

43-C-202

2025012

43-E-233

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 CHINA KUNLUN CONTRACTING & ENGINEERING CORP				PROJECT	2025		
				UNIT	2025		
F.APPR.		DISCIP			DOC.NO.	01EN25015D-0010-EQ-P10-003	
APPR.	韩伟	PHASE					
CHKD.	赵国平	REV.	1				
DESIGN	张东旭	DATE	2025.12.10			1 / 20 SHEET 1 OF 20	

2025

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2025012-43-EQ-ITB-0003

CHECKED	DISCIP.						
	SIGN						
	DATE	2025.12.10					

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1.1

2025

43-E-233

1.2

1.3

1.4

1.5

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	3.8
	1020 N/m ²
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	0.15g
	A

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1	43-E-233		1	

01EN25015D-0010-PR-04-43E233 “ ”

MPaG)	2.9/FV	2.32/FV
()	150	175
(mm)	3	3
	Q345R 10	
	20	

4

4.1

4.2

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TSG 21-2016

GB/T 150.1~4-2024

GB/T 151-2014

GB/T 713.2-2023

2

GB/T 8163-2018

GB/T 9948-2013

GB/T 14976-2012

GB/T 25198-2023

NB/T 10558-2021

NB/T 47013.1~13

NB/T 47014-2023

NB/T 47015-2023

NB/T 47016-2023

NB/T 47008-2017

NB/T 47019

NB/T 47020~47027-2012

5

5.1

1

2

3

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5.2

5.2.1

a)

b)

D

5.2.2

a)

b)

5.2.3

a)

b)

c)

5.2.4

a)

b)

11

5.3

5.3.1

a)

b)

c)

d)

5.3.2

a)

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6

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7.1

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7.3

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7.3.3

3 , 100mm

7.3.4

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8

8.1

8.2

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a) GB/T 9948-2013

b) NB/T 47019
GB/ 151

c) 20MPa 10

8.4

a)

NB/T 47008

b) NB/T47013 100% I

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9

9.1

9.1.1 GB/T 150 GB/T 151 NB/T
47013

9.1.2 NB/T 47013

9.1.3 A B
GB/T150.4 10.3.2

9.2

9.2.1 GB/T 150 NB/T 47015 GB/T 30583

9.2.2

9.2.3

9.2.4 3 100mm
6

9.2.5

9.3

9.3.1

GB/T 150 GB/T 151

TSG 21-2016

9.3.2

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9.4

9.4.1

9.4.2

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9.4.3

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10.1

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a)

b)

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10.1.3

GB/T 8923 Sa2.5

10.1.4

10.1.5

10.2

10.2.1

NB/T 10558

10.2.2

10.2.3

10.2.4

10.2.5

10.2.6

10.2.7 0.05MPa

11

11.1

11.1.1

11.1.2

a)

b)

c)

d)

e) 2

f) 1

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j) ()

k)

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m)

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p)

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11.1.3

a)

b)

c)

d)

11.2

11.2.1 “ ” 3

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11.3

11.3.1 “ ” 4

11.3.2 7 1 6 2

PDF A4

11.3.3 1

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12.1

12.1.1

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12.1.2

12.2

12.3

13

13.1

13.2

13.3

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01EN25015D-0010-EQ-P10-003

22		(X)	
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5		(X)	
6		(X)	
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8	(/)	(X)	
9	()	(X)	
10	()	(X)	
11	()	(X)	
12		(X)	
13		(X)	
14		(X)	

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1				100%	
2				100%	
3					10% 4
4					

1

2

4.

