

**DATA SHEET
FOR CONDENSER
(TAG NO.117-EE-485)**

 Enriching Lives	REFRIGERATION PACKAGE 117-LZ-480	KIRLOSKAR PNEUMATIC CO. LTD.
TITLE: DATASHEET FOR CONDENSER (TAG NO:117-EE-485)		Doc. No: PRJ/9742/09 Rev. 1

No. of Pages 4 Including this sheet

OWNER : BCPL- LEPETKATA, DIBRUGARH ASSAM
PROJECT : BRAHMAPUTRA PETROCHEMICAL COMPLEX PROJECT
UNIT : 220 KTA-LLDPE/HDPE
PMC : ENGINEERS INDIA LIMITED, NEW DELHI
EIL JOB NO. : 6907
VENDOR : KIRLOSKAR PNEUMATIC CO. LTD, PUNE
KPCL JOB NO. : 9742

REVIEW CODE	M	2	3
Signature & Name	[Signature]		
हस्ताक्षर एवं नाम	[Signature]		
Date / दिनांक	25/01/2010		
V.P. No.	69071 209		
वी.पी.नं.	69071 209		

Rev.	Description	Prepared by	Reviewed by	Approved by	Approved Date
1	REVISED AS MARKED	[Signature]	[Signature]	[Signature]	09/03/2010
0	ISSUED FOR REVIEW	BS	KK	RCS	25/01/2010

2	REQN. NO.	6907-117-LC-MR-4370	CUSTOMER:	BCPL
3	SERVICE OF UNIT	Propylene condensing	PROJECT:	Brahmaputra Petrochemical complex
4			LOCATION:	Lepetkata
5	SIZE	620 600 mmX 5599.93 5800 mm	TYPE	BEM
6	SURFACE PER UNIT	138.63/136.63-11 m ² effective	SURFACE PER SHELL	n2 138.63/136.63
7	(Gross/eff)		SHELL PER UNIT	1 NO. OF UNITS
PERFORMANCE OF ONE UNIT				
8			SHELL SIDE	TUBE SIDE
9	FLUID CIRCULATED		Propylene	Cooling Water
10	TOTAL FLUID ENTERING	Kg/hr	8239.0 8412.55	68446.5 72108.7
11			INLET	OUTLET
12	VAPOUR	Kg/hr	8239.0 8412.55	68446.5 72108.7
13	LIQUID	Kg/hr	8239.0 8412.55	68446.5 72108.7
14	STEAM	Kg/hr		
15	WATER	Kg/hr		
16	NON CONDENSABLES	Kg/hr		
17	DENSITY - LIQ/VAP IN/OUT	Kg/m ³	464.3 995.4	991.8
18	VISCOSITY - LIQ/VAP IN/OUT	Cp	0.0110 0.0773	0.6178
19	SPECIFIC HEAT-LIQ/VAP IN/OUT	Kcal/Kg °C	0.4999 0.7196	1.0222
20	THER. COND.-LIQ/VAP IN/OUT	Kcal/hr m ² °C	0.0226 0.0867	0.5461
21	OPERATING TEMPERATURE	°C	60.02 47.06	33.0 43.0
22	MOL WEIGHT - VAP/NON COND.			
23	LATENT HEAT	Kcal/Kg	68.3781 68.4043	
24	INLET PRESSURE	Kg/cm ² g	18.65 18.7	3.97 4.46
25	NO. OF PASSES PER SHELL		1	6
26	VELOCITY	m/sec	0.50 0.58	1.48 1.5
27	PRESSURE DROP	Kg/cm ²	ALL: 0.10	CALC: 0.018
28	FOULING RESISTANCE	hr m ² °C/Kcal	0.0002	0.0004
29	HEAT EXCHANGED	MMKcal/hr	0.704457 249520	WEIGHTED M.T.D. (CORRECT °C 9.2
30	TRANSFER RATE SERVICE		558.03 Kcal/hrm ² °C	CLEAN 1091.56
CONSTRUCTION OF ONE SHELL				
32	DESIGN PRESSURE	kg/cm ² g	21.2 21 Full Vacuum	16.4/FV 16.5
33	TEST PRESSURE	Kg/cm ² g	23.32 23.1 (Pnew) AS PER CODE	HS AS PER CODE 21.32 (Hydro)
34	DESIGN TEMPERATURE	°C	-45/30 100	T-SHT -45/80
35	NO. OF TUBES	394 424 OD 20 mm	THK (MIN) mm 2	LENGTH 5500 mm 5600 PITCH mm 25 Layout 60
36	SHELL PORT ID mm 600	ID mm		SEAMING STRIP
37	BAFFLES SINGLE SEGMENTAL		PITCH mm 300	WAVE VERT IN
38	MATERIAL ACCORDING TO ASTM		GASKET	NO. OF TUBES
39				
40	SHELL			SHELL SIDE
41	SHELL COVER	Refer MOC table		TUBE SIDE
42	CHANNEL	(Annexure-1)		
43	CHANNEL COVER			
44	FLT. HD. COVER			
45	SHELL COVER			
46	SHELL CHANNEL			
47	FLOATING HEAD			
48	CHANNEL COVER			
49	BAFFLES TUBE SUPPORT			
50	TUBE SHEET			
51	TUBES			
52	NOTES :-	MOC of Exchanger shall be L.T.C.S		
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
Note: All data subject to review during detail engineering				
0	29/12/2009	Issued with PR	DK	SD
A	22/08/2009	Issued with MR	DK	SD
REV	DATE	DESCRIPTION	BY	CHK

