

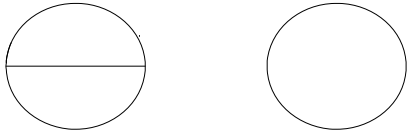
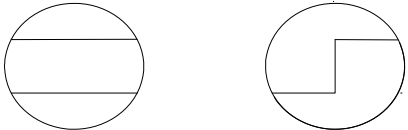
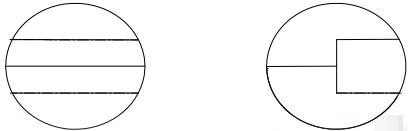
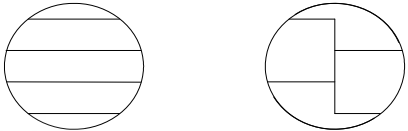
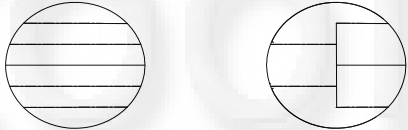
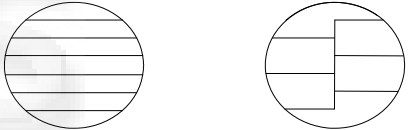
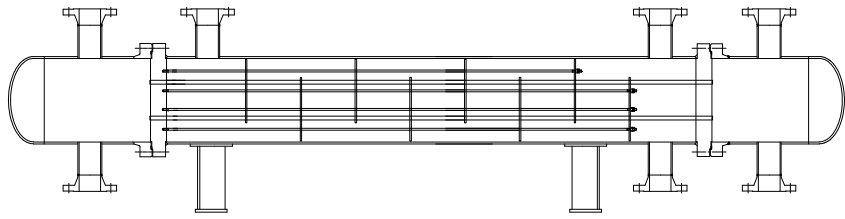
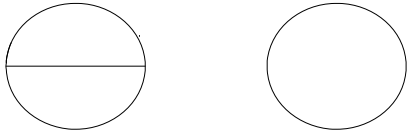
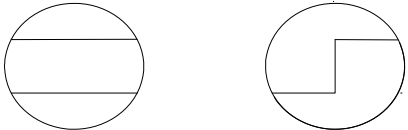
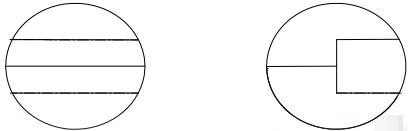
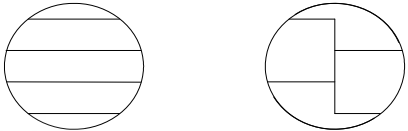
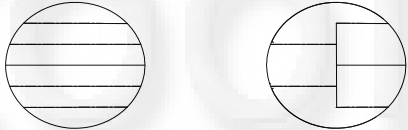
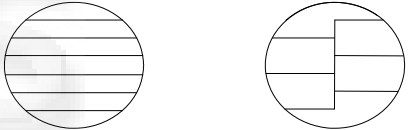
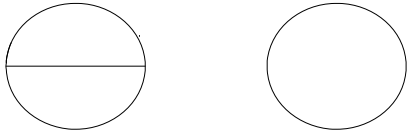
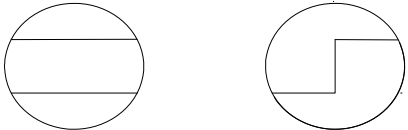
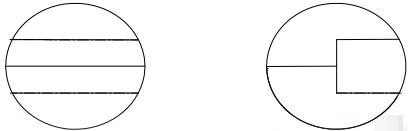
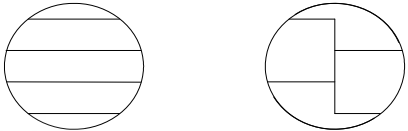
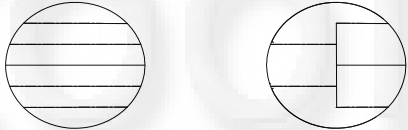
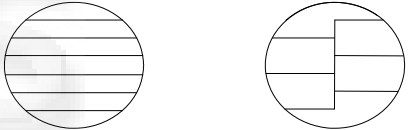
Shell & Tube Heat Exchanger (BEM) Design & Cost Estimation

