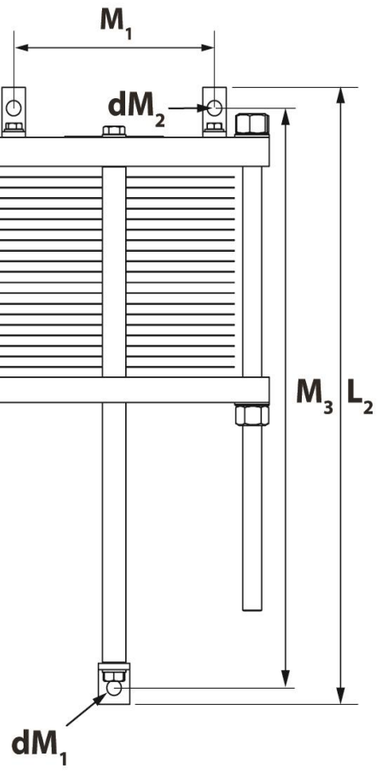
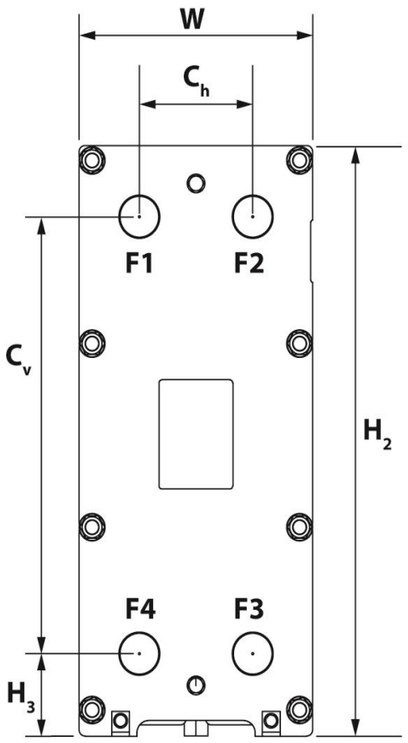
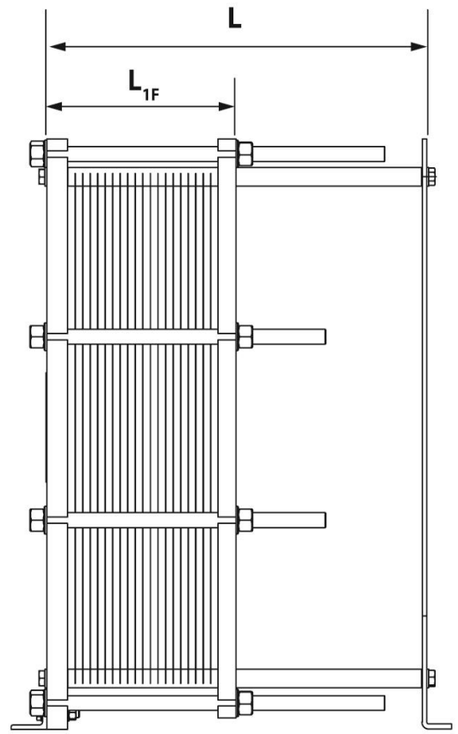
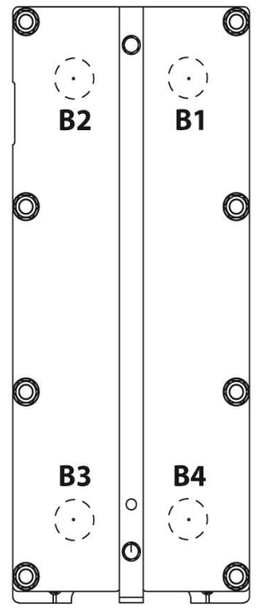


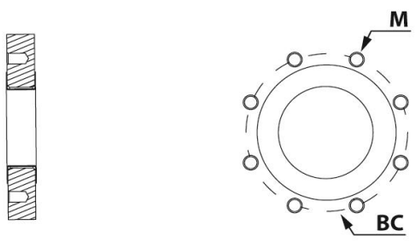






Connections

Hot Side: Inlet F4 / Outlet F1

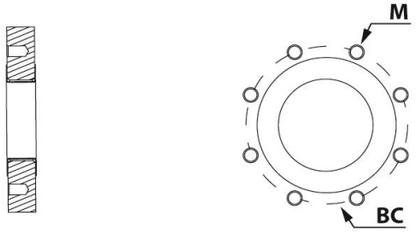


F4: 2.5 INCH studded end connection Titan ANSI B16.5 #150

F1: 2.5 INCH studded end connection Titan ANSI B16.5 #150

M:	5/8
BC:	0.46
No. of bolts:	4

Cold Side: Inlet F2 / Outlet F3



F2: 2.5 INCH studded end connection Titan ANSI B16.5 #150

F3: 2.5 INCH studded end connection Titan ANSI B16.5 #150

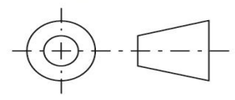
M:	5/8
BC:	0.46
No. of bolts:	4

Dimensions

Cv	27.5591	**L1f**	7.8159
Ch	7.5591	**L**	21.3780
H1		**L2**	25.3937
H2	37.2441	**M1**	10.8268
H3	5.1969	**M2**	
W	15.5512	**M3**	23.6220
dM1/dM2	0.7087 / 0.7087	**M4**	
Tie Bolts	12 pcs. 5/8" (8 Short, 4 Long)		

Data	Hot Side	Cold Side
Inlet Temp.	102.0 [°F]	77.0 [°F]
Outlet Temp.	82.0 [°F]	87.0 [°F]
Flow Rate	90.00 [GPM (US)]	180.00 [GPM (US)]
Pressure Loss	2.72 [psi(g)]	9.92 [psi(g)]
Fluid Media	Water	Water
Heat Load	894919.99 [BTU/h]	
Weight, empty/operating	512 [lb] / 569 [lb]	

US Projection



Nordborgvej 81
6430 Nordborg
Denmark

Tolerances:	acc. to ISO 2768-c
Customer Name:	Johnson Barrow
Calculation Number:	Quote #E2402019-HE-2-r1
Date of quotation:	2/8/2024
Danfoss HEXSelector Version:	AHRI 12.62A
HEX Type:	A19A-IG10
Design Code	ASME
Design Temperature:	150.0 [°F]
Design Pressure:	150.0 [psi(g)]
Test Pressure:	195.0 [psi(g)]