

Flanged Immersion Heater Specification Sheet

1 Client		Location		Page	1 of
2 Process Unit		Item No.		Document No.	
3 Job No.		Fabricator			

4 Service of unit		No. of units	
5 Size		TEMA type	
6 Effective surface per unit	m <sup>2</sup>	Shells/unit	
		Connected in	Parallel
			Series

7 PERFORMANCE OF ONE UNIT

8		Inlet		Outlet	
9 Fluid name					
10 Fluid quantity, total		kg/h			
11 Vapour (relative molecular mass)		kg/h			
12 Liquid		kg/h			
13 Steam		kg/h			
14 Water		kg/h			
15 Non-condensable / relative molecular mass		kg/h			
16 Temperature		C	/		
17 Density (vapour/liquid)		kg/m <sup>3</sup>			
18 Viscosity (vapour/liquid)		mPa.s			
19 Specific heat (vapour/liquid)		kJ/(kg.K)			
20 Thermal conductivity (vapour/liquid)		W/(m.K)			
21 Specific latent heat		kJ/kg @ C	@		
22 Inlet pressure		kPa (ga)			
23 Velocity		m/s			
24 Pressure drop (allowable/calculated)		kPa			
25 Fouling resistance		m <sup>2</sup> .K/W			
26 Average film coefficient		W/(m <sup>2</sup> .K)			
27 Heat exchanged		kW	Mean temp diff		C
28 Heat transfer rate (required/fouled/clean)		W/(m <sup>2</sup> .K)			
29 $\rho V^2$ [kg/(m.s <sup>2</sup> ):		Inlet nozzle	Bundle entrance	Bundle exit	

30 CONSTRUCTION PER SHELL

31 Tube No		OD		mm	NOZZLES – No., size and Rating
32					
33 Pitch		mm	Tube pattern		Inlet
34 Length		mm	Type		Outlet
35 Tube-tubesheet joint					Intermediate
36 Shell diameter (ID/OD)		/		mm	Vent
37 Cross baffle type					Drain
38 Spacing:c/c		mm	No. of cross passes		Press. Relief
39 % cut					Design pressure kPa (ga)
40 Tube support type					Vacuum kPa (abs)
41 Long baffle seal type					Design temp (Max/MDMT) C
42 Bypass seal type					No. of passes per shell
43 Impingement protection (Y/N)					Corrosion allowance mm

44 MATERIALS OF CONSTRUCTION

45 Shell		Tubes		Gaskets
46 Shell cover				
47 Elect enclosure				
48				Shell
49				
50 Tubesheet	Stat.		Floating	Spare sets req'd
51 Baffles:	Cross		Long	
52 Tube support material				
53				Insulation: shell
54 Pressure design code		Stamp		Calc MAWP (Y/N)
				TEMA Class

55 REMARKS:

56				= Purchaser
57				= Designer
58				

59 Originator/Check:	/	Approved	Issue date	Issue No.
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ISO 16812 Checklist

Flanged Immersion Heater Checklist			
Subclause	Item	Requirement	
4.1	Pressure design code to be used?		
4.3	applicable local regulations:		
6.2.2	Welding procedures and qualifications to be submitted for review?	Yes	No
	Design calculations for lifting/pulling devices to be submitted for review?	Yes	No
6.2.5	Vibration analysis to be submitted for review?	Yes	No
6.3	Number of copies of reports and records required:		
7.1.1	Maximum design temperature: (annex A, line 41)		
	Minimum design metal temperature (MDMT): (annex A, line 41)		
7.7.7	Insulation thickness		
7.7.9	Chemical cleaning connections required?	Yes	No
7.7.10	Loads and moments on connections?		
7.8.7	Bolt tightening devices required?	Yes	No
7.12	Is heater exposed to hydrogen at partial pressure exceeding 690kPa absolute?	Yes	No
8.1.1	Sour service (as defined by NACE MR0175)?	Yes	No
8.1.4	Alloy linings?	Yes	No
9.5.6	Welded tube to tubesheet joints required?	Yes	No
9.6.7	Postweld heat treatment for process reasons?	Yes	No
9.8.3	Special flatness tolerance on gasket contact surfaces?	Yes	No
10.1.1	Purchaser's inspection?	Yes	No
10.1.5	Extent of purchaser's inspection:		
10.1.5 d)	Additional testing:		
11.1.7	Additional painting requirements:	Yes	No
	Details:		
12.1	Supplemental requirements apply:	Yes	No
	Details:		

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