1				100%	
2				100%	
3					10% 4

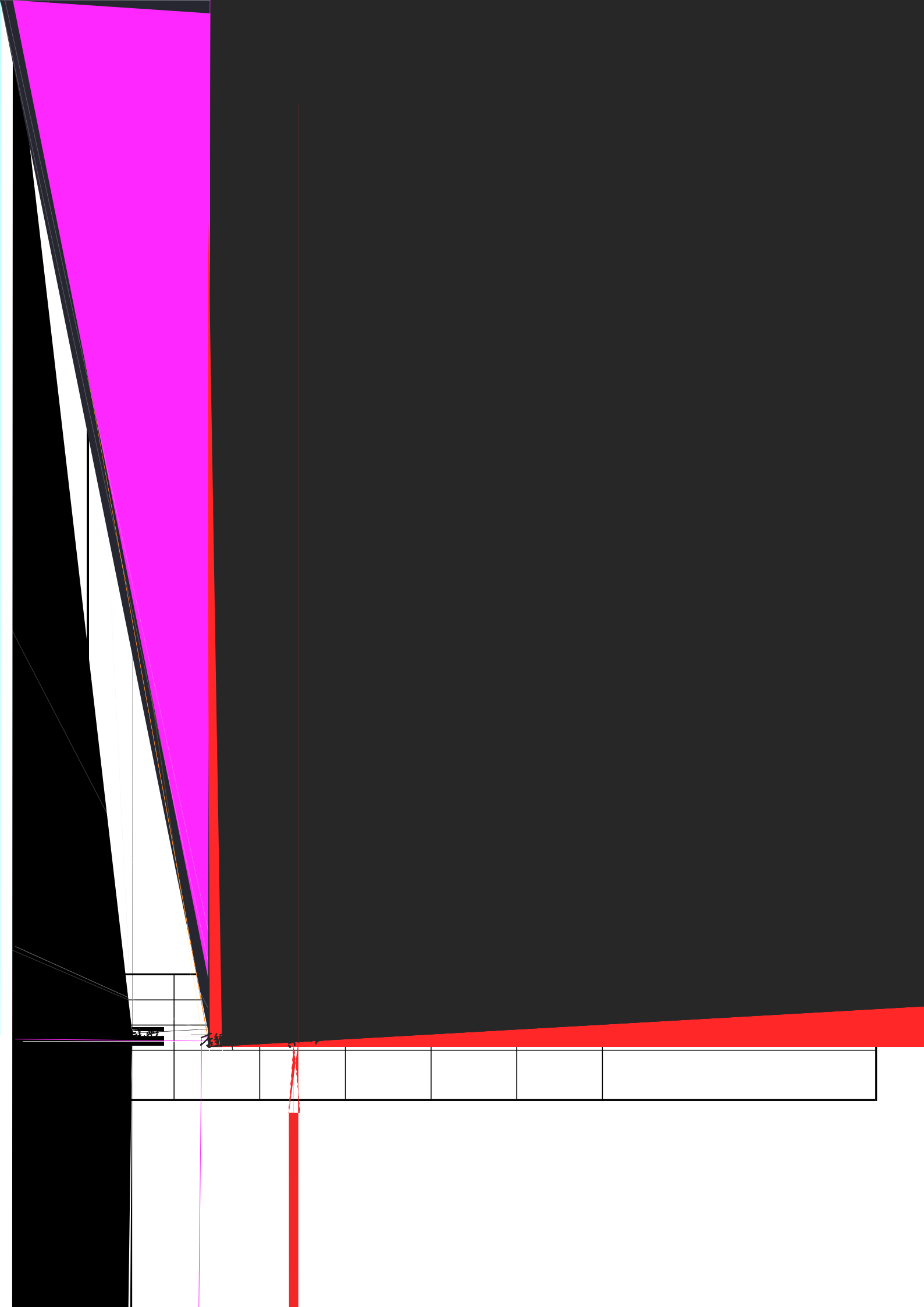
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3:

1	PDF
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4:

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REV.

ESTIMATED WEIGHT PER UNIT

Kg FULL OF WATER WEIGHT

Kg FULL OF MEDIUM WEIGHT

Kg OPERATING WEIGHT

DESIGN,FABRICATION AND INSPECTION STANDARDS

22
23
24
25
26
27
28

				DESIGN DATA			REV.
29	NOMINAL DIAMETER	mm	SHELL	1200.0	CHANNEL	1200.0	
30	FULL VOLUME	m ³	SHELL		CHANNEL		
31	BUNDLE			TUBE		BAFFLE	
32							

			PROCESS DATA				REV.	
55	FLUID PHYSICAL PROPERTIES		IN	SHELLSIDE	OUT	IN	TUBESIDE	OUT
56	FLUID							
57	TOTAL FLUID FLOW		1000000		1000000	34260		34260
58	VAPOUR FLOW							
59	LIQUID FLOW							
60	STEAM					34260		
61	WATER		1000000		1000000			34260
62	NON-CONDENSATION							
63	DENSITY		956.07		942.86			912.68
64	VISCOSITY		0.2706		0.2303			0.1768
65	SPECIFIC HEAT		4.2188		4.2452			4.3225
66	CONDUCTIVITY		0.6794		0.6830			0.6800
67	SURFACE TENSION							
68								