Version 1.4

Excel Program

PVtools
pvtools.weebly.com

Details

<p>Version : 1.4 Release Date : 16 October, 2021 Software : Excel Size : 1.5 MB Design Type : Mechanical</p> <p>Design Code : ASME Sec. VIII Div. 1 & TEMA TEMA Type : BEM</p> <p>Options : TEMA Class : R and CB HE Position : Vertical and Horizontal Passes : 1, 2, 4, 6, 8, 10, 12 Body Flange : Intergal Ring and Weld Neck Nozzle Flange : Slip On and Weld Neck Tubeheet & Body Flange Cons. : Forge and Plate Material : SS304, SS304L, SS316, SS316L, CS (SA516) and Custom to add</p> <p>Calculations available : Shell Thickness - ASME UG 27 (1) and TEMA R & CB 3.1.3 Dish End Thickness - ASME App. 1-4c and TEMA R & CB 3.1.3 Tubeheet - TEMA RCB 7.132 Body Flange - ASME App. 2 2-7 a) Nozzle - ASME UG 45 Baffle - TEMA R & CB 4.4.1 Tie Rod - TEMA R & CB 4.7.1</p> <p>Output : 1. BOQ with Costing. 2. G.A Drawing (Hori. Pos. Only) in PDF File. Purpose : Pre-Bid/Costing and making fabrication drawing (Drg. not to use for fabrication purpose)</p>	<p style="text-align: center;">PASS PATTERNS</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td data-bbox="955 174 1444 413">  <p>2 PASS</p> </td> <td data-bbox="1444 174 1938 413">  <p>4 PASS</p> </td> </tr> <tr> <td data-bbox="955 413 1444 622">  <p>6 PASS</p> </td> <td data-bbox="1444 413 1938 622">  <p>8 PASS</p> </td> </tr> <tr> <td data-bbox="955 622 1444 830">  <p>10 PASS</p> </td> <td data-bbox="1444 622 1938 830">  <p>12 PASS</p> </td> </tr> </table> <p style="text-align: center;">or</p> 	 <p>2 PASS</p>	 <p>4 PASS</p>	 <p>6 PASS</p>	 <p>8 PASS</p>	 <p>10 PASS</p>	 <p>12 PASS</p>
 <p>2 PASS</p>	 <p>4 PASS</p>						
 <p>6 PASS</p>	 <p>8 PASS</p>						
 <p>10 PASS</p>	 <p>12 PASS</p>						

Screenshots

INPUTS

CALCULATIONS

BODY FLANGE

DRAWING INPUTS

DRAWING

DATABASE

BEM v1.4.xlsx - Excel

ESTIMATE SHEET		Dtd. 18.08.16	EQPT NO. : E-61111B	DESIGN CODE	ASME VIII DIV.1 & TEMA C,B
CLIENT :		HEAT EXCHANGER	DRG NO.	TYPE	BEM HTA 78 m2
TITLE :		HEAT EXCHANGER	ENQUIRY NO. 63	QTY	1

SL. NO.	ITEM	QTY	SIZE	THK	MATERIAL	WT IN KGS	RATE RS/KG	AMOUNT [RS]	LABOUR CHARGES	WT IN KGS	RATE	AMT
1	Tube	357	19.05 OD x 3.66 Mtr.	1.245	SA213 TP316	727.53	515	374677	CS Bundle wt	981	12	11778
2	Tubesheet	2	675 Dia.	36	SA182 F316	206	450	133898	CS Cons wt	981	2	1962.6
3	Baffles	4	550 Dia.	4	SA240 Gr.316	30	200	1.3 7893	CS wt	614	14	8594.1
4	Tie rod	6	10 Dia. x 3.66 Mtr.	---	SS316	14	200	1.1 3028	SS316 Cons wt	614	25	15347
5	Spacer	6	15 NB x 3.66 Mtr.	SCH 10	SS316	4	200	732	D/E Forming	67	25	1678
6	Sliding plate	2	W x Lg.	10	SA240 Gr.316	0	200	1.1 0	Transport			1 0
7	Main shell	ID 550	1 1741 Circ. x 3586	4	SA240 Gr.316	200	200	1.1 43944	Design + Drg			1 20000
8	Channel shell	ID 550	1 1753 Circ. x 400	8	SA516 Gr.70	44	50	1.1 2422	Document			1 5000
9	Channel shell	ID 550	1 1753 Circ. x 100	8	SA516 Gr.70	11	50	1.1 606	Testing			1 10000
10	Dish end	2	738 Blank Dia.	10	SA516 Gr.70	67	50	1.3 4358	X Ray	93	235	1 21855
11	Body flanges	2	675 OD x 550 ID	50	SA266 Gr.2	104	250	26040	Mockup Testing			1 0
12	Partition plate	1	550 x 654	10	SA516 Gr.70	28	50	1.1 1552	Tube drilling	357	18	2 12852
13	Partition plate	--	--	10	SA516 Gr.70	0	50	1.1 0	Expansion	357	30	2 21420
14	Nozzle pipes					31		8544	Drilling Baffles	357	1.5	4 2142
15	Nozzle flanges					50		20770	Tie Rod	6	200	1 1200
16	RF Pad					8		950	Final M/C			1 10000
17	Pad for Saddle	2	300 x 700	4	SA240 Gr.316	13	200	1.1 2957	Transport			1 6000
18	Saddle	2			CS	46	50	1.3 2990	Sand blasting	7.1124	250	1 1778.1
19	Lifting pad	2	50 x 250	4	SS316	0.8	200	1.1 176	Painting	7.1124	200	1 1422.5
20	Lifting lug	2	80 x 150	16	CS	3	50	1.1 169	Hydro test			1 5000
21	Jack screw				SS316	200		0	N2 filling			1 5000
22	Dowel pin				CS		50	0	Packing			1 3000
23	Gasket							0	Welding	357	15	2 10710
24	Fasteners				SA193 Gr.B7/2H	7		0	SR for Dish	67	10	670.39
25	Name plate				SS				Transport			
	Jig material											
Total											177405	
direct 25%											44351	
TOTAL											221756	