ANNEXURE-I

MOC table for Condenser_9742

Sr. No.	Description	Material of Construction
1	Shell	SA 516 GR. 70
2	Shell side nozzle necks	SA 333 GR. 6
3	Shell side nozzle flange	SA 350 Gr LF2, CI 1
4	Channel shell, Dished End	SA 516 GR. 70
5	Channel Girth flange	SA 350 Gr LF2, CI 1
6	Channel nozzle necks	SA 333 GR. 6
7	Channel nozzle flanges	SA 350 Gr LF2, CI 1
8	Tube Sheets	SA 350 Gr LF2, CI 1
9	Tubes	SA 334 Gr. 1
10	Baffles	SA 516 GR. 70
11	Tie Rods and seal rods	SS 304/ SA 516 Gr.70
12	Spacer Tubes	SS 304/ SA 333 Gr. 6
13	Pass Partition Plate	SA 516 GR. 70
14	Gasket (For Body flanges)	SS 316 jacketed graphite filled
15	Fastners - Channel Body flange	SA 320 Gr. L7/SA 194 Gr. 4
16	Internal attachments	SA 516 GR. 70
17	External attachments	SA 516 GR. 70
18	Saddle and Brackets	SA 516 GR. 70

NOTE: 1) All LTCS Material to be impact tested at -45 Deg as per SA 20

2) Read 'SA 516 Gr. 70' as 'LTCS SA 516 Gr. 70'

A

**ANNEXURE-2
NOZZLE SCHEDULE**

Nozzle	Size	QTY	RATING	Flange Type	Facing	SERVICE
N1	150	1	300#	WNRF	125 AARH	Propylene gas inlet
N2	100	1	300#	WNRF	125 AARH	Propylene liquid outlet
N3	100	1	150#	WNRF	125 AARH	Cooling water inlet
N4	100	1	150#	WNRF	125 AARH	Cooling water outlet
N5	40	1	300#	WNRF	125 AARH	Shell side PSV
N6	40	1	300#	WNRF	125 AARH	Shell side vent
N7	40	1	300#	WNRF	125 AARH	Shell side drain
N8	40	1	150#	WNRF	125 AARH	Channel side vent
N9	40	1	150#	WNRF	125 AARH	Channel side drain