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HOTSIDE FLUID PROPERTIES								REV.	
83	FLUID COMPOSITION		%/WW						
84	PRESSURE		Mpa.G						
85	TEMPERATURE								
86	VAPOUR	DENSITY	Kg/m ³						
87		VISCOSITY	Cp						
88		SPECIFIC HEAT	KJ/Kg						
89		THERMAL COND. FACTOR	W/m						
90	LIQUID	DENSITY	Kg/m ³						
91		VISCOSITY	Cp						
92		SPECIFIC HEAT	KJ/Kg						
93		THERMAL COND. FACTOR	W/m						
COLD SIDE FLUID PROPERTIES									
94	FLUID COMPOSITION		%/WW						
95	PRESSURE		Mpa.G						
96	TEMPERATURE								
97	VAPOUR	DENSITY	Kg/m ³						
98		VISCOSITY	Cp						
99		SPECIFIC HEAT	KJ/Kg						
100		THERMAL COND. FACTOR	W/m						
101	LIQUID	DENSITY	Kg/m ³						
102		VISCOSITY	Cp						
103		SPECIFIC HEAT	KJ/Kg						
104		THERMAL COND. FACTOR	W/m						
NOZZLE LOAD									
	NOZZLE NAME/MARK	FORCE(N)			MOMENT(Nm)				
			Fy	Fz	Mx	My	Mz		
105									
106									
107									
108									
109									
110									



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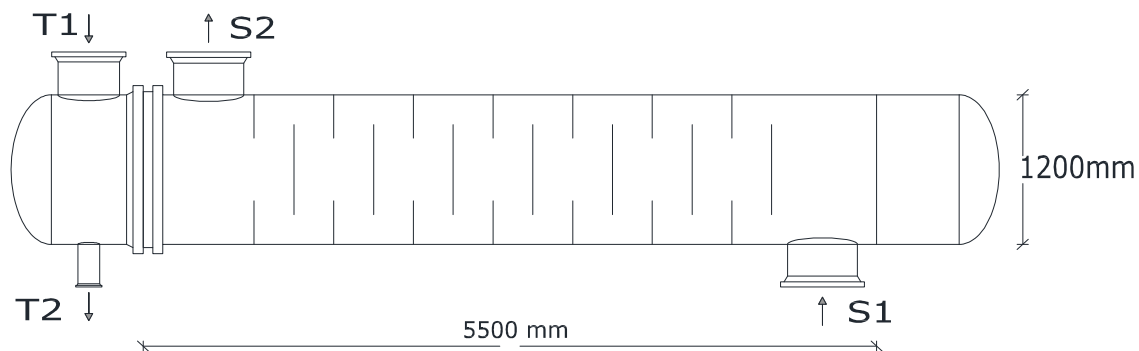
NOZZLE SUMMARY

REV.

	MARK	NO.	NOM.DIA. mm	NOM.PRESS. MPa.G	FLANGE			FUNCTION OR NAME	mm	NOTE	
					STD.	TYPE	SEAL				
111					HG/T20615	WN	RF				
112					HG/T20615	WN	RF				
113					HG/T20615	WN	RF				
114					HG/T20615	WN	RF				
115											
116											
117											
118											
119											
120											
121											
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129											

FATIGUE DESIGN DATA OF TUBESHEET AND BELLOWS

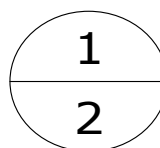
	CONDITIONS	CYCLES	SHELLSIDE PRESS. Mpa.G		TUBESIDE PRESS. Mpa.G		
130	DESIGN CONDITION						
131	DESIGN CONDITION						
132	EXPANSION						
133	COMPRESSION						
134	OPERATING CONDITION						
135	START UP						
136	SHUT DOWN						
137	CAUSTIC WASH						
138	SHELLSIDE FLUID FAILURE						
139	TUBESIDE FLUID FAILURE						
140	SHELLSIDE HYDRAULIC TEST						
141	TUBESIDE HYDRAULIC TEST						



Unit	Shell 1
TEMA type	BEU
Shell ID	1200.0 mm
Actual OTL	1186.4 mm
Height under inlet nozzle	191.39 mm
Height under outlet nozzle	204.09 mm
Tube type	Plain
Tube OD	19.000 mm
Tube pitch	25.000 mm
Tube layout angle	30 deg
Tubes	1448
Tube positions available	1448
Tie rods	8
Seal strip pairs	0
Tube Passes	2
Perpendicular passlane width	61.000 mm
Baffle cut % diameter	20

TUBEPASS DETAILS		
Pass	Rows	Tubes
1	17	724
2	17	724

SYMBOL LEGEND	
○	Tube
▲	Dummy Short Tube
▲	Dummy Long Tube
○	Plugged Tube
⊗	Tie Rod
⊗	Seal Rod
⊗	Impingement Rod



[illegible]