Tube bundle	981		
CS wt	614		
Material	635706	Ex work FOB Quoted	1143828
Labour	221756	Two yrs spares	0
Total	857462		

ESTIMATION

INPUTS | **ESTIMATION** | CALCULATIONS | BODY FLANGE | DRAWING INPUTS | DRAWING | DATABASE

Input Sheet

TEMA Class	C,B
Orientation	Horizontal
Process Side	Shell Side

HTA m ²	GROSS	78.15
	EFF	75.97

	Shell Side	Tube Side
Design Pressure kgf/cm ² g	6	4
Design Temperature °C	200	100
Mean Metal Temperature (Shell/Tube) °C	200	74.7
No. Passes per Shell	1	2
Material	SS316	CS 70
Corrosion Allowance	0	3
Nozzles	Inlet	100 NB 150 NB
	Outlet	100 NB 150 NB
	Vent	40 NB 40 NB
	Drain	40 NB 40 NB

Tube	
OD	19.05
Thk	1.245
Length	3658
Qty	357
Pitch	23.81
Layout	30

Shell ID	550
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Baffle Qty	4
Spacing	300
Inlet Spacing	300
% Cut	25
Position	Vert.

Radiography (SS/TS)	Full	Spot
Body Flange Type	Integral Weld Neck	
Body Flange Cons.	Forge	
Tubesheet Cons.	Forge	
Nozzle Flange Type	Weld Neck	

Description	Material	Thk/Size	
		Min.	Consider
Main Shell	SA240 Gr.316	4.0	4
Channel Shell	SA516 Gr.70	8.0	8
Dish Head	SA516 Gr.70	8.0	10
Body Flange	SA266 Gr.2	48.8	50
Tubesheet	SA182 F316	31.2	36
Partition Plate	SA516 Gr.70	10	10
Baffle	SA240 Gr.316	4	4

Bolt	20 M	20 Nos
48 Max		
		42 Max

Tie Rod	SS316	10 Dia.	
		6 Nos	
Spacer	SS316	15 NB	SCH 10
Nozz. Flange (SS)	SA182 F316	150#	150#
Nozz. Neck (SS)	SA312 TP 316	SCH 40	SCH 40
Nozz. Flange (TS)	SA105	150#	150#
Nozz. Neck (TS)	SA106 Gr.B	SCH 40	SCH 40
Gasket	PTFE	3	3
Fastner	SA193 Gr.B7	--	--

HTA m ²	76.49
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Purchase

<p>Price : 5000 INR / 100 USD</p> <p>To make purchase, you can choose any one payment option from below to pay. After making payment, send message at pvtools.weebly@gmail.com. You'll receive your file by email alongwith invoice within 24 hours.</p>	<p>Payment Methods</p> <p>1. Net Banking Name : Pradeep Nayak Bank : IDBI Branch : Dombivli, Thane Account No. : 0455104000184519 IFSC Code : IBKL0000455 SWIFT Code : IBKLINBB783</p> <p>2. PayPal : https://www.paypal.me/Pvtools</p> <p>3. UPI : 9594313398@paytm</p>
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Demo Video

<p>Watch Online Link</p> <p>http://tiny.cc/g4bkuz</p>
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Contact Us

<p>Pradeep Nayak Mobile : +91 9594313398 Email: pvtools.weebly@gmail.com</p>
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